

**Habitat Assessment for Sensitive Wildlife Species
western toad, Columbia spotted frog, Townsend's
western big-eared bat, spotted bat, and three-toed
woodpecker.**

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11.01.12

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1.0 Introduction

As requested by Skyline Mine, a habitat assessment was completed for the five species western (boreal) toad (*Bufo boreas*), Columbia spotted frog (*Rana luteiventris*), spotted bat (*Euderma maculatum*), Townsend's western big-eared bat (*Corynorhinus townsendii*), and three-toed woodpecker (*Picoides tridactylus*). This assessment summarizes the results of a multiple tiered assessment process including a literature search of species' life history, ecology, habitat requirements, multiple GIS databases and a classification of representative vegetative communities in the area. Vegetative communities in the area were classified during the summer of 2012 by Dr. Allan Stevens. Initially databases such as the Utah Conservation Database Center (UCDC) were utilized to characterize species distributions and general habitat requirements. George Oliver's *Bats of Utah* was reviewed for information regarding Townsend's western big-eared bat and spotted bat habitat. The Columbia spotted frog Conservation Agreement and Strategy was also reviewed. The Utah Natural Heritage Program's 2003 progress report was consulted for each species. GAP predicted analysis of habitat value was also considered in this assessment.

2.0 Habitat Overview

The vegetative communities in the areas near Skyline Mine are diverse. The vegetation is dependent on elevation, slope, and water resources. Riparian areas are dominated by typical high elevation riparian species. The bottoms of the valleys that are drier are dominated by mountain big sagebrush and silver sagebrush communities. South and East facing slopes, at higher elevations are dominated by quaking aspen communities. However, there are some areas that are open on South and East facing slopes. These open areas are typically grass and tall forb communities. However, a significant number of the open areas are dominated by false hellebore. The North and West facing slopes are dominated by conifer communities. The tree species within the conifer community are mostly dead or dying, and most areas have an abundance of deadfall due to beetle infestations. Because of the deadfall and dead trees the forbs and grasses within the conifer communities are very diverse and most areas have a solid understory. The tops of the ridges in the survey area vary with some being dominated by shrub communities such as mountain big sagebrush, elderberry or chokecherry while others are dominated by grass and tall forb communities. Some of the ridge tops are dominated by cluster tarweed. The following is a list of vegetative species found within the 2012 raptor survey area which is similar to the project area.

Tree Species	
Scientific Name	Common Name
<i>Abies concolor</i>	White fir
<i>Abies lasiocarpa</i>	Subalpine Fir
<i>Picea engelmannii</i>	Engelmann Spruce
<i>Picea pungens</i>	Blue Spruce
<i>Populus tremuloides</i>	Quaking Aspen

<i>Pseudotsuga menziesii</i>	Douglas fir
Shrub Species	
Scientific Name	Common Name
<i>Artemisia cana</i>	Silver Sagebrush
<i>Artemisia tridentata vaseyana</i>	Mountain Big Sagebrush
<i>Potentilla fruticosa</i>	Bush Cinquefoil
<i>Prunus virginiana</i>	Chokecherry
<i>Ribes inerme</i>	Whitestem Gooseberry
<i>Ribes viscosissimum</i>	Sticky Currant
<i>Salix boothii</i>	Booth's Willow
<i>Salix drumondiana</i>	Drummond Willow
<i>Salix exigua</i>	Coyote Willow
<i>Sambucus racemosa</i>	Red Elderberry
<i>Symphoricarpos oreophilus</i>	Mountain Snowberry
Forb Species	
Scientific Name	Common Name
<i>Achelia millefolium</i>	Western Yarrow
<i>Aconitum columbianum</i>	Monkshood
<i>Agoseris glauca</i>	Pale Agoseris
<i>Artemisia ludoviciana</i>	Louisiana Sagebrush
<i>Aquilegia spp.</i>	Columbine
<i>Aster spp.</i>	Aster
<i>Balsamorhiza sagittata</i>	Arrowleaf Balsamroot
<i>Castilleja spp.</i>	Indian Paintbrush
<i>Crisium spp.</i>	Thistle
<i>Claytonia lanceolata</i>	Lanceleaf Springbeauty
<i>Collomia linearis</i>	Slenderleaf Collomia
<i>Cynoglossum officinale</i>	Houndstongue
<i>Delphinium occidentale</i>	Western Larkspur
<i>Erigerion eatonii</i>	Eaton Fleabane
<i>Fritillaria atropurpurea</i>	Purplespot Fritillary
<i>Geranium richardsonii</i>	Richardson Geranium
<i>Gilia spp.</i>	Gilia
<i>Helenium hoopesii</i>	Orange Sneezeweed
<i>Lathyrus pauciflorus</i>	Utah Sweetpea
<i>Ligusticum porteri</i>	Porter Ligusticum
<i>Lupinus alpestris</i>	Mountain Lupine
<i>Lupinus argenteus</i>	Silvery Lupine
<i>Madia glomerata</i>	Cluster Tarweed
<i>Mertensia ciliate</i>	Mountain Bluebells
<i>Osmorhiza occidentalis</i>	Sweetanise
<i>Penstemon rydbergii</i>	Rydberg Penstemon
<i>Penstemon strictus</i>	Rocky Mountain Penstemon

