LAKE POWELL PIPELINE PROJECT
2010 PRAIRIE DOG SURVEY REPORT

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1. INTRODUCTION

The proposed Lake Powell Pipeline (LPP) project stretches across Iron, Washington, and Kane counties, Utah and Mohave and Coconino counties, Arizona. The proposed pipeline, transmission lines, equipment-storage sites, and a pump station overlap potentially suitable Utah prairie dog (*Cynomys parvidens* [UPD]) habitat in the vicinity of Cedar City in Iron County, Utah, south to the very northern portion of Washington County (Maps 1 and 2). Logan Simpson Design biologists coordinated with the U.S. Fish and Wildlife Service (USFWS) and Utah Division of Wildlife Resources (UDWR) regarding the extent of the survey limits, and then conducted presence/absence surveys for UPD using established protocols within potentially suitable habitat during the 2010 survey season.

2. SPECIES BACKGROUND

The UPD has the most restricted range of all prairie dog species in the United States; it is limited to the southwestern quarter of Utah. The UPD appears to prefer swale type formations where moist herbage is available, even during periods of drought. The vegetative height within an active colony is typically low enough to allow standing prairie dogs to scan their environment for predators; however, taller grass is sometimes present. Soil characteristics are an important factor in the location of UPD colonies; they require well-drained soils for burrows. Burrows must be deep enough, at least 3.3 feet (1 meter), to protect UPDs from predators and environmental extremes. The UPD prefers to eat the more nutritious flowers and seeds from the plants they select rather than the older, less nutritious leaves and stems. Cicada insects (*Homoptera: Cicadidae*) are a preferred animal food item and are readily taken when available (USFWS 2010).

The UPD hibernates during the winter, with males retreating underground in August or September, and females following a few weeks later. Juveniles stay above ground longer, with hibernation beginning by late November. The UPD emerges from hibernation in late February to early March; males emerging first and females following a few weeks later. Mating begins shortly after the females emerge from hibernation. Each female is sexually receptive for only a few hours on one day each year. The gestation period is 30 days. Litter size ranges from 1 to 7, with an average of 4 pups. Young venture out from the nursery burrow when they are 5–6 weeks old. Adult size is reached by October of the first year, and sexual maturity is reached at the age of 1 year (USFWS 2010).

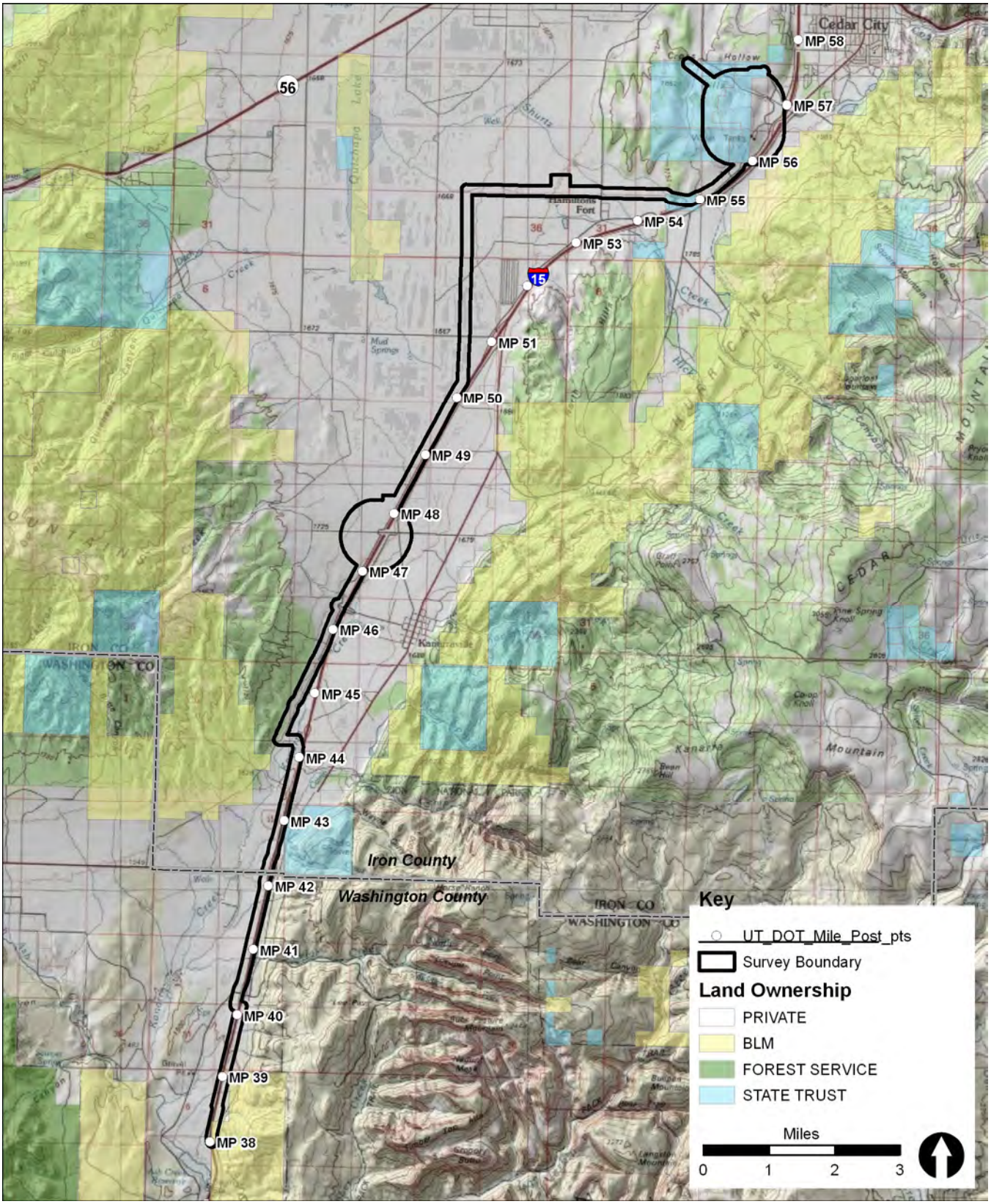
Threats to the UPD include disease, predation, and natural competition. UPD populations are susceptible to sylvatic plague, which is spread by fleas but otherwise is not very well understood. Sylvatic plague can result in mortality of an entire colony. Predators include coyote (*Canis latrans*), badger (*Taxidea taxis*), long-tailed weasel (*Mustela frenata*), various raptors, and Great Basin rattlesnake (*Crotalus oreganus lutosus*). UPDs are subject to competition with several species of ground squirrels (USFWS 2010).

The UPD was listed as an endangered species on June 4, 1973 (38 FR 14678), pursuant to the Endangered Species Act of 1969. 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. Critical habitat has not been established for the UPD.

3. METHODS

Prior to conducting UPD surveys, Logan Simpson Design (Kay Nicholson, Biologist) coordinated with USFWS (Jennifer Fox, Ecologist) to identify potentially suitable habitat for UPD within the LPP survey area and to discuss the survey buffer type and survey methods, particularly on private property where access had not been granted. Through this coordination, potentially suitable habitat was identified from the northern terminus of the LPP survey area at Cedar City southwest to milepost 38 along Interstate (I-) 15 (Map 2). The LPP UPD survey area includes the 150-foot-wide LPP project footprint and a 350-foot buffer on both sides of the project footprint. There are two locations where permanent above-ground structures, which require a larger buffer, are proposed, and a 0.5-mile buffer was established in these areas (these increased buffer areas can be seen in Map 2 as large circles).

Map 1
Utah Prairie Dog Survey Area location map



Map 2
Utah Prairie Dog Survey Area Vicinity map

Surveys were performed according to the 2010 USFWS UPD survey protocol (Appendix A) during the UPD active season (April – August). The LPP UPD surveys began on June 15, 2010 and continued through August 13, 2010.

Definitions given in the USFWS UPD survey protocol are provided for clarification for this report (additional USFWS definitions can be found in the survey protocol [Appendix A]), as follows:

- **Active season:** Generally April 1 through August 31; dates may vary depending on site-specific conditions. Active season surveys can only be conducted when the ground is sufficiently snow free.

- **Buffer type:** For projects that temporarily impact UPD habitat (do not extend into the following breeding season and the habitat can feasibly be restored), or those projects with small permanent surface or buried structures that do not substantially alter UPD habitat or behavior, the buffer is a 350-foot zone extending out from the proposed project right-of-way or exterior boundary. For projects with large permanent surface or buried structures that may substantially alter UPD habitat or behavior, or extend into the following breeding season, the buffer zone extends outward 0.5 mile from the proposed project right-of-way or exterior boundary.

- **High intensity level surveys:** Surveys of suitable habitat intended to identify the extent of UPD habitat in areas suspected of containing UPD. Generally conducted within less than 5 miles of known and/or mapped UPD habitat areas where previous surveys or professional knowledge of the local management biologists indicate that occupied UPD habitat may occur.

- **Occupied habitat:**

  - Active Season: Any area where UPDs are seen or heard, or any functional UPD burrows are found and show evidence of recent UPD activity (fresh digging, scat, fresh tracks).

  - Dormant Season: Any UPD burrows (functional or not functional) or any UPD mound system that is found, even if no other signs of UPD are present.

- **Suitable habitat:** Habitat capable of supporting UPDs including grassland or low-density sagebrush sites, agricultural fields, vacant lots, and other areas as identified by the authorizing federal agency. Habitat previously mapped by UDWR must be treated as suitable, regardless of current vegetative status.

- **Unoccupied habitat:**

  - Active Season: No UPDs are seen or heard and UPD burrows are found but are not functional; or functional UPD burrows or mound systems are found but there is no evidence of UPDs (fresh digging, scat or tracks).

  - Dormant Season: Unoccupied habitat cannot be determined during the dormant season. If any UPD burrows are found (functional or not functional), or there is any evidence of a UPD mound system, they must be documented and will be assumed occupied.

Because the entire LPP UPD survey area is within 5 miles of known UPD habitat, high intensity level surveys were required for the entire LPP UPD survey area. State of Utah School and Institutional Trust Lands Administration (SITLA) land, National Park Service land, and the LPP footprint were surveyed by surveyors walking parallel transects spaced 30 meters apart to achieve 100 percent coverage, in accordance with the high intensity level survey protocol. However, much of the LPP UPD survey area includes private land for which access had not been granted; therefore, 100 percent coverage of the entire LPP UPD survey area was not possible.

Public roads and utility corridors that crossed these inaccessible lands were used to survey as much of these areas as possible using binoculars and/or spotting scopes.

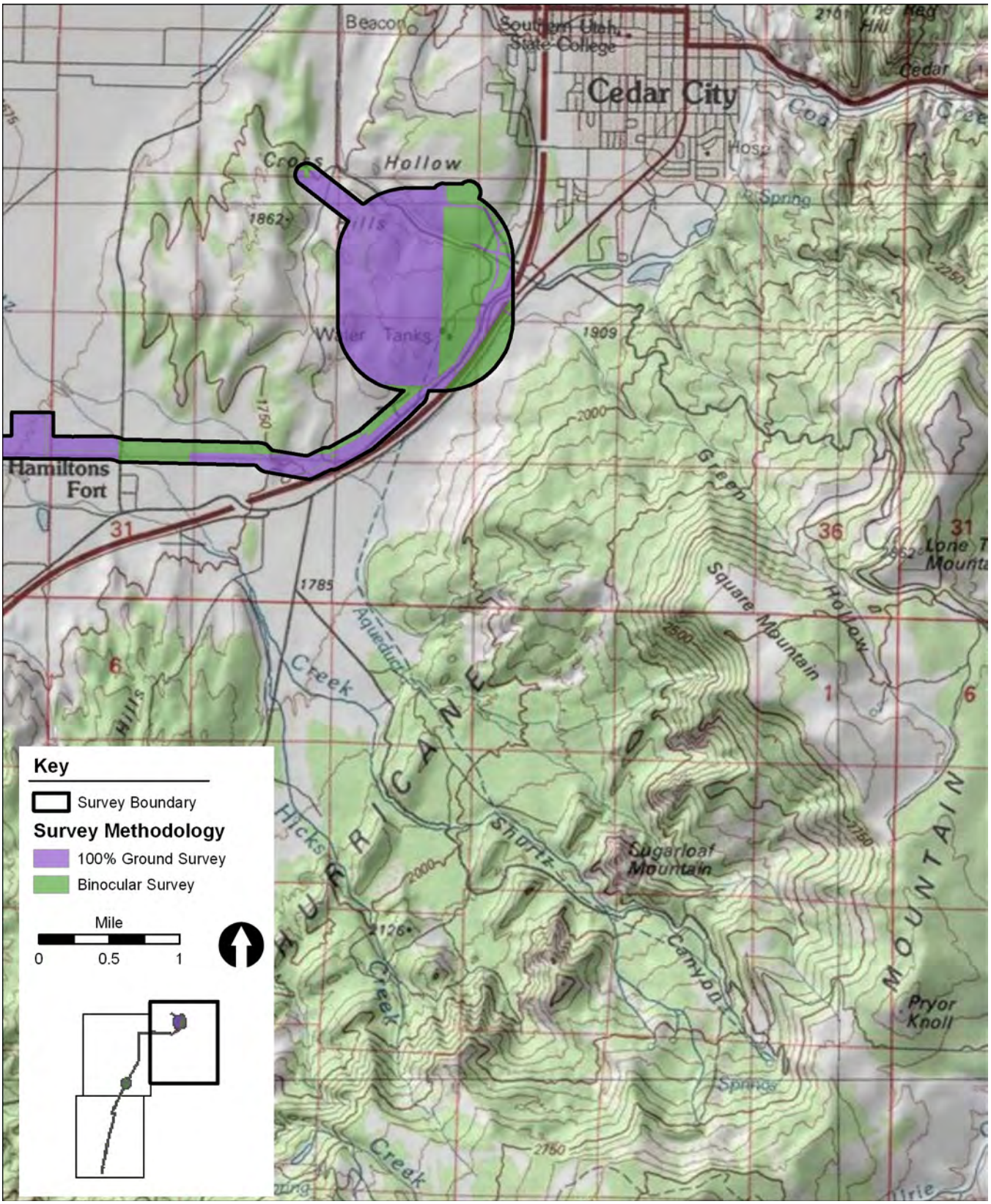
Where 100 percent coverage was possible (Maps 3a to 3c), surveys were conducted by surveyors lining up 30 meters apart and recording the starting locations using a Global Positioning System (GPS) unit. Surveyors then walked parallel transects looking for UPDs, mounds, burrows, and scat and listening for UPD vocalizations. Transect lengths were dictated by the lengths of the parcels where access had been granted. Upon reaching the end of each transect, surveyors recorded the transect end points with GPS units. If UPD sign was observed during the survey, surveyors communicated to each other with radios to alert the other surveyors. Locations of UPDs and UPD sign, as well as unsuitable habitat and photograph points, were recorded on the GPS units. Photographs were taken at transect start and end points, and at each colony detected.

On inaccessible land, binocular surveys were conducted (Maps 3a to 3c) by surveyors walking along the edge of a road or utility corridor while looking and listening for UPD sign, stopping every 30 meters to scan the LPP UPD survey area more thoroughly. Transect start and end points were recorded using a GPS unit. Rangefinders were used to determine the distance out into the LPP UPD survey area that surveyors felt certain they could see reliably. These distances were recorded as averages for each transect, or for a portion of a transect where there were marked differences in the areas that could be observed within a single transect. When a UPD or UPD sign was observed, the point was recorded using a GPS unit, the distance to the UPD or sign was measured with a rangefinder, and a bearing was taken using a compass. Photographs were taken at transect start and end points, and at each colony detected.

