
Final

Wildlife and Plant Inventory Plan

Prepared for
Peak Minerals - Sevier Dry Lake

October 11, 2011

Prepared by



215 South State Street, Suite 1000
Salt Lake City, Utah 84111

Contents

Section	Page
1.0 Introduction.....	1
2.0 Federally Listed or Candidate Species	1
2.1 Background	1
2.2 Field Inventory Plan.....	1
3.0 BLM Sensitive Species	2
3.1 Background	2
3.2 Field Inventory Plan.....	7
4.0 USFWS Birds of Conservation Concern.....	8
4.1 Background	8
4.2 Field Inventory Plan.....	8
5.0 Big Game Species	8
5.1 Background	8
5.2 Field Inventory Plan.....	8
6.0 Invertebrate Community.....	9
6.1 Background	9
6.2 Field Inventory.....	9
7.0 Reporting	9
8.0 Literature Cited	10

Tables

- 1 Special Status Plant Species in Millard County, Utah
- 2 Special Status Wildlife Species in Millard County, Utah

Figures

- 1 Location Map
- 2 Avian Point Count Locations

Peak Minerals – Sevier Dry Lake Wildlife and Plant Inventory Plan

1.0 Introduction

This Wildlife and Plant Inventory Plan (“Plan”) has been developed in accordance with Stipulation 9 presented in Section 2.2.2 of the Bureau of Land Management (BLM) Sevier Lake Competitive Potash Leasing Proposal Environmental Assessment (“Leasing EA;” BLM 2011a) and is specifically prepared for review and approval by the Authorized Officer (AO) of the Fillmore Field Office (FFO) prior to conducting any surface disturbing activity related to the Sevier Dry Lake Exploratory Testing Environmental Assessment (“Exploratory EA;” BLM 2011b).

The purpose of the inventory that will result from implementation of this Plan is to establish sufficient baseline data for the area within and around the BLM leased parcels awarded to Peak Minerals, Inc (“Peak Minerals”). The species requiring review and analysis are identified in the Leasing Proposal EA and include: Federally Listed or Candidate species; BLM Sensitive plant or wildlife Species; U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BOCC); big game species; and brine flies and brine shrimp. This inventory plan will address the time periods to be inventoried and shall be conducted by qualified individuals approved by the AO. Through background literature review presented in this Plan and the proposed field study plan, the inventory will address the following: species occurrence, migration corridors, winter use, reproductive periods and habitat value.

2.0 Federally Listed or Candidate Species

2.1 Background

Appendix D of the Leasing EA provides a summary of federally listed or candidate species potentially occurring within the BLM-administered land within the FFO as of March 2010. Since that time (February 2011), the USFWS list of species potentially occurring in Millard County has been updated with the addition of one plant species, Frisco clover (*Trifolium friscanum*; Candidate), one animal species, least chub (*Lotichthys phlegethontis*; Candidate), and the status change of the California condor (*Gymnogyps californianus*) from being included in an experimental population to being protected as endangered (USFWS 2011). Federally listed plant and wildlife species are summarized in **Table 1** and **Table 2**.

2.2 Field Inventory Plan

A desktop review and field survey for the Frisco clover will be conducted using readily available information as described in **Section 3.1.1** (below). Only one federally listed species, California condor, could occur in the Project vicinity. The condor has a very low likelihood

flying over the Project area. No suitable perching or foraging habitat is available within the Project footprint, so no field studies will be conducted for this species.

3.0 BLM Sensitive Species

3.1 Background

Appendix D of the Leasing EA provides a summary of BLM Sensitive Species potentially occurring within the BLM-administered land within the FFO. There are several plants and animals designated as BLM Sensitive Species in the FFO area. A review of the BLM Sensitive species is provided below.

