

### 3.4 Vegetation

The study area for direct and indirect impacts to vegetation resources is defined as the proposed POO expansion areas. The CESA for vegetation resources encompasses the entirety of the Copper Canyon, North Buffalo, and Buffalo Valley Allotments (**Figure 3.4-1**).

#### 3.4.1 Affected Environment

##### 3.4.1.1 Plant Communities

Dominant vegetation communities within the lower to mid-elevations of the Copper Canyon, North Buffalo, and Buffalo Valley allotments are comprised of shadscale saltbush (*Atriplex confertifolia*) and budsage (*Artemisia spinescens*) with an understory of Indian ricegrass (*Oryzopsis hymenoides*) and bottlebrush squirreltail (*Elymus elymoides*). Co-dominant communities of the mid-elevations of these allotments consist primarily of communities dominated by Wyoming big sagebrush (*Artemisia tridentata*) with an understory consisting of Thurber needlegrass (*Achnatherum thurberianum*) and Indian ricegrass. Co-dominant communities of the upper elevations of the Battle Mountain and Fish Creek ranges are comprised of bluebunch wheatgrass (*Pseudoroegneria spicata*) within a shrub community consisting of mountain big sagebrush (*Artemisia vaseyana*) and mountain big sagebrush with an understory of Idaho fescue (*Festuca idahoensis*) and bluebunch wheatgrass.

Vegetation types, acreage calculations, and community characterizations were compiled based on the Phoenix Project Final EIS (BLM 2002a), agency consultation, and site-specific vegetation community assessments (Merriman 2008; SRK Consulting [SRK] 1999a). Two vegetation cover types (i.e., shadscale saltbush-budsage/grassland and black greasewood/shadscale saltbush) and one land use cover type (i.e., disturbed) occur in the study area. Distribution of vegetation cover types in these areas is influenced by variations in landscape position, soil type, moisture, elevation, and aspect. Species nomenclature used in this analysis is consistent with the U.S. Department of Agriculture (USDA) NRCS Plants Database (NRCS 2008). **Figure 3.4-2** shows the vegetation cover types within the study area; **Table 3.4-1** summarizes acreages for each vegetation cover type.

**Table 3.4-1 Vegetation Cover Types within the Study Area**

| Vegetation Cover Types               | Acres      |
|--------------------------------------|------------|
| Shadscale saltbush–budsage/grassland | 648        |
| Black greasewood/shadscale saltbush  | 254        |
| <b>Total</b>                         | <b>902</b> |

Source: SRK 1999a.

#### Shadscale Saltbush–Budsage/Grassland

Shadscale saltbush–budsage/grassland is the most abundant vegetation cover type within the study area, occurring at elevations between 4,500 and 5,700 feet amsl on gentle slopes and southerly aspects. This vegetation cover type is characterized as a transitional community between upper sagebrush communities and bottomland greasewood communities. This cover type is dominated by moderately dense stands of shadscale saltbush and budsage. The sparse understory exhibits few grass and forb species, including bottlebrush squirreltail, cheatgrass (*Bromus tectorum*), Sandberg's bluegrass (*Poa secunda*), desert globemallow (*Sphaeralcea grossulariaefolia*), clasping pepperweed (*Lepidium perfoliatum*), shy gilia (*Gilia inconspicua*), annual stickseed (*Lappula redowski*), and evening primrose (*Oenothera caespitosa*). Shrubs dominate this vegetation cover type and rock cover and bare ground are moderate (BLM 2002a; NRCS 2008).

### Black Greasewood/Shadscale Saltbush

Black greasewood/shadscale saltbush is the least abundant vegetation cover type within the study area, occurring at elevations below 4,700 feet amsl on gentle south-facing slopes and flat playa bottoms. This vegetation cover type is dominated by moderately dense stands of black greasewood (*Sarcobatus vermiculatus*), shadscale saltbush, and Torrey seablite (*Suaeda moquinii*). Other shrubs in the overstory include Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), budsage, and spiny horsebrush (*Tetradymia canescens*). The sparse understory exhibits few grass and forb species, including squirreltail, cheatgrass, shy gilia, and tansy mustard (*Descurania pinnata*). Shrubs dominate this vegetation cover type; rock cover is non-existent and bare ground exposure is high (BLM 2002a; NRCS 2008).

### Existing or Permitted Disturbance

The disturbed land use type is composed of previously disturbed areas and those currently approved for disturbance in the near future, of which only a small portion have been revegetated, either naturally or through reclamation. Substantially revegetated portions are estimated to comprise approximately 10 percent of the area due to the area's current status as an active mine. Historic wildfires also have contributed to the area within this cover type. This land use cover type occurs at elevations between 4,500 and 6,500 feet amsl (BLM 2002a; NRCS 2008). It is dominated by both native and introduced, early successional species including rubber rabbitbrush (*Ericameria nauseosa*), black sagebrush (*Artemisia nova*), shy gilia, knotweed (*Polygonum aviculare*), crested wheatgrass (*Agropyron cristatum*), cheatgrass, squirreltail, and tansy mustard.