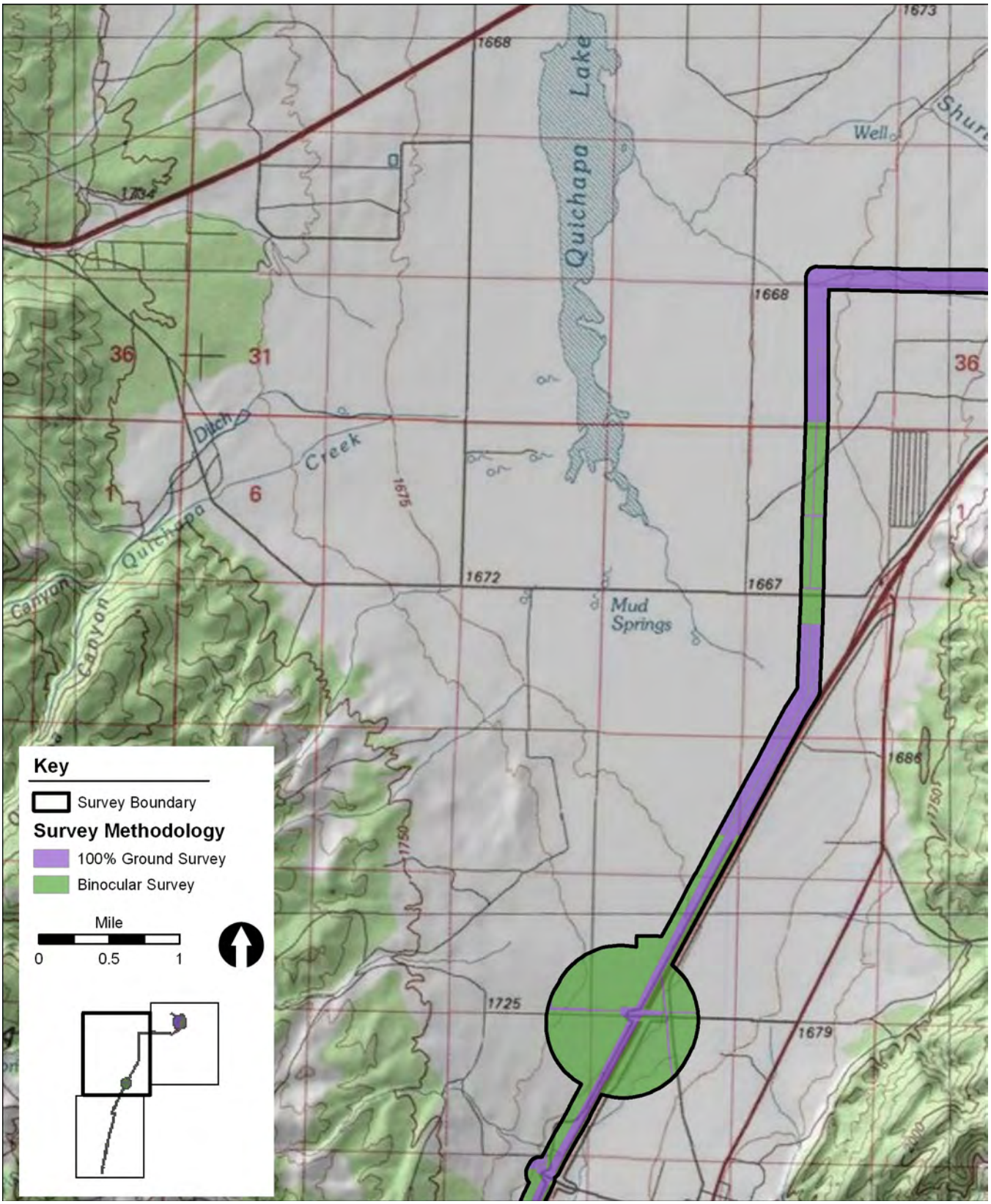
Information collected during surveys was recorded on project datasheets. For each area surveyed, general information was recorded, including the date and time of the survey, the Universal Transverse Mercator (UTM) coordinates for the start and end of the survey, the names of all surveyors, and a photograph log documenting landscape characteristics or UPD sign. Details qualifying habitat suitability for UPDs were provided on each data sheet, including descriptions of the soils, vegetation type, and land use. Additional information was recorded during binocular surveys, including distance out into the survey area that could reliably be observed, distance to any UPD or UPD sign observed, and a compass bearing for any UPD or UPD sign observed. Completed project datasheets are on file at Logan Simpson Design.

UPD counts were conducted at all occupied sites detected during surveys in accordance with the 2010 USFWS UPD survey protocol. A follow-up visit was made, on another day than when the site was initially detected, during the early morning when cloud cover was less than 40 percent and the wind was less than 12 miles per hour. Where possible, a colony was counted from a single vantage point that provided an unobstructed view of the entire colony. Where the colony size was too large, multiple vantage points were required, taking care not to double count UPDs. Counts were repeated until the number of UPDs reached a plateau or began to decrease, with a minimum of three counts at each colony. The maximum number of UPDs counted at each colony was recorded on the data sheet.

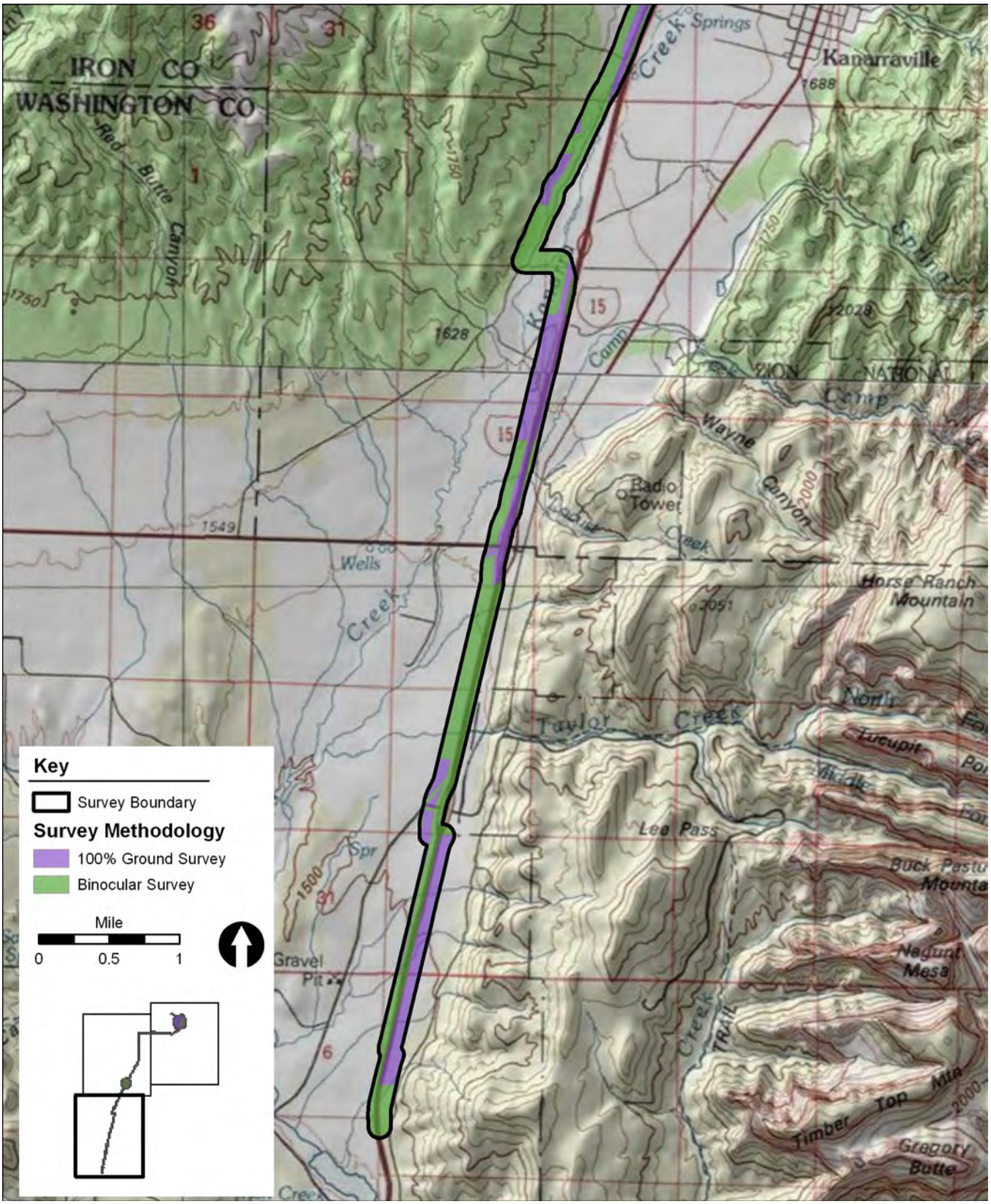
Each UPD colony detected was delineated in the office with Geographic Information System (GIS) software, using ArcMap 9.3, and was assigned a unique polygon identification label. The UPD habitat polygons are named with a format of LPPXX, where XX is a number (i.e., the first colony delineated is LPP01). The data for each UPD habitat polygon were recorded on an official USFWS Utah Prairie Dog Occupancy / Habitat Survey Form (completed forms in Appendix B).



Map 3a
Utah prairie dog survey area map



Map 3b
Utah prairie dog survey area map



Map 3c
Utah prairie dog survey area map

Unsuitable habitat within the survey area was delineated during surveys to the extent possible. Habitat considered unsuitable for UPD includes rock outcrops and cliffs, and shrublands or woodlands where the vegetation is too dense (i.e., greater than 30 percent cover). Surveyors did not record an area as unsuitable habitat unless the vegetation density was greater than 50 percent to reduce the chance that an area would be called unsuitable when it is, in fact, suitable for UPD. On public lands and private lands where access had been granted, unsuitable habitat was delineated while walking transects. When unsuitable habitat was encountered, surveyors recorded GPS points where unsuitable habitat began and ended. While conducting binocular surveys, unsuitable habitat was recorded using the same methods, as described above, for recording a UPD colony detected during binocular surveys, except that a description of the habitat was recorded instead of the type of UPD sign. Photographs were taken to document the unsuitability of the habitat. Unsuitable habitat polygons were then delineated in the office using ArcMap 9.3, and assigned unique identification labels. The unsuitable habitat polygons are named with a format of USXX, where XX is a number (i.e., the first polygon delineated is US01).

4. RESULTS

Habitat Description

The LPP UPD survey area is set within the Great Basin Ecological Region (LSD 2010). The following ecological systems are present in the LPP UPD survey area: Great Basin Big Sagebrush Shrubland, Great Basin Gambel Oak - Mixed Montane Shrubland, Great Basin Greasewood Flat, Great Basin Lower Montane Riparian Woodland and Shrubland, Great Basin Pinyon-Juniper Woodland, and Great Basin Semi-Desert Grassland. Suitable habitats present in the LPP UPD survey area include grasslands, low-density sagebrush shrublands, agricultural lands, and bare/sparsely vegetated ground in urban areas.

Dominant vegetation observed during the surveys includes sagebrush (*Artemisia* spp.), juniper (*Juniperus* spp.), pinyon pine (*Pinus edulis*), common sunflower (*Helianthus annuus*), and various grasses and forbs. Portions of the LPP UPD survey area have been cleared and developed, mostly within and near Cedar City. Much of the LPP UPD survey area includes habitat that is unsuitable for the UPD, including dense shrublands (e.g., sagebrush) and dense woodlands (e.g., pinyon-juniper).

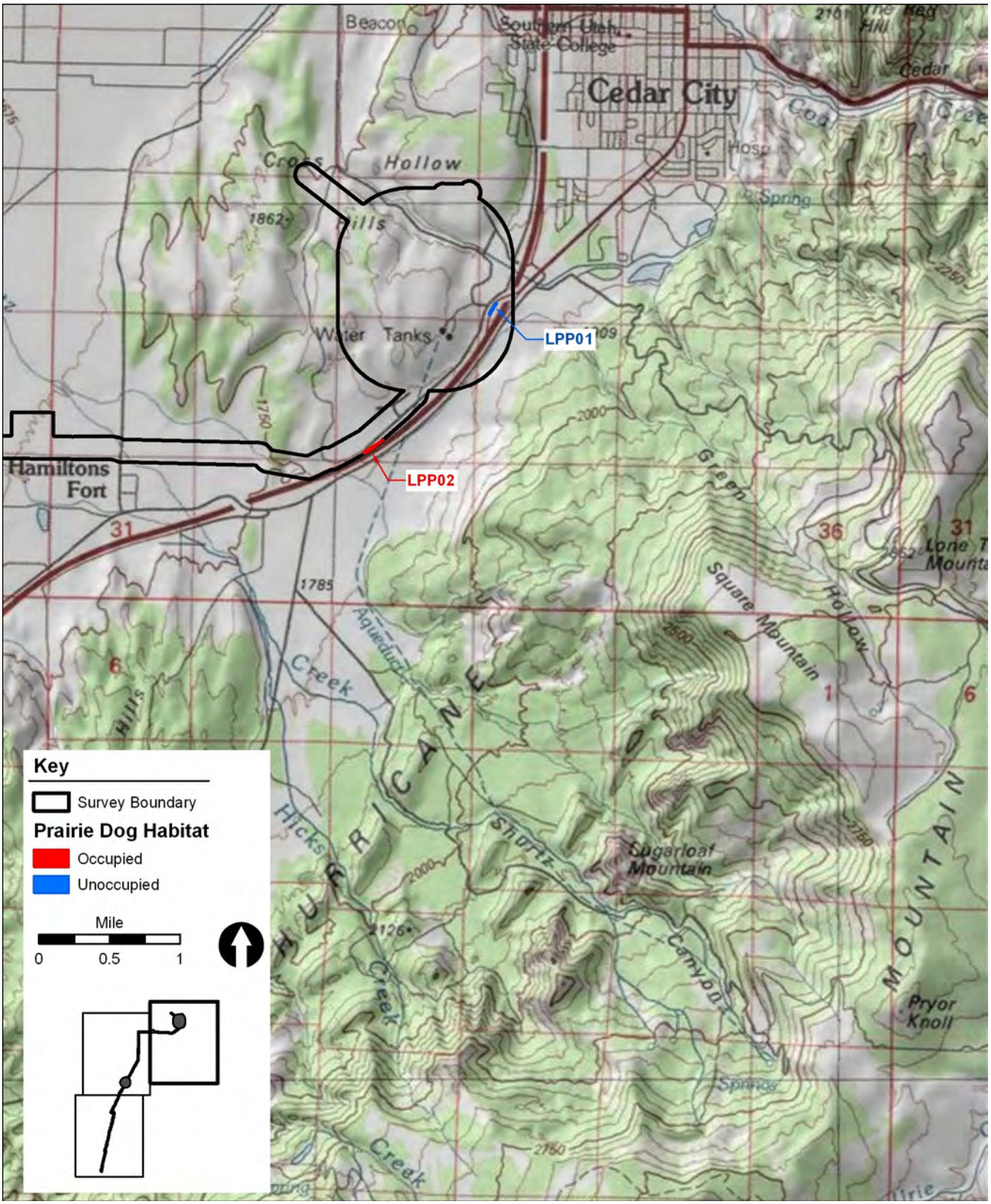
Land ownership in the LPP UPD survey area includes SITLA, Utah Department of Transportation, tribal, National Park Service, and private. Land use in the survey area includes residential and commercial developments, livestock grazing on rangelands/dry pastures, and irrigated agricultural fields with crops.

