Hercules Exploration Project

DRAFT ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-C020-2014-0033-EA

U.S. Department of the Interior
Bureau of Land Management
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Sierra Front Field Office
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BLM

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[Note: maps are not embedded in this document in order to maintain a small file size. Maps are available on the Project website. Look under the Navigation Pane for "Maps."]

1.0 INTRODUCTION

The Hercules Exploration Project (Project) is located in Lyon County, Nevada approximately 25 miles south of Reno, Nevada in the north end of the Pine Nut Mountains in T16N R22E Sec 13, 14, 24, 25, 26 and T16N R23E Sec 18, 19, 30. The Project area is located on public lands administered by the Bureau of Land Management, Carson City District Office (BLM). The general location and land ownership status of the Project area are shown in Figure 1. The Project area consists of 116 continuous unpatented lode mineral claims and the existing access road covering approximately 2,329 acres. The access road and four target areas, Loaves, Northeast, Hercules, and West Cliffs, that are proposed for exploration drilling by Bonaventure Nevada, Inc. (BVT), are the focus of this draft environmental assessment (EA) and are shown in Figure 2.

1.1 Background

Mining and exploration work began in the vicinity of the Hercules Mine shortly before the discovery of the nearby Comstock Lode at Virginia City in 1859. Modern exploration has been ongoing for at least the last 28 years with sporadic lapses when metal prices were low, between the 1990's and early 2000's. Work completed in the vicinity of the Project area to date includes 263 drill holes, mostly less than 500 feet deep. Other work has included trench, soils, and rockchip sampling, underground sampling, geophysical surveys, and preliminary metallurgical studies. As a result, the four main mineralized Target Areas proposed in the Project would represent an intermediate stage exploration project (McGibbon 2012).

1.2 Purpose and Need

The purpose of the Project would be to expand Notice-level (N-89713) exploration activities and conduct more closely spaced drilling in mineralized areas, along with continued confirmation of historic drill and trench results through twinning (McGibbon 2012). The Project would involve additional drilling in the shallow oxide mineralized areas to confirm, enlarge, and further define the area of presently known gold and silver mineralization, and a controlled source audio-frequency magnetotellurics (CSAMT) geophysical survey designed to identify mineralized structures consistent with a broader disseminated mineralization (McGibbon 2012).

1.3 Scoping and Issues Identification

BVT contracted with Resource Concepts, (RCI) to conduct time-sensitive baseline biological surveys and compile existing information on resources pertinent to the Project. The Nevada Natural Heritage Program (NNHP), the Nevada Department of Wildlife (NDOW), and the BLM Carson City District sensitive species lists were used to identify sensitive plant and animal species with potential for occurrence in the Project area.

In the spring of 2013, initial site reconnaissance of the entire Project area was conducted by RCI Biologists to search for sensitive species and identify general vegetation and habitat conditions.

In January 2014, BVT submitted a draft Plan of Operations (Plan) to the BLM in accordance with BLM Surface Management Regulations, in 43 Code of Federal Regulations (CFR) 3809, as amended, and Nevada reclamation regulations at Nevada Administrative Code (NAC) 519A. After

a preliminary review of the proposed Project, the BLM assigned an Interdisciplinary (ID) Team representing specialists in cultural resources, vegetation, sensitive plant and animal species, migratory birds, minerals, and National Environmental Policy Act (NEPA) compliance.

On April 28, 2014, BVT and RCI attended a NEPA kick-off meeting with the BLM ID Team. BVT and RCI gave an overview of the Project area and the existing knowledge of the environmental setting. A field visit with members of the ID Team, BVT, and RCI was conducted on April 29, 2014. These meetings resulted in identification of the resources present and with potential to be affected that are analyzed herein (see Section 3.1.1).

On July 23, 2014 the BLM sent a letter and maps to the Yerington Paiute Tribe with information on this Project. To date no issues have been raised by the tribe concerning the Project.

1.4 Decision to be Made

The decision to be made would be the approval, with or without mitigation, or denial of the Plan.

1.5 Land Use Plan Conformance Statement

The Proposed Action is in conformance with the BLM Carson City District Consolidated Resource Management Plan (CRMP) pages MIN-1, MIN-5, and MIN-6 as follows:

- "Encourage development of energy and mineral resources in a timely manner to meet national, regional and local needs consistent with the objectives for other public land uses."
- "Continue to provide mineral material commodities to the using public…"
- "Pursuant to the mining laws, BLM lands are available for mineral entry, location, exploration, and operations which will not cause undue or unnecessary degradation of the public lands."

1.6 Relationships to Statutes, Regulations, and Other Plans

The Proposed Action would be consistent with the U.S. Department of the Interior surface management regulations at Title 43 Code of Federal Regulations Subpart 3809 (43 CFR 3809) and current BLM policy provisions that permit mineral exploration and extraction on public land if such activities do not cause unnecessary or undue degradation of public resources.

The Plan/Application for Reclamation Permit has also been submitted to the Nevada Division of Environmental Protection (NDEP) Bureau of Mining Regulation and Reclamation (BMRR) for approval and bonding.

2.0 ALTERNATIVES

2.1 Description of Alternatives

2.1.1 Alternative A: Proposed Action

BVT proposes to expand existing Notice-level (N-89713) exploration activities within the 2,329-acre Project area. Proposed activities would consist of exploration drilling from 167 constructed drill sites and trenching at 25 sites all accessed by existing and proposed constructed roads. The Proposed Action includes exploration related activities that would create approximately 18.02 acres of new surface disturbance. This is in addition to approximately 4.60 acres of existing Notice-level disturbance. BVT anticipates that the 0.40 acres remaining for Notice-level exploration would likely occur prior to approval of the Plan. The total disturbance in the Project area, including all Notice-level work and work proposed under the Proposed Action, is estimated to be 22.62 acres. Disturbance details are presented in Table 1. Existing and proposed surface disturbances are shown on Figure 2.