### Riparian and Wetlands

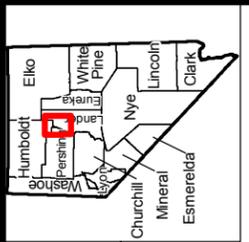
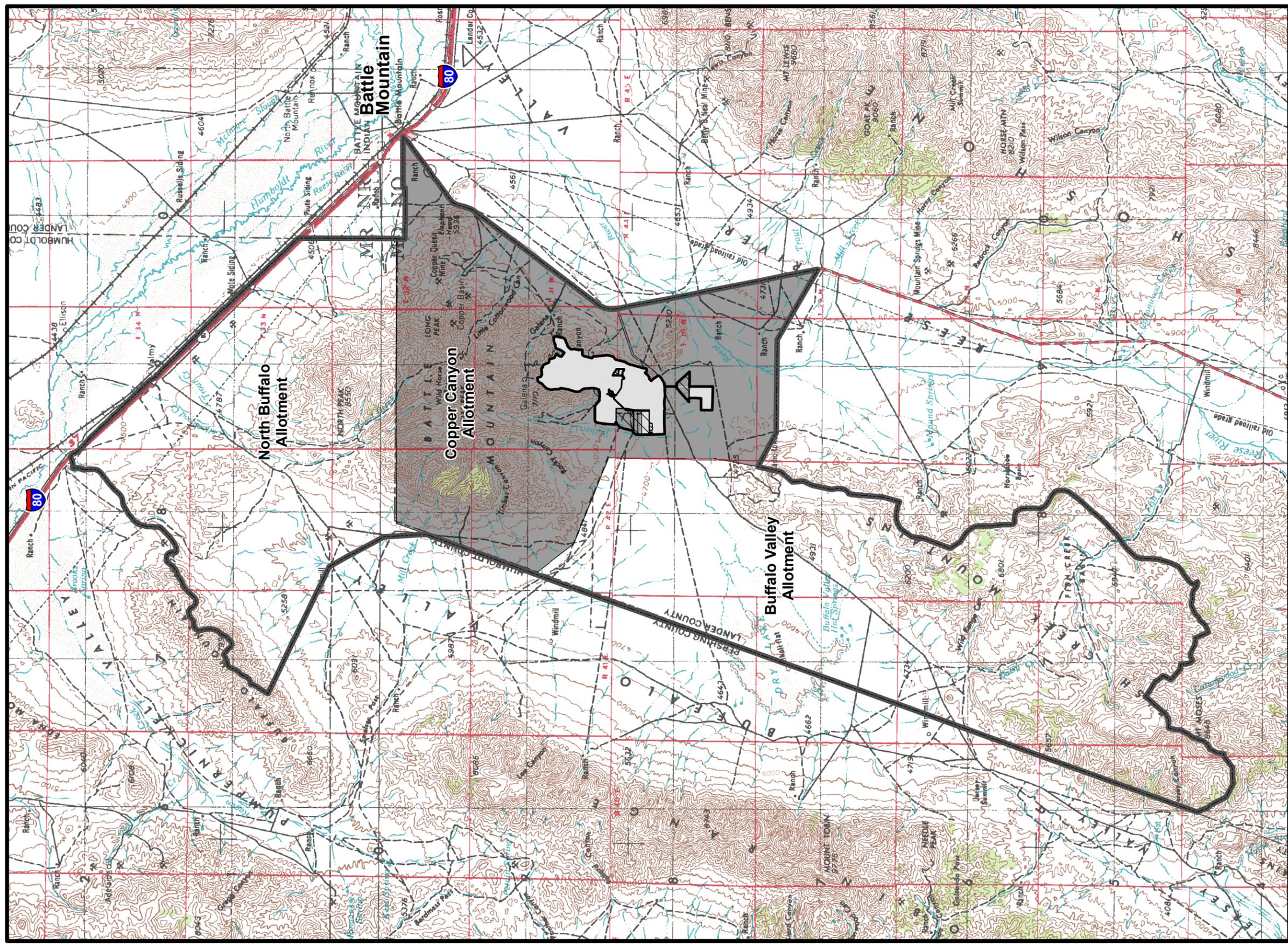
USFWS National Wetland Inventory data are not available for the majority of the study area; however, no perennial or intermittent streams or springs occur within the study area, and no riparian areas or wetlands have been observed during field investigations. Therefore, it is unlikely that riparian and wetland vegetation occur in the study area.

#### **3.4.1.2 Special Status Plant Species**

Special status plant 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), species of concern as identified by the USFWS, and species designated as state sensitive by the BLM.

In accordance with the ESA, as amended, the lead agency (BLM) in coordination with the 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. 6-121), it also is BLM policy "to conserve listed species and the ecosystems on which they depend, and to ensure that actions requiring authorization or approval by the BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under the provisions of the ESA or other provisions" identified in 6840 Policy.