3.1.1 Plant Species

Desktop review for the vegetation survey will include inspection of the existing Southwest Regional GAP Analysis Project (GAP) mapping for the Project area and the corresponding land cover descriptions to ascertain the major land cover types that could potentially be affected by the Project. The following four native plant communities (or land cover types) are present in the areas that would be occupied by the Project:

- Intermountain Basins Greasewood Flat (greasewood flats)
- Intermountain Basins Semi-desert Shrub Steppe (shrub-steppe)
- Intermountain Basins Mixed Salt Desert Scrub (salt desert scrub)
- Intermountain Basins Big Sagebrush Shrubland (big sagebrush shrubland) (USGS 2005).

Geographical Information System (GIS) GAP mapping for the Project area will be overlaid on the GIS delineation of the Project boundary and GIS points for the proposed exploration drilling sites to provide a preliminary review of what vegetation communities will be encountered at each site by the vegetation survey.

3.1.1.1 Special Status Plant Species Survey

Desktop review for the Special Status Plant Survey will include consultation with BLM and Utah authorities responsible for special status plants to ascertain whether any such species is likely to occur in the Project area and could, therefore, potentially be affected by the Project. The plants species listed by the BLM FFO or USFWS in Millard County are listed in **Table 1**, with the potential for occurrence based on a preliminary review.

The State of Utah does not designate or provide legal protection for sensitive plant species. However, it does serve as the repository for information on the known distributions and status of various categories of “rare” plants through the Utah Division of Wildlife Resources (UDWR) Utah Natural Heritage Program (UNHP), including plant species on the Utah BLM State Director’s Sensitive Plant Species List. The UNHP’s most recent Utah Rare Plant Guide, which lists special status species by county, will be reviewed to determine which Utah BLM Sensitive Plant Species occur within Millard County (UNPS 2011). The UNHP also will be consulted directly regarding the potential for any Utah sensitive plant species to occur within the Project area.

The BLM Fillmore Field Office rare plant specialist (David Whitaker) also will be consulted regarding the potential for any Utah BLM Sensitive Plant Species or other plant species of concern to occur within the Project area.

3.1.1.2 Literature Review

In order to further assess the potential for Special Status Plant Species to occur in the Project area, additional available information on all Special Status Plant Species identified as potentially occurring in proximity of the Project will be reviewed to ascertain the habitats and plant communities associated with any such species.

Several comprehensive resources are available for gathering information on Special Status Plant Species in Utah, and these will be reviewed for the distributional and habitat information described above.

- 1) The *Utah Rare Plant Guide* (Rare Plant Guide), which is now available on line, contains lists of plant species considered to be rare in Utah, as well as information on their distributions, status, and habitats (UNPS 2011).
- 2) Another report published by the UNHP, *Plant Information Compiled by the Utah Natural Heritage Program: a Progress Report* (the Plant Report), supplements the Utah Rare Plant Guide by providing maps of documented occurrences of “species of conservation concern,” including most of the species listed in the Rare Plant Guide, as well as others (Franklin 2005). The Plant Report also provides habitat descriptions for selected plant species.
- 3) Additional distributional and habitat information is provided in the Utah Division of Wildlife Resources’ *Inventory of Sensitive Species and Ecosystems in Utah, Endemic and Rare Plants of Utah: an Overview of their Distribution and Status* (Endemic and Rare Plants of Utah) (UDWR 1998), a precursor of the Plant Report.
- 4) A Utah Flora, Third Edition, revised (Welsh, et al. 2003).

