

3.6 Range Resources

The study area for direct and indirect impacts to range resources is defined as the proposed POO expansion areas. The CESA for range resources encompasses the entirety of the Copper Canyon, North Buffalo, and Buffalo Valley grazing allotments (**Figure 3.4-1**). The Copper Canyon and North Buffalo allotments are located just west of the Town of Battle Mountain, Nevada, in Lander and Pershing counties. The Buffalo Valley Allotment is located approximately 20 miles south of the Town of Battle Mountain in Lander County (**Figure 3.4-1**). The study area is encompassed completely by the Copper Canyon Allotment.

3.6.1 Affected Environment

Table 3.6-1 summarizes the Copper Canyon Allotment within the study area, including acreage calculations, current stocking rates, and permitted uses. The majority of the Copper Canyon Allotment in the study area is composed of private land. Grazing currently occurs on private land within the study area. Approximately 56,016 acres of BLM-administered public land and 42,043 acres of private land in the North Buffalo Allotment. The Buffalo Valley Allotment includes approximately 137,259 acres of BLM-administered public land and 2,682 acres of private land.

No range improvements (e.g., fences or cattle guards), including water-related range improvements (e.g., water haul troughs), were identified within the study area (BLM 2002a). Also, no seeps, springs, or perennial or intermittent streams were identified within the study area (BLM 2002a; JBR 2007b). Copper Canyon, an ephemeral drainage northwest of the study area, may support occasional surface flow; however, this drainage has been excluded from cattle grazing as permitted for mining activities under previous authorizations. The intermittent and ephemeral reaches of Willow Creek, Philadelphia Canyon, and Galena Creek, as well as one spring (No. 045) west of Philadelphia Canyon, occasionally support substantial flows that provide water for livestock within the Copper Canyon Allotment; however, these drainages are outside of this resource-specific study area (BLM 2002a; JBR 2007b).

All three of the allotments are characterized as Improve or “I” (i.e., improve the current unsatisfactory condition) allotments under the Shoshone-Eureka RMP Final EIS and ROD, as amended (BLM 1988, 1986a,b). As discussed in the Phoenix Project Final EIS (BLM 2002a), based on its “I” designation, the Copper Canyon Allotment receives the highest priority for development, and grazing management is needed to improve the basic resources or resolve resource use conflicts. Characteristics and management objectives listed therein may include, but are not limited to, the following: improve or maintain available forage quality and quantity, maintain AUMs for cattle and sheep, and improve riparian habitat (BLM 1988, 1986a,b).

3.6.2 Environmental Consequences

The primary issues associated with range resources include direct and indirect impacts relative to the: 1) loss of available forage and active AUMs due to surface disturbances; 2) reduction in forage production prior to successful reclamation; and 3) potential impacts to seasonal livestock movement within the Copper Canyon Allotment.

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

- Disturbance of grazing areas that result in a short-term loss of available forage or AUMs of 25 percent or greater or a long-term loss of 10 percent or greater in the Copper Canyon Allotment;
- Loss of high quality grazing areas that would necessitate major revisions in the grazing management approach for the remainder of the Copper Canyon Allotment;

Table 3.6-1 Copper Canyon Allotment within the Study Area

Grazing Allotment Name	Total Public Lands within the Allotment (acres)	Total Active AUMs on Public Lands ¹	Public Lands within Study Area (acres)	Projected Active AUMs within Study Area ²	Livestock		Grazing Period		Percent Public Land
					Kind	Number	Begin	End	
Copper Canyon	61,730	5,023	194	15	Sheep	300	3/1	4/30	100
					Sheep	335	11/1	2/28	100
					Cattle	298	3/1	2/28	100
					Cattle	12	2/1	2/28	100
					Cattle	30	11/1	2/28	42
					Sheep	1,009	3/1	3/31	100
					Sheep	1,009	11/1	2/28	100

¹ An AUM represents the quantity of forage necessary to sustain one cow-calf pair or five sheep for 1 month.

² Projected active AUMs were calculated based on the percentage of public land within the study area compared to the totality of public lands within the allotment.

Source: Merriman 2008.