A total of six special status plant species were identified as potentially occurring within or near the study area (BLM 2008f, 2002a). These species, their associated habitats, and their potential for occurrence within the study area are summarized in **Table 3.4-2**. Occurrence potential within the study area and CESA was evaluated for each species based on their habitat requirements and known distribution. In support of this document, baseline information has been collected and surveys conducted for the area

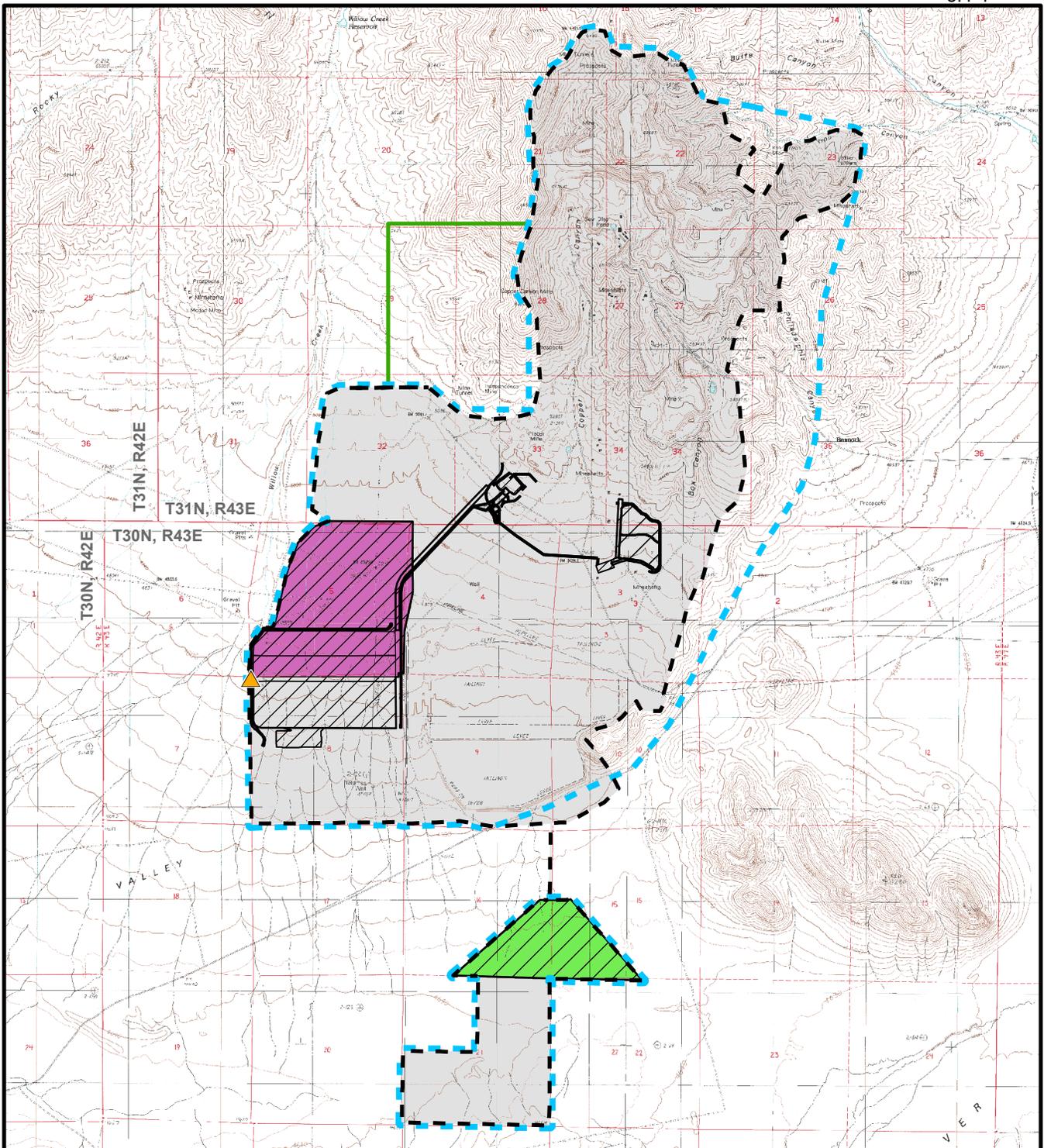


- Legend**
- Vegetation and Range Resources CESA
  - Land Use and Access CESA
  - Proposed POO Boundary
  - Proposed Action
  - Proposed Action Linear Feature
  - Permitted Disturbance

Source: BLM 2008e.

**Phoenix Copper Leach Project**

Figure 3.4-1  
Vegetation, Range Resources,  
and Land Use and Access  
CESA

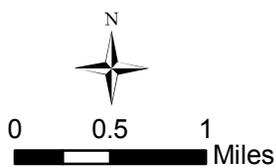


**Legend**

- - Proposed POO Boundary
- - Proposed Fenceline
- - Reona POO Fenceline
- ▨ Proposed Action
- Proposed Action Linear Feature
- ▲ Proposed Production Well
- Permitted Disturbance

**Vegetation Cover Types**

- Black Greasewood / Shadscale Saltbush
- Shadscale Saltbush - Budsage/Grassland



**Phoenix Copper Leach Project**

Figure 3.4-2  
Vegetation Cover Types  
Within the  
Study Area

Source: SRK 1999a.

