

Appendix H

Biological Resources

Appendix H-1

Final Biological Inventory

Teichert Aggregates Boca Quarry Final Biological Inventory

December 2009

Prepared for

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Contents

Summary	1
Site Location and Setting	2
Habitats within the Watershed	4
Methods	4
Survey results	6
General Observations	6
Upland Habitats	9
Wetlands/Riparian Areas	11
Special-status Species	12
Other Biological Resources	17
Project Description	21
Impact Assessment and Mitigation	21
Recommended Mitigation Measures	21
Regulatory Consistency	22
General Plan and Zoning Ordinance	22
Other Applicable Regulations	23
References	25
Tables	
Table 1: Special-status species	13
Figures	
Figure 1: Location Map	3
Figure 2: Biological Inventory Map	7
Figure 3: Regional Mule Deer Use	19
Appendices	
Appendix A: Species Observed on Teichert Boca Quarry Site	

Biological Inventory Report

Site name: Teichert Boca Quarry

APN: 48-090-12 and 48-200-03

Location: Sections 26 and 27, T. 18 N, R. 17 E (USGS Boca and Martis Peak quadrangles).
Site is northeast of Interstate 80, about 7 air miles east of the center of Truckee.

Prepared for: Teichert Aggregates

Survey dates: August 13, 14, 25, 26, and September 17, 2006; June 22 and July 1, 2007;
June 21 and 28, 2009

Report date: December 14, 2009

Biologist: Adrian Juncosa, Ph.D.

SUMMARY

This report is a compilation of studies performed within the two privately owned parcels that constitute the Teichert Boca Quarry Project Site, and within the current access road corridor and some public lands adjoining the Project Site (collectively, the "study area"). The study area is mostly undeveloped, but with an existing operating quarry located in the eastern part of the site, two access roads, and several structures. The predominant habitat type on the site is Jeffrey pine-antelope bitterbrush woodland, with extensive areas also of bitterbrush scrub, curl-leaf mountain mahogany woodland, and largely barren rock outcrop and talus. A pond and two other small patches of wetland vegetation are found in the extreme southern part of the site, all of which are supported by pumped irrigation water (artificial hydrology). No special-status plant species were found during the extensive floristic botanical surveys. One special-status wildlife species was observed a short distance outside the access road corridor (yellow warbler). Potential habitat for special-status species exists within the pond and small patches of riparian scrub, but not within the Ultimate Disturbed Area (mining operations area). Mule deer migrate through the project region and probably occupy it during part of the summer as well. Project impacts would include a less-than-significant, temporary impact on a minor deer migration route, but this route would continue to be a viable migration corridor. This impact would be remedied by post-project reclamation (part of the project description) into vegetation which includes common native species that are used by mule deer during migration. No impacts on special-status species, or any potentially significant biological resource impacts other than as noted above for deer, would be expected to result from expansion of the quarry.

SITE LOCATION AND SETTING

The study site location (Figure 1) is as follows:

Sections 26 and 27, T. 18 N, R. 17 E (USGS Boca and Martis Peak quadrangles)

Latitude North 39° 22'+ Longitude West 120° 3.4'

The elevation of the site varies from approximately 5,700 to 6,200 feet.

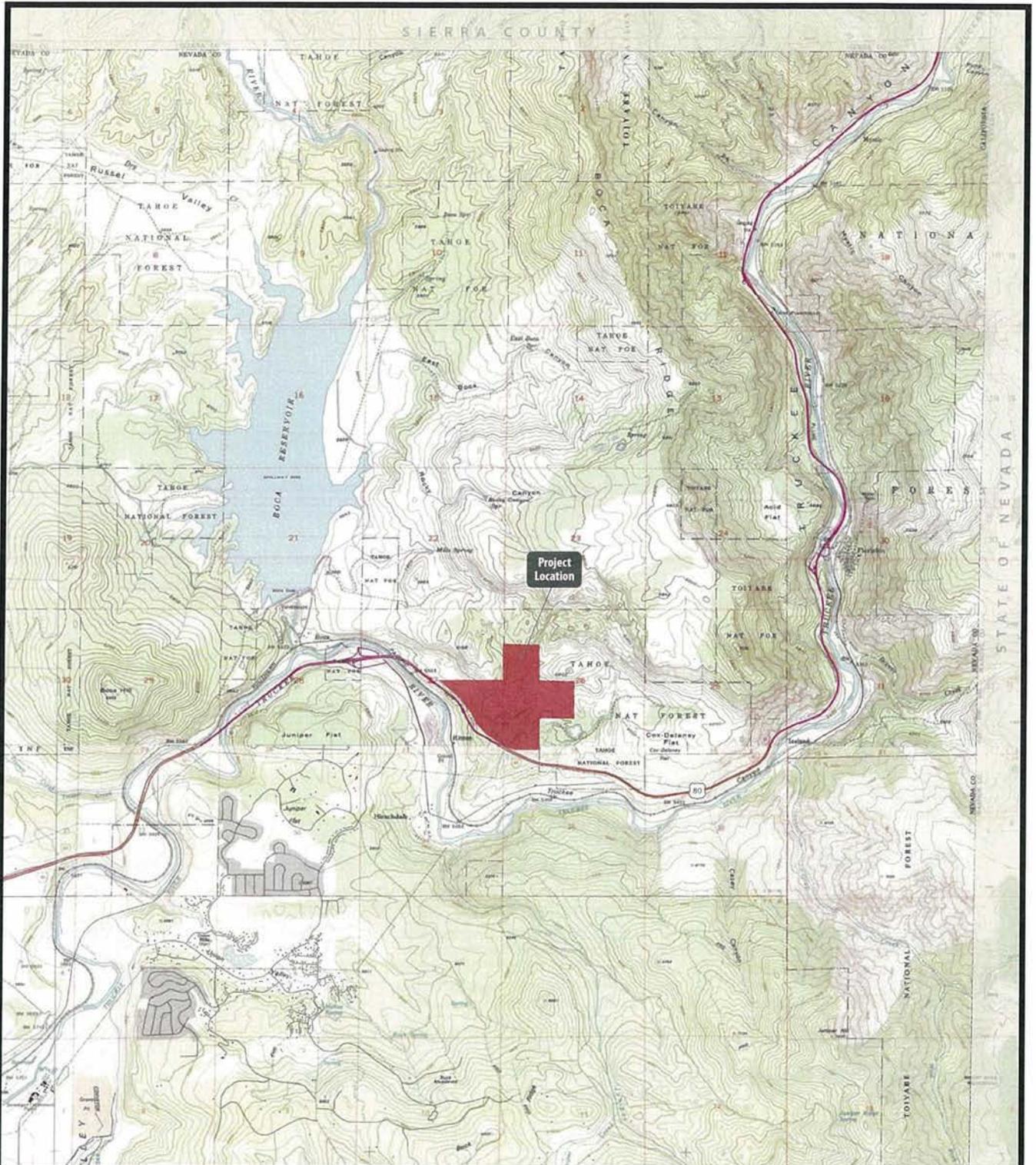
The Project Site is the 230-acre area of the two private parcels within which the proposed expansion of existing permitted mining operation will occur. The existing (East Pit) and proposed (West Pit) mining areas together are referred to as the Ultimate Disturbed Area. The "project region" is an imprecisely circumscribed region of the Sierra Nevada north of Lake Tahoe and east of Truckee. The "study area" means all areas observed in the course of the biological field surveys in all three years, including the Project Site, access road corridor, and some surrounding lands.

The regional habitat setting on most sides of the Project Site is undeveloped, with variable amounts of limited, localized disturbance. The existing Boca Quarry East Pit, approximately 40 acres of disturbance, is located within the Project Site. Interstate 80 and the Union Pacific railway adjoin the site on the southwest, with other development on the south side of the Truckee River.

