

# **APPENDIX D**

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## Special Status Species Summary Tables

**Plant Sensitive Species review for the Leach Hot Springs Geothermal Exploration Project, Pershing County, Nevada.** Species list includes BLM-identified sensitive species reported on the NNHP occurrence list for Pershing, Humboldt and Lander counties. Data source NNHP Fact Sheets and Occurrence Maps, available on-line at <http://heritage.nv.gov/atlas/atlas.html>.

| Species  | Habitat   | Nevada Range  | Occurrence in Project Area   | Source    |
|--|---|---|--|-----------|
| Eastwood Milkweed<br><i>Asclepias eastwoodiana</i>     | Generally barren, basic (low pH) soils, 4,680 to 7,080 feet   | Central Nevada  | Suitable habitat (barren, basic soils) not present; Occurs well to south.  | NNHP 2001 |
| Tiehm Milkvetch<br><i>Astragalus tiehmii</i>           | White fluviolacustrine volcanic ash deposits weathering to deep clay, 5,280 to 5,750 feet                                     | Northwestern Nevada (often with <i>C. schoolcraftii</i> and <i>E. crosbyae</i> )              | Suitable habitat (white fluviolacustrine volcanic ash deposits weathering to deep clay) not present.   | NNHP 2001 |
| Schoolcroft Catseye<br><i>Cryptantha schoolcraftii</i> | White fluviolacustrine volcanic ash deposits weathering to deep clay, 4,880 to 5,760 feet                                     | Northwestern Nevada (Often occurs with <i>A. tiehmii</i> and <i>E. crosbyae</i> – see below). | Suitable habitat (white fluviolacustrine volcanic ash deposits weathering to deep clay) not present.   | NNHP 2001 |
| Goodrich biscuitroot<br><i>Cymopterus goodrichii</i>   | Moderate to steep scree slopes in slate or limestone, 7,300-11,100 feet   | Toiyabe and Humboldt Mountain Ranges  | Suitable habitat (scree slopes in slate or limestone) not present; occurs at higher elevation.   | NNHP 2001 |
| Windloving buckwheat<br><i>Eriogonum anemophilum</i>   | Generally high elevation dry, exposed, relatively barren ridges and knolls on shallow soils over bedrock, 4,750 to 9,840 feet | North-central Nevada mountain ranges  | Occurs in mountains near project area; suitable habitat (dry, exposed, relatively barren ridges and knolls on shallow soils over bedrock) not present in project area. | NNHP 2001 |
| Crosby Buckwheat<br><i>Eriogonum crosbyae</i>          | Rhyolite and white fluviolacustrine volcanic ash deposits, derived shallow sandy to clay soils, 4,600 to 7,000 feet           | Northwestern Nevada (often with <i>A. tiehmii</i> and <i>C. schoolcraftii</i> )               | Suitable habitat (rhyolite and white fluviolacustrine volcanic ash deposits weathering to deep clay) not present.  | NNHP 2001 |

