



United States Department of the Interior

FISH AND WILDLIFE SERVICE
UTAH ECOLOGICAL SERVICES
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

January 30, 2013

In Reply Refer To:

FWS/R6

ES/UT

6-UT-13-F-005

2012-F-0285

Edward T. Woolford
Federal Highway Administration
2520 West 4700 South, Suite 9A
Salt Lake City, UT 84129

Re: Final Programmatic Biological Opinion for the Utah Department of Transportation
(UDOT) Highway Preservation and Improvement Program

Dear Mr. Woolford,

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 the U.S. Fish and Wildlife Service's (USFWS or Service) final programmatic biological opinion (BO) for impacts to the Utah prairie dog (*Cynomys parvidens*) from the Utah Department of Transportation (UDOT) Highway Preservation and Improvement Program (Program). We received a biological assessment (BA) for the Program on September 12, 2012.

The Utah prairie dog is federally listed as a threatened species and occurs within the proposed Program area. This biological opinion is based on information provided in the September 2012 BA; meetings; and email and phone communications between our offices. A complete administrative record of this consultation is on file at this office.

CONSULTATION HISTORY

March 13, 2012

We had an informal preliminary discussion with UDOT on their Program and a programmatic approach to consultation, including: overall footprint of the proposed highway projects, types of

activities to be included, use of mapped Utah prairie dog habitat¹, conservation measures, and mitigation.

April 2, 2012 and April 4, 2012

We met with UDOT to discuss mitigation for Program effects to the Utah prairie dog. We covered several topics including: estimating the amount of acres to be impacted, qualities of the habitat, temporary vs. permanent impacts, and mitigation ratios. We also explained the differences between the mitigation calculations implemented for the Federal Aviation Administration (FAA) Programmatic BO and the use of credits from the Utah Prairie Dog Habitat Credit Exchange (UPDHCE).

April 25, 2012 - May 2012

We held various email and phone discussions on how to programmatically evaluate impacts to Utah prairie dogs. We agreed to categorize UDOT's Program into highway segments and assess the habitat quality along these segments. The habitat quality of the segments would be used to determine the amount of UPDHCE credits that UDOT would purchase to offset Program impacts to the Utah prairie dog.

June 1, 2012

We received a draft Programmatic BA and draft mitigation scenarios using UPDHCE credits from UDOT and FHWA.

June 5, 2012 – August 16, 2012

We reviewed and exchanged various drafts of the Programmatic BA.

September 12, 2012

We received the Final Programmatic BA from UDOT and FHWA.

January 24, 2013

We emailed a Draft Programmatic BO to UDOT and FHWA for their review. Assuming there are no major edits or comments on this draft by January 29, 2013, we agreed to provide a Final BO by February 1, 2013.

January 29, 2013

We received the Draft Programmatic BO from UDOT and FHWA with minor edits.

¹ Any habitat that was occupied by prairie dogs at any time since 1972 is referred to as "mapped habitat" (USFWS 2012). Official maps of Utah prairie dog habitat are maintained by the Utah Division of Wildlife Resources (UDWR) and are updated annually.

BIOLOGICAL OPINION

1 DESCRIPTION OF THE PROPOSED ACTION

1.1 ACTION AREA

The action area consists of sections of interstates and federal and state highways (collectively called “highway(s)” in this document) and their associated right-of-ways (ROWs) within Beaver, Garfield, Iron, Kane, Piute, Sevier, and Wayne counties where Utah prairie dog habitat is known to occur. The action area also includes a 350 foot buffer from the edge of the ROW to analyze indirect disturbance impacts to Utah prairie dogs. More specifically, these highways are portions of I-15, US-89, SR-12, SR-24, SR-25, SR-56, SR-62, SR-63, SR-72, SR-130, SR-143, and SR-271.

The proposed action would occur in unspecified highway locations over the 20-year planning horizon. The total width of a highway ROW varies as a function of the highway type, classification, and surrounding development. Therefore, the extent of potential direct and indirect impacts to Utah prairie dogs will be analyzed for the ROW width up to the ROW fence line (in non-developed areas) or to the sidewalk/developed infrastructure (in more developed areas), as applicable, plus a 350 foot buffer, on all highways within Utah prairie dog habitat. In our analysis of effects, the impacted area does not include pavement, the paved median in a divided highway, or paved/developed surfaces within the ROW area where mapped Utah prairie dog habitat exists. Maps which illustrate the specific action areas are included in Appendix D of the BA.

Although the footprint of these highways and some portions of the ROWs were previously disturbed, Utah prairie dogs and/or suitable habitat are often located in vegetated sections of ROWs, in the areas between off/on-ramps and the mainline of the interstate (the “gore” area), and in the portions of ROWs between the roadway surface and a sidewalk or parking lot in developed areas.

1.2 PROPOSED ACTION

A complete description of the proposed action is found within the September 2012 BA. The proposed action includes UDOT’s routine upgrade, maintenance, preservation and improvement activities on existing transportation corridors of south-central Utah over the next 20 years (2013-2033).

1.3 HIGHWAY PRESERVATION

UDOT uses a long-term statewide pavement management strategy along with a combination of routine maintenance, preventive maintenance, minor and major rehabilitation, and reconstruction activities to enhance pavement performance, extend pavement life, and address structural deficiencies (see Appendix E of the BA). Highway preservation activities which may occur in Utah prairie dog habitat in the next 20 years include:

- Upgrading or replacing existing fencing, signs, guardrail, and traffic signals
- Preserving a highway by resurfacing, restoration, rehabilitation, or reconstruction within the existing highway footprint
- Rehabilitating, reconstructing or replacing bridges or constructing grade separations to replace existing at-grade railroad crossings

These preservation activities would result in *temporary impacts* to Utah prairie dogs and their habitat. Generally, temporary impacts occur when projects do not extend into the following consecutive breeding season (not more than a single annual breeding season- approximately February 15th to April 15th) and the habitat can be successfully restored, or when there are buried structures that do not substantially alter Utah prairie dog habitat or behavior. Temporary impacts may include: dust, presence of construction machinery and workers, noise, and fumes. Temporary impacts will be assessed in units of acres. It is estimated that highway preservation activities comprise 80 percent of UDOT's construction activities within mapped Utah prairie dog habitat.