The community names that are used in this study generally follow the alliances described in Sawyer, Keeler-Wolf, and Evens (2009), which is the official standard reference for California agencies. However, inclusive generalized names are used for the wetland communities. Where applicable, vegetation associations as named in CDFG (2006) or Sawyer et al. (2009) are used. (Alliance is the more inclusive vegetation category, associations are more finely subdivided.)

The site supports the following biological communities, in approximate order of coverage area:

- Jeffrey Pine-Antelope Bitterbrush Association
- Bitterbrush Scrub
- Curl-leaf Mountain Mahogany Woodland
- Jeffrey Pine/Mountain Mahogany Woodland
- Rock/Talus
- Freshwater Emergent Wetland
- Montane Riparian/Mesic Meadow
- Montane Riparian



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Teichert Boca Quarry

Figure 1: Project Location



Scale 1 : 63,360 (1 in = 1 mile)



HABITATS WITHIN THE WATERSHED

The Project Site lies in the Union Mills watershed as defined by the Nevada County Natural Resources Report (NCNRR). The site forms a small spur of this watershed surrounded on all sides by the Boca Reservoir and Cox-Delaney Flat watersheds. The 10,052-acre Union Mills watershed includes the following acreages of the habitat types that are relevant to this study:

Eastside Pine	3,506 acres
Eastside Scrub	1,294 acres
Montane Hardwood	182 acres
Barren	147 acres

Thus, the first two habitat types, which correspond to Jeffrey Pine/Bitterbrush and Bitterbrush Scrub types described for the Boca Quarry site in this report, cover nearly half of the watershed. These habitats cover an even greater proportion of the two adjoining watersheds. It is likely that the "Montane Hardwood" referred to for all three of these watersheds is actually mountain mahogany, a minor but common habitat type in the project region. The Project Site, as befits a site suitable for aggregate mining, includes a higher proportion of nearly unvegetated rock and talus (categorized as Barren by the NCNRR) than is found over the whole area of the watersheds surrounding the site. Curl-leaf Mountain Mahogany occurs only in the extreme eastern end of the County, east of Truckee, and is not described in the NCNRR. However, it is a community type that occurs commonly but usually in patches of relatively small area in very rocky sites in the eastside pine zone and transition to Great Basin scrub vegetation, and is included in Sawyer et al. (2009) as an alliance (albeit now described as shrubland rather than woodland; nevertheless, plants on the Boca Quarry site clearly qualify as small trees rather than shrubs).

METHODS

Background information on one or another portion of the study area and on regional biological resources in general was obtained from the NCNRR, CDFG (2008), California Natural Diversity Data Base (CDFG; 2009), California Native Plant Society Inventory (CNPS, 2001; on-line update also consulted), Kaufman (1996), JBR (2000), Kahre and Fowler (1982), and Sawyer et al. (2009).

Field surveys were carried out throughout the project impact area (Ultimate Disturbed Area), and at a lesser level of scrutiny throughout the remainder of the Project Site. Because many of the rockiest areas were nearly devoid of large vegetation, and because travel through some areas was extremely difficult, no attempt was made to follow linear transects during the botanical and general biological surveys. However, every effort was made to examine all settings where target

special-status plant species could possibly occur, and all spots that appeared from a distance to differ from the uniform surrounding scrub. Survey work was carried out by EcoSynthesis biologists Adrian Juncosa and Elizabeth Doherty, and by Sue Fox (Wildlife Resource Consultants).

All plant species observed throughout the study area were identified by sight or by reference to Hickman (1993), and were noted on a checklist of the local flora. Birds were identified by sight and/or vocalizations. Identifications and nomenclature follows that used in Sibley (2000). Mammals were identified by direct observation or by sign (scat, tracks, or characteristic burrows).

The site was studied on many occasions beginning on August 13, 2006, which is during the blooming time for the special-status plant species that are recorded from the project region and grow in habitats similar to any that occur on the site. Accordingly, the site surveys collectively constituted a comprehensive floristic rare plant survey within all habitat of the Ultimate Disturbed Area that is suitable for special-status plant species. Wetland areas, which would not be affected by the project, were not surveyed in detail for special-status species. Teichert reclamation specialist Barry Baba kindly provided a partial plant list for portions of the site that he had surveyed. Many of the species listed were also encountered during the EcoSynthesis surveys. Similarly, Teichert staff reported observations of a mountain lion on site, in the vicinity of the existing quarry operation. We did not observe this animal directly, but noted definitive sign on several occasions.

Additional surveys were carried out for deer sign along east-west transects, using a Garmin GPSMap60CSx GPS unit for orientation and to record locations of deer sign that was observed. Field notes were kept regarding whether the data point was a track, fresh scat, or (by default) aged. A total of about 40,000 ft of transects were walked, maintaining exact east-west lines at a spacing of 200 meters, even through dense shrub cover or difficult rocky terrain. This was essential in order to ensure that non-observance of scat represented its absence rather than the fact that an area was not studied. This constituted the most intensive empirical study of deer use that has been carried out for any environmental assessment effort in the eastern part of Nevada County at least within the last 20 years (perhaps the only one of this level of detail ever, up to the date of the present report).

Wetland habitat types were mapped on the basis of hydrophytic vegetation only. Other than noting the presence of surface water in irrigated features, no observations of soils or hydrology were made. Because the wetlands are irrigated, their jurisdictional status is uncertain, but no definitive regulatory judgments are provided in this report because no impacts on any wetland habitats is proposed.

SURVEY RESULTS

General Observations

Plant communities of the project site are depicted in Figure 2. Appendix A includes a list of vertebrates and plants that were observed. Several species merit individual comment. Most notable to most visitors to the site and staff who work on it is the resident mountain lion (*Felis concolor*), which has been observed repeatedly. Sign (fresh deer kill remnants, scat, and tracks) were seen in widely spaced locations, including right in the active quarry, throughout the summer and as late as early November. The tracks seen late in the season were of two sizes, indicating presence of a mother and young of the year. Whether the availability of surface water, the presence of excellent cover and den sites in the rock outcrops and dense vegetation, or the easy availability of prime prey items (mule deer) is the most important habitat element for this species cannot be stated, however, the animals are clearly well acclimated to human presence and mining operations.

An adult and juvenile golden eagle (*Aquila chrysaetos*) were observed flying over the site from west to east. These birds were seen only once in many days of field surveys. Although the golden eagle is not a special-status species, it is protected under the Eagle Protection Act (directed primarily at bald eagle). This species nests on cliffs or rarely (if no cliff is available) in large snags or trees with wide open branches, directly in view of large rivers or lakes. Eagle stick nest platforms often exceed six feet in diameter, thus are highly visible. There is no suitable golden eagle nest site at the Boca Quarry site, and no large stick nests were observed. Accordingly, we conclude that the eagles observed were not associated with a nest, nor were they foraging on the site, but instead were in transit.

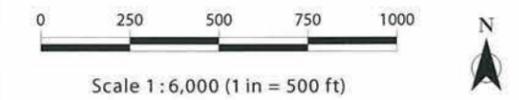
Two plant taxa that were observed are characteristic of desert and/or Great Basin habitats and, in the Truckee area, are not found very far west of the project site (although they are quite common further east): *Purshia tridentata* var. *glandulosa* and *Scrophularia desertorum*. The former is one of the dominant elements of the vegetation over most of the site, and the presence of these species is indicative that the ecological conditions of the site are very much those of arid eastside and even Great Basin conditions rather than the mixed coniferous Sierran vegetation that is the dominant type at higher elevations and further west. This is relevant to evaluating the potential for occurrence of special-status species that are characteristic of mixed coniferous landscapes.

From fire scars and charred stumps, it is clear that the entire site burned at some time in the relatively distant past (probably more than 40 or 50 years ago). The size of trees in areas where large standing dead (burned) individuals are present is indicative of the duration since that fire.