| Species   | Habitat   | Nevada Range                                    | Occurrence in Project Area   | Source    |
|---|---|---|--|-----------|
| Prostrate Buckwheat<br><i>Eriogonum prociduum</i>                           | Basalt flows and barren volcanic tuff, 6,800 to 7,150 feet  | Northwestern Nevada                             | Suitable habitat (basalt flows and barren volcanic tuff ) not present.                       | NNHP 2001 |
| Grimy Ivesia<br><i>Ivesia rhypara</i> var. <i>rhypara</i>                   | Dry, relatively barren badland or welded tuff soils, sometimes hydrothermally altered and re-cemented, 5,370 to 6,200 feet  | Northwestern and northern Nevada                | Suitable habitat (relatively barren badland or welded tuff soils) not present.               | NNHP 2001 |
| Pueblo Valley Peppergrass<br><i>Lepidium montanum</i> var. <i>nevadense</i> | Sand dunes and deep sand, 4,180 to 4,365 feet. Base of sandy areas in saline flats.   | Northwest Humboldt County (Pueblo Valley area)  | Suitable habitat (sand dunes and deep sand) not present.                                     | NNHP 2001 |
| Bruneau River Prickly Phlox<br><i>Leptodactylon glabrum</i>                 | Crevices in steep to vertical coarse-crumbling volcanic canyon walls, 4,710 to 5,300 feet   | Northwestern Nevada                             | Suitable habitat (steep to vertical coarse-crumbling volcanic canyon walls) not present.     | NNHP 2001 |
| Smooth Stickleaf <i>Mentzelia mollis</i>                                    | Dry, open, nearly barren eroding shrink-swell badlands, 4,360 to 5,250 feet   | Southwest Humboldt County                       | Suitable habitat (nearly barren eroding shrink-swell badlands) not present.                  | NNHP 2001 |
| Nevada Oryctes<br><i>Oryctes nevadensis</i>                                 | Deep loose sand, 3,900 to 5,960 feet  | Western Nevada                                  | Suitable habitat (deep loose sand) not present.  | NNHP 2001 |
| Cordelia beardtongue<br><i>Penstemon floribundus</i>                        | Dry, open, mostly dark-colored volcanic talus, very rocky slopes or alluvium derived there from. 4,240 to 7,400 feet  | West side of Jackson Mountains, Humboldt County | Suitable habitat (dark-colored volcanic talus) not present.                                  | NNHP 2001 |
| Lahontan Beardtongue<br><i>Penstemon palmeri</i> var. <i>macranthus</i>     | Along washes, roadsides and canyon floors, usually where subsurface moisture is available throughout most of summer. May be restricted to carbonate substrates. 3,430 to 4,550 feet | West-central Nevada                             | Suitable habitat not present. Soils not carbonate, subsurface moisture limited.              | NNHP 2001 |
| Playa Phacelia<br><i>Phacelia inundata</i>                                  | Alkali playas and seasonally inundated areas with clay soils. In Nevada, aquatic or wetland dependant. 5,030 to 5,640 feet.   | Northwestern-most Nevada                        | Suitable habitat (alkali playas and seasonally inundated areas with clay soils) not present. | NNHP 2001 |

**Wildlife Sensitive Species review for the Leach Hot Springs Geothermal Exploration Project, Pershing County, Nevada.** List includes BLM-identified sensitive species that occur in the Great Basin and cold desert habitats. Species with no potential to occur due to identified range (i.e., southern Nevada species; species restricted to Mojave Desert habitats, forest habitats, high mountain habitats) not included in this list. No fish species are reported from the project area. No aquatic invertebrates are reported at Leach Hot Springs (NNHP 2010). Surveys for invertebrate aquatic species would be conducted if acceptable to the private land owners.

| Species  | Habitat   | Nevada Range                                  | Occurrence in Project Area  | Source   |
|--|---|---|---|--|
| Mammals  |   |   |   |  |
| Pallid Bat<br><i>Antrozous pallidus</i>                                      | Varied habitats, including arid environments.   | Statewide                                     | Probable forager  | Sherwin 1998   |
| Pygmy Rabbit<br><i>Brachylagus idahoensis</i>                                | Dense sagebrush with friable soils  | Northern and central Nevada                   | Potential. No evidence of occurrence found during dedicated surveys of project area | Jameson and Peters 1988; Ulmschneider et al. 2004                              |
| Townsend's Big-eared Bat<br><i>Corynorhinus townsendii</i>                   | Desert scrub, pinyon-juniper. Roosts in caves, abandoned mines.                           | Statewide                                     | Potential forager   | Jameson and Peters 1988; Kunz and Martin 1982; Pierson, Rainey and Koontz 1991 |
| Big Brown Bat<br><i>Eptesicus fuscus</i>                                     | Wide-ranging bat occupying diverse habitats.  | Statewide                                     | Potential forager   | Perkins 1998a  |
| Silver-haired Bat<br><i>Lasionycteris noctivagans</i>                        | Forested habitats, including pinyon-juniper.  | Statewide                                     | Unlikely. No forested habitats in area  | Perkins 1998b  |
| Western Red Bat<br><i>Lasiurus blossevillii</i>                              | Associated with riparian and/or wooded habitats. Migratory. Usually solitary.             | Western, southern and central Nevada          | Unlikely, no riparian habitats nearby   | NDOW 2006; Bolster 1998  |
| Spotted Bat<br><i>Euderma maculatum</i>                                      | Varied habitats. Widespread but occurs in low numbers. Roosts in crevices of tall cliffs. | Statewide                                     | Possible forager. No large cliffs (roost sites) in area.                            | Leonard and Fenton 1983; Watkins 1977  |
| Hoary Bat<br><i>Lasiurus cinereus</i>  | Typically in forested habitats. Roosts in trees. Migratory.                               | Statewide                                     | Unlikely. No forested habitats in area  | Bolster 1998; NDOW 2006  |
| Desert Valley Kangaroo Mouse<br><i>Microdipodops megacephalus albiventer</i> | Gravelly to sandy habitats.   | Desert Valley, central Lincoln County, Nevada | No. Range is well southeast of area.  | Hall 1995; NDOW 2006   |
| Fletcher Dark Kangaroo Mouse<br><i>Microdipodops megacephalus nasutus</i>    | Gravelly to sandy habitats.   | Near Fletcher, Mineral County, Nevada         | No. Range is well south of area.  | Hall 1995  |
| California Myotis<br><i>Myotis californicus</i>                              | Varied habitats, including arid areas.  | Statewide                                     | Potential forager   | Bogen, Valdez and Navo 1998b   |