Surveys

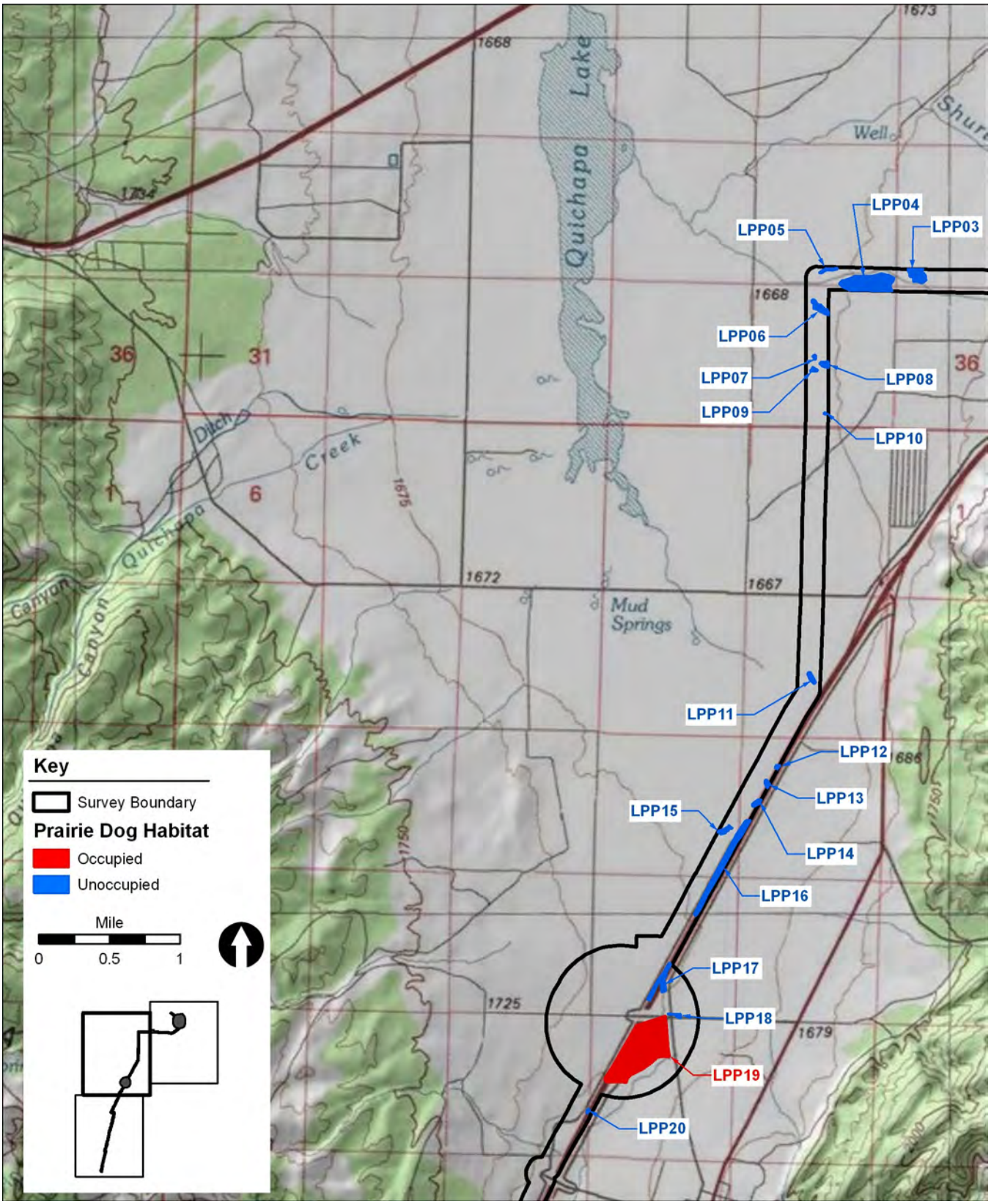
The UPD survey area encompassed 3,664 acres; 1,954 acres (of which 1,239 acres were identified as suitable habitat) were surveyed with 100 percent coverage, while 1,710 acres (of which 1,290 acres were presumed suitable habitat) were inaccessible and were surveyed with binoculars where public right-of-ways existed (Maps 3a to 3c). Twenty-five UPD sites were found during the surveys, four were occupied and 21 were unoccupied (Maps 4a to 4c).

Occupied Utah Prairie Dog Habitat

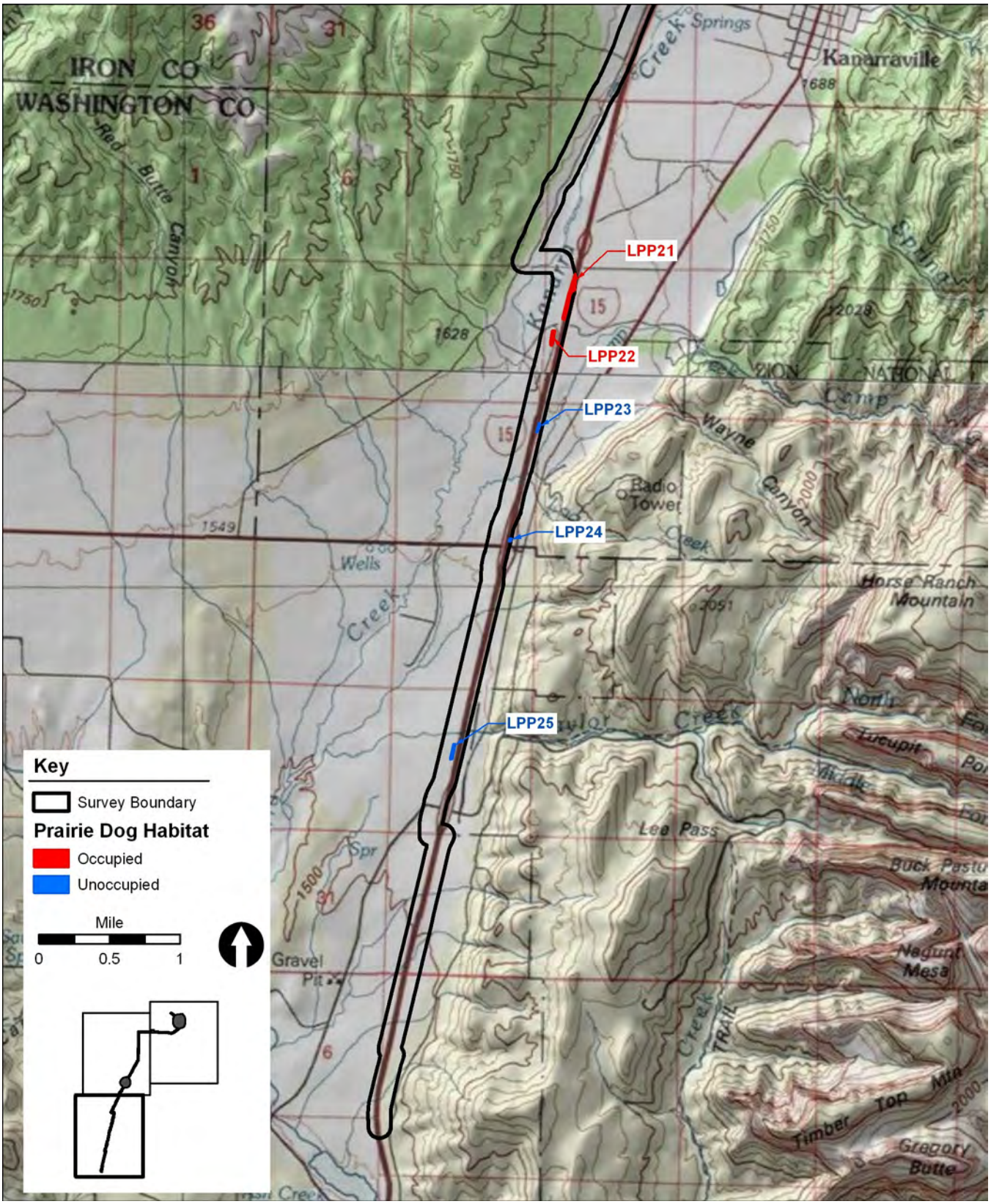
Four occupied UPD colonies were found during surveys (Maps 4a to 4c).The type of sign detected at these colonies includes UPDs, mounds, burrows, scat, vocalizations, and fresh digging. Table 1 lists the occupied UPD colonies, along with the number of UPDs counted, the colony size, the survey type conducted, the survey date, and the type of sign observed for each colony. Representative photographs of all occupied UPD colonies are provided in Appendix C.



Map 4a
Utah prairie dog habitat map



Map 4b
Utah prairie dog habitat map



Map 4c
Utah prairie dog habitat map

Table 1 Occupied UPD habitat identified in the LPP survey area					
UPD Habitat Polygon ID No.	**UPD Counts**	**Colony Size (acres)**	**Survey Type**	**Survey Dates**	**UPD Sign**
LPP02	3	1	Binocular	8/12/2010	Functional burrows, mounds
LPP19	98	70	Binocular	7/18/2010, 8/12/2010	Functional burrows, mounds, vocalizations
LPP21	0*	4	Binocular	7/30/2010	Functional burrows, mounds, vocalizations
LPP22	0	1	100% Coverage	7/30/2010	Functional burrows, mounds, scat, digging

*The UPD count within the LPP UPD survey area was 0; however, surveyors counted UPDs past the survey boundary as far as could be seen and counted 70

Unoccupied Utah Prairie Dog Habitat

Twenty-one unoccupied UPD colonies were found during surveys (Maps 4a to 4c). The type of sign detected at these colonies includes mounds and burrows. Table 2 lists the unoccupied UPD colonies, along with the colony size, survey type conducted, the survey date, and the type of sign observed. Representative photographs of selected unoccupied UPD colonies are provided in Appendix C.

Table 2 Unoccupied UPD habitat identified in the LPP survey area				
UPD Habitat Polygon ID No.	**Colony Size (acres)**	**Survey Type**	**Survey Date**	**UPD Sign**
LPP01	1	100% Coverage	7/30/2010	Functional burrows, mounds
LPP03	6	100% Coverage	7/18/2010	Functional burrows, mounds
LPP04	22	100% Coverage	7/18/2010	Functional burrows, mounds
LPP05	1	100% Coverage	7/18/2010	Functional burrows, mounds
LPP06	3	100% Coverage	7/18/2010	Functional burrows, mounds
LPP07	< 1	100% Coverage	7/18/2010	Functional burrows, mounds
LPP08	1	100% Coverage	7/16/2010	Functional burrows, mounds
LPP09	< 1	100% Coverage	7/18/2010	Functional burrows, mounds
LPP10	< 1	100% Coverage	7/16/2010	Functional burrows, mounds
LPP11	1	100% Coverage	7/15/2010	Functional burrows, mounds
LPP12	< 1	100% Coverage	7/15/2010	Functional burrows, mounds
LPP13	1	100% Coverage	7/15/2010	Functional burrows, mounds
LPP14	1	100% Coverage	7/15/2010	Functional burrows, mounds
LPP15	1	100% Coverage	7/28/2010	Functional burrows, mounds

Table 2 Unoccupied UPD habitat identified in the LPP survey area				
UPD Habitat Polygon ID No.	**Colony Size (acres)**	**Survey Type**	**Survey Date**	**UPD Sign**
LPP16	13	100% Coverage	8/12/2010	Functional burrows, mounds
LPP17	4	100% Coverage	8/12/2010	Functional burrows, mounds
LPP18	1	Binocular	7/27/2010	Functional burrow, mounds
LPP20	< 1	100% Coverage	8/11/2010	Mounds
LPP23	< 1	100% Coverage	8/11/2010	Functional burrow, mounds
LPP24	< 1	100% Coverage	8/11/2010	Functional burrow, mounds
LPP25	1	100% Coverage	8/12/2010	Mounds

Unsuitable Habitat

Sixteen polygons of unsuitable habitat, totaling 1,147 acres, were identified during surveys (Maps 5a to 5c). Table 3 lists the unsuitable habitat polygons, along with the polygon size, the survey type conducted, the survey date, and a description of the habitat. Representative photographs of all unsuitable habitat polygons are provided in Appendix D.

Table 3 Unsuitable UPD habitat identified in the LPP survey area				
Unsuitable Habitat Polygon ID No.	**Polygon Size (acres)**	**Survey Type**	**Survey Date**	**Habitat Description**
US01	858	100% Coverage and Binocular	6/15/2010 7/19/2010 7/27/2010 7/29/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland, rocky hills, and steep basalt slopes
US02	6	100% Coverage	7/17/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland, rocky soils
US03	17	Binocular	7/17/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland, rocky soils
US04	10	100% Coverage	7/18/2010	Dense sagebrush and greasewood (> 50 percent cover)
US05	4	100% Coverage	7/18/2010	Dense greasewood (> 50 percent cover)
US06	2	100% Coverage	7/18/2010	Dense greasewood (> 50 percent cover)
US07	11	100% Coverage	7/18/2010	Dense sagebrush (> 50 percent cover)
US08	109	Binocular	7/15/2010 7/16/2010	Dense sagebrush (> 50 percent cover)
US09	20	Binocular	8/13/2010	Dense sagebrush (> 50 percent cover)
US10	19	Binocular	8/12/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland

Table 3 Unsuitable UPD habitat identified in the LPP survey area				
Unsuitable Habitat Polygon ID No.	**Polygon Size (acres)**	**Survey Type**	**Survey Date**	**Habitat Description**
US11	4	Binocular	7/29/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland with some sumac and salt cedar
US12	< 1	Binocular	7/29/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland
US13	< 1	Binocular	7/29/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland
US14	3	Binocular	7/29/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland with some sumac and salt cedar
US15	6	Binocular	7/29/2010	Dense sagebrush (> 50 percent cover)
US16	79	100% Coverage and Binocular	7/28/2010 7/29/2010 8/12/2010	Dense sagebrush (> 50 percent cover), pinyon-juniper woodland

Land Use and Disturbances

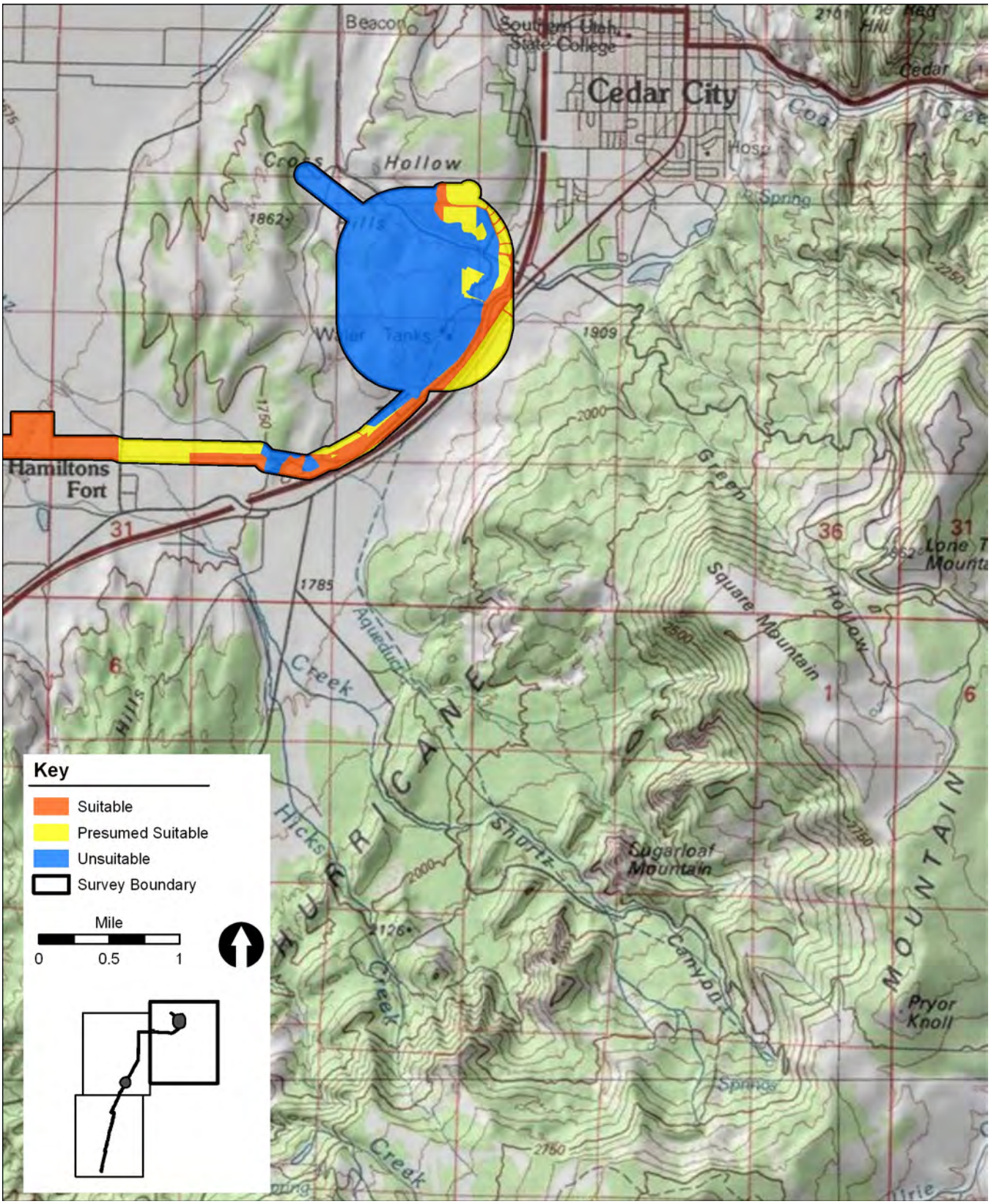
High human activity, traffic, and developments within Cedar City have contributed to landscape modifications that no longer support suitable habitat for the UPD, and UPDs were absent from these areas.