<i>Phacilia spp.</i>	Phacilia
<i>Potentilla gracilis</i>	Beauty Cinquefoil
<i>Rudbeckia occidentalis</i>	Western Coneflower
<i>Senecio serra</i>	Butterweed Groundsel
<i>Taraxacum officinale</i>	Common Dandelion
<i>Tragopogon dubius</i>	Yellow Salsify
<i>Veratrum californicum</i>	False Hellebore
<i>Vicia Americana</i>	American Vetch
<i>Viguiera multiflora</i>	Showy Goleneye
<i>Wyethia amplexicaulis</i>	Mulears Wyethia
Grasses and Grasslike Plants	
Scientific Name	Common Name
<i>Agropyron scibneri</i>	Scribner Wheatgrass
<i>Agropyron smithii</i>	Western Wheatgrass
<i>Agropyron trachycaulum</i>	Slender Wheatgrass
<i>Agrostis exarata</i>	Spike Bentgrass
<i>Bromus anomalus</i>	Nodding Brome
<i>Bromus carinatus</i>	Mountain Brome
<i>Calamagrostis Canadensis</i>	Bluejoint Reedgrass
<i>Calamagrostis stricta</i>	Slimstem Reedgrass
<i>Carex spp.</i>	Sedge
<i>Dactylis glomerata</i>	Orchardgrass
<i>Deschampsia cespitosa</i>	Tufted Hairgrass
<i>Eleocharis spp.</i>	Spikerush
<i>Festuca idahoensis</i>	Idaho Fescue
<i>Festuca ovina</i>	Sheep Fescue
<i>Juncus spp.</i>	Rush
<i>Koeleria macrantha</i>	Prairie Junegrass
<i>Melica bulbosa</i>	Oniongrass
<i>Muhlenbergia richardsonis</i>	Mat Muhly
<i>Phleum alpinum</i>	Alpine Timothy
<i>Phleum pretense</i>	Timothy
<i>Poa fendleriana</i>	Mutton Bluegrass
<i>Poa pratensis</i>	Kentucky Bluegrass
<i>Stipa Columbiana</i>	Subalpine Needlegrass
<i>Stipa lettermani</i>	Letterman Needlegrass
<i>Stipa nelsonii</i>	Nelson's Nedlegrass
<i>Trisetum spicatum</i>	Spike Trisetum

3.0 Species Habitat Assessments

Western (Boreal) Toad (*Bufo boreas*)

The western toad occurs in the montane areas of central and northern Utah where it is found in association with permanent water bodies in a variety of habitats, including riparian, mountain shrub, mixed conifer, and aspen-conifer assemblages. Breeding sites are in small pools, beaver ponds, reservoirs, and backwaters and side channels of creeks and rivers (UNHP 2003).

According to the UNHP 2003 progress report there are only records of occurrence in the area of Skyline Mine prior to 1983. The mapping scale within the report makes it difficult to determine exact locations. The UCDC cites the last observation within the Scofield map quadrant was on 6-18-1950. This is the same quadrant as Skyline Mine.

There is suitable habitat for western toad within the Fish Creek Drainage and the lower reaches of the tributaries which feed it; specifically Wife's Canyon and the ephemeral flows in east and west forks of Andrew Dairy Canyon.

Columbia Spotted Frog (*Rana luteiventris*)

The Columbia spotted frog occurs in scattered locations in the Bonneville Basin of western Utah, including parts of the Wasatch Mountains, the San Pitch River Drainage, and isolated springs and wetlands of the West Desert. Within this region, populations are tied to aquatic habitat with perennial sources of water. Breeding invariably occurs in small pools or ponds. Typically, breeding sites have little or no current and are surrounded by dense aquatic vegetation. Floating mats of vegetation are often present, and the bottom substrate is typically deep, fine silt (UNHP 2003).

According to the UNHP 2003 progress report there are no records of occurrence in the vicinity of Skyline Mine. There are no records of occurrence reported in the Scofield quadrat by the UCDC.

Suitable habitat, as defined by the UNHP, for Columbia spotted frog is not present with the vicinity of Skyline Mine or the areas of potential subsidence. Small ponds which have a combination of little or no water current, soil substrates with deep fine silt, and floating mats of vegetation on which to place egg masses during the breeding season, have not been encountered within or near the project area.

Spotted Bat (*Euderma maculatum*)

This species is broadly distributed throughout eastern and southern Utah and has rarely been encountered elsewhere in the state. Within the Utah range, the majority of records are from deep, narrow, rocky canyons, particularly those bounded by precipitous cliff faces. Crevices in cliff walls are the primary roosting sites. Individuals forage over open sagebrush steppe, desert scrub, or montane meadow habitat, sometimes considerable distances from roosting habitat (UNHP 2003).

