



0050 0025

# UNIVERSITY OF NEVADA RENO

*Elko County -  
general  
Item 46*

Nevada Bureau of Mines and Geology  
University of Nevada Reno  
Reno, Nevada 89557-0088  
(702) 784-6691

30 September 1983

NBMG OPEN-FILE REPORT 83-9

## A MINERAL INVENTORY OF THE ELKO RESOURCE AREA, ELKO DISTRICT, NEVADA

Prepared by Jo L. Bentz, Research Associate

J. V. Tingley, Principal Investigator

Assisted by Peggy L. Smith, Research Associate

Larry J. Garside, Geologist

Prepared for the UNITED STATES DEPARTMENT OF THE INTERIOR,  
BUREAU OF LAND MANAGEMENT, ELKO DISTRICT OFFICE, ELKO  
NEVADA 89801, under Contract #YA-553-CT1-1058.

This information should be considered preliminary. It  
has not been edited or checked for completeness or accuracy.

See NBMG 83-10 for Geochemical Sampling.

Photo Copy \$32.00

See also 83-10 for  
geochemical results

NBMG 83-9 OFR

MINING DISTRICTSELKO RESOURCE AREA

Alder	Hicks
Argenta	Island Mountain
Aura	Ivanhoe
Beaver	Izenhood
Beowawe	Larrabee
Bootstrap	Lee
Buckhorn	Lime Mountain
Burner Hills	Lynn
Burns Basin (Jerritt Canyon)	Maggie Creek
Carlin	Marys Mountain Area
Cave Creek	Merrimac
Charleston	Mineral Hill
Coal Mine	Modarelli-Frenchie Creek
Cornucopia	Mountain City
Corral Creek	North Battle Mountain Area
Cortez	Railroad
Divide	Robinson Mountain
Edgemont	Rock Creek
Elko	Ruby Valley
Gance Creek Area	Safford
Gilbert Canyon	Scraper Springs Area
Gold Basin	Snowstorm Mountain Area
Gold Circle (Midas)	Swales Mountain
Good Hope	Tuscarora
Halleck	Union

*see individual district files for  
summaries of the above  
districts.*

GENERAL REFERENCE LIST FOR ELKO RESOURCE AREA

Aeromagnetic map of northeastern Nevada, 1978: USGS OF 78-280.

Axelrod, D. I. (1966) Potassium-argon ages of some western Tertiary floras:  
Am. Jour. Sci., v. 264, p. 497-506.

Coats, R. R., et al. (1965) Reconnaissance of mineral ages of plutons in Elko  
County, Nevada, and vicinity: USGS PP 525-D, p. D11-D15.

Coats, R. R., et al (1966) Reconnaissance physical dating of plutons in Elko  
County, Nevada: GSA Spec. Paper 87, p.199.

Coats, R.R., and McKee, E. H. (1972) Ages of plutons and types of mineralization  
north-western Elko County, Nevada: USGS P.P. 800-C., p. C165-C168.

Coats, R. R., and Mackenzie, G. Jr. (1972) Tectonic implications of the presence  
of the Edna Mtn. Formation in northern Elko Co., NV: USGS PP 800-C, p. C85-C94.

Cook, J.R. (1980) Wells 1°x2° NTMS area, Nevada, data report; hydrogeochemical  
and stream sediment reconnaissance: GJBX-174-80, 16 p. (US DOE, Grand Jct  
off.).

Couch, B. F. and Carpenter, J. A. (1943) Nevadas' metal and mineral production  
(1859-1940 inclusive): Nevada Univ. Bull., v. 37, no. 4, Geol. and Min. ser.  
no. 38.

Emmons, W. H. (1910) A reconnaissance of some mining camps in Elko, Lander, and  
Eureka Counties, Nevada: USGS Bull. 408, 130p.

Evans, J.G. and Theodore, T. G. (1978) Deformation of the Roberts Mountains  
Allochthon in north-central Nevada: USGS PP 1060.

Fay, W. M. (1980) Elko 1°x2° NTMS area, Nevada; data report; hydrogeochemical and  
stream sediment reconnaissance: GJBS-163-80, 54p. (US DOE, Grand Jct. off.)

Geol. Soc. of America, (1966) Guidebook for field trip excursions in northern  
Nevada, Cordilleran Section Meeting, Reno.