Much of the LPP UPD survey area is comprised of rangelands and pastures grazed by livestock. LPP19, which is an occupied colony that had the highest count of UPDs of the four occupied colonies, is situated on private land where cattle and horses were grazing. UPDs were observed among the cattle, seemingly unaffected by their presence.

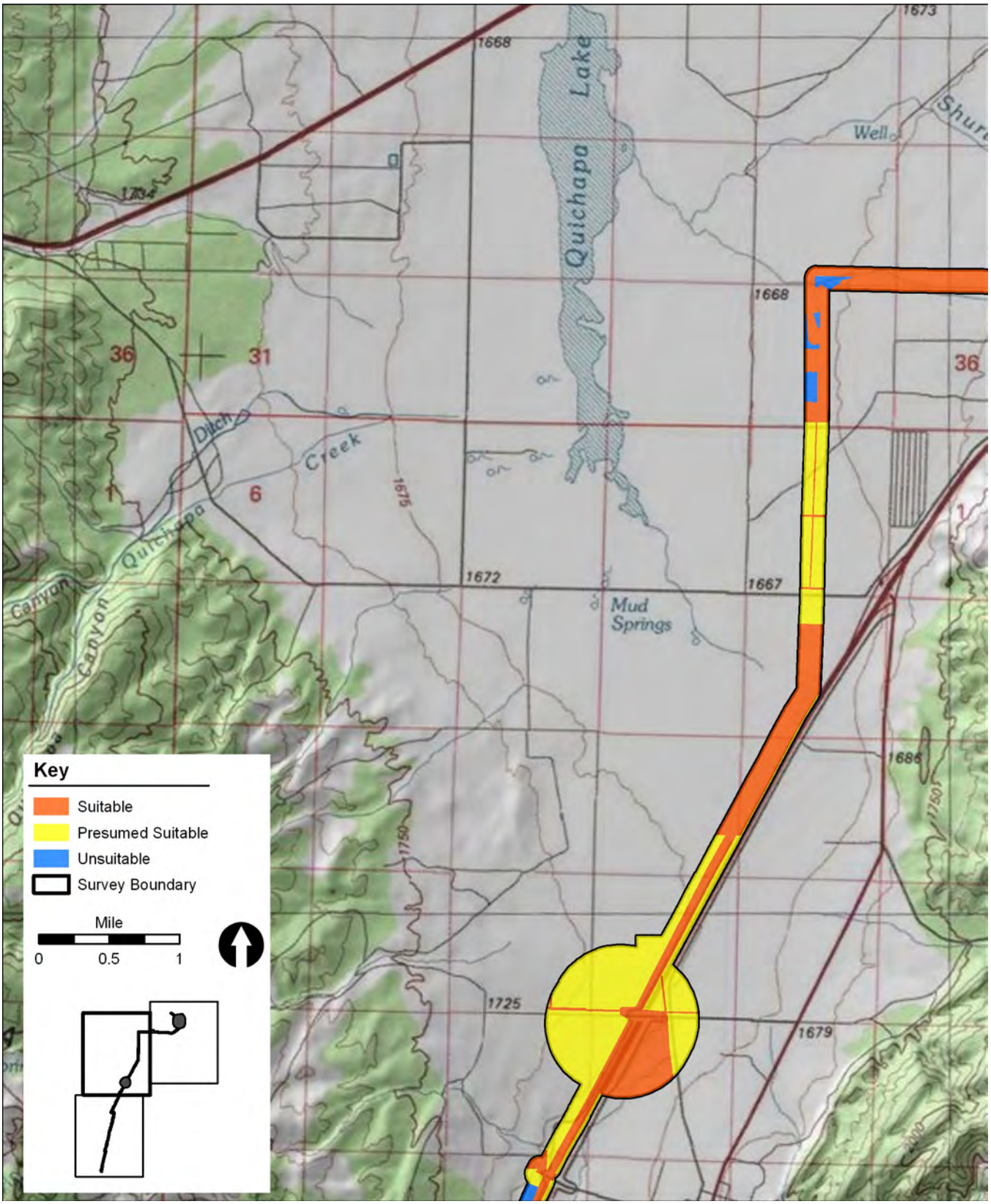
The following UPD predators, or evidence of such predators, were observed during the surveys: coyote, badger, and ferruginous hawk.

5. Conclusions

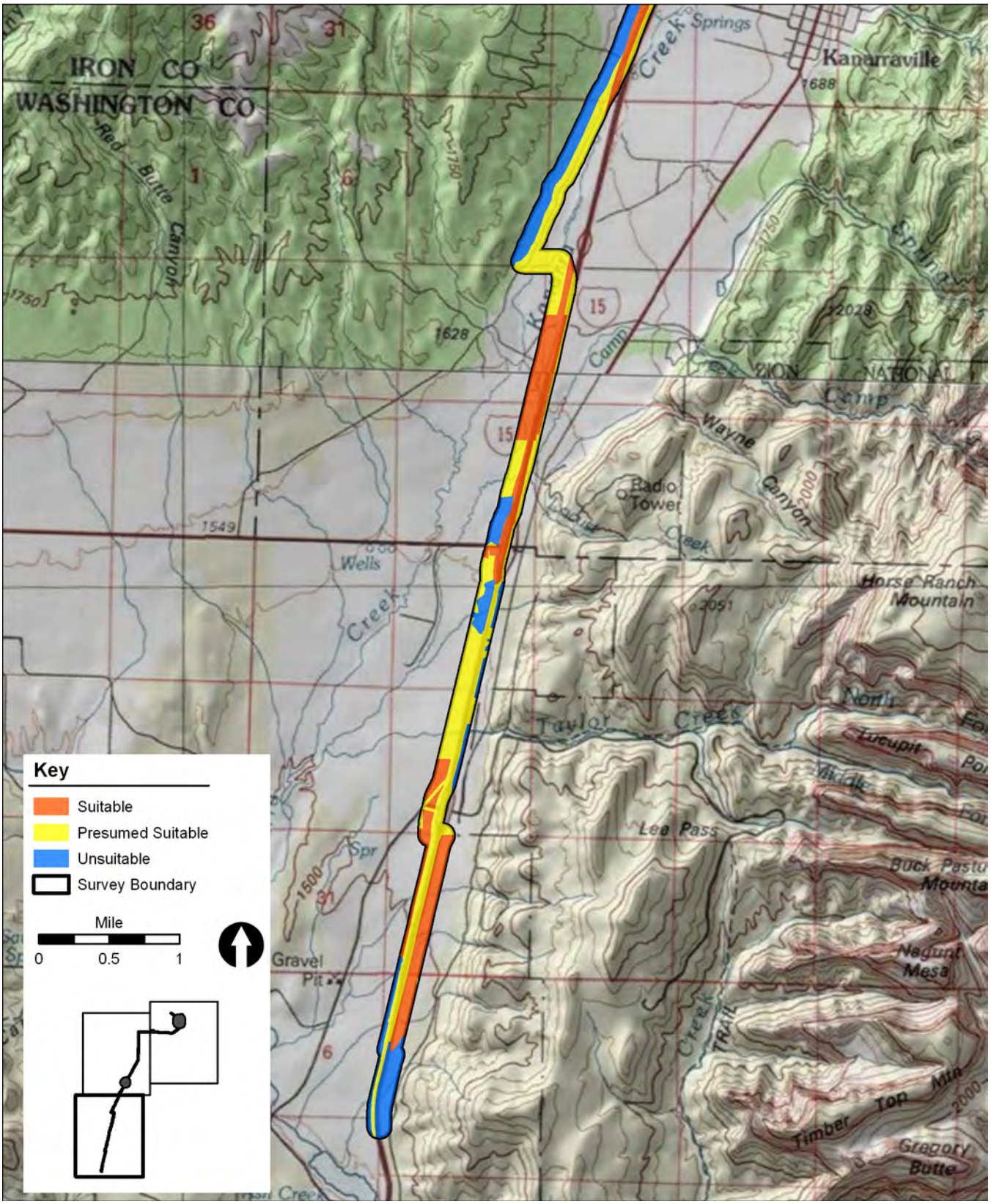
Occupied and unoccupied UPD habitat is present within the LPP UPD survey area. Because of limited access on private lands, 100 percent coverage of the entire survey area could not be achieved. However, 100 percent coverage surveys were completed where access was granted, and surveys of inaccessible lands were conducted to the extent possible using binoculars and/or spotting scopes and audio cues. A checkerboard was created of surveyed and unsurveyed lands throughout the LPP UPD survey area. Twenty-five UPD colonies were found during the surveys; four were occupied and 21 were unoccupied.



Map 5a
Utah prairie dog habitat suitability map



Map 5b
Utah prairie dog habitat suitability map



Map 5c
Utah prairie dog habitat suitability map

6. FIELD PERSONNEL

Logan Simpson Design Inc.

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Arthur Pizzo
Gary Reese

7. LITERATURE CITED

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U.S. Fish and Wildlife Service (USFWS). 2010. Utah prairie dog (*Cynomys parvidens*) draft revised recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 122 pp.

8. SIGNATURES

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Kay Nicholson, Senior Biologist
Logan Simpson Design Inc.

Reviewed/Approved By: Bruce K. Palmer Date: December 15, 2010
Bruce Palmer, Senior Biologist
Logan Simpson Design Inc.

Appendix A

Utah Prairie Dog Occupancy and Habitat Survey Protocol for

Federal Section 7 Consultations April 2010

UTAH PRAIRIE DOG OCCUPANCY AND HABITAT SURVEY PROTOCOL FOR FEDERAL SECTION 7 CONSULTATIONS

April 2010

The purpose of Utah prairie dog occupancy and habitat surveys is to determine if Utah prairie dogs inhabit a proposed project Action Area (see glossary), and determine if a proposed action may affect this species. Surveys provide management agencies and developers with sufficient resource information to help ensure that proposed projects are planned and implemented to avoid and minimize impacts in compliance with the Endangered Species Act. Please note that Occupancy and Habitat Surveys are not the same as pre-construction actions intended to protect or further define Utah prairie dog habitat. If Utah prairie dog habitat is identified within the Action Area, the subsequent consultation with the U.S. Fish & Wildlife Service may identify other needed actions or additional surveys to be completed prior to construction.

It is important to note that this survey protocol expresses our scientific opinion on adequate Utah prairie dog survey methods. Our knowledge is continuously developing and changing, therefore this protocol, based upon the best scientific and commercial data available, is a work in progress. This protocol will be modified as new information becomes available. Circumstances may dictate that Utah prairie dog surveys be conducted differently on a case by case basis. If surveys cannot be accomplished pursuant to this protocol, please contact the Utah Ecological Services Field Office for guidance on survey methods before proceeding.

Results of Utah prairie dog surveys must be entered on the approved Utah Prairie Dog Occupancy/Habitat Survey Form (see last page).

Surveyor Qualifications

- Surveys may only be conducted by certified individuals. Certified surveyors (see glossary) are those who have completed a U.S. Fish and Wildlife Service approved Utah prairie dog survey training course. Results of surveys conducted by non-certified personnel will not be acceptable as the basis for assessing potential impacts to Utah prairie dogs.

- The surveyor training course must be successfully completed at least once every four years. Significant changes in the protocol may require re-certification before the end of a surveyor's four year authorization period. The U.S. Fish and Wildlife Service will notify certified surveyors of the need for early re-certification should such changes occur. Certified surveyors must carry training certification cards when conducting surveys.

Pre-Survey Coordination

- Prior to conducting surveys, certified surveyors must coordinate with the authorizing federal agency (see glossary) to identify the Action Area and survey details. The U.S Fish and Wildlife Service requires surveys of all suitable habitat (see glossary). The authorizing federal agency may identify areas, if any, that will be exempt from surveys based on habitat suitability. Survey results will not be considered valid if they are not collected following this protocol and any specific stipulations identified by the authorizing agency(ies). Authorizing federal agencies that are <u>not</u> land management agencies must coordinate all survey details with the U.S. Fish and Wildlife Service.

- Certified surveyors must survey all suitable habitat in the entire Action Area, including both public and privately owned lands. Written permission from the legal landowner or lessee is required to legally access privately owned lands. If access <u>cannot</u> be obtained to privately owned lands in the Action Area, the surveyor must use other accessible vantage points, optics, aerial photos, audio cues, other technology, and interviews of knowledgeable land managers and agency biologists to assess prairie dog occupancy and extent of suitable habitat. If the above methods are not available or do not provide adequate data for the federal authorizing agency to make a conclusive decision concerning occupancy, then the inaccessible land in question must be assumed occupied by Utah prairie dogs.

  Surveyors must note on the survey forms and in completion reports those properties for which legal access could not be obtained and the method(s) used to assess the same.

Survey Season

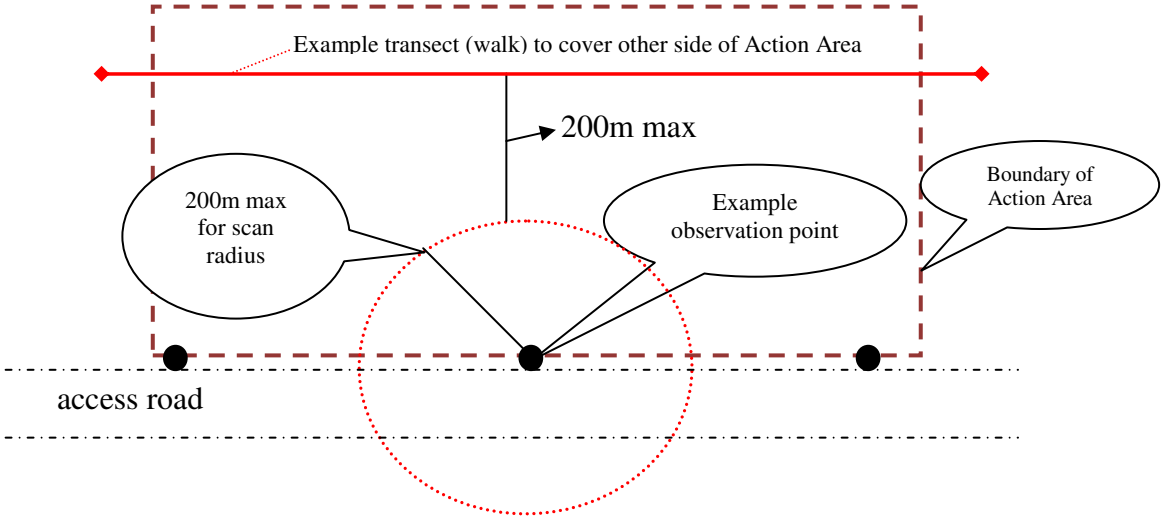
- **Active Season** – Generally April 1 through August 31; dates may vary depending on site-specific conditions. Active season surveys can only be conducted when the ground is sufficiently snow free.
- **Dormant Season** – Generally September 1 through March 31; dates may vary depending on site-specific conditions. Dormant season surveys can only be conducted when the ground is sufficiently snow free.
- The determination of the applicable Active/Dormant Season and whether conditions are "sufficiently snow free" will be made by the authorizing federal agency, based on site-specific conditions. Additionally, the authorizing federal agency may determine that site conditions are not conducive to accurate and reliable dormant season surveys, and may require surveys to be conducted only during the active season. If the authorizing federal agency is not a land management agency, these determinations will be made by the U.S. Fish and Wildlife Service.

