

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

**Mineral investigation of the Needle's Eye Wilderness
Study Area, Gila County, Arizona**

U.S. Bureau of Mines Mineral Land Assessment
MLA 9-85
1985

By
Ryan, G.S.,

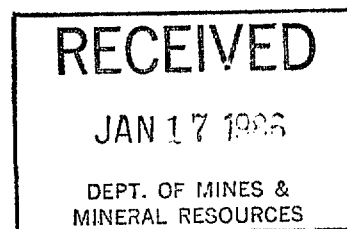
This open file report summarizes the results of a Bureau of Mines wilderness study and will be incorporated in a joint report with the U.S. Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the U.S. Bureau of Mines editorial standards. Work on this study was conducted by personnel from Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO 80225.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

MINERAL INVESTIGATION OF THE NEEDLE'S EYE WILDERNESS STUDY AREA,
GILA COUNTY, ARIZONA

By
George S. Ryan

MLA 9-85
1984



This open file report summarizes the results of a Bureau of Mines wilderness study and will be incorporated in a joint report with the Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the Bureau of Mines editorial standards. Work on this study was conducted by personnel from Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO 80225.

STUDIES RELATED TO WILDERNESS

Bureau of Land Management Wilderness Study Area

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine their mineral values. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a mineral survey of the Needle's Eye Wilderness Study Area (AZ-040-001A), Gila County, Arizona.

CONTENTS

	Page
Summary.....	1
Introduction.....	1
Location, size, and geographic setting.....	3
Mining activity.....	4
Mining districts and mineralized areas.....	4
Conclusions.....	5
References.....	7
Appendix.....	8

ILLUSTRATION

Figure 1. Map of the Needle's Eye Wilderness Study Area and vicinity, Gila County, Arizona.....	2
--	----------

MINERAL INVESTIGATION OF THE NEEDLE'S EYE WILDERNESS STUDY AREA
GILA COUNTY, ARIZONA

By George S. Ryan, Bureau of Mines

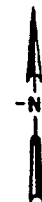
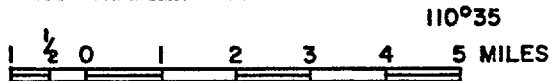
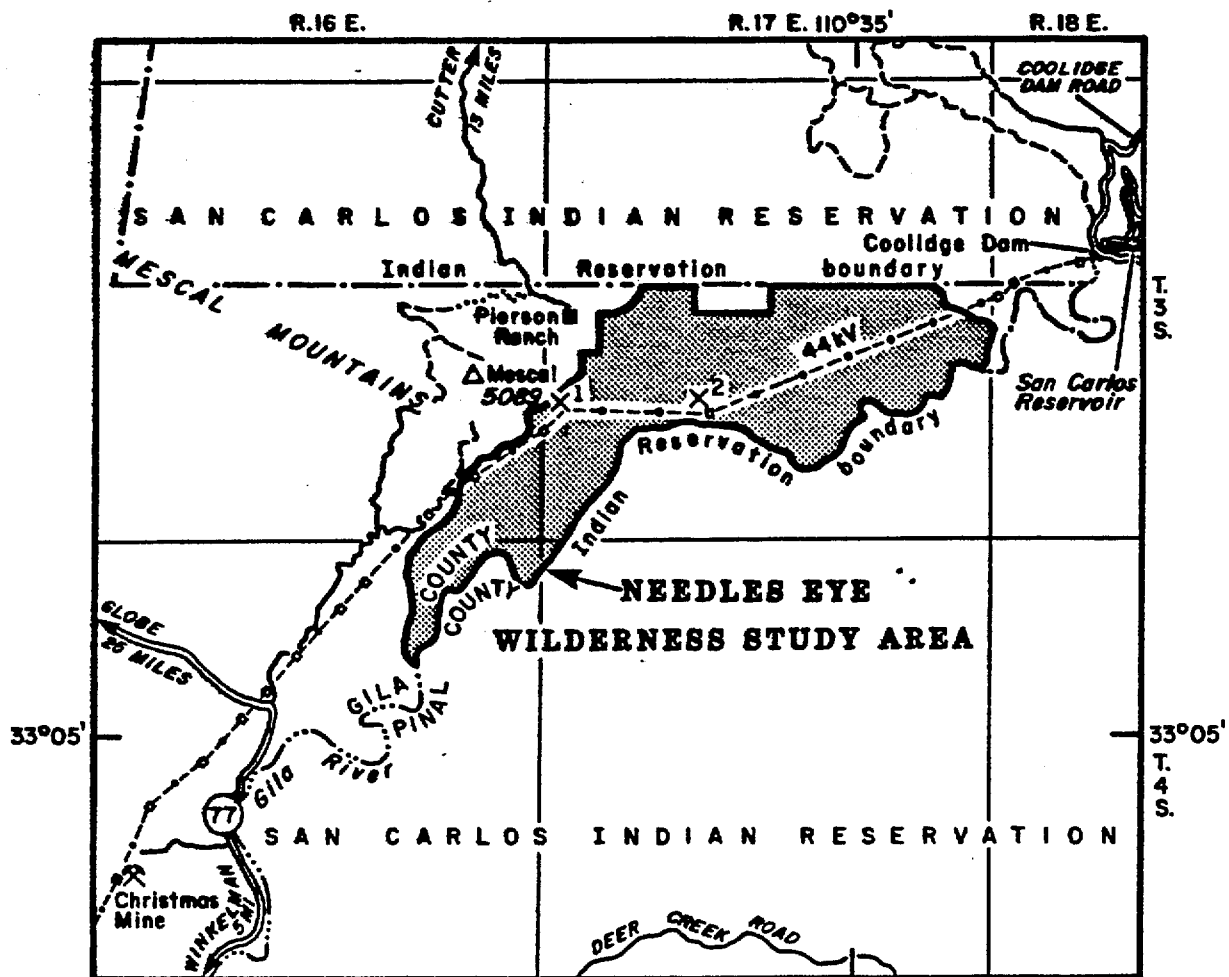
SUMMARY