Soils of the site are predominantly Kyburz-Rock outcrop-Trojan complex in the pine and bitterbrush habitats, and Rock outcrop-Jorge complex in the mountain mahogany woodland. All soils on the site are very stony (skeletal or loamy-skeletal), with the Kyburz and Trojan soils having a slightly finer texture (sometimes even to the point of being sandy clay loam, or even pure

Teichert Boca Quarry

Figure 2: Biological Inventory Map



Legend

- Jeffrey Pine/Bitterbrush
- Bitterbrush Scrub
- Curl-leaf Mountain Mahogany Woodland
- Jeffrey Pine/Mountain Mahogany
- Montane Riparian
- Montane Riparian/Mesic Meadow
- Freshwater Emergent Wetland
- Rock/Talus
- Active Mine
- Pond
- Structure
- Irrigation Ditch
- Culvert

Notes

See text for description of mapping methods and habitat types.

All wetland vegetation types are supported by pumped water (artificial hydrology) and may or may not be jurisdictional.

Background topography, boundary, and aerial photograph provided by Teichert Aggregates.



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clay in the C horizon), and the Jorge soils being skeletal (rocky) sandy loam. All are slightly to moderately acid in the upper strata, becoming strongly acid lower in the profile. Topsoil is almost non-existent in many areas (absent in Rock outcrop), and moderately thick in the less steep Kyburz soils. These would be the primary target areas for salvage of reclamation soils. Many of the plants that are native to the site, especially those that provide the most useful browse for migrating or resident deer, are adapted to relatively low nitrogen soils (albeit sometimes with ample availability of other mineral nutrients), therefore application of fertilizers and/or compost in reclamation should be moderated to avoid favoring invasive non-native species.

Upland Habitats

Vegetation types that are found on the site are depicted in Figure 2.

JEFFREY PINE-ANTELOPE BITTERBRUSH ASSOCIATION

This is the most extensively distributed habitat in the project region, also known as Eastside Pine-Bitterbrush. It is one of the most common associations within the Jeffrey Pine Series (Sawyer and Keeler-Wolf, 1995). It is an open woodland to savannah habitat type, with a canopy dominated primarily by Jeffrey pine (*Pinus jeffreyi*), locally mixed with or even replaced by ponderosa pine (*P. ponderosa*) – obviously a quite different genotype of the latter than is prevalent in the lower elevations of the Sierra Nevada foothills. White fir (*Abies concolor*) is present, if at all, usually only as scattered seedlings or saplings, but a few sizeable trees (>18 inches dbh) of fir occur.

The shrub layer of this habitat is dominated almost everywhere by antelope bitterbrush (*Purshia tridentata*). The project site lies exactly in the transition zone between the more familiar var. *tridentata* of the eastern slopes of the Sierra Nevada, and var. *glandulosa* which is the typical bitterbrush of the Mojave desert, California desert mountains, and parts of the Great Basin. Other shrubs that occur commonly (although only occasionally to the level of co-dominance) include rabbitbrush (*Ericameria/Chrysothamnus nauseosus* and *viscidiflorus*), mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*), tobacco brush (*Ceanothus velutinus*), wax currant (*Ribes cereum*), and sometimes greenleaf manzanita (*Arctostaphylos patula*). Less commonly, blackcap raspberry (*Rubus leucodermis*) and species that are typical of other communities are found (Sierra cherry, curl-leaf mountain mahogany; see below). Notably, plants of Scouler's willow (*Salix scouleriana*) and patches of numerous blue elderberry (*Sambucus mexicana*) are found in places in the arid slopes.

The herbaceous layer is dominated by grasses such as squirreltail (*Elymus elymoides*) and one-sided bluegrass (*Poa secunda*), occasionally with substantial amounts of the invasive non-native annual cheatgrass (*Bromus tectorum*). The most common forbs in this habitat include *Penstemon deustus* (no widely used common name) and scorpion-weed (*Phacelia hastata*). Less steeply sloping habitat supports a slightly different herbaceous stratum, specifically with fewer grasses and characterized by the common presence of the dry site sedge *Carex rossii*.

BITTERBRUSH SCRUB (PURSHIA TRIDENTATA SHRUBLAND ALLIANCE)

This habitat type is very similar to the preceding one in structure and species composition, except that trees are very sparsely distributed or absent, or are small, so that the predominant character is scrubland rather than woodland (much less than 10 percent tree canopy cover). This is significant for general wildlife use and for determining appropriate reclamation goals. Because the entire site appears to have burned in a largely stand-replacing fire decades ago, but has naturally recovered with large trees and shrubs over most of the area, it is reasonable to conclude that the areas mapped as Bitterbrush Scrub are in fact sites that naturally do not support high density of tree cover.

CURL-LEAF MOUNTAIN MAHOGANY WOODLAND (CERCOCARPUS LEDIFOLIUS SHRUB-LAND ALLIANCE)

This habitat type occurs on steep rocky slopes and ridge crests, mostly in the northern part of the site within Rock outcrop/Jorge complex soils. The overwhelmingly dominant plant is curl-leaf mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*), with tree sizes sometimes exceeding 20 inches dbh (!). Numerous plants of all age classes, including recently established small seedlings through saplings, are found in and near this vegetation, so it appears to be a community that is stable over time and replaces itself in kind after severe fire. In places on rocky slopes and ravines, extensive patches of choke cherry (*Prunus virginiana* var. *demissa*) are present, and two patches within mapped mountain mahogany habitat are actually dominated by tobacco brush (*Ceanothus velutinus*). These were sufficiently small that a separate community map type was not warranted.

Mountain Mahogany Woodland occurs on more rocky sites than any other vegetation type found on the site; thus it intergrades with Rock/Talus and presumably differs primarily in that fissures in the rock have weathered to soil textures, and/or that sufficient soil particles have illuviated into rock fissures to hold enough moisture to support large plants. Mapping of the boundaries between these two map units was based upon what the predominant character of the color signature is in the aerial photograph.

PINE/MOUNTAIN MAHOGANY WOODLAND

This is an intermediate or mosaic habitat type, with a canopy dominated by emergent Jeffrey and ponderosa pine trees and subcanopy of mountain mahogany, but with relatively little bitterbrush, rabbitbrush, and sagebrush in the shrub understory. This association is sufficiently distinct from other vegetation types on site to merit separate recognition.

ROCK/TALUS

This habitat type was mapped where the vascular plant cover was absent or very low. Rocky and bouldery areas are often labeled as Barren (as in the NCNRR), but nevertheless provide some habitat values for both large and small wildlife (primarily in providing cover and den sites, as well as potential hibernation sites for large mammals). However, it is the nature of basalt rocks and cinder deposits not to contain deep caves which are suitable as hibernacula for small mammals such as bats (extensive lava tubes are not found on the site). Post-mining landscapes will likely include more or less extensive areas of exposed rock, talus, and rubble, so it is appropriate to recognize that this type of land surface coverage already occurs commonly and is even prevalent in some portions of the site under pre-disturbance conditions. This existing condition should be considered in the development and evaluation of reclamation plans for the site.

Wetlands/Riparian Areas

POND, IRRIGATION DITCH, AND FRESHWATER EMERGENT WETLANDS

On the Teichert Boca Quarry site, we did not find any undisturbed aquatic, wetland, or riparian habitat that is supported by natural hydrology (incident precipitation, runoff, or unaided seepage of groundwater). All of the surface water and associated habitats appear to be supported primarily or entirely by groundwater pumped from a small pump house in the southern part of the site, remote from the existing and proposed expanded quarry. The pumped water is discharged from a pipe into an irrigation ditch that flows into a small Freshwater Emergent Wetland, thence downhill in an additional segment of constructed ditch to a pond at the property boundary. The wetland is perennially wet and is dominated by Nebraska sedge (*Carex nebrascensis*), bulrush (*Scirpus microcarpus*), Baltic rush (*Juncus balticus*), and creeping spikerush (*Eleocharis macrostachya*). Similar vegetation occurs as bits of a very narrow fringe around portions of the pond (too narrow to map effectively at the scale of the inventory map).