According to the UNHP 2003 progress report there are no records of occurrence in the vicinity of Skyline Mine. There are no records of occurrence reported in the Scofield quadrat by the UCDC. The GAP habitat analysis does not predict suitable habitat near Skyline Mine.

Suitable habitat, as described by the UNHP, has not been observed in the vicinity of the project area.

Townsend's Western Big-Eared Bat (*Corynorhinus townsendii*)

Populations occur statewide at middle and low elevations, generally below 9,000 ft. but are absent from flat desert habitats lacking appropriate roosting sites. This species occurs in a wide variety of habitats including sagebrush steppe, pinyon-juniper, mountain shrub, and mixed conifer associations. The primary habitat component, however, is the availability of caves or mines for roost sites. Because required roost conditions vary seasonally and individuals typically do not move long distances between roost sites, highest population densities generally occur in areas with complexes of mines or caves offering diverse roost habitat conditions (UNHP 2003).

According to the UNHP 2003 progress report there are no records of occurrence in the vicinity of Skyline Mine. There are no records of occurrence reported in the Scofield quadrat by the UCDC. Suitable roosting habitat, as described by the UNHP, has not been observed in the vicinity of the project area.

Three-toed Woodpecker (*Picoides tridactylus*)

Populations occur in the Wasatch and Uinta mountains in the north, the La Sal and Abajo mountains in the southeast, and the mountains and high-elevation plateaus in the south-central part of the state. This species forages primarily on scaly barked conifers, such as lodgepole pine and fir, and breeding habitat is primarily spruce-fir forest. Populations tend to be irruptive in response to high food availability, particularly outbreaks of wood-boring beetles. (UNHP 2003).

According to the UNHP 2003 progress report there are no records of occurrence in the vicinity of Skyline Mine. There are no records of occurrence reported in the Scofield quadrat by the UCDC.

Although there are no records of occurrence in the UNHP or the UCDC, suitable nesting and foraging habitat is present in coniferous stands within the project area. Habitat was observed during the course of previous inventories within the project area.

Management Recommendations

In summary, there is suitable habitat for three-toed woodpecker in the top of Wife and Andrew Dairy Canyon drainages. Western toad habitat may be located approximately 0.35 miles from the external boundary of the project area, at which point water becomes perennial, and habitat may also exist in two springs within the project boundary and two short segments of surface water which are located just outside of the project boundary. Townsend's western big-eared bat may have suitable foraging habitat, but the area lacks abandoned mines and caves, within the project area, which are utilized for roosting, a key

life history and habitat component. Species Columbia spotted frog and spotted bat do not have suitable habitat within the project area; therefore there are no recommended surveys for those species.

Three toed woodpecker has suitable habitat in the upper extents of Wife and Andrew Dairy Canyons, on slopes with northern aspects and coniferous stand cover. It is anticipated that an influx in the three toed woodpecker population will accompany ecological changes south of the area as a result of the Seeley wildfire which is greater than five miles from the project area. Inventories for three-toed woodpeckers should coincide with the annual raptor surveys in areas of suitable habitat which have the potential for subsidence.

Western toad habitat is associated with the aquatic environments. Records indicate the most recent recorded observation in the Scofield map quadrant was in 1950 (UNHP). This does not indicate current occupancy in the project area. The nearest perennial or permanent water source, a key habitat component (UNHP), is approximately 0.35 miles from the external boundary of the project. Springs S25-32 and S26-1 are within the project area and should be surveyed for the presence of western toad. Water in upper Wife Creek and the East Fork of Andrew Dairy Creek are located near the project boundary and therefore should also be inventoried for the presence/absence. The following table outlines stream flows as measured in the drainages and springs within or near the project area.

<u>Date</u>	<u>Location</u>	<u>Rate of Flow (gpm)</u>
10/3/12	Upper Wife Creek ²	3
10/4/12	Lower Wife Creek	7
10/4/12	Lower Andrew Creek	0 (Dry)
10/5/12	East Fork of Andrew Dairy Creek ²	0.96 (100 ft in length) ³
9/25/12	Spring S25-32 ¹	4.93 (300 ft in length) ³
10/1/12	Spring S26-1 ¹	0.33 (8sq ft total size) ³

1- Within the project boundary 2- Location near project boundary 3- Estimates

Foraging habitat for Townsend's western big-eared bat is present, but diverse roosting habitat is not present within the research area. The Western Bat Working Group recommends roosting surveys for this species as passive and active acoustic monitoring may yield false results due to the acoustical metrics of the bat's echolocation call. Literature regularly refers to this species as the whispering bat. Random passive or active acoustical monitoring, even along water ways, is unlikely lead to a conclusive determination of presence or absence. In the event acoustical monitoring was to occur, a negative result would not necessarily indicate species absence. However, if abandoned mine or cave complexes are encountered, passive monitoring may be utilized more effectively to determine species presence or absence, as calls are more likely to be recorded at entrances of roost sites. While raptor inventories across areas of potential subsidence occur, researchers should also document any shafts, adits or other openings which could support roosting bats. Those openings should be evaluated for roosting potential and utilization by bats.