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# 5- Year Review Short Form

**Species Reviewed:** Utah prairie dog (*Cynomys parvidens*)

**Federal Register Notice Announcing Initiation of this Review:** August 10, 2018. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 11 Species in the Mountain Prairie Region (83 FR 39771).

**Current Classification:** Threatened

**Current Recovery Priority Number:** 8C

The Recovery Priority Number for the Utah prairie dog is 8C. The rank of 8C is based on a moderate degree of threat (conflicts with economic development activities and plague), high recovery potential, and taxonomic standing as a species.

**Methodology Used to Complete this Review:**

The Utah Ecological Services Field Office used all pertinent literature and documents on file for this review, including new information obtained since the 2012 Utah Prairie Dog Revised Recovery Plan (hereafter referred to as the Recovery Plan) (USFWS 2012). In this review, we summarize and evaluate information provided in the Recovery Plan and current scientific research and surveys related to the species since the Recovery Plan was finalized. All pertinent literature and documents used in this review are on file at the Utah Ecological Services Field Office (see References section below for cited documents).

**Review Summary:**

***Species Taxonomy and Description***

Prairie dogs belong to the Sciuridae family of rodents, which also includes squirrels, chipmunks, and marmots. There are five species of prairie dogs, and all of these species have non-overlapping geographic ranges (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 (Pizzimenti 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 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).

***Life History and Population Dynamics***

Utah prairie dogs are hibernators and spend 4 to 6 months underground each year during the harsh winter months, although they are seen above ground during mild weather (Hoogland 1995). Adult males cease surface activity during August and September, and females follow suit several weeks later. Juvenile prairie dogs remain above ground 1 to 2 months longer than adults and usually go into hibernation by late November. Emergence from hibernation usually occurs in late February or early March (Hoogland 2003).

Mating begins 2 to 5 days after the females emerge from hibernation and can continue through early April (Hoogland 2003). Female Utah prairie dogs come into estrus (period of greatest female reproductive responsiveness, usually coinciding with ovulation) and are sexually receptive for several hours for only 1 day during the breeding season (Hoogland 2003). However, on average, 97 percent of adult female Utah prairie dogs are in breeding condition each year and successfully produce a litter (Mackley *et al.* 1988).

The young are born after a 28-to-30-day gestation period, in April or May (Hoogland 2003). Litters range in size from one to seven pups; mean litter size is 3.88 pups. Litter sizes vary directly with maternal body mass (Mackley *et al.* 1988; Hoogland 2001). Young prairie dogs depend almost entirely on nursing while in their burrow (Hoogland 2003). The young emerge above ground from late May through mid-June. By that time, they primarily forage on their own (Hoogland 2003; Kinross 2020). Young Utah prairie dogs 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 male and female Utah prairie dogs survive the first year (Hoogland 2001). Approximately 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 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.

Natal dispersal (movement of first-year animals away from their area of birth) and breeding dispersal (movement of a sexually mature individual away from the areas where it copulated) is comprised mostly of male prairie dogs. Thus, individual male prairie dogs have a high mortality rate through predation. Young male Utah prairie dogs disperse in the late summer, with average dispersal events of 0.35 mile (mi) (0.56 kilometers (km)) and long-distance dispersal events of up to 1.1 mi (1.7 km) (Mackley *et al.* 1988). Most dispersers move to adjacent territories (Hoogland 2003).

Utah prairie dogs are organized into social groups called clans, consisting of an adult male, several females, and their young (Wright-Smith 1978; Hoogland 2001; USFWS 2012). Clans maintain geographic territorial boundaries, which only the young regularly cross, although all animals use

common feeding grounds. Colonies are groups of animals with associated mounds, burrows, and food resources that are within calling distance. Social behaviors, especially vigilance and warning vocalizations, are important to survival of individuals in colonies and to the overall well-being of the colony. These units are genetically similar and vulnerable to local catastrophes, including epizootic plague outbreaks. Colonies may contain one or several clans (USFWS 2012).

