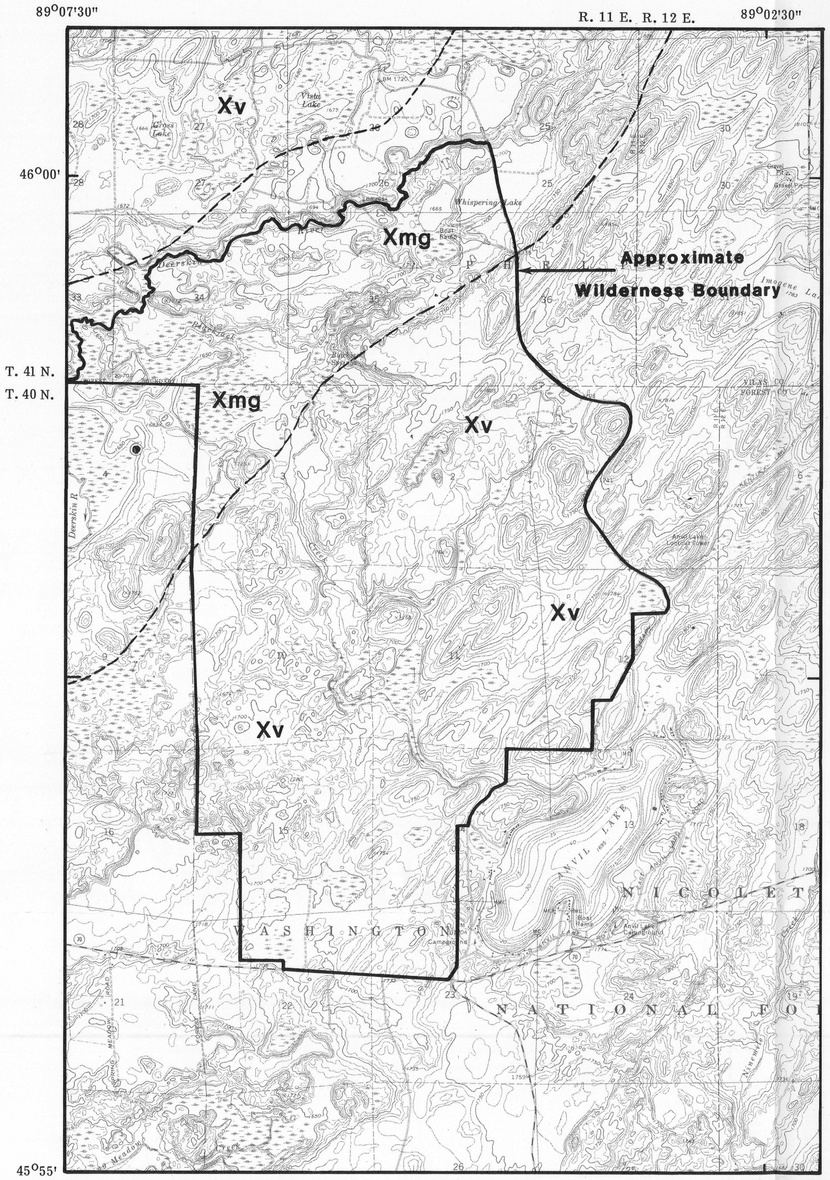
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF–1592



EXPLANATION

Xmg	Metamorphosed mafic intrusive rocks
Xv	Mafic metavolcanic rocks with lesser gabbroic sills and felsic volcanic and sedimentary rocks
⌒	Geologic contact inferred from aeromagnetic data

Figure 1.—Geologic map of the Blackjack Springs Wilderness.