Table 1. Acreage of Existing and Proposed Project Surface Disturbance

Exploration Activity	Notice-Level Existing Surface Disturbance (acres)	Proposed Surface Disturbance (acres)	Total Surface Disturbance (acres)
Constructed Roads	1.53	11.30	12.83
Constructed Drill Sites (including sumps)	2.93	5.52	8.45
Constructed Trenches	0.00	0.31	0.31
Cross Country	0.14	0.48	0.62
Notice-Level Work to be Completed	0.00	0.40	0.40
Total Disturbance	**4.60**	**18.02**	**22.62**

The Proposed Action includes mineral exploration activities consisting of maintenance on existing roads, exploration drill road construction, drill site and sump construction, exploration drilling, and trenching. Reclamation would be conducted upon completion of exploration activity. All activities in the Proposed Action would be conducted consistent with the applicable performance standards outlined in 43 CFR 3809.420. Customary and reasonable technology and practices would be utilized so as to avoid unnecessary environmental impacts and also facilitate reclamation.

Proposed activities would consist of exploration drilling from a total of 167 sites (5.52 acres) and trenching at 25 sites (2,284 linear feet or 0.31 acre) that would be accessed by approximately 24,535 linear feet (11.30 acres) of proposed constructed exploration drill roads with 12-foot running widths, 5,191 feet of cross country access with an estimated disturbance width of 4-feet (0.48 acres), use of existing Notice-level constructed roads and pre-January 1981 existing roads, and maintenance on 3.2 miles of existing access road.

2.1.1.1 Resource Commitments:

BVT would commit to the following environmental protection measures to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. The measures are derived from the general requirements established in BLM's Surface Management Regulations at 43 CFR 3809 and BMRR mining reclamation regulations, as well as other water and air quality regulations:

Air Quality

- Emissions of fugitive dust from disturbed surfaces would be minimized by utilizing appropriate control measures. Surface application of water from a water truck and reduced speed limits on dirt access roads are the current methods of dust control.

Cultural Resources

- Pursuant to 43 CFR 10.4(g), BVT would notify the BLM authorized officer, by telephone, and with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further pursuant to 43 CFR 10.4 (c) and (d), the operator would immediately stop all activities in the vicinity of the discovery and not commence again for a maximum of 30 days or when notified to proceed by the BLM authorized officer.
- BVT would not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, or object. If BVT discovers any cultural resource that might be altered or destroyed by operations, the discovery would be left intact and reported to the authorized BLM officer.
- In order to prevent impacts to cultural resources, BVT would avoid eligible or unevaluated cultural sites within the Project area. BVT would ensure that eligible or unevaluated cultural sites within the Project area were mapped and flagged by a qualified cultural resource specialist with a global positioning system (GPS) unit prior to surface disturbance.

Migratory Birds

- In order to avoid potential impacts to breeding migratory birds, a nest survey would be conducted by a BLM approved biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through August 31 for raptors and April 1 through July 31 for other avian species). Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within fourteen days of the survey, another survey would be needed.

Noxious Weeds, Invasive and Nonnative Species

- Noxious weeds would be controlled through implementation of preventative best management practices and eradication measures if noxious weeds are found.
- To eliminate the transport of vehicle-borne noxious weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities, for emergency fire suppression, or for authorized off-road driving

within the proposed Project area, would be free of soil and debris capable of transporting weed. All such vehicles and equipment would be cleaned with high power or high pressure equipment prior to entering the Project area. Vehicles and equipment would not drive through known populations of noxious weeds or invasive species following the vehicle washing and prior to entering the Project area. Vehicles used for emergency fire suppression would be cleaned as part of check-in and demobilization procedures. Cleaning efforts would concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis would be applied to axles, frames, cross members, motor mounts, on and underneath the steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles.

2.1.1.2 Schedule:

BVT would complete additional Notice-level disturbance (less than five acres total) during the fall of 2014 and would implement the Proposed Action upon approval of the Plan.

Implementation of the Project would include drilling 40 to 50 holes during the fall of 2014 and completing all drill holes within two years. Reclamation would commence upon completion of drilling.

2.1.1.3 Maintenance:

Maintenance of the main access road from Dayton Valley Road to the Project site would occur including construction of water bars, removal of boulders in the travel way, piling boulders beside the road, and grading of rough segments. All maintenance of existing access roads would be completed within the existing road footprint including existing travel way and side berms and would not increase the surface disturbance within the Project area.

Maintenance of existing pre-1981 roads would be conducted only on an as-needed basis and would include minor seasonal regrading and maintenance of drainage features as necessary as outlined in BLM Manual 9113. If road gravel was necessary to improve some of the roads in the area, the gravel would be obtained from a BLM approved source. The gravel would be placed on the road by a dump truck and smoothed by a road grader.

Erosion control would be monitored in the spring and fall, and after any significant precipitation event. Any repair work needed would be conducted with approval of the BLM.

2.1.2 Alternative B: No Action

Under the No Action Alternative, exploration in the Project area could continue at the Notice-level resulting in less than five acres of un-reclaimed exploration related surface disturbance. Notice-level surface disturbance is approaching the five acre limit. Upon reaching that threshold, no additional Notice-level exploration could occur until an equivalent amount of exploration surface disturbance is reclaimed. The level of exploration activities that would be allowed under the No Action Alternative would not be sufficient to meet the purpose and need of the Project.

3.0 AFFECTED ENVIRONMENT

3.1 Setting

The Project area is located at the north end of the Pine Nut Mountains. The elevation ranges from approximately 5,600 feet to 6,600 feet (1,707 meters to 2,012 meters) above mean seal level. Precipitation varies between eight and fourteen inches with change in elevation. Most precipitation occurs during the winter. Summers are hot and dry. The soils in the Project area are typically very rocky and shallow to bedrock and are associated with the following ecological sites (NRCS 2003):

Shallow Claypan 8-10" P.Z. (R027XN020NV)

Loamy 12-14" P.Z. (R026XY005NV)

PIMO-JUOS/ARTRW/ACTH7 Woodland (RO26XY062NV)

Claypan 10-12" P.Z. (R026XY023NV)

3.1.1 Resources Considered for Analysis

The BLM is required to address specific elements of the environment that are subject to requirements in statute or regulation or by executive order (BLM 2008). Table 2 lists the elements that must be addressed in all environmental analysis and indicates whether the Project and Alternatives affect those elements. Other resources of the human environment that have been considered for analysis are listed in Table 3.

