3.14 Special Status Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the Endangered Species Act (ESA), and species designated as sensitive by the Bureau of Land Management (BLM). In addition, there is a Nevada State protected animal list (Nevada Administrative Code 501.100-503.104) that the BLM has incorporated, in part, into the BLM's sensitive species list.

In accordance with the ESA, as amended, the lead agency (BLM) in coordination with the United States Fish and Wildlife Service (USFWS) must ensure that any action that they authorize, fund, or carry out would not adversely affect a federally listed threatened or endangered species. In addition, as stated in Special Status Species Management Policy 6840 (6840 Policy) (Rel. 6-125), it also is the BLM's policy "to conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA provisions are no longer needed for these species, and to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA." The following discussion summarizes known data for the special status species identified for the proposed project by the applicable agencies.

The study area for direct and indirect impact assessments for special status species includes the area within the project boundary and riparian, stream, spring/pond, and wetland habitats within the maximum extent of the 10-foot groundwater drawdown contour. The cumulative effects study area (CESA) for special status species, excluding greater sage-grouse, is the same as described for general wildlife (**Figure 3.12-1**). The CESA for greater sage-grouse is presented in **Figures 3.14-1** and **3.14-2**, which show the Tuscarora Population Management Unit (PMU).

3.14.1 Affected Environment

A total of 46 special status species were identified as potentially occurring within the study area (Nevada Department of Wildlife [NDOW] 2010a; Nevada Natural Heritage Program [NNHP] 2010a,b; USFWS 2010). These species, their associated habitats, and their potential for occurrence within the study area are summarized in **Appendix E, Table E-1**, Special Status Species. Occurrence potential within the study area and CESA was evaluated for each species based on their habitat requirements and/or known distribution. Based on these evaluations, nine special status wildlife species have been eliminated from detailed analyses based on their habitat requirements and/or known distributions as discussed in **Appendix E, Table E-1**, Special Status Species. These species include western red bat, river otter, northern goshawk, peregrine falcon, least bittern, black-rosy finch, Mattoni's blue, Lahontan cutthroat trout, and interior redband trout. The remaining 37 special status wildlife species identified as potentially occurring within the study area are described in the following sections. No sensitive, threatened, or endangered plants are known to occur within the study area.

3.14.1.1 Mammals

<u>Special Status Bat Species</u>

Federal and state sensitive bat species that have been identified as potentially occupying appropriate habitat types within the study area are presented in **Table E-1**, Special Status Species. Bat species that could occur within the study area include pallid bat, Townsend's big-eared bat, big brown bat, silver-haired bat, hoary bat, California myotis, small-footed myotis, long-eared myotis, little brown myotis, long-legged myotis, Yuma myotis, western pipistrelle bat, and Brazilian free-tailed bat. Due to the presence of seeps, springs, and creeks, suitable foraging habitat is present in portions of the study area (BLM 2004a; Bradley et al. 2006; NDOW 2010a). Roosting habitat within the study area includes rock outcrops. Higher elevation forest habitats and cliffs are present east of the study area in the Tuscarora Range and may provide potential roosting habitat for bats.

Pallid Bat

The pallid bat is a year-round resident in Nevada. Found primarily at low and mid elevations (1,300 to 8,400 feet above mean sea level [amsl]), this species occupies a variety of habitats such as piñon-juniper, blackbrush, cresote, sagebrush, and salt desert scrub (Bradley et al. 2006). This species feeds primarily on large ground-dwelling arthropods (e.g., scorpions, centipedes, grasshoppers), but also feeds on large moths (Bradley et al. 2006). The pallid bat is a colonial species, roosting in groups of up to 100 individuals (Arizona Game and Fish Department [AGFD] 1993). Roost sites consist of rock outcrops, mines, caves, hollow trees, buildings, and bridges (AGFD 1993; Bradley et al. 2006). The pallid bat is intolerant of roost sites in excess of 40 degrees Celsius (Bradley et al. 2006). This species has been documented south of the study area along Rock Creek and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Townsend's Big-eared Bat

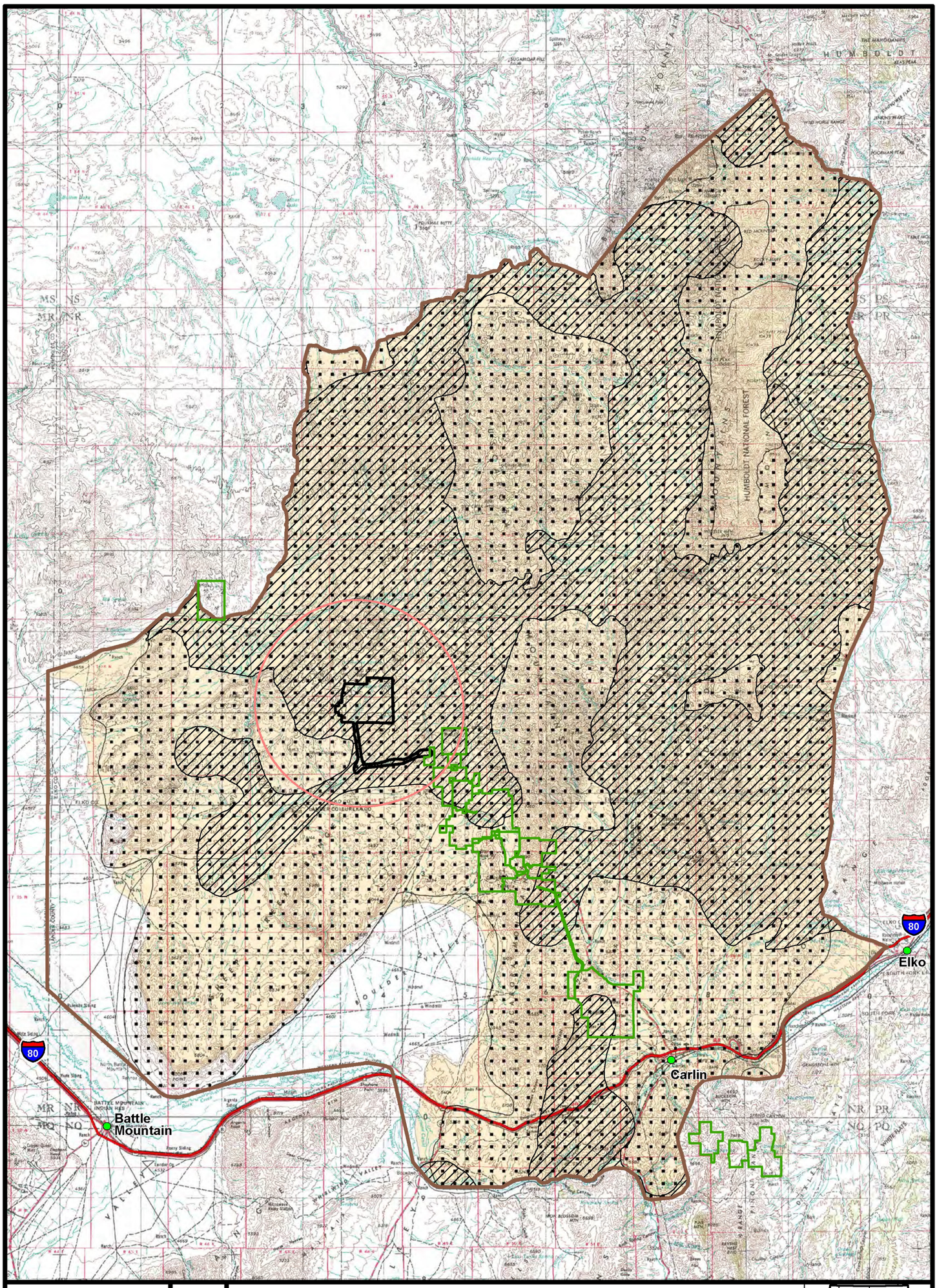
The Townsend's big-eared bat is a year-round resident found throughout Nevada from low desert to high elevation mountain habitats (690 to 11,400 feet amsl). The Townsend's big-eared bat primarily occurs in piñon-juniper, mountain mahogany, white fir, blackbrush, sagebrush, salt desert scrub, agricultural lands, and urban habitats (Bradley et al. 2006). This species prefers caves, mines, and buildings that maintain stable temperatures and airflow for nursery colonies, bachelor roosts, and hibernacula. It does not make major migrations and appears to be relatively sedentary, not traveling far from summer foraging grounds to winter hibernation sites. Its distribution seems to be determined by suitable roost and hibernation sites, primarily caves and mines (Harvey et al. 1999). This bat is believed to feed entirely on moths, which are gleaned moths from foliage and other surfaces (Bradley et al. 2006; Harvey et al. 1999). This species has been documented southwest of the study area along Rock Creek and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Big Brown Bat

The big brown bat is a year-round resident in Nevada. This species is found from low to high elevations (980 to 9,800 feet amsl) and occupies a variety of habitats including piñon-juniper, blackbrush, cresote, sagebrush, and salt desert scrub. This species gleans insects over water and open landscapes, as well as in both forested and edge settings. The big brown bat is a colonial species, roosting in groups up to several hundred. Roost sites include caves, mines, buildings, bridges, and trees. This species is known to be more tolerant of human habitation than other bat species (Bradley et al. 2006). This species has been documented southeast of the study area in the Santa Renia Mountains and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Silver-haired Bat

The silver-haired bat summers and reproduces in northern Nevada and typically occupies low to mid elevations (1,500 to 8,200 feet amsl). This species inhabits coniferous and mixed deciduous/ coniferous forests of piñon-juniper, subalpine fir, white fir, limber pine, aspen, cottonwood, willow, and riparian areas. This species gleans insects and moths in or near wooded areas and along edges of roads, streams, or waterbodies. This species roosts both singly or in small groups in hollow trees, rock crevices, mines, caves, and houses (Bradley et al. 2006). This species has not been documented in the study area. Based on occurrence records in Nevada and marginal foraging habitat within the study area, the potential for this species to occur within the study area is considered low.