TABLE 1
Special Status Plant Species in Millard County, Utah

Scientific Name	Common Name	Listing Status	Likelihood of Occurrence
<i>Arabis beckwithii</i>	Beckwith’s rockcress	SC	None. Unsuitable geology and soils.
<i>Aster kingii</i> var. <i>barnebyana</i>	Barneby’s rockaster	SC	None. Out of range.
<i>Astragalus uncialis</i>	currant milkvetch	SC	Low.
<i>Astragalus welshii</i>	Welsh’s milkvetch	SC	None. Out of range.
<i>Atriplex canescens</i> var. <i>gigantea</i>	giant four-wing saltbush	SC	None. Out of range.
<i>Cirsium ownbeyi</i>	Ownbey’s thistle	SC	None. Out of range and elevation.
<i>Cryptantha compacta</i>	mound cryptantha	SC	None. Out of elevation range.
<i>Cymopterus acaulis</i> var. <i>parvus</i>	small spring-parsley	SC	None. Unsuitable soils.
<i>Epilobium nevadense</i>	Nevada willowherb	SC	None. Out of range.
<i>Epipactis gigantea</i>	giant helleborine	SC	None. Unsuitable soils.
<i>Eriogonum nummularae</i> var. <i>ammophilum</i>	lbex buckwheat	SC	Low.
<i>Eriogonum phoeniceum</i>	scarlet buckwheat	SC	None. Out of elevation range.
<i>Eriogonum spathulatum</i> var. <i>natum</i>	son’s wild buckwheat	SC	None. Unsuitable geology and soils.
<i>Jamesia tetrapetala</i>	basin jamesia	SC	None. Unsuitable geology and soils.
<i>Penstemon angustifolius</i> var. <i>dulcis</i>	sweet penstemon	SC	None. Out of range.
<i>Penstemon tidestromii</i>	Tidestrom’s penstemon	SC	None. Out of range.
<i>Penstemon wardii</i>	Ward’s beardtongue	SC	None. Out of range.
<i>Primula domensis</i>	House Range primrose	SC	None. Unsuitable geology and soils.
<i>Sphaeralcea caespitosa</i> var. <i>caespitosa</i>	Jones’ globemallow	SC	None. Unsuitable geology and soils.
<i>Swertia gypsicola</i>	sunnyside green-gentian	SC	None. Out of range.
<i>Trifolium friscanum</i>	Frisco clover	C	None. Unsuitable geology and soils.

Notes:

SC– BLM Sensitive Species; C – USFWS Candidate Species

3.2.1 Animal Species

The Utah BLM adopts the existing UDWR Utah Sensitive Species List (UDWR 2011). This means that the BLM uses the official UDWR Utah Sensitive Species List that is in place at the time of a given action. Utah Sensitive Species are species for which there is credible scientific evidence to substantiate a threat to continued population viability. It is anticipated that sensitive species designations will identify species for which conservation actions are needed and that timely and appropriate conservation actions would preclude the need to list these species under the federal Endangered Species Act. A list of BLM Sensitive animal species is provided in **Table 2**, with an assessment of their likelihood of occurrence within the Sevier Dry Lake or Project areas around the Lake.

TABLE 2
Special Status Wildlife Species in Millard County, Utah

Common Name	Scientific Name	Classification	Listing Status		Potential to Occur on Project Site
			Federal	State	
Federal Endangered Species Act Species					
California condor	<i>Gymnogyps californianus</i>	Bird	E	NA	Very Low. Possible visitor to area. Suitable foraging habitat for the California condor is present within the Project area, however, Project area does not provide main foraging habitat. No records in UDWR database. The nearest known roost site is Kolob Reservoir near Zion National Park, which is about 85 miles from the Project Area.
Greater sage-grouse	<i>Centrocercus urophasianus</i>	Bird	FC	SC	None. Some patches of sagebrush, but no large, unbroken areas of suitable habitat in Project area. See Leasing EA discussion.
Least chub	<i>lotichthys phlegethontis</i>	Fish	FC; CA	NA	None. No suitable habitat present within the Project vicinity.
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Bird	FC	NA	None. No suitable habitat present within the Project vicinity.
Utah prairie-dog	<i>Cynomys parvidens</i>	Mammal	FT	SLT	None. No known historical or occupied colonies within the Sevier Dry Lake valley.
Bald and Golden Eagle Protection Act					
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bird	BGEPA/DL	NA	Present. Known to occur within the west desert during winter.
Golden Eagle	<i>Aquila chrysaetos</i>	Bird	BGEPA	SC	Present. Breeding and wintering range in Project Area.
BLM Sensitive Animal Species					
American white pelican	<i>Pelecanus erythrorhynchos</i>	Bird	NA	SC	Low. Could be present within Sevier Lake when water is present.
Long-billed curlew	<i>Numenius americanus</i>	Bird	NA	SC	High. Known to occur in west desert, and could be present around Lake or along wetted perimeter when water is present.
Three-toed woodpecker	<i>Picoides tridactylus</i>	Bird	NA	SC	None. No suitable habitat found in the Project area.
Burrowing owl	<i>Athene cunicularia</i>	Bird	NA	SC	High. Known to occur in west desert. Could occur around outside of Lake perimeter.
Short-eared owl	<i>Asio flammeus</i>	Bird	NA	SC	Moderate. Known to occur in west desert. Could occur outside of Lake perimeter.
Ferruginous hawk	<i>Buteo regalis</i>	Bird	NA	SC	Present. Suitable nesting and foraging habitat is found outside of Lake perimeter. No nests found within one mile of Lake perimeter or within one mile of access roads to Lake.
Lewis's woodpecker	<i>Melanerpes lewis</i>	Bird	NA	SC	None. No suitable habitat is found in the Project area.
Fringed myotis bat	<i>Myotis thysanodes</i>	Mammal	NA	SC	High. Known to occur in west desert from May through October.

