Appendix J

Biological Opinion

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
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WEST VALLEY CITY, UTAH 84119

August 3, 2015

In Reply Refer To:
FWS/R6
ES/UT
06E23000-2014-F-0265

Memorandum

To: State Director, Bureau of Land Management, Salt Lake City, Utah

From: Utah Field Supervisor, Ecological Services, U.S. Fish and Wildlife Service, West Valley City, Utah

Re: Final Biological Opinion for the Utah Greater Sage Grouse Land Use Plan Amendment and Final Environmental Impact Statement

In accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), this transmits our final biological opinion (BO) for impacts to the Utah prairie dog (*Cynomys parvidens*) from the Utah Greater Sage-Grouse Land Use Plan Amendment and Final Environmental Impact Statement ("Land Use Plan" or "Project").

The Utah prairie dog is federally listed as a threatened species and occurs within the proposed Project area. This biological opinion is based on information provided in your July 16, 2015 BA, and email and phone communications between our offices. A complete consultation record is on file at this office.

We concur with your "not likely to adversely affect" determination for the following species; Canada lynx (*Lynx Canadensis*), California condor (*Gymnogyps californianus*), Mexican spotted owl (*Strix occidentalis lucida*), autumn buttercup (*Ranunculus aestivalis*), clay phacelia (*Phacelia argillacea*), and clay reed-mustard (*Schoenocrambe argillacea*). We also concur with your "not likely to adversely modify" critical habitat determination for the Mexican Spotted Owl (*Strix occidentalis lucida*). Our concurrence is based on a small overlap of habitat between the greater sage grouse and the above listed species and insignificant or beneficial effects due to the conservation objectives of the Land Use Plan amendment, as described in your BA.

CONSULTATION HISTORY

- November- December 2014- Emails and phone calls were exchanged between our office and members of the U.S. Forest Service (USFS), the USFS Enterprise Team, and Bureau of Land Management (BLM), discussing background Utah prairie dog information.

- March-April 2015 - Emails and phone calls were exchanged between our office and members of the USFS, the USFS Enterprise Team, and BLM in an effort to develop the biological assessment and appropriate conservation measure for Utah prairie dogs.

- March- April 2015- We received and reviewed your draft BA. We provided comments on your draft BA to the BLM State Office.

- May 18, 2015- We received an email with your formal request for consultation and a biological assessment.

- May- June 2015- Emails and phone calls were exchanged between our office and the BLM State Office, providing edits and suggestions to your original BA.

- June 25, 2015- We received your revised biological assessment, with draft edits to Attachments B and C (Land Use Plan Amendments).

- July 8, 2015 2015- We sent an email to the BLM State Office approving the draft edits to the biological assessment.

- July 15, 2015- There was a conference call between our office and the BLM State Office reviewing final edits to the biological assessment.

- July 16, 2015- We received your final biological assessment via email.

A complete administrative record of this consultation is on file at our office.

BIOLOGICAL OPINION

1 DESCRIPTION OF THE PROPOSED ACTION

1.1 ACTION AREA

The planning area for the proposed action includes almost 48 million acres in Utah and a small part of Wyoming. Approximately 12.7 million acres are administered by the BLM and 13.9 million acres are administered by the Forest Service. The action area for this consultation is a subset of the Project area; it includes all greater sage-grouse mapped habitat, occupied habitat, Priority Habitat Management Areas (PHMA), and General Habitat Management Areas (GHMA)

where these habitats overlap mapped Utah prairie dog habitat[1] within the three Utah prairie dog recovery units West Desert, Paunsaugunt, and Awapa recovery units (see Appendix A).

The action area includes all areas on federal land where there is an overlap of greater sage-grouse habitat and Utah prairie dog habitat. The action area also includes private and state lands where they border federal lands because there may be indirect effects to Utah prairie dogs on non-federal lands from greater sage-grouse management actions on adjacent federal lands.

There are two large areas of private lands that we excluded from the action area because they are not adjacent to sage-grouse habitats within the project planning area—Cedar and Parowan Valleys in the West Desert recovery unit (see Appendix B). These areas contain large numbers of Utah prairie dogs [i.e., approximately 80 percent of Utah prairie dogs in the West Desert Recovery Unit occur on private and other non-federal lands (USFWS 2012)], but the proposed action will not affect these populations.

1.2 Proposed Action

The proposed action includes implementation of land use plan amendments designed to enhance and prioritize greater sage-grouse conservation on BLM and USFS administered lands. The plan amendments provide guidance and framework for greater sage-grouse conservation to the field offices and ranger districts when planning and implementing management actions. The USFS's proposed actions that will affect Utah prairie dogs fall within two management action categories; Habitat Management, and Fire and Fuels Management. The BLM's proposed actions that will affect Utah prairie dogs fall within three management action categories: Habitat Management; Wildland Fire Management (General, Fuels, Suppression); and Lands and Realty (e.g., transmission corridors). For a complete description of the proposed action see Attachments B and C of the BA.

1.3 Applicant Committed Conservation Measures

1) In the BA, the BLM and USFS committed to implementing the following conservation measure when planning and implementing management actions in areas where greater sage-grouse and Utah prairie dog habitat overlaps:

> Under the authority of BLM and Forest Service laws, regulations, and policies, where Utah prairie dog habitat overlaps with greater sage-grouse habitats, it is the intent of these land use plan amendments to co-manage for the benefit of both species. For example, when applying various management actions and objectives that are applicable specifically to greater sage-grouse but could affect Utah prairie dog habitat, landscapes would be managed for both species. Examples of some of these BLM management actions and objectives are included in over-arching management in GRSG habitat (e.g., Objective GRSG-3, MA-GRSG-4),

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1 Mapped habitat is any and all areas within the species' range that were mapped since 1972 as currently or historically occupied by Utah prairie dogs. Official maps of Utah prairie dog habitat are maintained by the Utah Division of Wildlife Resources and are updated annually.

vegetation management (e.g., Objective VEG-1, MA-VEG-1), and fire management (e.g., MA-FIRE-3, MA-FIRE-4).

2) In the BA, the USFS developed and committed to apply the following "Standard" in their Forest Plan that will help guide co-management of Utah prairie dogs and greater sage-grouse;

The Forest Service has developed a Standard that specifically addresses instances where Utah prairie dog and greater sage-grouse habitat overlap. This Standard provides direction that involves site specific consultation with the U.S. Fish and Wildlife Service to ensure that management actions are developed using the most current version of conservation measures developed by the U.S. Fish and Wildlife Service. These conservation measures will provide direction to manage towards Utah prairie dog recovery while striving to manage for greater sage-grouse habitat benefit.

• The following standard, GRSG-GRSGH-ST-029, will be included in the Forest Service's Record of Decision;

On the Dixie and Fishlake National Forests, where GRSG priority habitat management areas overlap with identified Utah prairie dog habitat, the most current version of conservation measures developed by the U.S. Fish and Wildlife Service will be used during implementation of recovery actions.

3) In the BA, the BLM commits to include co-management language that will help guide planning and implementing management actions in areas where greater sage-grouse and Utah prairie dog habitat overlaps. This co-management language is included in the following Management Actions and Objectives in the final BA;

- Objective GRSG-2
- Objective GRSG-4
- MA-GRSG-3
- MA-GRSG-5
- MA-VEG-4

Co-management language will be included in the following Management Actions and Objectives in the BLM's Record of Decision;

- Objective GRSG-3
- MA-GRSG-4
- MA-GRSG-6
- Objective VEG-1
- MA-VEG-1
- MA-FIRE-3
- MA-FIRE-4

4) There is a suite of project-level conservation measures that will minimize impacts to Utah prairie dogs that are already in place in existing biological assessments, plans, policies, and regulations (see Attachment E *in* the BA). The following conservation measure from the BA for this proposed action describes this as follows:

> The original biological assessment impacts analysis included conservation measures from various existing land use plans and conservation measures from existing, site-specific projects, as well as their associated section 7 consultations for Utah prairie dog. The conservation measures from the existing land use plans and land use plan section 7 consultations have been more clearly identified in Attachment E of the BA. The conservation measures from the existing site-specific projects were illustrative of the types of site-specific conservation measures that may be used during implementation of Utah prairie dog recovery actions.

2 STATUS OF THE SPECIES/ CRITICAL HABITAT

The range wide status of the Utah prairie dog is provided in Appendix C of this biological opinion and includes information on the species' listing history, life history, population dynamics, status and distribution, and recovery efforts. There is no designated critical habitat for the Utah prairie dog.

3 ENVIRONMENTAL BASELINE

The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in an action area, the anticipated impacts of all proposed federal projects in an action area that have already undergone formal or early section 7 consultation, and both the impact of State or private actions that are contemporaneous with the consultation in process (50 CFR §402.02).

3.1 STATUS OF THE SPECIES WITHIN THE ACTION AREA

For section 7 consultations for the Utah prairie dog, we base our assessment of status of the species in the action area by reviewing the 5-year average spring count data and corresponding population estimates. The Utah Division Wildlife Resources (UDWR) initiated annual counts of Utah prairie dogs in 1976. These annual spring counts are conducted in April and May when the adults have emerged from hibernation, but before the young are born (hereafter referred to as "spring counts").

To estimate the number of Utah prairie dogs that may be located within the action area (see Proposed Action, above), we use the UDWR 2010-2014 spring count data (total adults counted in the spring) (UDWR 2015). In 2010-2014, there was an average of 2,721 adults counted in occupied habitat within the action area (across all land ownership types-see description of Action Area above) where impacts to Utah prairie dog habitat may occur.

Adult population estimates are made based on the number of individual adult Utah prairie dogs observed during survey efforts. The adult population estimate is derived by multiplying the count by two, as only 40 to 60 percent of individual prairie dogs are above ground at any one time (Crocker-Bedford 1976).

Adult Population Estimate = 2 x (5-Year Average Adult Spring Count):

2 x 2,721 = 5,442 adult Utah prairie dogs

In the summer, pup production can increase this number to approximately 19,589 Utah prairie dogs, based on the below equation (USFWS 2012).

Population Estimate (with productivity) =
[(2 x Adult Spring Count) x 0.67 (proportion of adult females) x 0.97 (proportion of breeding females) x 4 (average number of young per breeding female)] + (2 x Adult Spring Count):

[(2 x 2,721) x 0.67 x 0.97 x 4] + (2 x 2,721) = 19,589 Utah prairie dogs

Using the same equations, the Utah prairie dog 2010-2014 range-wide adult spring count average is 7,792 which yields a population estimate of 56,099 individuals. Therefore, the Utah prairie dog population estimate (19,589) within the action area is 35% of the total population estimate (19,589/56,099) of prairie dogs on all lands across all three recovery units. Overall, rangewide Utah prairie dog populations have been generally stable to increasing since 1976 (USFWS 2012).