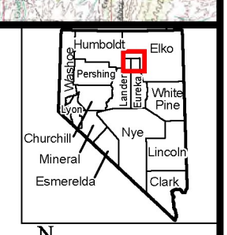
Greater Sage-grouse Habitat in the Study Area and Cumulative Effects Study Area

Figure 3.14-1

Hollister Underground Mine Project EIS

Legend

- Project Area Boundary
- Mine Plan Boundaries
- Cumulative Effects Study Area (PMU)
- Maximum Extent of the 10-foot Groundwater Drawdown Contour (Study Area)
- Nesting and Early Brood Habitat
- Winter Habitat
- Late Summer Habitat

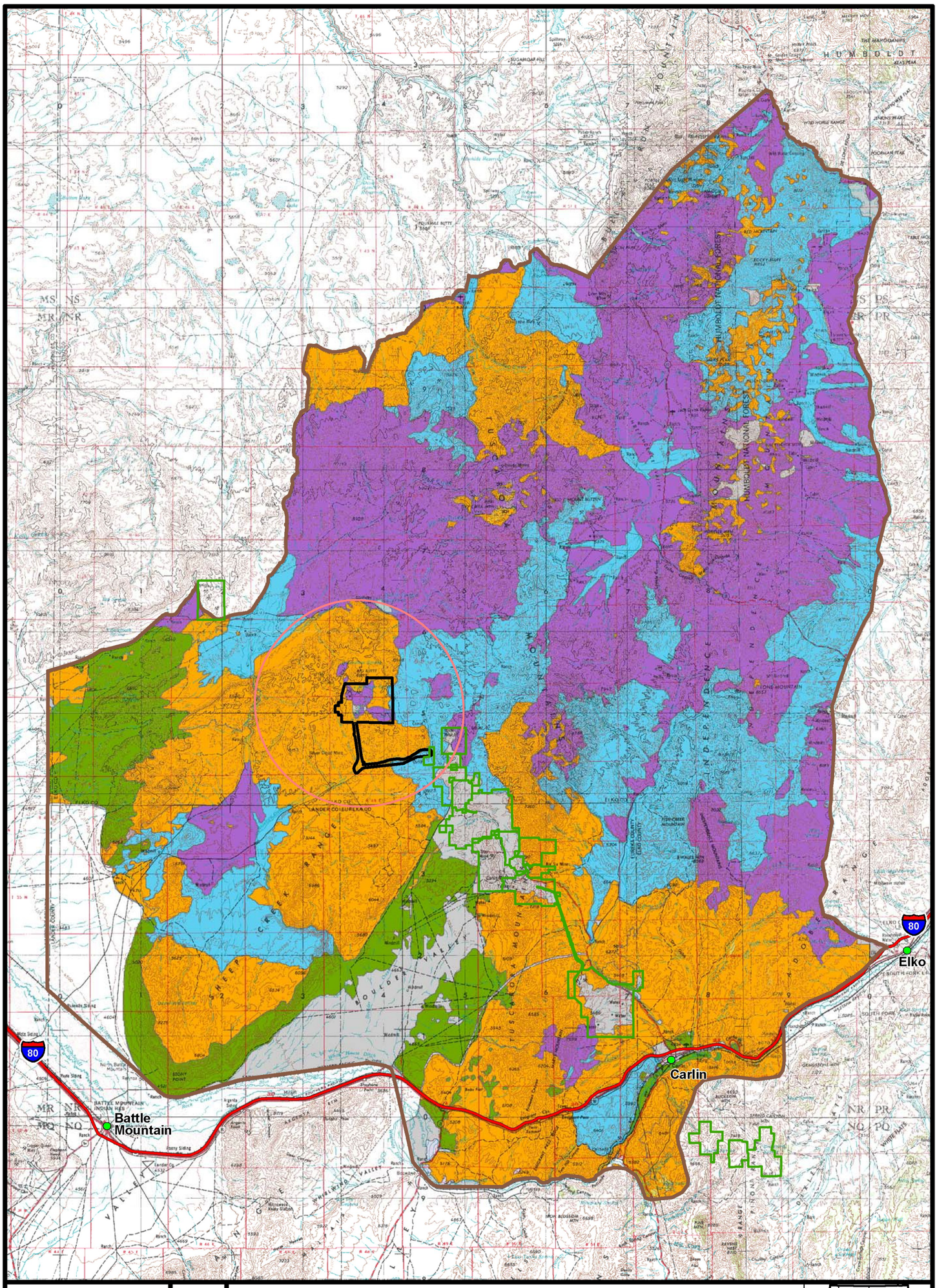


N

0 2.5 5 10 Miles

Source: NDOW 2009a.

3/8/2012



Greater Sage-grouse PPH and PGH in the Study Area and Cumulative Effects Study Area

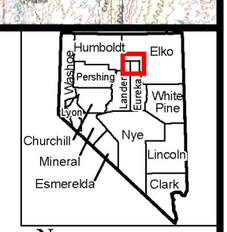
Figure 3.14-2

Hollister Underground Mine Project EIS

Legend

- Project Area Boundary
- Mine Plan Boundaries
- Cumulative Effects Study Area (PMU)
- Maximum Extent of the 10-foot Groundwater Drawdown Contour (Study Area)
- PPH - Essential/Irreplaceable Habitat (NDOW Category 1)
- PPH - Important Habitat (NDOW Category 2)
- PGH - General Habitat (NDOW Categories 3 and 4)
- Unsuitable Habitat
- Non-habitat

Source: NDOW 2012.



N

0 2.5 5 10 Miles

4/19/2012

Hoary Bat

The hoary bat is a summer resident in Nevada found at low to mid elevations (1,870 to 8,200 feet amsl) in forest habitats including riparian areas. This species also is found in valley basins containing pure stands of Rocky Mountain juniper as well as agricultural areas. The hoary bat forages primarily at high altitudes over the tree canopy and would follow watercourses for foraging and drinking. This species roosts in trees within foliage but may roost in caves and beneath rock ledges (Bradley et al. 2006). This species has not been documented in the study area. Based on occurrence records in Nevada and marginal roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered low.

California Myotis

The California myotis is a year-round resident found throughout Nevada at low and mid elevations (689 to 8,957 feet amsl). This species occurs in a variety of habitats from Lower Sonoran desert scrub to higher elevation forests. The California myotis gleans insects above open habitat. This species typically roosts singly or in small groups, although some mines are known to shelter colonies of over 100 individuals. Roost sites include mines, caves, buildings, rock crevices, hollow trees, and under exfoliating bark. This species is known to forage throughout the winter (Bradley et al. 2006). This species has not been documented within the study area. However, based on the presence of marginal roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered moderate.

Small-footed Myotis

The small-footed myotis is found throughout Nevada from approximately 3,500 to 5,900 feet amsl. This species inhabits a variety of habitats including desert scrub, grassland, sagebrush steppe, blackbrush, greasewood, piñon-juniper woodlands, pine-fir forests, agricultural lands, and urban areas. Day and maternity roosts have been found in crevices in cliffs, boulders, and on talus slopes (Bradley et al. 2006). Summer roosts are highly variable and include buildings, mines, under the bark on trees, and crevices in cliffs and boulders (AGFD 1993; Harvey et al. 1999). This species prefers small protected dry crevices. Night and hibernation roosts are located in small caves and abandoned mine adits. Buildings also are used as temporary night roosts between flights. This species forages for insects over the edge of rocky bluffs, in clearings, near rocks, and over forests (AGFD 1993; Bradley et al. 2006; Harvey et al. 1999). This species has been documented southeast of the study area in the Santa Renia Mountains and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Long-eared Myotis

The long-eared myotis is found throughout Nevada from approximately 2,260 to 6,790 feet amsl but primarily is found at higher elevations. The long-eared myotis primarily is associated with coniferous forests, including piñon-juniper woodlands, but the species also utilizes sagebrush and desert scrub habitats. Day roosts include hollow trees; under loose tree bark; crevices in rock cliffs and fissures in the ground; and occasionally in caves, abandoned mines, and buildings. Night roosts primarily occur in caves, mines, and abandoned buildings (AGFD 1993; Bradley et al. 2006; Harvey et al. 1999). This species is known to roost singly or in small groups. This species gleans insects (primarily small moths) over vegetation and open water (e.g., rivers, streams, and ponds) (Bradley et al. 2006). This species has been documented southeast of the study area in the Santa Renia Mountains and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Little Brown Myotis

The little brown myotis is probably a year-round resident found primarily in the northern parts of Nevada at higher elevations. This species is often associated with coniferous forests. Foraging occurs in open areas among vegetation, along water margins, and above open water. Roost sites include hollow trees, rocky outcrops, buildings, and occasionally in mines and caves (Bradley et al. 2006). This species has not been documented in the study area. Based on occurrence records in Nevada and marginal foraging habitat within the study area, the potential for this species to occur within the study area is considered low.

