# BIOLOGICAL RESOURCES ASSESSMENT FOR THE ± 2,896-ACRE ROYAL GORGE STUDY AREA

NEVADA AND PLACER COUNTIES, CALIFORNIA

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September 12, 2006

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### BIOLOGICAL RESOURCES ASSESSMENT FOR THE ± 2,896-ACRE ROYAL GORGE STUDY AREA

#### INTRODUCTION

### **Project Location and Setting**

The Royal Gorge study area is located near the community of Soda Springs, in Placer and Nevada Counties, California. It is bisected by Soda Springs Road and surrounds the community of Serene Lakes. The study area is within portions of Sections 21, 23 through 28, 34, and 35, Township 17N, Range 14E and Section 3, Township 16N, Range 14E of the Soda Springs and Norden 7.5 minute USGS quadrangles (Figure 1). Approximate latitude and longitude of the center of the study area are 39° 18′ 36″ north and 120° 23′ 02″ west. Figure 2 is an aerial photograph showing the Royal Gorge Area.

#### **Study Objectives**

This study represents a preliminary analysis of the literature and existing site conditions on the Royal Gorge study area. The purpose of the work is to provide a broad analysis of biological resources on the study area for planning purposes.

The objectives of this study are to:

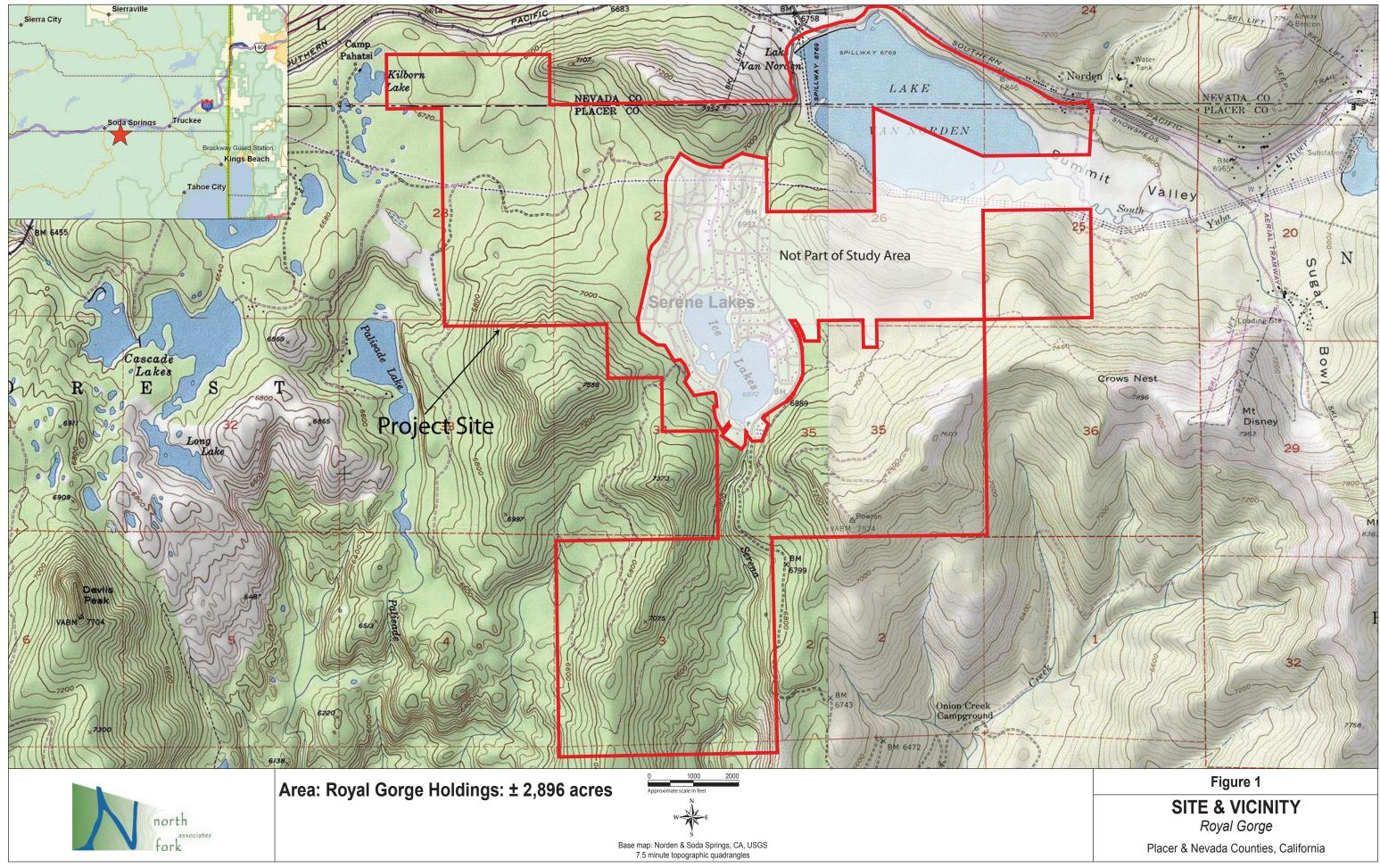
- Identify and describe the biological communities present on the project site,
- Record plant and animal species observed on the project site, and
- Evaluate and identify sensitive resources and special-status plant and animal species that could occur in the project area.

#### METHODS

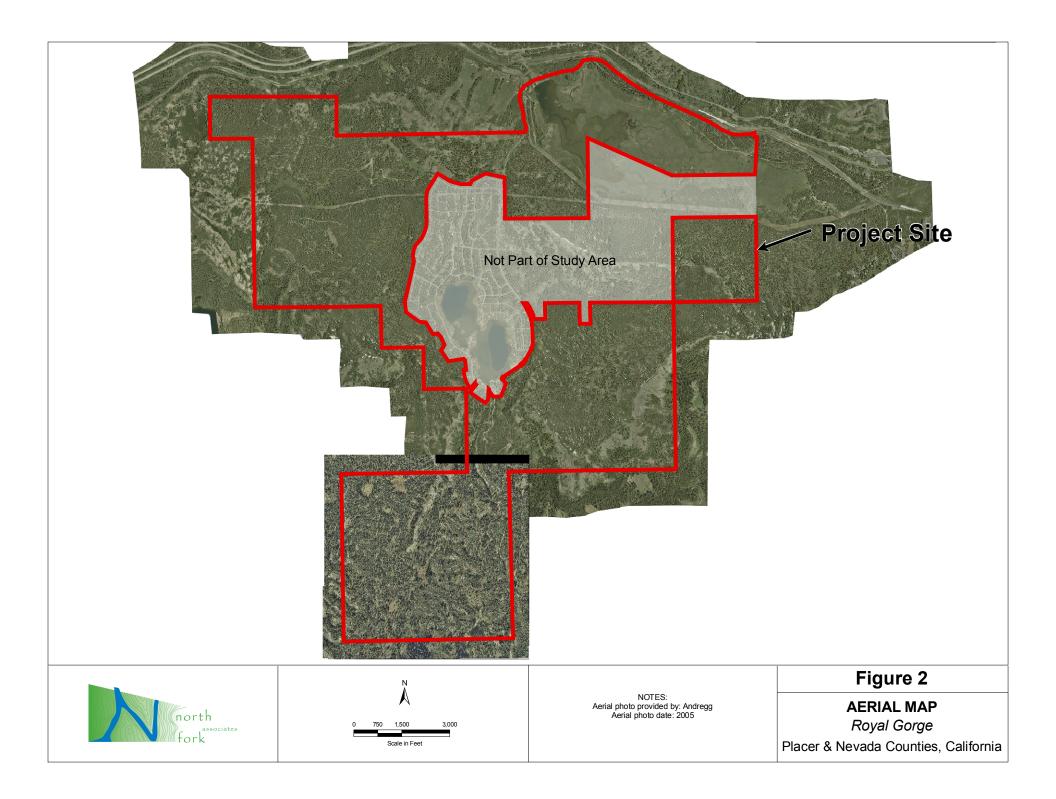
#### Literature Review

A variety of resources were used in this assessment. Aerial photographs and boundary and topographic mapping were supplied from Andregg Geomatics. Soil information was obtained from the Soil Survey, Tahoe National Forest Area, California (USDA, NRCS 2002, electronic edition), and geological information was obtained from the *Geologic Map of California, Chico Sheet* (California Department of Conservation 1962).

The following publications were reviewed to provide information on life history, habitat requirements, distribution, and conservation status of regionally occurring plant and animal species: *Jepson Manual; Higher Plants of California* (Hickman 1993), *California Vegetation* (Holland and Keil 1995), *A Field Guide to Western Reptiles and Amphibians* (Stebbins 1985), *A Field Guide to the Birds of North America* (National Geographic Society 1999), *Mammals of the Pacific States* (Ingles 1965), and *California's Wildlife: Volumes I (Amphibians and Reptiles), II (Birds), and III (Mammals)* (Zeiner et al., 1988, 1990). In addition to these references, the following environmental documents were reviewed: *Nevada County Natural Resources Report* (Nevada



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County 2003), Draft Initial Study/Environmental Assessment for the Placer 80 Roadway Rehabilitation Project (Caltrans 2004), Royal Gorge Lodge and Homesites at Summit Valley Draft EIR (Nevada County 2004), Blue Canyon Deer Herd Management Plan (Fowler and Wagner 1982), as well as species lists from the Sagehen Creek Field Station - Biological Inventories.

North Fork staff's review did not identify local ordinances or habitat conservation plans, with the exception of applicable Nevada and Placer County policies. Furthermore, North Fork staff is not aware of any such ordinances or plans that are not embodied in County policies."

### **Special Status Species Reports**

North Fork Associates queried the California Natural Diversity Database (CNDDB) for a list of special status plant and animal species known to occur in the region. The following USGS quadrangles were included in the query: English Mountain, Webber Peak, Indian Lake, Norden, Granite Chief, Royal Gorge, Duncan Peak, Cisco Grove, Truckee, and Tahoe City. In addition, NFA reviewed lists of special status species in Nevada and Placer counties maintained by the U.S. Fish and Wildlife Service, Tahoe National Forest, and the California Native Plant Society. Appendix A is a table of special status plant species resulting from these information sources. Appendix B is a similar table of special status wildlife known to occur in the region.

For the purposes of this report, special status species are those that fall into one or more of the following categories:

- listed as endangered or threatened under the federal Endangered Species Act (or formally proposed for listing),
- listed as endangered or threatened under the California Endangered Species Act (or proposed for listing),
- designated as a Species of Management Concern by the U.S. Forest Service,
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code,
- designated a Species of Concern by the California Department of Fish and Game,
- defined as rare or endangered under the California Environmental Quality Act (CEQA), or
- occurring on List 1, 2, 3 or 4 maintained by the California Native Plant Society.

### **Field Surveys**

The wildlife and botanical surveys conducted to date provide a broad overview with limited site specific data. To date, more field analysis has been given to botanical resources than wildlife resources and overall field emphasis has been higher in northern areas. Vegetation surveys have been floristic, but were conducted primarily in the later part of the blooming season.

Biological field surveys were conducted at a reconnaissance level during late summer and early fall in 2005 and in July 2006. A late summer 2000 botanical survey was also conducted on about 150 acres of the site along the northern portion of Lake Van Norden.

The surveys consisted of walking the site, recording notes of species observed or their sign, and assessing habitats present for the potential occurrence of special status species. Appendix C is a list of plants observed, and Appendix D is list of wildlife observed. Plant names are according to *The Jepson Manual* (Hickman 1993), except for changes obtained from the Jepson Interchange,

an online database maintained by the University and Jepson Herbaria of the University of California.

The botanical assessment was floristic in nature but not with the intent of making determination of presence of absence of any particular rare species over the entire site. However, each individual plant encountered was identified to the level needed to determine whether it was a special status species. Species that could not be identified in the field were collected, pressed, and dried for later identification. Collections made by Fred Hrusa in 2000 are located in the California Department of Food and Agriculture herbarium in Sacramento. Those collected more recently by Barry Anderson and other North Fork Associates biologists are stored in the North Fork Associates herbarium in Auburn.

Weather conditions during all phases of the field reconnaissance was warm and dry except for some brief light rain during September and October, 2005.

#### FINDINGS

#### **Geology and Soils**

The geological map for the region indicates that the primary geological resources are Miocene and Pliocene volcanic rocks. Small glacial deposits occur in scattered locations, and granitic rocks are common on the south side of the area along Serena Creek and south to the American River.

Twenty-eight soil units have been mapped within the project area by the USDA. Common series include Tallac, Waca, Meiss, and Ahart soils. Aquolls and Borolls occur in the wet and dry meadows around Lake Van Norden and several other smaller locations. Cryumbrepts are poorly drained soils that usually occur in drainageways. This series often occurs in complexes with upland soils throughout the site.

### Hydrology

Royal Gorge has a montane climate with cold, snowy winters and mild, mostly dry summers. Precipitation at Soda Springs averages 52 to 65 inches, most of it falling as snow between November and March. Annual snowfall at Lake Spalding, which to the west of Soda Springs, and at lower elevation is 254 inches. Precipitation falls during each month, on average, but the summer showers can be sporadic and local. Summer rainfall probably does not contribute much to the overall wetland water budget.