3.2 Factors Affecting the Species Environment Within the Action Area

Plague

Plague occurs across the entire range of the Utah prairie dog, and is considered to be a primary threat to the species' survival and conservation. Plague is caused by a bacterium (*Yersinia pestis*) not native to North America. Plague likely arrived in North America about 100 years ago via flea-infested rats on ships coming from Asia and Europe (Biggins and Kosoy 2001a, Hoogland et al. 2004).

Fleas are the most common vector for plague (Biggins and Kosoy 2001a). Infected fleas can be brought into the vicinity of a prairie dog colony by a suite of mammals (Biggins and Kosoy 2001a), and fleas may survive for over a year after their hosts have died (Gage and Kosoy 2005). Much of the plague research available is for white-tailed prairie dogs; however, due to the similarity in life history and habitat use of white-tailed prairie dogs and Utah prairie dogs, we consider the research to be relevant to the Utah prairie dog. We use this information as well as any information specifically pertinent to Utah prairie dogs in the below discussion. Plague occurs in prairie dog colonies as enzootic and epizootic events. Enzootic plague is an infection that is persistent in the population over time and causes a low rate of mortality. Epizootic plague occurs when the disease spreads from enzootic hosts to more susceptible animals, resulting in a rapidly spreading die-off cycle (Barnes 1993, Biggins and Kosoy 2001b, Cully and Williams

2001, Gage and Kosoy 2005). During epizootic plague events, large numbers of animals can die within a few days (Lechleitner et al. 1962; Cully 1993).

The factors that cause a change from an enzootic to epizootic cycle are still being researched, but may include host density, flea density, and climatic conditions (Cully 1989; Parmenter et al. 1999; Cully and Williams 2001; Enscore et al. 2002; Lomolino et al. 2003; Stapp et al. 2004; Gage and Kosoy 2005; Ray and Collinge 2005; Stenseth et al. 2006; Adjemian et al. 2007; Snäll et al. 2008; Biggins et al. 2010). More specifically, enzootic plague may be influenced by factors including genetics, prairie dog immunity and physiologic state, and interactions with other bacteria (Gage and Kosoy 2005). Occurrence of epizootic plague outbreaks may be dependent on the density of the host population and/or flea vector abundance (Barnes 1993), or flea density (Biggins 2010), which may be affected by climatic factors (Gage and Kosoy 2005). Epizootic plague outbreaks may occur when Utah prairie dog populations increase to high densities causing increased stress among individuals and easier transmission of disease between individuals (Gage and Kosoy 2005). However, plague also could occur when Utah prairie dogs are at lower densities but flea density is high (Biggins et al. 2010).

Epizootic and enzootic plague can have wide-reaching impacts to prairie dog populations. Although the impacts of enzootic plague may be less dramatic and obvious than epizootic outbreaks of plague, enzootics may be a constant threat to prairie dog persistence over moderate time spans (Biggins et al. 2010).

Plague likely persists in prairie dog colonies at enzootic levels even after an epizootic outbreak subsides. In the absence of epizootic events, plague antibodies and plague positive fleas and prairie dogs occur in colonies (Biggins et al. 2010). Other evidence of enzootic plague includes the increased survival of prairie dogs and black-footed ferrets exposed to flea control and experimental vaccines despite the lack of epizootic plague outbreaks (Matchett et al. 2010).

Increased survival with these treatments indicates that enzootic plague is frequently present and suppressing prairie dog population levels in the absence of plague prevention measures. Possible reasons for persistence of plague as an enzootic in the environment include survival of the bacterium in the soil, persistence of the bacterium in fleas, and the continued slow transmission of the bacterium within the prairie dog community (Biggins et al. 2010). Infected fleas can exist in burrows for up to 13 months following a plague event (Fitzgerald 1993).

Long-term enzootic plague infection may cause local extirpation of colonies, extreme fluctuations in population densities and occupied habitat area, and inbreeding (Seglund et al. 2006). Enzootic plague also may alter population dynamics and dispersal (Biggins et al. 2010). For example, if plague results in higher mortality of adults than juveniles, the remaining juveniles would be less likely to disperse away from their native colonies, instead replacing the adults and resulting in a younger population (Biggins et al. 2010).

Recovery of colonies after plague outbreaks within localized white-tailed prairie dog populations can occur within as little as 1 to 2 years (Menkens and Anderson 1991; Anderson and Williams 1997) or as long as 10 years (Cully and Williams 2001). Some of reasons for the variability in recovery rates may be due to the continued existence of chronic enzootic plague within colonies,

or lack of immigration (due to large distances between colonies) of prairie dogs to reestablish affected colonies (Barnes 1993). Many times, when a colony begins to regain its former population size, it again becomes susceptible to plague epizootics—high population densities provide greater opportunities for the exchange of fleas and thus affect the speed at which plague can move through the population (Barnes 1993).

The long-term consequence of repeated or continued exposure to plague in white-tailed prairie dogs may lead to selection of individuals that are genetically more resistant to the disease and are able to maintain plague in an enzootic form in the environment. However, populations of white tailed prairie dogs thus far have remained highly susceptible to plague even after being subjected to repeated exposure (Biggins and Kosoy 2001b). Evaluation of plague over longer time periods may provide better insight into the ability of prairie dog populations to cope with this introduced pathogen. Environmental stochastic events and anthropogenic disturbances in combination with plague could ultimately decrease the ability of a population to recover to historical densities and reduce the long-term persistence of prairie dog populations. In addition, a loss of genetic diversity due to periodic population bottlenecks caused by epizootics may occur (Trudeau et al. 2004). Utah prairie dogs exhibit very low genetic variation (Chesser 1984) and little gene flow between colonies (Ritchie and Brown 2005; Brown 2009), possibly due to plague and habitat fragmentation.

Plague will likely continue to be a threat throughout the range of western prairie dog species for the foreseeable future. Some tools are available to control plague. Deltamethrin and pyraperm are two insecticides used to successfully control fleas in colonies of many prairie dog species (Seery et al. 2003; Hoogland et al. 2004). Use of these insecticides has increased the number of juvenile Utah prairie dogs weaned (Hoogland et al. 2004) and resulted in higher survival rates for black-tailed (C. ludovicianus), white-tailed, and Utah prairie dogs (Biggins et al. 2010).

Experimental vaccine-laden baits are in development to immunize prairie dogs against plague. Black-tailed prairie dogs exposed to plague in a lab setting and fed vaccine baits experienced a high level of survival (Mencher et al. 2004; Rocke et al. 2008). A systemic flea control bait also was developed and tested in the field, and was not found to be consistently effective in reducing flea loads (Poché et al. 2008; Jachowski et al. 2012). The flea control bait reduces flea loads on animals, the primary vector in spreading plague in prairie dogs (Jachowski 2009).

Other threats may compound the impacts of plague, at least in the short-term, and should be addressed where possible to lessen the impacts or duration of plague. The effects of plague may be exacerbated and recovery rates slowed when additional stresses such as shooting, poisoning, and habitat loss co-occur. These pressures acting together may increase the isolation of prairie dog populations, and if plague infiltrates isolated areas and localized populations are eradicated, may reduce the number of source animals present to recolonize the area.

Management measures to control plague (i.e., vaccines, insecticides) are being developed and their success may influence long-term prairie dog conservation. Initial lab and field testing shows promise in the ability of these measures to manage plague. Additional testing is needed at the landscape level to determine the ability of these methods to effectively manage plague and

contribute to the recovery of the species. If the methods prove successful in the wild, we will need substantial funds to employ these techniques at a scale able to benefit recovery.

Poaching

Poaching is any unauthorized killing of Utah prairie dogs, including shooting, poisoning, trapping, and other lethal methods. There are no data to quantify these impacts. We have observed shell casings in Utah prairie dog colonies, and it is possible that prairie dogs are the target animals in some of these locations. Since the fall of 2007, three poisoning incidents and one shooting incident occurred in the West Desert recovery unit. One poaching incident that led to a citation occurred in the Paunsaugunt Recovery Unit in 2013. These unauthorized killings resulted in impacts to a few colonies, but these impacts did not extend to the population level.

Off-Highway Vehicle/Recreational Uses

Off-highway vehicle (OHV) recreation is an increasingly common use of public lands. Off-highway vehicle registrations in Utah increased 233% from 1998-2006 (Burr et al. 2008), and new retail sales of OHVs increased 163% between 1995 and 2001, with most of these vehicles being used on public lands (Fischer et al. 2002).

Though not specific to Utah prairie dogs, OHV use affects soils, vegetation, and wildlife species (Ouren et al. 2007). Based on the available information, it is likely that OHV use results in habitat fragmentation and reduced connectivity across the species' range, increasing the likelihood of local extirpations. Direct mortality may occur as a result of collision or burrow collapse. Repeated OHV disturbances may reduce the foraging time of Utah prairie dogs and negatively affect weight gain, resulting in decreased overwinter survival. Loud OHV noises may cause hearing loss in prairie dogs, leading to a higher risk of predation. Physiological effects from disturbance can lead to declines in local population size, survivorship, and productivity of wildlife species in general (Ouren et al. 2007). OHV activities can crush vegetation, decreasing forage quality and availability for prairie dogs. OHV use also allows more human access to prairie dog colonies, which may increase the risk of illegal shooting (USDA 2009a).

On federal lands, increased planning efforts direct OHV use to designated trails or play areas, and consequently away from Utah prairie dog habitats. The range of the Utah prairie dog overlaps the Dixie and Fishlake National Forests, and the Cedar City, Richfield, and Kanab BLM Field Office areas. The Dixie and Fishlake National Forests prohibit cross-country vehicle travel Forest wide; motorized travel is restricted to designated open routes or areas (USDA 2006, 2009b). In addition, the Dixie Motorized Travel Plan includes conservation measures specific to Utah prairie dog, including surveys, avoidance (i.e., spatial and seasonal), and revegetation prescriptions for the species along roads proposed for closure (USDA 2009c).

Almost all public lands administered by the Richfield BLM Field Office are either closed to OHV use or limited to designated routes, and includes conservation measures (i.e., seasonal and spatial buffers) specific to Utah prairie dog (BLM 2008a). The Kanab BLM Resource Management Plan (RMP) includes a conservation measure to preclude cross-country motorized use in occupied or inactive Utah prairie dog colonies (BLM 2008b). The Cedar Beaver Garfield Antimony RMP (BLM 1986) provides management direction for the Cedar BLM Field Office

area, and limits vehicle use to existing roads and trails near prairie dog colonies. This restriction is in effect at one Utah prairie dog complex (Three Peaks) and portions of four additional complexes totaling approximately 7% of Utah prairie dog mapped habitat in the West Desert recovery unit (Bonebrake pers. comm. 2010). The BLM Cedar City Field Office has initiated a RMP revision process. In the revised RMP, they will designate all areas under the jurisdiction of the Field Office as either open to cross-country travel, limited to existing routes, or closed to all motorized travel. However, it is too early to determine how the revisions to this RMP will affect Utah prairie dogs.