**Table 3.4-2 Special Status Plant Species Identified for the Proposed Project<sup>1</sup>**

| <b>Common Name</b>  | <b>Scientific Name</b>        | <b>Status</b> | <b>Habitat Association</b>   | <b>Potential for Occurrence within the Project Area</b>   | <b>Eliminated from Detailed Analysis?</b> |
|---------------------|-------------------------------|---------------|--|---|---|
| Elko rockcress      | <i>Arabis falcifruca</i>      | BLM-NV        | This species inhabits dry, densely vegetated, relatively undisturbed light colored silty soils with a high cover of moss and other soil crust components on moderate to steep north-facing slopes in the sagebrush zone. Elevational range: 5,300 to 6,100 feet amsl. Flowering period: May to June.                                   | Low. Suitable habitat may exist; however, no documented occurrences have been identified within the study area. | No.                                       |
| Eastwood's milkweed | <i>Asclepias eastwoodiana</i> | BLM-NV        | This species inhabits open areas on a wide variety of basic soils, generally barren and lacking competition, frequently in small washes or other moisture-accumulating microsites in the shadscale, sagebrush, mixed sage, and lower pinyon-juniper zones. Elevational range: 4,680 to 7,080 feet amsl. Flowering period: May to June. | Low. Suitable habitat may exist; however, no documented occurrences have been identified within the study area. | No.                                       |
| Nevada willowherb   | <i>Epilobium nevadense</i>    | BLM-NV        | This species inhabits slopes with limestone outcrops or talus. Elevational range: 6,000 to 8,930 feet amsl. Flowering period: July to September.   | None. No documented occurrences or suitable habitat have been identified within the study area.                 | Yes.                                      |

**Table 3.4-2 Special Status Plant Species Identified for the Proposed Project<sup>1</sup>**

| <b>Common Name</b>   | <b>Scientific Name</b>       | <b>Status</b> | <b>Habitat Association</b>   | <b>Potential for Occurrence within the Project Area</b>   | <b>Eliminated from Detailed Analysis?</b> |
|----------------------|------------------------------|---------------|--|---|---|
| Windloving buckwheat | <i>Eriogonum anemophilum</i> | BLM-NV        | This species inhabits high elevations on dry, exposed, relatively barren and undisturbed, gravelly, limestone or volcanic ridges and ridgeline knolls, on outcrops or shallow rocky soils over bedrock. At lower elevations, this species occurs on dry, relatively barren and undisturbed knolls and slopes of light-colored, platy volcanic tuff weathered to form stiff clay soils, on all aspects. Vegetation cover type associations may include sagebrush shrubland and salt desert shrubland with a minor herbaceous understory component. Elevational range: 4,750 to 9,836 feet amsl. Flowering period: late June and July. | Low. Suitable habitat may exist; however, no documented occurrences have been identified within the study area. | No.                                       |
| Ligulate feverfew    | <i>Parthenium ligulatum</i>  | BLM-NV        | This species inhabits pale shale or sandstone outcrops in the pinyon-juniper zone. Elevational range: 5,905 to 6,562 feet amsl. Flowering period: May to June.   | None. No documented occurrences or suitable habitat have been identified within the study area.                 | Yes.                                      |

**Table 3.4-2 Special Status Plant Species Identified for the Proposed Project<sup>1</sup>**

| <b>Common Name</b> | <b>Scientific Name</b>   | <b>Status</b> | <b>Habitat Association</b>   | <b>Potential for Occurrence within the Project Area</b>   | <b>Eliminated from Detailed Analysis?</b> |
|--------------------|--------------------------|---------------|--|---|---|
| Tiehm beardtongue  | <i>Penstemon tiehmii</i> | BLM-NV        | This species inhabits neutral sandy-loam soil pockets on steep, southerly facing volcanic talus and scree slopes. As a very narrow endemic to Lander County, Nevada, this species is found only near one mountain peak and in a canyon leading to the west. Elevational range: 7,500 to 9,600 feet amsl. Flowering period: June to July. | None. No documented occurrences or suitable habitat have been identified within the study area. | Yes.                                      |

<sup>1</sup> The winged milkvetch (*Astragalus pterocarpus*) was identified by the Nevada Natural Heritage Program (NNHP) as having suitable habitat within or adjacent to the study area; however, this species is not afforded protection under the ESA, by the State of Nevada, or the BLM Mount Lewis Field Office. This species was eliminated from preliminary and detailed analysis (JBR 2007b).

