



LIST OF MAP UNITS		EXPLANATION	
Qu	SURFICIAL DEPOSITS (QUATERNARY)	[Symbol]	PATENTED MINING CLAIM
Qg	GLACIAL DEPOSITS (QUATERNARY)	[Symbol]	UNPATENTED MINING CLAIM
Qog	OLDER GLACIAL DEPOSITS (QUATERNARY)	[Symbol]	SAMPLE NUMBER AND LOCATION*
Tat	ASH-FLOW TUFF (TERTIARY)	[Symbol]	X PROSPECT
Tkd	DIORITE (TERTIARY AND CRETACEOUS)	[Symbol]	SHAFT
TKap	QUARTZ PORPHYRY (TERTIARY AND CRETACEOUS)	[Symbol]	ADIT
Cs	SAMATCH QUARTZITE (CAMBRIAN)	[Symbol]	ADIT--CAVED
Yg	GRANITE (PROTEROZOIC Y)	[Symbol]	HUNTER-FRYINGPAN WILDERNESS BOUNDARY
Xgn	METAMORPHIC ROCKS (PROTEROZOIC X)	[Symbol]	STUDY AREA BOUNDARY
[Symbol]	CONTACT	[Symbol]	LINE ENCLOSING AREA OF HIGH POTENTIAL FOR SMALL, UNDISCOVERED GOLD AND SILVER DEPOSITS
[Symbol]	FAULT--DOTTED WHERE CONCEALED	[Symbol]	LINE ENCLOSING AREA WITH IDENTIFIED GOLD AND SILVER RESERVES
[Symbol]	STRIKE AND DIP OF BEDS	[Symbol]	
[Symbol]	STRIKE AND DIP OF FOLIATION	[Symbol]	

STUDIES RELATED TO WILDERNESS

Public Law 95-237 requires the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This map and report present the results of a geological and mineral survey of the Hunter-Fryingpan Wilderness and the Porphyry Mountain Wilderness Study Area.

MINERAL RESOURCE POTENTIAL SUMMARY

The presence of identified gold and silver reserves and the presence of numerous prospects in a contiguous area of similar geology indicate a high potential for small, undiscovered gold and silver resources within and adjacent to the southeast part of the Hunter-Fryingpan Wilderness. The rest of the Hunter-Fryingpan Wilderness and the adjacent Porphyry Mountain Wilderness Study Area have a low potential for mineral deposits. Rocks favorable for silver mineralization similar to the nearby Aspen mining district do not crop out in the area, historic prospects are rare, and no significant anomalies exist in stream-sediment geochemical data.

MINING DISTRICTS AND MINERALIZED AREAS

Clarence E. Ellis, U.S. Bureau of Mines

Prospecting activity is minimal; the area had no mining during 1978 and 1979, the time of the investigation.

The Aspen district, to the west of the area, produced silver, lead, and zinc from carbonate rocks not present in the area.

The Independence district, on the southern edge of the area, produced gold from quartz veins. The mines were active from 1879 to 1899. Newberry (1891) estimated that about 50 percent of the gold was recovered from the oxidized ore then being mined. When this ore was depleted, recovery dropped, and the mines shut down, although sporadic production continued until 1951.

Gold and silver reserves remain in two veins, the Independence vein, north of Colorado Highway 82, and the Mt. Hope vein, south of the highway. Only part of a lower level is accessible on the Independence vein, while most of the Mt. Hope workings are open.

Recorded claim notices place 361 unpatented claim locations in, or within a mile of the area. Because of poor descriptions, 186 of these could not be located. Ten patented claims are in or partly in the area, and another 67 are within a mile of the boundary.

The Fryingpan claims on Mt. Yeckel produced a little uranium from a shear zone in Precambrian gneiss and pegmatite.

The Aspen district produced 10,311,000 oz (321,000,000 g) of silver, 294,000 tons (267,000 t) of lead, and 11,000 tons (10,000 t) of zinc between 1879 and 1956 (Bryant, 1972).