1.4 HIGHWAY IMPROVEMENTS

Improvements to existing highways in the form of new construction result from a demonstrated transportation need. These needs are based upon items such as safety, aesthetics, or change in highway use by the public. Highway improvements which may occur in Utah prairie dog habitat in the next 20 years include:

- Constructing bicycle and pedestrian lanes, paths, and facilities
- Installing noise barriers
- Landscaping
- Installing new fencing, signs, guardrail, and traffic signals
- Installing ramp metering control devices and lighting to improve highway safety or traffic operations
- Modernizing a highway by adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing)
- Constructing transportation corridor fringe parking facilities
- Constructing new truck weigh-stations or rest areas

These improvement activities would result in *permanent impacts* to Utah prairie dogs and their habitat. *Permanent impacts* are those impacts that will result in the permanent removal of Utah prairie dog habitat and/or mapped habitat for use by Utah prairie dogs. Permanent impacts are associated with projects that have a permanent surface disturbance or buried structure(s) that may substantially alter Utah prairie dog habitat or behavior, or impacts that extend into the following consecutive breeding season (lasting more than a single annual breeding season- approximately February 15th to April 15th). Permanent impacts will be assessed in units of acres. It is estimated that highway improvement activities comprise 20 percent of UDOT's construction activities within mapped Utah prairie dog habitat.

1.5 APPLICANT COMMITTED CONSERVATION MEASURES

The following conservation measures will be incorporated into the UDOT Program covered by this Programmatic BO where the project occurs within mapped Utah prairie dog habitat.

- A UDOT Representative² will perform a pre-construction survey for Utah prairie dogs in the project area before construction begins. This survey will determine if the habitat is occupied by Utah prairie dogs (per details in the Utah Prairie Dog Survey Protocol, Appendix C of the BA) to establish where specific conservation measures should be applied. The UDOT Representative will also assess the habitat quality (low/medium/high) to assist with tracking UDOT's mitigation process and the sufficiency of purchased UPDHCE credits.
- A UDOT Representative will inform all project site employees, including contractors, of the occurrence of Utah prairie dogs in the project area and of the threatened status of the species. All project employees shall be advised as to the definition of "take" and the potential penalties (up to \$200,000 in fines and one year in prison) for taking a species listed under the Endangered Species Act. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct; may include significant habitat modification or degradation if it kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering."
- A UDOT Representative will be on-site to monitor and document incidental take, and suspected incidental take of Utah prairie dogs when work occurs within 350 feet of occupied Utah prairie dog habitat. The Representative will ensure that all construction activities within 350 feet of occupied Utah prairie dog habitat are closely monitored and in compliance with the terms and conditions established by the USFWS in the Programmatic BO. The Representative will have the authority to halt activities which may be in violation those terms and conditions. The Representative will provide UDOT and the USFWS with a Post-Construction Compliance Report including the location, date, time, and number of Utah prairie dog individuals incidentally taken, or suspected of being incidentally taken. The Report will be submitted to UDOT and the Utah Division of Wildlife Resources (UDWR) within one month of project completion and annually (due January 15th each year) to USFWS based upon the Reporting Requirement of the Programmatic BA and BO. Refer to Section 9 of the BA for more monitoring and reporting details.

² A UDOT Representative must include qualified biologists (i.e. a biologist with a bachelor's degree or graduate degree in biology, ecology, wildlife biology, mammalogy, or related fields; or he/she must have demonstrated prior field experience using accepted resource agency techniques to survey for Utah prairie dogs, a minimum of 20 hours of documented field experience surveying and monitoring Utah prairie dogs and prairie dog sign, and/or completion of the official Utah Prairie Dog Training every four years), or certification as a UPD specialist by the USFWS (requires completion of UPD Training, knowledge of UPD Habitat Assessment, and UDOT/USFWS Temporary/Permanent Impacts Assessment certification).

- No domestic dogs are allowed on-site.
- A trash abatement program shall be implemented during all phases of a project and shall continue through the duration of the project. All construction refuse shall be disposed of properly and not left uncontained on-site overnight.
- Precautions shall be taken to ensure that contamination of maintenance sites by fuels, motor oils, grease, etc. does not occur and that these materials are contained and properly disposed of off-site. Inadvertent spills of toxic or petroleum-based materials shall be cleaned up and removed immediately.
- Vehicle and equipment maintenance will not be conducted within any Utah prairie dog habitat.
- To avoid the spread of noxious weeds, seeds, and petroleum products (as appropriate), construction equipment must be washed prior to entering the work site. UDOT will also be following their Invasive Weed Control Specifications.
- Any temporary construction activities such as staging areas, access roads, storage, etc. will be limited to areas not occupied by Utah prairie dogs.
- Construction work within occupied Utah prairie dog habitat should only occur during daylight hours while the qualified biologist/Representative is on-site, and while dogs can actively avoid bodily harm. Construction within Utah prairie dog habitat will occur during the active season when possible (June 1 - August 31) when juveniles have emerged and are able to move away from project activities and before hibernation begins. In cases where it is not possible to time/schedule construction entirely within the active season, construction will not occur from October 1-March 31 so as to avoid disruption of normal breeding behavior and hibernation.
- Before the commencement of any construction projects that are beyond the edge of the pavement and are within 100 feet of occupied Utah prairie dog habitat (measured from the edge of the ROW), the active construction area will be delineated with temporary fencing. The fencing would need to occur in these areas between April 1st and September 30th when prairie dogs are most active. Fencing will be installed as feasible and appropriate to deter Utah prairie dogs from entering the active construction area and not entrap Utah prairie dogs within the limits of construction. The fencing will have a minimum height of two feet from the ground surface and be buried adequately.
- The USFWS and UDWR will be notified by UDOT in the winter season of any highway preservation or improvement projects planned for the next construction season. This notification will allow the UDWR to trap and move Utah prairie dogs from the identified project area(s), if they are able. If the UDWR chooses to trap, UDOT will attempt to schedule construction after trapping has occurred. If the nature of the construction prevents delaying the schedule, UDWR may trap animals during the summer before planned construction, or they may conduct trapping in the year of planned construction but prior to project commencement after being given a 30-day notification.

1.5.1 UPFRONT MITIGATION

In order to mitigate for impacts from the proposed action, UDOT will make a one-time payment to the UPDHCE administered by the Panoramaland & Color Country Resource Conservation & Development Council (RC&D) to purchase sufficient credits to offset the calculated temporary and permanent impacts to the Utah prairie dog. Contributing to the UPDHCE allows UDOT to assist with Utah prairie dog conservation and recovery efforts by providing mitigation through a landscape level approach. The UPDHCE was established to protect Utah prairie dog habitat by establishing perpetual conservation easements on private lands across the species range. The UPDHCE is utilized as a conservation banking mechanism that provides credits to offset impacts of private and federal development activities.

Credit purchases from the UPDHCE are determined based on an assessment of the habitat quality of the easements as compared to the impacted habitats. For UDOT's Program, the Service performed a GIS-based habitat quality assessment for the action area. The habitat quality assessment ranks habitat as low, medium or high based on a variety of factors such as: plant diversity, canopy and ground cover, dispersal distance to other colonies, persistence, and Utah prairie dog population size. Results from this assessment are in Appendix F of the BA. The action area contains a range of low, medium, and high quality habitat (Tables 1 and 2).