Long-legged Myotis

The long-legged myotis occupies sagebrush shrublands and piñon-juniper and montane coniferous forest habitats from approximately 3,050 to 11,220 feet amsl in Nevada. Individuals typically day roost singly or in small groups in buildings, rock crevices, caves, abandoned mines, or in hollow trees, particularly large diameter snags or live trees within lightning scars (AGFD 1993; Bradley et al. 2006; Harvey et al. 1999). Night roosts and hibernacula are often in caves and mines. Foraging typically occurs in open areas, often at canopy height (Bradley et al. 2006). This species has been documented southeast of the study area in the Santa Renia Mountains and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Yuma Myotis

The Yuma myotis is a year-round resident found primarily in the southern and western half of Nevada at low to middle elevations (1,476 to 7,677 feet amsl). This species occurs in a wide variety of habitats, including sagebrush, salt desert scrub, agriculture, playa, and riparian habitats. This species gleans aquatic insects over open water and above vegetation. Roost sites include buildings, trees, mines, caves, bridges, and rock crevices. Night roosts are usually associated with buildings, bridges, or other man-made structures (Bradley et al. 2006). This species has been documented northeast of the study area in the Tuscarora Mountains and is likely to occur within the study area (Bradley et al. 2006; NDOW 2010a). Based on its known range and the presence of suitable roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Western Pipistrelle Bat

The western pipistrelle is a year-round resident in Nevada, occupying low and mid elevations (680 to 8,200 feet amsl) in desert habitats of blackbrush, creosote, salt desert scrub, and sagebrush, with occasional occurrence in ponderosa pine and piñon-juniper, usually in association with rock features such as granite boulders and canyons. This species gleans insects over open habitats. This species roosts both singly or in small groups in mines, caves, or occasionally in buildings and vegetation. This species has been documented south of the study area along Rock Creek and is likely to occur within the study area (BLM 2004a; Bradley et al. 2006). Based on its known range and the presence of suitable roosting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Brazilian Free-tailed Bat

The Brazilian free-tailed bat is found throughout Nevada in a wide variety of habitats ranging from desert scrub to high elevation mountain habitats (680 to 8,200 feet amsl). This species roosts in a variety of structures including cliff faces, caves, mines, buildings, bridges, and hollow trees. Some caves are used as long-term transient stopover roosts during migration. The Brazilian free-tailed bat is known to travel long distances to foraging areas and often forages at high altitudes. This species has not been documented within the study area. The nearest record is approximately 35 miles southeast of the study area along the Humboldt River near Elko, Nevada (Bradley et al. 2006). Based on the

presence of suitable foraging habitat within the study area, the potential for this species to occur within the study area is considered moderate.

Preble's Shrew

The Preble's shrew is found in a wide variety of habitats in Nevada including arid grasslands and shrublands, wetland and forest edges, and alpine tundra. This species is active year-round and may be active at any time throughout the day or night, but is probably most active during morning and evening hours (Wildlife Action Plan Team 2006). Most likely resembles other shrews, feeding primarily on insects and other small invertebrates such as worms, mollusks, and centipedes (Wildlife Action Plan Team 2006). The Preble's shrew has been documented approximately 35 miles northeast of the study area near Sheep Creek and suitable habitat occurs within the study area (Ports and George 1990). The potential for this species to occur within the study area is considered high.

Fletcher Dark Kangaroo Mouse

This species is found throughout Nevada in a wide variety of habitats including intermountain desert scrub, sagebrush grasslands, badlands, desert playas, and ephemeral pools. This species primary food source is seeds but also may eat insects. It does not appear to utilize free water and is believed to store food in seed caches within burrow systems. Activity for this species has been observed March through October with peak nocturnal activity occurring in the first two hours after sunset (Wildlife Action Plan Team 2006). This species has been recorded near Halleck, Nevada, in Elko County (O'Farrell and Blaustein 1974). Based on the presence of suitable habitat within the study area, the potential for this species to occur within the study area is considered high.

Pygmy Rabbit

The pygmy rabbit is distributed throughout the northern Great Basin, primarily in habitats dominated by dense stands of big sagebrush and rabbitbrush. This species is most abundant in areas with suitable soils (e.g., high clay content) for burrowing. Pygmy rabbits usually remain near dense cover, where rabbits excavate burrows and create trail systems in the understory. Sagebrush is important forage for this rabbit and is consumed year-round (BLM 2004b). This species has been recorded along the Mud Springs Road and suitable sagebrush habitat occurs throughout the study area based on results of field surveys conducted in 2010 (AECOM 2010b; NDOW 2010a; USFWS 2010). The potential for this species to occur within the study area is considered high.

3.14.1.2 Birds

Bald Eagle

The bald eagle is found throughout Nevada but mainly as a migrant and winter resident (Floyd et al. 2007; Herron et al. 1985). This species generally roosts in close proximity to large water bodies including rivers, lakes, and reservoirs (Johnsgard 1990; Wildlife Action Plan Team 2006). Nests are typically very large stick nests located in large trees such as cottonwoods. Bald eagles typically begin nesting in February and young fledge by July (Herron et al. 1985). This species has been documented within the special status species' CESA. This species has been documented during winter surveys within Squaw Valley and the sub-basins of Rock, Boulder, and Maggie Creek (BLM 2008b, 2004a). However, due to the lack of suitable habitat (i.e., large trees near waterbodies) within the study area, occurrences would be limited to migrating and foraging individuals. Therefore, the potential for this species to occur within the study area is considered moderate.

Swainson's Hawk

The Swainson's hawk is a summer resident of Nevada and, like the golden eagle, is most abundant in the northern third of the state (Floyd et al. 2007; Herron et al. 1985). The majority of documented breeding territories in Nevada have been located in agricultural valleys. This species nests in a wide variety of vegetative communities from 4,000 to 6,500 feet in elevation. Nest sites primarily are found

in deciduous trees; however, nests also have been documented in other vegetation types such as buffaloberry, serviceberry, and sagebrush. Swainson's hawks begin nesting in April and young typically fledge by July (Herron et al. 1985; Johnsgard 1990). This species is known to nest south of the study area along the Humboldt River (Herron et al. 1985). No nest sites have been documented within the study area (NDOW 2010a). Based on the presence of suitable nesting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Ferruginous Hawk

The ferruginous hawk is a common breeder in many areas of Nevada, particularly the central and east-central portions of the state (Floyd et al. 2007; Herron et al. 1985). This species often nests in trees, on promontory points, rocky outcrops, cut banks, or on the ground. Preferred breeding habitat in most of the state is scattered juniper forests at the interface between piñon-juniper and desert shrub communities that overlook broad valleys used for foraging. However, this species also is common in sagebrush shrublands. Ferruginous hawks begin nesting in March and young fledge by July (Herron et al. 1985; Johnsgard 1990). One active nest site was documented within the study area during biological surveys (AECOM 2010c). Based on the presence of an active nest site and suitable nesting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Golden Eagle

The golden eagle is a year-long resident and is considered to be a common breeder throughout Nevada; however, eagle densities and nesting activity are greatest in the northern third of Nevada (Floyd et al. 2007; Herron et al. 1985). Nesting golden eagles prefer suitable cliffs that overlook sagebrush flats, piñon-juniper forests, salt desert shrub, or other habitat capable of supporting a suitable prey base. Highest densities of nesting eagles typically are found along river systems where cliffs border the entire length of the river, and lower densities are found in piñon-juniper habitat and salt desert shrub communities. Golden eagles begin nesting March and young fledge by July. Wintering golden eagles tend to congregate in broad valleys interspersed with agricultural croplands or sagebrush and desert shrub communities (Herron et al. 1985; Johnsgard 1990). Suitable nesting habitat exists approximately 20 miles south of the study area (BLM 2008b). This species also has been observed foraging within the study area (AECOM 2010c). Based on the presence of suitable foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Prairie Falcon

Prairie falcons range throughout the Great Basin and are permanent residents of Nevada. Habitat requirements include steep cliff ledges and outcrops for nesting that border semi-arid valleys. The highest nesting densities in Nevada occur in northern counties, particularly located in or near the mouth of narrow canyons, overlooking riparian vegetation and agricultural lands. Prairie falcons begin nesting in March and young typically fledge by July (Floyd et al. 2007; Herron et al. 1985; Johnsgard 1990). Suitable nesting habitat occurs approximately 25 miles south of the study area in the Sheep Creek Range (BLM 2008b; Floyd et al. 2007). The nearest known prairie falcon nest occurs approximately 2 miles northeast of the Hollister Site (NDOW 2010a). This species also has been observed foraging in the study area (AECOM 2010c; BLM 2004a). Therefore, the potential for this species to occur within the study area is considered high.

Greater Sage-grouse

The greater sage-grouse is found throughout Nevada in sagebrush dominated habitats (Floyd et al. 2007). The greater sage-grouse CESA is based on the Population Management Unit (PMU), and is presented in **Figures 3.14-1** and **3.14-2**. Sagebrush is a key component of greater sage-grouse habitat on a year-long basis. Sagebrush provides forage and nesting, security, and thermal cover for this species. Moist areas that provide succulent herbaceous vegetation during the summer months are

used extensively as brood rearing habitat. Open, often elevated areas within sagebrush habitats usually serve as breeding areas (strutting grounds or lek sites). In Nevada, greater sage-grouse males begin displaying on leks in March and hens typically begin nesting in April and May. During winter, greater sage-grouse often occupy wind exposed areas where sagebrush is available (e.g., drainages, southern or western slopes, or exposed ridges) (Connelly et al. 2000; Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). **Table 3.14-1** presents data on the three active leks that occur within the study area (NDOW 2010a; NNHP 2010a).