| Species  | Habitat  | Nevada Range   | Occurrence in Project Area                                   | Source                              |
|--|--|--|--|-------------------------------------|
| Small-footed Myotis<br><i>Myotis ciliolabrum</i>               | Varied habitats, most common in pinyon-juniper   | Statewide  | Potential forager  | Bogen, Valdez and Navo 1998c        |
| Long-eared Myotis<br><i>Myotis evotis</i>                      | Varied habitats, most common in coniferous forest  | Statewide  | Potential forager, but no coniferous forest in area          | Bogen, Valdez and Navo 1998a        |
| Little Brown Myotis<br><i>Myotis lucifugus</i>                 | Wide-ranging bat, typically found in mesic or forested habitats.   | Statewide  | Potential forager, but no coniferous forest in area          | Rainey 1998                         |
| Fringed Myotis<br><i>Myotis thysanodes</i>                     | Oak and pinyon-juniper habitats may be favored   | Statewide  | Potential forager, but no oak or pinyon in area              | Bradley and Ports 1998              |
| Long-legged Myotis<br><i>Myotis volans</i>                     | Most common in forested habitats but does occur in more arid situations  | Statewide  | Potential forager, but no coniferous forest in area          | Bogen, Valdez and Navo 1998d        |
| Yuma Myotis<br><i>Myotis yumanensis</i>                        | Often associated with water.   | Western and central Nevada                           | Unlikely, due to limited surface water in project area       | Bogen, Valdez and Navo 1998e        |
| Desert Bighorn Sheep<br><i>Ovis canadensis nelsoni</i>         | Mountains. May cross intervening valleys   | Southern and central Nevada, including introductions | Yes. May pass through project area.                          | Shackleton 1985                     |
| Western Pipistrelle<br><i>Pipistrellus hesperus</i>            | Wide-ranging. Often near water.  | Statewide  | Potential forager, but limited water in project area proper. | Brown 1998                          |
| Preble's Shrew<br><i>Sorex preblei</i>                         | In Nevada, benches along perennial and ephemeral streams dominated by shrubs. Also sagebrush openings in forested habitats, marshes, aspen | Northern tier of Nevada                              | No. Range is north of area.                                  | Ports and George 1990; Zevloff 1988 |
| Mexican Free-tailed Bat<br><i>Tadarida braziliensis</i>        | Varied. Often forms large colonies.  | Southern, central and western Nevada                 | Potential forager  | BCI 1998                            |
| Fish Springs Pocket Gopher<br><i>Thomomys bottae abstrusus</i> | Species ( <i>Thomomys bottae</i> ) is wide-ranging, occurring in a variety of habitats soil suitable for burrowing.                        | Northern Fish Springs Valley, Nye County, Nevada     | No. Range is well south of area.                             | Hall 1995; NDOW 2006                |
| San Antonio Pocket Gopher<br><i>Thomomys bottae curtatus</i>   | Species ( <i>Thomomys bottae</i> ) is wide-ranging, occurring in a variety of habitats soil suitable for burrowing.                        | San Antonio, Nye County, Nevada                      | No. Range is well south of area.                             | Hall 1995                           |
| Birds  |  |  |  |                                     |
| Golden Eagle<br><i>Aquila chrysaetos</i>                       | Mountains, deserts, plains   | Statewide  | Yes. Observed in area.                                       | JBR observation                     |
| Short-eared Owl<br><i>Asio flammeus</i>                        | Open country; ground nester  | Northern and central Nevada                          | Potential. Not observed in area.                             | Floyd et al. 2007; Johnsgard 1988   |