While OHV use is not restricted on non-federal lands, OHV activity in these areas is more likely to be utilitarian in nature (i.e., related to getting around private property) and of lower intensity and impact when compared to recreational use more common on federal lands.

Energy Resource Exploration and Development

Energy resource exploration and development activities within the range of the Utah prairie dog primarily include wind and oil and gas development. Wind development projects include construction of wind towers, roads, and transmission lines. These facilities can result in the loss and fragmentation of Utah prairie dog habitat and increased predation due to added perching locations for raptors. The most likely areas for wind power development in Utah are the Raft River Mountains in western Utah and the Milford area in southwest Utah (USDOE 2010). The Raft River Mountains do not overlap the historical or current range of the Utah prairie dog. Suitable habitat for Utah prairie dogs occurs in the Milford area (in the species' current range) (BLM 2009), but we are not aware of any occupied habitats within 25 mi (40 km) of the wind development area. Therefore, we do not consider wind power to be a threat to the Utah prairie dog.

Oil and gas development includes seismic activities, exploratory wells, and production facilities. Development also includes the construction of roads, wells and pads, and energy corridors (i.e., long distance pipelines or transmission lines). Resulting impacts to prairie dogs from oil and gas development may include direct mortality from vehicles; direct mortality associated with increased access by recreational shooters who use the new roads (Gordon et al. 2003); increased disturbance responses from increased human activity; direct loss and fragmentation of habitat and forage resources during exploration, drilling, and production; and indirect loss of forage resources from invasive nonnative plant species (Seglund and Schnurr 2009). Potential impacts from seismic testing on Utah prairie dogs are negligible (Young and Sawyer 1981).

The Cedar City BLM Field Office is the primary Federal land management entity in the West Desert recovery unit. Oil and gas exploration on public lands administered by the Cedar City Field Office is expected to continue at a low pace, unless there is a new discovery or unless nationwide demand for onshore oil and gas dramatically increases (BLM 1986). In the past nine years, only four applications for Permit to Drill (APD) have been received by the Cedar City Field Office; there are no active oil or gas wells operating in the area (Burghard 2015, pers. comm.). The Cedar Beaver Garfield Antimony RMP (BLM 1986) and the Pinyon Management Framework Plan (BLM 1983), which cover the Cedar City Field Office area, both identified specific lands that were known at that time to be occupied by Utah prairie dog. These lands were identified as Category 3 lands (open to leasing subject to No Surface Occupancy stipulations).

However, the majority of mapped Utah prairie dog habitat in the West Desert recovery unit is non-federal, and no conservation measures are in place to minimize the effects of energy development to Utah prairie dogs on these lands, should such development occur in the future.

We do not anticipate extensive oil and gas development on areas that overlap Utah prairie dog habitat in the Paunsaugunt recovery unit based on historic and current low levels of development (BLM 2008c, 2008d). However, where energy development may occur, we note that the majority of the Paunsaugunt recovery unit is comprised of non-federal lands, where no Utah prairie dog conservation measures are in place to minimize energy development impacts to the Utah prairie dog. The Dixie National Forest is the primary federal land management entity in the Paunsaugunt recovery unit; the Kanab BLM Field Office also manages a small portion of the Paunsaugunt recovery unit. The potential for energy resource development on the Dixie National Forest over the next 15 years appears low due in large part to discouraging results of previous tests, the remoteness of the area, and the questionable quality of the geologic strata for producing oil and gas (USDA 2007). Both the Dixie and Fishlake National Forests have 0.5 mile No Surface Occupancy stipulations for oil and gas development within 0.5 miles of active Utah prairie dog colonies (USDA 2010, 2012). The Kanab BLM RMP includes a conservation measure that precludes surface disturbance activities within 0.5 mi (0.8 km) of Utah prairie dog active colonies, suitable habitat, and potential reintroduction sites (BLM 2008b).

The majority of the BLM and U.S. Forest Service (USFS) planning areas on the Awapa Plateau recovery unit have low energy resource potential in the areas occupied by Utah prairie dogs (USDA 2007, BLM 2008e). The Fishlake and Dixie National Forests and the Richfield BLM Field Office comprise the primary Federal land management entities in the Awapa Plateau recovery unit, and the majority of the Awapa Plateau recovery unit is in federal ownership. Both the Dixie and Fishlake National Forests have 0.5 mile No Surface Occupancy stipulations for oil and gas development within 0.5 miles of active Utah prairie dog colonies (USDA 2010, 2012) As described above, The Richfield BLM RMP provides specific conservation measures to minimize the effects of energy development to Utah prairie dogs (BLM 2008a).

In 2008-2011, we completed programmatic consultations with the BLM and USFS regarding oil and gas development on lands they manage. Through the consultation process, we worked with both agencies to develop a set of avoidance and minimization measures for Federal oil and gas leases within the range of the Utah prairie dog (BLM 2008a, 2008b; USFWS 2011). These measures are attached to all BLM and USFS leases with the range of the Utah prairie dog, and include no surface disturbance within 0.8 km (0.5 mi)) of active Utah prairie dog colonies, and no permanent disturbance within 0.8 km (0.5 mi) of potentially suitable, unoccupied Utah prairie dog habitat. Instruction Memorandum (IM) 2002-174 directs all BLM State Offices to "include the lease stipulation on oil and gas leases where threatened, endangered, or other special status species or critical habitat is known or strongly suspected."

The Department of Energy (DOE) and the BLM prepared Programmatic Environmental Impact Statement (PEIS; DOE 2012) to address utility-scale solar energy development in six southwestern States, including Utah. There are three solar energy zones proposed in Iron and Beaver Counties. Impacts to the species are small—the PEIS estimates 0.1% of suitable Utah prairie dog habitat occurs within the solar energy zones across the species range (DOE 2012).

Although energy development may occur in some locations across the species' range, there has been a low level of exploration and development to date, and projections remain low for the majority of the species' range for the foreseeable future. Some land use planning documents include conservation measures to avoid and minimize impacts to Utah prairie dog habitats.

Fire Management

Fires within the planning area are both naturally occuring and used as a management tool. Naturally occuring fires are widely distributed in terms of frequency and severity. Wildfires are suppressed when they threaten values and resources, such as: wildland urban interface areas, developed recreation sites, areas that are unlikely to recover following fire (i.e., areas of noxious weeds or invasive species), sensitive soils, critical threatened and endangered species habitat, or fires with potential to spread to private, state, or other federal lands. Fire suppression methods vary with the intensity of the wildfire and are conducted on an emergency basis. Firelines may be constructed by hand or by heavy equipment to contain the wildfire. Water may be withdrawn from nearby sources to suppress fires. Chemical fire suppression agents and retardants may be used, if necessary. The use of aerial fire retardant is restricted near water resources.

After a fire is extinguished, emergency stabilization techniques may be used to stabilize soils in the burned area. These techniques may include seeding or mechanical soil stabilization methods. Burned area rehabilitation may also include seeding, but is intended to move the area toward the condition that it was prior to the fire. Burned area rehabilitation is used on lands that are unlikely to recover naturally. These suppression and post-suppression activities often employ the use of off-road vehicles, hand tools, and heavy equipment such as bulldozers.

The wildland fire program implements fire, as a tool, in areas that would benefit from the reintroduction of fire. Some suppression techniques, as described above, may be used to keep the fire within pre-determined boundaries, but no emergency stabilization and rehabilitation actions are taken following wildland fire use.

Prescribed fire and non-fire fuels treatment objectives are to restore natural fire regimes, reduce hazardous fuel loading, reduce fire fighter risk, and enhance resources, such as wildlife habitat. Prescribed fires follow a pre-determined prescription and include activities such as broadcast burning or pile burning following manual or mechanical fuel treatments. Non-fire fuel treatment actions include: tree thinning or clear-cutting (i.e., juniper) by hand or using mechanized equipment, chemical application of herbicides to reduce shrub cover, disking to remove vegetation and prepare the soil for seeding, and seeding of native and/or non-native species to prevent increase of invasive species.

Livestock Management

Grazing occurs in almost all mapped and occupied Utah prairie dog habitat including private, state, and federal lands. The threatened status of the Utah prairie dog results in site-specific and programmatic section 7 consultations for grazing actions on federal lands, and an ability to develop and implement conservation measures to avoid and minimize the effects of potential

over-grazing on a site-specific basis (USFWS 2008a, b, c). Examples of conservation measures used in Utah prairie dog habitat include: restricting surface disturbing activities and facilities within 0.5 miles of occupied habitat, conducting restoration activities using native seed, and implementing monitoring and corrective actions via adaptive management (USFWS 2008a, b, c).

We do not have information on the amount of Utah prairie dog habitat, if any, that is over grazed, so we do not fully understand the extent of this threat on the landscape. Our best available information suggests that Utah prairie dogs can coexist with properly managed grazing systems. Livestock grazing may even benefit prairie dogs where grazing enhances primary production and reduces shrub invasion (Coppock et al. 1983, Holland et al. 1992). Higher vegetation quality and a higher proportion of nutrient-rich young shoots occur in properly managed grazed habitats as compared to ungrazed habitats (Cheng and Ritchie 2006). Prescribed rotational grazing may help to maintain suitable vegetation height for Utah prairie dogs, especially in highly productive sites like irrigated pastures or where shrub invasion has occurred (Ritchie and Cheng 2001).

In general, if grazing has been managed poorly, there can be decreased habitat quality resulting from increases in invasive plants and decreased vegetation diversity (Collier and Spillett 1973). Historically, over-grazing in swale formation habitat led to erosion and reduced the amount of moisture available for grasses and forbs (Crocker-Bedford 1975). Over-grazing can decrease forage availability, with the potential to increase Utah prairie dog foraging time, and consequently decrease vigilance and survivorship (Ritchie 1998, Cheng and Ritchie 2006). These effects may be more likely during times of drought or in areas with low plant diversity (Elmore and Messmer 2006a, 2006b).

Many agricultural producers believe that Utah prairie dogs impact their operations through loss of forage for their cattle, equipment damage from driving across burrows, and livestock injury if animals step in burrows (Hoogland 2003; Elmore and Messmer 2006a, 2006b). Although some of these impacts may be site-specific or uncommon (Hoogland 2003), the perceived impacts result in negative human perceptions of prairie dogs (Hoogland 2003; Elmore and Messmer 2006a).

Because of these concerns, and similar to the previous discussion on Cultivated Agriculture, the conflicts between agricultural producers and Utah prairie dogs historically led to wide-scale eradication programs. Without ESA protection, no other mechanisms provide regulatory control of Utah prairie dog poisoning or shooting on agricultural lands (e.g., 4d rule, see Cultivated Agriculture above). Safe Harbor or other private landowner conservation efforts will continue to be part of our recovery efforts to promote public education and foster proactive grazing practices that will simultaneously benefit Utah prairie dog habitats.