- Gordon, M. Jr., and Duncan, H. (1961) Early Mississippian faunas in southwestern Elko County, Nevada: USGS PP 424-C, p. C233-C234.
- Granger, A.E., et al. (1957) Geology and mineral resources of Elko County, Nevada: NBM Bull 54, 190 p.
- Hill, James M. (1916) Notes on Some Mining Districts in Eastern Nevada: USGS Bull. 648, 214 p.
- Hoare, R. D. (1964) Permian corals from northern Nevada: Jour. Paleontology, v. 38, no. 3, p. 496-504.
- Hope, R.A. and Coats, R. R. (1976) Preliminary Geologic Map of Elko County, Nevada: U.S. G.S. OF 76-779, 6 sheets, scale 1:100,000.
- Hose, R.K., and Taylor, B.E. (1974) Geothermal Systems of northern Nevada: USGS OF 74-271.
- Intermountain Assoc. Petroleum Geologists (1960) 11th Annual Field Conf., 1960 Guidebook, Geology of east central Nevada.
- Johnson, M. G. (1973) Placer gold deposits of Nevada: USGS Bull. 1356, 118 p.
- Ketner, K. B. (1970) Limestone turbidite of Kinderhook age and its tectonic significance, Elko County, Nevada: USGS PP 700-D, p. D18-D22.
- Ketner, K. B. and Smith, J. F. Jr. (1974) Folds and overthrusts of Late Jurassic or Early Cretaceous age in northern Nevada: USGS Jour. of Research, p.417-419.
- Knorr, J. H. (1967) Permian studies of Nevada (Clark, White Pine and Elko Counties Masters thesis, Univ. of Iowa.
- Koschmann, A. H., and Bergendahl, M. H. (1968) Principal Gold Producing Districts of the United States, USGS PP 610, p. 175-180.
- Lee, W. T., et al, (1915) Guidebook of the Western United States - Part B: USGS Bull. 612, 244 p.
- Lincoln, Francis Church, (1923) Mining Districts and Mineral Resources of Nevada, reprinted in 1982 by Stanley Paher, Nevada Publications, Las Vegas, NV., 295 p.

Lintz, J. Jr. (1969) Second Basin and Range Geology Field Conference, Mackay School of Mines, UNR, Aug. 11-Aug. 25, contains field trip descriptions for portions of Elko Co.

Lowell, J. D. (1958) Lower and Middle Ordovician stratigraphy in eastern and central Nevada: Ph. D. Columbia Univ.

MacDonald, J. R. (1966) The Barstovian Camp Creek fauna from Elko County, Nevada: LA County Mus. Contr. Sci., no. 92, 18 p.

Mariner, R. H., et al, (1974) Chemical composition and estimated minimum thermal reservoir temperatures of the principal hot springs of northern and central Nevada: USGS OFR.

McKee, E.H. , and Silberman, M. L. (1970) Periods of plutonism in north-central Nevada (Abs) : GSA Abs., v. 2, no. 7, p. 613-614.

McKee , E. H., and Silberman, M.L. (1970) Tertiary Igneous Activity in north-central Nevada (Abs): GSA Abs., v. 2, no. 2, p. 118-119.

Mullens, T. E. (1979) Mineralogic and chemical composition of 246 samples of the laminated limestone unit of the Roberts Mountain Formation and related formations, north-central Nevada: USGS OF 79-753.

Nash, J. T. (1972) Fluid inclusion studies of some gold deposits in Nevada: USGS PP 800-C, p. C15-C19.

Newman, G. W. and Goode, H. D. editors (1979) Contains several articles in structure section pertinent to geology of Elko County: in RMAG-UGA Basin and Range Symposium and Great Basin Field Conference.

Oversby, B. S. (1969) An early Antlerian Mississippian orogenic pulse and post-Antlerian emplacement of allochthonous rocks in north-eastern Nevada: Ph.D. Columbia Univ.

Ridge, J. D., editor,(1968) Ore Deposits of the United States, 1933-1967, pub. by the Am. Inst. of Mining, Metallurgical and Petroleum Engineers, Inc., New York, V I and II.