Table 2. Supplemental Authorities*.

Resource	Present Yes/No	Affected Yes/No	Rationale
Air Quality	Y	N	The Project area is located within an attainment air basin. Although the Project would create emissions from vehicles and equipment, and fugitive dust from use of roads, the amount emitted would not result in a change to the air basin status and best management practices would be implemented to limit fugitive dust.
Areas of Critical Environmental Concern	N		Resource not present.
Cultural Resources	Y	N	Based on a class III cultural resources inventory of the Project area, under the Proposed Action there would be no effect to sites eligible for listing on the National Register of Historic Places (report on file).
Environmental Justice	N		Resource not present.
Farm Lands (prime or unique)	N		Resource not present.
Floodplains	N		Resource not present.
Invasive, Non-Native Plant Species	Y	N	Based on surveys conducted in 2014, no noxious weeds are known to be present. Cheatgrass (*Bromus tectorum*) is present in the Project area. Noxious weeds would be addressed by the Weed Management Plan (Appendix A).
Migratory Birds	Y	Y	Carried forward for analysis.
Native American Religious Concerns	N		Consultation with the Yerington Paiute Tribe is on-going, to date no religious concerns have been identified.
Threatened or Endangered Species (animals)	N		Resource not present.
Threatened or Endangered Species (plants)	N		Resource not present.
Wastes, Hazardous or Solid	Y	N	Best management practices would be implemented to minimize potential for spills from equipment or vehicles.
Water Quality (Surface/Ground)	Y	N	Although seasonal seeps, springs and streams are present in the Project area, best management practices would be implemented to minimize potential impacts to surface water resources.
Wetlands/Riparian Zones	Y	N	Although seasonal seeps, springs and streams are present in the Project area, best management practices would be implemented to minimize potential impacts to riparian zones.
Wild and Scenic Rivers	N		Resource not present.
Wilderness/WSA	N		Resource not present.

**See H-1790-1 (January 2008) Appendix 1 Supplemental Authorities to be Considered.*

Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.

Supplemental Authorities determined to be Present/May Be Affected may be carried forward in the document.

Table 3. Resources or Uses Other Than Supplemental Authorities.

Resource or Issue**	Present Yes/No	Affected Yes/No	Rationale
BLM Sensitive Species (animals)	Y	Y	Carried forward for analysis.
BLM Sensitive Species (plants)	Y	Y	Carried forward for analysis.
Fire Management	Y	N	Access into the Project area during wildfire suppression activities would not be affected by the Project.
Forest Resources	Y	N	The Project would not affect the availability of forest products such as firewood for personal use.
General Wildlife	Y	Y	Carried forward for analysis.
Global Climate Change	Y	N	Although there is public and scientific debate about human-caused global climate change, no methodology currently exists to analyze to what extent the negligible contributions of greenhouse gases (GHG) would contribute to climate change from implementation of the Project.
Greenhouse Gas Emissions	Y	N	Although under the Proposed Action there would be negligible contribution of GHG from vehicle/equipment emissions, no methodology exists to assess resource impacts within the Project area from such contributions of GHG.
Land Use Authorization	Y	N	Although right-of-ways are present in the Project area, none of the alternatives would affect these authorizations and activities.
Lands with Wilderness Characteristics	N		Pursuant to Sections 101, 201 and 202 of the Federal Land Policy and Management Act, GIS spatial imagery was reviewed by the BLM. No LWCs were identified within the Project area.
Livestock Grazing	Y	N	The Project area occurs within the Clifton Allotment which is currently in non-use. Should grazing resume, the Project activities would not have an effect on grazing operations.
Minerals	Y	Y	Carried forward for analysis.
Paleontological	N		Resource not present.
Recreation	Y	N	Although dispersed recreation is present in the Project area, none of the alternatives would affect recreational activities.
Socioeconomics	N		Resource not present.
Soils	Y	N	Best management practices would be implemented to minimize potential for increased soil erosion.
Travel Management	Y	N	Although dispersed recreation is present in the Project area, none of the alternatives would affect access.
Vegetation	Y	Y	Carried forward for analysis.
Visual Resources	Y	N	The Project area is within Visual Resource Management Class III and IV, which allow for moderate to major changes to the visual character of the area. This Project is consistent with VRM Class III and IV.
Wild Horses and Burros	Y	N	The Project area is located partially within the Pine Nut Mountain Herd Management Area. Project activities would not prevent migration, or access to water by horses that reside in the Project area.

***Resources or uses determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*

Resources or uses determined to be Present/May Be Affected may be carried forward in the document.

3.2 Minerals

The Pine Nut Mountains consist of a core of granitic rocks that intrude older sediments and volcanics. The Project area is situated within a broad northwest trending corridor of gold and/or silver deposits that straddles Nevada and California that is known as the Walker Lane. BVT has confirmed the presence of a significant hydrothermal system underlying the Project area (McGibbon 2012).

3.3 General Wildlife

Wildlife species observed by RCI Biologists in June, 2013 in conjunction with sensitive plant surveys included:

Common Name	***Scientific Name***
Black throated sparrow	*Amphispiza bilineata*
Golden eagle	*Aquila chrysaetos*
Ferruginous hawk	*Buteo regalis*
Common raven	*Corvus corax*
Horned lark	*Eremophila alpestris*
Rock wren	*Salpinctes obsoletus*
White-tailed antelope squirrel	*Ammospermophilus leucurus*

Wildlife species identified by the Nevada Department of Wildlife (NDOW) with known occurrence in the vicinity of the Project area are listed in Table 4.

Table 4. Species that Have Been Observed in the Vicinity of the Project Area (RCI 2014).