Habitat conversion impacts Utah prairie dogs in the action area. In the biological assessment from the BLM's Cedar City Field Office for the "Minersville # 3, Mortenson-Holyoak, and Long Hollow (Sheep) grazing allotments in Iron and Beaver Counties, Utah," (received June 4, 2007) the BLM describes the process of Utah prairie dog habitat conversion on public rangelands:

- "Suitable habitat may be the most important factor limiting prairie dog recovery (McDonald 1993; McDonald and Bonebrake 1994). Lack of suitable habitat for Utah prairie dogs on public lands is widespread (McDonald 1993; 1994). Most areas within the species' range that were shrub-grassland mosaics in pre-settlement times have been converted to shrublands through long term, continuous seasonal grazing and fire suppression. Additionally, much of the historic, high quality Utah prairie dog habitats are within the valleys, where urban expansion and intensive farming occurs. Thus, much of the historical habitat of the Utah prairie dog has been lost."

The action area overlaps with the area described above; thus overgrazing and subsequent habitat conversion has affected the Utah prairie dog populations in the action area. The conversion to shrublands has benefited greater sage grouse populations but in some areas this same conversion can have negative effects to Utah prairie dog conservation.

Climate Change

The term "climate change" refers to a change in the state of the climate (whether due to natural variability, human activity, or both) that can be identified by changes in the mean or variability of its properties and that persists for an extended period, typically decades or longer (IPCC 2007 a, b). Changes in climate are occurring. The southwest is projected to experience significant reductions in precipitation. Over the last 50 years, the southwest experienced a 9% increase in very heavy precipitation events (defined as the heaviest 1% of all daily events) (U.S. Global Change Research Program 2009). A 10-30% decrease in precipitation is projected in mid-latitude western North America by mid-century (Milly et al. 2005). The Utah Prairie Dog Revised Recovery Plan (USFWS 2012) provides additional climate change analyses on a regional basis.

With regard to the area of analysis for the Utah prairie dog, climate change projections are available to the scale of the southwestern United States, as described above. We can make certain species-specific projections and recommendations based on our available knowledge of the species' distribution and life history. The climate in southern Utah has become progressively drier over the last several thousand years, which has led to the gradual transition of grass-dominated ecosystems to those dominated by shrubs. Continued vegetation shifts may result in reduced prairie dog habitat quantity and quality over time. Thus, climate change has emerged as a significant concern for the Utah prairie dog, particularly in regard to the potential for increasingly prolonged drought cycles. The projected warmer atmosphere and intensified water cycle in the southwest is likely to increase the likelihood of drought, heavy precipitation events, and flooding (U.S. Global Change Research Program 2009).

Impacts from drought include loss of succulent vegetation that is necessary for Utah prairie dog abundance (Crocker-Bedford and Spillett 1981). Increased drought may thus result in range constrictions for Utah prairie dogs, or they may shift their range northward and upward to cooler and moister climates (IPCC 2007 a, b). Drought was implicated in the historical loss and drastic decline of some Utah prairie dog colonies, particularly at lower elevations with consequently drier vegetation conditions (Collier and Spillett 1975). Increased drought can reduce habitat suitability for prairie dogs directly and indirectly.

Indirectly, drought and climate change may increase the expansion of invasive plants (BLM 2011), particularly cheatgrass (see Invasive Species, below), and this could become a factor affecting Utah prairie dog recovery. Climate change is expected to result in large-scale range shifts in invasive plant species distributions with some species expected to experience range expansions (e.g., yellow starthistle, tamarisk) and others expected to experience range contractions (e.g., cheatgrass, spotted knapweed, leafy spurge). Cheatgrass is anticipated to shift northward, with reduced invasion risk in Utah. However, these same areas may remain at risk from other invasive species that can tolerate the changed climate conditions (Bradley 2009).

Heavy precipitation events may result in temporary increases in soil moisture. Projected changes in soil moisture content could impact epizootic plague outbreaks. Moist soil conditions enhance the conditions for flea reproduction and survivorship, thereby increasing the number of available fleas. This outcome would lead to a greater frequency of plague in wild animal populations if the fraction of plague-infectious animals remains constant or increases (Thomas 1996 *in* Parmenter et al. 1999). Alternatively, prolonged drought conditions may reduce the frequency of plague.

Although we have described some potential impacts to the Utah prairie dog under future climate change models, there is uncertainty in the scope and severity of this potential threat. There also is uncertainty in how the species will respond.

Conservation Measures

Efforts to conserve the Utah prairie dog and its habitat have occurred since the time of listing. The aim of recovery is for conservation to outpace threats until the ability of the Utah prairie dog to persist within its natural ecosystems is assured. The Utah Prairie Dog Revised Recovery Plan (see section 1.9, Conservation Measures and Assessment *in* USFWS 2012) described conservation measures that are in place to assist with recovery efforts for this species. These measures include annual spring counts (see section 3.1, Status of the Species within the Action Area, above), translocations, plague prevention and response, safe harbor agreements, conservation easements and acquisitions to protect habitats (to date, our partners have secured 2,548 acres of non-federal land as conservation areas that are protected in perpetuity for Utah prairie dogs), section 7 consultations, research, and public outreach and education. Since 2010, the Utah Prairie Dog Recovery Implementation Program (UPDRIP; recently "rebranded" as the Utah Prairie Dog Oversight Group) and Utah Prairie Dog Recovery Implementation Team have worked together in a public-private partnership to facilitate recovery efforts for this species. These groups have developed and implemented guiding documents for recovery of the Utah prairie dog including the Utah Prairie Dog 5-Year Management Unit Plans-The Path to Recovery (2014-2018) (UPDRIP 2014; see Effects of the Action, Habitat Management, below) and Population Structure for Utah Prairie Dog Recovery (UPDRIP 2013).

State Plan

In November 2014, the U.S. District Court for the District of Utah held that the 2012 4(d) Rule for the Utah prairie dog is unconstitutional to the extent it regulates Utah prairie dog take on non-

federal lands. That decision is currently on appeal. After the decision, the UDWR assumed management authority for Utah prairie dogs on non-federal lands. The UDWR generated a new Utah Prairie Dog Management Plan for Non-federal Lands (State Plan) , effective May 8 2015, which allows for increased levels of lethal take (minimum 6,000 which is upwards of 20-30% of estimated total population) on non-federal lands than previously authorized under the 4(d) rule (10% of estimated total population). Additionally under the State Plan, lethal take is authorized on all unmapped Utah prairie dog habitat and there is no mitigation for the loss of occupied habitat due to development activities. Long-term, the State Plan would remove all take restrictions when a Recovery Unit reaches 2,000 adult animals on protected lands whereas our Recovery Plan takes a broader view of what is needed before delisting is considered, including assurances that the Utah prairie dog population is spatially distributed to provide sufficient connectivity and gene flow. It is too early in the implementation of the State Plan to assess any positive or negative effects of that plan. However, the relative recovery contribution of each Utah prairie dog on Federal land may change depending on how the State Plan (above) is implemented. As data from the implementation of the new State Plan is reported (we generally receive annual reports of prairie dog actions from the Utah Division of Wildlife Resources), our evaluations of the Status of the Species and future Environmental Baselines will be updated accordingly in new biological opinions, and re-initiation of section 7 consultations would occur as needed.

4 EFFECTS OF THE PROPOSED ACTION

As described above (see section 1.2, Proposed Action), effects of the action to Utah prairie dogs are most likely to occur from habitat management, wildfire suppression, fuel treatment effects, and power line placement. Overall, disturbance (harassment) of Utah prairie dogs may occur from these types of projects due to increased noise levels, ground vibration, and increased human and vehicle activity. Though small, there is the potential for habitat management projects and fire suppression activities to result in the accidental mortality or injury of individual Utah prairie dogs due to direct mortality from heavy equipment, smoke inhalation, and the deployment of chemical retardants. These disturbances may affect Utah prairie dog foraging activity, social interactions, and other behaviors which could be significant if these effects are long term. However, most of these effects will be short in duration only taking days or weeks to complete individual habitat management or fire projects. These impacts would be minimized to the maximum extent practicable during project level section 7 consultation.

The land use plans may result in increased conversion of "shrub-grassland mosaics" to "shrublands," due to the desire to maintain high densities of sagebrush to support greater sage-grouse across large landscapes. The proposed land use plan amendments do not specifically include sagebrush removal, restraint of fire suppression activities in Utah prairie dog habitats, and other proactive Utah prairie dog management activities. However, the BLM and USFS have included language in their land use plan amendments and BA that highlight the importance of using adaptive co-management strategies where Utah prairie dog and greater sage-grouse habitat overlap, which should allow for flexibility at the project level, as further discussed below.

Habitat Management

An estimated 19,589 (see section 3.1 above) prairie dogs (summer population, including adults and pups) occur within the action area, this is roughly 35% of the estimated 5-year average range-wide summer population. There is an 81% overlap between mapped greater sage-grouse habitat and Utah prairie dog Management Units (MU; UPDRIP 2013) (comprising 267,853 acres) in the action area. The Utah Prairie Dog Recovery Implementation Team delineated 40 MUs where Utah prairie dog management and recovery actions should be emphasized. The 40 MUs were also developed to ensure Utah prairie dog habitat and population connectivity, and metapopulation dynamics across the range of the Utah prairie dog. We distributed the 40 MUs across the entire range of the species to ensure that we can take advantage of conservation opportunities as they arise (e.g., land acquisitions, easements) and that we retain management options in the event of catastrophic changes to some of the MUs (e.g., fire, plague). Overall, there is a high degree of overlap between the priority areas of Utah prairie dog conservation (i.e., MUs) and the priority areas for greater sage-grouse conservation (i.e., PHMAs).

This overlap in priority habitat areas for greater sage-grouse and Utah prairie dogs is important when considering the BLM and USFS commitment to co-manage for these species. Co-management should allow for continued implementation of habitat projects for Utah prairie dogs, such as those projects identified in the Utah Prairie Dog 5-Year Management Unit Plans (MU Plans; UPDRIP 2014). Habitat management projects for Utah prairie dogs frequently include removing shrubs (e.g., sagebrush) to provide suitable habitat for prairie dog colonies (see Appendix D, extract from Translocation Guidelines). The MU Plans include prescriptions over the next five years for 5,500 acres of habitat treatment within the West Desert recovery unit, 3,600 acres of habitat treatments within the Paunsaugunt recovery unit, and 3,800 acres of habitat treatment within the Awapa Plateau recovery unit. Of these habitat treatments, approximately 74% of the acres are sagebrush removal or thinning projects and 26% are pinyon-juniper removal projects. Co-management commitments should allow for the implementation of the MU Plans for the Utah prairie dog.

Wildfire Suppression

During wildfire suppression activities the visual or auditory disturbance or displacement (harassment) of individuals from low-flying aircraft, vehicles, heavy equipment, and humans during operations or treatments may affect foraging behavior of Utah prairie dogs in the short term. The removal of key habitat components for burrowing, foraging, or cover may occur due to equipment or operational tactics, such as tree and shrub removal and soil disturbance during fire line construction; vegetation removal and soil disturbance during helipad or base camp construction; and vegetation removal and soil disturbance during temporary or permanent road construction for project access. Though small, there is a risk of direct injury, mortality and displacement of adults or young from smoke inhalation, vehicles, heavy equipment, inadvertent strikes during aerial drops (including fire retardant), and inadvertent chemical contamination during the aerial application of fire retardant.