- Roberts, R. J. and Lehner, R. E. (1955) Additional data on the age and extent of the Roberts Mountains thrust fault, north-central Nevada (Abs): GSA Bull., v. 66, p. 1661.
- Roberts, R. J., et al (1958) Paleozoic rocks of north-central Nevada: Am. Assoc. Petroleum Geologists Bull., v. 42, no. 12, p. 2813-2857.
- Roberts, R. J. (1964) Exploration targets in north-central Nevada: USGS open-file report.
- Roberts, R. J. (1965) Generalized map of Paleozoic and Mesozoic facies in north-central Nevada, NBM of map # 9.
- Roberts, R. J., et al (1967) Geology and mineral resources of Eureka County, Nevada: NBM Bull 64.'
- Roberts, R. J., et al, (1971) Gold-Bearing Deposits in North-Central Nevada and Southwestern Idaho: Econ Geol., v. 66, p. 14-33.
- Rocky Mtn. Assoc. of Geologists and Utah Geophysical Assoc. (1979) Basin and Range Symposium, (contains several articles by various authors on geology of Elko Co.)
- Smith, R. M. (1976) Mineral Resources of Elko County, Nevada: USGS OF 76-56.
- Spengler, R. W., et al, (1979) Inventory of granitic masses in the State of Nevada: USGS OF 79-235, 270 p.
- Stager, H. H., (1977) Geology and mineral deposits of Lander county, Nevada: NBMG Bull. 88.
- Stager, H., Tungsten Deposits of Nevada: NBMG Bull, in preparation.
- Stewart, J. H., and Carlson, J.E. (1976) Geologic Map of north-central Nevada: NBMG Map 50, scale 1:25,000, (out of print).
- Thayer, P.A. and Cook, J.R. (1980) McDermitt  $1^{\circ} \times 2^{\circ}$  NTMS area, Nevada; data report; hydrogeochemical and stream sediment reconnaissance: G JBX-173-80, 16 p. (US DOE, Grand Jct. off.)

Thompson T. H. and West A. A. (1881) History of Nevada: Oakland, CA.; Howell-North (1958)

Thorman, C. H. (1969) Mesozoic (?) and Tertiary strike-slip faulting, northeast Nevada (Abs): GSA Spec. Paper 121, p. 570-571.

Vanderburg, W.O. (1938) Reconnaissance of mining districts in Lander County, Nevada: USBM Infor. Circular 7043.

Vanderburg, W. O. (1938) Reconnaissance of mining districts in Eureka County, Nevada: USBM Infor. Circular 7022.

Van. Houten, F. B. (1956) Reconnaissance of Cenozoic sedimentary rocks of Nevada: Am Assoc. Petroleum Geologists Bull. v. 40, p. 2801-2825.

Walker, G. W. (1981) Uranium, thorium and other metal associations in silicic volcanic complexes of the northern Basin and Range, a preliminary report: USGS OF 81-1290.

Whitehill, H.R. Biennial Report of the State Mineralogist of the State of Nevada, for the years 1871 and 1872; 1873-1874.

GENERAL REFERENCES FOR INDEPENDENCE RANGE

- Churkin, M. Jr., and Marshall, K (1967) Graptolite-bearing Ordovician siliceous and volcanic rocks, northern Independence Range, Nevada: 65A Bull., v. 78. no. 5, p. 651-668.
- Fagan, J. J. (1960) Carboniferous cherts, turbidite and volcanic rocks in the northern Independence Range, Nevada: Ph. D. thesis, Columbia Univ.
- Fagan, J. J. (1962) Carboniferous cherts, turbidite and volcanic rocks in northern Independence Range, Nevada: 65A Bull., v. 73, no. 5, p. 595-611.
- Hawkins, W. H. (1960) Paleozoic south lower North Fork Canyon, northern Independence Range, Elko County, Nevada: Masters thesis, Columbia University.
- Kay, M., et al, (1920) Paleozoic rocks of the Jack Creek Mountains, northern Independence Range, Elko County, Nevada: GSA Bull., v. 71, no. 12 , pt. 2, p. 1900-1901.
- Kerr, J. W. (1960) Paleozoic sequences in thrust slices of the Seetoya Mountains, northern Independence Range, Elko County, Nevada: Ph. D. thesis, Columbia Univ.
- Kerr, J. W., (1962) Paleozoic sequences and thrust slices of the Seetoya Mountains, Independence Range, Elko County, Nevada: GSA Bull., v. 73, no. 4, p.439-460.
- Mihm, R. J. (1960) Quartzite, chert and Ordovician shale in Chicken Creek Cirque, northern Independence Range, Elko County, Nevada: Masters thesis, Columbia Univ.
- Widmier, J. M. (1960) Paleozoic rocks along lower North Fork Canyon, Independence Mountains, Elko County, Nevada: Masters thesis, Columbia Univ.