MONTANE RIPARIAN HABITAT AND MOSAIC

Three small patches that include montane riparian species are found on the site, all of which appear also to be supported by artificial hydrology. One patch is a small aspen grove next to the pond. There is a presently unoccupied house not far from the pond, and these aspens (or their predecessors, from which the present trees root-sprouted) appear to have been planted as a landscaping amenity. Overflow from the pond passes under the entrance road in a culvert, which is the water supply for an even smaller patch of Montane Riparian habitat dominated by Lemmon's willow (*Salix lemmonii*) and shining willow (*S. lucida* ssp. *lasiandra*).

Finally, there is a marginally wet mosaic of mesic meadow with scattered willows (same species noted above). The meadow grades from non-wetland (blue wild-rye; *Elymus glaucus*, a non-wetland plant) into marginal wetland in the interior (mixture of blue and creeping wild-rye, Baltic

rush, Kentucky bluegrass [*Poa pratensis*], and *Aster eatonii*). When soils and hydrology are studied, mesic meadows with mixtures of marginally upland, facultative, and weakly hydrophytic plant species such as this often prove not to meet all three mandatory criteria and are therefore determined to be uplands. However, to be conservative, this area (which includes scattered wetland willows anyway) is mapped as a potential wetland community. As with the other aquatic and wetland features described above, the extent to which the vegetation is dependent upon artificial hydrology is undetermined.

As can be seen in the habitat map (Figure 2), the patches of woody riparian species are very small in areal extent and are not contiguous with more extensive riparian habitats off site. Almost all of the willow clumps are quite old and in poor condition, with very little recruitment of new plants. Based upon comparison with over 1,000 acres of woody riparian habitat in the Tahoe-Truckee region that we have studied in the last 19 years, the overall habitat values of the riparian vegetation on the Boca Quarry site would be judged to be very low.

NON-WETLAND WATERS OF THE UNITED STATES

All of the larger concave (ravine-form) topographic features on the site were examined for signs of frequent surface flow or other indicators that are typical of intermittent tributaries that fall under State or federal jurisdiction (Lichvar and McColley, 2008). In particular, a short segment of dashed blue line on the USGS map was examined over its entire length. No jurisdictional indicators were observed in this or any other ravine.

JURISDICTIONAL STATUS

Functional wetlands that are supported solely by pumped or actively diverted irrigation water (requiring human intervention to open and close diversion gates) are excluded from federal jurisdiction (Environmental Laboratory, 1987). Field observation shows clearly that this is the case for the Boca Quarry site wetlands. However, in order to verify this determination, Corps of Engineers staff suggest or sometimes require that the irrigation water be discontinued for one or more seasons before making a final determination.

Accordingly, the Freshwater Emergent Wetland, Montane Riparian, Mesic Meadow, and Pond areas are mapped tentatively as wetland or aquatic resources present on site, with the understanding that their jurisdictional status and therefore permanence is uncertain.

Special-status Species

The Boca Quarry project site lies on the boundary of the Boca and Martis Peak quadrangles. The CNDDB special-status species records for these two quadrangles, and including similar

habitats a few miles into the two quadrangles to the west, include the wildlife and plant species listed in Table 1.

The data base was also queried for occurrences throughout the two quadrangles to the west (Truckee and Hobart Mills). Several additional species are recorded from those two quadrangles, from sites further than five miles from the Boca Quarry and from habitat types that do not occur on the present project site. For example, the element list for Hobart Mills includes many records from Sagehen Creek, fens, springs, and other very wet natural habitats in the vicinity of the University of California field station. Because the habitats from which these occurrences are recorded do

Scientific Name	Common Name	Status
<i>Wildlife</i>		<i>Federal/State</i>
<i>Accipiter gentilis</i>	northern goshawk	SC/SC
<i>Aplodontia rufa californica</i>	mountain beaver	SC/SC
<i>Empidonax traillii</i>	willow flycatcher	SC/E
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted/E
<i>Onchorhynchus clarkii henshawi</i>	Lahontan cutthroat trout	T/-
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog	C/SC
<i>Plants</i>		<i>Federal/State/CNPS</i>
<i>Arabis rigidissima</i> var. <i>demota</i>	Carson Range rock cress	-/-1B
<i>Botrychium minganense</i>	mingan moonwort	-/-2
<i>Ivesia sericoleuca</i>	Plumas ivesia	-/-1B
<i>Juncus luciensis</i>	Santa Lucia dwarf rush	-/-1B

Status definitions (Federal status/State status/California Native Plant Society [CNPS] list):

E or T, listed as endangered or threatened under state or federal Endangered Species Act;

C, candidate for listing as endangered or threatened;

BCC, bird species of conservation concern (FWS)

SC, species of concern (Sacramento FWS) or species of special concern (California DFG);

List 1B, considered rare, threatened or endangered by CNPS and normally regarded by DFG as meriting consideration under CEQA Guideline 15380; List 2, rare, threatened, or endangered in California but more common elsewhere; List 3, plants about which insufficient information is known; List 4, plants of limited distribution (watch list).

Table 1: Special-status species recorded in the CNDDDB as occurring in the Boca and Martis Peak quadrangles. Species that are state- or federally listed as threatened or endangered are shown in bold type.

not occur within the Boca Quarry project site, these records are not relevant to impact analysis for the project and are not discussed further.

In 2007, additional biological background information review and field study were carried out to support environmental assessment of improvement and use of the the access road which is located on U.S. Forest Service lands. In addition to the species considered for the present biological inventory, we also considered the potential for impacts upon 34 additional Tahoe National Forest "sensitive" species and determined that, in nearly all cases, there was no potential occurrence of the species within the Ultimate Disturbed Area. In a few cases, foraging habitat is present, but neither breeding nor winter roosting habitat is present.

WILDLIFE

Northern goshawk nests in high-canopy cover conifer forests, preferably in large-diameter nest trees (>30 inches dbh) on north slopes near water courses or aspen groves. Although large pine trees do occur on the Boca Quarry site, the canopy cover is much lower than is suitable for nesting in the northern Sierra Nevada. Further east, goshawks are known to nest in aspen and/or cottonwood stringers along creeks (usually perennial or long-seasonal) in sagebrush scrub landscapes. However, this potential nesting situation also does not occur on the Boca Quarry site. Accordingly, notwithstanding the presence of individual conifer trees of sufficient size to be selected for nesting by northern goshawk, the site as a whole does not provide suitable nesting or foraging habitat for this species. The nearest known nesting territories are one in Sierra County (four or more miles north), two others in rich mixed conifer habitat near Martis Peak (about six miles to the south), and another in Prosser Creek (about seven miles to the west). None of these sites is sufficiently near to the project site that it could be providing potential foraging habitat for northern goshawks that are nesting in any of the known suitable habitat in eastern Nevada County. Finally, the field judgment of Ms. Fox of Wildlife Resource Consultants, an individual with very extensive survey experience with northern goshawk, was that the habitat within the Project Site is not suitable for this species.

Mountain beaver is a phylogenetically isolated species, not closely related to the familiar beaver, *Castor canadensis*. The nearest occurrences are in Juniper and Mystic Creeks, tributaries on the south side of the Truckee River. This species is dependent upon very wet riparian habitat in the immediate vicinity of perennial flowing water or year-round springs with obligate wetland forbs for food, and soft organic-rich, non-rocky soil for burrowing. No occurrences are known anywhere but along perennial streams in the region. No suitable habitat for mountain beaver occurs on the Boca Quarry site (even around the pond), and no sign of presence of the species was seen.