Located in the Mescal Mountains north of the Gila River, the Needle's Eye WSA is characterized by tilted fault blocks of Precambrian to Paleozoic sedimentary rocks. Although some of the same formations are host rocks in the Banner mining district, 5 mi southwest; the Saddle Mountain mining district, 4 mi southwest; and the Stanley Butte mining district, 10 mi southeast; no mineral resources have been located in the WSA. Lack of Tertiary (Laramide) intrusives in the vicinity of the WSA probably accounts for the scarcity of base or precious metal occurrences. Difficult access has possibly contributed to the lack of subsurface examination of the area by ground geophysical or drilling methods.

Uranium, associated with Precambrian diabase dikes, has been mined from the Precambrian Dripping Spring Quartzite 15 mi northwest of the WSA. The quartzite crops out in two canyons within the WSA and drilling for uranium to the west of the WSA has intersected the formation but no uranium.

INTRODUCTION

In 1983, the Bureau of Mines (BOM), in conjunction with the U.S. Geological Survey (USGS), studied the mineral resources of the Needle's Eye Wilderness Study Area (WSA), Gila County, Arizona on lands administered by the Bureau of Land Management (BLM). Bureau of Mines personnel conducted surveys of mineral occurrences to evaluate reserves and identified resources that are subeconomic but may be converted to reserves through changes in available data, economics, or technology. The USGS assessed the potential for undiscovered mineral resources based on their geological, geochemical, and



EXPLANATION

ROADS

- Paved
- Graded
- Primitive
- Trail

PEAK--Showing name and elevation in feet above sea level

POWER TRANSMISSION LINE WITH LOCATED TOWERS--
showing kilovoltage

SAMPLED SITES

Figure 1.--Index map of the Needle's Eye Wilderness Study Area and vicinity, Gila County, Arizona.

geophysical studies. This report presents the results of the study by the Bureau of Mines.

The BOM investigation included a review of available published material relating to the mineral resources and mining activity of the Needle's Eye WSA and vicinity. Recent mining claim activity was determined from BLM recordation files; previous claim activity was obtained from Gila County records in Globe, Arizona.

One small prospect pit containing a few hematite veins and iron-stained limestone was found and sampled. A second sample was taken on a hematite-stained structure. The samples were fire assayed for gold and silver and a semiquantitative optical emission spectrographic analysis was done for 40 elements (see Appendix). All assay results can be obtained from: Bureau of Mines, Intermountain Field Operations Center, Denver, Colorado 80225.

Location, size, and geographic setting

The Needle's Eye WSA (fig. 1) encompasses 8,970 acres within the Mescal Mountains 20 mi southeast of Globe, Arizona. The northeast corner of the WSA is 2 mi west of Coolidge Dam. The north boundary coincides with the San Carlos Indian Reservation boundary for 3 mi. The south WSA boundary follows the Gila River and is the north boundary of the "Mineral Strip" portion of the San Carlos Reservation for approximately 8 mi. The river is also the county line separating Gila and Pinal Counties.

Three of the four access roads to the WSA were rendered impassable by the devastating rains of October, 1983. The remaining road, Cutter to Pierson Ranch (fig. 1), crosses approximately 30 intermittent streams in 20 mi and is blocked by a locked gate at the ranch. The result is that there currently is no direct access to the WSA.

The Gila River incised a steep walled canyon through the Mescal Range and, within the WSA, rugged side canyons have been cut by drainages into the Gila river. Although the total relief is only 2189 ft, the elevation changes within the WSA are repeated over the series of ridges and drainages.

Although a high-power transmission line crosses the WSA southwesterly from Coolidge Dam there are no attendant roads or trails. Maintenance and repair is accomplished by helicopter access. Old roads exist in the WSA, but near drainages they are overgrown and impassable.

Mining activity

There are no signs of mining and only a few signs of prospecting activity in the WSA. Phillips Uranium Company leased claims in section 30 and the NW 1/4, Sec. 31, T. 3 S., R. 17 E., within the WSA, from a claimant. After drilling contiguous company claims 3 mi west of the WSA all of the claims were dropped in 1982.