Hydrology on the site comes from a variety of sources, including direct precipitation, snowmelt, and groundwater discharge. The South Yuba River passes through Summit Valley, where it has been dammed to create Lake Van Norden. The Yuba River system eventually reaches the Feather River near Marysville. Much of the dam at Lake Van Norden was removed in the 1970's resulting in a small, shallow perennial pond with extensive emergent vegetation associated with the shallow edges. Most of the former Lake Van Norden extent is now montane wet meadow with smaller areas of upland montane meadow. Serene Lakes (Ice Lakes) are located south of Lake Van Norden and lie in the American River watershed.

### **Biological Communities**

Biological communities on the Royal Gorge project site are lumped into three main categories: montane coniferous forest, montane meadow, and open water. Other sub categories such as

rock outcrops, different phases of the forest, and larger streams could be considered separate units. Riparian habitat is very limited in the study area and is not mapped as a distinct community type in this document. Montane meadow has two forms based on the period of hydrology and plant species: wet meadow and dry meadow. Open water at Lake Van Norden is the third habitat type shown on the habitat map. Table 1 is an acreage summary of the three main types shown on the habitat map in Figure 3. Figures 4, 5, and 6 shows site photos of the various types.

<b>Biological Communities</b>							
<b>Biological Community</b>	<b>Estimated Acreage</b>						
Montane coniferous forest	±2,627						
Montane meadow	±205						
Open water	±64						
Total	±2,896						

	Table	1		
Biol	ogical Cor	mm	nunities	

#### Vegetation

#### **Montane Forest**

The montane coniferous forest is itself a mosaic of types. In the broad, flatter areas west of the Soda Springs Ski area, lodgepole pine is the dominant conifer. This species grows well in moist locations, and is a common successional tree in meadows that are becoming forests. To the south and east, where volcanic and granitic rocks are more common, Jeffrey pine, red fir, and white fir become the dominant trees. These are far less tolerant of wet conditions, and are generally found on more well-drained sites.

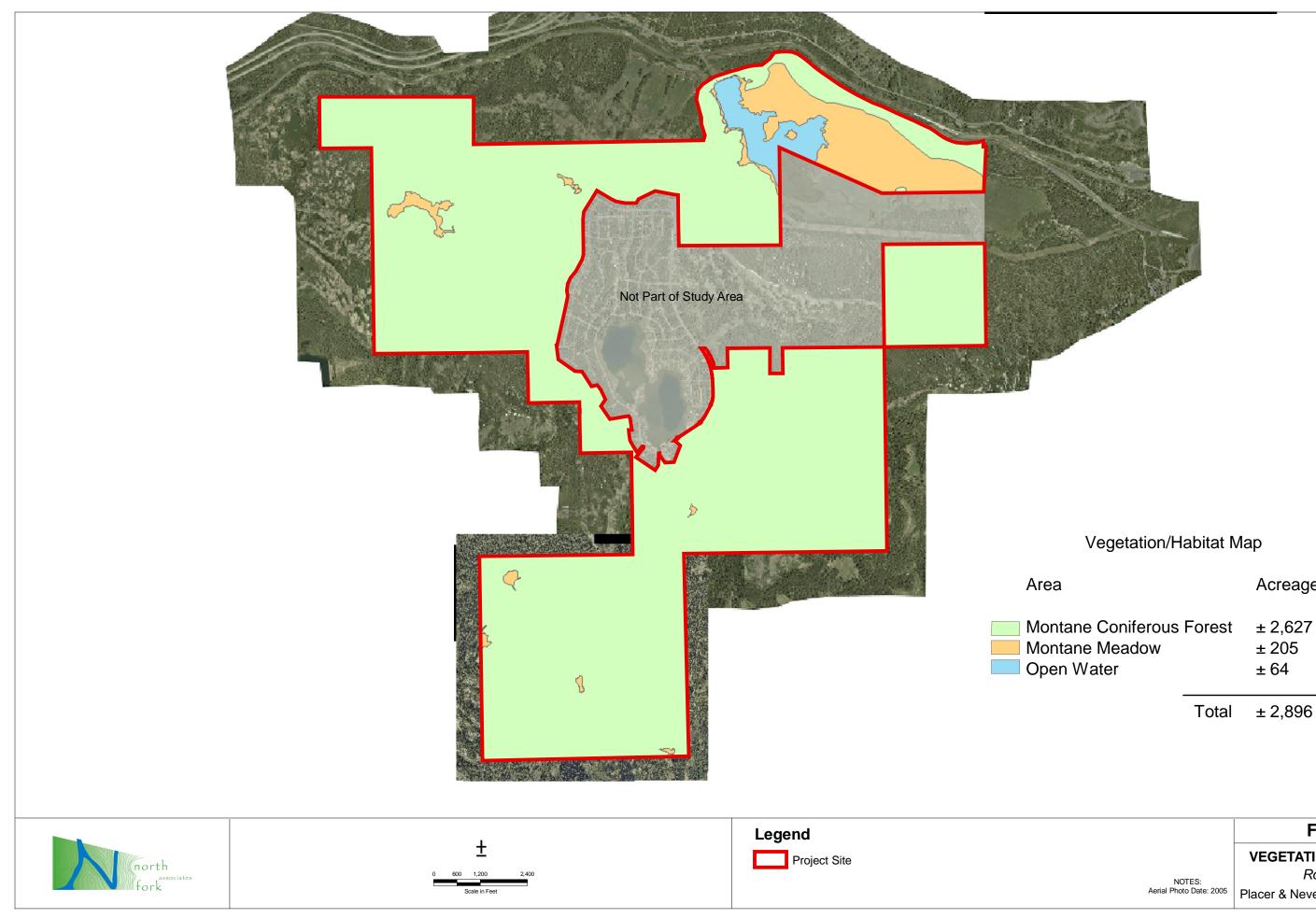
Embedded within the conifer forests, particularly in the southern areas are patches of juniper woodland and montane chaparral. Junipers and a few other conifers occur on the rocky granitic outcrops that overlook the American River canyon. The montane chaparral occurs on rocky volcanic outcrops where little soil development has taken place.

#### **Montane Meadow**

Montane meadow is broadly defined<sup>1</sup>. It is represented primarily in the Lake Van Norden area and is uncommon in the balance of the study area. Most of the Lake Van Norden meadow is considered wet meadow but areas of the eastern meadow do not meet the federal definition of waters of the U.S. and are considered mesic or dry meadow.

Montane Wet Meadow

<sup>&</sup>lt;sup>1</sup> Over the years various montane meadow classifications have been devised. Some of the more complex classifications can create finely woven mosaics in large meadows (Sawyer and Keeler-Wolf 1995). Mapping the separate meadow types using Saywer and Keeler-Wolf would be a tedious and relatively non-productive exercise. For this report and the associated wetland delineation, the names wet meadow, mesic meadow, and dry meadow have been used following discussions in Whitney (1979) and, more recently, Mayer and Laudenslayer (1988) because they are applicable over a broader area. Whitney's discussion of the various meadow types is brief and non-technical, but it acknowledges that a given meadow can grade into the three types. Mayer and Laudenslayer's discussion is more technical. They provide a description only for wet meadows, but they discuss the transition from wet meadow to dry meadow.



# Vegetation/Habitat Map

# Acreage

± 205 ± 64

Total ± 2,896

Figure 3

**VEGETATION/HABITAT MAP** Royal Gorge

Aerial Photo Date: 2005 Placer & Neveda Counties, California



Diverse south facing slope in Section 3



Typical forest setting. Dominant tree is lodgepole pine, white fir is also common



Wetland meadow in northwest area



Figure 4

**SITE PHOTOS** *Royal Gorge* Placer & Nevada Counties, CA

Photo Dates: September 11 & October 25, 2005



Lake Van Norden spillway



Rocky ridgeline



Rocky, sparsely vegetated area



Figure 5

**SITE PHOTOS** *Royal Gorge* Placer & Nevada Counties, CA

Photo Dates: July 18 & October 25, 2005



Upland meadow / cleared area within forest in northwest area of site



Western toad in shallow water of Lake Van Norden



Claw marks from black bears on aspen in Section 3



Figure 6

**SITE PHOTOS** *Royal Gorge* Placer & Nevada Counties, CA

Photo Dates: September 11 & 20 & October 25, 2005

The wettest meadows are dominated by one or more sedges. Portions of these very wet meadows support western Labrador tea, western blueberry, white-flowered bog orchid, low bulrushes, western bistort, and other OBL and strong FACW species. In this meadow, willows are very common, and the edges are surrounded by lodgepole pines. Somewhat drier and more open wet meadow habitat surrounds the remnants of Lake Van Norden. Here, Nebraska sedge and inflated sedge are most common, but other sedges are present as well. Both dominants are OBL species. Most of the Lake Van Norden wet meadow occurs in areas once submerged by the lake before the dam was removed.

#### Montane Mesic Meadow

Mesic meadows are more difficult to define. They tend to occur in slightly higher portions of the Summit Meadow, and to be dominated by FACW or drier species, such as slender-beak sedge, Raynold's sedge, Mexican rush, and others. Pullup muhly and tufted hairgrass occur here too, but they also occur in the dry portions of the meadow. Other species growing in mesic meadows but crossing over to the dry meadow phase include dwarf bilberry, long-stalk clover, glandular willow-herb, bigleaf avens, cinquefoil, and little elephant's head. Finding the line between wet and mesic meadow is difficult. The soils tend to be aquolls, and are thus dark, and redoximorphic features are not always obvious.

#### Montane Dry Meadow

Dry meadow is dominated by a variety of species with wetland status from FAC to not listed. Mexican rush and some dry sedges grow in this area, and these range downslope into the mesic phase. Other common dry meadow species include yarrow, arnica, western mountain aster, alpine lupine, Spanish clover, Douglas' knotweed, sheep sorrel, bristle owl's clover, Bydberg's beardtongue, orchard grass, and Junegrass. For the most part, lodgepole pines mark the edge between mesic and dry meadow in Summit Meadow.

#### Wildlife

The Royal Gorge study area supports a wide diversity of wildlife due to the availability of important habitat features including: nesting sites, escape and thermal cover, and abundant food sources. Wetter areas of the study area, particularly in the Lake Van Norden area, provide year-round and seasonal sources of water for wildlife of the area. Well-developed forest communities, such as those located throughout much of the study area, are important for animal cover, and provide high quality roosting and nesting opportunities for birds and shelter for numerous mammals. Forest communities, including downed logs and woody debris, also support insects and smaller mammals that are a source of food for larger animals in the area. Snags located in forested areas of the study area provide nesting cavities for birds such as owls and woodpeckers. Taller trees located on hillsides overlooking foraging areas provide good nesting habitat for raptors such as great horned owl and red-tailed hawk. Lake Van Norden, and the adjacent marsh and meadow communities, provide important seasonal habitat for migratory waterfowl and wading birds. A variety of amphibians, small fish, and invertebrates are also expected to occur in association with aquatic habitats of the Royal Gorge study area.

Because of the elevation of the study area, many species are only expected to occur on site seasonally. Waterfowl and wading birds visit the site on occasion during migration between summer breeding sites and wintering areas. A variety of songbirds are also expected to occur on site on a seasonal basis, either visiting the site during migration or to nest. We note the general low level of animal activity based on our field observations. Tracks, scat, bones, game

trails, etc., are low in abundance compared to lower elevation locations. This is likely due to the general lack of water on much of the site combined with the high elevation and relatively short snowless season.

The following birds were observed throughout forested habitats of the study area: pygmy nuthatch, red-breasted nuthatch, red-tailed hawk, American kestrel, Stellar's jay, mountain chickadee, northern flicker, brown creeper, hairy woodpecker, black-backed woodpecker, long-eared owl, chipping sparrow, blue grouse, pine siskin, Clark's nutcracker, western wood-pewee, and mountain bluebird. Tracks, scat, or other sign of mule deer, coyote, raccoon, bobcat, and black bear were also found in various locations throughout forest communities of the study area. A variety of amphibians, reptiles, waterfowl and wading birds were observed on or in the vicinity of the Lake Van Norden at the time of the site assessment and included: Pacific treefrog, common garter snake, western toad, Canada goose, mallard, killdeer, American white pelican, and common merganser. In September 2005, the day after a substantial rainfall, we observed thousands of western toads dispersing from aquatic habitats throughout the site to adjacent upland areas. A list of animal species observed during 2005 and 2006 is provided in Appendix D.

#### Waters of the United States

North Fork Associates delineated waters of the United States during late summer and fall 2005. The wetland delineation was completed during summer 2006.

### **Special Status Species**

Appendix A is a list of potentially occurring special status plants, and Appendix B is a similar list of special status wildlife. The U.S. Fish and Wildlife Service list for Placer County was refined by removing species requiring habitats not occurring in or around the study area and species occurring far outside the study area. These are not considered in Appendix A or Appendix B. Field surveys and the best professional judgment of North Fork Associates biologists were used to further refine the tables in Appendix A and Appendix B. In general, Sacramento species of concern and plants on the CNPS List 3 and List 4 are not considered further. Table 2 is a list of special status species that occur on the site or that are rated possible or likely to occur.