| Species   | Habitat  | Nevada Range  | Occurrence in Project Area  | Source  |
|---|--|---|---|---|
| Long-eared Owl<br><i>Asio otus</i>                      | Forest, thick vegetation by day. Hunts in more open areas at night | Statewide   | Unlikely, no potential nesting habitat in project area                              | Floyd et al. 2007; Johnsgard 1988   |
| Burrowing Owl<br><i>Athene cunicularia</i>              | Open country, nest sites usually include elevated perch            | Migratory. Present in Nevada during warmer times of year                | Potential. No evidence of occurrence found during dedicated surveys of project area | Floyd et al. 2007; Johnsgard 1988; Ryser 1985                                 |
| Juniper Titmouse<br><i>Baeolophus griseus</i>           | Pinyon and juniper forest  | Statewide in suitable habitat   | No. No habitat in project area.   | Floyd et al. 2007   |
| Ferruginous Hawk<br><i>Buteo regalis</i>                | Open country, often nests on outer edges of juniper forest         | Nests primarily in central and eastern Nevada. Western Nevada in winter | Known to nest in close proximity to the project area.                               | JBR observation   |
| Swainson's Hawk<br><i>Buteo swainsoni</i>               | Open country, plains, prairie, agricultural areas                  | Open country. Long-distance migrant. Nests later than most raptors.     | Potential. Not observed in project area.  | Floyd et al. 2007   |
| Greater Sage-grouse<br><i>Centrocercus urophasianus</i> | Sagebrush habitats.  | Year-round resident in sagebrush habitats, northern and central Nevada  | Eastern portion of area is within the Sonoma Population Management Unit             | Floyd et al. 2007; NDOW   |
| Snowy Plover<br><i>Charadrius alexandrinus</i>          | Beaches, playas, playa margins                                     | Western and central Nevada. Migratory                                   | Unlikely. No playas in project area.  | Floyd et al. 2007   |
| Prairie Falcon<br><i>Falco mexicanus</i>                | Open country. Nests on cliffs and outcrops.                        | Statewide   | Probable forager. Not observed in project area during surveys.                      | Floyd et al. 2007   |
| Peregrine Falcon<br><i>Falco peregrinus</i>             | Often near water. Nests on tall cliffs, man-made structures        | Occurs primarily as a migrant across the state                          | Unlikely migrant.   | Floyd et al. 2007   |
| Pinyon Jay<br><i>Gymnorhinus cyanocephalus</i>          | Pinyon and juniper forest  | Statewide in suitable habitat   | No. No habitat in project area.   | Floyd et al. 2007   |
| Yellow-breasted Chat<br><i>Icteria virens</i>           | Dense riparian habitats  | Warm-season resident throughout most of Nevada                          | No. No habitat in project area  | Floyd et al. 2007   |
| Loggerhead Shrike<br><i>Lanius ludovicianus</i>         | Open country in greasewood, sagebrush, agricultural areas          | Statewide   | Observed in area. Potential nester in taller sagebrush.                             | Floyd et al. 2007; Fraser and Luukkonen 1986; McAdoo, Longland and Evans 1980 |