Willow flycatcher nests in willow patches in extensive wet meadows, usually with open water present within the home range throughout the nesting season (early to mid-summer). The mesic meadow habitat on the Boca Quarry site is much too small in area and not nearly wet enough to

support a nesting pair, therefore there is no potential nesting habitat for willow flycatcher on the site. In any event, no wetland or riparian areas lie within the Ultimate Disturbed Area, therefore no possibility of occurrence of this species within the project impact area.

Bald eagle nesting habitat is located in Stampede Reservoir and the north end of Boca Reservoir; successful fledging has been documented several times in the 1990s alone. This species requires large snags or trees with open, large branches, located adjacent to large bodies of water. The birds range far along the Truckee River while foraging for fish and/or waterfowl. Although bald eagles no doubt pass close by the Boca Quarry site from time to time, they do not utilize coniferous forest or dry scrub habitats for any purpose, therefore there is no habitat on the site that is suitable for use by this species.

Lahontan cutthroat trout inhabit perennial streams and rivers, none of which occur on the Boca Quarry site. There is no habitat for any trout species within the site.

Sierra Nevada yellow-legged frog inhabits perennial water and is always found within a few feet of it, unlike certain other *Rana* species in California, which may range far across dry land during parts of the year. Most occurrences are in pools in perennial streams (the nearest being in Gray Creek, about three miles from the edge of the Boca Quarry site). However, Sierra Nevada yellow-legged frog also lives and breeds in isolated bodies of water such as small ponds and high elevation lakes. Accordingly, although the likelihood that this species might have dispersed to the pond on the quarry site is very low, the habitat in it is potentially suitable for Sierra Nevada yellow-legged frog.

PLANTS

Carson Range rock cress grows in rocky volcanic soils in somewhat open habitat within coniferous forest, in particular in unpaved roads that are not heavily used, or other similar post-disturbance situations. Although the Boca Quarry site is quite distant from the known populations (south and southeast of Martis Peak) and in a substantially more arid and lower-elevation setting, some habitat on the site is theoretically, if marginally, suitable for Carson Range rock cress. Accordingly, plant survey work specifically targeted the genus *Arabis*, which is easily seen (usually more than a foot tall) and recognized by its distinctive fruits. Only one species of the genus was found, *A. holboellii* var. *pinetorum*, which has fruits that are oriented backward toward the base of the plant, as opposed to the ascending or divergent fruits of *A. rigidissima* (same for both varieties of this species). Thus, we are very confident in the determination that *A. rigidissima* var. *demota* does not occur on the Boca Quarry site.

Mingan moonwort is a primitive fern that grows along streams in lower montane coniferous forest. Although the wetland and poor quality riparian habitat that is found on the Boca Quarry

site is theoretically suitable in the most general terms, in reality, the diverse natural streamside wetlands that species of moonworts require are not at all similar to the low-diversity irrigation-supported wetlands of the quarry site. I would judge that there is no likelihood that this species occurs in the wetlands on the Boca Quarry site, however, it is marginally possible. If changes in project plans entail direct alteration of the wetland habitats, additional survey work during the early summer would be needed to make a definitive presence or absence determination.

Plumas ivesia is found in many locations in the vicinity of Truckee. Its habitat is stony flats just outside jurisdictional wet meadows. It grows only on level or nearly level ground, often in association with low sagebrush (*Artemisia arbuscula*), where the soil is vernal quite moist but becomes very dry early in the summertime (hence, typically not quite supporting hydrophytic vegetation or having hydric soils). All known occurrences are in wide, flat floodplains of intermittent tributaries. This habitat type does not occur on the Boca Quarry site, where the very few areas of flat topography have some of the most loamy soils found within the parcel. Using the excellent topographic mapping provided by Teichert Aggregates, we navigated to and examined all of the small flat areas, and in no case did we find any species of *Ivesia* nor the expanses of low sagebrush and other distinctive associates of *Plumas ivesia* (*Danthonia*, *Antennaria*, and other species of vernal moist upland flats). Based upon having comprehensively surveyed all potentially suitable topography during the summertime (perfect season to find and identify ivesia species), we conclude that *Plumas ivesia* is not present on the site.

Santa Lucia dwarf rush is a tiny annual rush with hairlike stems, which occurs only in vernal wet situations without taller competing vegetation (such as streamside sands and vernal pools). The only occurrence within Nevada County that is recorded in the CNDDDB is in Martis Valley, about six miles southwest of the Project Site in a completely different landscape and microhabitat situation than occurs anywhere within the Project Site. No wetland habitat occurs within the Ultimate Disturbed Area, and the wetlands that do occur elsewhere within the site are not suitable for this species.

Donner Pass buckwheat (*Eriogonum umbellatum* var. *torreyanum*) is a CNPS List 1B plant that grows in exposed sites on rocky ridges and slopes, composed of soils derived from a very specific type of volcanic rock parent material. It is found in several sites from north of Castle Peak through the Sierra crest near Squaw Valley. Although this plant has not yet been recorded from the Boca or Martis Peak quadrangles, the habitat of the northern and higher elevation portion of the Boca Quarry site seems superficially suitable, therefore this plant was specifically targeted by the plant survey work throughout all potential mining expansion areas. Despite comprehensive survey work throughout the maximum potential extent of mining area on the site, as well as most of the exposed rocky areas outside that area, we found only a few plants of the common, widespread variety *E. umbellatum* var. *nevadense*, and none of var. *torreyanum*, which we conclude does not occur on the Teichert Boca Quarry site.

In summary, no special status plant species occurs on the site, and the only suitable habitat for special-status wildlife species is found in the freshwater emergent wetland and pond.

Other Biological Resources

LANDMARK OAK TREES OR GROVES

There are no oak trees of any kind on the site, thus, no landmark oak trees or groves. Although a few of the Jeffrey pine trees attain sizes exceeding 30 inches dbh, such trees are common throughout the northern Sierra Nevada and there is no landmark designation for conifers in Nevada County.

DEER HABITAT

The Loyalton-Truckee mule deer herd occupies summer range and fawning habitats in montane coniferous forest to the south and west of the Boca Quarry location, and migrates to winter range at lower elevations to the north and east via several corridors east and north of Truckee (Kahre and Fowler, 1982; report and management plan prepared for California Department of Fish and Game).

