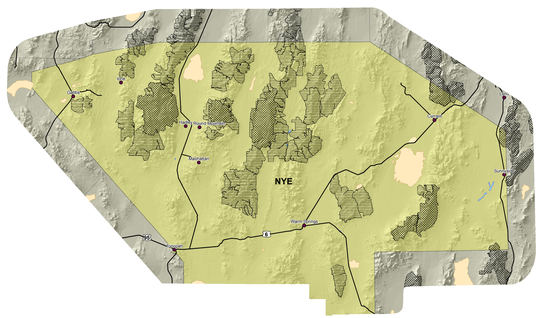
OPEN-FILE REPORT 09-14 (2nd ed.)
MINERAL AND HYDROCARBON RESOURCES, NORTHERN NYE COUNTY, NEVADA

Nevada Bureau of Mines and Geology

MINERAL AND HYDROCARBON RESOURCES, NORTHERN NYE COUNTY, NEVADA

USGS science for a changing world

UNLV UNIVERSITY OF NEVADA LAS VEGAS



Wilderness Areas
- Areas Suitable, Recommended, or Proposed for Wilderness
- Existing Wilderness Areas

- Playas
- Lakes

N

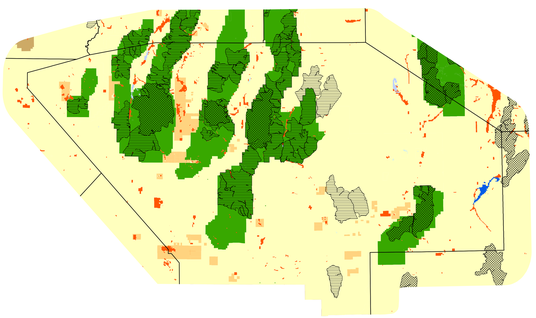
0 10 20 40 Miles

0 20 40 80 Kilometers

Projection: UTM11 NAD27

Base Map: Hydrography, transportation, and place names on shaded relief. Nye County, Nevada is highlighted.

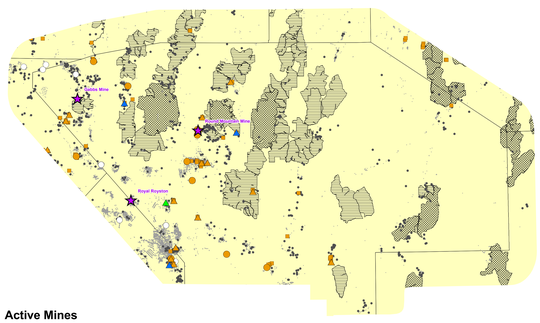
Land Status



Land Ownership or Management
- Tribal Lands
- Military
- U.S. Forest Service
- Private
- BLM and Other Federal Agencies
- Identified by BLM as Available for Disposal
- State of Nevada
- Lake/Reservoir

Wilderness Areas
- Areas Suitable, Recommended, or Proposed for Wilderness
- Existing Wilderness Areas

Mineral Resource Data



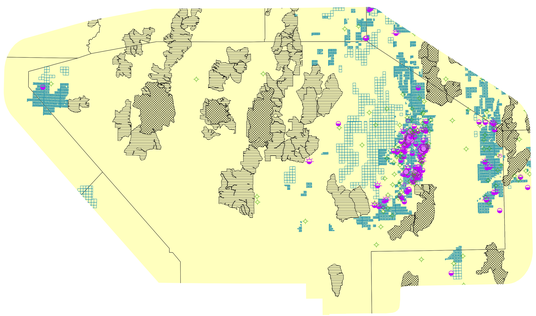
Active Mines
- Mine Name

Significant Metallic Mineral Deposits
- Gold
- Gold and Silver
- Silver
- Copper
- Molybdenum

Other Mineral Deposits
- Gold and Silver (NBMG Map 149)
- Industrial Minerals (NBMG Map 142)
- USGS Mineral Resources Data System Sites
- Abandoned or Inactive Mine Sites

Wilderness Areas
- Areas Suitable, Recommended, or Proposed for Wilderness
- Existing Wilderness Areas

Oil & Gas Data



Oil & Gas Exploration Holes
- Oil Producer
- Oil Show
- Oil and Gas Show
- Gas Show
- Dry Hole
- Sections with Oil & Gas Leases 2009