It is not possible to identify the precise location of preservation or improvement projects for those highways included in the action area. As such, UDOT assumes all highways in the action area will undergo preservation and/or improvement activities one or more times over the term of the BA/BO (20 years). Based upon past experience UDOT estimates that the Program will impact up to 115.28 acres over the next 20 years, and of that amount 80 percent (92.22 acres) will be temporary impacts and 20 percent (23.06 acres) will be permanent impacts (Table 2).

The UPDHCE uses a mitigation ratio calculation system that incorporates the quality of habitat impacted, and accounts for whether impacts are temporary or permanent. Results from the multiplier calculation are used to establish the number of credits needed to offset impacts as a result of implementing the Program (Table 2).

Table 1. Action area highway segment, acreage, and habitat quality assessment by Recovery Unit.

Highway Segment	Impacted Acreage	Assessed Habitat Quality
<i>Awapa Plateau RU</i>		
SR-72, Fremont to 1-70	12.38	Low
SR-24, SR-62 Jct. to Bicknell	5.62	Low
SR-25, Fish Lake Scenic Byway	0.01	Low
SR-62, Otter Creek to Jct. with SR-24	0.59	Medium
Subtotal	18.59	
<i>Paunsaugunt RU</i>		
SR-63, Jct. SR-12 to Bryce Canyon Nat'l Park	8.00	Medium
US-89, Jct. SR-12 to Long Valley Junction	8.89	Medium
US-89, Jct. SR-12 to Panguitch	2.26	Medium
US-89, Panguitch to Circleville Canyon	7.11	High
SR-143, Panguitch to Panguitch Lake	1.45	Medium
SR-12, Tropic to Jct. US-89	3.49	Medium
Subtotal	31.21	
<i>West Desert RU</i>		
I-15, Cedar City to Kanarrville	4.16	Medium
SR-130, Cedar to Minersville	1.66	Medium
SR-56, Cedar City to Newcastle Pass	0.83	Medium
I-15, Jct. SR-20 to Parowan	44.81	High
I-15, Parowan to Cedar City	14.02	Medium
Subtotal	65.48	
Total	115.28	

Table 2. UPDHCE Mitigation Calculation

Habitat Type	Acres Impacted	Temp. Acres (80%)	Mitigation Multiplier (Temp.)	Credits Needed (Temp.)	Perm. Acres (20%)	Mitigation Multiplier (Perm.)	Credits Needed (Perm.)	Total Credits Needed
Low	18.01	14.41	1.2	17.29	3.60	6	21.61	
Medium	45.35	36.28	1.6	58.05	9.07	8	72.56	
High	51.92	41.54	2.0	83.07	10.38	10	103.84	
Total	115.28	92.22		158.41	23.06		198.01	356.42
<i>\$126,727.68</i>					<i>\$158,409.60</i>			\$285,137.28

UDOT will purchase a total of 356.42 credits (158.41 temporary and 198.01 permanent) to offset estimated project impacts to the Utah prairie dog (Table 2). The UPDHCE has established a value of \$800 per credit. Prior to the commencement of construction activities, UDOT will make a one-time compensation payment of \$285,137.28 to the UPDHCE to offset impacts to Utah prairie dogs and their habitat as a result of implementing the proposed action.

Implementing this mitigation will allow UDOT crews and contractors to proceed with highway preservation and improvement activities, including incidental take of habitat and Utah prairie dog individuals, until the year 2033 or until the total number of mitigated acres is applied, whichever comes first. These activities will be completed in compliance with the proposed mitigation set forth, and in compliance with the Applicant Committed Conservation Measures. A specific procedure for determining and reporting the total acres impacted on individual projects is established in Section 9 of the BA.

Each individual project will count against the total mitigation credits purchased. Highway sections will likely be repeatedly treated over the course of the next 20 years. Highway sections will only be mitigated once for each type of mitigation – temporary or permanent. A project ROW that initially has temporary impacts can be assessed and mitigated for permanent impacts on a later project should the nature of the impacts change. However, individual projects with repeated temporary impacts (from future treatments over 20 years) will only be mitigated for once- as long as those temporary impacts do not occur over two consecutive breeding seasons. If temporary impacts occur in the same area for two consecutive breeding seasons, then the impacts will be assessment and mitigated as permanent.

If it becomes apparent that the number of mitigation credits (low, medium, high) should be adjusted to better match the implementation of the proposed action (for example, there is an excess of “high quality” credit remaining, while “low quality” credit is limited), UDOT and USFWS will adjust the credit balance using the previously described mitigation ratios (see Table 2).

It is expected that all of the credits acquired as part of this mitigation payment will be used by the year 2033. Should impacts exceed the purchased credits, then UDOT will re-initiate consultation with the USFWS. Additional credits will be purchased if necessary to complete Program activities. Additional mitigation credits will be acquired based upon the market value in available conservation banks at the time of purchase.

In the event that a surplus of credits remains after 2033, UDOT and the USFWS will meet to verify the acreage impacted to date and the total credit remaining from the original Assessment. Any remaining acreage and credits can be applied to mitigate for future highway projects.

2 STATUS OF THE SPECIES/ CRITICAL HABITAT

The range wide status of the Utah prairie dog consists of information on its listing history, species account, life history and population dynamics, status and distribution, and recovery efforts. There is no designated Critical Habitat for this species. This information is provided as an attachment to this BO (Appendix A).

3 ENVIRONMENTAL BASELINE

The Program will occur within all three Recovery Units (RUs) of the Utah prairie dog (Figure 1). Program activities within the Awapa Plateau RU contain portions of State Route (SR) 24, SR-25, SR-62 and SR-72; within the Paunsaugunt RU contain portions of SR-12, SR-63, SR-143 and US-89; and within the West Desert RU contain portions of SR-56, SR-130, SR-143, SR-271 and I-15. Specific road segments affected are listed in Table 1.

The Awapa Plateau RU encompasses portions of Piute, Garfield, Wayne, and Sevier Counties. The Awapa Plateau RU supports approximately 8% of all surveyed adult Utah prairie dogs (601 of 7,867), (UDWR 2012), with 67% on public and protected lands. The Paunsaugunt RU overlaps Garfield County and a small area of Iron County. The Paunsaugunt RU supports approximately 21% of all surveyed adult Utah prairie dogs (1,691 of 7,867), (UDWR 2012), with 34% on public lands. The West Desert RU occurs primarily in Iron County, but extends into southern Beaver County and northern Washington County. The West Desert RU supports approximately 71% all surveyed adult Utah prairie dogs (5,575 of 7,867), (UDWR 2012), with 9% on public and protected lands. The total mapped habitat across the range of the species is 61,630 acres- with 27,533 acres in the Awapa Plateau RU, 15,881 acres in the Paunsaugunt RU, and 18,216 acres in the West Desert RU (UDWR 2012).