Table 3.14-1 Greater Sage-grouse Leks within the Project Vicinity

Name	Status	Distance from Existing Disturbance (miles)	Number of Birds			
			2007	2008	2009	2010
East Velvet	Active	1.00	4	0	-	6
East Clementine	Active	1.10	-	0	2	10
Big Butte	Active	3.48	5	7	-	*

"-" indicates the lek was not surveyed.

* Ground surveys did not observe birds but found sign (i.e., feathers, droppings).

Note: Greater sage-grouse lek data for 2011 is not available.

Source: Burton 2011; Miller 2010b.

Greater sage-grouse nesting, summer, and winter habitat is found within the study area (**Figure 3.14-3**). Approximately 15,958 acres of undisturbed (i.e., unburned) nesting habitat and approximately 16,609 acres of undisturbed summer and winter habitat occurs within the study area. Over the last 10 years wildfires have burned thousands of acres of sagebrush habitat in and around the study area. The remaining patches of unburned sagebrush habitat are very important to area's greater sage-grouse, particularly sagebrush patches which provide high quality nesting habitat. These areas are limited within the study area and are mainly found along Little Antelope Creek, Antelope Creek, and the Mud Springs Road. Field surveys conducted within the study area documented greater sage-grouse sign (e.g., droppings) within the study area, although no birds were observed. Based on the presence of suitable habitat and the close proximity of active leks to the Hollister Site, the potential for this species to occur within the study area is considered high.

In addition to the NDOW designated habitat categories described above, the BLM has recently issued additional guidance on greater sage-grouse management. According to BLM IM 2012-043, two habitat categories have been developed by the BLM and NDOW to help apply management guidelines designed to protect greater sage-grouse habitat. These habitat types are referred to as Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH). PPH includes areas that have been identified as having the highest conservation value to maintaining sustainable greater sage-grouse populations. PPH comprises essential/irreplaceable habitat and important habitat (NDOW Categories 1 and 2) (note: these characterizations are preliminary and subject to change). PPH includes breeding, late-brood rearing, and winter concentration areas. Approximately 46,110 acres of PPH (16,720 acres of essential/irreplaceable habitat and 29,390 acres of important habitat) occurs within the study area (**Figure 3.14-4**). PGH comprises habitat of moderate importance, low value habitat, or transitional habitat outside of priority habitat (NDOW Categories 3 and 4) (note: these characterizations are preliminary and subject to change). Approximately 125,390 acres of PGH occurs within the study area (**Figure 3.14-4**).

Sandhill Crane

The sandhill crane breeds in the lower river valleys and interior basins of the northeastern and east-central regions of Nevada (Floyd et al. 2007). This species is found in large irrigated hay meadows, flooded pastures, and grasslands. Sandhill cranes also are found in agricultural grain fields certain times of the year, typically during spring and fall migrations. Approximately 90 percent of nesting crane pairs in Nevada are found in Elko County with additional nesting pairs in White Pine, Eureka, Lander, northern Lincoln and Nye, and eastern Humboldt counties (Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. This species is known to occur south of the study area along the Humboldt River (Floyd et al. 2007; Wildlife Action Plan Team 2006). Due to marginal habitat occurring within the study area, the potential for this species to occur within the study area is considered high.

Long-billed Curlew

The long-billed curlew is known to breed at Sheldon National Wildlife Refuge (NWR) in northern Washoe County (approximately 300 miles northwest of the study area), Ruby Lake NWR in Elko County (approximately 90 miles southeast of the study area), Izzenhood area (approximately 25 miles southwest of the study area), Lahontan Valley in Churchill County, and Fish Creek Ranch in Eureka County. This species prefers short grasslands, wet meadows, wetlands, and marshes (Floyd et al. 2007; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. The potential for this species to occur within the study area is considered high.

Black Tern

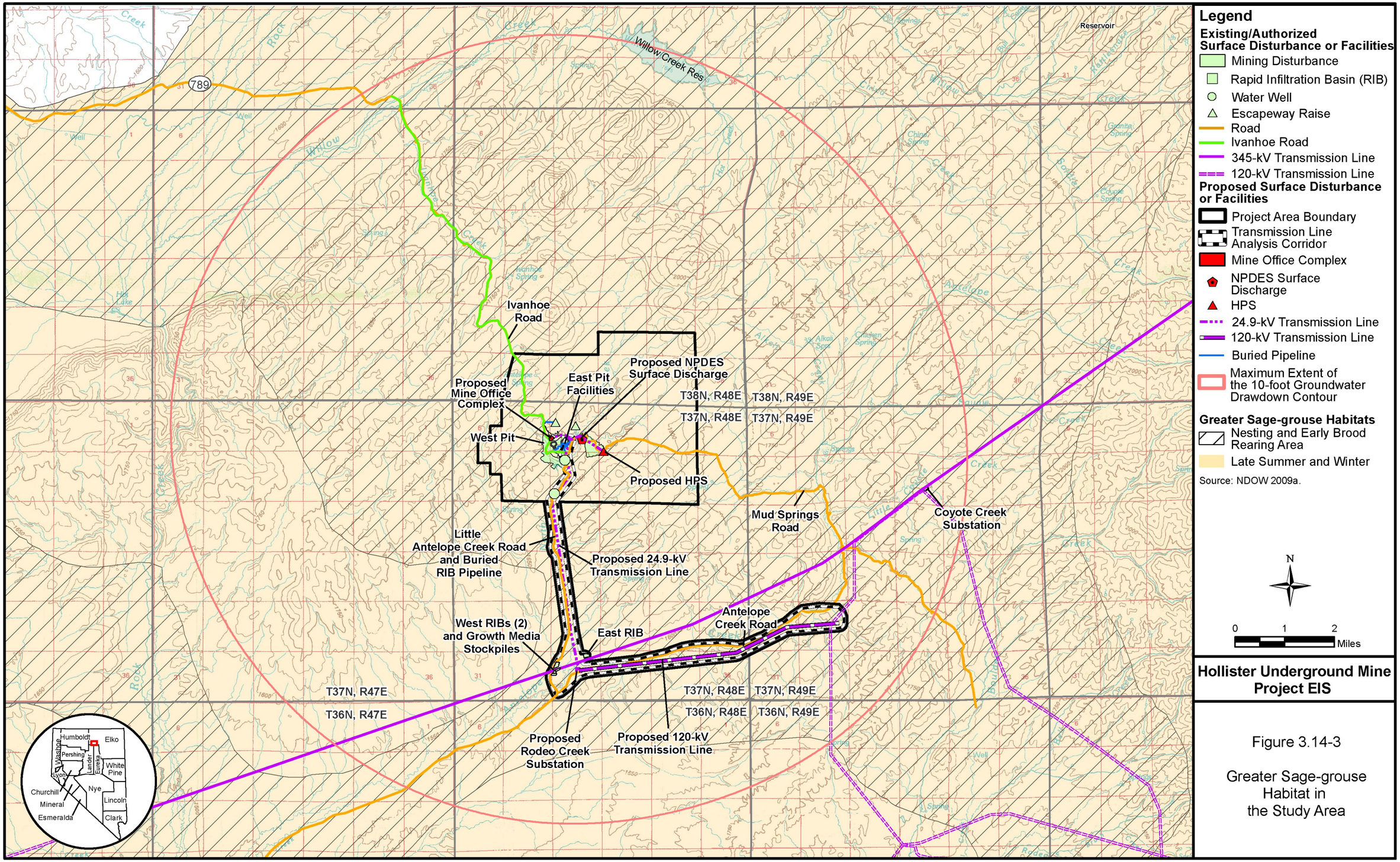
The black tern is found at only a few locations in Nevada including shallow lakes and wetlands from Sheldon NWR to Ruby Lakes NWR south to Mason Valley Wildlife Management Area in western Nevada (Floyd et al. 2007). This species prefers marshes in very fresh water, typically characterized by cattail and/or spikerush but may be found along riparian areas. Nesting usually occurs semi-colonially with other terns in shallow freshwater marshes with emergent vegetation (Floyd et al. 2007; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. Due to marginal habitat occurring within the study area, the potential for this species to occur within the study area is considered low.

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is known from only a few locations in Nevada. This species has undergone dramatic population declines throughout western North America due to a loss of native riparian habitats. The yellow-billed cuckoo preferred habitat is old-growth riparian woodlands with a dense understory component (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. Occurrence records are limited for Nevada and are mainly concentrated in the southern portion of the state in the Pahranagat Valley and along the Virgin River (Floyd et al. 2007). Due to marginal habitat occurring within the study area, the potential for this species to occur within the study area is considered low.