Birds	
Common Name	**Scientific Name**
White-throated swift	*Aeronautes saxatalis*
Cassin's finch	*Carpodacus cassinii*
Mountain quail	*Oreortyx pictus*
White-faced ibis	*Plegadis chihi*
Golden-crowned kinglet	*Regulus satrapa*
Reptiles	
Common Name	**Scientific Name**
Great Basin whiptail	*Aspidoscelis tigris tigris*
Zebra-tailed lizard	*Callisaurus draconoides*
Western rattlesnake	*Crotalus oreganus*
Great Basin rattlesnake	*Crotalus oreganus lutosus*
Great Basin collared lizard	*Crotaphytus bicinctores*
Long-nosed leopard lizard	*Gambelia wislizenii*
Coachwhip	*Masticophis flagellum*
Striped whipsnake	*Masticophis taeniatus*
Desert horned lizard	*Phrynosoma platyrhinos*
Northern desert horned lizard	*Phrynosoma platyrhinos platyrhinos*
Great Basin fence lizard	*Sceloporus occidentalis longipes*
Great Basin gopher snake	*Pituophis catenifer deserticola*
Western fence lizard	*Sceloporus occidentalis*
Yellow-backed spiny lizard	*Sceloporus uniformis*
Terrestrial gartersnake	*Thamnophis elegans*
Common garter snake	*Thamnophis sirtalis*
Nevada side-blotched lizard	*Uta stansburiana nevadensis*
Mammals	
Common Name	**Scientific Name**
White-tailed antelope squirrel	*Ammospermophilus leucurus*
Golden-mantled ground squirrel	*Callospermophilus lateralis*
Ord's kangaroo rat	*Dipodomys ordi*
Montane vole	*Microtus montanus*
Long-eared myotis	*Myotis evotis*
Panamint chipmunk	*Neotamias panamintinus*
Northern grasshopper mouse	*Onychomys leucogaster*
Great Basin pocket mouse	*Perognathus parvus*
North American deer mouse	*Peromyscus maniculatus*
Pinyon deer mouse	*Peromyscus truei*

NDOW also confirmed that mule deer and pronghorn antelope distributions occur throughout the entire Project area (RCI 2014). Distributions for various raptors including American kestrel, bald eagle, barn owl, burrowing owl, Cooper's hawk, ferruginous hawk, golden eagle, great horned owl, long-eared owl, merlin, northern goshawk, northern harrier, northern saw-whet owl, osprey, peregrine falcon, prairie falcon, red-tailed hawk, rough-legged hawk, sharp-shinned hawk, short-eared owl, Swainson's hawk, turkey vulture, and western screech owl also occur within the Project area.

Nineteen raptor nest sites were recorded within 10 miles of the Project area between 1975 and 2011. Based on review of existing data provided by NDOW, no active raptor nests are known to occur within one mile of the Project area.

3.4 BLM Sensitive Species (Animals)

NNHP was queried to identify known locations of special status species in the vicinity of the Project area. The NNHP database identified one mammal record within the search area, Townsend's big-eared bat (*Corynorhinus townsendii),* a BLM sensitive species.

On October 28, 2013, the U.S. Fish and Wildlife Service (FWS) issued proposed rules in the Federal Register (46889, Vol. 78 No. 208) for the proposed listing of the Bi-State sage-grouse as threatened, and designation of proposed critical habitat (PCH) (46862 Vol. 78 No. 208). Approximately 1,877 acres (84 percent) of the Project area is within proposed critical habitat (Figure 3). A final determination of acres of PCH within the Project area would not occur until the FWS issues final listing decisions on the Bi-State sage-grouse as a threatened species, and designation of critical habitat. Per Nevada IM No. NV 2014-008 "Conferencing with U.S. Fish and Wildlife Service on Activities Potentially Affecting Species and Their Habitats Proposed for Federal Listing" the BLM has coordinated with the FWS on this Project (See Section 4.4).

Other BLM sensitive species with potential for occurrence in the Project area shown in Table 5 were identified from a habitat analyses conducted by Resource Concepts, Inc. (RCI 2014).

Table 5. BLM Sensitive Wildlife Species with Potential for Occurrence in the Project Area.

MAMMALS	
Pallid bat	***Antrozous pallidus***
Rocky outcrops with pinyon-juniper. Day roosts in caves and mines.	
Townsend's big-eared bat	***Corynorhinus townsendii***
Pinyon-juniper and sagebrush areas with caves and abandoned mines.	
Big brown bat	***Eptesicus fuscus***
Pinyon-juniper and sagebrush. Day roosts in caves.	
Spotted bat	***Euderma maculatum***
Pinyon-juniper and sagebrush with cliffs for roosting.	
Silver-haired bat	***Lasionycteris noctivagans***
Forested habitat including pinyon-juniper.	
California myotis	***Myotis californicus***
Hibernates in caves and mines. Forages near water.	

MAMMALS	
Western small-footed myotis	***Myotis ciliolabrum***
Sagebrush steppe and pinyon-juniper.	
Long-eared myotis	***Myotis evotis***
Pinyon-juniper and sagebrush. Night roosts in caves, mines.	
Little brown myotis	***Myotis lucifugus***
Hibernates in caves and mines. Forages near water.	
Fringed myotis	***Myotis thysanodes***
Desert scrub. Roosts in mines and caves.	
Long-legged myotis	***Myotis volans***
Pinyon juniper. Day roosts in rock crevices, caves and mines.	
Yuma myotis	***Myotis yumanensis***
Sagebrush near water; roosts in caves and mines.	
BIRDS	
Golden Eagle	***Aquila chrysaetos***
Nests have been confirmed within 10 miles of the Project area. Eagles may hunt within the Project area. There is no nesting habitat within the Project area.	
Western Burrowing Owl	***Athene cunicularia hypugaea***
May use borrows dug by fossorial animals when sufficient prey base is available.	
Ferruginous Hawk	***Buteo regalis***
Nests in tops of isolated juniper trees. Has been observed in the Project area.	
Swainson's Hawk	***Buteo swainsoni***
May use sagebrush, saltbush, cheatgrass, and saltgrass habitats for foraging. There are no trees suitable for nesting habitat within the Project area.	
Peregrine Falcon	***Falco peregrinus***
May use cliffs for nesting.	
Pinyon Jay	***Gymnorhinus cyanocephalus***
Pinyon-juniper habitat.	
Sage Thrasher	***Oreoscoptes montanus***
Mature sagebrush and sagebrush steppe habitat.	
Brewer's sparrow	***Spizella breweri***
Sagebrush and desert scrub.	