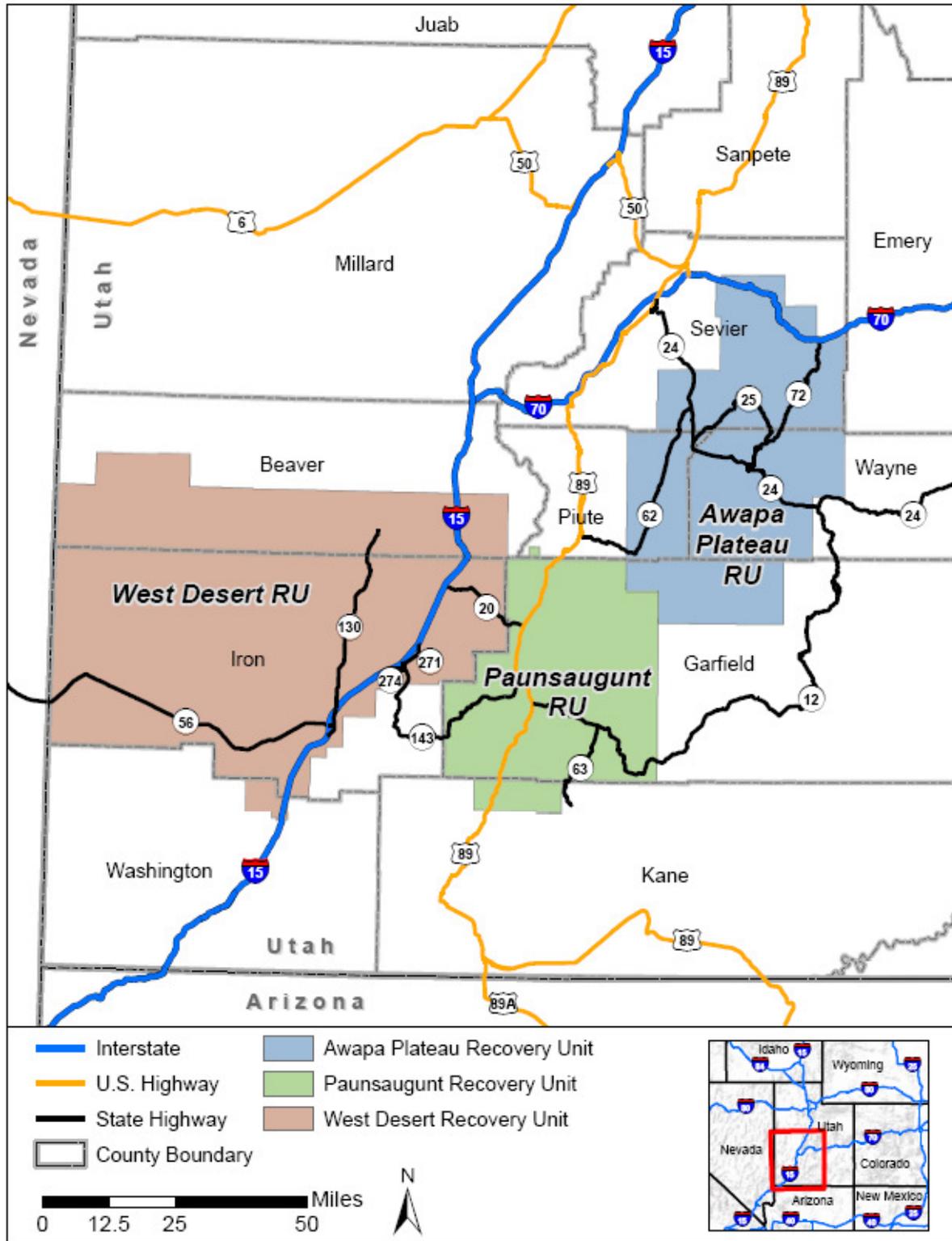


Figure 1. Project areas are along federal and state highways in Utah which intersect mapped Utah prairie dog habitat.

3.1 STATUS OF THE SPECIES WITHIN THE ACTION AREA

Utah prairie dog habitat, for the purposes of this programmatic analysis, was considered any area that was mapped habitat³ by the UDWR as of 2012. Although the footprint of these highways and some portions of the ROWs have been previously disturbed, Utah prairie dogs and/or suitable habitat are often located in vegetated sections of ROWs, in the areas between off/on-ramps and the mainline of the interstate (the “gore” area), and in the portions of ROWs between the roadway surface and a sidewalk or parking lot in developed areas. These areas may be impacted during implementation of UDOT’s Program.

Based on a GIS analysis of UDWR mapped Utah prairie dog habitat, approximately 115.28 acres of Utah prairie dog habitat occurs within the footprint area of UDOT’s Highway Preservation and Improvement Program. Of this acreage, 18.59 acres occurs in the Awapa RU, 31.21 acres in the Paunsaugunt RU, and 65.48 acres in the West Desert RU (see Table 1; section 6.2 and Figure 2 in the BA).

We estimated the number of Utah prairie dogs that may be located within 350 feet of these 115 acres. UDWR calculated the number of surveyed colonies (total adults counted in the spring) that are either within, or intersect a 350 foot buffer of all state highways within the three RUs. For this analysis, if a colony intersected the 350 foot buffer, the entire colony count was summed, as we are unable to know the precise location of the dogs within each colony, and the prairie dogs can move over the course of the 20 year Program timeframe. Based on UDWR’s 2012 data, the Utah prairie dog adult spring count within 350 feet of the action area is 2,724 dogs. Although this calculation is the best available data for estimating the amount of Utah prairie dogs within the action area, it overestimates the prairie dogs within the action area because it includes portions of mapped colonies that extend well beyond the 350 foot disturbance buffer.

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 1975).

Adult Pop Estimate = 2 X (Adult Spring Count)

Using the above equation and the spring adult counts from the 2012 survey, the adult population estimate for all mapped colonies that occur entirely or partially within 350 feet of the action area is 5,448 Utah prairie dogs. In the summer, pup production can increase this number to approximately 19,600 Utah prairie dogs (see equation below and more detailed biological information in the Utah Prairie Dog Recovery Plan, USFWS 2012).

³ Any habitat that was occupied by prairie dogs at any time since 1972 is referred to as “mapped habitat” (USFWS 2012). Official maps of Utah prairie dog habitat are maintained by the Utah Division of Wildlife Resources (UDWR) and are updated annually.

Population Estimate = [(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)4] + (2 x Adult Spring Count)

Population Estimate = [(2 x 2,724) x 0.67 x 0.97 x 4] + (2 x 2,724) = 19, 611 Utah prairie dogs

3.2 FACTORS AFFECTING THE SPECIES ENVIRONMENT WITHIN THE ACTION AREA

As described above, various sections of interstates and highways and their associated right-of-ways (ROWs) within Beaver, Garfield, Iron, Kane, Piute, Sevier, and Wayne counties are located where Utah prairie dog habitat is known to occur. These Utah prairie dogs are exposed to human activity, heavy vehicle traffic and accompanying noise, and noise associated with routine highway operations. Historically, a portion of the Utah prairie dogs and their habitats along these highways have been disturbed through highway construction and maintenance. Properties adjacent to these highways are subject to agricultural, suburban, and industrial development. These land use practices result in habitat loss and barriers to dispersal of the prairie dogs. Utah prairie dog habitat quality assessments on each highway segment are found in Appendix F of the BA.