| Species  | Habitat   | Nevada Range  | Occurrence in Project Area   | Source                   |
|--|---|---|--|--------------------------|
| Black Rosy Finch<br><i>Leucosticte atrata</i>                            | High mountains in summer. May wander into lowlands in winter  | Eastern and central Nevada, particularly in Rubies and East Humboldts | Unlikely winter visitor  | Floyd et al. 2007        |
| Lewis Woodpecker<br><i>Melanerpes lewis</i>                              | Open woodlands, aspen groves in mountains   | Northern Nevada warm-season resident                                  | No. No habitat in project area.  | Floyd et al. 2007        |
| Long-billed Curlew<br><i>Numenius americanus</i>                         | Wet and dry uplands, wetlands, agricultural fields  | Northern and central Nevada during warmer times of year               | Potential in Leach Hot Springs area; potential forager elsewhere.                        | Floyd et al. 2007        |
| Phainopepla<br><i>Phainopepla nitens</i>                                 | Mesquite, riparian  | Southern Nevada   | No. Range is south of area.  | Floyd et al. 2007        |
| Vesper Sparrow<br><i>Pooecetes gramineus</i>                             | Grasslands, farmlands, forest clearings, sagebrush  | Nearly statewide. Warm season species                                 | Potential. Not observed.   | Floyd et al. 2007        |
| Red-naped sapsucker<br><i>Sphyrapicus nuchalis</i>                       | Deciduous forest, aspens  | Nearly statewide but migratory in northern part of state              | No. No habitat in project area.  | Floyd et al. 2007        |
| Crissal Thrasher<br><i>Toxostoma crissale</i>                            | Dense mesquite and willows, mountain slopes   | Southern Nevada   | No. Range is south of area.  | Floyd et al. 2007        |
| LeConte's Thrasher<br><i>Toxostoma lecontei</i>                          | Arid, sparsely vegetated habitats   | Southern Nevada   | No. Range is south of area.  | Floyd et al. 2007        |
| <b>Reptiles</b>  |   |   |  |                          |
| Sierra Alligator Lizard<br><i>Elgaria (Gerrhonotus) caerulea palmeri</i> | Typically in woodland and forest; also found in grassland and sagebrush   | Sierra Nevada, extreme western Nevada                                 | No. Range is southwest of area.  | NDOW 2006; Stebbins 1985 |
| Western red-tailed skink<br><i>Eumeces gilberti rubricaudatus</i>        | Variety of habitats, often in rocky situations near springs or streams.   | Southwestern Nevada, Nye and Clark Counties                           | No. Range is south of area.  | Stebbins 1985            |
| Sonoran Mountain Kingsnake<br><i>Lampropeltis pyromelana</i>             | Mountains, usually near cover and often near springs or streams   | Eastern Nevada, White Pine and possibly Lincoln Counties              | No. Range is well southeast of area.   | NDOW 2006; Stebbins 1985 |
| Short-horned Lizard<br><i>Phrynosoma douglassii</i>                      | Open, shrubby or openly wooded areas with sparse vegetation at ground level.  | Northern tier of Nevada   | No. Range is north of area.  | NDOW 2006; Stebbins 1985 |
| <b>Amphibians</b>  |   |   |  |                          |
| Northern Leopard Frog<br><i>Rana pipiens</i>                             | Usually associated with permanent water with rooted aquatic vegetation; lays eggs in <i>slow</i> to still permanent water | Localized populations across northern Nevada                          | No habitat in areas of proposed disturbance; Potential in cooler water below hot springs | NDOW 2006; Stebbins 1985 |