3.5 Migratory Birds

Migratory birds are protected by Executive Order 13186 issued by President Clinton on January 11, 2001 and the Migratory Bird Treaty Act of 1918. Management for these species on BLM land is based on Information Bulletin (IB) No. 2010-110 which transmits the 2010 Memorandum of Understanding (MOU) between the BLM and the FWS for the conservation of migratory birds, and Instruction Memorandum IM 2008-050. Migratory bird species that may occur within the Project area are listed in Table 6.

Table 6. Migratory Bird Species with Potential for Occurrence within the Project Area.

Species	Activity
Sage sparrow (*Amphispiza belli*)	Foraging and nesting
Golden Eagle (*Aquila chrysaetos)*	Foraging only; no nesting habitat available
Burrowing owl (*Athene cunicularia*)	Foraging and nesting
Ferruginous hawk (*Buteo regalis)*	Foraging and nesting
Swainson's hawk (*Buteo swainsoni)*	Foraging
Peregrine falcon (*Falco peregrinus*)	Foraging and nesting
Loggerhead shrike (*Lanius ludovicianus)*	Foraging and nesting
Sage thrasher *(Oreoscoptes montanus*)	Foraging and nesting
Brewer's sparrow (*Spizella breweri*)	Foraging and nesting
Gray vireo (*Vireo vicinior)*	Foraging and nesting

3.6 Vegetation

The Project area is located in the Great Basin major phytogeographic region and the Eastern Sierra Nevada Ranges minor phytogeographic regions of northern Nevada (RCI 2014). The Southwest Regional Gap Analysis Project (SWReGAP) landcover class map shows the lower elevation are characterized by Great Basin Xeric Mixed Sagebrush Shrubland and Intermountain Basin Big Sagebrush Shrubland. The higher elevations are characterized as Great Basin Pinyon-Juniper Woodland. The landcover vegetation classes in the Project area are shown in Figure 4 and described in Table 7. Initial botanical surveys of the Project area were conducted by RCI in 2013. A plant list of species identified in the Project area is included in Appendix B.

Table 7. General Landcover Descriptions Developed by NatureServe within the Project Area.

Great Basin Xeric Mixed Sagebrush Shrubland	These shrubland are dominated by *Artemisia nova* (mid and low elevations), *Artemisia arbuscula* (higher elevation), and may be codominated by *Artemisia tridentata* ssp. *wyomingensis* or *Chrysothamnus viscidiflorus*. Other shrubs that may be present include *Atriplex confertifolia*, *Ephedra* spp., *Ericameria* spp., *Grayia spinosa*, *Lycium shockleyi*, *Picrothamnus desertorum* [*Artemisia spinescens*], *Sarcobatus vermiculatus*, and *Tetradymia* spp. The herbaceous layer is likely sparse and composed of perennial bunch grasses such as *Achnatherum hymenoides*, *Achnatherum speciosum*, *Achnatherum thurberianum*, *Elymus elymoides*, or *Poa secunda*.
Intermountain Basin Big Sagebrush Shrubland	These shrublands are dominated by *Artemisia tridentata* ssp. *tridentata* and/or *A. tridentata* ssp. *wyomingensis.* Scattered *Sarcobatus vermiculatus* and *Atriplex* spp. may be present in some stands. *Ericameria nauseosa* or *C..viscidiflorus* may codominate disturbed stands. Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species include *A. hymenoides, Bouteloua gracilis, Elymus lanceolatus, Festuca idahoensis, Hesperostipa comata, Leymus cinereus, Pleuraphis jamesii, Pascopyrum smithii, P. secunda*, or *Pseudoroegneria spicata*.
Great Basin Pinyon-Juniper Woodland	These woodlands are dominated by a mix of *Pinus monophylla* and *Juniperus osteosperma*, pure or nearly pure occurrences of *P. monophylla*, or woodlands dominated solely by *J. osteosperma* comprise this system. *Cercocarpus ledifolius* is a common associate. Understory layers are variable. Associated species include shrubs such as *Arctostaphylos patula, A. arbuscula, A. nova, A. tridentata, Cercocarpus ledifolius, Cercocarpus intricatus, Coleogyne ramosissima, Quercus gambelii, Quercus turbinella,* and bunch grasses *H. comata, Festuca idahoensis, P. spicata, L. cinereus* [*Elymus cinereus*], and *Poa fendleriana*.

3.7 BLM Sensitive Species (Plants)

The NNHP database search identified three sensitive plant species with records of occurrence within their search area, Margaret's rushy milkvetch (*Astragalus convallarius var. margaretiae)*, Mono phacelia *(Phacelia monoensis)*, Tiehm's peppergrass (*Stroganowia tiehmii).*

Other BLM sensitive plant species with potential for occurrence in the Project area shown in Table 8 were identified from a habitat analyses conducted by RCI (2014).

Table 8. Sensitive Plant Species that Have Potential Habitat in the Project Area (RCI 2014).

Eastwood milkweed	***Asclepias eastwoodiana***
Small washes or other moisture-accumulating microsites, in the shadscale, mixed-shrub, sagebrush, and lower piñon–juniper zones.	
Margaret rushy milkvetch	***Astragalus convallarius* var. *margaretiae***
Rocky slopes and flats in sagebrush in piñon–juniper and sagebrush communities.	
Ames milkvetch	***Astragalus pulsiferae var. pulsiferae***
Sandy or rocky soils in Great Basin scrub.	
Bodie Hills draba	***Cusickiella quadricostata***
Rocky sites in pinyon-juniper.	
Windloving buckwheat	***Eriogonum anemophilum***
Exposed ridgeline knolls and outcrops.	
Beatley buckwheat	***Eriogonum beatleyae***
Volcanic outcrops in sagebrush scrub.	
Lahontan beardtongue	***Penstemon palmeri var. macranthus***
Washes in carbonate substrates.	
Masonic Mountain jewelflower	***Streptanthus oliganthus***
Volcanic or granitic volcanic outcrops in pinyon-juniper woodlands.	
Tiehm peppergrass	***Stroganowia tiehmii***
Dry, very rocky clay soils near scree, talus, or boulder fields derived from basalt.	