Habitat Assessment Survey

This protocol will be applied to all (100%) suitable habitat. There is a two tiered level of intensity for habitat surveys: Low Intensity and High Intensity. The required survey level will be determined by the authorizing federal agency. If the authorizing federal agency is not a land management agency, this determination will be made by the U.S. Fish and Wildlife Service.

- **Low Intensity Level Surveys:**
  Surveys of suitable habitat that are intended to identify any previously unknown Utah prairie dog habitat (see Utah Prairie Dog Habitat Classification below) areas within the historic range. Generally conducted in locations ≥5 miles from any known and/or mapped Utah prairie dog habitat, where previous surveys or professional knowledge of the local management biologists indicate that the likelihood of occupied Utah prairie dog habitat is low.
    i. All suitable habitat in the Action Area must be surveyed by foot and/or vehicle (on established roads only) to insure 100% visual coverage.
    ii. Aerial methods are not allowed.
    iii. Vehicle surveyors must stop every ¼ mile (400 m), or more frequently, and get

out of the vehicle to walk and obtain clear views in order to scan surrounding areas with suitable optics for the presence of prairie dogs. The surveyor must also listen for Utah prairie dog vocalizations throughout the survey to locate prairie dogs. Scans should not attempt to clear more than 200m (using binoculars or scopes) in either direction – if suitable habitat exists beyond 200m from the observation point, additional transects should be driven, or walked if no road access, (see diagram for example). The surveyor should spend a minimum of 5 minutes at each observation point scanning and listening for UPDs.



iv. If no Utah prairie dogs or their sign are observed within the entire Action Area, the results of the Low Intensity Level survey will be considered valid for two (2) years from the following March 31 (e.g. if a survey is completed May 15, 2010, the survey is valid until March 31, 2013). If any new biological information becomes available during this time which indicates the potential presence of Utah prairie dogs in the Action Area, or if any changes are made to the size, scope, and/or nature of the proposed project before or during implementation, survey expiration dates may change and additional surveys may be required during the course of the project.

v. If any Utah prairie dogs or their sign are observed anywhere within the Action Area during the Low Intensity Level Survey, then High Intensity Level Surveys (see below) will be required in those areas of Utah prairie dog activity.

- **High Intensity Level Surveys:**

  Surveys of suitable habitat intended to identify the extent of Utah prairie dog habitat in areas suspected of containing Utah prairie dogs. Generally conducted within <5 miles of known and/or mapped Utah prairie dog habitat areas where previous surveys or professional knowledge of the local management biologists indicate that occupied prairie dog habitat may occur.

  i. All (100%) suitable habitat in the Action Area must be surveyed.
  ii. The surveyor must walk parallel transects no more than 30 meters apart through the entire area of suitable habitat searching 15m on both sides of the transect for burrows and other prairie dog sign. Surveyors must walk transects using a compass or GPS unit for orientation, ensuring that all suitable habitat within the entire action area is adequately surveyed. Care must be taken as to not trample burrows.
  iii. Surveyors must stop periodically and scan surrounding areas with suitable optics for the presence of prairie dogs. The surveyor must also listen for Utah prairie dog vocalizations throughout the survey to locate prairie dogs.
  iv. The results of the High Intensity Level survey are only valid from the date conducted through to the following March 31 (e.g. if a survey is completed May 15, 2010, the survey is valid until March 31, 2011). If a project is not implemented until after the following March 31, and/or if there are gaps in construction activity within the same year (generally one week or more), new surveys may be required.

Utah Prairie Dog Habitat Classification

Portions of suitable habitat that support Utah prairie dog burrows, mounds or other sign of the presence (past or recent) of Utah prairie dogs are considered "Utah prairie dog habitat" and will be classified as follows:

- **Occupied Utah Prairie Dog Habitat:**
  i. Active Season: Any area where Utah prairie dogs are seen or heard, or any Functional Utah prairie dog Burrows (see glossary) are found <u>and</u> show evidence of recent prairie dog activity (fresh digging, scat, fresh tracks).
  ii. Dormant Season: <u>Any</u> Utah prairie dog burrows (functional or not functional) or any Utah prairie dog mound system (see glossary) is found, even if no other signs of Utah prairie dogs are present.
  iii. If legal access <u>cannot</u> be obtained to any portion of the Action Area, please refer to the instructions under the Pre-Survey Coordination section on page 2.

- **Unoccupied (previously supported) Utah Prairie Dog Habitat:**
  i. Active Season: No Utah prairie dogs are seen or heard and Utah prairie dog burrows are found but are not Functional; or Functional Utah prairie dog burrows or mound systems are found but there is no evidence of prairie dogs: such as fresh digging, scat or tracks.
  ii. Dormant Season: Unoccupied habitat cannot be determined during the dormant season. If any Utah prairie dog burrows are found (functional or not functional), or there is any evidence of a prairie dog mound system, they must be documented and will be assumed occupied.

Utah Prairie Dog Counts

If occupied Utah prairie dog habitat is found, those areas will be counted according to the following Utah Prairie Dog Count Protocol:

- Counts will be conducted only on calm, sunny days when cloud cover is < 40 % and the ground is snow free. Avoid extremes of heat and cold. Surveys should be discontinued if winds exceed 3 on the Beaufort scale (>12 mph), if cloud cover exceeds 40%, if clouds cast moving shadows across the colony, or if otherwise inclement weather is encountered.

Counts are generally made between 0800 and 1800 hours, but should be timed to coincide with periods when prairie dogs are most active above ground according to the season and elevation. For example, avoid counting at mid-day at low elevations during mid-summer. Peaks in UPD activity generally occur from ½ hour after sunrise to 10:00 a.m., and then from 3:00 p.m. to ½ hour before sunset.

- Counts should be made from a vantage point which provides an unobstructed view of the entire colony. If this is not possible, surveyors should choose a few good vantage points from which to count easily identifiable portions of the colony, count each of these subdivided areas and arrive at a composite count for the colony by summing these partial counts. In this latter case, special care should be taken to avoid over counting. At least three counts will be made at each colony. If the counts continue to rise, counting must continue until the number of prairie dogs reaches a plateau or begins to decrease. The surveyor should record the maximum total number of prairie dogs observed (see survey form).
- Surveyors should approach colonies to be counted in such a way that they avoid disturbing the resident prairie dogs. However, there is wide variability in prairie dog behavior between locations. In areas where the prairie dogs are habituated to people, such as in town, it may be helpful to wait a brief time after arriving to allow Utah prairie dogs to acclimate to the observer. The surveyor can then slowly scan the colony from one end to the other with binoculars or spotting scope and count all prairie dogs visible in the colony. This method often does not work in areas where people or vehicles may be perceived as a disturbance or predator by the prairie dogs. In these cases, it is preferable to park vehicles out of sight of the colony and walk closer. Often it is best to conduct the first count as soon as prairie dogs are visible. The surveyor should progressively move closer and count each time they move until prairie dog numbers begin to decline. As stated above, record the maximum number of prairie dogs seen on the survey form.

Utah Prairie Dog Habitat Mapping

- The surveyor must determine the perimeter of all Utah prairie dog habitat encountered, whether occupied or unoccupied. The perimeter burrow locations will be used to define the boundary of all Utah prairie dog habitat polygons. The surveyor shall assign each

Utah prairie dog habitat polygon a unique Polygon ID # (see glossary). All data pertaining to a polygon and recorded on the Survey Data Form and subsequent GIS attribute data will be tied to its unique Polygon ID#. All survey results will be provided to the authorizing agency as an ESRI compatible product (shapefile or personal Geodatabase) that is in the UTM Zone 12 North NAD 1983 datum. Spatial data must be attributed in a table (see Table 1 for example attribute table), and include metadata following ESRI standards.

Table 1. Example attribute table for the Polygon shapefile.

Polygon ID #	Surveyor	Land Use	Polygon Status	Total # of UPDs	Date of Survey
KRP01	J. Cliff; S. Rubt; K. Kirken	US	Unoccupied	0	5/18/2009
KRP02	J. Cliff; S. Rubt; K. Kirken	RP	Occupied	8	5/18/2009
KRP03	J. Cliff; K. Kirken	DC	Occupied	14	5/18/2009
KRP04	S. Liner; B. Box	IP	Unoccupied	0	5/18/2009
KRP05	S. Liner; B. Box; R. Sunner	IC	Unoccupied	0	5/18/2009
KRP06	S. Liner; B. Box; R. Sunner	BG	Occupied	5	5/19/2009
KRP07	B. Box; R. Sunner	US	Unoccupied	0	5/19/2009

Data/Report Submission

- Survey data must be provided to the authorizing federal agency in the approved format within the timeframe determined by the authorizing agency. The authorizing federal agency may accept, reject, or ask for additional information on the surveys. They may also conduct field checks of survey data to validate results. The authorizing federal agency will coordinate results with USFWS. Authorizing federal agencies are responsible for providing copies of data to UDWR.
- Complete data/report submission includes a written report summarizing methodology and results, completed survey forms, maps and geospatial data. Methodology sections and maps must clearly define low intensity and high intensity level survey areas. Vehicle and foot survey areas must be delineated within the low intensity survey areas. Reports must include both positive and negative survey results. Negative data includes all areas in the Action Area that were determined to be unsuitable habitat; and suitable habitat that was surveyed but showed no evidence of Utah prairie dogs or their burrows. Reports must identify the action area, all suitable habitat that was surveyed, and the presence of all

identified Utah prairie dog habitat areas (occupied and unoccupied). Survey forms submitted with negative data only need the top portion of the form completed.

- The authorizing agency will make the appropriate effects determination of the proposed action.

GLOSSARY

Action Area: The entire right-of-way or exterior boundary of a proposed action plus the appropriate buffer (see definition of Buffer Type).

Active Season Survey: Surveys that occur generally from April 1 through August 31 when prairie dogs are most active above ground, including breeding and rearing of young. The determination of the applicable Active Season will be made by the authorizing federal agency. If the authorizing federal agency is not a land management agency, the U.S. Fish and Wildlife Service will make this determination.

Authorizing Federal Agency: For projects on federal lands; the authorizing agency is the agency which administers the lands where the proposed project occurs and from whom a permit or other authorization is needed before the project may be implemented. This is most commonly the Bureau of Land Management, U.S. Forest Service, or National Park Service.

For projects on private lands with a federal nexus, the authorizing federal agency is the federal agency connected to the private lands action (see definition of Federal Nexus). If the authorizing federal agency is not a land management agency, it must coordinate all survey details with the U.S. Fish and Wildlife Service.

Buffer Type: For projects that temporarily impact Utah prairie dog habitat (do not extend into the following breeding season and the habitat can feasibly be restored), or those projects with small permanent surface or buried structures that do not substantially alter Utah prairie dog habitat or behavior, the buffer is a 350 foot zone extending out from the proposed project right-of-way or exterior boundary. For projects with large permanent surface or buried structures that may substantially alter Utah prairie dog habitat or behavior, or extend into the following breeding season, the buffer zone extends outward ½ mile from the proposed project right-of-way or exterior boundary. The buffer type will be determined by the authorizing federal agency in coordination with the U.S. Fish and Wildlife Service.

Certified Surveyor: An individual who has completed a U.S. Fish and Wildlife Service approved Utah Prairie Dog Surveyor Course within the last 4 years.

Dormant Season Survey: Surveys that occur generally from September 1 through March 31 when prairie dogs are less active above ground and are often below ground for long periods of time. The determination of the applicable Dormant Season will be made by the authorizing federal agency. If the authorizing federal agency is not a land management agency, the U.S. Fish and Wildlife Service will make this determination.

Federal Nexus: A federal nexus may occur for projects on private lands. Any private actions that are federalized for purposes of NEPA through a key federal decision must be considered as connected actions and included within the scope of the federal agency's decision making. A "federalized" project is one for which the agency has discretion to authorize or permit the action, or proposes to contribute substantial funds, equipment or staff to implement.

Functional Burrow: Any Utah prairie dog burrow that is structurally suitable to house Utah prairie dogs (entirely open, partially filled with dirt, or open but blocked by sticks, weeds, cobwebs, or other debris). Burrows that are less than 3" in diameter are not considered potential prairie dog burrows. Whenever a surveyor is uncertain of the species of origin when identifying burrows or mounds, they must err on the side of the Utah prairie dog and report the site. Follow-up visits may be made by the U.S. Fish and Wildlife Service, Utah Division of Wildlife Resources, and/or the Authorizing Federal Agency to verify the species.
Note: The species of origin (the species that originally dug the burrow or created the mound) and the current occupant of the burrow must be considered.

Historic Utah Prairie Dog Range: all suitable habitats in the following areas: all of Beaver, Iron and Piute Counties; Garfield County – the Aquarius Plateau and west of the Escalante Mountains, including Tropic Valley; Kane County – the main stem Sevier River Valley and East Fork Sevier River Valley, including primary tributaries; Juab County – areas south and east of SR132; Millard County – areas east of the San Francisco Mountains, Cricket Mountains and the Sevier River; Sanpete County – the Sevier River Valley; Sevier County – areas west of, and including, the Old Woman Plateau and west of SR72, including the Tidwell Slopes; Washington County - all areas in the Kanarra Creek and Ash Creek drainages; Wayne County – west of the Water Pocket Fold.

High Intensity Level Surveys: Surveys of suitable habitat intended to identify the extent of Utah prairie dog habitat in areas suspected of containing Utah prairie dogs. Generally are conducted within <5 miles of known and/or mapped Utah prairie dog habitat areas where previous surveys or professional knowledge of the local management biologists indicate that occupied prairie dog habitat may occur.

Land Use: Surface management of the area being surveyed. Classifications include Rangeland/Dry Pasture (RP), Irrigated Pasture (IP), Irrigated Cropland (IC), Dryland Crop (DC), Bare/Fallow Ground (BG), and Urban/Suburban (US).

Low Intensity Level Survey: Surveys of suitable habitat that are intended to identify any previously unknown Utah prairie dog habitat areas. Generally conducted in locations ≥5 miles from any known and/or mapped Utah prairie dog habitat where previous surveys or professional knowledge of the local management biologists indicate that the likelihood of occupied prairie dog habitat is low.

Mound System: A mound is the pile of earth, gravel, sand, rocks, or debris associated with making a burrow hole in the ground. A Utah prairie dog mound system is identified as 3 or more prairie dog mounds clustered within a 10m diameter space. If any evidence of a Utah prairie dog mound system is found, the area must be mapped and reported as Utah prairie dog habitat. Whenever a surveyor is uncertain of the species of origin when identifying burrows or mounds, they must err on the side of the Utah prairie dog and report the site. Follow-up visits may be made by the U.S. Fish and Wildlife Service, Utah Division of Wildlife Resources, and/or the Authorizing Federal Agency to verify the species.
Note: The species of origin (the species that originally dug the burrow or created the mound) and the current occupant of the burrow must be considered.

Occupied Utah Prairie Dog Habitat: During the Active Season: Any area where Utah prairie dogs are seen or heard, or any Functional Utah prairie dog burrows (see definition of Functional Burrow) are found and show evidence of recent prairie dog activity (fresh digging, scat, fresh tracks).

During the Dormant Season: Any Utah prairie dog burrows (functional or not functional), or any Utah prairie dog mound system (see definition of mound system) is found, even if no other signs of Utah prairie dogs are present.

If legal access cannot be obtained to any portion of the Action Area, please refer to the instructions under the Pre-Survey Coordination section on page 2.