The refined list of status species in the region of the project site includes 51 plants and 24 animals. Of the 51 plant species in Appendix A and 24 animal species in Appendix B, 16 plants and 21 animals occur or have some potential to occur because the site has some areas of suitable habitat or they are known from nearby locations. Table 2 is a summary of those species, and they are discussed in more detail in the paragraphs following the table.

Table 2Special Status Species with Potential to Occur on the Royal Gorge Project Site

Species	Fed	State	CNPS	Habitat	Potential for Occurrence		
Plants							
<b>Western rock-jasmine</b> Androsace occidentalis simplex	-	-	List 2	Moist locations in montane forests	Possible. Suitable habitat occurs on the site, and it is known to occur near Emigrant Gap.		
<b>Carson Range rock cress</b> Arabis rigidissima demota		-	List 1B	Montane broad- leaved and coniferous forests, usually in rocky areas	Possible. Suitable habitat is present, but this is mostly an eastside species.		
<b>Bolander's bruchia</b> Bruchia bolanderi	-	-	List 2	Meadows and other wet habitat in montane coniferous forest	Possible. Suitable habitat occurs in wetlands, but there are no known close locations.		
<b>Mud sedge</b> Carex limosa	-	-	List 2	Bogs and fens in upper montane coniferous forest	Possible. Suitable habitat occurs in wetlands and around Lake Van Norden. Known to occur in wetlands near Cisco Grove.		
<b>Starved daisy</b> Erigeron miser	-	-	List 1B	Rocky, upper montane coniferous forest	Possible. Suitable habitat is present and it is known to occur on USGS quadrangles in which the project occurs.		
<b>Donner Pass buckwheat</b> Eriogonum umbellatum torreyanum	-	-	List 1B	Rocky, volcanic meadows in montane coniferous forest	Likely. Suitable habitat occurs at scattered locations, and the species is known to occur nearby.		
<b>American mannagrass</b> Glyceria grandis	-	-	List 2	Bogs, fens, meadows, streambanks and lake margins	Possible. Suitable habitat occurs in wetlands and along Lake Van Norden.		
<b>Saw-toothed lewisia</b> Lewisia serrata	-	-	List 1B	Rocky outcrops in broad-leaved and coniferous forests	Possible. Suitable habitat is present, especially in the eastern and southern portions of the study area.		
<b>Three-ranked hump-moss</b> <i>Meesia triquetra</i>	-	-	List 2	Bogs, fens, meadows, and marshes in upper montane coniferous forests	Possible. Habitat may occur in wetlands and around Lake Van Norden.		
<b>Broad-nerved hump-moss</b> Meesia uliginosa	-	-	List 2	Meadows and seeps in montane coniferous forests	Possible. Habitat may occur in wetlands and around Lake Van Norden.		

Species	Fed	State	CNPS	Habitat	Potential for Occurrence
<b>Stebbins' phacelia</b> Phacelia stebbinsii	-	-	List 1B	Woodlands and lower montane coniferous forest, especially rock outcrops and rubbble	Possible. Suitable habitat occurs at scattered locations, but most records are from lower elevations.
White-stemmed pondweed Potamogeton praelongus	-	-	List 2	Deeper water of marshes and swamps	Possible. Suitable habitat occurs in Lake Van Norden
<b>Robbins' pondweed</b> Potamogeton robbinsii	-	-	List 2	Deeper water of marshes and swamps	Possible. Suitable habitat occurs in Lake Van Norden
<b>American scheuchzeria</b> Scheuchzeria palustris americana	-	-	List 2	Bogs, fens, marshes, swamps, especially lake margins	Possible. Suitable habitat occurs around Lake Van Norden.
<b>Water bulrush</b> Schoenoplectus (Scirpus) subterminalis	-	-	List 2	Marshes and swamps, especially along lake margins	Possible. Suitable habitat occurs around Lake Van Norden.
<b>March skullcap</b> Scutellaria galericulata	-	-	List 2	Meadows, marshes, and swamps in montane forests	Possible. Suitable habitat occurs in wetlands and around Lake Van Norden.
Amphibians					
<b>Mountain yellow-legged frog</b> Rana mucosa	FC	CSC	-	Streams, lakes, and ponds in montane habitats.	Moderate. Suitable habitat present on site, in association with Lake Van Norden. Known from project region.
Birds					
<b>Cooper's hawk (nesting)</b> Accipiter cooperi		CSC		Dense stands of oak woodland, riparian forest or other forested habitats near water.	Moderate – Suitable nesting habitat in project region. Known from south of the project site.
<b>Northern goshawk (nesting)</b> Accipiter gentilis	-	CSC		Mature & old-growth stands of conifer and deciduous forests.	Moderate - Suitable nesting habitat in forested areas of the site. Known from project region.
<b>Black swift (nesting)</b> Cypseloides niger	-	CSC		Breeds in small colonies on cliffs behind or near waterfalls of deep canyons.	Low – Previous sighting in project area. Limited suitable nesting habitat on site.

Species	Fed	State	CNPS	Habitat	Potential for Occurrence
<b>Yellow warbler (nesting)</b> Dendroica petechia brewsteri		CSC		Breeds in riparian deciduous habitats or open conifer forest with shrub cover.	Moderate – Suitable nesting habitat available throughout site.
Willow flycatcher (nesting & summer visitor) Empidonax traillii	-	CE		Breeds in extensive willow thickets on edge of wet meadows, ponds, or streams.	Moderate – Suitable nesting habitat in riparian scrub habitats of site. Known from project area.
<b>Greater sandhill crane</b> Grus Canadensis tabida	-	СТ		Nests in wetlands of northeastern California.	Low – No nesting reported in project region. May visit site during migration.
<b>Bald eagle (nesting &amp; wintering)</b> Haliaeetus leucocephalus	-	CFP		Lake margins and rivers. Nests in large old-growth trees.	Moderate – Suitable nesting habitat present on site, in vicinity of Lake Van Norden.
<b>Harlequin duck</b> Histrionicus histrionicus	-	CSC		Nests along large, turbulent rivers of Sierra.	Low – May visit portions of site during migration.
<b>California spotted owl</b> Strix occidentalis occidentalis	-	CSC		Old-growth forest with multi-layered canopies.	Low – Limited suitable habitat present on site. No known occurrences in project region.
Mammals					
<b>Yuma myotis</b> Myotis yumanensis	-	CSC		Open forests and woodlands. Roosts in buildings, mines, caves and crevices.	Moderate – Limited roosting habitat present. May occur in riparian woodlands of site.
<b>Spotted bat</b> Euderma maculatum	-	CSC		Arid deserts to conifer forests. Roosts in rocky cliffs or caves.	Low -Limited suitable habitat present on site. Outside of known range.
<b>Townsend's big-eared bat</b> <i>Corynorhinus townsendii</i>	-	CSC		Mesic habitats. Roosts in caves, or various human-made structures.	Moderate - Suitable habitat present. May occur in riparian woodlands on site.
<b>Sierra Nevada snowshoe hare</b> <i>Lepus americanus tahoensis</i>	-	CSC		Montane riparian habitats, with dense thickets of young trees and shrubs.	Moderate – Suitable habitat present in scattered locations on site.
Western white-tailed jackrabbit Lepus townsendii townsendii	-	CSC		Open areas in a variety of higher elevation habitats.	Low – Suitable habitat present on site. Rare in region.

Species	Fed	State	CNPS	Habitat	Potential for Occurrence
Sierra Nevada mountain beaver Aplodontia rufa californica	-	CSC		Aquatic habitats with adjacent shrubs and deciduous trees.	Moderate – Suitable habitat present in vicinity of Lake Van Norden and other larger wetland areas.
<b>Sierra Nevada red fox</b> <i>Vulpes vulpes necator</i>	-	СТ		A variety of higher elevations habitats, far from human disturbance.	Low – No known occurrences in vicinity of project site. Some suitable habitat present.
<b>Sierra marten</b> Martes americana sierra	-	CSC		Mixed conifer forests with moderately- dense canopy.	Moderate – Suitable habitat present in scattered locations throughout site.
<b>Pacific fisher</b> Martes pennanti pacifica	FC	CSC		Intermediate to large- tree conifer forests and riparian woodlands.	Moderate – Suitable habitat present in scattered locations throughout site.
<b>California wolverine</b> <i>Gulo gulo</i>	-	СТ		Open terrain habitats in alpine areas. Areas of minimal human disturbance.	Low - Suitable habitat present along higher peaks of site. Rare in region.
American badger Taxidea taxus	-	CSC		Dry, open soils of shrub and forest habitats.	Moderate – Suitable habitat present in open habitats of site.

State CE – State Endangered CT – State Threatened

CSC – California Species of Special Concern (CDFG)

FP – Fully Protected Species (CDFG)

Federal: FC – Federal Candidate Species.

FT – Federal Threatened Speciees.

*CNPS* 1B = Rare or threatened in California and elsewhere

2 = Rare, threatened, or endangered in California, but more common elsewhere

### Plants

The list of special status plants in Table 2 does not include CNPS List 3 or List 4 plants, nor does it include U.S. Forest Service special status plants.

No special status species were observed during the preliminary botanical surveys.

**Western rock-jasmine** (*Androsace occidentalis* var. *simplex*) is a small, annual member of the primrose family (Primulaceae). It lacks state and federal status, but is on the CNPS List 2. Western rock-jasmine grows in moist site in montane forests, and it blooms between August and September.

**Carson Range rock cress** (*Arabis rigidissima* var. *demota*) is a perennial member of the mustard family (Brassicaceae). It is on the CNPS List 1B. It is not recognized by *The Jepson Manual* as a distinct taxon, and it is known only from the Martis Peak quadrangle in California. It blooms in August.

**Bolander's bruchia** (*Bruchia bolanderi*) is a moss in the Bruchiaceae that is on the CNPS List 2. It occurs in moist places in coniferous forests.

**Mud sedge** (*Carex limosa*) is a spreading perennial member of the sedge family (Cyperaceae). It has no state or federal status. It is on the CNPS List 2, meaning that it is relatively uncommon in California, but more common elsewhere. Mud sedge has long rhizomes and roots that are conspicuously hairy. The style is exerted from the perigynium and has a thick blackened base. Mud sedge grows in sphagnum bogs and other very wet locations in the Cascades and Sierra Nevada from Siskiyou County to Fresno County. It is very widespread, occurring to Alaska and Canada, and extending to the mountains of Europe and Asia. It blooms from June to August.

**Starved daisy** (*Erigeron miser*) is a low perennial member of the sunflower family (Asteraceae) that has no state or federal status. It is on the CNPS List 1B. Starved daisy lacks basal leaves and has yellow disk flowers and no ray flowers. It grows in crevices in rock outcrops at mid to high elevations in the Sierra Nevada in Placer and Nevada Counties. It blooms between June and October.

**Donner Pass buckwheat** (*Eriogonum umbellatum* var. *torreyanum*) is a low semi-shrub in the buckwheat family (Polygonaceae). This taxon lacks state and federal status, but is on the CNPS List 1B. It differs from other similar members of the genus by its bright yellow flowers, compound inflorescence, and glabrous leaf surfaces. Donner Pass buckwheat grows in rocky volcanic soil in montane forest openings between 2100 and 2400 meters in Sierra, Nevada, and Plumas Counties. It blooms from July to September.

**American mannagrass** (*Glyceria grandis*) is a perennial member of the grass family (Poaceae). It lacks state and federal status and is on the CNPS List 2. It occurs in bogs and fens, and in montane streams and lake margins. It blooms between June and August.

**Saw-toothed lewisia** (*Lewisia serrata*) is a perennial member of the purslane family (Portulacaceae). It is on the CNPS List 1B. It is not currently recognized by *The Jepson Manual*, and is separated from the more common *L. cantlovii* have having deeper serrations in the leaves. This species occurs on rocky slopes and cliff faces in a variety of montane forests. It blooms from May to June.

**Three-ranked hump-moss** (*Meesia triquetra*) is a moss in the Meesiaceae. It has no state or federal status, and is on the CNPS List 2. It occurs in montane bogs, fens, meadows, and seeps.

**Broad-nerved hump-moss** (*Meesia uliginosa*) is a moss in the Meesiaceae. It has no state or federal status, and is on the CNPS List 2. It occurs in montane meadows and seeps.

**Stebbins' phacelia** (*Phacelia stebbinsii*) is an annual member of the waterleaf family (Hydrophyllaceae). It lacks state and federal status, but is on the CNPS List 1B. It differs from other annual phacelias by having deeply lobed to compound leaves and a more-or-less rotate corolla with exerted stamens. Its white to pale blue flowers and leaves with 2 to 6 lobes separates it from the more common *P. marcescens*. It grows in moist rocky or gravelly soil at middle elevations in Nevada, Placer, and El Dorado Counties. It blooms in June and July.

**White-stemmed pondweed** (*Potamogeton praelongus*) is a perennial member of the pondweed family (Potamogetonaceae). It lacks state and federal status, and is on the CNPS List 2. It occurs in montane marshes and swamps.

**Robbins' pondweed** (*Potamogeton robbinsii*) is a perennial member of the pondweed family (Potamogetonaceae). It lacks state and federal status, and is on the CNPS List 2. It occurs in montane marshes and swamps.