Wildfire suppression activities may be prioritized in greater sage-grouse habitat and will often overlap with mapped or occupied Utah prairie dog habitat within and outside the Utah prairie dog MUs. In many cases, allowing the fire to burn through these areas of habitat overlap would

benefit Utah prairie dogs. Fire converts "shrublands" to "shrub-grassland" mosaics, increasing habitat suitability for Utah prairie dogs by reducing sage brush canopy cover. Increased focus on fire suppression in greater sage-grouse habitat inadvertently may facilitate the conversion of "shrub-grassland mosaics" to "shrublands" at the landscape scale over time. However, the BLM and USFS co-management commitments should allow for review of site-specific scenarios and wildfire suppression decisions based on the habitat needs of both species.

Fuels Treatments Effects

Fuels treatments using prescribed fire or other means in grassland and sagebrush habitats could negatively affect Utah prairie dog from smoke, fire, noise, or other human-caused disturbance, resulting in harassment, displacement, injury, or possibly mortality; or immediate post-project alteration of key habitat components (e.g., forage or vegetative cover). Most effects would be short term and of low intensity due to the implementation of resource protection measures, including pre-project surveys and avoiding critical periods for the Utah prairie dog (e.g., hibernation and when pups are in the burrows) (see Attachment E in the BA for specific commitments).

There may be soil or ground disturbance from vehicles or heavy equipment during treatments, resulting in disturbance or destruction of vegetation and subsurface dens or burrows. This disturbance may result in burrow abandonment or mortality of young Utah prairie dogs, resulting in the loss of one year's recruitment.

There may be long term effects to Utah prairie dogs due to changes in quality or quantity of habitat following fuels treatments. However the level and extent of effects will be site-specific and weather-dependent. For example, sometimes the initial loss of forage and cover after a prescribed fire would be followed by vigorous regrowth of forb species in the growing seasons that follow given favorable weather conditions. In other situations, especially during drought conditions, there may be long term effects due to changes in quality or quantity of habitat when key habitat components are slow to recover. Slow recovery of suitable habitat conditions may affect the ability of Utah prairie dogs to continue occupying a site.

As described above (see Wildfire Suppression), fire can be beneficial to Utah prairie dogs when it converts "shrubland" to "shrub-grassland mosaics." Where prescribed fire occurs in Utah prairie dog habitat, the reduction of sagebrush canopy cover (shrub removal) could have long term beneficial effects to Utah prairie dogs. Prescribed fire could be used to accomplish some of the habitat treatments recommended in the Utah prairie dog MU Plans. The commitment of BLM and the USFS to co-manage for prairie dogs and greater sage-grouse should allow the continued implementation of the MU Plans whether habitat treatments are accomplished through the use of chemical, mechanical, or fire tools.

Lands and Realty (Transmission Lines)

The proposed action includes the relocation of one section of a designated transmission line right-of-way corridor to avoid greater sage-grouse nesting habitat and existing leks. The general location of the proposed relocation would result in a section of the existing designated

transmission line right-of-way corridor being moved closer to an existing Utah prairie dog colony within the BLM's Kanab field office area. The existing section of designated transmission line right-of-way corridor does not have any transmission lines but the adjusted alignment coincides with an existing transmission line. However, the existing Kanab RMP management decisions that pertain to Utah prairie dog (and are not being amended in this process) state that no surface disturbance or surface occupancy can occur within 0.5 miles of active Utah prairie dog habitats. Thus, if a transmission line is proposed in this corridor in the future, the direct and indirect impacts of a project in this adjusted right-of-way corridor will be minimized by the existing conservation measures in the Kanab RMP (BLM 2008).

5 CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Cumulative effects to the Utah prairie dog and its habitat under the Proposed Action would include, but not be limited to, the following broad types of impacts:

- Changes in land use patterns or practices that adversely affect a species' suitable or potential habitat.
- Encroachment of human development into suitable habitat.
- Habitat and fire management actions by some, or all, of the following groups, on lands adjoining BLM-administered lands:
    - State of Utah
    - County Governments in Utah
    - Local Governments in Utah
    - Private landholders in Utah

The locations of Utah prairie dog colonies and mapped habitat are set amidst a checkerboard pattern of land ownership including Federal, State, and private landowners. Utah prairie dogs are therefore susceptible to activities on State and private lands. Many of these activities, such as human population expansion and associated infrastructure (increased roads); oil and gas exploration and development; unregulated recreation activities (e.g. off-highway vehicles); and control of prairie dogs as pests on state and private lands within the action area may contribute to negative cumulative effects to the Utah prairie dog through human-caused injury or mortality, elimination of or disturbance to colonies, tunnels, and den sites, destruction or degradation of native grassland or sagebrush habitats, and spreading disease, such as distemper. Contributing as cumulative effects to the proposed action, these activities may affect Utah prairie dog population persistence by contributing to loss and fragmentation of small, isolated colonies.

As described above (see section 3.2, Factors Affecting the Species within the Action Area, Conservation Measures, above), conservation measures are ongoing on some of the private and state lands through the completion of land acquisitions and easements. In addition, the State or local governments (e.g. counties), continue to assist or implement plague management strategies and translocations to support Utah prairie dog recovery within the action area. These efforts should have a positive impact on Utah prairie dog populations within the action area; prairie dog populations are generally stable to increasing range wide (USFWS 2012).

As previously described (see section 3.2, Factors Affecting the Species within the Action Area, State Plan, above), the UDWR recently developed a new Utah Prairie Dog Management Plan for Non-federal Lands (State Plan). It is too early in the implementation of the State Plan to assess any positive or negative effects of that plan, but we will continue to monitor its implementation and work with our partners to implement recovery actions for this species.

6 CONCLUSION

After reviewing the current status of the Utah prairie dog, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Utah prairie dog. We have reached this conclusion based on the following reasons:

1) The Plan amendments do not authorize individual management actions that may affect Utah prairie dogs; there will be project-level section 7 consultation that will minimize any adverse impacts to Utah prairie dogs to the maximum extent practicable.

2) The conservation measure in the BA makes clear the co-management commitment by the BLM and USFS for Utah prairie dogs and greater sage-grouse. Utah prairie dogs and greater sage grouse are sympatric species, and good management of the shrub-grassland mosaic will benefit both species.

7 INCIDENTAL TAKE STATEMENT

The proposed actions described in the biological assessment are programmatic level planning document (Land Use/Forest Plan) amendments and do not specifically authorize individual management actions/projects. As such, the actions evaluated in the preceding biological opinion meets the regulatory definition of a framework programmatic action: "a Federal action that approves a framework for the development of future action(s) that are authorized, funded, or carried out at a later time and any take of a listed species would not occur unless and until those future action(s) are authorized, funded, or carried out and subject to further section 7 consultation (50 CFR §402.02)". An incidental take statement is not required for a framework programmatic action (50 CFR §402.14(i)(6)).

Therefore, we are not anticipating any incidental take under this biological opinion. Future actions that are guided by the framework identified in the BLM Land Use and USFS Forest Plan amendments would undergo project level consultation and will include incidental take statements, reasonable and prudent measures; and terms and conditions, when appropriate.

8 REPORTING REQUIRMENTS

Upon locating a dead or injured Utah prairie dog, initial notification must be made within one business day to our Division of Law Enforcement in St. George, Utah, at telephone (435) 673-3420, our Ecological Services Offices at telephone (801) 975-3330 and (435)-865-3763, and the Cedar City UDWR office at telephone (435) 865-6120. This reporting requirement will allow our Division of Law Enforcement or the UDWR to collect and process dead prairie dogs, if necessary, to determine cause of death. Instructions for proper handling and disposition of such specimens will be issued by our Division of Law Enforcement consistent with the provisions of the Incidental Take Statement. Care must be taken in handling sick or injured animals to ensure effective treatment and care in handling dead specimens to preserve biological material in the best possible state.

9 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- The BLM and USFS should continue to participate in Utah prairie dog recovery implementation teams and continue to assist with strategies to co-manage for the greater sage-grouse and Utah prairie dog. For the Utah prairie dog, the BLM and USFS should use available recovery documents such as the 2012 Revised Utah Prairie Dog Recovery Plan; Utah Prairie Dog 5-Year Management Unit Plans-The Path to Recovery (2014-2018) (UPDRIP 2014; see Effects of the Action, Habitat Management, below); Population Structure for Utah Prairie Dog Recovery (UPDRIP 2013), and any subsequent updates and guidance from the U.S. Fish and Wildlife Service.

10 REINITIATION NOTICE – CLOSING STATEMENT

This concludes formal consultation on the Utah Greater Sage-Grouse Land Use Plan Amendment and Final Environmental Impact Statement. As provided in 50 CFR §402.16, reinitiation of formal consultation is required for projects where discretionary Federal Agency involvement or control over the action has been retained (or is authorized by law) and under the following conditions:

1. New information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion.
2. The action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion.
3. A new species is listed or critical habitat designated that may be affected by the action.

4. If co-management language is not added to the Finalized Plan Amendments or Record of Decision as described in the Applicant Committed Conservation Measure Section of this biological opinion.

To re-initiate section 7 consultation, the BLM or USFS should immediately notify our office by phone or email.

Thank you for your interest in conserving sensitive, threatened, and endangered species. If we can be of further assistance, please contact Nathan Brown at (435) 865-3763 or Laura Romin at (801) 975-3330, ext. 142.