Prairie dog colonies can range in size from a few individuals to hundreds of individuals. However, not all colonies contribute equally toward the persistence of the species [Utah Prairie Dog Recovery Implementation Team (UPDRIP) 2013)]. Larger prairie dog colonies contribute more toward the persistence of populations than smaller ones. Large colonies—colonies with a 5-year average annual spring count of more than 50 adult individuals—have a 95 percent probability of persisting for 200 years. Small colonies—colonies with a 5-year average annual spring count less than 20 individuals—contribute less to the long-term persistence of prairie dogs (UPDRIP 2013).

Utah prairie dogs occur in semiarid shrub-steppe and grassland habitats (McDonald 1993; Roberts *et al.* 2000; Bonzo and Day 2003). Within these habitats, they prefer swale-type formations where moist herbaceous vegetation is available (Collier 1975; Crocker-Bedford and Spillett 1981). Prairie dogs are predominantly herbivores, though they also eat insects (Crocker-Bedford and Spillett 1981; Hoogland 2003). Plentiful high-quality food found in swales enables prairie dogs to attain a large body mass, thus enhancing survival and increasing litter sizes and juvenile growth rates (Hoogland 2001). They often select colony sites in swales where the vegetation can remain moist even in drought conditions (Collier 1975; Crocker-Bedford and Spillett 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 Spillett 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 1982). 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.

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). Fleas are the most common vector for plague (Biggins and Kosoy 2001). Infected fleas can be brought into the vicinity of a prairie dog colony by a suite of mammals and fleas may survive for over a year after their hosts have died (Gage and Kosoy 2005). Plague is one of the primary threats to Utah prairie dogs (USFWS 2012). 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; Cully and Williams 2001; Gage and Kosoy 2005). During epizootic plague events, large numbers of prairie dogs can die within a few days (Lechleitner *et al*. 1962; Cully 1993). Plague results in local extirpations, reduced colony sizes, increased variation in local population sizes, and increased distances between colonies (Cully and Williams 2001).

There is limited understanding of the variables that determine when sylvatic plague will impact prairie dog populations. Enzootic plague may be influenced by factors including genetics, prairie dog immunity and physiologic state, and interactions with other bacteria (Gage and Kosoy 2005). The factors that result in epizootic plague outbreaks 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; Stapp *et al*. 2004; Gage and Kosoy 2005; Ray and Collinge 2005; Stenseth *et al*. 2006; Snäll *et al*. 2008; Biggins *et al*. 2010).

Major predators of Utah prairie dogs include coyotes (*Canis latrans*), badgers (*Taxidea taxis*), long-tailed weasels (*Mustela frenata*), various raptor species (*Buteo* spp., *Aquila chrysaetos*), and snakes (*Crotalus spp., Pituophus spp*.) (Hoogland 2001). In established colonies, predators probably do not exert a controlling influence on numbers of prairie dogs (Collier and Spillett 1972). However, predators likely have a large effect on translocation sites where an established social system or burrow system is not present.

***Distribution***

The Utah prairie dog is the westernmost member of the genus *Cynomys* and has the most restricted range of the four prairie dog species found in the United States. Historically, the species' distribution extended much farther north than it does today (Collier 1975; Pizzimenti and Collier 1975). Utah prairie dog populations declined dramatically when control programs to eradicate the species were initiated in the 1920s. The actual numeric population reduction is not known, because historical population figures were not scientifically derived (Collier and Spillett 1973). However, poisoning is estimated to have removed prairie dogs from approximately 20,000 acres (ac) (8,094 hectares (ha)) of their range prior to 1963 (Collier and Spillett 1972). Other factors that resulted in the historical decline of Utah prairie dogs were drought, habitat alteration from land conversion (agriculture, overgrazing, urbanization), unregulated shooting, and disease (Collier and Spillett 1972). The species' range is now limited to the southwestern quarter of Utah.

Significant concentrations of Utah prairie dogs occur in three areas that are identified as recovery units in the Recovery Plan (USFWS 2012), including the Awapa Plateau, Paunsaugunt, and West Desert recovery units. The Awapa Plateau recovery unit encompasses portions of Piute, Garfield, Wayne, and Sevier Counties. The Paunsaugunt recovery unit is primarily in Garfield County, with small areas in Piute and Kane Counties. The West Desert recovery unit is primarily in Iron County but extends into southern Beaver County and northern Washington County.