Utah prairie dogs in the action area and across the species' range are also susceptible to plague. Plague is caused by a bacterium (*Yersinia pestis*) not native to North America. Fleas are the most common vectors (Biggins and Kosoy 2001). Plague results in local extirpations, reduced colony sizes, increased variation in local population sizes, and increased distances between colonies (Cully and Williams 2001). Plague occurs within all three Utah prairie dog RUs.

4 EFFECTS OF THE PROPOSED ACTION

There are a total of 115.28 acres of Utah prairie dog habitat that may be directly impacted by the proposed action (see Table 2). Of these 115.28 acres, it is currently estimated that temporary impacts will total 92.22 acres, while permanent impacts will total 23.06 acres. Effects to the Utah prairie dog will differ depending on the activity type: preservation activities (temporary impacts) versus improvement activities (permanent impacts).

The use of vehicles and the operation of heavy equipment may result in injury or mortality of individual animals. However, because construction activities will primarily occur during the active season when juveniles and adults are mobile, the risk of injury or mortality to individuals is reduced. Moving vehicles and equipment to and from work areas may directly impact Utah prairie dogs by damaging existing burrows. Although burrows may be damaged, some prairie dogs will retain the ability to maintain a functional burrow system in the disturbed areas. However, other prairie dogs may be displaced and either excavate new burrows or relocate to other areas. When prairie dogs are excavating or relocating to new burrows, they may be more vulnerable to predation.

Individuals and their habitat will likely be subject to temporary impacts as a result of Program construction activities. Temporary impacts include: scattering of dust and gravel as part of "sweeping" operations on a rotomill and overlay project, fumes from asphalt paving operations,

the presence of construction equipment, machinery/equipment noise and vibration, and increased human activity. These temporary impacts may result in reduced daytime foraging and/or temporary displacement of animals. Temporary impacts are expected to occur as a result of pavement preservation activities and will cease to exist once the construction is complete.

Permanent impacts associated with Program activities include: loss of habitat from paving over Utah prairie dog burrows that exist in the road shoulder (paved, gravel, or dirt) and/or ROW and loss of habitat from activities such as installing new guardrail/signs or adding auxiliary (passing) lanes. Reduction in habitat as a result of highway improvement activities may reduce foraging opportunities and lead to habitat fragmentation.

Occupied prairie dog colonies within 350 feet of the project areas are likely desensitized to human activity to some degree because they occur within highway corridors with vehicle traffic, agricultural activities, and recreational activities. We anticipate that the level of additional disturbance to prairie dogs from temporary project related activities associated with this proposed action will be minimal. With the exception of the estimated permanent loss of 23.06 acres of Utah prairie dog habitat, we anticipate that the Utah prairie dogs will return to the areas they were temporarily displaced from once project related activities are completed.

The Applicant Committed Conservation Measures and the Upfront Mitigation (purchase of UPDHCE credits) are intended to offset impacts to Utah prairie dogs and their habitat. In fact, the purchase of credits from the UPDHCE will benefit the Utah prairie dog on a landscape level by allowing the perpetual protection of Utah prairie dog habitats across the species' range.

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.

Utah prairie dogs in and adjacent to the action area may be affected by heavy vehicle traffic, future development and human activities on private, state, and public lands including public and private roads, commercial property, private homes and subdivisions, and agricultural and recreational activities. Approximately 70% of all known Utah prairie dogs occur on private lands (USFWS 2012), the same lands that are prioritized for residential and industrial development. Impacts associated with these developments are one of the primary threats to the species.

The predominant effect of urban expansion is the permanent loss of Utah prairie dog habitat. Developments also result in habitat fragmentation, which diminishes the prairie dog's ability to disperse and exchange genetic material critical to maintaining a viable population. Colonies adjacent to these highway segments and possible future developments are thus likely to become more isolated from other colonies due to the cumulative effects associated with development. Urban expansion also increases exposure to domestic and feral dogs and cats, which both prey on prairie dogs and introduce fleas that act as a vector for plague (CDC 2005).

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. No critical habitat is designated for this species.

We have reached this conclusion based on the following reasons:

- The proposed project includes preservation activities (temporary impacts) and improvement activities (permanent impacts) on 115.28 acres of Utah prairie dog habitat. Of these 115.28 acres, it is currently estimated that temporary impacts will total 92.22 acres, while permanent impacts will total 23.06 acres. This equates to a relatively small amount (0.002%) of mapped habitat range wide, and most of this habitat was previously disturbed during initial highway construction. Also 80% of the impacted acreage will result in temporary impacts and will allow for continued use by Utah prairie dogs.
- The proposed project minimizes the potential for take of Utah prairie dogs and occupied habitat by incorporating conservation measures included in the Applicant Committed Conservation Measures of UDOT's BA and this BO.
- The proposed project will also help to offset the estimated project impacts by purchasing a total of 356.42 credits (158.41 temporary and 198.01 permanent) from UPDHCE. Contributing to the UPDHCE allows UDOT to assist with Utah prairie dog conservation and recovery efforts by providing mitigation through a landscape level approach.
- Many of the Utah prairie dog colonies adjacent to these highway segments have persisted despite long-term vehicle traffic, development, and human activities within and adjacent to occupied habitat. Therefore, we do not anticipate that the proposed action will result in the complete loss of prairie dogs within the project areas.

7 INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by us to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by us as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Project Proponent so that they become binding conditions of any grant or permit issued to the Project Proponent, as appropriate, for the exemption in Section 7(o)(2) to apply. We have a continuing duty to regulate the activity covered by this Incidental Take Statement. If the Project Proponent (1) fails to assume and implement the terms and conditions or (2) fails to require any contractor to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to any grant document, the protective coverage of Section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Project Proponent or contractor must report the progress of the action and its impact on the species to us as specified in the Incidental Take Statement [50 CFR §402.14(i)(3)]

AMOUNT OR EXTENT OF TAKE ANTICIPATED

UDOT's Program includes preservation activities (temporary impacts) and improvement activities (permanent impacts) on 115.28 acres of Utah prairie dog habitat. Of these 115.28 acres, it is currently estimated that temporary impacts will total 92.22 acres, while permanent impacts will total 23.06 acres.