Polygon ID #: The ID number is a unique identifier for each Utah prairie dog habitat polygon that is defined by the surveyor and provides a means to link the spatial data of that polygon with the data captured on the survey form. The polygon is either Occupied or Unoccupied by Utah prairie dogs.

Polygon Status: Utah prairie dog habitat polygons are classified as occupied or unoccupied.

Suitable Habitat: Habitat capable of supporting Utah prairie dogs including grassland or low-density sagebrush sites, agricultural fields, vacant lots, and other areas as identified by the authorizing Federal agency. Habitat previously mapped by the Utah Division of Wildlife Resources must be treated as suitable, regardless of current vegetative status.

Unoccupied (previously supported) Utah Prairie Dog Habitat: During the Active Season: No Utah prairie dogs are seen or heard and Utah prairie dog burrows are found but are not Functional (see definition of Functional Burrow); or Functional Utah prairie dog burrows or mound systems are found but there is no evidence of prairie dogs: such as fresh digging, scat or tracks.

During the Dormant Season: Unoccupied habitat cannot be determined during the dormant season. If any Utah prairie dog burrows are found (functional or not functional), or there is any evidence of a prairie dog mound system, they must be documented and will be assumed occupied.

Utah prairie dog habitat: Portions of suitable habitat that support Utah prairie dog burrows, mounds, or other sign of the presence (past or recent) of Utah prairie dogs.

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: _____ Start Survey Date: ____/____/_____ End Survey Date: ____/_____/_____

Project Location: T. ____ R. ____ Section(s) _____ ¼ ¼ _____ County: _____

Acres of Suitable Habitat surveyed in Action Area: _____ Buffer Type (check one): ☐350' buffer ☐½ mile buffer

Survey Season (check one): ☐Active Season ☐Dormant Season

Surveyors: _____ Surveyor Organization/Agency: _____

Location Description: _____

Comments: _____

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Appendix B

Completed Utah Prairie Dog Occupancy / Habitat Survey Forms

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 30 / 2010 End Survey Date: 07 / 30 / 2010

Project Location: T. 36S R. 11W Section(s) 22 ¼ ¼ SW SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☐ 350' buffer ☑ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Will Hayes, Art Pizzo

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: West side of I-15 ~ MP 56.7, inside the ramp

Comments: grasses, weeds, low-density sagebrush

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP01	U	0645	US	Y	Y	N	N	N	N	0	1	0	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RF - Rangeland/Dry Pasture
  - IF - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 08 / 12 / 2010 End Survey Date: 08 / 12 / 2010

Project Location: T. 36 S R. 11 W Section(s) 28 ¼ ¼ SW SE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis, Will Hayes, Bruce Palmer Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: East of I-15 ~ MP 55

Comments: Access not granted by landowner; survey conducted with binoculars

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 02	O	1215	RP	Y	Y	N	N	N	N	3	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied

- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)

- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 07 / 18 / 2010

Project Location: T. 36S R. 12W Section(s) 25 ¼ ¼ SW SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Jennifer Cleland, Bruce Palmer, Gary Reese, Judy Mielke, Will Hayes, John Millican, Art Pizzo

Surveyor Organization/Agency: Logan Simpson Design Inc

Location Description: Grazed rangeland with low-density sagebrush, burroweed, greasewood, and grasses

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP03	U	1110	RP	Y	Y	N	N	N	N	0	3	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 07 / 18 / 2010

Project Location: T. 36 S R. 12 W Section(s) 26, 35 ¼ ¼ SE, SE / NE, NE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Jen Cleland, Bruce Palmer, Gary Reese, Judy Mielke, Will Hayes, John Millican, Art Pizzo Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Low-density sagebrush woodland, grassy

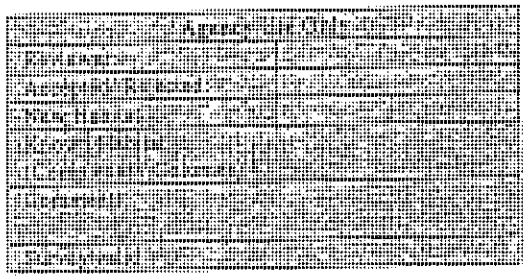
Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP04	U	0710	RP	Y	Y	N	N	N	N	0	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 07 / 18 / 2010

Project Location: T. 36S R. 12W Section(s) 26 ¼ ¼ SE SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Jennifer Cleland, Bruce Palmer, Gary Reese, Judy Mielke, Will Hayes, John Millican, Art Pizzo

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Low-density sagebrush / greasewood, minimal grass

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N): Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging	UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
LPP05	U	0710	RP	Y	Y	N	N	N	N	0	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
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  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 07 / 18 / 2010

Project Location: T. 36S R. 12W Section(s) 35 ¼ ¼ NE NW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Jennifer Cleland, Bruce Palmer, Judy Miedke, Art Pizzo, John Millican, Will Hayes, Gary Rose Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Low-density sagebrush / burroweed, and greasewood

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP06	U	1110	RP	Y	Y	N	N	N	N	0	3	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 07 / 18 / 2010

Project Location: T. 36S R. 12W Section(s) 35 ¼ ¼ SW NE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Jennifer Cleland, Bruce Palmer, Judy Mielke, Will Hayes, Gary Reese, Art Pizzo, John Millican Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Dense sagebrush and greasewood with interspersed openings of bare ground/grasses

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP07	U	0710	RP	Y	Y	N	N	N	N	0	1	0	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07/16/2010 End Survey Date: 07/16/2010

Project Location: T. 36S R. 12W Section(s) 35 ¼ ¼ SE NW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Small grassland within mid-density sagebrush shrubland

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP08	U	1250	RP	Y	Y	N	N	N	N	0	2	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
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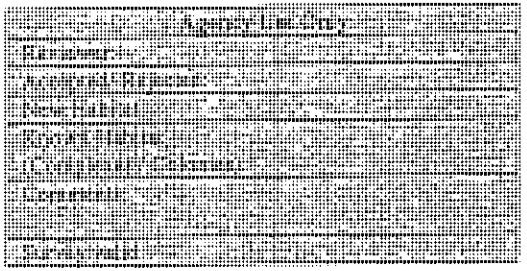
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 07 / 18 / 2010

Project Location: T. 36S R. 12W Section(s) 35 ¼ ¼ SW, NE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Bruce Palmer, Jennifer Cleland, Judy Mielke, John Millican, Will Hayes, Gary Rose, Art Pizzo Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Low-density sagebrush & greasewood with an herbaceous understory of grasses and forbs

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 09	U	0710	RP	Y	Y	N	N	N	N	0	1	0	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
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  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
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  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 16 / 2010 End Survey Date: 07 / 16 / 2010

Project Location: T. 36S R. 12W Section(s) 35 ¼ ¼ SE SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Low- to mid-density sagebrush shrubland

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 10	U	1250	RP	Y	Y	N	N	N	N	0	2	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BO - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
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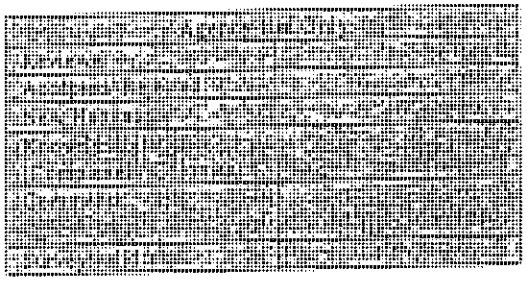
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 15 / 2010 End Survey Date: 07 / 15 / 2010

Project Location: T. 37S R. 12W Section(s) 11 ¼ ¼ SE NW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis, John Millican, Will Hayes

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Rangeland / pasture with horses and cows; sparse sagebrush, rabbit brush

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 11	U	0730	RP	Y	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 15 / 2010 End Survey Date: 07 / 15 / 2010

Project Location: T. 37S R. 12W Section(s) 14 ¼ ¼ NW NE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Will Hayes, John Millican

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: E side of I-15, E of frontage rd; habitat is fallow ag land; veg > 12" tall, sagebrush

Comments: Access not granted by landowner; Survey conducted with binoculars

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 12	U	1120	BG	Y	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 15 / 2010 End Survey Date: 07 / 15 / 2010

Project Location: T. 37S R. 12W Section(s) 14 ¼ ¼ NW SE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: John Millican, Will Hayes

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: E side of I-15, E of frontage rd; fallow ag land, veg >12" tall

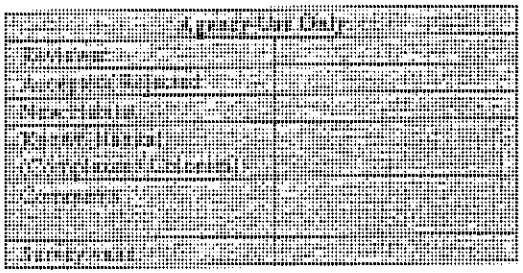
Comments: Access not granted by landowner; survey conducted with binoculars

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP13	U	1120	BG	Y	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 15 / 2010 End Survey Date: 07 / 15 / 2010

Project Location: T. 37S R. 12W Section(s) 14 ¼ ¼ NW SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: John Millican, Will Hayes

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: E side of I-15, E of frontage road; dry cropland (wheat?)

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

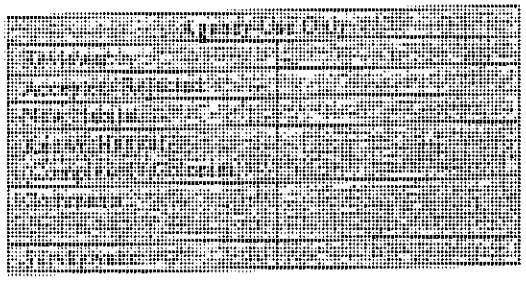
Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 14	U	1120	DC	Y	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied

- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)

- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 28 / 2010 End Survey Date: 07 / 28 / 2010

Project Location: T. 37S R. 12W Section(s) 15 ¼ ¼ SE NE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis, Will Hayes, Art Pizzo

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: west of I-15 at ~ milepost 49.1; habitat = low-density sagebrush, rabbitbrush, sunflower

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 15	U	0702	RP	Y	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies)	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline Start Survey Date: 07 / 15 / 2010 End Survey Date: 08 / 12 / 2010

Project Location: T. 37S R. 12W Section(s) 14, 15, 22 ¼ ¼ _____ County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239 Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis, John Millican, Will Hayes Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: E of I-15, dry cropland

Comments: _____

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP16	U	1215	DC	Y	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 08 / 12 / 2010 End Survey Date: 08 / 12 / 2010

Project Location: T. 37S R. 12W Section(s) 22 ¼ ¼ SE, SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☐ 350' buffer ☑ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Frontage road on E side of I-15, right-of-way; grassy/weedy

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP17	U	0940	RP	Y	Y	N	N	N	N	0	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
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  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 27 / 2010 End Survey Date: 07 / 27 / 2010

Project Location: T. 37S R. 12W Section(s) 27 ¼ ¼ NE NW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: Residential, grassy with snakeweed; S side of Bumble Bee Spring Rd.

Comments: Access not granted by landowner; survey conducted with binoculars

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

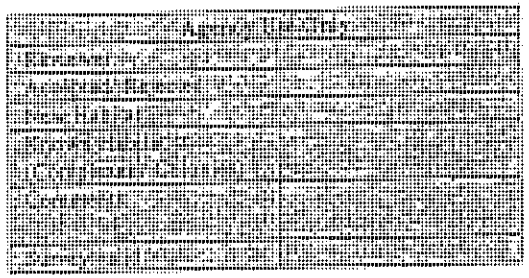
Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP18	U	1413	BG	Y	Y	N	N	N	N	0	3	1	squirrels were using the abandoned burrows

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied

- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)

- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 18 / 2010 End Survey Date: 08 / 12 / 2010

Project Location: T. 37S R. 12W Section(s) 27 ¼ ¼ NW, NE/SE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Bruce Palmer, Jen Cleland, Ada Davis, Will Hayes, Art Pizzo Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: SE of Bumble Bee Spring Rd & I-15; pasture with cows and horses in the NE portion

Comments: No access granted to private property. Survey/counts done using spotting scope.

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

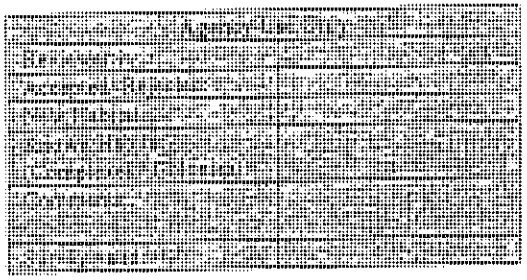
Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP19	O	0700	RP	Y	Y	Y	N	N	N	98	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied

- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)

- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 08 / 12 / 2010 End Survey Date: 08 / 12 / 2010

Project Location: T. 37S R. 12W Section(s) 27 ¼ ¼ SW NW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Will Hayes

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: I-15 right-of-way, E side; grassy with few shrubs

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N): Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging	UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
LPP20	U	1430	BG	N	Y	N	N	N	N	0	1	3	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
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  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
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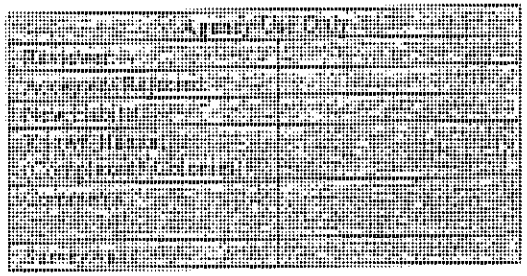
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 08 / 11 / 2010 End Survey Date: 08 / 12 / 2010

Project Location: T. 38S R. 12W Section(s) 9 ¼ ¼ NW, NW/SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: I-15 R/W, E side ~ milepost 44; habitat is disturbed, tall mixed grasses, soils good for burrowing

Comments: Survey was conducted within the I-15 R/W; colony is within R/W but extends E onto inaccessible private land

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 21	O	1503	RP	Y	Y	Y	N	N	N	70	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
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  - 0 = 0-1 mph: Smoke rises vertically.
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  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07/16/2010 End Survey Date: 07/30/2010

Project Location: T. 38S R. 12W Section(s) 9 ¼ ¼ NW SW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis, Will Hayes, John Millican Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: W side of I-15 ~milepost 43.75; mixed shrub woodland with grassy understory (Rhus sp., Quercus sp.)

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP 22	O	0730	RP	Y	Y	N	Y	N	Y	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
  - 4 = 13-17 mph: Dust and loose paper raised, small branches begin to move.
  - 5 = 18-24 mph: Branches of a moderate size move, small trees begin to sway.
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 07 / 30 / 2010 End Survey Date: 07 / 30 / 2010

Project Location: T. 38S R. 12W Section(s) 16 ¼ ¼ NW NW County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description:

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP23	U	0747	RP	N	Y	N	N	N	N	0	1	1	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
  DO NOT SURVEY IF CLOUD COVER = 3
- Wind Speed (Beaufort Scale)
  - 0 = 0-1 mph: Smoke rises vertically.
  - 1 = 1-3 mph: Wind motion visible in smoke.
  - 2 = 3-7 mph: Wind felt on exposed skin, leaves rustle.
  - 3 = 8-12 mph: Leaves and smaller twigs in constant motion.
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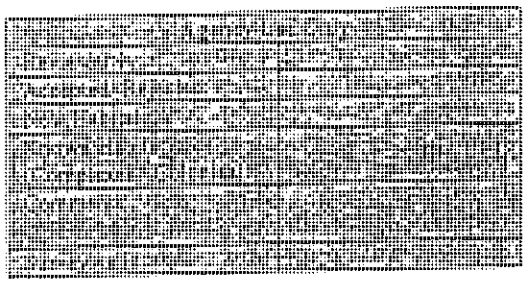
  - 6+ = ≥ 25 mph: Large branches in motion through hurricane force.