Attachments

cc: Ron Rodriguez, Wildlife and Fish Program Manager, U.S. Forest Service, Dixie and Fishlake National Forests, 1789 North Wedgewood Lane, Cedar City, UT 84721

Keith Day, Utah Division of Wildlife Resources, Southern Regional Office, 1470 North Airport Road, Cedar City, Utah 84720

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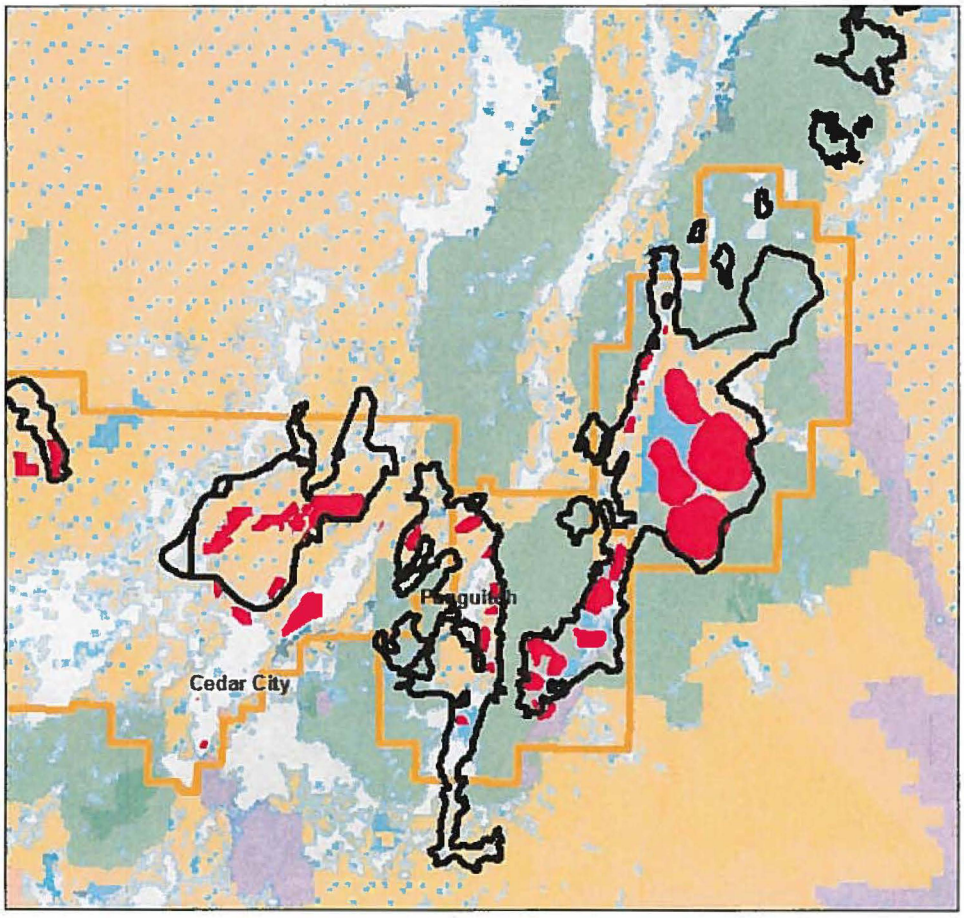
Appendix A

UPD Management Units and GRSG Overlap (GRSG PHMA's - BLM +FS)



Legend

- UPD Management Units
- GRSG PHMA's
- UPD Recovery Units

Land Status Basic

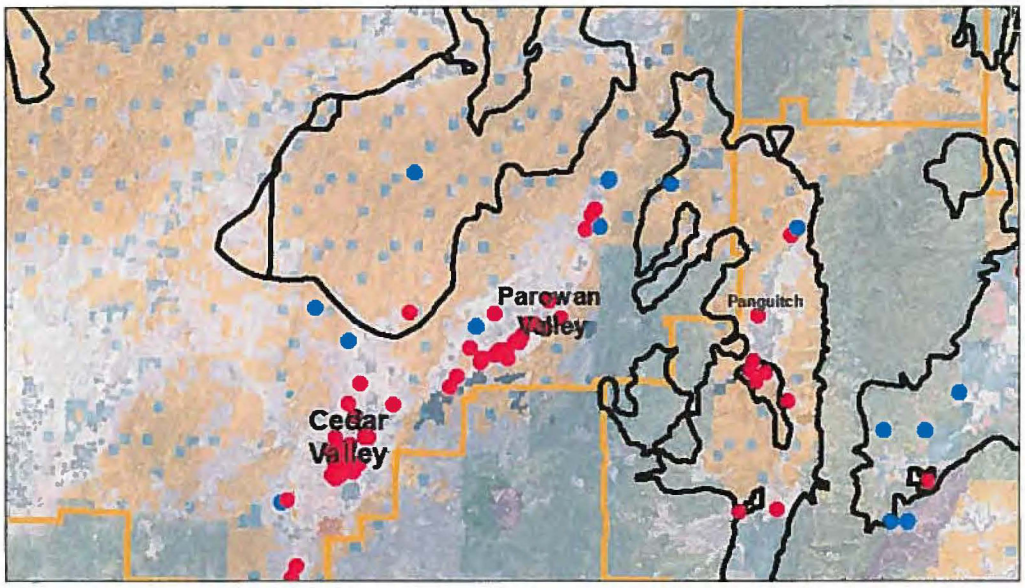
ADMIN

- BLM
- NPS
- Private
- SITLA
- USFS

N

Appendix B

UPD Large Colonies
in Cedar and Parowan Valleys Outside
(GRSG PHMA's - BLM +FS)



Legend

UPD Large Colonies

- Not Protected
- Protected
- GRSG PHMA's
- UPD Recovery Units

N

0 5 10 20 Miles

Appendix C

Status of the Utah Prairie Dog

Utah Prairie Dog

(*Cynomys parvidens*)

Status of the Species: June 2015

U.S. Fish and Wildlife Service

Utah Field Office

2369 West Orton Circle, Suite 50

West Valley City, Utah 84119

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Executive Summary

The purpose of this report is to summarize the status of the Utah prairie dog, a federally threatened species. For more information regarding the species, please contact the Utah Field Office by mail at 2369 West Orton Circle, Suite 50, West Valley City, Utah 84119, or by telephone at (801) 975-3330.

Literature Citations

Literature Citations should read:

U.S. Fish and Wildlife Service. 2015. Utah Prairie Dog (*Cynomys parvidens*) Status of the Species: June 2015. U.S. Fish and Wildlife Service, West Valley City, Utah. 15 pp.

Status of the Species / Critical Habitat

Species/Critical Habitat Description

The Utah prairie dog (*Cynomys parvidens*) is the smallest species of prairie dog. Individuals are typically 12 to 14 inches (in) long (Hollister 1916) and weigh 1.4 to 3.1 pounds (Wright-Smith 1978). Utah prairie dogs range in color from cinnamon to clay. The Utah prairie dog is distinguished from other prairie dog species by a relatively short (1.2 to 2.8 in) white- or gray-tipped tail and a black "eyebrow" above each eye (Pizzimenti and Collier 1975; Hoogland 2003).

The Utah prairie dog was listed as an endangered species on June 4, 1973 (38 FR 14678), pursuant to the Endangered Species Conservation Act of 1969. At the time of listing, the species was threatened with extinction due to habitat destruction, modification or severe curtailment of habitat, over exploitation, disease, and predation. The species was reclassified as threatened on May 29, 1984 (49 FR 22330), with a special rule to allow take of prairie dogs on agricultural lands. The rule was amended in 1991 to increase the amount of regulated take and it was revised again in 2012. The revised 4(d) rule August 2, 2012, expanded the rule to include lethal take where prairie dogs "create serious human safety hazards or disturb the sanctity of significant human cultural or human burial sites". The revised 4(d) rule August 2, 2012 expanded the rule to allow lethal "take on agricultural lands and properties within .5 mi of conservation lands", and it set the annual take limit under the revised rule to 10 % of the annual range-wide population estimate instead of a "fixed" annual limit.

In November 2014, the U.S. District Court for the District of Utah held that the 2012 4(d) Rule for the Utah prairie dog is unconstitutional to the extent it regulates Utah prairie dog take on non-federal lands. That decision is currently on appeal. After the decision, the UDWR assumed management authority for Utah prairie dogs on non-federal lands. The UDWR generated a new State management plan, effective May 8 2015, which allows for increased levels of lethal take (minimum 6,000 which is upwards of 20-30% of estimated total population) on non-federal lands than previously authorized under the 4(d) rule (10% of estimated total population). Additionally under the State Plan, lethal take is authorized on all unmapped Utah prairie dog habitat and there is no mitigation for the loss of occupied habitat due to development activities. Long-term, the State Plan would remove all take restrictions when a Recovery Unit reaches 2,000 adult animals on protected lands whereas our Recovery Plan takes a broader view of what is needed before delisting is considered, including assurances that the Utah prairie dog population is spatially distributed to provide sufficient connectivity and gene flow. It is too early in the implementation of the State Plan to assess any positive or negative effects of that plan. However, the relative recovery contribution of each individual Utah prairie dog on Federal land may change depending on how the State Plan (above) is implemented. As data from the implementation of the new State Plan is reported (we generally receive annual reports of prairie dog actions from the Utah Division of Wildlife Resources), our evaluations of the Status of the Species and future Environmental Baselines will be updated accordingly in new biological opinions, and reinitiations of section 7 consultations would occur as needed.

Life History and Population Dynamics

Utah prairie dogs spend four to six months underground each year during harsh winter months (Hoogland 2001). Some observations suggest that Utah prairie dogs hibernate. However, other evidence suggests that at lower elevations Utah prairie dogs may enter torpor more intermittently at the beginning and end of the hibernation season and may be seen above ground in mild weather (Collier and Spillet 1975; Hoogland 1995, 2001; Lehmer and Biggins 2005). Torpor patterns of Utah prairie dogs might be influenced by environmental conditions, and may differ across the species' range (Lehmer and Biggins 2005).

Adult males usually cease surface activity during August and September, followed by adult females several weeks later (lactating females enter hibernation later than non-lactating females) (Hoogland 2003). Juvenile prairie dogs remain active as late as November. Temperature is thought to trigger emergence from hibernation beginning in mid-March to mid-April. Mating occurs soon after emergence.

One half to two thirds of Utah prairie dog's adult population is female (Mackley *et al.* 1988). Approximately 67 percent of females wean a litter each year (Hoogland 2001). Each female produces an average of 3.88 pups which are born in April after a 30 day gestation period (Pizzimenti and Collier 1975; Wright-Smith 1978; Mackley *et al.* 1988; Hoogland 2001). Young appear above ground at five to seven weeks of age, are full grown by October of their first year, and reach sexual maturity at one year. Less than 50 percent of both males and females survive the first year (Hoogland 2001). Only about 20 percent of females and less than 10 percent of males survive to age 4 (Hoogland 2001). Due to their limited reproductive rates, short life span and high mortality rates, numbers of individuals counted within a colony can fluctuate greatly throughout the year with low points in the spring and peaks in the late summer when adults and pups are above ground.

Traditionally, it was thought that natal dispersal (movement of first year animals away from their area of birth) and breeding dispersal (emigration of sexually mature individuals from the area where they copulated) were male-biased, leading to higher mortality rates to young males from predation (Hoogland 2003). However, recent genetic work in a range wide study showed that of the Utah prairie dogs that dispersed, 25 percent were adult females (Brown 2009).

Young male Utah prairie dogs disperse in the late summer with average dispersal events of 0.35 mile (mi), long-distance dispersal events of up to 0.75 mi, and unusually long-distance dispersals of 4 mi (Mackley *et al.* 1988; Brown *et al.* 2011). In the summer of 2014 the Utah Division of Wildlife Resources documented a recently translocated individual traveling upwards of 10 miles, though unusual this drastically changes our understanding of their dispersal potential.