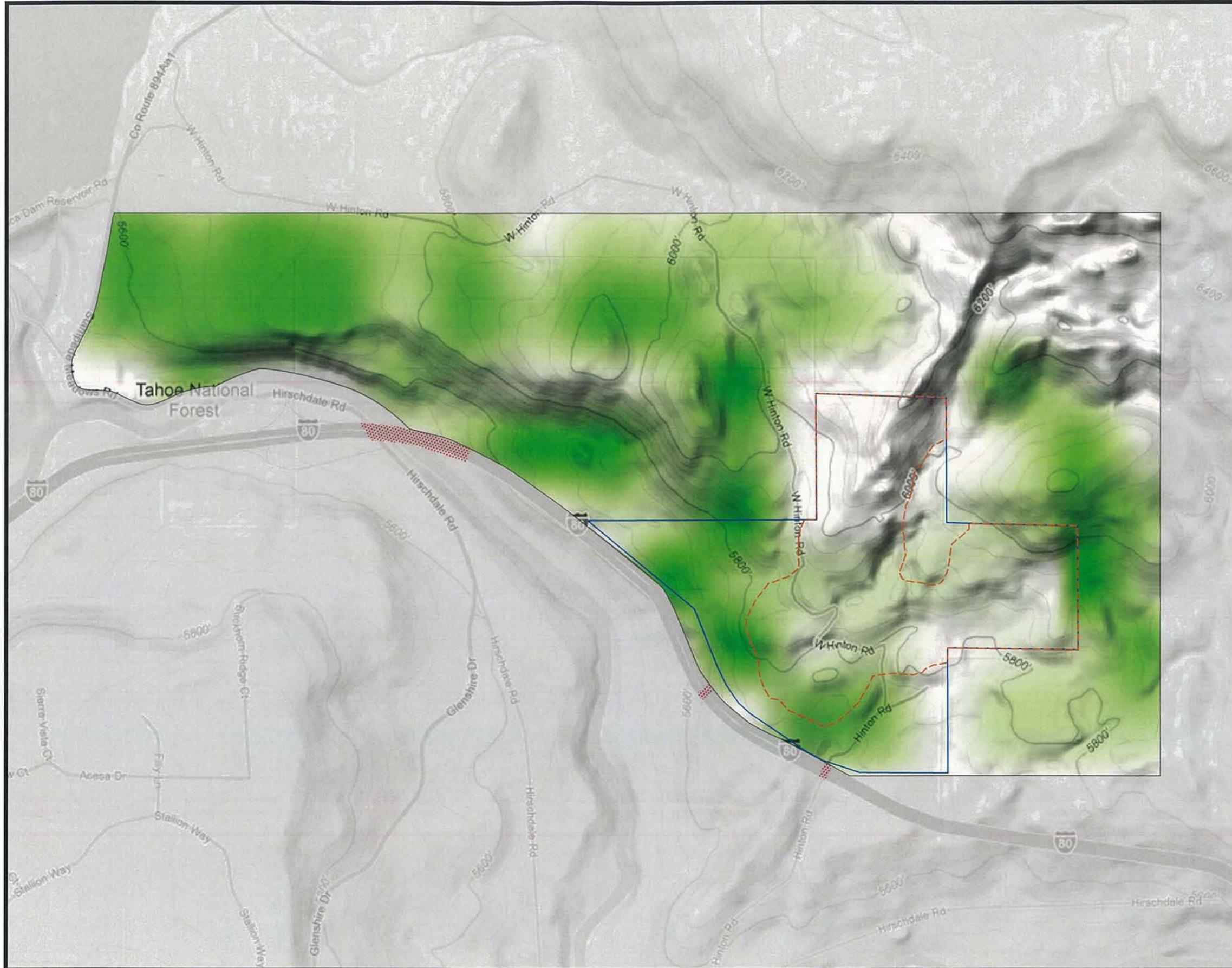
No critical summer range is mapped within at least 13 miles of the site (which is as far as the map available from DFG extends). The nearest critical fawning habitat is mapped near the misnamed Dry Lake, across the Truckee River and about three miles south of the site; additional fawning areas are shown in the Sagehen Hills and in the vicinity of Northstar, both eight or more miles away from the site. The low vegetation cover found on the Boca Quarry site is poorly suited or completely unsuitable for fawning and does not provide a desirable food source for young fawns (Smith, 1983). Thus, although there is some summertime mule deer use of the Boca Quarry site (as is the case for nearly all of the montane zone of the northern Sierra Nevada), and sign of such use was observed throughout the vegetated parts of the site, there is no critical summer habitat resource for this species on or near the site. In any case, the abundance of deer sign and presence of resident mountain lion (for which deer are the primary food source) indicate that the current mining operation causes little or no deterrence to use of the site by deer either during the summer or for migration.

One of the two major migration corridors mapped by Kahle and Fowler (1982) passes by the Boca Quarry on the east. A significant amount of deer movement also appears to pass some distance to the west, where . As noted above, the current operation does not deter deer use of the site, and even Interstate 80, the railroad, the steep craggy slopes of the Truckee Canyon, and the Truckee River do not impede migration through this general area.

However, we did not rely solely on reference materials, but instead carried out an extension of the only empirical field study of actual current deer usage that has been carried out

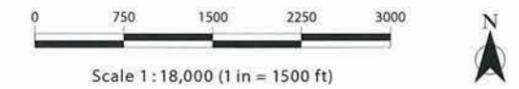
anywhere in the region in the last 15 years at least (perhaps the only one ever). Using a GPS device for orientation and to record points of deer sign, over 40,000 ft of parallel transects were surveyed in and around the Boca Quarry during late spring of 2009, after the annual migration to higher elevations, where fawns are born in late June. Although the data points were necessarily points, and not dynamic representations of animal movement, a graphical representation of likely deer activity was developed by creating a color halo around each data point, with the additive color density thus being indicative of the intensity of deer usage based upon the field data.

The results are shown in Figure 3. It shows clearly that deer usage of the vast majority of the Ultimate Disturbed Area is nearly zero, which is hardly surprising because the site is desirable for mining for exactly the same reasons that it is undesirable to deer: it is steep and very rocky, with relatively sparse vegetation cover compared with that found on all sides of the Ultimate Disturbed Area. Heavier deer use is concentrated just to the east, and far to the west, of the mining area. Some moderate use occurs just at the southwestern edge of the project. These patterns of deer use also are affected by the fact that, in the project area, they are only able to cross I-80 through two small underpasses and one 2,000-foot highway segment that is raised on piers above the river and railroad. Nevertheless, once across the river and highway, the deer would follow the most suitable foraging and migratory routes, which do not include the Ultimate Disturbed Area. The proposed project will not impede deer migration either through any of the existing routes under the highway or through the undeveloped lands to the north.



**Teichert Aggregates
Boca Quarry**

Figure 3. Regional Mule Deer Use



Legend

-  Project Site Boundary
-  Project Impact Area
-  Deer sign observed
-  Mule deer passages under I-80

Notes

Color indicates field observations of deer use (tracks and/or scat) in June 2009; greater intensity of color indicates greater density of deer sign.

See text for description of field and graphic methods.

Passages under I-80 are not exactly to scale; the two smaller ones near the Project Site are underpasses 20 feet wide or less. The central underpass (near 5,600 contour label) was constructed specifically to facilitate deer passage and is well used by migratory deer. The Hinton Road underpass is much less used.

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PROJECT DESCRIPTION

The project is to expand the existing permitted quarry. The project design avoids the artificially created and supported wetland habitats by distances that are greater than 100 feet. Accordingly, impacts on these resources are not identified in this assessment.

IMPACT ASSESSMENT AND MITIGATION

One specific biological resource impact could result from the project: temporary degradation or fragmentation of habitat used for mule deer migration.

As noted above in the discussion of mule deer habitat, the project will not affect any mapped major migration corridor, critical summer range, critical fawning area, or critical winter range. Thus, the threshold for a significant impact under CEQA and County General Plan policy is not met. In the context of the great expanses of almost entirely undisturbed habitat surrounding the site on all sides except for the southwest (Interstate 80), the impact is not significant on a project-specific basis, but would at least contribute to cumulative regional loss of the integrity of previously undisturbed migratory corridors (whether major, minor, or unmapped). In the case of most of the regional mule deer habitat loss due to development projects, the impact upon migratory corridors is permanent and extends the year-round presence of humans, off-road vehicles, and dogs into areas where they are rare or non-existent at present; these projects should properly entail a corresponding level of mitigation. However, in the case of the present project, the impact is more limited because site access is controlled and is temporary because the site will be reclaimed into vegetation suitable for the pre-mining land uses (including mule deer use).

Recommended Mitigation Measures

The following mitigation measure is recommended, to reduce the impact to the lowest level that is practicable (whether considered on a project-specific or a cumulative basis):

Reclamation planning objectives and specifications should include revegetation with species known to be used as browse or herbaceous forage by migrating or summer-resident mule deer.

The responsible party for this mitigation would be the project owner.

If the impact is judged to be cumulative (or both project-specific and cumulative), the following possible measures should be considered:

Temporary conservation easements should be sought, or project approvals

staggered, so that habitat that adjoins the Boca Quarry site on both sides is not all rendered unsuitable for deer migration simultaneously. Once the mining operation is completed and the site reclaimed as suitable for wildlife use as specified above, the opportunity for deer migration through the present project site would return and the easement(s) or other measures would terminate.