  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 08/12/2010 End Survey Date: 08/12/2010

Project Location: T. 38S R. 12W Section(s) 17 ¼ ¼ SE SE County: Iron

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: I-15 right-of-way, in gore area - E side; vegetated with grasses and forbs

Comments:

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N)						UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
				Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging				
LPP24	U	1352	BG	Y	Y	N	N	N	N	0	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
  - Any Functional (not collapsed) UPD Burrows observed?(Y/N)
  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
  - Any UPD tracks observed? (Y/N)
  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
- Cloud Cover: 1 = 0-20%; 2 = 21-40%; 3 = >41%
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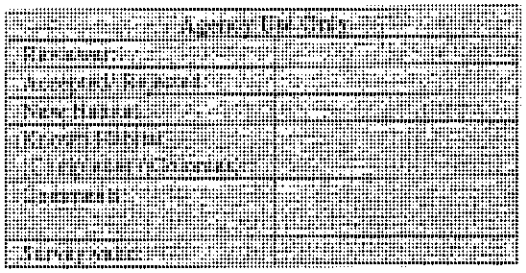
  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)



Utah Prairie Dog Occupancy / Habitat Survey Form

Summary Information:

Project Name: Lake Powell Pipeline

Start Survey Date: 08 / 11 / 2010 End Survey Date: 08 / 11 / 2010

Project Location: T. 38S R. 12W Section(s) 29 ¼ ¼ NW SE County: Washington

Acres of Suitable Habitat surveyed in Action Area: 1,239

Buffer Type (check one): ☑ 350' buffer ☐ ½ mile buffer

Survey Season (check one): ☑ Active Season ☐ Dormant Season

Surveyors: Kay Nicholson, Ada Davis

Surveyor Organization/Agency: Logan Simpson Design Inc.

Location Description: W of the I-15 R/W ~ milepost

Comments: unsure if this is an old, unoccupied colony or if it is pocket gopher activity

Site Specific Information (fill out the information below only when Utah prairie dog habitat has been identified or is questionable):

Polygon ID #	Polygon Status (O or U)	Start Time	Land Use	UPD Sign (Y/N): Functional Burrows	Mounds	Vocal-izations	Scat	Tracks	Digging	UPD Counts (Total #)	Cloud Cover	Wind Speed	NOTES (For each UPD habitat polygon, note presence of other spp. burrows if known, and habitat description)
LPP25	U	1345	BG	N	Y	N	N	N	N	0	1	2	

- Project Name: defined by surveyor
- Start Survey Date: DD/MM/YYYY
- End Survey Date: DD/MM/YYYY
- Project Location: Township, Range, Section, Quarter Quarter
- County: county name
- Action area: entire right-of-way or exterior boundary of the proposed action plus the appropriate buffer
- Buffer Type: see Glossary
- Survey Season: Active or Dormant (see Glossary)
- Surveyors: write out full name(s) (e.g. John Doe)
- Survey Organization/Agency: write out full name
- Location Description: (vegetation type, landmarks, etc.)
- Polygon ID#: Required unique identifier for each Utah Prairie Dog habitat polygon; this field must link to the associated shapefile
- Polygon Status: is either Occupied or Unoccupied
- Start Time: military time (i.e. 0900 – 1300)
- Land Use:
  - RP - Rangeland/Dry Pasture
  - IP - Irrigated Pasture
  - IC - Irrigated Cropland
  - DC - Dryland Crop
  - BG - Bare/Fallow Ground
  - US - Urban/Suburban
- Utah prairie dog (UPD) Burrows & Other Sign:
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  - Any UPD Mounds observed? (Y/N)
  - Any UPD vocalizations heard? (Y/N)
  - Any UPD scat observed? (Y/N)
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  - Any UPD digging observed? (Y/N)
- UPD Counts: Total Number of UPDs observed
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  - 1 = 1-3 mph: Wind motion visible in smoke.
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  DO NOT SURVEY IF WIND SPEED >3 (>12 mph)

Agency Use Only	
Reviewer:	
Accepted/ Rejected:	
New Habitat:	
Known Habitat (Complexes / Colonies):	
Comments:	
Survey valid:	

Appendix C

Photographs of Occupied and Unoccupied Utah Prairie Dog Habitat

Figure C-1
View to the east of an occupied colony (LPP02) east of I-15 near milepost 56

Figure C-2
Prairie dog at its burrow (LPP02)

Figure C-3
View to the east toward a large, occupied colony between Graff Road and I-15 (LPP19)

Figure C-4
Prairie dogs at their burrows in a large colony (LPP19)

Figure C-5
Mounds in the southwestern portion of a large, occupied colony (LPP19)

Figure C-6
Prairie dog burrow in the I-15 right-of-way, near milepost 44 (LPP21)

Figure C-7
Active prairie dog burrow and mound along a dirt road west of I-15 and milepost 43 (LPP22)

Figure C-8
Fresh scat found on and around the mound of the burrow in Figure C-7 (LPP22)

Figure C-9
View to the north from the south end of an occupied colony (LPP22)

Figure C-10
Surveyors checking for prairie dog sign at an unoccupied colony (LPP03)

Figure C-11
Prairie dog burrows at this unoccupied colony (LPP05)

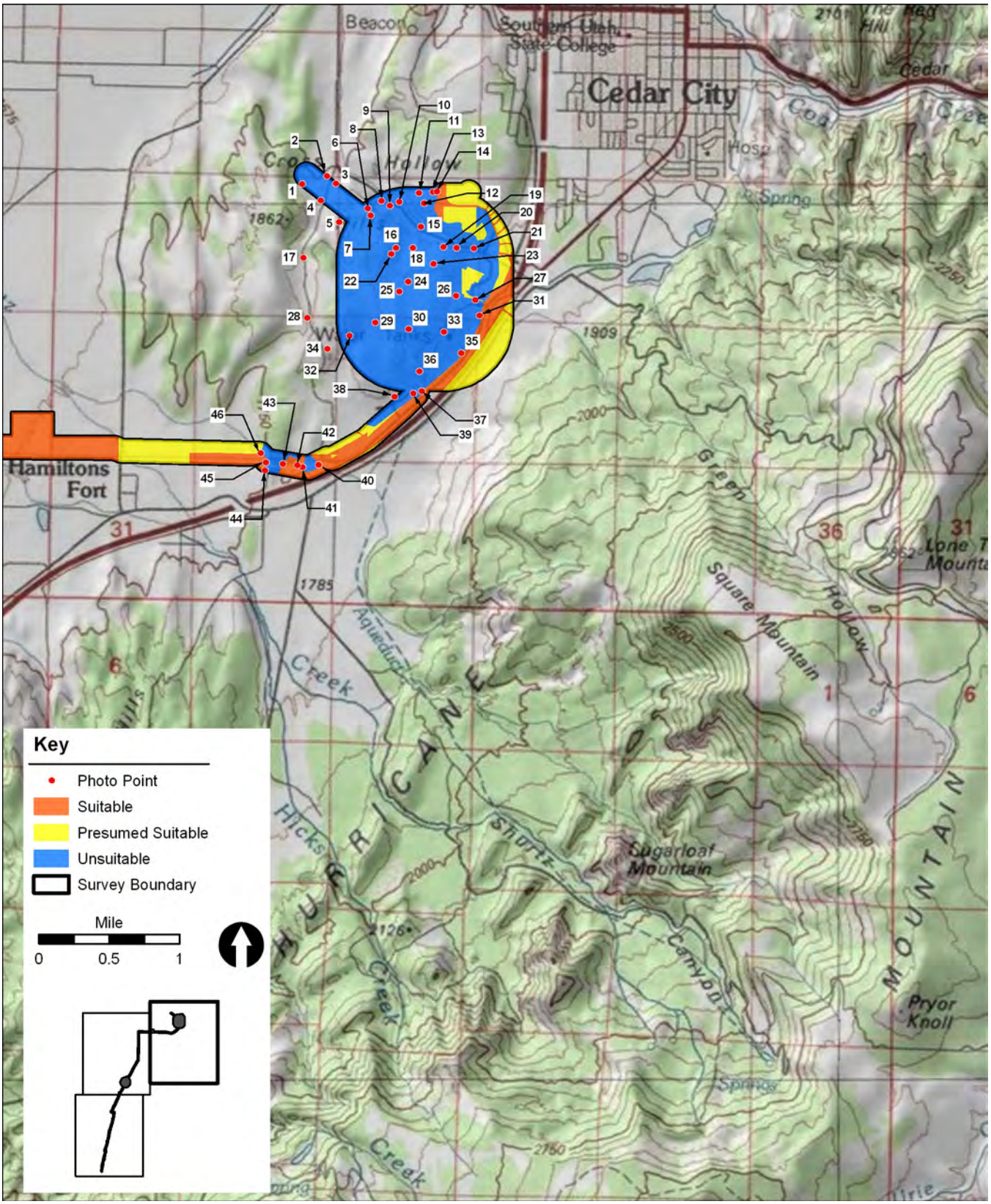
Figure C-12
Prairie dog burrows and mound at this unoccupied colony (LPP08)

Figure C-13
Prairie dog burrow along the frontage road east of I-15 (LPP16)

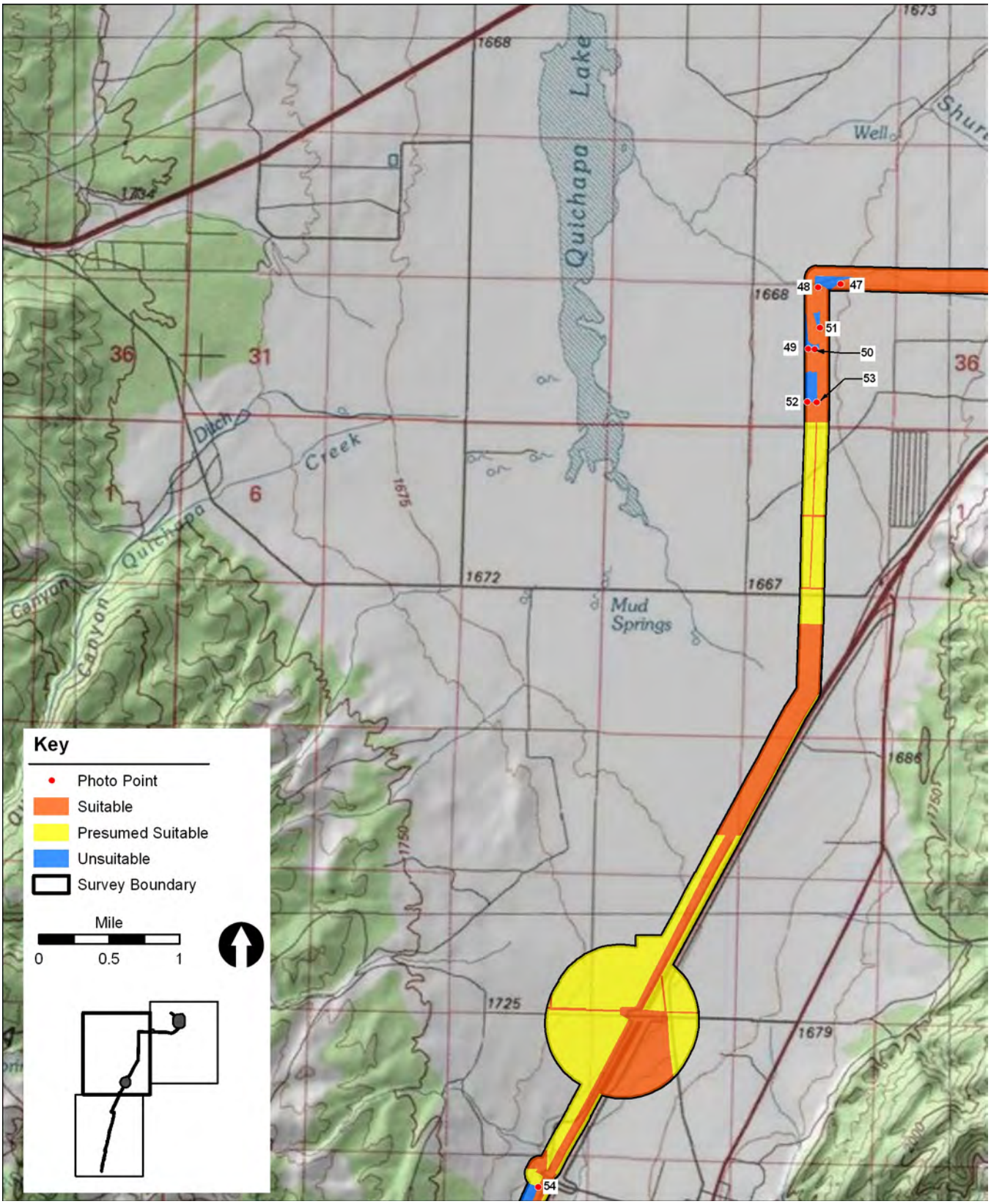
Figure C-14
View to the south of an unoccupied colony between Graff Road and I-15 (LPP19)

Appendix D

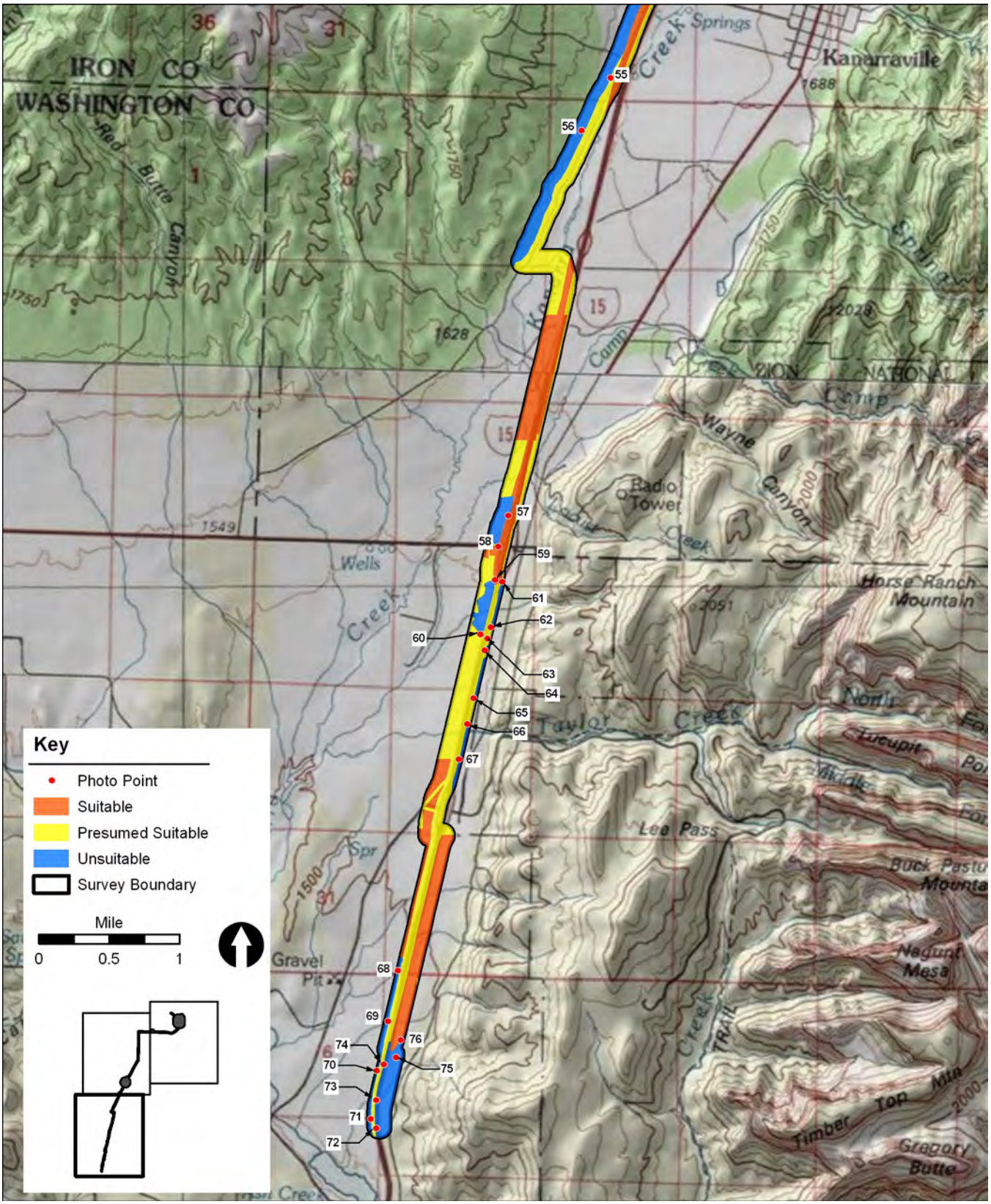
Photographs of Unsuitable Utah Prairie Dog Habitat