GENERAL REFERENCES FOR PINON RANGE AND VICINITY

- Carlisle, D., et al (1957) Devonian stratigraphy of the Sulfur Spring and Pinon Range, Nevada: Am. Assoc. Petroleum Geologists Bull., v. 41, no. 10, p.2175-2191.
- De Joia, F. J. (1952) Stratigraphy of the Sulfur Springs Range, central Nevada: M.A. thesis, Columbia Univ.
- Emmons, W. H. (1910) A reconnaissance of some mining camps in Elko, Lander and Eureka Counties, Nevada: USGS Bull. 408, p. 88.
- Flynn, D. B. (1957) Geology of a part of the Dixie Flats quadrangle, Elko County, Nevada: M. S. thesis, Univ. of Californiaia, Los Angeles.
- Hudson, E. W. (1958) Geology of the Willow Creek area, Elko and Eureka counties, Nevada: M.S. thesis, Univ. of Californiaia, Los Angeles, map scale 1:31, 680.
- Ketner, K. B. (1970) Limestone turbidite of kinderhook age and its tectonic significance, Elko County, Nevada: USGS PP 700-D, p. D18-D22.
- Ketner, K. B. and Poole, F. G. (1979) Road log and trip guide to the geology of the northern Pinon Range and vicinity, north-central Nevada: USGS OFR 79-1469.
- Ketner, K. B. and Smith, J.F. Jr. (June, 1982) Mid-Paleozoic age of the Roberts thrust unsettled by new data from northern Nevada: Geology, v. 10, p. 298-303.
- Regnier, J. (1960) Cenozoic geology in the vicinity of Carlin, Nevada: GSA Bull., v.71, no. 8.
- Regnier, J. (1958) Cenozoic geology in the vicinity of Carlin: Ph.D. thesis, Columbia Univ.
- Smith, J.F. Jr. and Ketner, K.B. (1963) Composition and origin of siliceous mudstone in the Carlin and Pine Valley quadrangles, Nevada: USGS PP 475-B, p. B45.

Smith, J.F., Jr., and Ketner, K.B.(1968) Devonian and Mississippian rocks and the date of the Roberts Mountains thrust in the Carlin-Pinon Range area, Nevada: U.S. Geol. Survey Bull. 1251-1, p. 11-118.

Smith, J.F., Jr., and Ketner, K.B. (1968) Zone of sedimentary facies change and structural instability in the Carlin-Pine Valley area, Nevada (abs.): Geol. Soc. America Spec. Paper 101, p. 335-336.

Smith J.F., Jr., and Ketner, K.B. (1972) Generalized geologic map of the Carlin, Dixie Flats, Pine Valley, and Robinson Mountain quadrangles, Elko and Eureka Counties, Nev.; USGS Map MF. 481, Scale 1:125,000.

Smith, J.F. and Ketner, K. B. (1975) Stratigraphy of Paleozoic rocks in the Carlin-Pinon Range area, Nevada: USGS PP 867-A, p. A1-A87.

Smith, J. F. Jr. and Ketner, K. B. (1976) Stratigraphy of post-paleozoic rocks and summary of resources in the Carlin-Pinon Range area, Nevada: USGS PP 867-B, p. B1-B48.

Smith J.F. and K. B. Ketner (1977) Tectonic events since early Paleozoic in the Carlin-Pinon Range area, Nevada: USGS PP 867-C, p. C1-C18.

Smith, J. F. Jr. and Ketner, K. B. (1978) Geologic map of the Carlin - Pinon Range area, Elko and Eureka Counties, Nevada: USGS Misc. Invest. series, I-1028.