Western Burrowing Owl

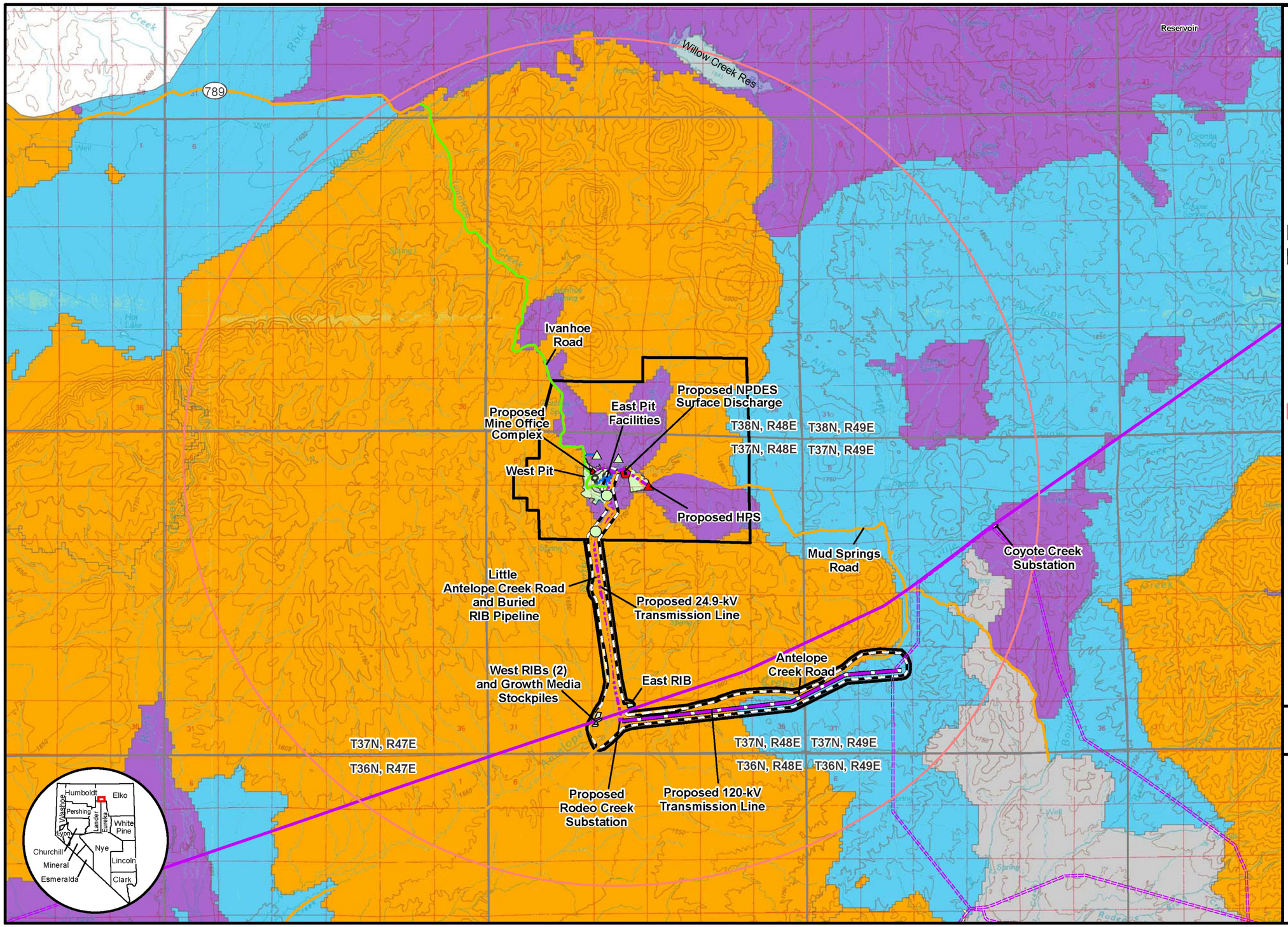
The burrowing owl is known to breed throughout Nevada. The majority of the breeding population is known to migrate from northern Nevada to southern California and Mexico during the winter months. However, observations of this owl have been recorded in Nevada during all months of the year (Floyd et al. 2007; Herron et al. 1985). Breeding by burrowing owls is strongly dependent on the presence of burrows constructed by prairie dogs, ground squirrels, or badgers. Prime burrowing owl habitat must be open, have short vegetation, and contain an abundance of burrows. Burrowing owls begin nesting in April and young typically fledge by August (Floyd et al. 2007; Herron et al. 1985;



Hollister Underground Mine Project EIS

Figure 3.14-3

Greater Sage-grouse Habitat in the Study Area



Legend

Existing/Authorized Surface Disturbance or Facilities

- Mining Disturbance
- Rapid Infiltration Basin (RIB)
- Water Well
- Escapeway Raise
- Road
- Ivanhoe Road
- 345-kV Transmission Line
- 120-kV Transmission Line

Proposed Surface Disturbance or Facilities

- Project Area Boundary
- Transmission Line Analysis Corridor
- Mine Office Complex
- NPDES Surface Discharge
- HPS
- 24.9-kV Transmission Line
- 120-kV Transmission Line
- Buried Pipeline
- Maximum Extent of the 10-foot Groundwater Drawdown Contour

Greater Sage-grouse Habitats

- PPH - Essential/Irreplaceable Habitat (NDOW Category 1)
- PPH - Important Habitat (NDOW Category 2)
- PGH - General Habitat (NDOW Categories 3 and 4)
- Non-habitat

Source: NDOW 2012.

N

0 1 2 Miles

Hollister Underground Mine Project EIS

Figure 3.14-4

Greater Sage-grouse PPH and PGH in the Study Area

4/19/2012

Neel 1999). This species has been observed nesting approximately 10 miles southeast of the study area along Boulder Creek (BLM 2008b) and suitable nesting habitat occurs along the Little Antelope Creek Road (BLM 2004a). Based on the presence of suitable nesting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Long-eared Owl

Long-eared owls occur within piñon-juniper woodlands, coniferous forests, and riparian areas at higher elevations. The majority of Nevada's population of long-eared owls is considered non-migratory, although individuals occurring outside of Nevada have been known to winter in Nevada. Long-eared owls begin nesting in February and young typically fledge by July (Floyd et al. 2007; Herron et al. 1985; Neel 1999). This species has been documented southeast of the study area in Boulder Valley (BLM 2008b). Suitable foraging habitat occurs within the study area. Due to a lack of roosting and nesting habitat, the potential for this species to occur within the study area is considered low.

Short-eared Owl

Short-eared owls are year-round residents of Nevada, although few nest sites have been identified (Floyd et al. 2007; Herron et al. 1985). The species tend to nest in meadow and wetland habitats. Short-eared owls forage in open areas and are known to nest and roost on the ground. This species begins nesting in February and young typically fledge by July (Herron et al. 1985). This species has been documented nesting within the study area in the south bank of Antelope Creek (AECOM 2010c). Based on the presence of suitable nesting and foraging habitat occurs within the study area, the potential for this species to occur within the study area is considered high.

Lewis's Woodpecker

The Lewis's woodpecker breeds in isolated pockets in the northern half of Nevada. This species is found in open forest habitats such as ponderosa pine forests, burned over Douglas fir forests, piñon-juniper woodlands, oak woodlands, and riparian areas. No forest exists in or near the project area. Nesting habitat consists of these habitats with a grassy or brushy understory (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. Based on the presence of suitable foraging and breeding habitat within the study area along Little Antelope Creek and Antelope Creek, the potential for this species to occur within the study area is considered moderate.

Pinyon Jay

The pinyon jay occurs throughout the western U.S. and is a permanent resident of Nevada. This species is strongly associated with piñon-juniper forest habitats and can be found along the piñon-juniper belt extending from the Humboldt River south to the Mojave Desert. Pinyon jays are semi colonial nesters and occur in large groups where food is abundant (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). No piñon-juniper forests exist within or near the project area. The breeding season for this species is April 15 through July 15. Based on the presence of suitable foraging habitat within the study area along the Little Antelope Creek and Antelope Creek, the potential for this species to occur within the study area is considered low.

Juniper Titmouse

The juniper titmouse is a year-round resident that is strongly associated with piñon-juniper woodlands and to a lesser extent, sagebrush shrublands. This species occurs primarily along the piñon-juniper belt through Nevada, ranging from 4,500 to 7,500 feet amsl. Dense foliage and closed canopies are preferred, while thin understory and ground cover are preferred for some feeding activities. This species often nests in cavities in riparian vegetation juxtaposed to piñon-juniper. As a result, the juniper titmouse tends to frequent the interface between piñon-juniper and riparian habitats (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). No piñon-juniper forests exist within or

near the project area. The breeding season for this species is April 15 through July 15. Based on the presence of suitable foraging and breeding habitat within the study area, the potential for this species to occur within the study area is considered moderate.

Loggerhead Shrike

The loggerhead shrike is a common resident throughout Nevada. This species is found in open grasslands along valley floors and foothills of the Great Basin. In Nevada, it is commonly found in scrub habitat types such as sagebrush and greasewood. Loggerhead shrikes prefer shrubs or small trees for nesting, but nesting also can occur in piñon-juniper woodlands. This species can be found perching on wire, fences, or poles (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. This species has been observed within the study area (AECOM 2010c). Based on the presence of suitable nesting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

Yellow-breasted Chat

The yellow-breasted chat is found throughout Nevada, although it is more common in the eastern portion of the state. This species is found in cottonwood, willow, riparian and other woodland habitats with dense understories (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. Due to marginal habitat occurring within the study area along Little Antelope and Antelope creeks, the potential for this species to occur within the study area is considered low.

Vesper Sparrow

The vesper sparrow is a summer resident that occurs in various open shrub habitats from high elevation valleys to higher mountain slopes and basins. This species occurs from approximately 5,500 feet amsl in the foothills of northern Nevada to approximately 9,000 feet in elevation in surrounding mountain ranges. Open areas with a scattered canopy of big sagebrush and a minimum ground cover of 20 percent grasses, forbs, and young shrubs appear to be the preferred nesting habitat for this species. Nests are typically placed on the ground under or near shrubs (Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2006). The breeding season for this species is April 15 through July 15. Based on the presence of suitable nesting and foraging habitat within the study area, the potential for this species to occur within the study area is considered high.