Map D-1a
Utah prairie dog habitat suitability map with photograph points



Map D-1b
Utah prairie dog habitat suitability map with photograph points



Map D-1c
Utah prairie dog habitat suitability map with photograph points

Figure D-1
View of unsuitable habitat at photograph point 1 (US01), facing east-southeast

Figure D-2
View of unsuitable habitat at photograph point 2 (US01), facing south

Figure D-3
View of unsuitable habitat at photograph point 3 (US01), facing northwest

Figure D-4
View of unsuitable habitat at photograph point 4 (US01), facing north

Figure D-5
View of unsuitable habitat at photograph point 4 (US01), facing west

Figure D-6
View of unsuitable habitat at photograph point 5 (US01), facing north

Figure D-7
View of unsuitable habitat at photograph point 6 (US01), facing northeast

Figure D-8
View of unsuitable habitat at photograph point 6 (US01), facing south

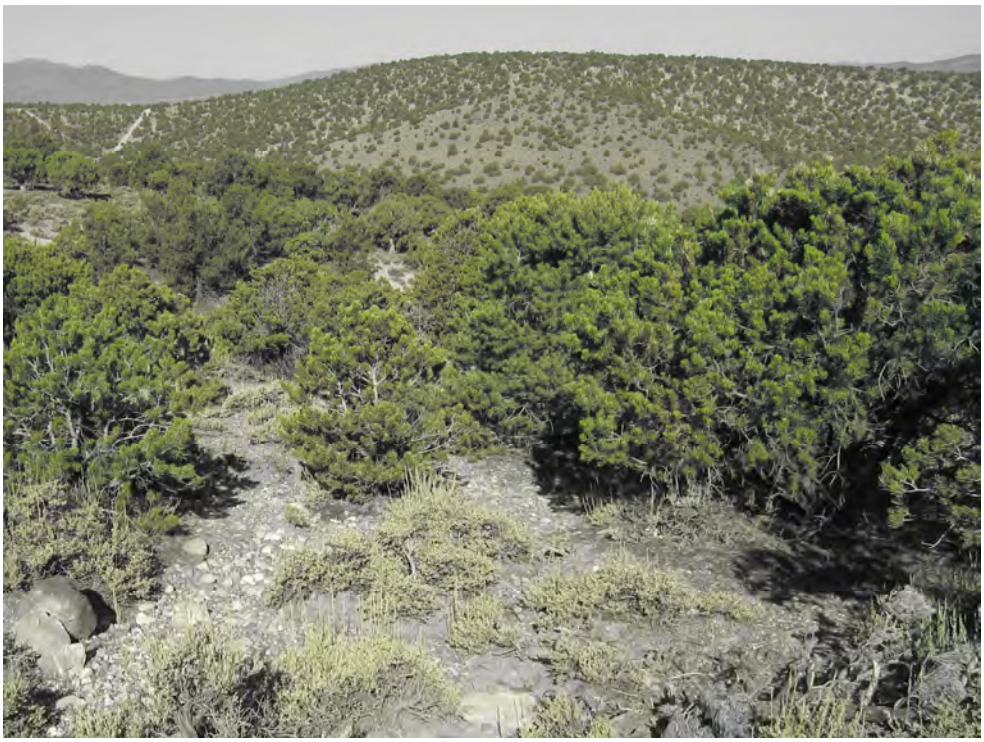


Figure D-9
View of unsuitable habitat at photograph point 7 (US01), facing west

Figure D-10
View of unsuitable habitat at photograph point 8 (US01), facing southwest

Figure D-11
View of unsuitable habitat at photograph point 9 (US01), facing northeast

Figure D-12
View of unsuitable habitat at photograph point 9 (US01), facing southwest

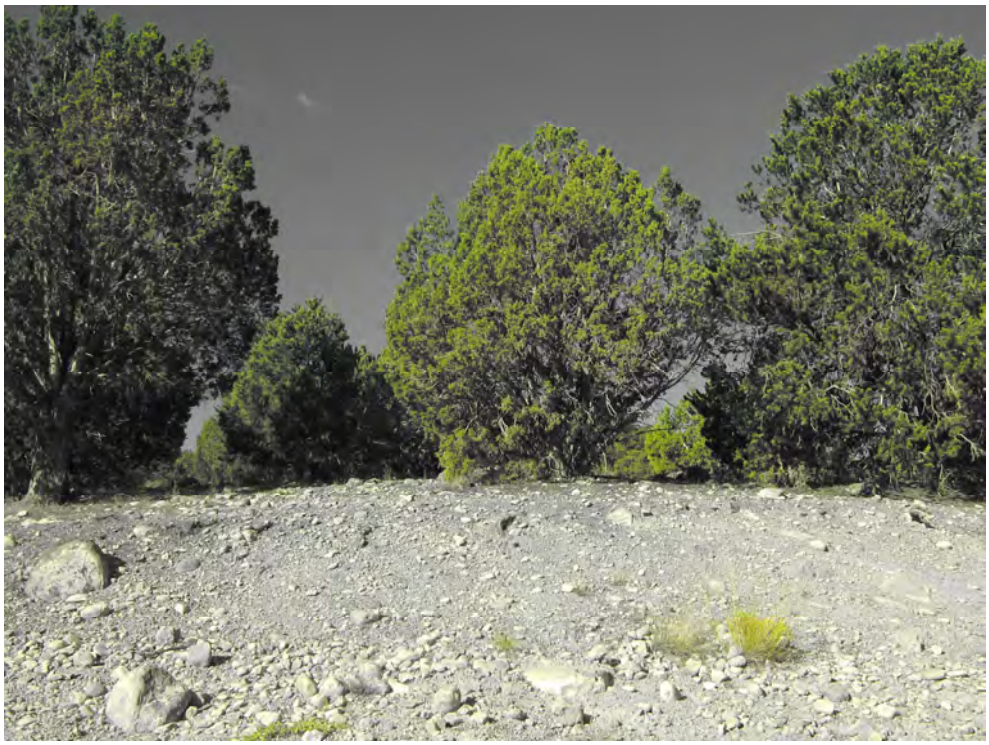


Figure D-13
View of unsuitable habitat at photograph point 10 (US01), facing southwest

Figure D-14
View of unsuitable habitat at photograph point 11 (US01), facing west

Figure D-15
View of unsuitable habitat at photograph point 12 (US01), facing west

Figure D-16
View of unsuitable habitat at photograph point 13 (US01), facing west

Figure D-17
View of unsuitable habitat at photograph point 14 (US01), facing west

Figure D-18
View of unsuitable habitat at photograph point 15 (US01), facing northeast

Figure D-19
View of unsuitable habitat at photograph point 16 (US01), facing north

Figure D-20
View of unsuitable habitat at photograph point 17 (US01), facing east

Figure D-21
View of unsuitable habitat at photograph point 18 (US01), facing south

Figure D-22
View of unsuitable habitat at photograph point 19 (US01), facing north

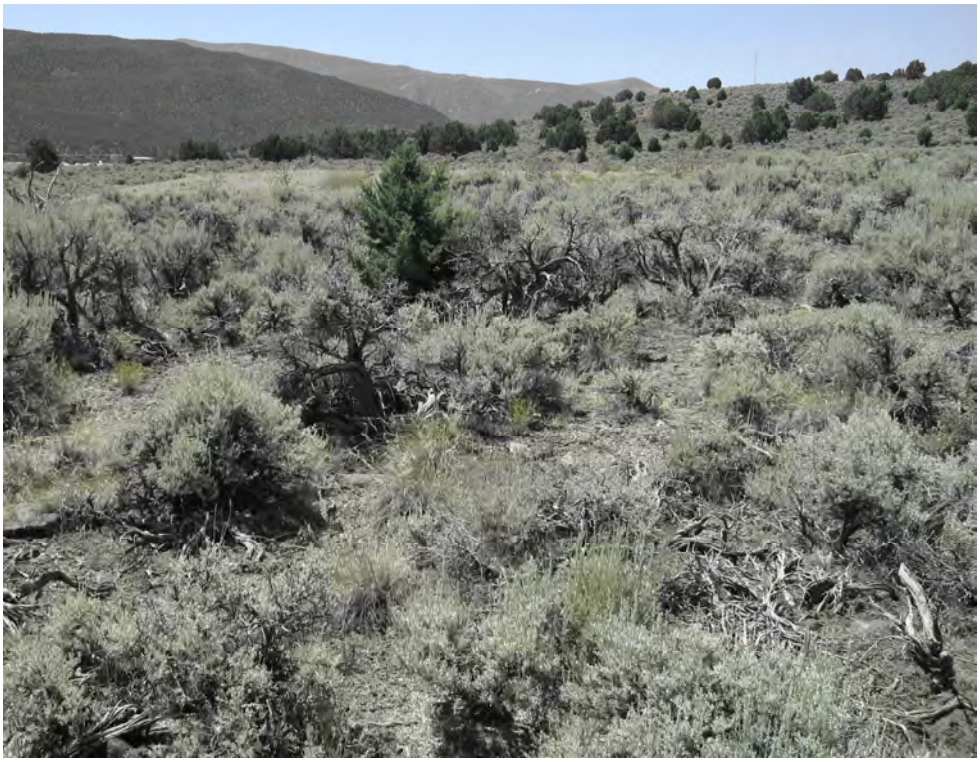


Figure D-23
View of unsuitable habitat at photograph point 20 (US01), facing south

Figure D-24
View of unsuitable habitat at photograph point 21 (US01), facing north-northwest

Figure D-25
View of unsuitable habitat at photograph point 22 (US01), facing south-southeast

Figure D-26
View of unsuitable habitat at photograph point 23 (US01), facing north

Figure D-27
View of unsuitable habitat at photograph point 24 (US01), facing south

Figure D-28
View of unsuitable habitat at photograph point 25 (US01), facing south

Figure D-29
View of unsuitable habitat at photograph point 26 (US01), facing north

Figure D-30
View of unsuitable habitat at photograph point 27 (US01), facing west

Figure D-31
View of unsuitable habitat at photograph point 28 (US01), facing east

Figure D-32
View of unsuitable habitat at photograph point 29 (US01), facing south

Figure D-33
View of unsuitable habitat at photograph point 29 (US01), facing west

Figure D-34
View of unsuitable habitat at photograph point 29 (US01), facing north

Figure D-35
View of unsuitable habitat at photograph point 29 (US01), facing east

Figure D-36
View of unsuitable habitat at photograph point 30 (US01), facing north

Figure D-37
View of unsuitable habitat at photograph point 30 (US01), facing south

Figure D-38
View of unsuitable habitat at photograph point 31 (US01), facing south

Figure D-39
View of unsuitable habitat at photograph point 32 (US01), facing north

Figure D-40
View of unsuitable habitat at photograph point 32 (US01), facing south

Figure D-41
View of unsuitable habitat at photograph point 33, facing south

Figure D-42
View of unsuitable habitat at photograph point 34 (US01), facing northeast

Figure D-43
View of unsuitable habitat at photograph point 35 (US01), facing north-northeast

Figure D-44
View of unsuitable habitat at photograph point 36 (US01), facing south

Figure D-45
View of unsuitable habitat at photograph point 37 (US01), facing northwest

Figure D-46
View of unsuitable habitat at photograph point 37 (US01), facing northeast

Figure D-47
View of unsuitable habitat at photograph point 38 (US01), facing north

Figure D-48
View of unsuitable habitat at photograph point 39 (US01), facing south

Figure D-49
View of unsuitable habitat at photograph point 40 (US02), facing west

Figure D-50
View of unsuitable habitat at photograph point 41 (US02), facing east

Figure D-51
View of unsuitable habitat at photograph point 42 (US03), facing north

Figure D-52
View of unsuitable habitat at photograph point 43 (US03), facing north

Figure D-53
View of unsuitable habitat at photograph point 44 (US03), facing east-southeast

Figure D-54
View of unsuitable habitat at photograph point 45 (US03), facing east-southeast

Figure D-55
View of unsuitable habitat at photograph point 46 (US03), facing east

Figure D-56
View of unsuitable habitat at photograph point 47 (US04), facing west

Figure D-57
View of unsuitable habitat at photograph point 48 (US04), facing north

Figure D-58
View of unsuitable habitat at photograph point 49 (US05), facing north

Figure D-59
View of unsuitable habitat at photograph point 50 (US05), facing north

Figure D-60
View of unsuitable habitat at photograph point 51 (US06), facing north

Figure D-61
View of unsuitable habitat at photograph point 52 (US07), facing north

Figure D-62
View of unsuitable habitat at photograph point 53 (US07), facing north

Figure D-63
View of unsuitable habitat at photograph point 54 (US08), facing west

Figure D-64
View of unsuitable habitat at photograph point 55 (US08), facing southwest

Figure D-65
View of unsuitable habitat at photograph point 56 (US08), facing south-southwest

Figure D-66
View of unsuitable habitat at photograph point 56 (US08), facing north-northeast

Figure D-67
View of unsuitable habitat at photograph point 57 (US09), facing north-northwest

Figure D-68
View of unsuitable habitat at photograph point 57 (US09), facing south-southwest

Figure D-69
View of unsuitable habitat at photograph point 58 (US09), facing north-northwest

Figure D-70
View of unsuitable habitat at photograph point 59 (US10), facing southwest

Figure D-71
View of unsuitable habitat at photograph point 60 (US10), facing north-northwest

Figure D-72
View of unsuitable habitat at photograph point 61 (US11), facing east

Figure D-73
View of unsuitable habitat at photograph point 62 (US11), facing northeast

Figure D-74
View of unsuitable habitat at photograph point 62 (US12), facing southeast

Figure D-75
View of unsuitable habitat at photograph point 63 (US12), facing west

Figure D-76
View of unsuitable habitat at photograph point 64 (US13), facing northeast

Figure D-77
View of unsuitable habitat at photograph point 65 (US14), facing east

Figure D-78
View of unsuitable habitat at photograph point 65 (US14), facing north-northeast

Figure D-79
View of unsuitable habitat at photograph point 66 (US15), facing east

Figure D-80
View of unsuitable habitat at photograph point 67 (US15), facing east

Figure D-79
View of unsuitable habitat at photograph point 66 (US15), facing east

Figure D-80
View of unsuitable habitat at photograph point 67 (US15), facing east

Figure D-81
View of unsuitable habitat at photograph point 68 (US16), facing north

Figure D-82
View of unsuitable habitat at photograph point 68 (US16), facing south

Figure D-83
View of unsuitable habitat at photograph point 69 (US16), facing west

Figure D-84
View of unsuitable habitat at photograph point 70 (US16), facing south-southwest

Figure D-85
View of unsuitable habitat at photograph point 71 (US16), facing north

Figure D-86
View of unsuitable habitat at photograph point 72 (US16), facing south

Figure D-87
View of unsuitable habitat at photograph point 73 (US16), facing north

Figure D-88
View of unsuitable habitat at photograph point 73 (US16), facing east

Figure D-89
View of unsuitable habitat at photograph point 74 (US16), facing north

Figure D-90
View of unsuitable habitat at photograph point 75 (US16), facing north

Figure D-91
View of unsuitable habitat at photograph point 75 (US16), facing south

Figure D-92
View of unsuitable habitat at photograph point 76 (US16), facing south