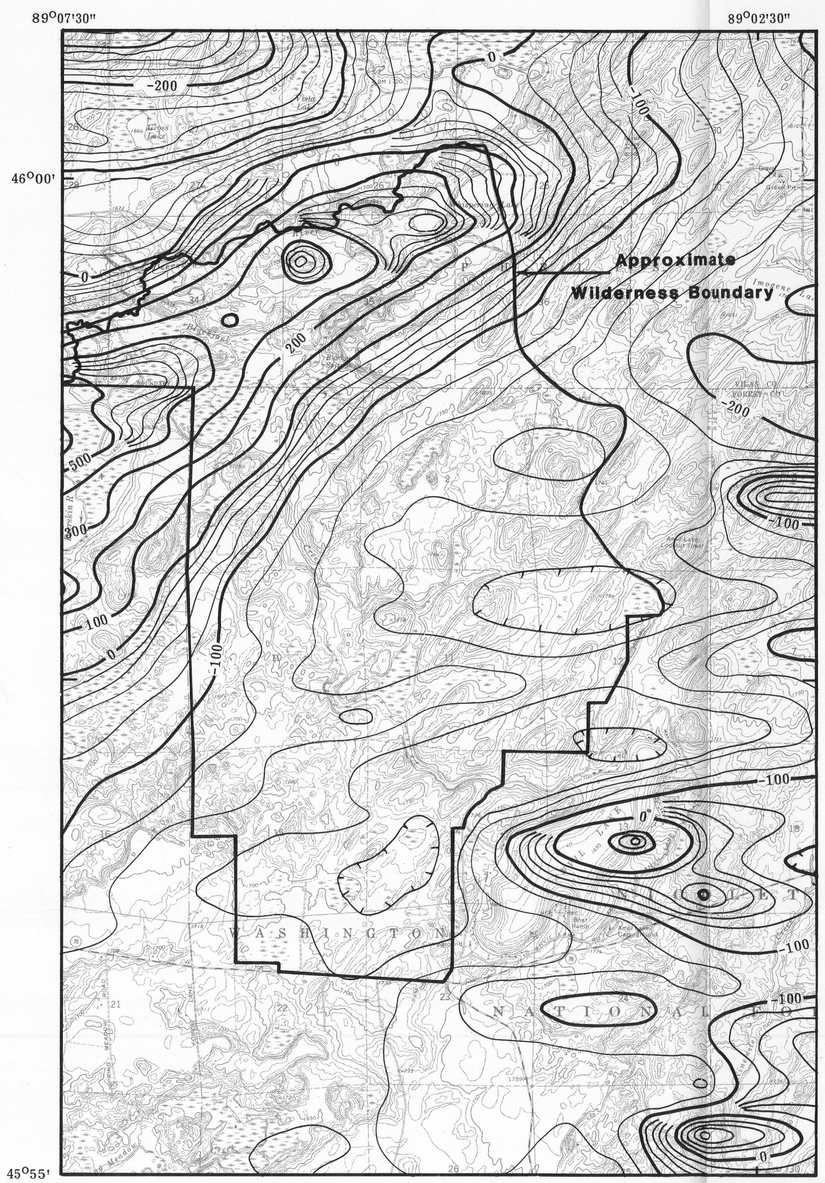
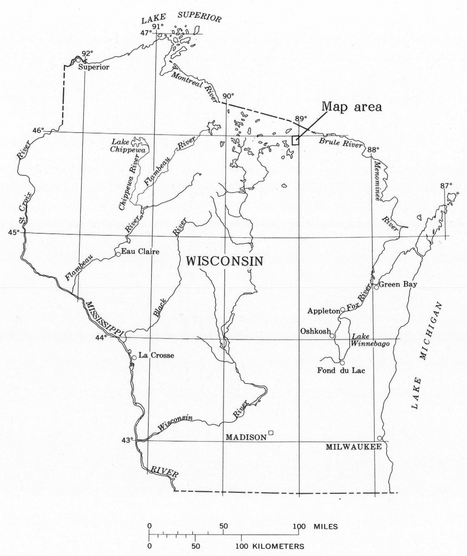


Figure 2.—Aeromagnetic map of the Blackjack Springs Wilderness (U.S. Geological Survey, unpub. data). Contour interval, 20 gammas.

GEOLOGIC AND AEROMAGNETIC MAPS AND MINERAL RESOURCE POTENTIAL SURVEY OF THE BLACKJACK SPRINGS WILDERNESS, VILAS COUNTY, WISCONSIN

By
Klaus J. Schulz
1983



INDEX MAP

STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require 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 report presents the results of a mineral resource survey of the Blackjack Springs Wilderness in the Nicolet National Forest, Vilas County, Wisc. The Blackjack Springs Wilderness was established by Public Law 95-494, October 21, 1978.

SUMMARY

The mineral resource potential of the Blackjack Springs Wilderness in the Nicolet National Forest, Vilas County, Wisc., was evaluated in 1982. No bedrock exposures are known in or near the wilderness. Geophysical data and regional geologic relations suggest that the area consists mostly of recrystallized and deformed mafic volcanic rocks and associated mafic intrusives of Early Proterozoic age. The only identified mineral resources in the Blackjack Springs Wilderness are sand and gravel, but these commodities are abundant regionally. While the occurrence of stratabound massive-sulfide (copper-zinc-lead) and (or) magmatic sulfide (copper and (or) nickel)-type deposits are possible in the wilderness, their occurrence is not probable.