The one prospect pit found and sampled is located near the northwest boundary southeast of Mescal Peak in the NW 1/4, Sec. 30, T. 3 S., R. 17 E. (fig. 1, sample 1). The 1 ft deep, 2 ft by 4 ft pit contains 1/2 to 1 in. hematite veinlets in Mescal limestone. Fire assaying indicates a trace amount of gold and silver and spectrographic analysis showed high iron, calcium, and silica content.

MINING DISTRICTS AND MINERALIZED AREAS

The Christmas Mine in the Banner mining district, 5 mi southwest of the WSA, has been a major copper producer from both open pit and underground operations. Bedded replacement deposits form the largest ore bodies in the district (Eastlick, 1968, p. 1199). Gold, silver, lead, zinc, mercury, and tungsten have also been produced from the district. Localization of the ore bodies was dependent upon the proximity of the Paleozoic sediments to the

early Tertiary (Laramide) intrusive quartz diorite. Production of similar ores occurred in the Saddle Mountain mining district 4 mi southwest and the Stanley Butte mining district 10 mi southeast of the WSA. The WSA contains the same rock formations found in these districts. However, like the Banner district, these mining districts are in close proximity to Laramide intrusives, none of which have been identified near the WSA.

Uranium has been produced 15 mi northwest of the WSA in the Pinal Mountains. The Precambrian Dripping Spring Quartzite, with which the uranium is associated elsewhere (Granger and Raup, 1959, p. 415), crops out in 2 canyons within the WSA. Phillips Uranium Company staked and leased hundreds of claims west of and within the WSA with the intent of drilling the underlying Dripping Spring Quartzite. The company ceased operations after completing drill holes no closer than 3 mi west of the WSA. Drilling did not successfully delineate ore at that location and the staked and leased ground was subsequently released (oral commun., 1984).1/.

A vertical structure was found and sampled in the east wall of a drainage 1,200 ft north of the Gila River in the NE 1/4, Sec. 29, T 3 S., R. 17 E (fig. 1, sample 2). The 9-10 ft altered zone was strongly hematitic with minor amounts of malachite. The sloughed zone had the appearance of an excavation although there was no dump. Assay results from structure contained no anomalous values.

The Arizona Geothermal Resources map (Witcher, et al., 1982) indicates no geothermal areas within 20 mi of the WSA.

There are no oil and gas leases or lease applications within or adjoining the WSA.

1/ John Greenslade, Manager, Phillips Uranium Company, Crown Point, New Mexico.

CONCLUSIONS

Although rock formations in the WSA are the same as found in nearby mining districts there apparently was no Laramide intrusive in the immediate area to provide mineralizing solutions. There is no widespread alteration, mineralization, or quartz veining to indicate the presence of subsurface recent intrusives.

The occurrence of malachite in the structure found in the WSA is not considered to be significant and is typical of many such occurrences throughout southern Arizona.

The traces of gold and silver found in sample 1 are considered to be insignificant because of the small size of the veinlets observed. The ruggedness of the WSA precludes any concentration of placer or residual precious metals.

Although there are no surface indications to suggest uranium mineralization syngenetic or contemporaneous uranium could be present in the Precambrian Dripping Spring quartzite underlying the WSA. This formation has not been drilled or otherwise tested in the WSA.

There are no geothermal or oil and gas leases extant in or near the WSA. Although warm springs are found in and near the area the state geothermal studies have concluded that there is no geothermal occurrence in the WSA.

REFERENCES

- Eastlick, J.T., 1968, Geology of the Christmas Mine and vicinity, Banner mining district, Arizona: (in) Graton-Sales Volume II, Ore Deposits of the United States, 1933-1967, p. 1191-1210.
- Granger, H.C. and Raup, R. B., 1959, Uranium deposits in the Dripping Spring Quartzite, Gila Co., Arizona: (in) Contributions to the Geology of Uranium, U.S. Geological Survey Bulletin 1046-P, p. 415-483.
- Witcher, J.C., Stone, Claudia, and Hahman, W.R., Sr., 1982, Geothermal resources (map) of Arizona: National Geophysical and Solar-Terrestrial Data Center National Oceanic and Atmospheric Administration, scale 1:500,000.

Appendix.-- Semiquantitative optical emission spectrographic
analysis detection limits. U. S. Bureau of Mines
Reno Research Center

<u>Element</u>	<u>Detection limit (percent)</u>	<u>Element</u>	<u>Detection limit (percent)</u>
Ag	.002	Mo	.0001
Al	.001	Na	.3
As	.01	Nb	.007
Au	.002	Ni	.0005
B	.003	P	.7
Ba	.002	Pb	.001
Be	.0001	Pt	.0001
Bi	.01	Re	.0006
Ca	.05	Sb	.06
Cd	.0005	Sc	.0004
Co	.001	Si	.0006
Cr	.0003	Sn	.001
Cu	.0006	Sr	.0001
Fe	.0006	Ta	.02
Ga	.0002	Te	.04
K	2.0	Ti	.03
La	.01	V	.005
Li	.002	Zn	.0001
Mg	.0001	Zr	.003
Mn	.001	Y	.0009

Revised October, 1984.

These limits are to be used only as a guide.