Utah prairie dogs are organized in social groups, or clans, consisting of an adult male, several females, and their young (Wright-Smith 1978). Clans are loosely organized with no observable dominance hierarchy. Geographic boundaries of clans remain fairly constant within a colony, and young prairie dogs are the only ones to regularly cross boundaries. Utah prairie dogs will use common feeding grounds, but still maintain elements of territoriality in those areas

(Wright-Smith 1978). The typical home range of the Utah prairie dog is 750 feet (ft) (Crocker-Bedford 1975; Wright-Smith 1978) and the distance at which disturbance affects a prairie dog's normal behavior is estimated to be 350 ft (Ashdown 1995). Social behaviors', especially socially facilitated vigilance and warning vocalizations, are important to survival of individuals in colonies and to the overall well-being of the colony. The adult females play the major role in caring for young, they are also the primary ones that provide warning of danger (Wright-Smith 1978).

Utah prairie dogs forage primarily on grasses and forbs, and tend to select those with higher moisture content (Crocker-Bedford 1976). They often select colony sites in swales where the vegetation can remain moist even in drought conditions (Collier 1975; Crocker-Bedford and Spillet 1981). Vegetation must be of short stature to allow the prairie dogs to see approaching predators as well as have visual contact with other prairie dogs in the colony (Collier 1975; Crocker-Bedford and Spillet 1981). Prairie dogs will avoid areas where brushy species dominate, and will eventually decline or disappear in areas invaded by brush (Collier 1975; Player and Urness 1983). Well-drained soils are a habitat requirement for Utah prairie dogs to excavate burrow sites. Burrows must be deep enough to protect the prairie dogs from predators and environmental and temperature extremes.

Predators of Utah prairie dogs include: badgers (*Taxidea taxus*), coyotes (*Canis latrans*), raptors, fox, and weasels. In an established prairie dog colony, predators do not have a significant impact; conversely, they have a huge impact on translocation sites where an established social system or burrow system is not present.

Utah prairie dog populations are susceptible to sylvatic plague (*Yersinia pestis*), a bacterium introduced to the North American continent in the late 1800's (Cully *et al.* 1993). There is a limited understanding of the variables that determine when sylvatic plague will impact prairie dog populations. Fleas are the vectors that spread the disease and can be brought into the vicinity of a prairie dog colony by a suite of mammals. Plague outbreaks generally occur when populations increase to high densities causing increased stress among individuals and easier transmission of disease between individuals.

Status and Distribution

There are five species of prairie dogs native to North America (Hoogland 2003). Taxonomically, prairie dogs (*Cynomys spp.*) are divided into two subgenera: the white-tail and black-tail. The Utah prairie dog (*C. parvidens*) is a member of the white-tail group, subgenus *Leucocrossuromys*. Other members of this group, which also occur in Utah, are the white-tailed prairie dog (*C. leucurus*) and the Gunnison prairie dog (*C. gunnisoni*).
The Utah prairie dog is recognized as a distinct species (Zeveloff 1988; Hoogland 1995), but is most closely related to the white-tailed prairie dog. These two species may have once belonged to a single interbreeding species (Pizzmenti 1975). They are now separated by ecological and physiographic barriers and exhibit genetic differences. The type locality for the Utah prairie dog is Buckskin Valley in Iron County, Utah (Pizzimenti and Colllier 1975).

The Utah prairie dog is the westernmost member of the genus *Cynomys*. Historically, Utah prairie dog colonies were found as far west as Pine and Buckskin Valleys in Beaver and Iron Counties, and may have occurred as far north as Nephi, southeast to Bryce Canyon National Park, east to the foothills of the Aquarius Plateau, and south to the northern borders of Kane and Washington Counties (Figure 1) (Pizzimenti and Collier 1975). Factors that resulted in the historical decline of Utah prairie dogs were poisoning; drought; ecosystem conversion (agriculture, overgrazing, urbanization); shooting; and disease (Collier and Spillet 1972).

The Utah prairie dog currently occurs in three areas within southwestern Utah, which are designated as recovery units (RU; figure 2):

1) the Awapa Plateau;
2) the Paunsaugunt region, along the east fork and main stem of the Sevier River; and,
3) the West Desert region of Iron County, with a few isolated colonies existing in mountain and desert valleys in Iron and Beaver Counties (Pizzimenti and Collier 1975).

Utah prairie dogs are found in elevations from 5,400 ft on valley floors up to 9,500 ft in mountain habitats. For more information on these recovery units, refer to our revised recovery plan for the species (USFWS 2012).

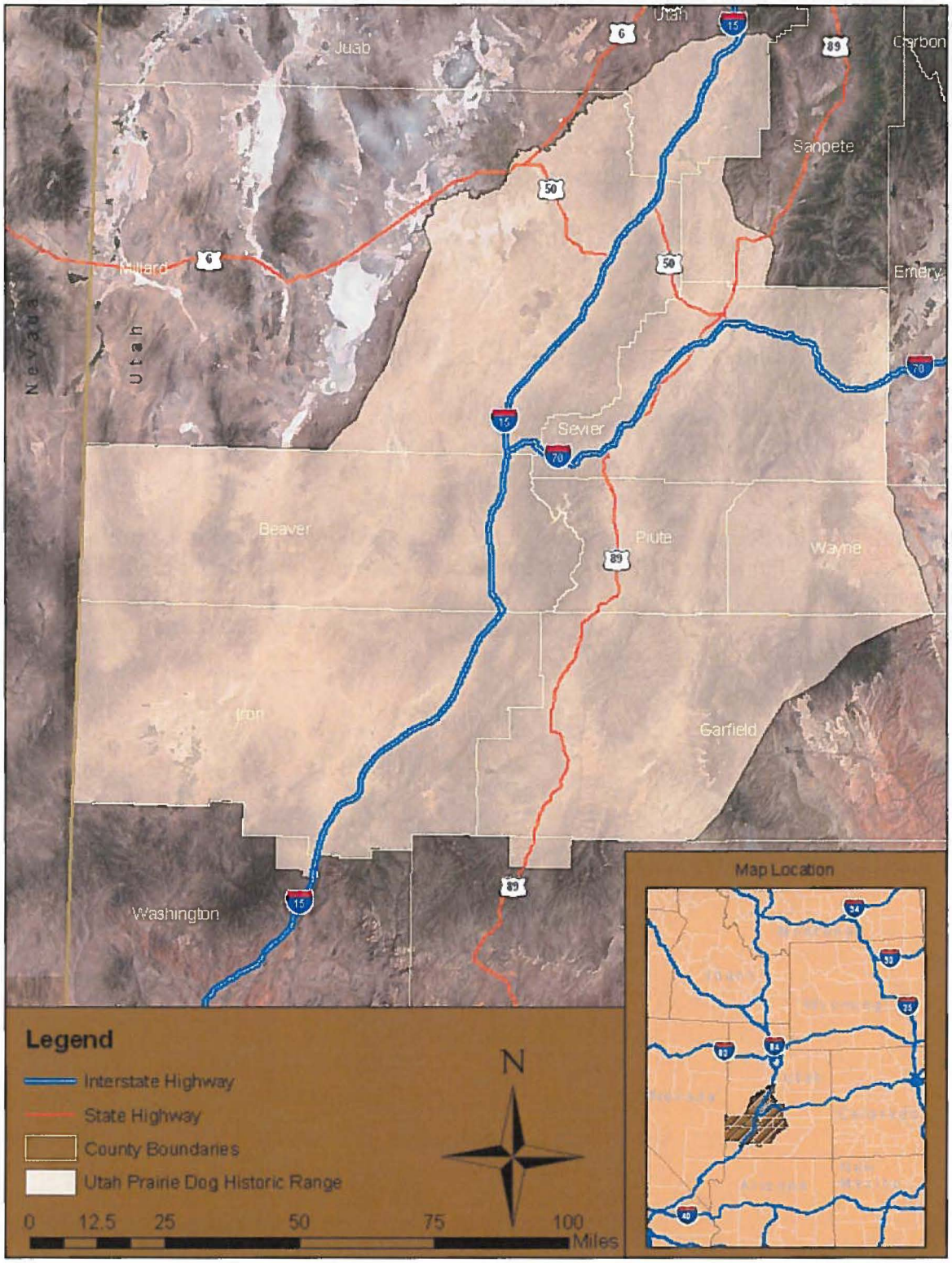

Figure 1. Utah prairie dog historic range.

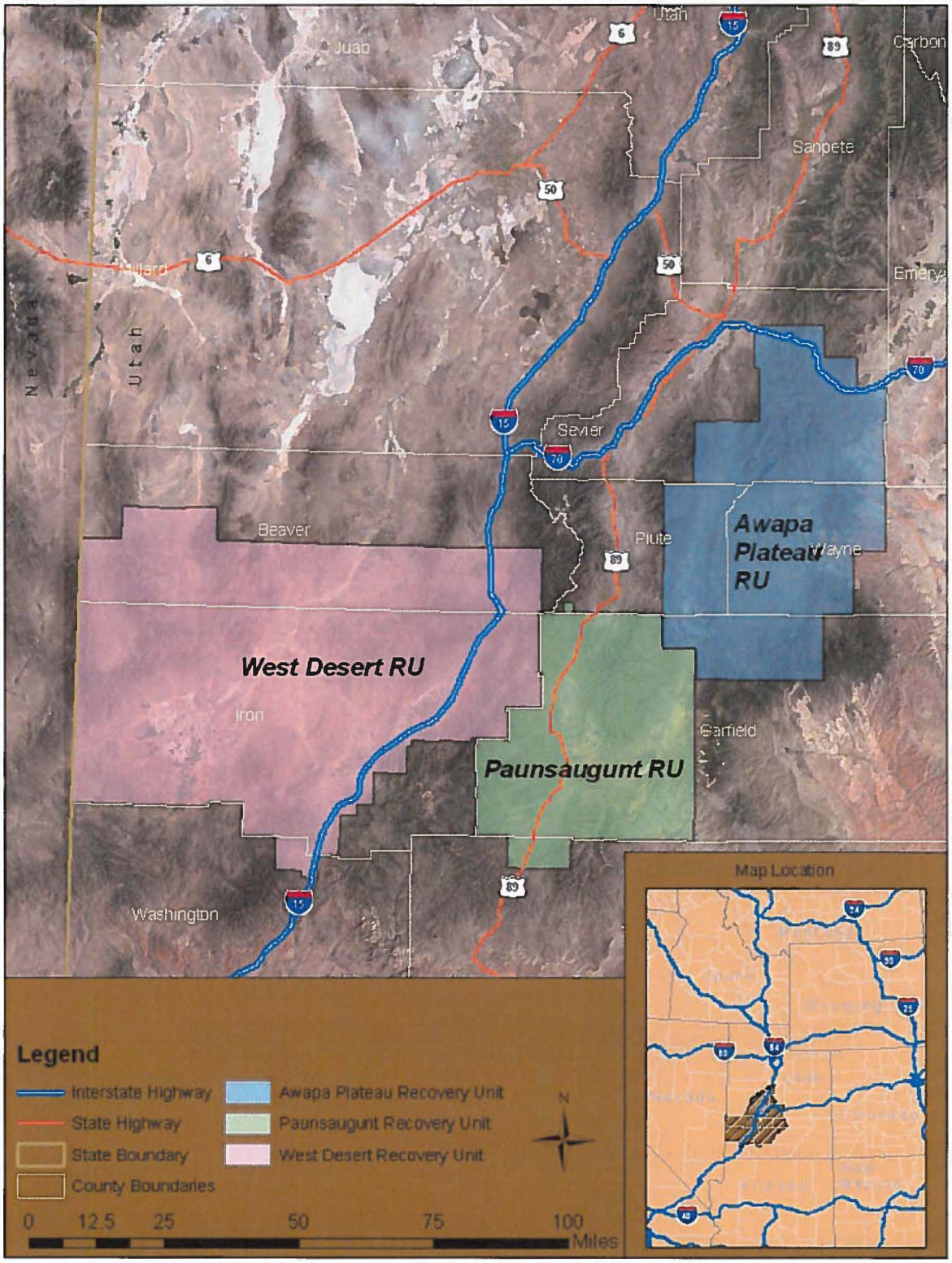

Figure 2. Utah prairie dog recovery unit boundaries.