Incidental take is expected to be in the form of harm (injury or mortality related to project activities, habitat degradation or loss, loss of forage) and harassment (resulting from disturbance of individuals during foraging or encouraging animals to move out of harm's way). Harassment may occur due to the indirect effects of project noise levels, dust, ground vibration, and increased human activity. Harassment is anticipated to be temporary, and confined to the length of construction. We also believe that the level of harassment is likely to be small because these prairie dogs already exist with a high level of human disturbance caused by traffic and noise from the adjacent highway corridor.

As explained in Section 3.1, the estimated adult Utah prairie dog adult spring count within 350 feet of the action area is 2,724 dogs and the adult population estimate is 5,448 Utah prairie dogs. UDOT's Program will impact 115.28 acres over 20 years which equates to approximately 5.8 acres/year. Although any Utah prairie dog within 350 feet of UDOT's proposed activities has the potential to be harassed by disturbance from increased human activities and noise from construction and operational equipment; we anticipate that 273 prairie dogs will be harassed annually in the implementation of UDOT's Program:

$115.28 \text{ acres impacted over } 20 \text{ years} \div 20 \text{ years} = 5.8 \text{ acres/year}$

$5,448 \text{ prairie dogs} \div 115.28 \text{ acres} = 47 \text{ dogs/acre}$ are estimated to be within 350 feet of project

$5.8 \text{ acres/year} \times 47 \text{ dogs/acre} = 273 \text{ prairie dogs/year}$ are estimated to be harassed annually

There is also the potential for UDOT's Program to result in the mortality of individual Utah prairie dogs. We anticipate that no more than 55 prairie dogs will be incidentally killed annually for the 20 year term of the Program (until 2033). We believe this is an appropriate estimate because it accounts for approximately 20% of the annual impacted Utah prairie dog population estimated to be within 350 feet of the action area.

$20\% \times 273 \text{ prairie dogs} = 55 \text{ prairie dogs/year}$ estimated annual mortality

If the annual take exceeds 273 prairie dogs/year (harassment) or 55 prairie dogs/year (mortality), all construction activities must be halted and the section 7 consultation reinitiated (refer to Section 10 of this BO).

EFFECTS OF TAKE

In the accompanying biological opinion, we determined that this level of anticipated take is not likely to result in jeopardy to the species. This biological opinion does not authorize any form of take that is not incidental to UDOT's Preservation and Improvement Program.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the Act, UDOT/FHWA must ensure that any activities associated with this Highway Preservation and Improvement Program comply with all of the Applicant Committed Conservation Measures and the Upfront Mitigation included in the Description of the Proposed Action of this BO. No additional reasonable and prudent measures or terms and conditions are necessary.

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 office of the Utah Division of Wildlife Resources 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 the USFWS's 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.

As described in the Upfront Mitigation section of this BO, UDOT, in cooperation with FHWA, have committed to mitigate Utah prairie dog habitat impacts associated with the proposed action with a one-time compensation payment of \$285,137.28 to the UPDHCE prior to the commencement of project impacts. This payment will purchase a total of 356.42 credits (158.41 temporary and 198.01 permanent) to offset the estimated project impacts. Contributing to the UPDHCE allows UDOT and FHWA to assist with Utah prairie dog conservation and recovery efforts by providing mitigation through a landscape level approach. We believe this effort will help USFWS to achieve on-the-ground conservation benefits for the Utah prairie dog that will

ultimately contribute to recovery of the species. This commitment on the part of UDOT and FHWA clearly meets responsibilities under sections 7(a)(1) and 7(a)(2) of the Act.

10 REINITIATION NOTICE – CLOSING STATEMENT

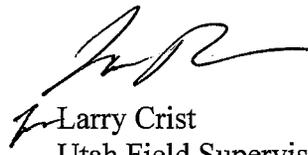
This concludes formal consultation on the UDOT/FHWA Highway Preservation and Improvement Program. As provided in 50 CFR sec. 402.16, reinitiation of formal consultation is required for projects where discretionary Federal Agency involvement or control over the action has been retained (or is authorized by law) and under the following conditions:

1. The amount or extent of take specified in the Incidental Take Statement for this opinion is exceeded.
2. 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.
3. The action is subsequently modified in a manner that causes an effect to listed species or critical habitat that were not considered in the biological opinion.
4. A new species is listed or critical habitat designated that may be affected by the action.

In instances where the amount or extent of incidental take is exceeded or if the terms and conditions of this biological opinion are not fully implemented, any operations causing such take must cease immediately pending re-initiation. To re-initiate section 7 consultation, UDOT/FHWA should immediately notify our office by phone or email if the anticipated incidental take is exceeded or if UDOT/FHWA needs to change the proposed action. As long as the scope of the proposed action in this biological opinion remains the same (i.e., impacted acreages and temporary and permanent acreage estimates do not change), re-initiation of consultation will not result in additional mitigation requirements exceeding those already committed to by UDOT/FHWA.

Thank you for your interest in conserving threatened and endangered species. If we can be of further assistance, please contact Kate Novak at (801)975-3330 x132.

Sincerely,


for Larry Crist
Utah Field Supervisor

cc: Brandon D. Weston, Environmental Services Director, Utah Department of Transportation, P.O. Box 14850, Salt Lake City, UT 84114-8450

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

bcc: Project file
Reading file

File: Formal Section 7 Consultations 6-UT-13-F-005

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Appendix A.

Utah Prairie Dog

(Cynomys parvidens)

Status of the Species: May 2012

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. 2012. Utah Prairie Dog (*Cynomys parvidens*) Status of the Species: May 2012. U.S. Fish and Wildlife Service, West Valley City, Utah. 14 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 305 to 360 millimeters (mm) (12 to 14 inches (in)) long (Hollister 1916) and weigh about 640 to 1410 grams (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 (30 to 70 mm / 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. On June 2, 2011, we proposed revisions to our 1991 special 4(d) rule. These proposed revisions included identifying maximum allowed take, locations where take is allowed (agricultural lands and properties near conservation lands), timing of allowed take, and methods of allowed take. Based on comments received, we are considering changes to the proposed rule.

Critical habitat has not been designated for this species.

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 0.56 kilometer (km) (0.35 mile (mi)), long-distance dispersal events of up to 1.2 km (0.75 mi), and unusually long-distance dispersals of 6 km (4 mi) (Mackley *et al.* 1988; Brown *et al.* 2011).

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 229 meters (m) (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 107 m (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 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 (Zaveloff 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. The type locality for the Utah prairie dog is Buckskin Valley in Iron County, Utah (Pizzimenti and Collier 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 areas (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 eastern Iron County, with a few isolated colonies existing in mountain and desert valleys in eastern Iron and Beaver Counties (Pizzimenti and Collier 1975).

Utah prairie dogs are found in elevations from 1,646 m (5,400 ft) on valley floors up to 2,896 m (9,500 ft) in mountain habitats. For more information on these recovery areas, refer to our recovery plan for the species (USFWS 2012).