Source: NNHP 2008, 2001.

within or near the study area (Great Basin Ecology, Inc. [GBE] 2008; JBR 2007b; NNHP 2008, 2001; SRK 1999b; WESTEC 1995). Based on these evaluations, three of the six special status plant species (i.e., Nevada willowherb, ligulate feverfew, and Tiehm beardtongue) have been eliminated from detailed analyses based on their habitat requirement and known distribution as discussed in **Table 3.4-2**. The three special status species identified as potentially occurring within the study area include Elko rockcress, Eastwood's milkweed, and windloving buckwheat. None of the afore-mentioned special status plant species were observed within the study area during surveys in May and July 2008 (GBE 2008).

### 3.4.1.3 Noxious Weeds and Invasive Species

Noxious weeds are defined by the NRS as “any species of plant which is liable to be detrimental or destructive and difficult to control or eradicate” (NRS 555.010-555.220). Noxious weeds have become a growing concern in the U.S., based on their ability to increase in cover relative to surrounding vegetation and exclude native plant species from an area. The spread of noxious weeds also has resulted in substantial economic impacts on some sectors of the State of Nevada. As a result, the state has enacted laws requiring the control of noxious weed species (NRS 555.005, NAC 555.010) for which the Nevada Department of Agriculture (NDOA) maintains jurisdiction, management, and enforcement. In addition, the federal Noxious Weed Act of 1974 (as amended, 7 United States Code [USC] 2801 et seq) requires cooperation with state, local, and other federal agencies pertaining to the application and enforcement of all laws and regulations relating to the management and control of noxious weeds and invasive species. Recognizing these regulations, the BLM established a goal that NEPA documents consider and analyze the potential for the spread of noxious weed species and provide preventative rehabilitation measures for each management action involving surface disturbance (NDOA Plant Industry Division 2005).

Under NRS 555.010-555.220 and per the NDOA, state-listed noxious weeds are classified into three categories; A, B, and C. Each list has specific control requirements, with the most stringent requirements for those species found in Category A. Category A includes noxious weed species not found or limited in distribution throughout the state, actively excluded from the state, and actively eradicated wherever found, and whose control is required by the state for all infestations. Category B includes noxious weed species which are established in scattered populations in some counties of the state, actively excluded where possible, and whose control is required by the state in areas where populations are not well established or not previously known to occur. Category C includes noxious weed species currently established and generally widespread in many counties of the state, and whose abatement remains at the discretion of the State Quarantine Officer (NDOA Plant Industry Division 2005).

The Lander County Conservation District developed and approved the *Action Plan for Management of Noxious Weeds in Lander County* in 1998. The purpose of this plan is to: 1) target specific noxious weeds for immediate management actions due to the nature of their current ecological or economic impacts or the potential for immediate and effective control (Category 1 species), and 2) target noxious weeds that pose a lesser immediate economic or ecological threat (Category 2 species). A list of the noxious weeds and invasive species designated by the state and the Lander County Conservation District is provided in **Table 3.4-3**.

Although not formally designated as a noxious species, cheatgrass is an invasive, non-native winter annual grass that is one of the most problematic plant species in the West, especially in northern Nevada. It is difficult and expensive to control through conventional means. Levels of cheatgrass fluctuate based on the amount, timing, and duration of annual precipitation as well as the occurrence of wildfire.

A baseline noxious weed and invasive species survey including field assessments and subsequent documentation was conducted in 1999 within the currently approved POO boundary areas as summarized in the Phoenix Project Final EIS (BLM 2002a). Per the Phoenix Project Final EIS (BLM 2002a), six noxious weed species (totaling 30 populations) were observed, including salt cedar, Scotch thistle, Canada thistle, musk thistle, hoary cress, and Russian knapweed. The three most common weeds within the study include hoary cress, salt cedar, and scotch thistle. Additional noxious

weed surveys were conducted within the proposed POO expansion areas in May and June 2008; however, no additional populations (of species listed in **Table 3.4-3**) were identified (GBE 2008). Cheatgrass was observed throughout the study area (JBR 2007b).