Wilderness Areas
- Areas Suitable, Recommended, or Proposed for Wilderness
- Existing Wilderness Areas

Mineral and Hydrocarbon Resources and Potential Northern Nye County, Nevada

John L. Mantan, Christopher D. Henry, and Stephen B. Castor
Nevada Bureau of Mines and Geology, University of Nevada Reno

Stephen D. Ludington, David A. John, and Niki Wintzer
United States Geological Survey

Andrew D. Hanson
Department of Geoscience, University of Nevada Las Vegas

Top row (Left to Right):

The base map showing the boundary of the northern Nye County project with a 10 mile buffer. The map illustrates topography as a digital shaded relief, with hydrography, transportation, and selected place names from U.S. Geological Survey (USGS) data. In order to portray Existing Wilderness Areas and Areas Suitable, Recommended, or Proposed for Wilderness, we used spatial datafiles retrieved from U.S. Forest Service (USFS) and Bureau of Land Management (BLM) websites (USFS, 2009; BLM, 2009). Areas Suitable, Recommended, or Proposed for Wilderness are under continuing evaluation by both agencies and may have changed since the spatial files were released.

The map of Land Status documents land ownership and/or management by section, based on GIS data (2007) from the U.S. Bureau of Land Management (BLM).

The map of Mineral Resource Data comprises a stack of partly overlapping data points that documents (from top to bottom): locations of Active Mines, updated from Davis (2006) using data from Driesner and Coyner (2008); locations of Significant Metallic Mineral Deposits (gold, gold and silver, silver, copper, and molybdenum from LaPointe, in preparation*); locations of Other Mineral Deposits including gold and silver resources discovered since 1950 (Davis and others, 2006, with a few extracted locations); industrial minerals (Papke and Castor, 2003); mines, mineral deposits, and occurrences from the USGS Mineral Resources Data System (MRDS; available from Hess, 2001); and abandoned or inactive mining sites (mines, shafts, adits, and prospect pits); taken from USGS 1:24,000-scale topographic maps (Hess, 2001). Northern Nye County has no known significant deposits of lead or zinc; there are, however, notable deposits of lithium, iron, tungsten (Shaiger and Tingley, 1988), and uranium (Garside, 1973), as documented in the MRDS data points.

The map of Oil & Gas Data documents locations of Oil and Gas Exploration Holes, divided into Oil Show, Oil and Gas Show, Gas Show, and Dry Hole (Garside and Hess, 2007). The map also shows sections that have been leased for oil and gas exploration in 2009 (BLM, 2009 "LR2000").

Bottom row (Left to Right):

The map of Mineral Exploration Activity summarizes current (end of 2008) exploration activity according to Number of Active Claims by Section (Causey, 2009), and also highlights Townships with Exploration Drilling or mine-development projects in 2008 (Mantan, in preparation).

The Geology Map shows geologic units based on the geologic map of Nevada published by Stewart and Carlson (1978), where names of the units can be found for the symbols shown in the legend.

The map and table of the Value of Known Resources list the 11 most valuable, known mineral deposits and oil fields in northern Nye County based on the value of production, reserves and resources at current prices. The following prices were used – $1000/ounce for gold, $16/ounce for silver, $15/pound for molybdenum, $3/pound for copper, $70/barrel for oil, $50/ton for barite, and $60/ton for magnesium. The copper resource is approximate. Copper grades at the Hall (Liberty) deposit are reportedly similar to molybdenum grades.