The responsible party for implementation of mitigation measures for cumulative impacts is the jurisdiction, in this case Nevada County, possibly with other cooperating parties.

REGULATORY CONSISTENCY

General Plan and Zoning Ordinance

Consistency with the policies of the Nevada County General Plan that pertain to biological resources is achieved through compliance with the specific sections of the Zoning Ordinance (which are applicable both to development projects and Use Permits) as enumerated below. The project's compliance with each section is discussed.

§ L-II 4.3.7 (Deer Habitat, Major)

Although the project will not affect areas designated as major deer migration corridors or other critical habitat, there is a less than significant temporary impact on mule deer, which can be further reduced by the mitigation measures suggested above.

§ L-II 4.3.12 (Rare, Threatened, and Endangered Species and Their Habitat)

The site inventory showed that no special-status species are present within impact areas, therefore there will be no impact on such species from the project and it is consistent with this section.

§ L-II 4.3.15 (Trees)

No landmark oak or other hardwood trees are present on the site (or anywhere in eastern Nevada County), therefore the project is consistent with this section.

§ L-II 4.3.17 (Watercourses, Wetlands, and Riparian Areas)

No grading, fill, or other alteration of any natural or artificial wetlands or other waters is proposed to occur as part of the project, therefore it is consistent with this section.

Other Applicable Regulations

CALIFORNIA FISH AND GAME CODE (FGC)

Various sections of the FGC prohibit take of protected species. Fully protected species are included in the CNDDDB and are properly treated as special-status species in CEQA analysis. Such species do not occur on the study site, therefore these sections are not applicable to the project.

Section 3503.5 prohibits take or possession of raptors, owls, or the destruction of eggs or occupied nests during the nesting season. Although a targeted raptor nest survey was not included in the biological inventory, no large stick nests were observed. Measures that could be taken to preclude potential impacts on raptor nests are the same as for nesting birds generally and are discussed below.

MIGRATORY BIRD TREATY ACT (MBTA)

Loss of limited numbers of common species of plants or animals is not a significant impact under current CEQA guidelines pertaining to biological resources. However, the MBTA and FGC §3513 prohibit take of migratory birds, which is defined to include destruction of active nests (presumed to contain eggs or nestlings). Compliance with the MBTA requires that no removal of nesting habitat occur during the nesting season without a survey that confirms that no occupied nests are present, or requires contingent mitigation if nests are present. In the case of tall coniferous trees, it is time-consuming to ensure that small bird nests high in the canopy can be found by a survey carried out from the ground. Thus, in coniferous habitat with trees >24 inches dbh, removal should preferably occur outside the nesting season.

In eastern Nevada County, the nesting season for raptors and owls extends from sometime in the late winter (possibly as early as January in the case of great horned owl) through mid-August. Smaller migratory birds begin nesting in May or June and may continue to occupy nests until as late as August 15. Thus, tree removal and soil salvage should preferably occur between August 15 and January 15, otherwise a nesting bird survey may be needed to ensure compliance with the MBTA. Between January 15 and May 1, survey for great horned owl only; if vegetation removal or new ground surface disturbance are to occur between May 1 and August 15, nesting bird surveys are usually prescribed to occur not less than 14 days nor more than 30 days prior to potentially nest-destroying activities. There is no resource-protection reason for surveys not to occur as little as 7 days prior to the activities. Nesting surveys for small birds are only fully effective if carried out between dawn and 11 AM; many species become inactive during mid-day.

Survey work, if determined to be necessary, should cover all habitat within 100 feet of vegetation removal or ground disturbance, or within 300 feet in the case of raptor/owl survey. In the event that active nests are identified, temporary non-disturbance zones should be the same width as

the survey buffer (100-1,000 feet, depending upon the species that is discovered), and a revisit by the biologist, with confirmed observations of fledglings in the nest vicinity, would be required prior to vegetation removal or soil disturbance. Alternatively, tree removal or soil salvage could be delayed until past August 15.

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Appendix A:

**Species Observed on
Teichert Boca Quarry Site**

APPENDIX A: Species observed on the study site

Wildlife is listed first, roughly according to phylogenetic sequence within groups (birds, mammals). Plant species are listed by major groups, then alphabetically by family. Nomenclature follows Hickman (1993). Survey dates began in August 2006 (suitable season for surveying for target special-status species). However, some early spring ephemeral annuals would no longer be present at this time. Therefore, this is not a complete plant species list for the site. Some species that were observed by Teichert staff (in particular in disturbed areas near active quarry), but not encountered by EcoSynthesis, are included.

Scientific Name	Common Name	Notes
<i>AVES</i>		
<i>BIRDS</i>		
<i>Aquila chrysaetos</i>	golden eagle	Observed in transit over site.
<i>Columba livia</i>	rock dove (pigeon)	
<i>Colaptes auratus</i>	northern flicker	
<i>Contopus sordidulus</i>	western wood-pewee	
<i>Cyanocitta stelleri</i>	Steller's jay	
<i>Nucifraga columbiana</i>	Clark's nutcracker	
<i>Corvus corax</i>	common raven	
<i>Parus gambeli</i>	mountain chickadee	
<i>Turdus migratorius</i>	American robin	
<i>Pipilo maculatus</i>	spotted towhee	
<i>Junco hyemalis</i>	dark-eyed junco	
<i>Regulus calendula</i>	ruby-crowned kinglet	
<i>MAMMALIA</i>		
<i>MAMMALS</i>		
<i>Ursus americanus</i>	bear	Sign observed
<i>Canis latrans</i>	coyote	
<i>Felis concolor</i>	mountain lion	Sign observed; adult observed by Teichert staff
<i>Callospermophilus lateralis</i>	Sierra Nevada golden-mantled ground squirrel	

Scientific Name	Common Name	Notes
<i>Eutamias minimus</i>	chipmunk	
<i>Tamiasciurus douglasii</i>	chickaree	
<i>Thomomys</i> (probably <i>monticola</i>)	mountain pocket gopher	
<i>Sylvilagus</i> sp.	cottontail or pygmy rabbit	Could not verify species
<i>Odocoileus hemionus</i>	mule deer	
CRYPTOGAMS	SPORE-FORMING PLANTS	
Equisetaceae	Horsetail Family	
<i>Equisetum laevigatum</i>	smooth scouring rush	
GYMNOSPERMS	CONIFERS	
Cupressaceae	Cypress Family	
<i>Juniperus occidentalis</i>	western juniper (red cedar)	Very few trees.
Pinaceae	Pine Family	
<i>Abies concolor</i>	white fir	
<i>Pinus jeffreyi</i>	Jeffrey pine	
<i>Pinus ponderosa</i>	ponderosa pine	Needing confirmation
ANGIOSPERMS-DICOTYLEDONS	FLOWERING PLANTS	
Apiaceae	Carrot Family	
<i>Lomatium nevadense</i> var. <i>parishii</i>		
Apocynaceae	Dogbane Family	
<i>Apocynum androsaemifolium</i>	dogbane	
Asteraceae (Compositae)	Sunflower Family	
<i>Achillea millefolium</i>	yarrow	
<i>Anaphalis margaritacea</i>	pearly everlasting	
<i>Artemisia ludoviciana</i>	silver wormwood	
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	mountain sagebrush	
<i>Aster eatonii</i>	aster	
<i>Carduus nutans</i>	musk thistle	Invasive; few plants along access road (not within Site)
<i>Chaenactis douglasii</i> var. <i>douglasii</i>	dusty maidens	