TABLE 2
Special Status Wildlife Species in Millard County, Utah

Common Name	Scientific Name	Classification	Listing Status		Potential to Occur on Project Site
			Federal	State	
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Mammal	NA	SC	High. Known to occur in west desert from May through October.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Mammal	NA	SC	High. Known to occur in west desert from May through October.
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	Mammal	NA	SC	None. No suitable habitat is found in the Project area.
Kit fox	<i>Vulpes macrotis</i>	Mammal	NA	SC	Present. Suitable habitat is found outside of the Lake.
Pygmy rabbit	<i>Brachylagus idahoensis</i>	Mammal	NA	SC	None. Very little sagebrush habitat found in Sevier Valley, and none in Project area.
Western toad	<i>Bufo boreas</i>	Amphibian	NA	SC	None. No suitable habitat in Project area. May occur in Sevier Valley. Variety of habitats including desert springs to mountain wetlands.
Five mollusk species*	NA	Mollusk	NA	SC	None. No suitable habitat found in the Project area.
Southern leatherside chub	<i>Lepidomeda aliciae</i>	Fish	NA	SC	None. No suitable habitat found in the Project area.

Notes:

FC=Federal Candidate (a plant or animal species for which FWS or NOAA Fisheries has on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened).

FT=Federally Listed Threatened (an animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range)

CA= Conservation Agreement Species. Formal agreements between the FWS and one or more parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before they become listed as endangered or threatened.

DL=Delisted species are those species that were formerly listed as threatened or endangered under the ESA.

SC= Utah Species of Concern. Any nongame species deemed to require conservation measures in attempt to keep the species from becoming a threatened or endangered species.

SLT= State Listed Threatened (any wildlife species native to the state of Utah that is likely to become an endangered species within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats)

NA= Not applicable. Not federally listed.

*The five mollusk species are: bifid duct pyrg, California floater, cloaked physa, longitudinal gland pyrg, and sub-globose snake pyrg.

There are several animals designated as BLM sensitive species that could occur within the Project area. Those that may occur in the vicinity of the Sevier Lake leasing area are American white pelican, long-billed curlew, ferruginous hawk, burrowing owl, short-eared owl, three bat species, and kit fox. The American white pelican and long-billed curlew could occur within the Sevier Dry Lake perimeter, while the other species would only occur either flying over the lake, or outside of the Lake perimeter.

3.2 Field Inventory Plan

3.2.1 Plants

A vegetation survey will be conducted at each hydrologic well drilling site. Each site will be accessed by locating pre-determined GIS coordinates with a hand-held Geographical Positioning System (GPS) unit. The entire area within a 100-foot-radius of the well site will be surveyed. All species occurring within the survey area will be recorded, and dominant shrubs and grasses will be denoted. Representative photographs of the vegetation will be taken at each site. Should the identification of any species encountered be in question, voucher specimens will be collected, labeled as to site number, and returned to the laboratory for identification. The BLM FFO rare plant specialist will be consulted to assist in identification of any unknown plants.