GENERAL REFERENCES FOR RUBY MOUNTAINS

- Blake, J. W. (1964) Geology of the Bald Mountain intrusive, Ruby Mountains, Nevada: Brigham Young Univ., Geol. Studies, v. 11, p. 3-35.
- Gibbs, J.F. (1967) Gravity survey of the Ruby Mountain area, northeastern Nevada: M.S. thesis, Univ. of Colorado.
- Granger, A.E., et al (1957) Geology and mineral resources of Elko County, Nevada: NBM Bull 54.
- Hill, J. M. (1916) Notes on some mining districts in eastern Nevada: USGS Bull 648, p. 54-63.
- Hinrichs, Edgar N. (1956) The pegmantites of the Errington- Thiel Mine, Elko County, Nevada: Master's thesis, Cornell Univ.
- Howard, K.A. (1966) Large-scale recumbent folding in the metamorphic rocks of the northern Ruby Mountains, Nevada (Abs) : GSA Spec. Paper 87, p. 210.
- Howard, K.A. (1966) Structure of the metamorphic rocks of the north Ruby Mountains, Nevada: Ph.D. thesis, Yale Univ.
- Howard, K.A. (1967) Structure of the metamorphic rocks of the northern Ruby Mountains, Nevada: Dissert. Abs., Sec. B, Sci. and Eng., v. 28, no. 5, p. 1993B.
- Howard, K.A. (1971) Paleozoic metasediments in the northern Ruby Mountains, Nevada: GSA Bull., v. 82, no. 1, p. 259-264.
- Howard, K.A., et al, (1979) Geologic map of the Ruby Mountains, Nevada: USGS Map MI-1136.
- Kistler, R. W. and Willden, R. (1968) Tectonic and igneous chronology of the southern Ruby Mountains, Nevada (abs.): Geol. Soc. America Spec. Paper 115, p. 336.
- Kistler, R.W. and Willden, R. (1969) Age of thrusting in the Ruby Mountains, Nevada (abs.): Geol. Soc. America Abs. pt. 5, Rocky, Mtn. Sec., p. 40-41.

- Kistler, R. W. and Willden, R. (1969) Precambrian-Cambrian boundary in the Ruby Mountains, Nevada (abs.): Geol. Soc. America Abs. 1969, pt. 3, Cordilleran Sec., p. 32,
- Long, C.L. and Batzle, M. L. (1976) Station location map and audio-magnetotelluric data log for Ruby Valley known Geothermal Resource area, NV: USGS open file report 76-700B.
- Olson, J. C. and Hinrichs, E. N. (1960) Beryl-bearing pegmatites in the Ruby Mountains and other areas in Nevada and north western Arizona: USGS Bull. 1082-D, p. 135-200.
- Schilling, J. H. (1965) Isotopic age determinations of Nevada rocks: NBM Report 10, p. 31-33.
- Sharp, R. P. (1938) Cenozoic geology of the Ruby-East Humboldt Range, northeastern Nevada: Masters' thesis, Harvard Univ.
- Sharp, R. P. (Dec. 1938) Pleistocene glaciation in the Ruby-East Humboldt Range, northeastern Nevada: Jour. Geomorphology, v. 1, no. 4., p. 296-323.
- Sharp, Robert Phillip, (June 1, 1939) Basin-range structure of the Ruby-East Humboldt Range, north-eastern Nevada: GSA Bull., v. 50, no. 6, p. 881-919.
- Sharp, R. P., (March 1, 1940) Geomorphology of the Ruby-East Humboldt Range, Nevada: GSA Bull., v. 51, no. 3, p. 337-371.
- Sharp, R. P. (May 1, 1942) Stratigraphy and structure of the southern Ruby Mtns, NV: GSA Bull., v. 53, no. 5, p. 647-690.
- Smith, R. M. (1976) Mineral resources of Elko County, Nevada: USGS OFR 1976-56.
- Snelson, S. (1957) The geology of the northern Ruby Mountains and the east Humboldt Range, Elko County, Nevada: Ph.D. thesis, Univ. of Washington.
- Thorman, C. H. (1966) Mid-Tertiary K-Ar dates from late Mesozoic metamorphosed rocks, Wood Hills and Ruby-East Humboldt Range, Elko County, Nevada (Abs): GSA Spec. Paper 87, p. 234-235.

Wilden, R., et al (1966) Oligocene or younger faulting in the Ruby Mountains, northern Nevada (Abs): G.S.A. Spec. Paper 87, p. 239.

Wilden, R. and Kistler, R. W. (1967) Ordovician tectonism in the Ruby Mountains, Elko County, Nevada: USGS PP 575-D, p. D64-D75.

Wilden, R., et al (1967) Oligocene or younger thrust faulting in the Ruby Mtns, northeastern Nevada: GSA Bull, v. 78, no. 11, p. 1345-1357.

Wilden, R. and Kistler, R. W. (1968) Isoclinally folded eastern facies rocks of the Antler orogenic belt in the central Ruby Mountains, Nevada (Abs): GSA Special Paper 101, p. 346-347.

Wilden, R. (1979) Ruby Orogeny-A major early Paleozoic Tectonic Event: in Basin and Range Symposium and Great Basin Field conference: Rocky Mtn., Assoc. Geol., Denver, p. 55-73.

Wilden, R., et al (1979) Precambrian and Paleozoic stratigraphy in central Ruby Mtns, Elko County, NV: in Basin and Range Symposium and Great Basin Field conference: Rocky Mtn. Assoc. Geol., Denver, p. 221-243.