Scientific Name	Common Name	Notes
<i>Cirsium vulgare</i>	common (bull) thistle	
<i>Cirsium</i> sp.	thistle	<i>C. andersonii</i> or <i>canovirens</i>
<i>Ericameria (Chrysothamnus) nauseosus</i>	rubber rabbitbrush	
<i>Ericameria (Chrysothamnus) viscidiflorus</i>	rabbitbrush	
<i>Ericameria</i> sp.	goldenbush	
<i>Gnaphalium canescens</i> ssp. <i>thermale</i>	cudweed	
<i>Lactuca serriola</i>	prickly lettuce	
<i>Machaeranthera canescens</i>		
<i>Madia glomerata</i>	tarweed	
<i>Solidago canadensis</i>	goldenrod	
<i>Sonchus</i> sp.	cow thistle	
<i>Tanacetum parthenium</i>	tansy	
<i>Tragopogon dubius</i>	salsify	
Boraginaceae	Borage Family	
<i>Cryptantha affinis</i>	cryptantha	
<i>Cryptantha echinella</i>	hedgehog cryptantha	
<i>Cryptantha torreyana</i>	Torrey's cryptantha	
Brassicaceae (Cruciferae)	Mustard Family	
<i>Arabis holboellii</i> var. <i>pinetorum</i>	Holboell's rock-cress	
<i>Hesperis matronalis</i>	dame's rocket	
<i>Lepidium densiflorum</i>	peppergrass	
<i>Lepidium virginicum</i> var. <i>pubescens</i>	peppergrass	
<i>Sisymbrium altissimum</i>	tumble mustard	
Caprifoliaceae	Honeysuckle Family	
<i>Sambucus mexicana</i>	blue elderberry	
<i>Symphoricarpos mollis</i>	snowberry	
Chenopodiaceae	Goosefoot Family	
<i>Chenopodium album</i>	lamb's quarters	

Scientific Name	Common Name	Notes
<i>Chenopodium botrys</i>	Jerusalem oak	
<i>Salsola tragus (pestifer)</i>	tumbleweed, Russian thistle	Invasive; few plants
Ericaceae	Heath Family	
<i>Arctostaphylos patula</i>	greenleaf manzanita	
<i>Pterospora andromedea</i>	pine drops	
<i>Pyrola picta</i>	wintergreen	
Fabaceae	Legume Family	
<i>Astragalus purshii var. pictus</i>	locoweed	
<i>Lotus corniculatus</i>	bird-foot trefoil	
<i>Lotus purshianus</i>	lotus	
<i>Lupinus argenteus</i>	silver lupine	
<i>Lupinus lepidus</i>	dwarf lupine	
<i>Melilotus alba</i>	sweet-clover	
<i>Vicia americana ssp. americana</i>	American vetch	
Fagaceae	Oak Family	
<i>Chrysolepis sempervirens</i>	bush chinquapin	
Grossulariaceae	Gooseberry Family	
<i>Ribes cereum</i>	wax currant	
<i>Ribes inerme</i>	currant	
<i>Ribes roezlii</i>	Sierra gooseberry	
Hydrophyllaceae	Waterleaf Family	
<i>Phacelia hastata ssp. hastata</i>	silver-leaf scorpion-weed	
<i>Phacelia humilis</i>	scorpion-weed	
Lamiaceae	Mint Family	
<i>Marrubium vulgare</i>	horehound	
Loasaceae	Loasa Family	
<i>Mentzelia albicaulis/dispersa</i>	stickleaf	
<i>Mentzelia laevicaulis</i>	blazing star	

Scientific Name	Common Name	Notes
Onagraceae	Evening Primrose Family	
<i>Epilobium brachycarpum</i>	willow herb	
<i>Gayophytum diffusum</i> ssp. <i>parviflorum</i>	gayophytum	
<i>Ludwigia</i> sp.	water primrose	
Polemoniaceae	Phlox Family	
<i>Gilia leptalea</i> ssp. <i>bicolor</i>	thread gilia	
<i>Navarretia</i> sp. (<i>leucocephala</i> or <i>inter-texta</i> var. <i>propinqua</i>)		
Polygonaceae	Buckwheat Family	
<i>Eriogonum nudum</i> var. <i>nudum</i>	buckwheat	
<i>Eriogonum umbellatum</i> var. <i>nevadense</i>	sulfur buckwheat	
<i>Polygonum arenastrum</i>	common knotweed	
<i>Polygonum douglasii</i> var. <i>douglasii</i>	Douglas's knotweed	
<i>Rumex crispus</i>	curly dock	
<i>Rumex salicifolius</i>	willow dock	
Rhamnaceae	Buckthorn Family	
<i>Ceanothus prostratus</i>	Mahala carpet	
<i>Ceanothus velutinus</i>	tobacco brush	
Rosaceae	Rose Family	
<i>Amelanchier utahensis</i>	serviceberry	
<i>Cercocarpus ledifolius</i> var. <i>intermontanus</i>	curl-leaf mountain mahogany	
<i>Potentilla glandulosa</i>	cinquefoil	
<i>Prunus emarginata</i>	Sierra (bitter) cherry	
<i>Prunus virginiana</i> var. <i>demissa</i>	choke cherry	
<i>Purshia tridentata</i> var. <i>glandulosa</i>	bitterbrush; antelope bush	
<i>Purshia tridentata</i> var. <i>tridentata</i>	bitterbrush; antelope bush	
<i>Rosa woodsii</i> var. <i>ultramontana</i>	interior rose	
<i>Rubus leucodermis</i>	blackcap raspberry	

Scientific Name	Common Name	Notes
Rubiaceae	Madder Family	
<i>Kelloggia galioides</i>		
Salicaceae	Willow Family	
<i>Populus tremuloides</i>	quaking aspen	Probably planted
<i>Salix lemmonii</i>	Lemmon's willow	
<i>Salix lucida</i> var. <i>lasiandra</i>	shining willow	
<i>Salix scouleriana</i>	Scouler's willow	
Scrophulariaceae	Figwort Family	
<i>Keckiella lemmonii</i>		
<i>Mimulus torreyi</i>	Torrey's monkeyflower	
<i>Penstemon deustus</i>	penstemon	
<i>Penstemon speciosus</i>	showy penstemon	
<i>Scrophularia desertorum</i>	desert figwort	
<i>Verbascum thapsus</i>	woolly mullein	
<i>Veronica americana</i> or <i>anagallis-aquat-ica</i>	speedwell	
Solanaceae	Nightshade Family	
<i>Nicotiana attenuata</i>	coyote tobacco	
<i>Solanum triflorum</i>	nightshade	
Urticaceae	Nettle Family	
<i>Urtica dioica</i> ssp. <i>holosericea</i>	stinging nettle	
ANGIOSPERMS-MONOCOTYLEDONS		
Cyperaceae	Sedge Family	
<i>Carex athrostachya</i>		
<i>Carex douglasii</i>		
<i>Carex multicosata</i>		
<i>Carex nebrascensis</i>		
<i>Carex rossii</i>		
<i>Eleocharis macrostachya</i>	creeping spike-rush	

Scientific Name	Common Name	Notes
<i>Scirpus microcarpus</i>	bulrush	
Juncaceae	Rush Family	
<i>Juncus balticus</i>	Baltic rush	
Lemnaceae	Duckweed Family	
<i>Lemna</i> sp.	duckweed	
Poaceae	Grass Family	
<i>Achnatherum occidentale</i>	needlegrass	
<i>Bromus carinatus</i>	mountain brome	
<i>Bromus tectorum</i>	cheat grass	
<i>Elymus elymoides</i> (<i>Sitanion hystrix</i>)	squirrel-tail	
<i>Elymus glaucus</i>	blue wild-rye	
<i>Elytrigia intermedia</i>	pubescent wheatgrass	
<i>Leymus triticoides</i>	creeping wildrye	
<i>Poa pratensis</i>	Kentucky bluegrass	
<i>Poa secunda</i>	one-sided bluegrass	