RCI conducted surveys for sensitive plant species in the Project area on May 23, June 5, and June 13 in 2013. On June 5 and June 11, 2014 additional reconnaissance surveys were conducted and included searches for Webber's ivesia (*Ivesia webberi*) as requested by BLM. Surveys were conducted during the optimal period for plant identification (RCI 2014). One sensitive plant species, Margaret rushy milkvetch *(Astragalus convallarius* var. *margaretiae*) was observed in the Hercules, Northeast, and West Cliffs target areas. The species identification was verified by the University of Nevada Herbarium (Pers. Comm. Tiehm 2014). The plant was widely distributed at higher elevations and not associated with a specific microhabitat.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The direct and indirect effects of the Proposed Action on Supplemental Authorities and other resources carried forward in the analysis are discussed in this section. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and occur later in time or farther in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water another natural systems, including ecosystems (40 CFR 1508.8).

4.2 Minerals

Alternative A: Proposed Action

The direct effects of the Proposed Action would be drilling into existing mineral deposits at depths ranging between 100 and 1,000 feet. A drilling log for each drill hole would be kept describing the geologic features encountered. This information would expand upon the knowledge of mineralization in the Project area.

Indirect effects anticipated from the Project may include future exploration projects.

Alternative B: No Action

The direct effects of the No Action alternative would be limited to additional drilling into mineral deposits and no expanded knowledge of the mineralization of the Project area.

Indirect effects of the No Action alternative may include lost economic opportunity from mining.

4.3 General Wildlife

Alternative A: Proposed Action

Direct and indirect effects to wildlife in general would include temporary disturbance from increased human presence and noise, and temporary loss of habitat from vegetation removal and grading. Approximately 17 acres of vegetation removal would occur for road construction, drill sites, and trenches. Approximately 0.4 acres would be driven across without removal of vegetation for cross country access routes which would only have temporary short-term impacts to habitat.

The direct effects of habitat loss would be temporary with successful revegetation upon completion of drilling which would reestablish habitat values over time. Some direct mortality of birds, reptiles, and mammals may result from collision with vehicles. Most wildlife would escape injury and retreat to adjacent undisturbed habitat of similar quality. The potential impact to wildlife from collision with vehicles would be low.

Alternative B: No Action

Under the No Action alternative the effects associated with surface disturbance may continue under Notice-level activities.

4.4 BLM Sensitive Species (Animals)

Alternative A: Proposed Action

Direct and indirect effects to sensitive bird species would include temporary disturbance from increased human presence and noise. Temporary loss of nesting habitat for Brewer's sparrow, sage thrasher, pinyon jay, and ferruginous hawk would occur from sagebrush and pinyon removal. The potential impact from sagebrush and pinyon habitat loss would be low since large expanses of undisturbed habitat with similar values occur nearby. Foraging habitat for raptors including golden eagle, peregrine falcon, ferruginous hawk, and Swainson's hawk would be low since habitat for prey species (primarily small mammals and passerine birds) occurs nearby. Direct and indirect impacts to burrowing owl would be low since existing burrows are not prevalent in the Project area and habitat with similar values occurs nearby.

The direct effects of sagebrush habitat loss would be temporary with successful revegetation upon completion of drilling which would reestablish habitat values over time. Some direct mortality of sage thrasher or Brewer's sparrow may result from collision with vehicles. Most birds would escape injury and retreat to adjacent undisturbed habitat of similar quality. The potential impact to sensitive bird species from collision with vehicles would be low.

There would be "no effect" on the Bi-State sage-grouse because it is not present in the four target areas where proposed exploration activities would occur. The target areas are considered unoccupied because of the lack of telemetry data documenting occurrence and because the target areas are outside the general travel corridor used by sage-grouse in the Pine Nut Mountains. The Project is "not likely to adversely affect" proposed critical habitat because of the extremely small amount of proposed critical habitat that would be disturbed (0.005% of the total proposed critical habitat in the Pine Nut Unit). The effects of this amount of disturbance would be insignificant. Therefore no formal conferencing with FWS is currently required (BLM 2013). New sage-grouse telemetry data over the life of the Project may result in Project modification (i.e. seasonal restriction, timing restriction, et cetera).

Other potential sensitive species in the Project area are bats that may be using abandoned mine shafts and adits. The Project would not disturb any existing mine shafts or adits. Exploration activities would be limited to daylight hours and both noise and human presence would be minimal during twilight and nighttime bat activity periods. The potential for direct and indirect impacts to bats is low due to lack of temporal and spatial overlap.

Alternative B: No Action

Under the No Action alternative the effects associated with surface disturbance may continue under Notice-level activities.

4.5 Migratory Birds

Alternative A: Proposed Action

Direct and indirect effects to migratory birds would include temporary disturbance from increased human presence and noise. Direct effects to migratory birds would result in a loss of approximately 17 acres of potential nesting and foraging habitat. Impacts would be temporary, localized, and

short-term. With successful revegetation upon completion of drilling, habitat values would reestablish over time. Some direct mortality of birds may result from collision with vehicles but the potential for loss of migratory birds would be low. Most birds would escape injury and retreat to adjacent undisturbed habitat of similar quality.

Alternative B: No Action

Under the No Action alternative the effects associated with surface disturbance may continue under Notice-level activities.

4.6 Vegetation

Alternative A: Proposed Action

Direct impacts to vegetation would include complete vegetation removal on approximately 17 acres for construction of roads, drill pads, and trenches. Vegetation crushing would occur on approximately 0.4 acres from cross country access routes. Cross county traffic would not be expected to kill or permanently remove vegetation. Both vegetation removal and crushing would increase the potential for invasive species and noxious weed establishment.

The potential for impacts to vegetation would be low based on the proportion of disturbance to the acreage of montane sagebrush steppe and basins big sagebrush shrubland adjacent to the Project area.

Impacts to vegetation would be long-term but would be minimized with successful reclamation that would stabilize soils, reestablish native plants, and set the initial direction for secondary succession. Reclamation practices would be completed to the standards described in 43 CFR 3809.420 and NAC 519A and would meet the reclamation objectives as outlined in the U.S. Department of Interior Solid Minerals Reclamation Handbook #H-3042-1 (BLM 1992), revegetation success standards per BLM/NDEP "Revised Guidelines for Successful Mining and Exploration Revegetation" (BLM 1999), and Surface Management Handbook H-3809-1 (BLM 2012). All seed mixes used for reclamation would be approved by the BLM Sierra Front Field Office.