American scheuchzeria (*Scheuchzeria palustris* subsp. *americana* is a perennial member of the scheuchzeria family (Scheuchzeriaceae) that lacks state or federal status. It is on the CNPS List 2. It occurs in montane bogs and fens, and in marshes along lake margins. It blooms in July.

**Water bulrush** (*Schoenoplectus subterminalis*, syn. = *Scirpus subterminalis*) is a perennial member of the sedge family (Cyperaceae) that is on the CNPS List 2, but lacks state or federal status. The leaves of this species typically float on the water, and the entire stem, except for the inflorescence, is submerged. It is always found in lakes, ponds, and marshes with standing water. Water bulrush is found in the Klamath and Cascade ranges south through the Northern Sierra Nevada at elevations between 750 meters and 2250 meters. This species extents to Alaska and eastern North America. It blooms in July and August.

**Marsh skullcap** (*Scutellaria galericulata*) is a perennial member of the mint family (Lamiaceae). It lacks state and federal status, but is on the CNPS List 2. It grows in montane meadows, marshes, and swamps, and blooms between June and September.

#### Wildlife

#### **Amphibians**

**Mountain Yellow-legged Frog** (*Rana mucosa*) occurs primarily at higher elevations of the Sierra Nevada from Plumas County to southern Tulare County (Zeiner et al., 1998). In the Sierra Nevada this species is associated with streams, lakes and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitat types. It is never encountered far from water. The mountain yellow-legged frog feeds primarily on aquatic and terrestrial invertebrates, but favors terrestrial insects. Tadpoles graze on algae and diatoms along rocky bottoms in shallow waters. Breeding and egg-laying at higher elevations usually occurs from June to August depending on local conditions. Clusters of 200 to 300 eggs are deposited in shallow water and attached to gravel or submerged rocks. Tadpoles may require up to two over-wintering periods to complete metamorphosis. Adults are commonly preyed upon by garter snakes and introduced trout.

The CNDDB (2005) documents a few occurrences of this species within a 5-mile radius of the project site. These occurrences are primarily from northwest of the site in the region of Rattlesnake Creek and Fordyce Lake. Suitable habitat for this species may occur within the project site in association with Lake Van Norden. Based on the close proximity to other known occurrences and the presence of suitable habitat, it is expected that the mountain yellow-legged frog has a reasonable potential for occurring on site.

### <u>Birds</u>

**Cooper's hawk** (*Accipiter cooperii*) breeds in dense-canopied trees from foothill pine-oak woodlands up to the ponderosa pine forest. Nesting sites are usually located near water. This species hunts in broken woodland and habitat edges, where they catch small birds in the air. They prefer nesting sites in riparian growths of deciduous trees, as in canyon bottoms and on river flood plains, although live oaks are often used. Breeding takes place March through August, with peak activity occurring May though June. Cooper's hawk nests are often constructed in deciduous trees in crotches approximately 20–50 feet above the ground. The nest is a stick platform lined with bark. Cooper's hawk incubates eggs for about 35 days, and the fledge young between 30 to 34 days. Young birds often remain in the vicinity of the nest after they fledge while they are learning to hunt.

The CNDDB (2005) documents previous nesting of Cooper's hawks within a 5-mile radius of the project site. This occurrence is from south of the site along Cedar Creek. Although this species prefers nesting in riparian woodland habitats, it is occasionally known to nest in coniferous habitats located close to water. Within the project site, potential nesting habitat occurs in forested habitats located in the vicinity of water, such as in the vicinity of Lake Van Norden and the South Yuba River.

**Northern goshawk** (*Accipiter gentilis*) occurs in dense, mature conifer and deciduous forest habitats interspersed with meadows or other openings. It typically breeds in mature old-growth stands of conifer and deciduous habitats, at mid to high elevations. Nesting habitat includes north-facing slopes located near water. Nests are usually located in the fork of a large, horizontal limb close to the trunk, approximately 19-82 feet above the ground. This species often uses old nests, and will maintain alternate sites. Breeding generally begins in mid-June, with eggs being incubated approximately 36 to 41 days. Young usually fledge at about 45 following hatching and are typically independent by 70 days.

The CNDDB (2005) documents previous nesting activity within a 5-mile radius of the project site, primarily to the east and south. Suitable nesting habitat for the northern goshawk occurs throughout forested habitats of the Royal Gorge project site, particularly on north-facing slopes near water (for example, in the vicinity of Lake Van Norden, South Yuba River, and Ice Lake [Serene Lakes]). Based on the close proximity to other previously known nesting activity and the presence of suitable habitat, it is expected that the northern goshawk has a reasonable potential for nesting at the project site.

**Black Swift** (*Cyseloides niger*) is a summer visitor at scattered locations throughout California. It typically nests in moist crevices or on cliffs behind or adjacent to waterfalls in deep canyons. Nest is made of mud mixed with moss, ferns or other plant material. Breeding takes place from early June to late August when small nesting colonies are formed. Incubation is approximately 24 to 27 days, with young leaving the nest at about 45 days. Foraging occurs in a variety of habitats. Diet consists of flying insects captured high in the air. Insects are often pursued in updrafts along cliffs or in storm fronts.

The CNDDB (2005) documents the black swift as previously occurring within the project site in the vicinity of Lake Van Norden. However, this 1956 observation was of only a single individual and no nesting activity was detected. Within the project site, suitable breeding and nesting habitat is very limited. Potential nesting habitat was only observed along the cliffs located adjacent to the waterfall at the outlet of Serene Lake.

**Yellow warbler** (*Dendoica petechia*) is an uncommon to common, summer resident in the northern Sierra Nevada. It primarily breeds in riparian woodlands up to 8000 feet, but is also known to breed in montane chaparral, open ponderosa pine and mixed conifer habitats with substantial amounts of shrub cover. During migration, this species is found in a variety of forest and woodland habitats. Nests consist of an open cup placed approximately 2 to 16 feet above the ground in a deciduous tree or shrub. Breeding generally takes place from mid-April to early-August with peak activity occurring in June. Incubation is approximately 11 days. Young fledge at about 9 to 12 days following hatching. Young yellow warblers breed the following year after hatching.

The CNDDB (2005) documents previous nesting activity within a 5-mile radius of the project site, to the south, off of Soda Springs-Baker Ranch Road. Within the project site suitable nesting

habitat for the yellow warbler occurs in association with riparian habitats in the vicinity of Lake Van Norden and near the western project site boundary, and in forested areas with a dense shrubby understory. Based on the close proximity to other known nesting activity and the presence of suitable habitat, it is expected that the yellow warbler has a reasonable potential for nesting at the project site.

**Willow Flycatcher** (*Empidonax trailii*) is a rare to locally uncommon summer resident in the Sierra Nevada. It typically is associated with broad, open river valleys or large mountain meadows with a dense growth of shrubby willows (Zeiner et al., 1990). This species is most abundant in areas containing extensive willow thickets along the edges of meadows, ponds, or backwaters of streams. Nest is an open cup constructed in an upright fork of a willow or other shrub, approximately 1.5 to 10 feet above the ground. Peak egg-laying of this species is during June. Incubation is for 12 to 13 days, with young fledging after 13 to 14 days. Diet consists of flying insects captured on short flights from exposed perches.

The CNDDB (2005) documents willow flycatcher as previously occurring at the project site, within the meadow located upstream of Lake Van Norden. While nesting activity was not confirmed during the 1991 observation, it is expected that this species has a reasonable potential for nesting within suitable habitats of the project site. Suitable habitat includes willow thickets in the vicinity of Lake Van Norden and thickets along ephemeral drainages and wetland areas in the western portion of the site.

**Greater sandhill crane** (*Grus canadensis tabida*) was once a fairly common breeder on the northeastern plateau in California, but is now greatly reduced in numbers. Currently breeding is only known to take place in Siskiyou, Modoc, and Lassen counties, and in the Sierra Valley in Plumas and Sierra counties. In summer, this subspecies tends to occur in and near wet meadows, shallow lakes, and freshwater marsh habitats. Wintering takes place to the west, in the Sacramento and San Joaquin valleys. At night this species roosts in flocks standing in moist fields in shallow water. Nesting takes place in remote portions of very large wetlands, with nests consisting of large mounds of wetlands plants in shallow water. Breeding takes place May through July, and nesting is completed by late August. This solitary nester is monogamous and may stay paired for life. Incubation is approximately 30 days. Young fly at about 70 days after hatching but often remain with their parents for up to a year.

The CNDDB (2005) documents a single occurrence of the greater sandhill crane within the broader project region. This occurrence consists of a sighting in 2000 in the vicinity of Webber Lake, approximately 11 miles north of the project site. No nesting activity has been documented in the vicinity of the site. Although the project site is outside of the typical breeding range for the species (Zeiner et al., 1990), there is some limited potential for occurrence of greater sandhill crane on a seasonal basis, base on the presence of suitable habitat. Potential habitat occurs primarily in around Lake Van Norden in the northeastern portion of the site.

**Bald Eagle** (*Haliaeetus leucocephalus*) is a permanent resident and uncommon winter migrant throughout California. Breeding of this species is restricted to higher elevations in the northern portion of the state. Bald eagles require large bodies of water, or free-flowing rivers with nearby perches, including snags, large-limbed tall trees, or rocks near water. Nests are constructed in a large, old-growth, or dominant live tree with open branches, located near water. This species often chooses the largest tree in a stand for nesting. Nest consists of a stick platform constructed 50 to 200 feet above the ground, usually just below the tree crown. Breeding occurs from February through July, with peak activity from March to June.

Incubation occurs for 34 to 36 days. Breeding then occur when birds are 4 to 5 years in age. Diet of bald eagles consists of live or dead fish, water birds, and mammals.

The CNDDB (2005) does not document any previous nesting activity of the bald eagle within a 5-miles radius of the project site. However, potential nesting habitat occurs in forested communities of the project site, primarily located in the region of Lake Van Norden.

**Harlequin Duck** (*Histrionicus histrionicus*) is a rare to very uncommon winter visitor along the coast of California. This species was previously known to nest from May to August along large, fast-moving rivers from Madera to Tuolumne Counties. Breeding records are now very rare in California, with few known records along the Sierra Nevada. Nesting takes place May to June along shores of shallow, swift rivers with the nest being constructed in a recess, sheltered by an overhanging bank or vegetation. Incubation is for 27 to 29 days. After hatching the female attends to the young, but often leaves prior to the young being able to fly. Diet consists of crustaceans, mollusks, and aquatic insects.

Only one occurrence of a harlequin duck is documented by the CNDDB (2005) within a 5-mile radius of the project site. This occurrence is from the North Fork of the American River, just below Palisade Creek. Because of the rarity of nesting within project region, and the absence of preferred habitat, harlequin duck is not expected to nest on site. However, there is some potential for this species to occur periodically on site on a seasonal basis during migration.

**California Spotted Owl** (*Strix occidentalis occidentalis*) is an uncommon, permanent resident of dense old-growth coniferous forests of northern California. Although this species does not migrate, it typically moves down-slope in the Sierra Nevada during winter. The California spotted owl requires large areas of forest (100 to 600 acres) with permanent water, and suitable nesting and roosting sites. In summer, it typically roosts in forests with a dense overhead canopy on north-facing slopes, while in winter it often roosts in oak woodlands. Breeding takes place from March through June, with peak activity in April and May. Nesting usually takes place in the cavity of a tree or snag or in the broken top of a large tree, approximately 30 to 180 feet above ground. Diet consists of a variety of small mammals, such as mice and voles, but will occasionally eat small birds and bats.

There are no documented occurrences of the California spotted owl within a 5-mile radius of the project site (CNDDB 2005). However, based on the presence of scattered areas of suitable habitat and location within the species' known range, it is expected that the California spotted owl has some limited potential for occurring on site. Suitable habitat is limited to those portions of the site containing large areas of un-fragmented and mature coniferous forest.

#### Mammals

**Yuma Myotis** (*Myotis yumanensis*) is common and widespread throughout California. It is found in a variety of habitats, but prefers open forests and woodlands with sources of water over which to feed. Occurrence of this species is highly dependent on the presence of bodies of water, which are used both as foraging sites and as a source of drinking water. This species generally roosts in buildings, mines, caves and crevices, and occasionally under bridges. Mating occurs during the fall, with birthing occurring June to July (Zeiner et al., 1990).

There are no documented occurrences of the Yuma myotis within a 5-mile radius of the project site (CNDDB 2005). Suitable roosting habitat for this species may be limited within the project

site. However, it is expected that Yuma myotis has a reasonable potential for foraging on site, particularly in the region around Lake Van Norden.

**Spotted Bat** (*Euderma maculatum*) is considered a very rare mammal, known primarily from the foothills and mountains and desert regions of Southern California. It is, however, occasionally encountered outside of its known range in mixed conifer forest habitats. This species generally roosts in rock crevices along cliffs, but can also be found in caves and buildings. Mating primarily occurs during the fall, with birthing occurring before mid-June (Zeiner et al., 1990).

There are no documented occurrences of the spotted bat within a 5-mile radius of the project site (CNDDB 2005). Although some suitable habitat is present within the project site, the potential for occurrence is considered very low because of the rarity of this species in the region.