References

BLM, 2009, LR2000 BLM Report: Authorized Federal Oil and Gas Leases within the state of Nevada as of September 1, 2009.
BLM, 2009, Download Geospatial Data [http://www.blm.gov/wo/st/en/prog/more_programs/geographic_sciences/gis/geospatial_data.html].
Causey, J.D., 2009, Mining claim activity on federal land in the United States: U.S. Geological Survey.
Davis, D.D., Driesner, D., and Coyner, A., 2006, Nevada Mineral Resources: Nevada Bureau of Mines and Geology Open-File Report OFR-06-3, 1:1,000,000 scale.
Davis, D.D., Tingley, J.V., and Mantan, J.L., 2006, Gold and silver resources in Nevada: Nevada Bureau of Mines and Geology Map 149, 1:1,000,000 scale.
Driesner, D., and Coyner, A., 2008, Major mines of Nevada 2007: mineral industries in Nevada's economy: Nevada Bureau of Mines and Geology Special Publication P-18, 28 p.
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Hess, R.H., 2001, Mineral Resources Data System (MRDS) of the United States and Canada: U.S. Geological Survey Open-File Report 96-3, CD-ROM, at <www.nbmg.unr.edu/dox/ofr9601.htm>.
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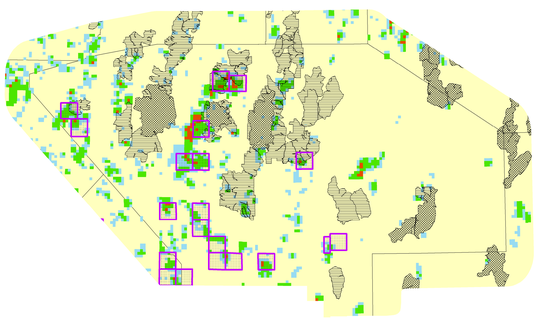
Long, K.R., DeYoung, J.H., Jr., and Ludington, S.D., 1998b, Database of significant deposits of gold, silver, copper, lead, and zinc in the United States, Part B: Digital database: U.S. Geological Survey Open-File Report 96-20AB, 1 3.5-inch diskette.
Mantan, J.L., in preparation, Metals, in Price, J.G., Mantan, J.L., Castor, S.B., Henry, R.H., and Davis, D.D., 2009, The Nevada mineral industry 2008: Nevada Bureau of Mines and Geology Special Publication MI-2008.
Papke, K.G., and Castor, S.B., 2003, Industrial mineral deposits in Nevada: Nevada Bureau of Mines and Geology Map 142, 1:1,000,000 scale, with insert, 22 p.
Shaiger, H.K., and Tingley, J.V., 1988, Tungsten deposits in Nevada: Nevada Bureau of Mines and Geology Bulletin 105, 236 p.
Stewart, J.H., and Carlson, J.E., 1978, Geologic Map of Nevada: U.S. Geological Survey, 1:500,000 scale.
USFS, 2009, GIS Maps and Data-Humboldt-Toiyabe National Forest [http://www.fs.fed.us/r4/humboldt-toiyabe/gis/gis_index.shtml].

* This is a database of 271 deposits of gold, silver, copper, lead, zinc, and molybdenum located within the state of Nevada (40 deposits within northern Nye county), updated by NBMG under a cooperative agreement with the USGS. The USGS defined significant deposits based on the following threshold values for total endowment of metals (past production plus remaining reserves and resources): 2 metric tons of gold, 85 metric tons of silver, 50,000 metric tons of copper, 35,000 metric tons of lead, 50,000 metric tons of zinc, and 550 metric tons of molybdenum). To illustrate different metals, and recognizing that certain metals tend to be associated with one another in genetically related types of deposits, we also included deposits that have lesser amounts of Au (with Mo, Cu, Pb, or Zn), Ag (with Mo, Cu, Pb, or Zn), Mo (with Au, Ag, or Cu), Cu (with Au, Ag, or Mo), Pb (with Au, Ag, or Zn), and Zn (with Au, Ag, or Pb) that are less than the threshold values but are greater than one-half the threshold values. Deposits that have significant quantities of Mo, Lead (Pb), Zn, Au, or Ag, but without significant quantities of Mo or Cu), Zinc (+ Au or Ag, but without significant quantities of Mo, Cu, or Pb), Silver (but without significant quantities of Au, Mo, Cu, Pb, or Zn), Gold and Silver (but without significant quantities of Mo, Cu, Pb, or Zn), and Gold (but without significant quantities of Ag, Mo, Cu, Pb, or Zn).

Disclaimer

This information should be considered preliminary. It has not been thoroughly edited or checked for completeness or accuracy. Although the published databases that are used in this report have been checked, experience has shown us that there are occasional errors, particularly in the locations of specific points on the maps. We have found numerous location errors in the MRDS database and expect that additional errors remain. There may also be errors in the other databases. Users should therefore double check information and locations, preferably on the ground, before making critical decisions. Users should also be aware that some known deposits of metals and industrial minerals have effectively been mined out, although additional, similar resources may occur deeper or nearby.