Alternative B: No Action

Under the No Action Alternative, vegetation communities would not be disturbed and the potential for invasive species establishment and noxious weeds would not increase from current levels.

4.7 BLM Sensitive Species (Plants)

Alternative A: Proposed Action

Margaret's rushy milkvetch was most prevalent and occurred at higher densities in the West Cliffs and Hercules Target areas that are characterized by higher elevation and steeper terrain in the Great Basin pinyon-juniper woodland landcover type. High-density populations of Margaret's rush milkvetch were observed throughout most of the Hercules Target Area (approximately 190 acres) and most of the West Cliffs Target Area (approximately 127 acres), and throughout an extensive area of pinyon-juniper woodlands adjacent to these target areas. Approximately 8.5 acres for road

and drill pad construction would be disturbed in high density populations for Margaret's rushy milkvetch in the Hercules and West Cliffs Target Areas. A few occurrences and much lower densities of Margaret's rushy milkvetch were observed in the Loaves and Northeast Target areas where approximately 0.3 acre of low density populations would be disturbed for exploration road and drill pad construction. Margaret's rushy milkvetch was also observed on previously reclaimed exploration roads.

Loss of individual plants would occur as a result of vegetation removal and grading, and could not be avoided due to its widespread occurrence particularly in the West Cliffs and Hercules Target areas. The loss of individual plants would not affect the overall viability of the species given its widespread distribution in pinyon-juniper woodlands and its ability to reestablish on disturbed areas.

Other sensitive species with potential for occurrence in the vicinity of the Project were searched for in the footprint of the Project disturbance area and were not found. Impacts to other sensitive species would not be anticipated to occur or be impacted by the Project.

Alternative B: No Action

Under the No Action alternative, no individual Margaret's rushy milkvetch plants would be removed.

4.8 Residual Effects

The residual effects to vegetation may include vegetation type conversion due to the composition of the revegetation seed mixture specified by BLM, the climatic conditions during the revegetation establishment period, and the slow progress of secondary succession in dry upland habitats.

5.0 CUMULATIVE EFFECTS

A cumulative effect is defined under NEPA as "the change in the environment which results from the incremental impact of the action, decision, or Project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other action." "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR Part 1508.7). Past, present, and reasonably foreseeable future actions are analyzed to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the Proposed Action and/or Alternatives may have an additive and significant relationship to those effects.

5.1 Cumulative Effects Geographic Area

The cumulative effects study area (CESA) for all affected resources (minerals, general wildlife, BLM sensitive species animals and plants, migratory birds, and vegetation) is defined as the Project area claim boundary and access road as shown in Figure 1. The CESA is approximately 2,329 acres including 2,320 acres in the claim block and 9.3 acres along the access road.

5.2 Timeframe for Effects Analysis.

The timeframe for analysis of cumulative effects is six years which includes the Notice exploration period, the Project implementation period, and a three-year establishment period following revegetation.

5.3 Past, Present, and Reasonably Foreseeable Actions.

Past mining exploration has occurred intermittently in the CESA since the Comstock period in the mid-1800's. Dispersed recreation such as off-highway vehicle use, hiking and sightseeing also occurs intermittently in the CESA. These activities are generally dispersed and of low intensity.

In July, 2011 the current Amended Notice of Operations (N-89713) was provided to the BLM by Willow Creek Enterprises, Inc for mining exploration in the Hercules Project area. The Notice included approximately 3,275 linear feet of new road building, 1,000 feet of cross-country travel, and 42 drill sites on less than 5 acres. Under the existing Notice approximately 4.6 acres have been disturbed.

The CESA is also within the Clifton Allotment and has been grazed by livestock in the past, but is currently in non-use and not being grazed.

5.3.1 Reasonably Foreseeable Actions.

No other notice-level or plans of operation projects are proposed in the CESA at this time.

5.4 Effects Analysis.

The National Environmental Policy Act (CEQ 1997) identifies the intensity of impacts for a given resource as 'low adverse effect,' 'moderate adverse effect,' 'high adverse effect,' 'beneficial effect,' and 'no effect.' For this analysis, a low adverse effect would include temporary, seasonal impacts. A moderate adverse effect would include long-term impacts. A high adverse effect would

include irreversible permanent impacts. No moderate or high adverse effects are anticipated from the Project.

5.4.1 Minerals

The cumulative effect of the Project is anticipated to have a beneficial effect for Minerals as knowledge of mineralization is gained through additional exploration.

Short-term cumulative effects of the No Action Alternative are anticipated from continued Notice-level exploration surface disturbance of at least 0.4 acres.

5.4.2 General Wildlife

A low adverse cumulative effect for general wildlife is anticipated from the Project based upon the temporary impacts to habitat and increased noise. Many wildlife species are adaptable to low levels of human presence.

The effects of the No Action alternative and the cumulative effects of the No Action alternative are the same for general wildlife resources within the CESA.

5.4.3 BLM Sensitive Species (Animals)

The cumulative effect of the Project to sensitive animal species is anticipated to be low due to avoidance of preferred bat habitat.

The effects of the No Action alternative and the cumulative effects of the No Action alternative are the same for BLM sensitive wildlife species within the CESA.

5.4.4 Migratory Birds

The cumulative effect of the Project to migratory birds is anticipated to be low due to the short-term duration of the Project and the availability of habitat with similar habitat values for nesting and foraging adjacent to disturbance areas.

The effects of the No Action alternative and the cumulative effects of the No Action alternative are the same for migratory birds within the CESA.

5.4.5 Vegetation

The cumulative effect to vegetation is anticipated to be low given the small amount of disturbance in proportion to the CESA.

The effects of the No Action alternative and the cumulative effects of the No Action alternative are the same for vegetation resources within the CESA.

5.4.6 BLM Sensitive Species (Plants)

The cumulative effect to sensitive plants is anticipated to be low due to the large population of Margaret's rushy milkvetch plants distributed over the CESA and other diverse ecological sites.

The effects of the No Action alternative and the cumulative effects of the No Action alternative are the same BLM sensitive plant species within the CESA.