The Special Status Plant Species field survey will focus on locating potentially suitable habitats, as identified by the desktop review described above, for any Special Status Plant Species determined to have the potential to occur in the Project area. For the exploration drilling program, the Special Status Plant Species field survey effort will be limited to identifying potentially suitable habitats that might occur in the vicinity of individual hydrologic well drilling sites. No vegetation is present within the Sevier Dry Lake bed, so no vegetation survey will be conducted within the perimeter of the lake. The Special Status Plant Species Survey will be accomplished in the course of the vegetation survey described above. Locations, habitat descriptions, plant identification and species lists, and photographic documentation will all be developed as described for the vegetation survey.

If special status species are observed during the vegetation survey, the potentially suitable habitat will be surveyed for the presence of the species of interest. If potentially suitable habitat is discovered during a period not judged to be appropriate for positively identifying the particular species of interest, surveys would be conducted during the next appropriate period.

3.2.2 Animals

The field inventory for BLM Sensitive animal species will include two components to characterize the use of the Project area and lands surrounding the Sevier Dry Lake where Project activities are proposed. An avian point count survey will be conducted twice per month at nine locations to inventory for BLM Sensitive bird species, and an incidental wildlife survey will be conducted during each avian point count survey event along the roadways around Sevier Dry Lake to document additional observations of BLM Sensitive animals. The avian point count surveys will be completed for two years and will occur at nine 800 meter radius fixed-point stations (**Figure 1**). Surveys at each point will be conducted for 20 minutes each. No inventory for the three BLM Sensitive bat species will be

conducted, because Project activities are not anticipated to have any effect on bats. If any BLM Sensitive animals are observed, the FFO wildlife biologist will be contacted.

4.0 USFWS Birds of Conservation Concern

4.1 Background

Appendix D of the Leasing EA provides a list of USFWS BOCC from Bird Conservation Region 9 (Great Basin). Twenty eight BOCC are identified in this region, some of which likely migrate through or utilize the Project area during some parts of the year for foraging, resting, nesting, brood rearing, or migratory stopover habitat.

4.2 Field Inventory Plan

Due to the likelihood of occurrence of some of the BOCC in the Project vicinity, the field inventory for BOCC will include the two components described above (**Section 3.2.2**) to characterize the use of the Project area and lands surrounding the Sevier Dry Lake where Project activities are proposed.

The objective of the point count surveys is to provide information that can be used to document BOCC species occurrence in and near the Project area, identify migration corridors, characterize seasonal use patterns, and indicate the habitat value to the avian community in and near the Project based on avian use.

5.0 Big Game Species

5.1 Background

An analysis of habitat value of the Sevier Lake Bottom to large mammals is presented in the Sevier Dry Lake Exploratory Testing EA (BLM 2011b). Pronghorn are the primary large mammal species known to occur in the Sevier Lake leasing area and on adjacent lands. Pronghorn are often found in small groups and are usually most active during the day. UDWR designated pronghorn crucial, yearlong habitat on the north, east, and south sides of Sevier Lake. Mule deer yearlong habitat is present in areas off-lease, in the Cricket Mountains and House Range.

No habitat value for large mammals exists on the Sevier Lake bottom, although the UDWR heritage database identifies substantial to critical habitat value for pronghorn and mule deer around portions of the lake and the surrounding area. Because the area that will be disturbed is very limited in scope and duration, impacts are expected to be negligible (BLM 2011b).

5.2 Field Inventory Plan

The incidental and point count surveys described in **Section 3.2.2** are designed to allow inventory of big game and all other wildlife observed. These species will be documented to provide information that can be used to document species occurrence in and near the Project, identify any migration corridors or seasonal use patterns if present, and indicate the habitat value to the big game community in and near the Project. The UDWR will be consulted for additional local big game information in the Sevier Valley.