**Table 3.4-3 Noxious Weeds and Invasive Species**

| Common Name <sup>1</sup> | Scientific Name                                    | Nevada Noxious Weed Species List by Category <sup>2</sup> | Lander County Conservation District Noxious Weed List by Category <sup>3</sup> |
|--------------------------|--|---|--|
| Russian knapweed         | <i>Acroptilon repens</i>                           | B   | 1  |
| Camel thorn              | <i>Alhagi camelorum</i>                            | A   | --   |
| Mayweed chamomile        | <i>Anthemis cotula</i>                             | A   | --   |
| Giant reed               | <i>Arundo donax</i>                                | A   | --   |
| Sahara mustard           | <i>Brassica tournefortii</i>                       | B   | --   |
| Whitetop or hoary cress  | <i>Cardaria draba</i>                              | C   | 1  |
| Musk thistle             | <i>Carduus nutans</i>                              | B   | 1  |
| Purple starthistle       | <i>Centaurea calcitrapa</i>                        | A   | --   |
| Diffuse knapweed         | <i>Centaurea diffusa</i>                           | B   | 1  |
| Iberian star             | <i>Centaurea iberica</i>                           | A   | --   |
| Spotted knapweed         | <i>Centaurea masculosa</i>                         | A   | 1  |
| Malta starthistle        | <i>Centaurea melitensis</i>                        | A   | --   |
| Yellow starthistle       | <i>Centaurea solstitialis</i>                      | A   | --   |
| Squarrose knapweed       | <i>Centaurea virgata</i>                           | A   | 1  |
| Rush skeletonweed        | <i>Chondrilla juncea</i>                           | A   | --   |
| Water hemlock            | <i>Cicuta maculata</i>                             | C   | --   |
| Canada thistle           | <i>Cirsium arvense</i>                             | C   | 1  |
| Poison hemlock           | <i>Conium maculatum</i>                            | C   | 2  |
| Common crupina           | <i>Crupina vulgaris</i>                            | A   | --   |
| Houndstongue             | <i>Cynoglossum officinale</i>                      | A   | --   |
| Leafy spurge             | <i>Euphorbia esula</i>                             | B   | 2  |
| Goat's rue               | <i>Galega officinalis</i>                          | A   | --   |
| Hydrilla                 | <i>Hydrilla verticillata</i>                       | A   | --   |
| Black henbane            | <i>Hyoscyamus niger</i>                            | A   | --   |
| Klamath weed             | <i>Hypericum perforatum</i>                        | A   | --   |
| Dyer's woad              | <i>Isatis tinctoria</i>                            | A   | --   |
| Perennial pepperweed     | <i>Lepidium latifolium</i>                         | C   | --   |
| Dalmatian toadflax       | <i>Linaria dalmatica</i>                           | A   | --   |
| Yellow toadflax          | <i>Linaria vulgaris</i>                            | A   | --   |
| Purple loosestrife       | <i>Lythrum salicaria</i> and<br><i>L. virgatum</i> | A   | --   |
| Eurasian water-milfoil   | <i>Myriophyllum spicatum</i>                       | A   | --   |

**Table 3.4-3 Noxious Weeds and Invasive Species**

| Common Name <sup>1</sup> | Scientific Name  | Nevada Noxious Weed Species List by Category <sup>2</sup> | Lander County Conservation District Noxious Weed List by Category <sup>3</sup> |
|--------------------------|--|---|--|
| Scotch thistle           | <i>Onopordum acanthium</i>                                   | B   | 1  |
| African rue              | <i>Peganum harmala</i>                                       | A   | --   |
| Green fountaingrass      | <i>Pennisetum setaceum</i>                                   | A   | --   |
| Sulfur cinquefoil        | <i>Potentilla recta</i>                                      | A   | --   |
| Bur buttercup            | <i>Ranunculus testiculatus</i>                               | --  | 2  |
| Austrian fieldcress      | <i>Rorippa austriaca</i>                                     | A   | --   |
| Curly dock               | <i>Rumex crispus</i>   | --  | 2  |
| Mediterranean sage       | <i>Salvia aethiopsis</i>                                     | A   | --   |
| Giant salvinia           | <i>Salvinia molesta</i>                                      | A   | --   |
| Carolina horse-nettle    | <i>Solanum carolinense</i>                                   | B   | --   |
| White horse-nettle       | <i>Solanum elaeagnifolium</i>                                | B   | --   |
| Sow thistle              | <i>Sonchus arvensis</i>                                      | A   | --   |
| Johnson grass            | <i>Sorghum halepense</i>                                     | C   | --   |
| Austrian peaweed         | <i>Sphaerophysa salsula</i><br>(= <i>Swainsona salsula</i> ) | A   | --   |
| Medusahead               | <i>Taeniatherum caput-medusae</i>                            | B   | 2  |
| Saltcedar or tamarisk    | <i>Tamarix</i> spp.  | C   | 1  |
| Puncturevine             | <i>Tribulus terrestris</i>                                   | C   | 2  |
| Common cocklebur         | <i>Xanthium strumarium</i>                                   | --  | 2  |
| Syrian bean caper        | <i>Zygophyllum fabago</i>                                    | A   | --   |

<sup>1</sup> Species nomenclature is consistent with the USDA NRCS Plants Database (NRCS 2008).

<sup>2</sup> Officially designated and published as “noxious species” for the State of Nevada, per the authority vested in the NDOA and Nevada Revised Statutes (NDOA Plant Industry Division 2005).

<sup>3</sup> Officially designated and published as “noxious weeds” per the Lander County Conservation District (LCCD 1999).

-- = Species not classified as noxious or invasive per the cooperating agency.

Sources: LCCD 1999; NDOA Plant Industry Division 2005; NRCS 2008.

### 3.4.2 Environmental Consequences

The primary issues associated with vegetation resources include direct and indirect impacts to plant communities, riparian/wetland ecosystems, special status plant species and their associated habitats, and the introduction or spread of noxious weeds and invasive species.