3.14.1.3 Amphibians

Columbia Spotted Frog

Isolated populations of the Columbia spotted frog are known to occur in portions of central and northern Nevada including Elko County as part of the Great Basin subpopulation. This species is highly aquatic and is rarely found far from permanent, quiet waterbodies such as wetland habitats, streams, or springs at elevations ranging from about 5,600 to 8,700 feet (Toiyabe Spotted Frog Technical Team 2003; Wildlife Action Plan Team 2006). Frogs are associated with the grassy/sedgy margins of these waterbodies. Females begin laying eggs in late April and May, with tadpoles emerging in August. The Columbia spotted frog may travel to upland areas during wet weather. Overwintering sites in the Great Basin include undercut stream banks and stream heads. The closest known populations are in the Maggie Creek subbasin, which is located outside and east of the aquatic biology CESA (**Figure 3-13-1**) at a distance of approximately 15 miles.

This species has not been recorded within the study area (AECOM 2010d; NDOW 2010a); however, marginal habitat does occur within the study area along Little Antelope Creek and Antelope Creek (AECOM 2010d). Based on the presence of marginal habitat along Little Antelope Creek and Antelope Creek and the lack of occurrence records for this species, the potential for this species to occur within the study area is considered low.

Northern Leopard Frog

The northern leopard frog is broadly distributed in limited and isolated habitats from eastern Nevada to northern and western Nevada. Most Nevada populations are highly localized and isolated from one another (NatureServe 2010a; Wildlife Action Plan Team 2006). This species inhabits permanent water with rooted aquatic vegetation such as springs, slow streams, marshes, bogs, ponds, canals, flood plains, reservoirs, and lakes. In summer, it commonly inhabits wet meadows and fields. Takes cover underwater, in damp niches, or in caves when inactive. Eggs are laid and larvae develop in shallow, still, permanent water (typically), generally in areas well exposed to sunlight. Eggs are typically attached to vegetation just below the surface of the water. Females begin laying eggs in late April and May and tadpoles emerge by August (NatureServe 2010a; Wildlife Action Plan Team 2006). This species has not been recorded within the study area (AECOM 2010d); however, marginal habitat does occur within the study area along Little Antelope Creek and Antelope Creek (AECOM 2010d). Based on the presence of marginal habitat along Little Antelope Creek and Antelope Creek and the lack of occurrence records for this species, the potential for this species to occur within the study area is considered low.

3.14.1.4 Mollusks

Springsnails, a group of mollusks that are found in perennial springs and seeps, are considered important invertebrates because of their restricted and native origin. The BLM considers springsnails to be a sensitive group of invertebrates and manages the public lands in the Great Basin to protect springsnails and their habitat (U.S. Geological Survey [USGS] et al. 1998). Springsnails usually inhabit spring sources or outflow areas located immediately downstream of the spring outlet. Perennial springs are considered potential habitat for this group of mollusks. Springsnails have been documented at eight spring locations in the Upper Antelope Creek, and one location in each of the Squaw Creek, Hot Creek, and Willow Creek drainages (Sada 2007; McGuire 1996, 1995) (**Figure 3.13-2**). Snails in the Willow Creek and Hot Creek springs were identified as Vinyards pyrg (*Pyrgalopsis vinyardi*). Surprise Valley pyrg (*Pyrgulopsis gibba*) occurs in the Antelope Creek springs and a spring near Squaw Creek. Vinyards pyrg is a BLM sensitive species. Surprise Valley pyrg has no special status.

3.14.2 Environmental Consequences

Primary issues related to special status species would include the loss or alteration of native habitats, increased habitat fragmentation, animal displacement, direct loss of animals, and impacts associated with water management. Potential impacts for 37 special status species identified as potentially occurring within the study area are discussed in the following sections.

3.14.2.1 Proposed Action

Surface Disturbance

Similar to impacts discussed in Section 3.12, Wildlife Resources, potential impacts to special status species include the temporary (short-term and long-term) reduction or loss of habitat. Short-term impacts arise from habitat removal and disturbance as well as from activities associated with mine operation. These impacts would cease upon mine closure and successful reclamation. Long-term impacts consist of changes to habitats and the wildlife populations that depend on those habitats, irrespective of reclamation success. Habitat loss or alteration would result in direct losses of smaller, less mobile species of wildlife, such as small mammals, and the displacement of more mobile species into adjacent habitats. In areas where habitats are at, or near, carrying capacity, animal displacement could result in some unquantifiable reductions in local wildlife populations. Mine and exploration surface disturbance also would result in an incremental increase in habitat fragmentation at the Hollister Site until vegetation has been re-established. It is anticipated that the potential mine-related displacement and habitat fragmentation effects would be highest for special status species that may

use the riparian corridors along Little Antelope Creek and Antelope Creek, particularly during construction of the proposed electric power transmission line (transmission line).

The Proposed Action would result in the long-term loss of approximately 117 acres of wildlife habitat from mining, of which a total of up to 25 acres is associated with surface exploration activities and 34.7 acres would be associated with the transmission line. The Proposed Action disturbance would be in addition to the previously authorized approximately 105 acres of disturbance for a total of approximately 222 acres for the project. The disturbance associated with the Proposed Action would be reclaimed following completion of mining activities.

Mammals

Bats

Of the 13 bat species that could occur in the study area, 8 species (i.e., pallid bat, Townsend's big-eared bat, big brown bat, small-footed myotis, long-eared myotis, long-legged myotis, Yuma myotis, and western pipistrelle bat) have been documented within the special status species CESA (BLM 2004a; Bradley et al. 2006; NDOW 2010a). Potentially suitable habitat for the remaining five species (i.e., hoary bat, little brown myotis, silver-haired bat, California myotis, and Brazilian free-tailed bat) occurs within the study area. Implementation of the proposed project could result in direct and indirect impacts to local bat species and their habitat. Direct impacts would include the long-term loss of foraging habitat, including approximately 117 acres of potentially suitable habitat from the development of the proposed project. Discharge into Little Antelope Creek would increase riparian habitat. No forests exist within or near the project area.

Preble's Shrew

Implementation of the proposed project would result in the long-term loss of approximately 117 acres of potentially suitable habitat for this species, until reclamation has been completed and vegetation has been re-established. This impact would be considered negligible considering the large amount of suitable habitat located within the study area. Indirect impacts associated with mine and mineral exploration noise and human presence currently occurs at the site and would continue under the proposed project. However, project construction likely would result in the direct mortalities of individual shrews, if present. The loss of individual Preble's shrews would not result in population-level effects.

Fletcher Dark Kangaroo Mouse

Implementation of the proposed project would result in the long-term loss of approximately 117 acres of potentially suitable habitat for this species, until reclamation has been completed and vegetation has been re-established. This impact would be considered low, considering the large amount of suitable habitat located within the study area. Indirect impacts associated with mine and mineral exploration noise and human presence currently occurs at the site and would continue under the proposed project. However, project construction likely would result in the direct mortalities of individual mice, if present. The loss of individual Fletcher dark kangaroo mice would not result in population-level effects.

Pygmy Rabbit

Implementation of the proposed project would result in the long-term loss of approximately 43.8 acres of potentially suitable sagebrush habitat (big sagebrush-dominated habitats) for this species, until reclamation has been completed and vegetation has been re-established. Indirect impacts associated with mine and mineral exploration noise and human presence currently occurs at the site and would continue under the proposed project. These impacts would be considered moderate, considering the extent of potentially suitable habitat (mature sagebrush) located within the study area. However,

project construction likely would result in the direct mortalities of individual rabbits, if present. The loss of individual pygmy rabbits (a game species in Nevada) would not result in population-level effects.

Birds

No adverse effects to sensitive raptors and migratory bird species have been identified in association with the construction and operation of the proposed project. Other potential species-specific impacts are discussed in the following sections.

Bald Eagle

No bald eagle nests occur within the study area. Occurrence by this species would be limited to migrating and dispersing individuals. Direct impacts would include the long-term loss of approximately 117 acres of potential foraging habitat, until reclamation has been completed and vegetation has been re-established. Indirect impacts associated with mine and mineral exploration noise and human presence currently occurs at the Hollister Site and would continue under the proposed project. Based on the lack of existing nest sites within the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Swainson's Hawk

Swainson's hawk nests have not been identified in the study area. In addition, no suitable nesting habitat occurs within the study area. Direct impacts would include the long-term loss of approximately 117 acres of potential foraging habitat, until reclamation has been completed and vegetation has been re-established. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat within the study area. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. the lack of existing nest sites within the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Ferruginous Hawk

One active ferruginous hawk nest has been identified approximately 885 feet south of the Antelope Creek within the study area. Direct impacts would include the long-term loss of approximately 117 acres of potential foraging habitat, until reclamation has been completed and vegetation has been re-established. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the study area. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the distance of the active nest site from the proposed mining activities, potential impacts to this species as a result of the proposed project would be considered negligible.

Golden Eagle

No active golden eagle nest sites occur within the study area. However, several large stick nests were located on a rock outcrop north of Antelope Creek during field surveys. These nests were inactive at the time of the field surveys. Direct impacts would include the long-term loss of approximately 117 acres of potential foraging habitat, until reclamation has been completed and vegetation has been re-established. Indirect impacts associated with mine and mineral exploration noise and human presence currently occurs at the site and would continue under the proposed project. Based on the lack of active nest sites within the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Prairie Falcon

The nearest documented prairie falcon nest is approximately 2 miles northeast of the Hollister Site. However, suitable nesting habitat occurs within the study area north of Antelope creek. Direct impacts to prairie falcons would include the long-term of approximately 117 acres of potential foraging habitat, until reclamation has been completed and vegetation has been re-established. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the lack of active nest sites within the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Greater Sage-grouse

Three greater sage-grouse lek sites (three active, one inactive) have been identified in the study area. As discussed in Section 3.12, Wildlife Resources, the nearest active lek site occurs approximately 1 mile north of the Hollister Site. As a result, no direct impacts to breeding greater sage-grouse (or leks) would be anticipated from project activities. Indirect impacts to breeding greater sage-grouse as a result of noise from project activities at the Hollister Site is not expected to occur based on the distance of the active leks from the Hollister Site. For the proposed project, noise surveys were conducted at the three active greater sage-grouse leks (see Section 3.23, Noise) and the results showed that noise from the current Hollister Site was not discernible given the distance of the active leks from the Hollister Site. However, impacts are anticipated to occur as a result of disturbance to sagebrush habitat from project construction activities and the potential loss of brooding habitat (e.g., riparian and wetland habitats) associated with groundwater pumping within the study area.