6.0 Invertebrate Community

6.1 Background

The value of Sevier Dry Lake to waterbirds and shorebirds is in large part dependent upon the food resource available. Past investigations have included observations of brine flies and brine shrimp present in the Lake following sustained presence of water (Haden 1987). However, during field visits by the BLM in 2010 and 2011, no brine flies or brine shrimp were observed; it is likely that these species require many months or more to become colonized following inundation of the Lake. Given the episodic wetting and drying of Sevier Lake, it is likely that brine flies and shrimp are present following persistent wetting of the Lake, but do not survive the drying cycles and are not present during the early period when the Lake has water present.

6.2 Field Inventory

No field inventory for brine shrimp or brine flies will be conducted. Neither of these species is of conservation concern, and their presence is noteworthy insofar as they might indicate the level of food resource available for birds. With the avian monitoring, bird presence can be directly assessed, so invertebrate monitoring is not necessary.

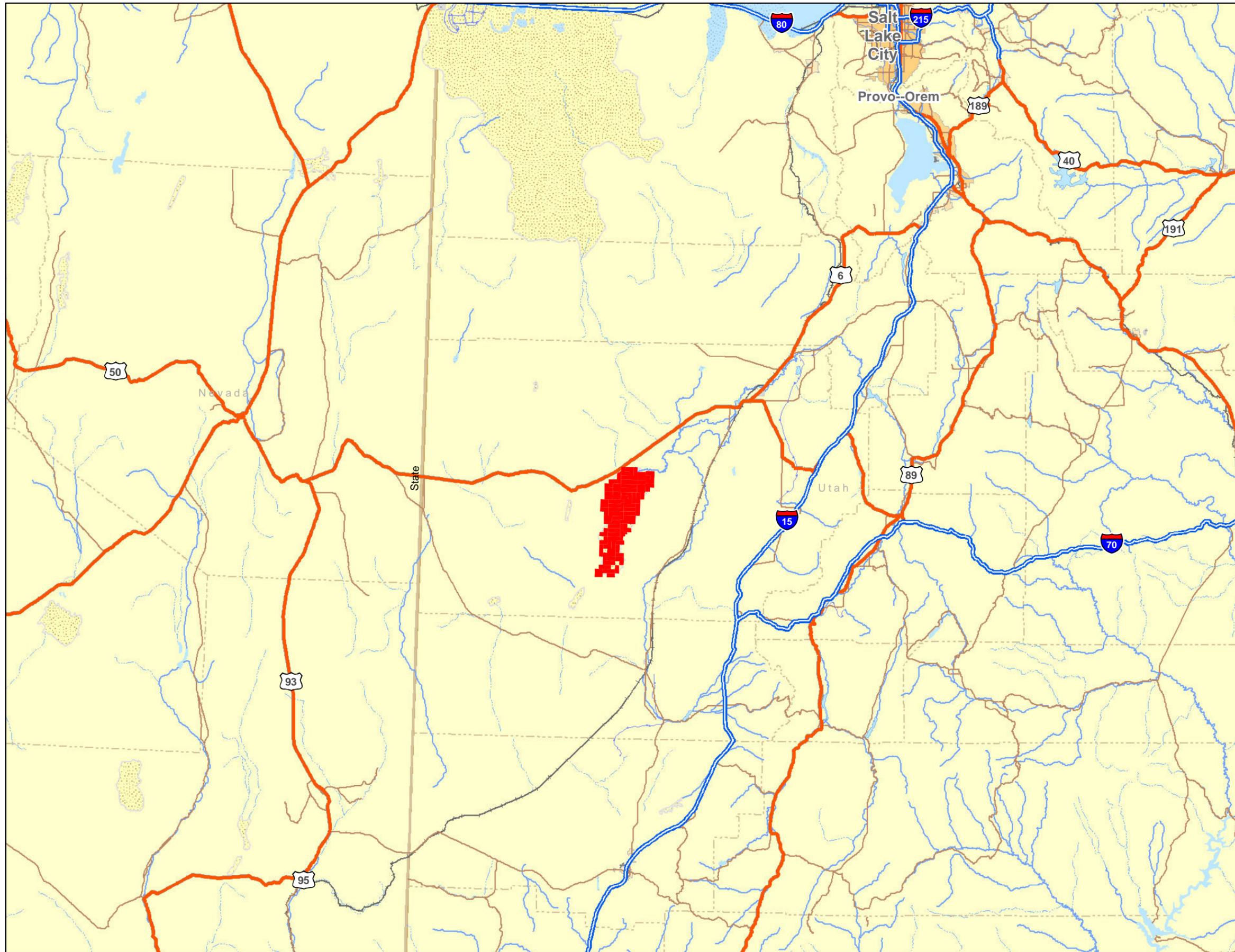
7.0 Reporting

Monitoring reports will be prepared following each year's survey effort and submitted to the BLM within one month of completion of each year's survey effort. A final monitoring report will be prepared after year two, summarizing the data and findings from the year one and two surveys within two months of completion of the study. Both the year one and final report will include a written description of the methods, data analysis, and a discussion of the results for meeting the study objectives and estimating impacts.

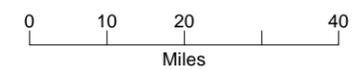
A preliminary summary of results will be provided prior to ground-disturbing activities on the BLM leased lands to assist in determination of the potential effects of exploratory testing on BLM Sensitive plants and animals, birds, and big game.