Project-related impacts to vegetation resources are classified as direct or indirect and short- or long-term. Direct impacts to vegetation resources would result from construction, operation, and maintenance activities and occur in the same time and place, while indirect impacts would result from project-related activities at a later time, or farther removed in distance from the study area. Short-term

impacts are those that would occur during the approximate 34-year life of the project (including reclamation); long-term impacts are those that would extend beyond the approximate 34-year life of the project (including reclamation). BLM-recommended BMPs, applicant-committed environmental protection measures, timing and duration of surface disturbance activities, and sensitivity of the resource were used to assess the spatial extent and significance of potential impacts.

Environmental impacts to vegetation resources would be significant if the Proposed Action or alternatives to the Proposed Action result in any of the following:

- Removal or loss of unique plant communities including wetland and riparian areas as a result of project-related activities;
- Failure of reclamation efforts to achieve a stable, perennial vegetation cover that protects disturbed soil surfaces against erosion;
- Indirect loss of wetlands or riparian areas caused by degradation of water quality, diversion of water resources, or erosion and sedimentation resulting from altered drainage patterns;
- Impacts to special status species, including direct or indirect disturbance of federally threatened or endangered species or their critical habitat, or disturbance of federal candidate or BLM sensitive species in a manner and a degree that would contribute to their being listed as either federally threatened or endangered; or
- Moderate potential for persistent populations of noxious weeds and invasive species dominating anywhere within the study area.

### 3.4.2.1 Proposed Action

#### Plant Communities

Under the Proposed Action, the project would disturb or remove a total of approximately 902 acres of vegetation as a result of proposed disturbance activities in the proposed POO boundary expansion areas. **Table 3.4-4** identifies estimated acreages of new project-related surface disturbance by vegetation cover type within the Proposed Action area. No project-related impacts to unique plant communities have been identified.

**Table 3.4-4 Vegetation Disturbance or Removal Under the Proposed Action**

| Vegetation Types                     | Clay Borrow Area (acres) | Phoenix Copper HLF | Optional Use Area (acres) | Haul Road and Utility Corridor | Total Authorized Disturbance (acres) |
|--------------------------------------|--------------------------|--------------------|---------------------------|--------------------------------|--------------------------------------|
| Shadscale saltbush–budsage/grassland | ---                      | 200                | 398                       | 50                             | 648                                  |
| Black greasewood/shadscale saltbush  | 254                      | ---                | ---                       | ---                            | 254                                  |
| <b>Total New Disturbance</b>         | 254                      | 200                | 398                       | 50                             | 902                                  |

The proposed construction, operation, and maintenance activities would result in the direct removal of herbaceous and woody vegetation and fragmentation of native plant communities. Indirect impacts may result from the introduction or spread of noxious weeds and invasive species potentially resulting in the reduction of native plant communities and available forage.

Project-related activities would result in the conversion of shrub-dominated vegetation cover types to herbaceous-dominated cover types in the short term. Over the long term, shrub species would become

re-established and increase in abundance in the disturbance area as a result of reclamation and natural recolonization. Reclamation would be completed on approximately 902 acres (100 percent) of the proposed new disturbance area and would include measures to stabilize the growth media, reduce soil erosion, and minimize the potential for the establishment of noxious weeds and invasive species as discussed in Section 2.4, Reclamation. Approximately 3 to 5 years following reclamation, the reclaimed plant communities likely would consist of adequate herbaceous plant cover with sufficient diversity to substantially reduce the potential for soil erosion and provide forage. It would take up to 25 years following reclamation for mature shrub species to re-establish. A reclamation monitoring program would be implemented and conducted concurrently with mining activities. Monitoring would occur annually for the copper heap leach pads, and quarterly for the copper process ponds and process facilities as presented in **Table 2.4-1**, Reclamation Schedule. Monitoring for successful revegetation is anticipated to continue for five years for those components being reclaimed last. Reclamation success is defined in Section 2.4.2.6, Revegetation Release Criteria. Evaluation of the revegetated areas for reclamation success would occur during the active growing season commencing in the first full growing season after revegetation was conducted.

Revegetation activities would be modified based on the results observed during reclamation monitoring. The proposed seed mix and/or application rates may be modified as necessary based on any refinements of the reclamation program, and the information obtained from reclamation test plots. Modifications to the proposed seed mix would be made only after consultation and approval by the appropriate agencies.

Based on implementation of the proposed reclamation plan and Newmont's success with similar reclamation practices as discussed in the Phoenix Project Final EIS (BLM 2002a), no significant impacts to plant communities are anticipated as a result of the proposed project.

No wetlands or perennial or intermittent streams, seeps, or springs were identified in the study area. As a result, no impacts to wetlands vegetation would occur under the Proposed Action.

#### Special Status Plant Species

In compliance with agency regulations, field surveys were conducted within the proposed POO boundary expansion areas for three special status plant species (Elko rockcress, Eastwood's milkweed, and windloving buckwheat). No populations or individuals of these species were found during the surveys; therefore, significant impacts to these special status plant species are not anticipated as a result of project construction and operation.

#### Noxious Weeds and Invasive Species

Under the Proposed Action, surface disturbing activities would disturb or remove a total of approximately 902 acres of vegetation (**Table 3.4-4**). Impacts to native plant communities may result from the introduction or spread of noxious weeds and invasive species which may readily colonize project-related disturbance areas.