***Regulatory Status***

The Utah prairie dog was listed as an endangered species on June 4, 1973 (38 FR 14678). At the time of listing, the species was threatened with extinction due to habitat loss, over exploitation, disease, and predation. By May 1984, Utah prairie dog populations had expanded in portions of their range, and we reclassified the species to threatened status with a special 4(d) rule under the ESA to allow regulated take of up to 5,000 prairie dogs on agricultural lands in Iron County, Utah (49 FR 2330). The special 4(d) rule was revised in 1991 (56 FR 27438) to allow regulated take of up to 6,000 animals annually on private lands throughout the species' range. The special 4(d) rule was again revised on August 2, 2012 (77 FR 46158), to provide limits to the allowable take (i.e., 10 percent of the annual range-wide population estimate), and new incidental take exemptions for standard agricultural practices. The 2012 4(d) rule revision also included take exemptions for areas where Utah prairie dogs create serious human safety hazards or disturb the sanctity of significant human cultural or human burial sites.

### *Rangewide Population Trends*

Since 1976, Utah Division of Wildlife Resources (UDWR) has performed annual counts of Utah prairie dogs. Annual counts are usually conducted in April and May when the adults have emerged from hibernation, but before the young have emerged from their burrows. Annual counts are referred to as spring counts. Spring count surveys and population estimates are not complete censuses. These surveys are designed to monitor population trends over time (USFWS 2012). Based on the spring counts, rangewide population trends for the Utah prairie dog are stable to increasing since the time of listing (USFWS 2012; UDWR 2016; UDWR 2021). Despite this stable trend since the time of listing, Utah prairie dogs continue to show annual variability and the numbers across the range have decreased in recent years [Table 1, 2, 3, and 4 (UDWR 2021]. The rangewide count in 2020 (6,217 dogs) is approximately 54% of the count in 2016 (11,478 dogs).

The 5-year average (2016-2020) rangewide spring counts for the species is 9,379 dogs. The majority (57%) of the species continues to occur in the West Desert recovery unit (Table 1) and 88% of those dogs (within the West Desert) occur on private (unprotected) lands (Table 2).

Table 1. Range-wide and recovery unit spring counts adult Utah prairie dogs: 2016-2020 (UDWR 2021)

| Recovery Unit | 2016 | 2017 | 2018 | 2019 | 2020 | Average |
|---|---|---|---|---|---|---|
| Total West Desert Recovery Unit | 7764 | 6613 | 5189 | 3897 | 3140 | 5321 |
| Total Paunsaugunt Recovery Unit | 2630 | 2758 | 3048 | 2190 | 2201 | 2565 |
| Total Awapa Plateau Recovery Unit | 1084 | 899 | 756 | 686 | 876 | 860 |
| Total Range-wide count | 11478 | 10270 | 8993 | 6773 | 6217 | 9379 |

In the West Desert, there was an overall population decrease of 19% from 2019 to 2020 (averaging across all land ownerships). However, the number of adult Utah prairie dogs on public and protected lands within the West Desert increased 83% from 2019 to 2020. In 2020, 24% of all prairie dogs counted in the West Desert recovery unit were on public and protected lands.

Table 2. Spring counts by land ownership of Utah prairie dogs in the West Desert Recovery Unit: 2016-2020 (UDWR 2021)

| Ownership | 2016 | 2017 | 2018 | 2019 | 2020 | Average |
|---|---|---|---|---|---|---|
| Public | 494 | 387 | 341 | 181 | 413 | 363 |
| Protected | 227 | 233 | 198 | 235 | 350 | 249 |
| Private* | 7018 | 5983 | 4631 | 3433 | 2317 | 4676 |
| SITLA | 25 | 10 | 19 | 48 | 60 | 32 |
| West Desert Total Count | 7764 | 6613 | 5189 | 3897 | 3140 | 5321 |

*Includes Municipal and Tribal lands

In the Paunsaugunt, the numbers of Utah prairie dogs have been stable from 2019 to 2020 across all land ownerships. Counts on public and protected lands, as well as private and SITLA lands have showed very little variability between 2019 and 2020. In 2020, 66% of all prairie dogs counted in the Paunsaugunt recovery unit were on public and protected lands.