8.0 Literature Cited

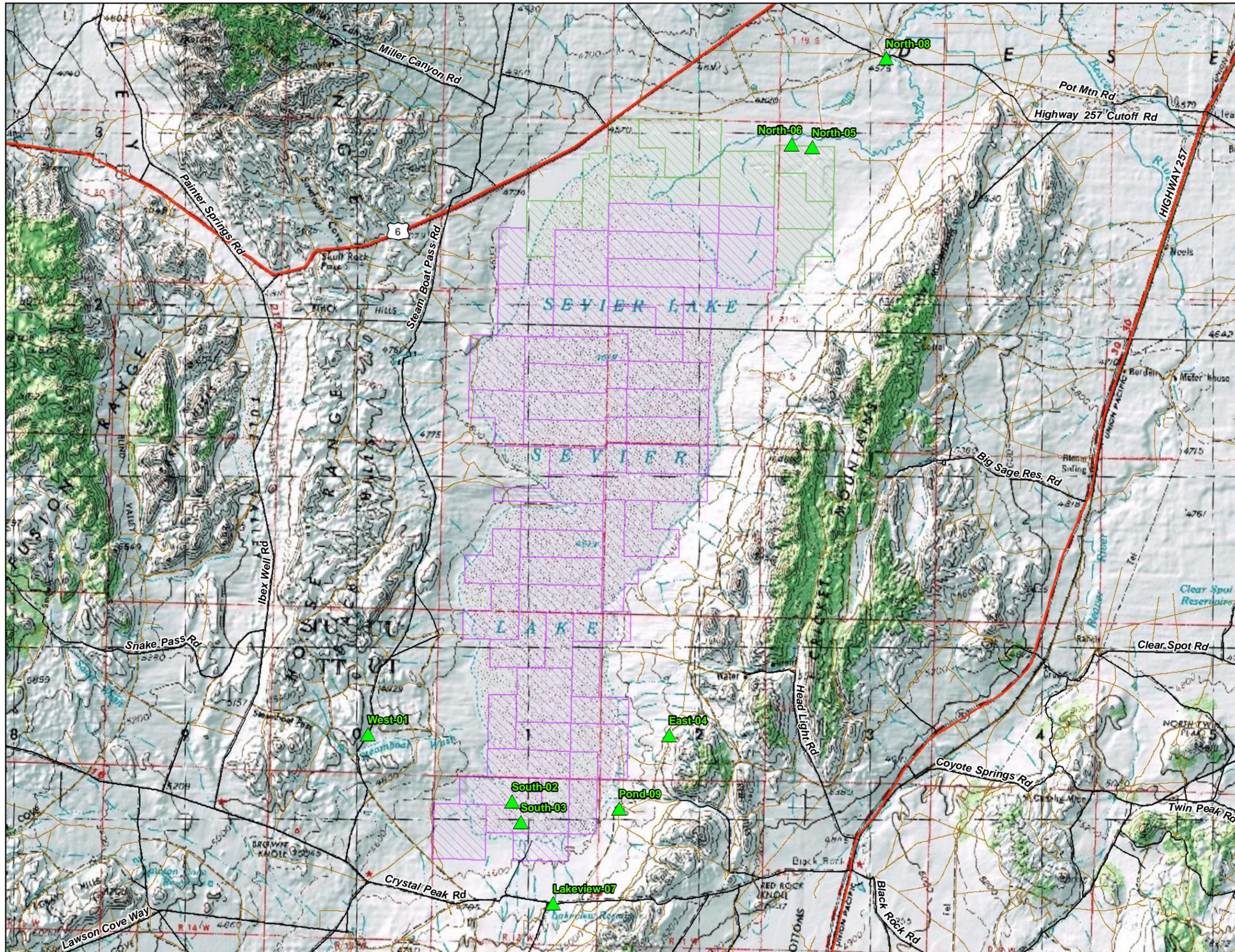
- Bureau of Land Management (BLM). 2011a. Sevier Dry Lake Competitive Potash Leasing Proposal. Environmental Assessment DOI-BLM-UT-W020-2010-014-EA, February.
- Bureau of Land Management (BLM). 2011b. Sevier Dry Lake Exploratory Testing. Environmental Assessment DOI-BLM-UT-W020-2011-0015-EA, July.
- Franklin, "Ben" M.A. 2005. Plant Information Compiled by the Utah Natural Heritage Program: a Progress Report. Utah Department of Natural Resources, Division of Wildlife Resources – Utah Natural Heritage Program, Publication Number 05-40. "Ben" M.A. Franklin, Author. December.
- Franklin, "Ben" M.A. 2005. Plant Information Compiled by the Utah Natural Heritage Program: a Progress Report. Utah Department of Natural Resources, Division of Wildlife Resources – Utah Natural Heritage Program, Publication Number 05-40. "Ben" M.A. Franklin, Author. December.
- Haden, WD. 1987. W. D. Haden Development Plan for Sevier Lake. Submitted to BLM with Environmental Assessment (No. UT050-87-080).
- UDWR (Utah Division of Wildlife Resources). 1998. Inventory of Sensitive Species and Ecosystems in Utah, Endemic and Rare Plants of Utah: an Overview of their Distribution and Status. Utah Division of Wildlife Resources. June.
- UNPS (Utah Native Plant Society). 2011. Utah Rare Plant Guide. Salt Lake City, Utah: Utah Native Plant Society. <http://www.utahrareplants.org>. accessed August 31, 2011.
- USFWS (U.S. Fish and Wildlife Service). 2011. Federally Listed and Proposed Endangered, Threatened and Candidate Species and Critical Habitat in Utah – Species List by County, Thursday, February 24, 2011. <http://www.fws.gov/utahfieldoffice/endspp.html>.
- USGS (USGS National Gap Analysis Program). 2005. Southwest Regional GAP Analysis Project – Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. <http://earth.gis.usu.edu/swgap>, accessed February 5, 2008.
- Welsh, S.L., N.D. Atwood, S. Goodrich, L.C. Higgins. 2003. A Utah Flora, Third Edition, revised. Brigham Young University, Provo, Utah.



LEGEND
■ Project Area



Project Location
 Sevier Lake Area Exploration Plan



LEGEND

- ▲ Avian Point Count Location
- Kline Lease
- Peak Lease
- Limited Access
- County Maintained Road
- Highway
- Minor Highway
- Non-County Maintained Road



Avian Point Count Locations
Sevier Lake Area Exploration Plan