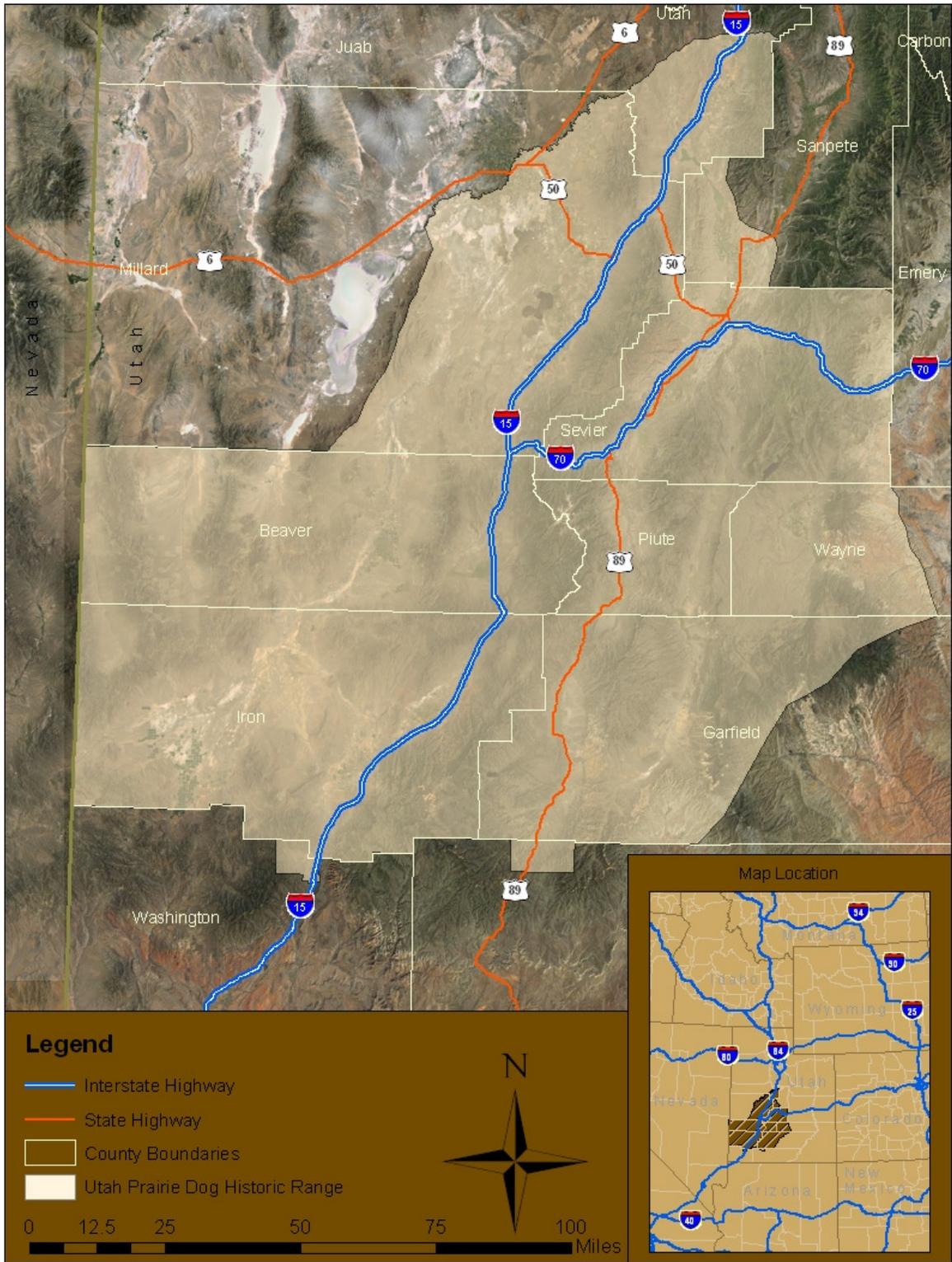


Figure 2. Utah prairie dog historic range.

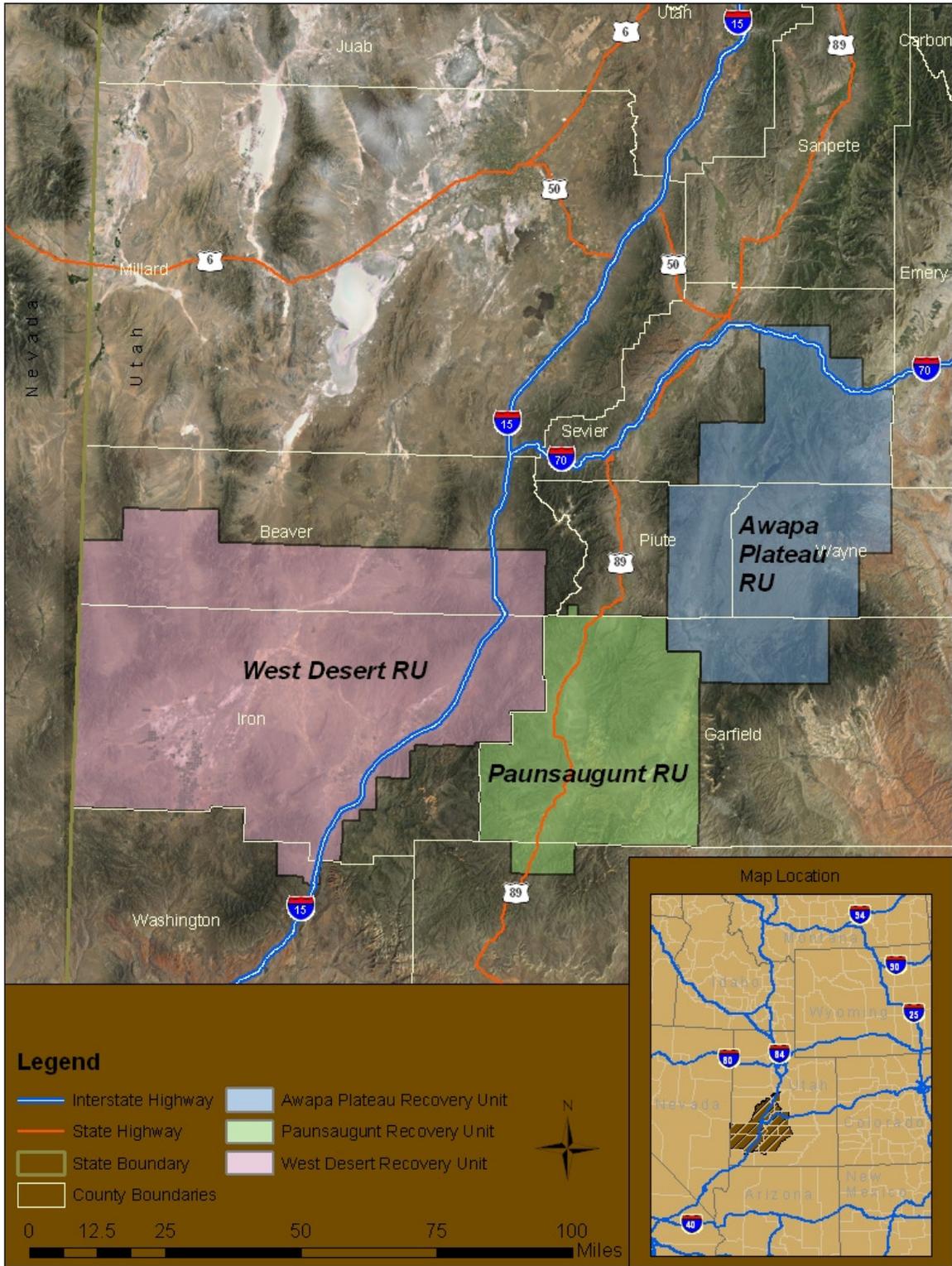


Figure 3. Utah prairie dog recovery unit boundaries.