Table 3. Spring counts by land ownership of Utah prairie dogs in the Paunsaugunt Recovery Unit: 2016-2020 (UDWR 2021)

| Ownership | 2016 | 2017 | 2018 | 2019 | 2020 | Average |
|---|---|---|---|---|---|---|
| Public | 1147 | 1339 | 1739 | 1219 | 1286 | 1346 |
| Protected | 223 | 177 | 173 | 231 | 169 | 195 |
| Private | 1200 | 1104 | 1103 | 674 | 672 | 951 |
| SITLA | 60 | 138 | 33 | 66 | 74 | 74 |
| Paunsaugunt Total | 2630 | 2758 | 3048 | 2190 | 2201 | 2565 |

In the Awapa Plateau, there was an overall population increase of 28% from 2019 to 2020 (averaging across all land ownerships). There were increases on public and protected lands, as well as on SITLA lands. In 2020, 64% of all prairie dogs counted in the Awapa Plateau recovery unit were on public and protected lands.

Table 4. Spring counts by land ownership of Utah prairie dogs in the Awapa Plateau Recovery Unit: 2016-2020 (UDWR 2021)

| Ownership | 2016 | 2017 | 2018 | 2019 | 2020 | Average |
|---|---|---|---|---|---|---|
| Public | 431 | 298 | 322 | 374 | 506 | 386 |
| Protected (SITLA Banks) | 125 | 156 | 102 | 31 | 57 | 94 |
| Private | 200 | 275 | 190 | 165 | 139 | 194 |
| SITLA | 328 | 170 | 142 | 116 | 174 | 186 |
| Awapa Plateau Total | 1084 | 899 | 756 | 686 | 876 | 860 |

In summary, while the West Desert had increased Utah prairie dogs on public and protected lands between 2019 and 2020 (after declining since 2017) and the Awapa had increased dogs across all land ownerships (except private) between 2019 and 2020, the population target recovery criteria has not been met in these two recovery units. In the West Desert recovery unit, population numbers are relatively high and colonies are persisting; however, most occupied habitat is on non-Federal land and therefore considered vulnerable in this unit. The Awapa Plateau recovery unit retains smaller population sizes on both protected and unprotected lands; however, colonies are persisting in this unit, and the populations have shown a long-term increasing trend.

Within the Paunsaugunt recovery unit, the population has been stable across time (USFWS 2012), and has exceeded the species' population target (recovery plan criteria) of 5 consecutive years of spring counts above 1,000 prairie dogs on Federal or other protected lands (Kavalunas 2019, attachment; UDWR 2021). This is the 7$^{th}$ consecutive year (2020) for the population target to be met within the Paunsaugunt. The Paunsaugant unit includes extensive Federal lands that are managed for the long-term conservation of Utah prairie dog, and as such, they are considered to have regulatory assurances for future conservation. Due to these achievements on the Paunsaugunt, we are currently working on a 4(d) rule to allow greater management flexibility on private lands in this unit.

***Recovery Program and Regulatory Updates***

Achieving and sustaining increased populations of Utah prairie dogs on public and protected lands across the range of the species (focused mainly within the West Desert and the Awapa recovery units)

will support the overall conservation and recovery of the species. Partners are continually working towards this effort through recovery actions such as on-going translocations and translocation research in conjunction with habitat improvement projects and plague management. Recent (preliminary unpublished results) suggest translocation success may be highly affected by both avian and mammalian predation (UDWR 2021). There have also been efforts to increase the effectiveness of plague prevention measures. The sylvatic plague vaccine (SPV) has, been less effective than anticipated and does not appear to increase plague resistance. That said, numerous factors may affect the success of vaccination and more testing is likely needed to determine best management practices (Rocke *et al*. 2017). In addition to the SPV research efforts, partners (UDWR, BLM, and USFS) continue to apply Deltamethrin dust (insecticide) to assist in controlling fleas in colonies. Application of this chemical to burrow entrances appears to increase Utah prairie dog survival (Biggins and Godbey 2005). Future research into the use of Fipronil as another plague management tool for Utah prairie dogs may also be warranted as it has been proven effective in reducing flea densities on black-tailed prairie dog colonies (Eads *et al.* 2020, 2021).