To prevent disruption of greater sage-grouse breeding activities, appropriate BMPs would be implemented, as described in *A Report on National Greater Sage-grouse Conservation Measures*, Appendix E (Sage-grouse National Technical Team 2011). These BMPs include the applicant-committed measures described in Section 2.4.9. For example, disturbance to breeding greater sage-grouse would be minimized by reducing human presence and noise within 3 miles of an active lek between 1 hour before sunrise to 10:00 a.m.

Potential impacts may still occur to greater sage-grouse habitat. Potential direct impacts would include the incremental long-term loss of approximately 117 acres of nesting and early brood habitat, late summer habitat, and winter habitat. Based on a total of 15,958 acres of nesting habitat and 16,609 acres of summer and winter habitat within the study area, impacts from the Proposed Action would account for less than 1 percent of the available greater sage-grouse habitat found within the study area.

In addition to the impacts to NDOW designated habitat described above, direct impacts also would include the incremental long-term loss of approximately 62 acres of PPH (47 acres of essential/irreplaceable habitat and 15 acres of important habitat), and approximately 55 acres of PGH habitat (**Figure 3.14-4**). Notwithstanding these impacts, adverse impacts to the greater sage-grouse in the area are not expected to increase substantially. The majority of the disturbance in the PPH habitat already exists, and most new disturbance would be in PGH habitat. All of the four spring complexes potentially impacted by groundwater drawdown from the proposed project are located within PPH important habitat.

Sandhill Crane, Long-billed Curlew, Black Tern, Western Yellow-billed Cuckoo, and Yellow-breasted Chat

These species have not been documented within the study area and limited marginal habitat occurs along Little Antelope Creek and Antelope Creek. No direct impacts are anticipated for these species based on limited habitat within the study area, and the existing level of human activity at the Hollister Site. However, impacts to these species may result from the potential loss of 12 acres of wetland

habitat and some riparian habitat within the maximum extent of the 10-foot groundwater drawdown contour (**Figure 3.9-2**) as a result of groundwater pumping associated with the Proposed Action. These impacts would include loss of available surface water and associated wetland and riparian vegetation.

Western Burrowing Owl

Although no burrowing owl nest sites have been documented within the study area, sagebrush shrubland vegetation that would be disturbed as a result of the proposed project would be suitable habitat for foraging birds within the study area. Direct impacts to this species would include the long-term loss of approximately 117 acres sagebrush shrubland breeding and foraging habitat, until reclamation has been completed and vegetation has been re-established. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the lack of documented nest sites within the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Long-eared Owl

This species has not been documented breeding within the study area and breeding habitat is limited within the study area. Direct impacts to this species would result from the long-term loss of approximately 117 acres of potential foraging habitat until reclamation has been completed and vegetation has been re-established. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the limited breeding habitat in the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Short-eared Owl

This species has been documented nesting along Antelope Creek and suitable nesting habitat is present throughout the study area. Direct impacts to this species would result from the long-term loss of approximately 117 acres of potential foraging habitat until reclamation has been completed and vegetation has been re-established. These impacts would be considered negligible based on the overall availability of suitable habitat in the vicinity of the study area. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the overall availability of suitable habitat in the study area and the existing level of activity at the Hollister Site, potential impacts to this species as a result of the proposed project would be considered low.

Lewis's Woodpecker, Pinyon Jay, Juniper Titmouse

Based on the presence of marginal habitat (e.g., sage-brush shrubland) in the study area, direct impacts to these species would result from the long-term loss of approximately 117 acres of sagebrush shrubland habitat. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the implementation of Rodeo Creek Gold Inc's (RCG's) committed environmental protection measures, the overall availability of suitable habitat in the study area, and the existing level of activity at the Hollister Site, potential impacts to these species as a result of the proposed project would be considered low.

Loggerhead Shrike, Vesper Sparrow

Based on the presence of potentially suitable breeding habitat within the study area, direct impacts to this species would include the long-term loss of approximately 117 acres of potential breeding and foraging habitat, until reclamation has been completed and vegetation has re-established. Indirect impacts would continue to result from mine and mineral exploration noise and human presence. Based on the overall availability of suitable habitat in the study area and the existing level of activity at the

Hollister Site, potential impacts to these species as a result of the proposed project would be considered low.

Amphibians

The Columbia spotted frog and northern leopard frog have not been recorded in the study area. Based on marginal habitat and the lack of occurrence records for these species, the potential for occurrence is considered to be low. Potential habitat exists in wetlands located within the study area. Project construction would not impact these wetland areas. However, groundwater pumping could reduce flows in 4 spring complexes and 12 acres of associated wetlands and some riparian areas within the study area. A potential reduction in flow in the affected springs also could reduce natural flows in Antelope Creek as described in Section 3.6, Surface Water Resources and Watersheds. These streams represent potential habitat for special status amphibians. A majority of these springs, wetland, and stream habitats have not been surveyed for amphibians including these two species. If present, habitat for these species could be adversely affected by reduced flows and water levels. However, discharge to Little Antelope Creek would create riparian habitat for the life of the mine.

Mollusks

As discussed in Section 3.5, Groundwater Resources and Geochemistry and Section 3.13, Aquatic Biological Resources, groundwater pumping could reduce flows in 4 spring complexes within the study area. Groundwater pumping could reduce flows in eight springsnail springs along Antelope Creek and one springsnail spring near Squaw Creek. Low potential adverse impacts are predicted for seven of the Antelope Creek springs. High potential impacts are predicted for one Antelope Creek spring and the Squaw Creek spring. Impacts on habitat could include no reductions, moderate reductions in spring water levels, or a total loss of wetted area depending on the volume of flow reduction. The impacts of reduced flow would be more pronounced in small springs where changes in habitat conditions could represent a substantial portion of the habitat. Typically, these mollusk species are restricted to spring sources and a limited distance of the spring outsource (usually less than 600 feet) (Sada and Deacon 1994). Potential flow reductions could alter the preferred habitat conditions for these species. If flows are significantly reduced, springsnails may be eliminated from a site.

<u>Human Presence and Noise</u>

Impacts to special status species from increased human presence and noise from construction activities would be the same as those discussed in Section 3.12, Wildlife Resources. Details on human presence and noise impacts for greater sage-grouse is presented below.

Recent studies on greater sage-grouse have shown that development activities can negatively impact populations as a result of increased noise and increased human disturbance (Holloran 2005; Walker et al. 2007). Greater sage-grouse have been observed to abandon lek sites in areas with increased road development (Braun 1986; Holloran 2005; Walker et al. 2007). Compared to hens near undisturbed leks, greater sage-grouse hens that used leks within approximately 2 miles of development activities moved further away from leks to nesting areas and had lower nest initiation rates (Lyon and Anderson 2003). Furthermore, greater sage-grouse hens that utilized nesting habitats further from roads had greater brood survivorship than those hens utilizing habitat near roads (Lyon and Anderson 2003). Research also has shown that, as a result of increased food sources associated within development activities (e.g., road kill, litter, etc.), population levels of predators, especially corvids, generally increases over time unless deterrents are used on tall structures (Andren 1992; Avery and Genchi 2004).

However, based on the results of the noise measurements described in Section 3.23, Noise, impacts from increased human presence and noise at and near the Hollister Site on greater sage-grouse is anticipated to be low. This is primarily due to the distance of the active leks in relation to the current

Hollister Site, topographic shielding of the leks from the Hollister Site and Ivanhoe Road, and the existing level of human activity at the Hollister Site.

Water Management Activities

Impacts to special status species would be the same as described in Section 3.12, Wildlife Resources.

Hazardous Materials Spill

The possibility of a transportation-related spill of process chemicals along the transportation route is discussed in Section 3.24, Hazardous Materials and Solid Waste. The potential for special status wildlife species exposure to toxic chemicals as a result of a transportation-related spill would be greatest if an accident were to occur near aquatic habitats. Spills in dryland habitat would pose only minimal risk to most special status wildlife species since these spills would be adjacent to highways and could be rapidly contained and cleaned up. In general, the materials of greatest concern would be sulfuric acid and diesel fuel. The effects of a sulfuric acid release would be highly variable and would depend on the quantity released, the location of the release (e.g., dry upland area, wet meadow area, or flowing stream area), the species exposed, and the chemical conditions at the release location. The most likely effect of a potential release of sulfuric acid would be the poisoning of terrestrial or aquatic species. Animal species that drink contaminated water could suffer severe effects or death depending on the concentration of sulfuric acid and the volume of the water consumed.

A diesel spill has the potential to contaminate soil, surface water, and groundwater in addition to harming aquatic life and vegetation. Although unlikely, such a spill also could ignite from the accident and cause a wildfire. Because cleanup actions would take place immediately, diesel contamination has a low potential to result in long-term impacts to soil, surface water, and possibly groundwater.