**Townsend's Big-eared Bat** (*Plecotus townsendii*) is considered an uncommon species throughout California. It occurs in most habitat types, with the exception of subalpine and alpine habitats. This species of bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting. Separate sites for day, night, and maternity roosts are sometimes used. Mating primarily occurs from November to February, with births occurring during May and June. Young are then weaned at about 6 weeks (Zeiner et al., 1990).

There are no documented occurrences of Townsend's big-eared bats within a 5-mile radius of the project site (CNDDB 2005). Suitable roosting habitat for this species may be limited within the project site. However, it is expected that the Townsend's big-eared bat has a reasonable potential for foraging on site, based on the location within the species' known range.

**Sierra Nevada Snowshoe hare** (*Lepus americanus tahoensis*) is an uncommon resident at upper elevations of the Sierra Nevada. This subspecies of snowshoe hare is primarily found in montane riparian habitats with thickets of alders and willows, and in stands of young conifers mixed with chaparral. It prefers the younger stages of a variety of coniferous forests habitats, primarily occurring along the edges, adjacent to meadows. Individuals seek cover in dense tree or shrub thickets, where they create a shallow bowl-like depression. Breeding takes place from mid-February to June or July, with a gestation period of 35 to 37 days. Two to three litters are generally produced. Diet consists of grasses, forbs, sedges, and low shrubs during the summer. In winter, they eat the needles and bark of young conifers, and leaves and twigs of willow and alder (Zeiner et al., 1990).

A few occurrences of the Sierra Nevada snowshoe hare have been documented in the broader region around the project site, however, none are within a 5-mile radius of the site. The most recent occurrence documented by the CNDDB is from 1969, just north of the town of Truckee. Within the project site, suitable habitat occurs in association with the meadows and thickets around Lake Van Norden and in association with willow thickets in the western portion of the site. Based on the presence of suitable habitat, the Sierra Nevada snowshoe hare is expected to have some limited potential for occurring on site.

Western White-tailed Jackrabbit (*Lepus townsendii*) is an uncommon to rare year-round resident of the crest and upper eastern slope of the Sierra Nevada and Cascade Range from the Oregon border south to Tulare and Inyo counties. Once widespread through its range, populations of the western white-tailed jackrabbit have become significantly fragmented. This primarily nocturnal species prefers open areas with scattered shrubs, such as in sagebrush, subalpine conifer, juniper, and perennial grassland habitats. It also occurs in wet meadows and early stages of conifer habitats. Seasonal movement from higher to lower elevations during

winter months is common with this species. Like other hares, white-tailed jackrabbit takes cover in a shallow depression in dense underbrush. Breeding takes places from February to July, with gestation occurring for 30 to 42 days. Soon after birth, the young forage for themselves and subsequently become independent at about 3 to 4 weeks. During the spring through fall, the diet consists of grasses and other herbaceous plants. In winter, the diet includes buds, bark, and young twigs (Zeiner et al., 1990).

Only one occurrence of the western white-tailed jackrabbit has been documented in the broader region around the project site. This 1920 observation was a considerable distance away from the project site, in the vicinity of Tahoe City (CNDDB 2005). Suitable habitat does occur in scattered locations throughout the project site, particularly open forested habitats in the western portion of the site. Based on the rarity of this species in the region, the western white-tailed hare is expected to have only a low potential for occurring on site.

**Sierra Nevada Mountain Beaver** (*Aplodontia rufa californica*) occurs throughout the Sierra Nevada in montane riparian habitats, with most populations occurring below 2700 feet. This mostly nocturnal species also frequents forested areas with a dense understory near water. Cool, moist microclimates are required, along with deep, friable soils for burrowing. Burrows are excavated in deep soils in dense thickets, near streams or springs. Breeding takes place from December through March, with peak activity in February. Young are born from February through June, with one litter being produced each year. Young are weaned at about 60 days. The diet of the Sierra Nevada mountain beaver consists of the vegetative parts of plants, including dogwood, blackberry, ferns, willows, and grasses (Zeiner et al., 1990).

The CNDDB (2005) documents a few occurrences of the Sierra Nevada mountain beaver within a 5-mile radius of the project site, primarily to the southeast. Based on the close proximity to other known occurrence and the presence of suitable habitat, it is expected that the Sierra Nevada mountain beaver has a reasonable potential for occurring within the project site. Suitable habitat primarily occurs in the vicinity of Lake Van Norden and in association with wetland areas and ephemeral drainages in the western-most portion of the site.

**Sierra Nevada red fox** (*Vulpes vulpes necator*) prefers forests interspersed with meadows or alpine fell-fields. This species uses dense vegetation and rocky areas for cover. Den sites often include rock outcrops, hollow logs, and stumps. Individuals also burrow in deep, loose soils. Mating takes place in late winter, with young being born in early spring. Pups are dependent upon parents for approximately 6 months. The diet of the Sierra Nevada red fox includes small and medium-sized mammals, such as ground squirrels, woodrats, pikas, and gophers. Carrion may be an important part of their winter diet. This species typically hunts in meadows, fell-fields, grasslands, wetlands, and other open habitats.

There are no documented occurrences of the Sierra Nevada red fox within a 5-mile radius of the project site (NDDB 2005). In addition, there is only one documented occurrence recorded in the region, from north of the town of Truckee. While suitable habitat occurs within and near the project site, the potential for occurrence is considered to be very low based on the rarity of this species within the project region.

**Sierra marten** (*Martes American sierra*) is an uncommon to common resident of the Sierra Nevada. Optimal habitat includes mixed evergreen forests (with more than 40 percent crown closure) containing large trees and snags with abundant cavities for denning and nesting. Pine martens use cavities in large trees, snags, stumps, caves, and crevices in rocky areas for denning. This species tends to travel along ridge tops, with movement across areas with limited cover being rare. Limited human disturbance is very important for occurrence of this species. Mating takes place in the summer with litters being born primarily in March and April. Young stay with the female until the following fall. The diet of pine martens consists of small mammals such as chipmunks, mice, shrews and rabbits. They are also known to eat fish and forage along the edge of water.

The CNDDB (2005) documents a few occurrences of the Sierra marten within a 5-mile radius of the project site, primarily from the northwest, west and south of the site. Within the project site, suitable habitat consists primarily of evergreen forests with a moderate to high canopy closure. Based on the presence of suitable habitat, and the close proximity to other known occurrences, pine marten has a reasonable potential for occurring at the project site.

**Pacific fisher** (*Martes pennanti pacifica*) is an uncommon permanent resident in the Sierra Nevada. It typically occurs in intermediate to large-tree stages of coniferous forest and deciduous riparian habitat, with a high percent canopy closure (greater than 50 percent closure). Fishers den in brush piles, logs, snags, rocky areas, upturned trees or in other protected cavities. Hollow logs and snags are particularly important for denning. Young are typically born in February through May. They then remain with the female until late autumn. The diet of Pacific fisher consists of small mammals such as rabbits, rodents, shrews, birds, fruit and carrion.

The CNDDB (2005) documents Pacific fishers occurring within a 5-mile radius of the project site, primarily to the west. Within the project site, suitable habitat consists of mature coniferous forest and deciduous riparian areas with a moderate-dense canopy closure. Suitable habitat occurs in scattered locations throughout the site. Based on the presence of suitable habitat, and the close proximity to other known occurrences, the Pacific fisher is expected to have a reasonable potential for occurring at the project site.

**California wolverine** (*Gulo gulo*) is a rare resident of the Sierra Nevada. It generally occurs in denser forest stages at high elevations ranging from approximately 4300 to 7300 feet, or in open terrain above timberline. In the northern Sierra Nevada, this species has been found in mixed conifer, red fir, and lodgepole pine habitats, and in wet meadow and montane riparian habitats. It feeds primarily on carrion and small mammals. Den sites include caves, cliffs, hollow logs, rock outcrops, and ground burrows. Areas with low human disturbance are preferred. Mating typically takes place from May to July, with young being born from January through April. Young are typically weaned at about 7 to 9 weeks of age. While mostly nocturnal, this species may be active any time of the day.

The CNDDB (2005) documents several occurrences of the California wolverine within the broader region around the project site, but just one within 5-mile radius. This occurrence is from approximately one mile north of Interstate 80. Despite the proximity to this previous sighting, occurrence of this species is considered very rare. There is expected to be some limited potential for occurrence of the California wolverine in portions of the project site exposed to minimal human presence and disturbance, such as at higher elevations of the site, along ridgelines.

**American Badger** (*Taxidea taxus*) is an uncommon, permanent resident in much of California. Preferred habitat includes open stages of most habitat types containing dry, loose soils for burrowing. Old burrows are frequently reused, although some dig a new den each night, particularly in summer. Young are born in burrows dug in areas with sparse overstory cover. Mating of badgers takes place in summer and early-fall, with gestation occurring for 183 to 265 days. A litter of 2 to 3 pups is then born in March or April. The species is carnivorous and diet consists of burrowing rodents, mice, and chipmunks, as well as ground squirrels and pocket gophers (Zeiner et al., 1990).

There are no documented occurrences of the American badger within a 5-mile radius of the project site (CNDDB 2005). However, potential habitat for this species occurs throughout the site in areas containing dry, loose soils and lower vegetative cover.

### **Deer Migration Corridors**

Mule Deer (*Odocoileus hemionus*) is a common to abundant resident and local migrant throughout most of California. At higher elevations in the Sierra Nevada they move downslope during winter to areas with minimal snow. Mule deer occur in a variety of communities including forest, woodland and brushy habitats, but they prefer areas with a combination of woody cover and open areas for foraging, near water. Brushy areas and tree thickets provide important escape and thermal cover for this species. Mule deer feed on the tender new growth of shrubs, and a variety of forbs and grasses, but their diet changes according to the season and the availability of preferred food. Grasses and forbs are important food sources in spring, while acorns are heavily fed upon in the fall. Mating occurs during the fall, and gestation is approximately 195 to 212 days. Fawns are born from early April to midsummer, depending on the location. Fawning generally occurs in forests, moderately dense shrubby and herbaceous areas, or in high-elevation riparian and mountain shrub habitats, near foraging areas and water (Zeiner et al., 1990).

Mule deer occurring in the vicinity of the Royal Gorge Study area are part of the Blue Canyon deer herd (Craig Stowers, CDFG, 2005, pers comm). The boundaries of this herd are defined by the *Blue Canyon Deer Herd Management Plan* (Fowler and Wagner, 1982) as the following: the eastern boundary following the Sierra Crest from Ellis Peak north to Norden; the northern boundary following Interstate 80 west, along the Bear River, then toward Colfax; the western boundary extending southeast from Colfax, through Foresthill, to the Middle Fork of the American River; and the southern boundary following the Rubicon River east to Ellis Peak (Fowler and Wagner, 1982). The Blue Canyon herd is composed of both migratory deer and resident deer, which are located in the western-most portion of the range. Three sub-species of deer occur within this herd; the Columbian black-tailed deer (*Odocoileus hemionus columbianus*), the California mule deer (*O. h. californicus*), and the Rocky Mountain mule deer (*O. h. hemionus*).

Tracking studies have shown that most of the deer in the Blue Canyon herd winter together in the western-most portion of the range at elevations of 1,000 to 4,000 feet. However, some Rocky Mountain mule deer summer with the Blue Canyon herd and may move east over the Sierra crest, wintering with the Loyalton-Truckee herd. Snowfall is the controlling factor in migration for this herd, with the first heavy snows triggering fall migration. Migration corridors often run along ridgelines, but occasionally occur in canyons. Major seasonal movement corridors have been documented to the north of Foresthill Divide, and to the south along the Middle Fork of the American River (Fowler and Wagner, 1982).

The summer range of the Blue Canyon herd occurs in the eastern-most portion of the range at elevations ranging from 6,000 to 9,000 feet. Known and potential fawning areas occur throughout the range, with major fawning areas being documented in the southeastern portion. The Royal Gorge study area occurs within the known summer range of the Blue Canyon herd.

No major fawning areas are mapped within the vicinity of the study area but that does not preclude low numbers of deer to fawn on the study area.

During our site investigations in 2005 and 2006 we have seen very few deer on the study area.