| Species  | Habitat  | Nevada Range  | Occurrence in Project Area  | Source  |
|--|--|---|---|---|
| Insects  |  |   |   |   |
| Crescent Dunes Aegialian Scarab<br><i>Aegialia crescenta</i>     | Active November to April. Endemic to Crescent Dunes  | Crescent Dunes, northwestern Nye County                                 | No. Range is well south of area.  | Hardy, Carlson and Edmonds 1981; Knight, 2009 |
| Crescent Dunes Aphodius Scarab<br><i>Aphodius</i> sp.            | Crescent Dunes   | Crescent Dunes, northwestern Nye County                                 | No. Range is well south of area.  | Knight, 2009                                  |
| Pallid Wood Nymph<br><i>Cercyonis oetus pallescens</i>           | Alkali flats. Host plants probably grasses.  | Reese River east of Austin; Dixie Valley area, Churchill County, Nevada | No. Range is south of area.   | Austin et al. 2001; Pelham 2008               |
| Giuliani's Blue<br><i>Euphilotes ancilla giulianii</i>           | Woodlands, sagebrush, chaparral. Host plants buckwheats                                    | Grapevine Mountains, Nye County, Nevada                                 | No. Range is well south of area.  | Austin et al. 2001; Pelham 2008               |
| Shield Blue<br><i>Euphilotes ancilla shieldsi</i>                | Woodlands, sagebrush, chaparral. Host plants buckwheats                                    | White Mountains, Esmeralda County, Nevada                               | No. Range is well south of area.  | Pelham 2008                                   |
| Fused Battoides Blue<br><i>Euphilotes battoides fusimaculata</i> | Prairies, desert, open woodland, chaparral, dunes. Host plants buckwheats                  | Toiyabe Mountains, Nye County, Nevada                                   | No. Range is well south of area.  | Pelham 2008                                   |
| Early Blue<br><i>Euphilotes enoptes primavera</i>                | Woodlands, sagebrush, chaparral. Host plants buckwheats                                    | Wassuk Range, Mineral County, Nevada                                    | No. Range is well south of area.  | Pelham 2008                                   |
| Mattoni's Blue<br><i>Euphilotes pallescens mattonii</i>          | Desert, prairie, sand dunes. Host plants slender buckwheat<br><i>Eriogonum microthecum</i> | Jarbidge area, (Northeast) Elko County, Nevada                          | No. Range is east of area. <i>E. microthecum</i> not noted in area          | Austin et al. 2001; Pelham 2008               |
| Rice's Blue<br><i>Euphilotes pallescens ricei</i>                | Type locality in an area dominated by dunes  | Sand Pass, Silver State Dunes, Humboldt County, Nevada                  | No. Occurs north of area in sandy habitats. No such habitat in project area | Austin et al. 2001; Pelham 2008               |
| Koret's checkerspot<br><i>Euphydryas editha koreti</i>           | Mountains, ridgetops. Host plants various.   | White Pine and Lander Counties, Nevada                                  | No. Range is east of area.  | Pelham 2008                                   |
| MacNeill Sooty Wing Skipper<br><i>Hesperopsis graciellae</i>     | Washes, alkali flats. Host plants Chenopods.   | Lower Colorado River Drainage   | No. Range is well south of area.  | Pelham 2008                                   |
| Rulien's miloderes weevil<br><i>Miloderes rulieni</i>            | Sand dunes   | Big Dune area, Amargosa Valley  | No. Range is well south of area.  | USDI, BLM undated                             |

| Species   | Habitat  | Nevada Range  | Occurrence in Project Area             | Source  |
|---|--|---|--|---|
| Great Basin Small Blue<br><i>Philotiella speciosa septentrionalis</i> | Shrubby desert. Host plants buckwheats, <i>Oxytheca</i>  | Lyon and Churchill Counties   | No. Range is south of area.            | Pelham 2008                                   |
| Denio Sandhill Skipper<br><i>Polites sabuleti sinemaculata</i>        | Moist meadows and alkali grasslands. Host plants saltgrass, other grasses  | Baltazor Hot Springs, Humboldt County west of Denio   | No. Range is well north of area.       | Pelham 2008                                   |
| (No common name)<br><i>Pyrgulopsis gibba</i>                          | Persistent aquatic environments. <i>Pyrgulopsis</i> springsnails often occur in spring sources with watercress. Do not occur in springs that periodically dry. | Much of Lahontan Basin. Known from spring in Clearwater Creek, Grass Valley north of project area | Not known from Leach Hot Springs       | Hershler 1998; Sada 2004                      |
| (No common name)<br><i>Pyrgulopsis auratus</i>                        | Persistent aquatic environments. <i>Pyrgulopsis</i> springsnails often occur in spring sources with watercress. Do not occur in springs that periodically dry. | Coyote Spring, Pleasant Valley, south of project area   | Not known from Leach Hot Springs       | Hershler 1998; Sada 2004                      |
| Grey's Silverspot<br><i>Speyeria nokomis carsonensis</i>              | Wet meadows, springs, mountains. Host plants violets.  | Lyon and Churchill Counties   | No. Range is well southwest of area.   | Pelham 2008                                   |
| Crescent Dunes Serican Scarab<br><i>Serica ammomenisco</i>            | Flight period between June and August. Endemic to Crescent Dunes   | Crescent Dunes, northwestern Nye County   | No. Range is well south of area.       | Hardy, Carlson and Edmonds 1981; Knight, 2009 |
| Humboldt Serican Scarab<br><i>Serica humboldti</i>                    | Dunes  | Winnemucca Dunes, 10 miles north of Winnemucca  | No. No dunes or sandy habitats in area | Gordon 1975; Hardy and Andrews 1987           |

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