Hazardous chemicals would be transported via U.S. Department of Transportation-certified containers and transporters, and transportation of sulfuric acid and other chemical reagents would be in accordance with all applicable rules and regulations. In addition, as discussed in Section 3.24, Hazardous Materials and Solid Waste, RCG would implement their Spill Prevention, Control, and Countermeasures Plan that establishes procedures for responding to accidental spills or releases of hazardous materials to minimize environmental risks.

3.14.2.2 Mud Springs Road Transmission Line Alternative

Impacts to special status species would be the same as described for the Proposed Action except the transmission line route under this alternative would be approximately 9.5 and 15.2 (50 percent sagebrush shrubland and 50 percent grassland) fewer acres of vegetation during construction of the North and South Options, respectively. This would reduce the extent of impacts associated with habitat disturbance, habitat fragmentation, and bird/bat collisions with the transmission line.

3.14.2.3 Mud Springs Waste Rock Storage Facility Alternative

Impacts to special status species would be the same as described for the Proposed Action except for an additional 18.9 acres of disturbance to grassland habitat as a result of the Mud Springs Waste Rock Storage Facility (WRSF) and Mud Springs Road diversion. This alternative has the potential to increase habitat fragmentation; however, 30 percent of the 18.9 acres of grassland habitat disturbance occurs in previously burned (2005) habitat. Consequently, this area has already experienced habitat loss and fragmentation as a result of wildfires and any additional impacts to special status species as a result of this alternative are expected to be low. Developing a stable land form design for the Mud Springs WRSF that complements the surrounding topography may reduce impacts to wildlife (including sensitive species) associated with human presence and noise. In the event that this alternative is selected, a reclamation land form plan would be developed that would take into consideration sage-grouse conservation measures as dictated by BLM IM-2012-043, and other applicable regulations or guidance.

3.14.2.4 Backfill Alternative

Impacts to special status species would be the same as described for the Proposed Action except for an additional 10.6 acres of surface disturbance to primarily grassland habitat would be lost temporarily until reclamation activities are completed. This alternative would result in surface disturbance to an area further away from the core mining area and would likely have incrementally more impacts to wildlife from noise and habitat fragmentation than the Proposed Action. After closure and reclamation, noise and activity associated with the Backfill Alternative would be eliminated. Areas would be returned to habitat once re-seeded and successfully reclaimed.

3.14.2.5 No Action Alternative

Under the No Action Alternative, the proposed project would not be developed, and the associated potential impacts to special status species, would not occur. The Hollister Development Block Project would continue to operate under existing authorizations.

3.14.3 Cumulative Impacts

Past, present, and reasonably foreseeable future actions (RFFAs) are described in Section 3.2. The CESA for special-status species is the same as the wildlife CESA (**Figure 3.12-1**) except for greater sage-grouse, which is presented in **Figure 3.14-1** and **Figure 3.14-2**. **Table 3.14-2** presents the disturbance of special status species habitat by the Proposed Action, wildfire, and mining operations. The CESA for greater sage-grouse encompasses areas that are utilized by greater sage-grouse in relation to past and present actions and RFFAs. **Table 3.14-2** presents the disturbance of greater sage-grouse habitat by wildfire and mining operations. Several thousand acres of cultivated alfalfa in Boulder Valley and the Humboldt River Valley (area north of Battle Mountain) may potentially provide late summer/brood-rearing habitat for greater sage-grouse (BLM 2008b). These areas provide succulent forbs sought by greater sage-grouse including alfalfa and other annual or perennial forbs. The current extent of potential use of these cultivated areas by greater sage-grouse is unknown since cover provided by sagebrush habitats adjacent to these fields have been impacted by wildfires in many areas over the last 20 to 30 years (BLM 2008b).

Studies have shown that development can negatively impact sage-grouse populations as a result of habitat loss and increased human disturbance (Holloran 2005; Walker et al. 2007). Greater sage-grouse have been observed to abandon lek sites in areas with increased road development (Braun 1986; Holloran 2005; Walker et al. 2007). Compared to hens in undisturbed leks, sage-grouse hens that used breeding leks within approximately 2 miles from development moved further away from breeding leks to nesting areas and had lower nest initiation rates (Lyon and Anderson 2003). Furthermore, sage-grouse hens that utilized habitats farthest from roads had greater brood survivorship than those hens utilizing habitat near roads (Lyon and Anderson 2003). Connelly et al. (2000) recommends that facilities be located more than 2 miles (3.2 kilometers [km]) from active lek sites under ideal habitat conditions, 3 miles (5 km) when habitat conditions are not ideal, and 11 miles (18 km) when greater sage-grouse populations are migratory. The Proposed Action also would result in cumulative impacts to PPH and PGH habitat within the CESA (**Figure 3.14-2**). It is assumed that habitat conditions within the study area are not ideal, based on fire history, and the current level of human disturbance and noise levels at the Hollister Site. In addition, mine groundwater pumping activities within the greater sage-grouse CESA could result in a reduction or loss of flows in springs and seeps that support brooding habitat for greater sage-grouse. Reductions or elimination of flows in springs and seeps could impact greater sage-grouse dependent on these sites and may impact the distribution and use of habitat during the spring, summer, and early fall.

Table 3.14-2 Cumulative Special Status Species and Greater Sage-grouse Habitat Disturbance

CESA	Habitat Classification	Total Acres of Habitat	Acres of Habitat Disturbed by Fire[1]	Acres of Habitat Disturbed by Proposed Action	Acres of Habitat Disturbed by Mining Operations (Past, Present, RFFAs[2])	Total Acres of Habitat Disturbed
Special Status Species[3]	NA	2,389,947	1,131,690 (47%)	129[5] (<1%)	38,622 (2%)	1,170,036 (49%)
Greater Sage-grouse (habitat type)[4]	NA	2,272,791	1,051,007 (46%)	129[5] (<1%)	37,142 (2%)	1,088,278 (48%)
Greater Sage-grouse (habitat classification)[6]	PPH – essential/ irreplaceable	686,320	155,891 (23%)	47 (<1%)	600 (<1%)	156,538 (23%)
	PPH – important	492,240	257,541 (52%)	27[5] (<1%)	122 (<1%)	257,690 (52%)
Greater Sage-grouse (habitat classification)[6]	PGH	735,877	601,798 (82%)	55 (<1%)	4,106 (<1%)	605,959 (82%)

[1] Fire data used for this analysis has been further refined and modified since the Betze Pit Expansion Supplemental Environmental Impact Statement (BLM 2008b).

[2] See **Table 3.2-1** for a breakdown of mining projects.

[3] The special status CESA is identical to the wildlife CESA, excluding greater sage-grouse.

[4] Includes nesting, early brood, late summer, and winter habitat.

[5] Includes 12 acres of potentially impacted wetland habitat within the maximum extent of the 10-foot groundwater drawdown contour as a result of groundwater pumping. Some riparian habitat also may be impacted, but is not quantified.

[6] Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) are as described in BLM IM 2012-043.

Source: NDOW 2012, 2009a; USGS 2004.

Groundwater pumping associated with Hollister mining could reduce flow in nine springs that contain springsnails within the Antelope and Squaw creek drainages. These nine springs occur in two of four identified spring complexes (**Figure 3.9-3**). These four spring complexes overlap with the groundwater drawdown contour for Barrick's Betze/Post Project dewatering. The Proposed Action and the Betze/Post Project have groundwater drawdown in separate aquifers. However, Proposed Action's potential effects on these two spring complexes would contribute to overall cumulative impact to springsnails in the CESA.

Potential cumulative impacts to other special status species would parallel those described in Section 3.12, Wildlife Resources.

Cumulative impacts to special status species for the Mud Springs Road Transmission Line Alternative would be the same as described for the Proposed Action, with the exception of an incremental decrease in habitat loss of 9.5 acres and 15.2 acres for the North and South options, respectively.

Cumulative impacts to special status species under the Mud Springs Road WRSF and Backfill alternatives would be the same as the Proposed Action, with the exception of an incremental increase in habitat loss of 18.9 and 10.6 acres, respectively.

3.14.4 Potential Monitoring and Mitigation Measures

SSS-1

Issue: Northeastern Nevada has more greater sage-grouse leks than personnel to survey them annually. As such, many leks have inconsistent survey data. Due to the remoteness of the East Velvet, East Clementine, and Big Butte leks, NDOW only has sporadic data on attendance.

Monitoring/Mitigation Measure: RCG would hire an appropriate contractor to conduct lek surveys according to NDOW protocols for the East Velvet, East Clementine, and Big Butte greater sage-grouse leks each year during the breeding season (March 15 to June 15) and report the results of the lek surveys to NDOW and the BLM.

Effectiveness: By implementing SSS-1, accurate yearly lek counts would be obtained for the East Velvet, East Clementine, and Big Butte greater sage-grouse leks. Based on trend data for these three leks, BLM and NDOW would be able to monitor the status of the leks and determine whether additional mitigation would be necessary to protect greater sage-grouse in the project region.

3.14.5 Residual Impacts

Residual impacts to special status species under the Proposed Action would include the long-term loss of 43.8 acres of sagebrush shrubland. The loss of shrub-dominated communities would represent a long-term change in wildlife habitat composition (i.e., shrub-dominated communities to grass/forb dominated communities) under the Proposed Action because it may take up to approximately 25 years for mature shrubs to become established in these communities. In addition, 12 acres of wetland habitat and some riparian habitat would be impacted in the long-term under the Proposed Action due to the impacts associated with groundwater pumping within the maximum extent of the 10-foot groundwater drawdown contour.