#### CONCLUSIONS

- 1) At least 13 special status plants have some potential to occur on the site. To date we have not observed any special status plants during our reconnaissance level surveys on the study area, however most surveys were conducted later in the blooming season.
- 2) Lake Van Norden and the surrounding area have potential to be occupied by a variety of special-status wildlife species, either on a permanent or seasonal basis. Mountain yellow-legged frog may occur in association with aquatic habitats of Lake Van Norden and upstream portions of the South Yuba River. Sierra Nevada mountain beaver may occur in association with these areas as well as other on-site aquatic areas, including the large wetland area in the western portion of the site. Willow thickets and other riparian woodland habitats located in the vicinity of Lake Van Norden and in the western-most portion of the site may be used on a seasonal basis by nesting songbirds such as yellow warbler and willow flycatcher. Lake Van Norden and adjacent upland and wetland habitats (for example, marshes and meadows) also provide important habitat for a variety of migratory songbirds, waterfowl, and wading birds including, but not limited to, greater sandhill crane. Upland areas surrounding the lake are also important foraging areas for larger mammals that occur in adjacent forest habitats, and various raptors of the area. In general, aquatic habitats of the site (for example, Lake Van Norden, South Yuba River, scattered wetlands) and their adjacent upland are areas of particularly high species diversity.
- 3) Forest communities of the project site provide potential habitat for a variety of specialstatus mammals including California wolverine, Sierra marten, Pacific fisher. Various special status birds have potential to occur in coniferous forest habitats such as those located on site, either on a permanent or seasonal basis. Sensitive raptors such as northern goshawk and bald eagle have potential to nest and roost in portions of forested habitats, particularly in the region of Lake Van Norden. Future development activities in forested areas of the site may therefore have potential to disturb some of these identified species, depending on the project location.
- 4) The project site occurs within the summer range of the Blue Canyon deer herd (Fowler and Wagner, 1982). Mule deer occurring within this area migrate down-slope to the west in the winter months, generally following corridors north of the Foresthill Divide or along the Middle Fork of the American River. No significant fawning areas have been documented within or near the project site. However, isolated fawning could occur in scattered areas of suitable habitat located on site. Mule deer likely occur in all habitats of the Royal Gorge study area during the summer months, but are expected to be more abundant near suitable foraging areas and cover (e.g., edges of meadows, shrubby habitats, forest edges). During our field investigations, deer sitings and evidence were very infrequent.

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#### **Personal Communications**

- Craig Stowers, Deer Program Coordinator California Department of Fish and Game. E-mail correspondence on October 3, 2005 regarding deer herd of the Royal Gorge/Soda Springs region.
- Kris Boatner, wildlife biologist U.S. Forest Service, Truckee, California. Phone conversation, October 3, 2005.

Family Taxon Common Name	Status*	Elonopia - Derie 1	Habitat	Deskokiliter av Desiget Cite
Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Asteraceae				
Erigeron eatonii nevadincola	Fed: -	May-July	Great Basin scrub; lower montane	Unlikley. Mostly an east-side species.
Nevada daisy	State: -		coniferous forest; pinyon and juniper woodland (rocky).	
	CNPS: List 2.3			
Erigeron miser	Fed: -	June-October	Upper montane coniferous forest	Possible. Suitable habitat is present, and it occurs on the
Starved daisy	State: -		(rocky). 1840-2620 m.	Soda Springs and Norden quadrangles.
	CNPS: List 1B.3			
Erigeron petrophilus sierrensis	Fed: -	June-September	Cismontane woodland; lower	Possible. Suitable habitat may occur on the site.
Northern Sierra daisy	State: -		montane coniferous forest; upper montane coniferous forest;	
	CNPS: List 4.3		[sometimes serpentinite].	
Pyrrocoma lucida	Fed: -	July-October	Great Basin scrub; lower montane	Unlikely. Mostly an east-side species.
Sticky pyrrocoma	State: -	-	coniferous forest (meadows and seeps/alkaline clay).	
	CNPS: List 1B.2		scops, arkanne engy.	
Tonestus eximius	Fed: -	July-August	Subalpine coniferous forest	None. No suitable habitat is present.
Tahoe tonestus	State: -		(granitic).	
	CNPS: List 4.3			
Brassicaceae				
Arabis rigidissima demota	Fed: -	August-August	Broad-leaved upland forest; upper	
Carson Range rock cress	State: -		montane coniferous forest; [rocky],	
	CNPS: List 1B.2			

Family Taxon Common Name	S	tatus*	Flowering Period	Habitat	Probability on Project Site	
Rorippa subumbellata	Fed:	FC	June-September	Lower montane coniferous forest; meadows; [decomposed granitic	None. No suitable habitat is present.	
Tahoe yellow cress	State:	CE		beaches].		
	CNPS:	List 1B.1				
Bruchiaceae						
Bruchia bolanderi	Fed:	-	May-July	Coniferous forest (meadows and	Possible. Suitable habitat occurs on the site, but there are	
Bolander's bruchia	State:	-		seeps, damp soil). 1700-2500 m.	no nearby locations.	
	CNPS:	List 2.2				
Caryophyllaceae						
Pseudostellaria sierrae	Fed:	-	May-August	Chaparral; cismontane woodland;	Possible. Suitable habitat occurs on the site.	
Sierra starwort	State:	-	intug i tuguse	upper and lower montane		
	CNPS:	List 3.2		coniferous forest. 1400-2000 m.		
Silene invisa	Fed:	_	July-August	Subalpine coniferous forest; upper	Possible. Suitable habitat occurs on the sie.	
Short-petaled campion	State:	_	July Mugust	montane coniferous forest;		
bior peared early on	CNPS:			[granitic].		
Cyperaceae						
Carex limosa	Fed:	_	June-August	Bogs and fens [lower montane	Possible. Suitable habitat occurs on site, and the species	
Mud sedge	State:	-	tane ragast	coniferous forest; upper montane	is found near Cisco Grove.	
e	CNPS:	List 2.2		coniferous forest].		
Schoenoplectus subterminalis	Fed:	-	July-August	Marshes and swamps (montane	Possible. Could occur in Lake van Norden.	
Water bulrush	State:	-	vary ragast	lake margins). 750-2200 m.		
	CNPS:	List 2.3				

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Common Name	Status*	Flowering Feriod		
Ditrichaceae				
Trichodon cylindricus	Fed: -	NA-NA	Broadleaved upland forest; lower montane coniferous forest [exposed soil roadbanks].	Possible. Out of range, but habitat is present.
Cylindrical trichodon	State: -			
	CNPS: List 2.	2		
Droseraceae				
Drosera anglica	Fed: -	June-August	Bogs and fens; meadows.	Unlikely. Marginal habitat may occur on the site.
Narrow-leaved sundew	State: -			
	CNPS: List 2.	3		
Drosera rotundifolia	Fed: USFS	July-August	Bogs, fens, and other wet placces.	Unlikely. Marginal habitat may occur on the site.
Round-leaved sundew	State: -			
	CNPS:			
Ericaceae				
Vaccinium coccineum	Fed: -	June-August	Lower montane coniferous forest;	Possible. Suitable habitat occurs on the site.
Siskiyou Mountains huckleberry	State: -		upper montane coniferous forest; [often serpentinite].	
	CNPS: List 3.	3		
Fabaceae				
Astragalus whitneyi lenophyllus	Fed: -	July-August	Alpine boulder and rock field; subalpine forest.	None. No suitable habitat occurs on the site.
Locoweed	State: -			
	CNPS: List 4.	3		
Trifolium lemmonii	Fed: -	May-June	Great Basin scrub; lower montane coniferous forest.	Unlikely. Mostly an east-side species.
Lemmon's clover	State: -	-		
	CNPS: List 4.	2		

Family Taxon			Habitat	Probability on Project Site
Common Name	Status*	Flowering Period		
Hydrophyllaceae				
Phacelia stebbinsii	Fed: -	June-July	Cismontane woodland; lower	Possible. Suitable habitat probably occurs on the site.
Stebbins' phacelia	State: -	, and the g	montane coniferous forest; meadows and seeps. (primarily	
	CNPS: List 1B.2		rock outcrops and rubble piles).	
Lamiaceae				
Lycopus uniflorus	Fed: -	July-September	Bogs and fens.	Unlikely. Only marginal habitat occurs on the site.
Northern bugleweed	State: -			
	CNPS: List 4.2			
Scutellaria galericulata	Fed: -	June-September	Lower montane coniferous forest;	Possible. Marginal habitat occus on the site.
Marsh skullcap	State: -	•	meadows (mesic); marshes and	
	CNPS: List 2.2		swamps.	
Liliaceae				
Calochortus clavatus avius	Fed: -	May-July	Lower montane coniferous forest,	Unlikely. Marginal habitat may occur, but the CNDDB
Pleasant Valley mariposa lily	State: -		(Josephine silt loam and volcanic).	has no Nevada or Placer County records.
	CNPS: List 1B.2			
Malvaceae				
Sphaeralcea munroana	Fed: -	May-June	Great Basin scrub.	Unlikely. Mostly an east-side species.
Munroe's desert mallow	State: -			
	CNPS: List 2.2			
Marsileaceae				
Marsilea oligospora	Fed: USFS	July-August	Marshes and swamps; vernal pools; [muddy].	Possible. Could occur along Lake van Norden
Nelson's pepperwort	State: -			
	CNPS:			

Family Taxon	Status*		Flowering Period	Habitat	Probability on Project Site
Common Name					
Meesiaceae					
Meesia triquetra	Fed:	-	August-September	Bogs and fens; meadows and	Possible. Marginal habitat occurs.
Three-ranked hump-moss	State:	-		seeps; upper montane coniferous forest (mesic soil). 1300-2500 m.	
	CNPS:	List 2.2		1969 (mesie 301). 1966 2000 m.	
Meesia uliginosa	Fed:	-	August-September	Meadows and seeps; upper	Possible. Marginal habitat occurs.
Broad-nerved hump-moss	State:	-		montane coniferous forest (damp soil). 1300-2500 m.	
in the f	CNPS:	List 2.2		son). 1500-2500 m.	
Onagraceae					
Camissonia tanacetifolia quadriperforata	Fed:	-	May-July	Lower montane coniferous forest	Unlikely. Mostly an east-side species.
Sierra Valley evening primrose	State:	-		(clay, sandy).	
	CNPS:	List 4.3			
Epilobium howellii	Fed:	-	July-August	Meadows; subalpine coniferous	Unlikley. Usually a higher montane species.
Subalpine fireweed	State:	-	, ,	forest; [mesic].	
	CNPS:	List 1B.3			
Epilobium oreganum	Fed:	-	June-September	Bogs and fens; lower montane	Unlikely. Only marginal habitat occurs on the site.
Oregon fireweed	State:	-		coniferous forest; [mesic].	
	CNPS:	List 1B.2			
Orchidaceae					
Cypripedium fasciculatum	Fed:	-	March-July	Lower montane coniferous forest;	None. No suitable habitat occurs on the site.
Clustered lady's-slipper	State:	-	-	north coast coniferous forest; [usually serpentinite seeps and	
	CNPS:	List 4.2		streambanks].	

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
<i>Cypripedium montanum</i> Mountain lady's-slipper	Fed: - State: - CNPS: List 4.2	March-July	Broad-leaved upland forest; lower montane coniferous forest.	Possible. Suitable habitat may occur on the site.
<i>Piperia colemanii</i> Coleman's rein orchid	Fed: - State: - CNPS: List 4.3	June-August	Chaparral; lower montane coniferous forest (often sandy. 1200-2300 m.	Possible. Suitable habitat is present. Recorded from Truckee.
Papaveraceae Corydalis caseana caseana Sierra corydalis	Fed: - State: - CNPS:	June-September	Meadows; upper montane coniferous forest; [mesic].	Possible. Suitable habitat may occur on the site.
<b>Poaceae</b> Glyceria grandis American mannagrass	Fed: - State: - CNPS: List 2.3	June-August	Bogs and fens; meadows; marshes and swamps (streambanks and lake margins).	Possible. Suitable habitat occurs on the site.
<i>Muhlenbergia jonesii</i> Jones's muhly	Fed: - State: - CNPS: List 4.3	June-August	Upper and lower montane coniferous forest. 1130-2130 m.	Possible. Know to occur near Soda Springs.
<b>Polygonaceae</b> <i>Eriogonum umbellatum torreyanum</i> Donner Pass buckwheat	Fed: - State: - CNPS: List 1B.2	July-September	Meadows; upper montane coniferous forest; [volcanic, rocky].	Likely. Suitable habitat is present and the species occurs in the area around Royal Gorge.