The Independence district produced about \$900,000 in gold until 1899 (Rohlfing, 1930), and 226 oz (7,030 g) of gold, 317 oz (9,860 g) of silver, 1,943 lb (882 kg) of copper, and 161 lb (73 kg) of lead from 1900 to 1951.

The Fryingpan claims produced 25 tons (23 t) of material containing 0.17 percent U₃O₈ in 1958 (Pratt and Connors, 1959).

The identified reserves listed below, while outside the area, are within tens of feet of the boundary. The reserve figures offer a guide to the size of additional gold and silver resources that are expected to exist both inside and outside the area.

INDEPENDENCE VEIN

Indicated reserves: 9,700 tons (8,800 t) of 0.127 oz/ton (4.36 g/t) gold, 0.462 oz/ton (7.34 g/t) silver
 Inferred reserves: 54,500 tons (49,400 t) of 0.115 oz/ton (6.0 g/t) gold, 0.291 oz/ton (10.0 g/t) silver

MT. HOPE VEIN

Indicated reserves: 19,100 tons (17,300 t) of 0.125 oz/ton (4.29 g/t) gold, 0.462 oz/ton (7.34 g/t) silver
 Inferred reserves: 12,900 tons (11,700 t) of 0.214 oz/ton (7.34 g/t) gold, 0.592 oz/ton (20.3 g/t) silver

GEOLOGY, GEOCHEMISTRY, AND GEOPHYSICS

by Steve Ludington, U.S. Geological Survey

The vast majority of rocks exposed in the area are of Precambrian age. Two major units are distinguished, the 1,400-m.y.-old St. Kevin granite, and a group of older, unnamed, high-grade metamorphic rocks. A thin veneer of Paleozoic sedimentary rock occurs in the western part of the area. In addition, a number of dikes of Late Cretaceous or early Tertiary age occur.

Two major groups of faults occur, an older, northeast-trending set of faults and shear zones, whose movement is probably largely of Precambrian age, and a younger set of faults with a north to northwest trend, which is probably related to the Miocene opening of the Rio Grande rift.

The Leadville Limestone and Belden Formation, which are the host for silver mineralization in the Aspen mining district, inmediately to the west of the area, do not crop out within it.

A prominent aeromagnetic low in the southeast part of the area suggests the existence of one or more buried plutons, which could conceivably be hosts to stockwork molybdenum deposits. However, the composition and age of exposed dikes, presumably fed by the postulated buried plutons, are incongruous with such postulated deposits.

Analysis of stream-sediment geochemical patterns offers no clues to the existence of any undiscovered mineral deposits in the area.

REFERENCES

Bryant, Bruce, 1972, Mine locations and metal production, Aspen, Colorado: U.S. Geological Survey Miscellaneous Series I-785-D, scale 1:24,000.

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Pratt, W. P., and Connors, H. M., 1959, Joint engineering and geologic report, Fryingpan claims, Pitkin County, Colorado: Office of Minerals Exploration Report OME-6059.

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BASE FROM U. S. GEOLOGICAL SURVEY, 1:50,000, PITKIN COUNTY EAST, 1976; AND LAKE COUNTY, 1975

SCALE 1:50,000

0 1 2 3 MILES

0 1 2 3 KILOMETERS

106°53'30" 106°45' 106°37'30" 106°30'

39°10'30" 39°07'30" 39°00'30"

GEOLGY FROM LUDINGTON AND YEOMAN, 1981A

MINERAL RESOURCE POTENTIAL OF THE HUNTER-FRYINGPAN WILDERNESS AND THE PORPHYRY MOUNTAIN WILDERNESS STUDY AREA, PITKIN COUNTY, COLORADO

By Steve Ludington, U.S. Geological Survey and Clarence E. Ellis, U.S. Bureau of Mines

1981