Rangewide adult counts were as high as 11,431 in the 2014 spring census count (Utah Division of Wildlife Resources (UDWR 2010a, UDWR 2015) with a low count of 1,866 in 1976 (Figure 3). We use established survey protocols for counting Utah prairie dogs and determining population trends. Counts are made in the spring before juveniles emerge and we estimate that only 50 percent of all adults within the colony are seen at any one time (Crocker-Bedford 1975). Counts of adult Utah prairie dogs from 2010 to 2014 are 5,642; 6,640; 7,979; 7,270; and 11,431 respectively (5 year average= 7,792) (Figure 3) (UDWR 2010a, UDWR 2012, UDWR 2014, UDWR 2015). Total population estimates are calculated using a formula that accounts for the adult population estimate derived from spring counts and the estimated reproduction:

> Population estimate = [(2 x Spring Adult Count) x 0.67 (proportion of adult females) x 0.97 (proportion of breeding females) x 4 (average number of young per breeding female)] + (2 x Spring Adult Count)

Overall, spring counts from the past 30 years show considerable annual fluctuations, but stable to increasing long-term trends in adult Utah prairie dog numbers.

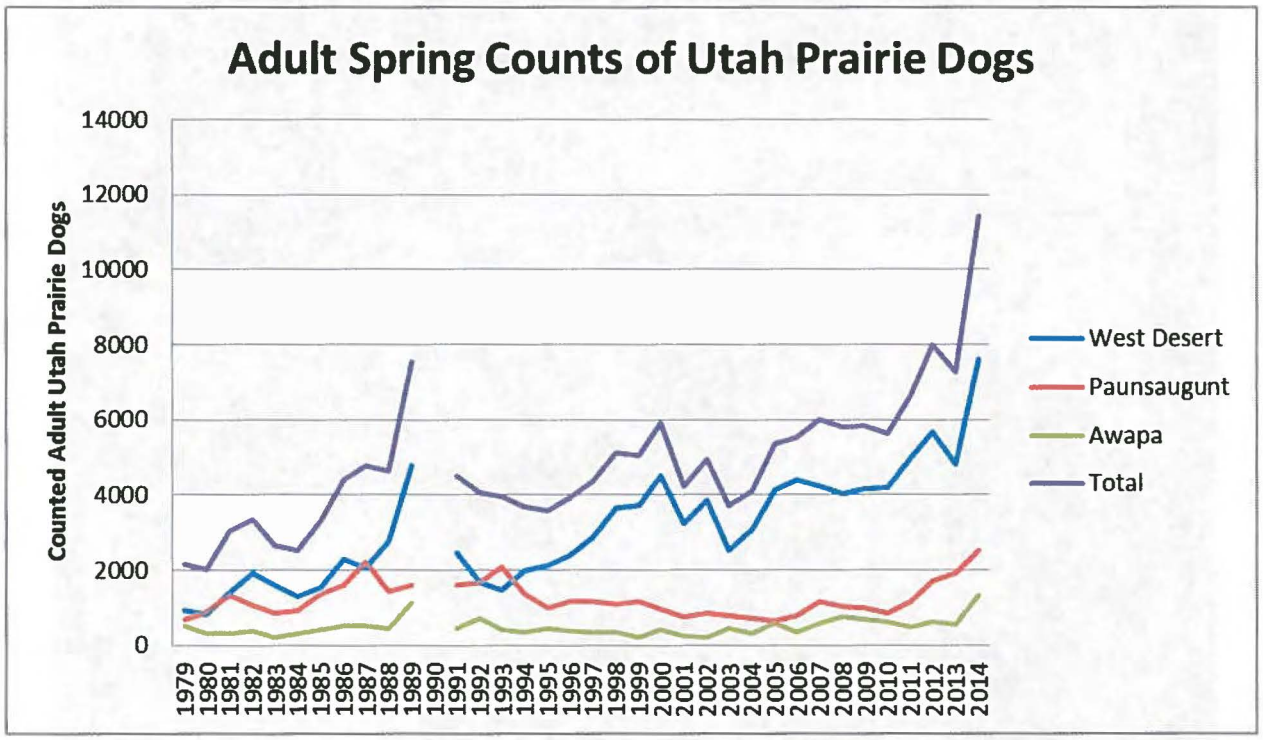

Figure 3. Graph of Adult Utah Prairie Dog Counts (1976-20014)[2].

2 The 1990 count has been removed because none of the private lands colonies were counted due to staffing and budget limitations.

In 1972, the UDWR began mapping occupied Utah prairie dog habitat throughout their range (USFWS 2012). The UDWR has mapped 59,656 acres as Utah prairie dog habitat (UDWR 2010b). Mapped Utah prairie dog habitat includes any and all areas within the species' range that were mapped since 1972 as currently or historically occupied by Utah prairie dogs. Official maps of mapped Utah prairie dog habitat are maintained by the UDWR and updated annually. Occupied habitats are areas of known Utah prairie dog habitat that, at the time in question, support Utah prairie dogs. There are 16,841 acres of mapped habitat in the West Desert Recovery Area; 15,620 acres of mapped habitat in the Paunsaugunt Recovery Area; and 27,195 acres of mapped habitat in the Awapa Recovery Area (Table 1) (UDWR 2010b).

Table 1. Mapped Utah Prairie Dog Habitat by Land Ownership (acres).

LAND OWNERSHIP[3]	RECOVERY UNITS		
	West Desert	Paunsaugunt	Awapa
U.S. Forest Service	140	3,776	8,591
Bureau Land Management	6,372	602	9,367
National Park Service	0	301	60
Protected Habitat	266	0	566
Utah School and Institutional Trust Lands Administration Lands	428	4,778	6,850
Private	9,969	6,163	1,761
Total	**17,175**	**15,620**	**27,195**
Habitat Removed (Developed)	400 (est)	0	0
Total Habitat Remaining	**16,775**	**15,620**	**27,195**

3 The definitions used in these tables for public, protected, and State Institutional Trust Lands Administration lands are found in the glossary.

Recovery Efforts

The 2012 Utah Prairie Dog Revised Recovery Plan (USFWS 2012) calls for the three recovery units (RU) to each contain 2,000 adult animals for 5 consecutive years (based on annual spring counts), and to maintain these population goals by protecting populations from habitat loss (i.e., development) and managing the threat of plague. Our recovery strategy for the Utah prairie dog focuses on the need to address colony loss and disease through a program that encompasses threats abatement, population management, research, and monitoring. We emphasize: conserving existing colonies; establishing additional colonies on federal and protected non-federal lands via habitat improvement or translocations; controlling the transmission of plague; and monitoring habitat conditions. Recent successes include the protection of over 1,200 acres of non-federal lands through habitat acquisitions and conservation easements with willing landowners; increased translocation successes on United States Forest Service (USFS) lands near Bryce Canyon National Park, due in part to increased plague management efforts; and the encouraging field trials and early success an oral plague vaccine.

A rangewide public-private partnership called the Utah Prairie Dog Recovery Implementation Program (UPDRIP) was initiated in 2010 (http://www.suu.edu/ad/regional/updrip/). There is currently limited funding available to pursue landscape-level conservation efforts for recovery of the species. However, the Program has already become a valuable tool for increasing coordination efforts and is preparing action plans for Utah prairie dog conservation. In addition, the support of UPDRIP partners has already proven important in obtaining some funding from various grant programs. In 2015 UDRIP changed its name to the Utah Prairie Dog Oversight Group (UPDOG).

All Recovery Team and Recovery Program members are involved in efforts to conserve and recover the Utah prairie dog using the best available information and adaptive management practices. We believe that the Utah prairie dog is a very recoverable species, particularly if we can successfully garner resources, cooperation, and dedication from all involved.

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Appendix D

Vegetation

The vegetation objectives represent best current knowledge of ideal parameters. Individual locations may vary from these parameters; however, each deviation from the vegetation objectives should be noted and explained. For example, *shrub ground cover at site xyz equals 10%. Of this 10%, 8% are subshrubs (generally <6" in height), and only 2% is big sagebrush. Other vegetation objectives are met at site xyz. Since the amount of subshrubs is not expected to interfere with Utah prairie dog visibility or compete with the herbaceous understory, site xyz is recommended as a translocation site.*

Refer to Appendix 1 for definitions and examples of the vegetation parameters. Habitat manipulation may be required at sites not meeting the vegetation objectives.

Warm season grasses: 1 - 20% ground cover

Cool season grasses: 12 - 40% ground cover

Forbs: 1 – 10% ground cover (perennial, non noxious)

Shrubs: 0 – 8% ground cover and <10% canopy cover

Minimum number of plant species: 10

Vegetation definitions

Vegetative Type	Definition	Examples
Warm season grasses	Grasses which "green up" and do most of their growing during the warm summer months.	Sand dropseed, curlygrass, mountain muhly, and grama grass.
Cool season grasses	Grasses which "green up" and do most of their growing during the cool spring months.	Indian ricegrass, squirreltail, western wheatgrass, crested wheatgrass, needle and thread grass, cheatgrass, bluegrass, and wildrye.
Forbs	Included are any herbaceous plant other than those in the grass family (*Poacae*). Must be palatable and provide nutritional value to prairie dogs.	Astragalus, alfalfa, aster, *Cymopterus* spp., buckwheat, fleabane, *Penstemon* spp., cinquefoil, phlox, globemallow, vetch, *Cryptantha* spp., lupine, crazyweed, clover, and goosefoot or pigweed.
Shrub	A plant with persistent, woody stems and a relatively low growth form, compared to trees, and that generally produces several basal shoots.	Sagebrush, big rabbitbrush, greasewood, four-wing saltbush, and broom snakeweed. Desirable subshrubs include forage kochia, winterfat, Gardiner saltbush, and little rabbitbrush.