6.0 CONSULTATION AND COORDINATION

6.1 Public Review and Comment

The *Hercules Exploration Project Draft Environmental Assessment* (DOI-BLM-NV-C020-2014-0033-EA) has been made available for public review from November 10 until November 24, 2014. All comments received would be reviewed and categorized. Although not required for an EA by regulation, an agency may respond to *substantive* and *timely* comments.

Substantive comments:

1) question, with reasonable basis, the accuracy of information in the EA;
2) question, with reasonable basis, the adequacy of methodology for, or assumptions used for the environmental analysis;
3) present new information relevant to the analysis;
4) present reasonable alternatives other than those analyzed in the EA; and/or
5) cause changes or revisions in one or more of the alternatives.

6.2 Individuals, Tribes, Organizations and Agencies Consulted

6.2.1 Individuals

Par Four Partners

6.2.2 Tribes

Yerington Paiute Tribe

6.2.3 Agencies

Nevada State Clearinghouse (multiple agencies)

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Appendix A

Noxious Weeds Management Plan

APPENDIX A

Noxious Weeds Management Plan

Early Detection

Annual surveys for noxious weeds in the Project Area would be conducted in all disturbed areas and along all roads that could serve as possible vectors for noxious weed introduction.

Surveys would be conducted in late June-early July, the peak flowering period for noxious weeds to maximize opportunities for detection.

Rapid Response

If noxious weeds are found, the BLM would immediately be contacted to identify the appropriate weed control method. BVT would implement the BLM recommendations during the targeted timeframe to maximize treatment effectiveness.

Regular monitoring of treated areas would occur and retreatment would be implemented as needed and as approved by the BLM.

Preventive Measures

To eliminate the transport of vehicle-borne noxious weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities, for emergency fire suppression, or for authorized off-road driving within the Project area, would be free of soil and debris capable of transporting weed. All such vehicles and equipment would be cleaned with high power or high pressure equipment prior to entering the Project area. Vehicles and equipment would not drive through known populations of noxious weeds or invasive species following the vehicle washing and prior to entering the Project area.

Vehicles used for emergency fire suppression would be cleaned as part of check-in and demobilization procedures. Cleaning efforts would concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis would be applied to axles, frames, cross members, motor mounts, on and underneath the steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles.

Appendix B

Plant Species Observed in the Project Area June 2013

APPENDIX B

Plant Species Observed in the Project Area June 2013

.	Scientific Name	LOAVES TARGET	NORTH-EAST TARGET	HERCULES TARGET	WEST CLIFFS TARGET
TREES					
Mountain mahogany	*Cercocarpus ledifolius*	X			X
Utah juniper	*Juniperus osteosperma*		X	X	X
Pinyon pine	*Pinus monophylla*	X	X	X	X
SHRUBS					
Low sagebrush	*Artemisia arbuscula*			X	
Black sagebrush	*Artemisia nova*	X	X		X
Big sagebrush - basin	*A. tridentata tridentata*	X			
Big sagebrush - mountain	*A. tridentata vaseyana*			X	X
Big sagebrush - Wyoming	*A. tridentata Wyomingensis*	X			
Rabbitbrush - gray	*Ericameria nauseosus*	X		X	
Rabbitbrush - yellow	*C. viscidiflorus*	X	X		X
Green ephedra	*Ephedra viridis*	X	X	X	X
Spiny hopsage	*Grayia spinosa*	X		X	
Bitterbrush	*Purshia tridentata*	X	X	X	X
Desert currant	*Ribes* sp.				X
Coyote willow	*Salix exigua*	X			
Purple sage	*Salvia dorrii*		X	X	
Rock spray	*Holodiscus* sp.	X			X
Little Horsebrush	*Tetradymia glabrata*	X	X		
GRASS AND GRASS-LIKE					
Indian ricegrass	*Achnatherum hymenoides*			X	
Thurber's Needlegrass	*Achnatherum thurberianum*			X	
Crested wheatgrass	*Agropyron cristatum*	X	X		
Cheatgrass	*Bromus tectorum*	X	X	X	X
Upland sedge	*Carex* sp.			X	
Squirreltail	*Elymus elymoides*	X	X	X	X
Wiregrass	*Juncus* sp.	X			
Great Basin wildrye	*Leymus cinereous*	X		X	
Rock oniongrass	*Melica stricta*				X
Sandberg bluegrass	*Poa sandbergii*	X	X	X	X
Bluegrass	*Poa* [fendleriana].			X	

FORBS					
Wild onion	*Allium [bisceptrun]*	X	X		
Rushy buckwheat	*Astragalus convallarius* var. *margaretiae*			X	X
Daggerpod	*Arabis* sp.		X	X	
Hooker's balsamroot	*Balsamorhiza hookeri*		X	X	X
Arrowleaf balsamroot	*Balsamorhiza sagittata*			X	
Sego lily	*Calochortus [nuttallii]*			X	
Indian paintbrush	*Castilleja [chromosa]*	X	X	X	X
Dusty maiden	*Chaenactis douglasii*	X	X	X	X
Hawksbeard	*Crepis [acuminata]*	X	X	X	X
Rayless daisy	*Erigeron [aphanactis]*		X	X	
Cushion buckwheat	*Eriogonum [ceaspitosum]*		X		
Sulfur flower buckwheat	*Eriogonum ovalifolium*	X		X	X
Curlycup gumweed	*Grindelia squarrosa*	X			X
Dwarf goldenweed	*Haplopappus acaulis*		X	X	X
Forage kochia	*Kochia prostrata*	X	X		
Pepperweed	*Lepidium perfoliatum*	X			
Biscuitroot	*Lomatium* sp.	X		X	
Tansy mustard	*Descurainia pinnata*	X		X	X
Lupine	*Lupinus* sp.			X	
Prickly pear	*Opuntia* sp				X
Purple phacelia	*Phacelia* sp.			X	
Phlox	*Phlox [longifolia]*	X		X	
Penstemon (little blue)	*Penstemon [humilus]*			X	
Palmer penstemon	*Penstemon palmeri*				X
Russian thistle	*Salsola kali*	X		X	
Snowberry	*Symphoricarpos* sp.			X	
Death camas	*Zigadenus* sp.			X	