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
	Status			
Portulacaceae Claytonia megarhiza	Fed: -	July-August	Alpine boulder or rock; subalpine	None. No suitable habitat occurs on the site.
Fell-fields claytonia	State: -	July-August	coniferous forest (rocky).	
i en neids etaytonia	CNPS: List 2	3		
Lewisia longipetala	Fed: -	July-August	Alpine boulder or rock; subalpine	None. No suitable habitat is present.
Long-petaled lewisia	State: -		coniferous forest (mesic, rocky/granitic).	
	CNPS: List 11	3.3	Toeky, grande).	
Lewisia serrata	E. 1.	Mars Inna	Broad-leaved upland forest; lower	Possible. Suitable habitat occurs on the site.
Saw-toothed lewisia	Fed: - State: -	May-June	montane coniferous forest; riparian	
Saw-tootiled lewista	CNPS: List 11	3.1	forest.	
		5		
Potamogetonaceae				
Potamogeton praelongus	Fed: -	July-August	Marshes and swamps (deep water,	Possible. Could occur in Lake van Norden
White-stemmed pondweed	State: -		lakes).	
	CNPS: List 2	3		
Potamogeton robbinsii	Fed: -	July-August	Marshes and swamps (deep water,	Possible. Could occur in Lake van Norden
Robbins' pondweed	State: -	July-August	lakes).	
receills ponduced	CNPS: List 2	3		
Primulaceae				
Androsace occidentalis simplex	Fed: -	August-September	Upper montane coniferous forest (usually mesic). 1675-1700m.	Possible. Suitable habitat occurs on the site, and it
Western rock-jasmine	State: -		(usually mesic). 10/3-1/00m.	occurs near Emigrant Gap.
	CNPS: List 2	3		

Family Taxon					
Common Name	Sta	itus*	Flowering Period	Habitat	Probability on Project Site
Rosaceae					
Ivesia aperta aperta	Fed:	-	June-September	Great Basin scrub; lower montane	Unlikely. Mostly an east-side species.
Sierra Valley ivesia	State:	-		coniferous fores; meadows and seeps); pinyon/juniper woodland	
	CNPS: I	List 1B.2		(vernal pools/vernally mesic); [usually volcanic].	
Ivesia aperta canina	Fed:	-	June-August	Lower montane coniferous forest	Unlikely. Mostly an east-side species.
Dog Valley ivesia	State:	-	-	(openings); meadows and seeps (xeric); [volcanic, rocky].	
	CNPS: I	List 1B.1		(xenc), [volcane, locky].	
Ivesia sericoleuca	Fed:	-	May-September	r Great Basin scrub; lower montane Unlikely. Mostly an east-side sp coniferous forest; meadows and seeps; vernal pools; [vernally	Unlikely. Mostly an east-side species.
Plumas ivesia	State:	-	• •		
	CNPS: I	List 1B.2		mesic, usually volcanic].	
Ivesia webberi	Fed:	FC	May-July	Great Basin scrub (volcanic ash);	Unlikely. Mostly an east-side species.
Webber's ivesia	State:	-		lower montane conifeorus forest; pinyon/juniper woodland; [sandy	
	CNPS: I	List 1B.1		or gravelly].	
arraceniaceae					
Darlingtonia californica	Fed:	-	April-June	Bogs and fens; meadows; [mesic, generally serpentinite seeps].	None. No suitable habitat occurs on the site.
California pitcher plant	State:	-		generally serpendinite seeps].	
	CNPS:	List 4.2			
Scheuchzeriaceae					
Scheuchzeria palustris americana	Fed:	-	July-July	Bogs and fens; marshes and swamps (lake margins).	Possible. Could occur in Lake van Norden.
American scheuchzeria	State:	-		swamps (lake margins).	
	CNPS:	List 2.1			

Family Taxon Common Name	St	atus*	Flowering Period	Habitat	Probability on Project Site
Scrophulariaceae					
Veronica cusickii	Fed:	-	July-August	Alpine boulder or rock; meadows;	None. No suitable habitat is present.
Cusick's speedwell	State:	-		upper montane coniferous forest; subalpine coniferous forest.	
	CNPS:	List 4.3			
Taxaceae					
Taxus brevifolia	Fed:	USFS	March-June	Riparian and streamsides in moist	Unlikely. Little, if any, suitable habitat is present.
Pacific yew	State:	-		forests.	
	CNPS:				
Violaceae					
Viola tomentosa	Fed:	-	May-October	Lower montane coniferous forest;	Possible. Suitable habitat is present.
Woolly violet	State:	-		upper montane coniferous forest; subalpine coniferous forest;	
	CNPS:	List 4.2	[gravelly].		
*Status					
Federal: FE - Federal Endangered FT - Federal Threatened FPE - Federal Proposed Endangered FPT - Federal Proposed Threatened FC - Federal Candidate	CT - Californi CR - Californi	ia Rare	ed d f Special Concern	CNPS (California Native Plant Socie List 1A - Extinct List 1B - Plants rare, threatened, or List 2 - Plants rare, threatened, or List 3 - Plants about which more in List 4 - Plants of limited distributio RED Code 1 - Seriously endangered (>80% of 2 - Fairly endangered (20 to 80% of 3 - Not very endangered (<20% of compared (>20% of co	endangered in California and elsewhere endangered in California, more common elsewhere nformation is needed, a review list on, a watch list occurrences threatened) foccurrences threatened)

# Appendix B Special Status Wildlife Known to Occur in the Region Surrounding Royal Gorge

	Status*	Habitat	Probability on Project Site
Fish			
Lahontan cutthroat trout Oncorhynchus clarki henshawi	Fed: FT State: Other:	Historically found in all cold waters of the Lahontan Basin	None. Species not known from vicinity of project site. Suitable habitat not present.
Amphibians			
Foothill yellow-legged frog Rana boylii	Fed: - State: CSC Other:	Found in partially shaded, shallow streams with rocky substrates. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	None. No suitable habitat present on site. Outside of known range of species.
Mountain yellow-legged frog Rana muscosa	Fed: FC State: CSC Other: -	Proposed federal listing is for Southern California only. Found abov 5000 feet in the Sierra Nevada and above 1200 feet in So. Cal. Mountains. Always near water; requires two years to complete development.	ve Likely. Suitable habitat occurs in association with Lake Van Norden. Known occurrences within 5-mile radius of project site.
Birds			
Harlequin duck Histrionicus histrionicus	Fed: - State: CSC Other:		tes Possible. Limited suitable nesting habitat in vicinity of project site. tic May periodically occur on site during summer months/migration.
Bald eagle Haliaeetus leucocephalus	Fed: FT State: CFP Other: *	Occurs along shorelines, lake margins, and rivers. Nests in large, old growth or dominant trees with open branches.	d- Likely. Suitable foraging and nesting habitat occurs in areas surrounding Lake Van Norden and undeveloped areas near Ice Lake.
Cooper's hawk Accipiter cooperii	Fed: - State: CSC Other: *	Occurs in open to interrupted woodland. Nests primarily in deciduo riparian habitat with a dense canopy.	bus Likely. Suitable nesting habitat present on site. Known occurrences within a 5-mile radius of project site. Suitable foraging habitat present on site.
Northern goshawk Accipiter gentilis	Fed: - State: CSC Other:	Dense, mature coniferous and decidous forests interspersed with open areas	Likely. Suitable nesting habitat present in forested areas of project site, particularly on north-facing slopes in vicinity of Lake Van Norden. Known occurrences within 5-mile radius of project site.

	Status*	Habitat	Probability on Project Site
Greater sandhill crane Grus canadensis tabida	Fed: - State: CT Other:	Nests in wetland habitats in northeastern California and winters in the Central Valley. Prefers grain fields within 4 miles of water for nest sites. Uses irrigated pasture for loafing.	e Possible. No nesting reported in vicinity of project site. However, some suitable nesting and foraging habitat present in vicinity of Lake Van Norden. May visit site during migration period.
California spotted owl Strix occidentalis occidentalis	Fed: - State: CSC Other:	Old-growth conifer and mixed conifer-hardwood forest in coastal and Sierra Nevada ranges	d Possible. Limited suitable habitat present on site. No occurrences reported in vicinity of project site. Requires large areas of mature, dense forest.
Black swift Cypseloides niger	Fed: - State: CSC Other: *	Breeds on steep, usually wet cliffs in interior canyons and along the ocean coast.	Possible. Previous sighting reported by NDDB near Lake Van Norden. Minimal suitable nesting habitat located within the project site.
Rufous hummingbird Selasphorus rufus	Fed: - State: Other: *	Fairly common migrant in a variety of habitats offering abundant flowers. Uses valley foothill hardwood, valley foothill hardwood- conifer, riparian, and various chaparral habitats during migration. Usually breeds north of California in coniferous habitat.	Unlikely. May occur periodically on site, as a migrant only.
Willow flycatcher Empidonax traillii	Fed: State: CE Other:	Uncommon summer resident in upper elevation montane riparian and wet meadow areas	Likely. Suitable nesting habitat in vicinity of Lake Van Norden and other patches of willow scrub located in the western portion of the site. Previously reported from vicinity of Lake Van Norden.
Yellow warbler Dendroica petechia	Fed: - State: CSC Other:	Found in riparian habitats with low open-canopy of willows, cottonwoods, sycamores, and/or alders for nesting and foraging. Also breeds in montane shrubbery in open conifer forests. During migration, occurs in woodland, forest, and shrub habitat.	Likely. Suitable habitat present in vicinity of Lake Van Norden, larger wetland areas in western portion of site, and scattered forested areas. Known from project region.
Mammals			
Yuma myotis Myotis yumanensis	Fed: - State: CSC Other:	Inhabits forests and woodlands. Requires water over which it feeds. Roosts in caves, mines, buildings, or crevices.	Possible. No occurrences reported from project region. Suitable foraging habitat present on site. Suitable roosting habitat may be limited.
Spotted bat Euderma maculatum	Fed: - State: CSC Other:	Inhabits a variety of habitats from arid deserts and grasslands to mixed conifer forests. Roosts in rocky cliffs or caves; feeds over water.	Unlikely. Limited suitable habitat present on site. Outside of known range for species. Considered very rare in region.

	Status*	Habitat	Probability on Project Site
Townsend's big-eared bat Corynorhinus townsendii townsendii	Fed: - State: CSC Other:	Found in all but subalpine and alpine habitats. Roosts in limestone caves, lava tubes, mines, and buildings.	Possible. Suitable habitat present on site. No known occurrences in project region.
Sierra Nevada snowshoe hare Lepus americanus tahoensis	Fed: - State: CSC Other:	Montane riparian habitats with thickets of alders and willows and in stands of young conifers interdispersed with chaparral. Early seral stages of mixed conifer, subalpine conifer, red fir, Jeffreyi pine, lodgepole pine, and aspen, usually along edges.	Likely. Suitable habitat present in scattered locations on site. No known occurrences within 5-mile radius of project site.
White-tailed jackrabbit Lepus townsendii	Fed: State: CSC Other:	Sagebrush, subalpine conifer, juniper, alpine dwarf-shrub, and perennial grassland habitats. Also found in low sagebrush, wet meadow, and early successional stages of conifer habitats.	Possible. Suitable habitat present on site. No known occurrences within 5-mile radius of project site. Rare within project region.
Sierra Nevada mountain beaver Aplodontia rufa californica	Fed: - State: CSC Other:	Dense decidous trees and shrubs in riparian habitat with abundant source of water	Likely. Suitable habitat present in vicinity of Lake Van Norden and other larger wetland areas on site (western-most portion of site).
Sierra Nevada red fox Vulpes vulpes necator	Fed: State: CT Other:	Occurs in conifer forests and rugged alpine landscape of the Sierra Nevada and Cascade ranges between 4,000 feet and 12,000 feet, most often above 7,000 feet.	Possible. Suitable habitat present on site. No occurrences in vicinity of project site and only one reported from region. Considered very rare in region.
American marten Martes americana	Fed: - State: CSC Other:	Various mixed conifer forests with more than 40 percent canopy closure.	Likely. Suitable habitat present in mature forested areas of project site. Known occurrences within 5-mile radius of project site.
Pacific fisher Martes pennanti pacifica	Fed: FC State: CSC Other:	Occurs in intermediate to large-tree stage coniferous forests and riparian woodlands with a high percent level of canopy closure.	Likely. Suitable habitat present in mature forested areas of project site. Known occurrences within 5-mile radius of site.
California wolverine Gulo gulo luteus	Fed: State: <b>CT</b> Other:	Habitat generally consists of open terrain above the timberline, but has been observed at 1500 feet msl.	Possible. Suitable habitat present in portions of site with minimal human presence/disturbance. Known occurrences within 5-mile radius of project site. However, considered to be rare in the region.

	St	atus*	Habitat		Probability on Project Site	
American <i>Taxidea</i>	taxus Stat		Occurs in dry, open soils in herbaceous Needs friable, uncultivated soil. Preys		<ol> <li>Possible. Some limited areas of suitable habitat present on site occurrences reported in vicinity of project site.</li> </ol>	
*Status	Federal: FE - Federal Endangered FT - Federal Threatened FPE - Federal Proposed Endangered FPT - Federal Proposed Threatened FC - Federal Candidate FPD - Federal Proposed for Delisting	CT - Cal CR - Cal CC - Cal CFP - Ca	ifornia Candidate alifornia Fully Protected	Department of Forestry S Species, U.S.D.A. Forest Raptors and their nests a Certain areas, such as w	ection under the other designations, such as the California ensitive Species, Bureau of Land Management Sensitive Service Sensitive Species, and the Migratory Bird Treaty Act. rere protected by provisions of the California Fish and Game Code intering areas of the monarch butterfly, may be protected by Department of Fish and Game.	