A population viability analysis (PVA) for the Utah prairie dog was initiated in 2016 by UDWR in partnership with Brigham Young University. Work on the PVA continued throughout 2020 with expected completion before the end of 2021. The study is predominantly a retrospective analysis of 28 years of count data and evaluation of colony persistence as it relates to variables such as climate, land use, and management actions. The retrospective analysis is in draft form and is scheduled to be peer reviewed in 2021 before being finalized. The final analysis, conclusions, and recommendations may help guide conservation and recovery efforts for the species.

In April 2018, in consultation with UDWR and affected counties throughout the species range, we released a 10-year general conservation plan (GCP) to aid in the conservation of Utah prairie dogs by supporting community growth goals in the region and reducing undue regulatory burdens. To date, the GCP is working well for the counties and has expedited the permitting of human land-use, particularly commercial and residential development, while balancing the species' needs for recovery. In 2018, Friend of Animals legally challenged the validity and regulatory rigor of the GCP, and litigation is ongoing.

We are also working with School and Institutional Trust Lands (SITLA) to develop a safe harbor agreement for SITLA lands in the Awapa Plateau and Paunsaugunt recovery units. The safe harbor agreement would protect existing prairie dog colonies and allow for recovery actions that may improve the species status, such as habitat treatments, translocations, and plague management, for up to 50 years on SITLA lands while minimizing regulatory risk to the landowner.

In 2020, the State of Utah initiated the development of a conservation strategy for the Utah prairie dog intended to demonstrate that the species, under appropriate State management, would no longer require the protection of the Endangered Species Act (ESA) for long-term protection and persistence. The conservation strategy is currently in development and includes input from diverse partners and stakeholders including guidance from our office, County governments, and other Federal agencies. The State of Utah intends for this strategy to describe species status, conservation and management, and related information for consideration in a potential future status assessment.

**Recommendations on Species Status:**

After reviewing the best available scientific information and recovery criteria, we conclude that the Utah prairie dog remains a threatened species. Despite a sharp rise in numbers from 2013 to 2016, population numbers have subsequently declined, but the population numbers remain within a natural range of variability relative to the long-term data. Although recovery actions have supported species conservation and a positive population response, we consider the species vulnerable to plague and to some human land-use activities, particularly on lands without regulatory protections. Therefore, we recommend no change in status to the species at this time.

**Recommended Future Actions:**

- Increase populations and their protection on public and protected lands in the West Desert and Awapa Plateau recovery units through translocations and translocation research, plague management and research, and habitat management projects.
- Maintain the conservation achievements made in the Paunsaugunt recovery unit and finalize the Paunsaugunt 4(d) to allow greater management flexibility.
- Continue to seek rangewide opportunities for funding and securing habitat protection on private or unprotected lands (conservation easements or Safe Harbor Agreements), including completion of the Draft SITLA Safe Harbor Agreement.
- Continue annual monitoring of the species (spring counts) and the recent occupied habitat mapping (tracking occupied portions of mapped colonies across the range of the species).
- Continue to implement the GCP on a rangewide basis in partnership with UDWR and County governments.
- Develop and implement a public outreach and education program that promotes a better understanding of and appreciation for the biological and habitat values of the Utah prairie dog as well as tolerance and local support of the species.
- Continue cooperatively working with UDWR, Federal agencies, the Counties, and all Utah prairie dog partners to provide guidance and input to manage Utah prairie dog conservation and recovery in a manner that is biologically and legally defensible.

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**Approve:** _____ **Date:** _____

Yvette Converse, Field Supervisor
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