INTRODUCTION

The Blackjack Springs Wilderness in north-central Wisconsin covers 5,975 acres of the Nicolet National Forest in Vilas County, and is about 8 mi east-northeast of the town of Eagle River. Access to the area is provided by Wisconsin Highway 70, which runs along the southern boundary, and U.S. Forest Service Road 1278, which follows the eastern boundary. Several forest trails also provide access to the wilderness.

The wilderness is in the Northern Highland lake district of Wisconsin and the area surrounding it contains many lakes. The topography is controlled by glacial outwash and ground-moraine deposits which form a hummocky terrain with a maximum relief of about 150 ft. The glacial deposits are from 100 to 200 ft thick in the area (Borman, 1971). Blackjack Creek bisects the study area and flows north into the Deerskin River, which flows northeastward along the northern boundary of the wilderness.

The area was examined by the author in September 1982. There are no known bedrock exposures in or near the boundaries of the study area. As a result, the geologic assessment and mineral resource evaluation of the area are based on the regional compilations of Dutton and Bradley (1970), Morey and others (1982), and Zietz, Karl, and Ostrom (1977). Allen and Barrett (1915) have described drill-hole samples from the Conover District, which lies about 2 mi north of the wilderness.

GEOLOGIC SETTING

The bedrock of the Blackjack Springs Wilderness is believed to consist mostly of recrystallized and deformed mafic volcanic rocks of Early Proterozoic age that are part of an extensive east-trending belt of volcanic rocks in northern Wisconsin. Where the mafic volcanic rocks of this belt are exposed east of the wilderness they consist of pillowed to massive flows with lesser felsic volcanic and sedimentary rocks metamorphosed to the greenschist to amphibolite facies (Dutton, 1971).

The aeromagnetic compilation of Zietz, Karl, and Ostrom (1977) shows a prominent positive magnetic anomaly trending northeast across the northern part of the wilderness. This is interpreted to reflect a large, metamorphosed, mafic intrusive body probably similar to those exposed elsewhere within the volcanic belt (for example, northeastern Wisconsin; Dutton, 1971).

North of the wilderness is a terrane of mostly metasedimentary rocks that also occur in an elongate east-trending belt. It is inferred that these rocks, consisting mostly of slates and lean iron-formations (Allen and Barrett, 1915), do not extend into the study area.

MINERAL RESOURCE POTENTIAL

The only identified resources in the Blackjack Springs Wilderness are sand and gravel. However, these commodities are abundant regionally.

No resources of metallic minerals are known in the Blackjack Springs Wilderness or adjacent areas, but the inferred geologic relationships suggest that the wilderness may be a favorable setting for the occurrence of certain types of ore deposits. The volcanic rocks, which are inferred to underlie most of the wilderness, are part of the volcanic terrane in which four massive-sulfide deposits of copper, zinc, lead, and precious metals have been identified in the last 10 years. These deposits, consisting of lenses rich in sulfide minerals, are associated with mostly felsic volcanic rocks; similar felsic volcanic rocks are not presently known to underlie the wilderness, though available information does not preclude their existence. Exploratory drilling has been conducted recently within the volcanic terrane about 30 mi west of the wilderness in the Lac de Flambeau area and also about 35 mi to the east in the Florence area; no drilling has been undertaken in or near the wilderness to date.

The northern portion of the wilderness is inferred to be underlain by a metamorphosed mafic intrusive body. Although such bodies are known sometimes to host disseminated to massive deposits of copper and (or) nickel sulfides, no such deposits are known to be associated with the exposed mafic intrusive bodies within this volcanic terrane.

On the basis of presently available information, it is concluded that while the occurrence of certain types of mineral resources is possible in the Blackjack Springs Wilderness, their occurrence is not probable. Further physical exploration would be required to fully establish the existence or nonexistence of ore deposits in the area. If mineral deposits do exist, they probably are of the stratabound massive-sulfide (copper-zinc-lead) type found in association with felsic volcanic rocks, and (or) are magmatic sulfides (copper and (or) nickel) found in association with mafic intrusive bodies. Further exploration in the wilderness is probably unlikely in the foreseeable future because the area is in one of the principal recreational regions of northern Wisconsin.

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