- Long-term loss of water-related range improvements in one or more pastures necessitating water hauling or non-usage of these areas; or
- Construction of new fences that would isolate and prevent or impede grazing on areas exceeding 10 percent of the AUMs or available area within the Copper Canyon Allotment.

3.6.2.1 Proposed Action

Direct impacts to range resources would result from the project-related long-term removal of grazing on approximately 194 acres of BLM-administered land. Livestock distribution may be affected as a result of the proposed mining-related activity in areas where livestock currently use the Copper Canyon Allotment. The effects to livestock distribution also would affect the utilization of available forage in the long term. Indirect impacts may include the introduction or spread of noxious weeds and invasive species potentially resulting in the reduction of available forage quality and quantity.

Table 3.6-2 identifies the acreage of proposed surface disturbance and the number and percentage of active AUMs on public lands that would be lost over the long term within the Copper Canyon Allotment under the Proposed Action. No modification of seasonal stocking rates would be anticipated as a result of project implementation within the Copper Canyon Allotment. The long-term loss of 15 AUMs would represent less than 1 percent of the total permitted use.

Table 3.6-2 Grazing Impacts under the Proposed Action

Allotment Name	Total Allotment Public Land Acreage	Total Allotment Active Public Land AUMs ¹	Public Land Acreage within Proposed POO Expansion Area	Projected Active AUMs within Proposed POO Expansion Area ²	Percent Loss of Total Active AUMs on Public Land
Copper Canyon	61,730	5,023	194	15	0.3

¹ An AUM represents the quantity of forage necessary to sustain one cow-calf pair or five sheep for 1 month.

² Projected active AUMs and percent active AUM loss were calculated based on a percentage of the stocking rate within the surface disturbance-related impact area compared to the allotment stocking rate as a whole.

Source: Merriman 2008.

Reclamation would be completed on approximately 194 acres (or 100 percent) of the total proposed disturbance area on BLM-administered lands. All areas would be fenced and excluded from grazing for the duration of proposed leaching and reclamation activities. Satisfactory revegetation (i.e., soil stabilization through the presence of adequate plant cover) of disturbed areas on BLM-administered lands would increase plant cover and provide an adequate amount of forage to recover the 15 AUMs affected by project-related activities. Livestock grazing may be resumed after revegetation is complete and upon the removal of the perimeter fence around the Proposed Action disturbance areas. As a result, no significant impacts to available forage or AUMs would occur as a result of the Proposed Action.

No water-related range improvements were identified within the study area; therefore, no significant impacts to water-related range improvements would occur as a result of the Proposed Action. No significant impact to the Copper Canyon Allotment would occur as a result of the Proposed Action.

3.6.2.2 Reona Copper Heap Leach Facility Elimination Alternative

The Reona Copper HLF Elimination Alternative would be the same as the Proposed Action, except that the 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.

Under this alternative, potential direct and indirect impacts to range resources would be the same as the Proposed Action.

3.6.2.3 No Action Alternative

Under the No Action Alternative, the proposed project would not be developed and associated impacts to range resources would not occur. Under this alternative, the 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 range resources previously were discussed and analyzed in the Phoenix Project Final EIS (BLM 2002a).

3.6.3 Cumulative Impacts

The CESA for range 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**.

Past and present actions and RFFAs within the range resources CESA have resulted, or would result, in the direct disturbance of approximately 22,894 acres within the CESA, 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 by approximately 902 additional acres, resulting in a total cumulative disturbance 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 rangeland. Pending completion of successful reclamation and the removal of the perimeter fence, the incremental additional impacts as a result of the Proposed Action would be long-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.

No direct or indirect impacts to water-related range improvements would occur under the Proposed Action; therefore, no cumulative effects to water-related range improvements are anticipated.

3.6.4 Monitoring and Mitigation Measures

No significant impacts to range resources were identified; therefore, no additional monitoring and mitigation measures are recommended.

3.6.5 Residual Adverse Effects

Residual adverse effects to range resources (i.e., the loss of up to 15 AUMs) are not anticipated beyond the life of the project, assuming successful reclamation is achieved.