# Appendix C

Plant Species Occurring at Royal Gorge During Field Surveys

## Appendix C

# Plants Occurring at Royal Gorge During Field Surveys

Dennstaedtiaceae		
Pteridium aquilinum pubescens	Bracken fern	
Dryopteridaceae		
Athyrium filix-femina cyclosorum	Western lady fern	
Equisetaceae		
Equisetum arvense	Common horsetail	
Pteridaceae		
Cheilanthes gracillima	Cheilanthes	
Chemanines gracititma	Chemanules	
Symnosperms		
Pinaceae		
Abies concolor	White fir	
Abies magnifica magnifica	Red fir	
Pinus contorta murrayana	Lodgepole pine	
Pinus jeffreyi	Jeffrey pine	
Pinus monticola	Western white pine	
Angiosperms - Dicots		
Amaranthaceae		
*Chenopodium album	White pigweed	
*Dysphania botrys	Jerusalem-oak	
Apiaceae		
Cicuta douglasii	Wester water hemlock	
Heracleum lanatum	Cow parsnip	
Ligusticum grayi	Ligusticum	
Osmorhiza berteroi	Sweet cicely	
Perideridia parishii latifolia	Parish's yampah	
Perideridia sp.	Anise	
Sphenosciadium capitellatum	Ranger's buttons	
Apocynaceae		
Apocynum androsaemifolium	Bitter dogbane	
Asteraceae		
Achillea millefolium	Yarrow	
Ageratina occidentalis	Eupatorium	
Antennaria umbrinella	Brown pussy-toes	
*Anthemis cotula	Mayweed	
Arnica chamissonis foliosa	Leafy arnica	
A	Arnica	
Arnica parryi	7 milea	

Artemisia ludoviciana	Silver wormwood
Artemisia tridentata	Big sagebrush
*Centaurea maculosa	Spotted knapweed
Chaenactis douglasii douglasii	Dusty maidens
Chrysothamnus nauseosus	Rubber rabbitbrush
Cirsium andersonii	Thistle
*Cirsium vulgare	Bull thistle
Erigeron peregrinus hirsutus	Wandering fleabane
Eucephalus breweri	Brewer's aster
Gnaphalium canescens	Everlasting
Gnaphalium palustre	Western marsh cudweed
Gnaphalium stramineum	Cotton-batting plant
Helianthella californica nevadensis	Helinathella
Hieracium albiflorum	White hawkweed
*Lactuca serriola	Prickly lettuce
Madia glomerata	Madia
*Matricaria matricarioides	Pineapple-weed
Microseris nutans	Microseris
Pseudognaphalium benolens	Everlasting
Senecio integerrimus	Mountain butterweed
Senecio triangularis	Arrow-leaf groundsel
Solidago canadensis elongata	Canada goldenrod
Symphyotrichum eatonii	Eaton aster
Symphyotrichum spathulatum spathulatum	Western mountain aster
*Taraxacum officinale	Dandelion
*Tragopogon dubius	Goat's beard
Wyethia mollis	Mules ears
Betulaceae	
Alnus incana tenuifolia	Mountain alder
Boraginaceae	
Cryptantha torreyana	Cryptantha
Hackelia micrantha	Stickseed
Hackelia nervosa	Stickseed
	Stickseed
Brassicaceae	
Arabis holboellii	Holboell's rock cress
*Lepidium campestre	Pepperwort
Lepidium virginicum	Bird's pepper
Rorippa sinuata	Spreading yellow cress
*Sisymbrium sp.	Sisymbrium
Callitrichaceae	
Callitriche sp.	Water-starwort
Caprifoliaceae	
- Lonicera conjugialis	Purple-flower honeysuckle
Sambucus racemosa microbotrys	Red elderberry
Symphoricarpos rotundifolius rotundifolius	Mountain snowberry
Caryophyllaceae	·
*Spergularia rubra	Ruby sand-spurrey
Stellaria longipes longipes	Long-stalk starwort
Sienan a longipes longipes	2016 Suin Sui Wolt

#### Cornaceae

Cornus sericea

#### Dogwood

Dodder

Pinemat manzanita

Greenleaf manzanita

Western Labrador tea

White-veined wintergreen

#### Cuscutaceae

Cuscuta californica californica

#### Ericaceae

Arctostaphylos nevadensis Arctostaphylos patula Ledum glandulosum Pterospora andromedea Pyrola picta Sarcodes sanguinea Vaccinium uliginosum occidentale

#### Euphorbiaceae

Chamaesyce sp.

#### Chamaesyce

Stream trefoil

Spanish-clover

Alpine lupine

Cup clover

Red clover

Alsike clover Long-stalk clover

Meadow lupine

White sweetcover

Subterranean clover

Huckleberry oak

Mountain pink currant

Sierra gooseberry

Dwarf waterleaf

Phacelia

Phacelia

Phacelia

Tinker's-penny

Klamathweed

Monardella

Western waterleaf

Wax currant

Trefoil

Pinedrops

Snow plant

Western blueberry

#### Fabaceae

Lotus oblongifolius oblongifolius Lotus purshianus purshianus Lotus stipularis stipularis Lupinus lepidus Lupinus polyphyllus \*Melilotus alba Trifolium cyathiferum \*Trifolium hybridum Trifolium longipes nevadense \*Trifolium pratense \*Trifolium subterraneum

#### Fagaceae

Quercus vaccinifolia

#### Grossulariaceae

Ribes cereum cereum Ribes nevadense Ribes roezlii roezlii

#### Hydrophyllaceae

Hydrophyllum capitatum alpinum Hydrophyllum occidentale Phacelia hastata Phacelia hydrophylloides Phacelia sp.

#### Hypericaceae

Hypericum anagalloides \*Hypericum perforatum

#### Lamiaceae

Monardella odoratissima pallida

#### Malvaceae

Sidalcea glaucescens Sidalcea oregana spicata

Checkerbloom Checker mallow

#### Onagraceae

Chamerion angustifolium angustifolium Chamerion angustifolium circumvagum Epilobium ciliatum Epilobium densiflorum Epilobium halleanum Epilobium minutum Gayophytum heterozygum

#### Paeoniaceae

Paeonia brownii

#### Plantaginaceae

\*Plantago lanceolata \*Plantago major

#### Polemoniaceae

Collomia linearis Ipomopsis aggregata Navarretia capillaris Navarretia divaricata divaricata Navarretia intertexta intertexta Phlox hoodii canescens Polemonium californicum

#### Polygonaceae

Aconogonon phytolaccifolium Eriogonum nudum Eriogonum umbellatum nevadense Eriogonum ursinum Eriogonum wrightii subscaposum \*Polygonum aviculare Polygonum douglasii Polygonum sp. \*Rumex acetosella \*Rumex crispus Rumex salicifolius

#### Portulacaceae

Calyptridium monadrum

#### Primulaceae

Dodecatheon alpinum

#### Ranunculaceae

Aquilegia formosa Delphinium sp. Thalictrum fendleri polycarpum

#### Rhamnaceae

Ceanothus cordulatus Ceanothus prostratus Ceanothus velutinus velutinus Rhamnus rubra Fireweed Hairy willow-herb Dense-flower spike-primrose Glandular willow-herb Chaparral cottonweed Gayophytum

Western peony

Fireweed

English plantain Common plantain

Narrow-leaf collomia Scarlet gilia Gilia Mountain navarretia Needle-leaved navarretia Phlox Sky pilot

Poke knotweed Wild buckwheat Wild buckwheat Wild buckwheat Common knotweed Douglas' knotweed Polygonum Sheep sorrel Curly dock Willow dock

Pussy paws

Alpine shooting star

- Crimson columbine Larkspur Meadow-rue
- Mountain whitethorn Mahala mat Tobacco brush Sierra coffeeberry

#### Rosaceae

Amelanchier utahensis	Utah serviceberry
Geum macrophyllum	Bigleaf avens
Horkelia fusca	Horkelia
Potentilla glandulosa	Glandular cinquefoil
Potentilla gracilis elmeri	Cinquefoil
Prunus emarginata	Bitter cherry
Purshia tridentata glandulosa	Antelope brush
Rubus parviflorus	Thimbleberry
Sorbus scopulina scopulina	Greene's mountain ash
Spiraea densiflora	Mountain spiraea
Rubiaceae	-
Galium bifolium	Low mountain bedstraw
Kelloggia galioides	Kelloggia
Salicaceae	
Populus balsamifera trichocarpa	Black cottonwood
Populus tremuloides	Quaking aspen
Salix boothii	Booth's willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
Salix lemmonii	Lemmon's willow
Salix scouleriana	Scouler's willow
Salix sp.	Willow
Sapindaceae	
Acer glabrum	Mountain maple
Scrophulariaceae	
Castilleja miniata miniata	Scarlet Indian paintbrush
Castilleja tenuis	Bristle owl's clover
Mimulus breweri	Monkeyflower
Mimulus lewisii	Pursh's monkeyflower
Mimulus moschatus	Musk monkeyflower
Mimulus primuloides primuloides	Primrose monkeyflower
Pedicularis groenlandica	Elephant's head
Penstemon azureus azureus	Azure penstemon
Penstemon roezlii	Beardtongue
Penstemon rydbergii oreocharis	Rydberg's beardtongue
Penstemon sp.	Beardtongue
*Verbascum thapsus	Woolly mullein
Veronica wormskjoldii	American alpine speedwell
Violaceae	
Viola purpurea integrifolia	Mountain violet
Viola sp.	Violet

### **Angiosperms - Monocots**

#### Alismataceae

Sagittaria cuneata

Northern arrowhead

#### Cyperaceae

Carex arthrostachya Carex fracta Carex lanuginosa Carex nebrascensis Carex raynoldsii Carex rossii Carex senta Carex senta Carex spp. Carex utriculata Carex vesicaria vesicaria Cyperus sp. Eleocharis acicularis Eleocharis macrostachya Scirpus congdonii

#### Juncaceae

Juncus balticus Juncus bufonius Juncus confusus Juncus drummondii Juncus effusus Juncus ensifolius Juncus mexicanus Juncus nevadensis Juncus spp. Luzula comosa

#### Liliaceae

Allium sp. Lilium parvum Lilium sp. Smilacina racemosa Smilacina stellata Triteleia ixioides Triteleia sp. Veratrum californicum californicum

#### Orchidaceae

Corallorhiza striata Platanthera leucostachys Spiranthes porrifolia Spiranthes romanzoffiana

#### Poaceae

Achnatherum lettermanii Achnatherum nelsonii dorei Agrostis idahoensis Bromus carinatus carinatus Bromus orcuttianus \*Bromus tectorum Calamagrostis canadensis Calamagrostis stricta stricta Slender-beak sedge Sedge Woolly sedge Raynold's sedge Sedge Rough sedge Sedges Beaked sedge Inflated sedge Flatsedge Least spikerush Creeping spikerush

Baltic rush Toad rush Colorado rush Drummond's rush Soft rush Three-stamen rush Mexican rush Sierra rush Rushes Common wood-rush

Wild onion Alpine lily Lily False Solomon's seal False Solomon's seal Pretty face Triteleia Corn lily

Striped coralroot White-flowered bog-orchid Ladies tresses Hooded ladies tresses

Letterman's needlegrass Needlegrass Idaho bentgrass California brome Brome Cheat grass Blue-joint reedgrass Reed grass

\*Dactylis glomerata Danthonia californica californica Danthonia unispicata Deschampsia cespitosa cespitosa Elymus elymoides Elymus glaucus Festuca idahoensis Festuca rubra Glyceria elata \*Holcus lanatus Hordeum brachyantherum Muhlenbergia filiformis Paspalum distichum Phalaris arundinacea Phleum alpinum \*Phleum pratense \*Poa pratensis pratensis Poa secunda juncifolia Pseudoroegneria spicata spicata Torreyochloa pallida pauciflora Trisetum canescens

Orchard grass California oatgrass One-spike oatgrass Tufted hairgrass Squirreltail Blue wildrye Idaho fescue Red fescue Tall mannagrass Common velvet grass Meadow barley Pull-up muhly Joint paspalum Reed canary grass Mountain timothy Common timothy Kentucky bluegrass Alkali bluegrass Bluebunch wheatgrass Weak mannagrass Trisetum

# Appendix D

Wildlife Species Observed at Royal Gorge During Field Surveys

### Appendix D

## Wildlife Species Observed at Royal Gorge During Field Surveys

spiny-tail fairy shrimp	Streptocephalus sealii
'ish	2
1511	
Brook trout	Salvelinus fontinalis
mphibians	
Western toad	Bufo boreas
Pacific chorus frog	Pseudacris regilla
Reptiles	
Common garter snake	Thamnophis sirtalis
Birds	
American white pelican	Pelecanus erythrorhynchos
Canada goose	Branta canadensis
Mallard	Anas platyrhynchos
Common merganser	Mergus merganser
Red-tailed hawk	Buteo jamaicensis
American kestrel	Falco sparverius
Blue grouse	Dendragapus obscurus
Mountain quail	Oreortyx pictus
Killdeer	Charadrius vociferus
Long-eared owl	Asio otus
Hairy woodpecker	Picoides villosus
Black-backed woodpecker	Picoides arcticus
Northern flicker	Colaptes auratus
Western wood-pewee	Contopus sordidulus
Steller's jay	Cyanocitta stelleri
Clark's nutcracker	Nucifraga columbiana
American crow	Corvus brachyrhynchos
Mountain chickadee	Poecile gambeli
Red-breasted nuthatch	Sitta canadensis
White-breasted nuthatch	Sitta carolinensis
Pygmy nuthatch	Sitta pygmaea
Brown creeper	Certhia americana
Golden-crowned kinglet	Regulus satrapa
Mountain bluebird	Sialia currucoides
Hermit thrush	Catharus guttatus
American robin	Turdus migratorius
Chipping sparrow	Spizella passerina
Dark-eyed junco	Junco hyemalis
Brewer's blackbird	Euphagus cyanocephalus
Pine siskin	Carduelis pinus

### Mammals

Broad-footed mole Golden-mantled ground squirrel Coyote Black bear Raccoon Bobcat Mule deer Scapanus latimanus Spermophilus lateralis Canis latrans Ursus americanus Procyon lotor Lynx rufus Odocoileus hemionus