Rangewide adult counts were as high as 7,527 in the 1989 spring census count (Utah Division of Wildlife Resources (UDWR 2010a) with a low count of 1,866 in 1976 (Figure 3). We use established survey protocols for counting Utah prairie dogs and determining population numbers. 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 2005 to 2011 are 5,375; 5,524; 5,991; 5,816; 5,827; 5,642; and 6,570 respectively (Figure 3) (UDWR 2010a, UDWR 2012). Total population estimates are calculated using a formula that accounts for the adult population estimate derived from spring counts and the estimated reproduction:

$$\text{Population estimate} = [(2 \times \text{Spring Adult Count}) \times 0.67 \text{ (proportion of adult females)} \times 0.97 \text{ (proportion of breeding females)} \times 4 \text{ (average number of young per breeding female)}] + (2 \times \text{Spring Adult Count})$$

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.

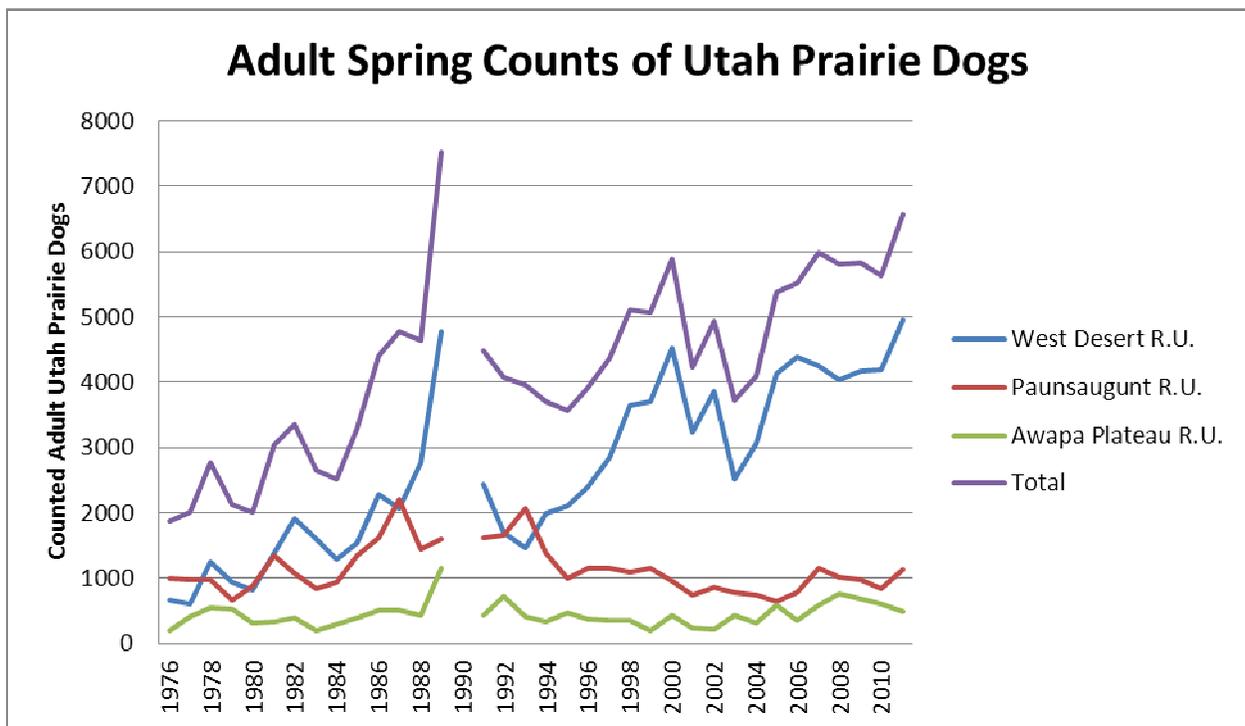


Figure 4. Graph of Adult Utah Prairie Dog Counts (1976-20011)⁴.

⁴ 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 ⁵	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)	334	0	0
Total Habitat Remaining	16,841	15,620	27,195

Recovery Efforts

The primary objective of the 1991 Utah prairie dog Recovery Plan (USFWS 1991) was to reestablish Utah prairie dog populations on public lands and ensure the continued existence of the species. In 1972, the UDWR initiated a transplant program to move animals from private agricultural lands to areas of historical occupancy on public lands. Over a 39-year period from

⁵ The definitions used in these tables for public, protected, and State Institutional Trust Lands Administration lands are found in the glossary.

1972 to 2011, over 25,000 Utah prairie dogs were translocated to public land sites. Despite efforts to establish new Utah prairie dog colonies on federal lands, in 2009 approximately 80% of Utah prairie dogs still occurred on private lands (UDWR 2010a).

In 2006, a Recovery Team was established to oversee a revision of the 1991 Recovery Plan and implement recovery actions. A revised Recovery Plan was published in 2012 (USFWS 2012). While establishing prairie dogs on federal lands remains a priority, our revised 2012 Utah Prairie Dog Recovery Plan also emphasizes increased conservation efforts on non-federal lands where the majority of the species' occupied habitat occurs. For example, efforts are underway to encourage the conservation of existing colonies on private lands – e.g., safe harbor agreements and conservation banks (USFWS 2012). Other recovery actions in the 2012 revised recovery plan include continued habitat improvements and research to improve success of translocations on federal lands, plague research and management, adaptive management strategies to respond to unpredictable threats such as changing climate conditions, and expanding public education and outreach efforts. There have been recent successful translocation efforts on United States Forest Service (USFS) lands near Bryce Canyon National Park. The USFS has launched a comprehensive flea control program on active translocation sites and their adjacent colonies. The translocation success rate is increasing in these areas. Working with researchers at the United States Geological Survey, agency biologists will be conducting field trials of an oral plague vaccine in the coming years.

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 making initial strides to formulate annual and long-range work 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. 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.

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