Implementation of Newmont's reclamation techniques as discussed in Section 2.4, Reclamation, would result in the establishment of a permanent vegetative cover, which would reduce the potential for noxious weeds and invasive species to become introduced or spread within the study area. Implementation of Newmont's Weed Management Plan for the Phoenix Mine would further reduce the potential introduction and spread of noxious and invasive weed species in project-related disturbance areas; however, minor populations of weedy annual species may become established in localized areas for short periods of time, even with noxious weed and invasive species management.

The Noxious Weed plan focuses on prevention, formal and informal monitoring, selective site sterilization and annual weed spraying to control noxious weeds and invasive species in the project-related disturbance areas. Formal weed surveys would be conducted every 2 years, while informal surveys by

on-site environmental personnel will be conducted annually. Weed spraying will focus on the areas identified by the formal and informal surveys. In addition, Newmont has entered in a cooperative agreement with the BLM to treat noxious weeds in areas of Galena Canyon and the Willow Creek Drainage. Newmont's current weed management activities consist of a contractor annually spraying in the spring for hoary cress and in later summer for salt cedar. Additionally, during the last 3 years Newmont has worked with the BLM to spray weeds in Galena Canyon.

#### **3.4.2.2 Reona Copper Heap Leach Facility Elimination Alternative**

The Reona Copper HLF Elimination Alternative would be the same as the Proposed Action, except that proposed Reona Copper HLF and associated infrastructure (i.e., solution pipelines) would not be developed. The Reona HLF (Gold) would continue to operate under current permitted authorizations. All other potential direct and indirect impacts to plant communities, wetlands and special status plant species, as well as potential impacts related to noxious weeds and invasive species, would be the same as the Proposed Action.

#### **3.4.2.3 No Action Alternative**

Under the No Action Alternative, the proposed project would not be developed and associated impacts to vegetation resources (i.e., plant communities and impacts related to noxious weeds and invasive species) would not occur. Under this alternative mining activities associated with the existing Phoenix Project would continue under the terms of current permits and approvals as authorized by the BLM and State of Nevada. Potential impacts to vegetation resources previously were discussed and analyzed in the Phoenix Project Final EIS (BLM 2002a).

#### **3.4.3 Cumulative Impacts**

The CESA for vegetation resources is shown in **Figure 3.4-1**. Past and present actions and RFFAs are identified in **Table 2.8-1**; their locations are shown in **Figure 2.8-1**.

##### **3.4.3.1 Plant Communities**

Past and present actions and RFFAs within the vegetation CESA have resulted, or would result, in the direct disturbance of approximately 22,894 acres of vegetation, of which approximately 15,091 acres have been related to mining activities, approximately 490 acres have been related to exploratory projects, and approximately 7,313 acres have been related to utilities/community actions (e.g., transmission lines, interstate highways, secondary roads, landfills). The Proposed Action incrementally would increase surface disturbance and related impacts to vegetation by approximately 902 additional acres, resulting in a cumulative disturbance to vegetation resources of approximately 23,796 acres. It is assumed that portions of past disturbances have been reclaimed, and ongoing reclamation at existing operations would continue to reduce cumulative impacts to vegetation. Pending completion of successful reclamation, the incremental additional impacts to vegetation as a result of the Proposed Action would be short-term in nature. Overall, vegetation recovery is anticipated to be long-term over the majority of the cumulative disturbance area due to reclamation constraints (e.g., alkalinity and salinity) and low regional annual precipitation rates; however, vegetation would become re-established and increase in abundance as a result of interim and final reclamation and natural re-colonization.

##### **3.4.3.2 Species Status Plant Species**

Based on field surveys that were conducted within the proposed POO expansion areas, special status plant species would not be affected by the Proposed Action. Therefore, there would be no cumulative impacts to special status plant species.

##### **3.4.3.3 Noxious Weeds and Invasive Species**

It is assumed that the majority of the surface disturbance within the CESA would be reclaimed, thereby minimizing the establishment of noxious weeds and invasive species. In addition, implementation of

Newmont's existing noxious weed monitoring and control program for the proposed project would help minimize the establishment and spread of invasive and non-native species within the proposed disturbance areas and, therefore, minimize the proposed project's contribution to cumulative effects associated with these species. Disturbance areas within the CESA that would not be reclaimed would be prone to the establishment of noxious weeds and invasive species.

#### **3.4.4 Monitoring and Mitigation Measures**

No significant impacts to vegetation resources (including special status species or wetlands) have been identified as a result of the proposed project; therefore, no additional monitoring and mitigation measures for vegetation resources are recommended.

#### **3.4.5 Residual Adverse Effects**

No residual adverse effects to vegetation resources are anticipated under the Proposed Action, assuming successful reclamation; however, noxious weeds and invasive species may persist over the long term regardless of the implementation of weed control programs.

No direct or indirect impacts to special status plant species are anticipated as a result of the proposed project. Therefore, no residual adverse effects to these resources are anticipated.