Mineral Exploration Activity

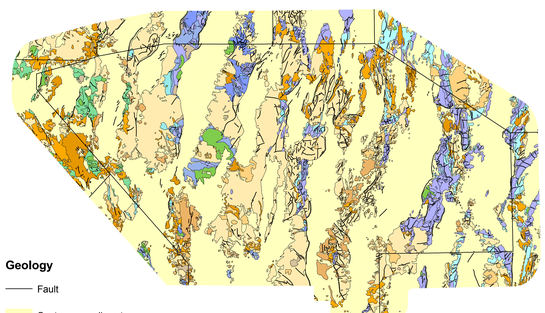


Number of Active Mining Claims by Section
- 1–10
- 11–35
- ≥ 36

Wilderness Areas
- Areas Suitable, Recommended, or Proposed for Wilderness
- Existing Wilderness Areas

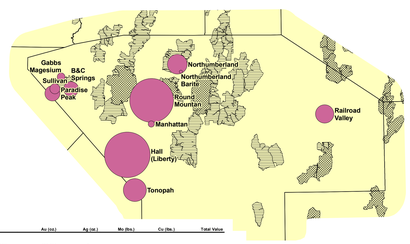
- Townships with Exploration Drilling in 2008

Geology Map



Geology
- Fault
- Quaternary sediments
- Tertiary tuffs
- Tertiary rhyolite
- Tertiary intrusions
- Tertiary basalt
- Tertiary andesite
- Tertiary-Cretaceous sediments
- Cretaceous-Triassic intrusions
- Jurassic-Triassic sedimentary/ volcanic rocks
- Permian-Mississippian sedimentary/ volcanic rocks
- Permian-Devonian sedimentary rocks
- Devonian-Cambrian sedimentary/ volcanic rocks (western facies, Roberts Mountains Allochthon)
- Devonian-Cambrian sedimentary rocks (eastern facies)
- Devonian-Cambrian sedimentary rocks (transitional facies)

Value of Known Resources



	Au (oz.)	Ag (oz.)	Mo (lbs.)	Cu (lbs.)	Total Value
Epithermal					
Round Mountain					
Production (1905-1998)	276,000	0			
Production (1997-2008)	11,605,000	10,000,000			
Reserves/Resources:	4,300,000	7,798,000			**$16,700,280,000**
Tonopah					
Production (1900-1961):	1,861,200	174,152,628			**$4,647,642,040**
Paradise Peak					
Production (1986-1994):	1,626,000	23,991,000			**$2,909,886,000**
Manhattan					
Production (1906-1988):	372,103	128,742			**$374,162,872**
Carlin-type					
Northumberland					
Production (1939-1988):	230,000	900,000			
Resources:	3,035,300	10,465,000			**$3,447,460,000**
Porphyry					
Hall (Liberty)					
Production (1962-1991):			110,880,000	110,880,000	
Reserves/Resources:			870,785,201	1,060,550,401	**$18,330,410,218**
B and C Spring					
Reserves/Resources:			103,326,720	146,379,520	**$1,989,039,360**
Sullivan					
Reserves/Resources:	433,500			170,000,000	**$943,000,000**
Oil and Gas	Barrels				
Railroad Valley					
Production:	42,000,000				
Reserves:	0				**$2,940,000,000**
Industrial Minerals	Barite (tons):	Magnesite (tons):			
Northumberland					
Production (1987-2007):	1,800,000				
Reserves:	0				**$92,000,000**
Gabbs					
Production (1935-2007):		6,500,000			
Reserves:		3,750,000			**$555,000,000**
Total					**$52,024,087,498**

Values are calculated based on present-day prices: Au $1000/ounce, Ag $16/ounce, Mo $15/pound, Cu $3/pound, Oil $70/barrel, Barite $50/ton, and Magnesite $60/ton. The copper resource is approximate. Copper grades at the Hall (Liberty) deposit are reportedly similar to molybdenum grades.

Value of Resource
- $100,000,000
- $1,000,000,000
- $10,000,000,000
- $20,000,000,000

The size of the symbol is proportional to the total value of the resource.

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