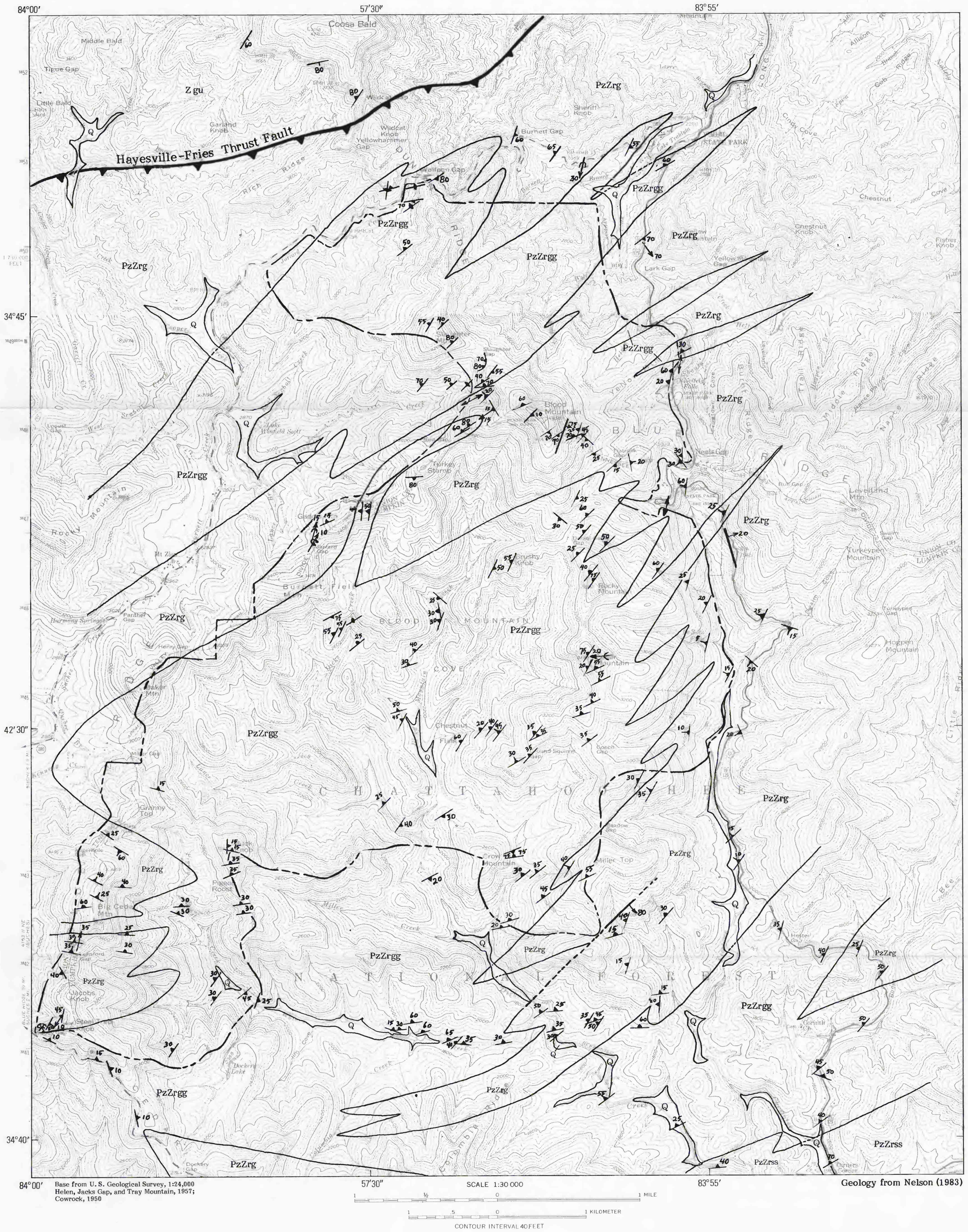
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1503-C
PAMPHLET ACCOMPANIES MAP



MINERAL RESOURCE POTENTIAL MAP OF THE BLOOD MOUNTAIN ROADLESS AREA, UNION AND LUMPKIN COUNTIES, GEORGIA

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EXPLANATION OF MAP UNITS

Q } QUATERNARY

Unconformity

PzZrg, PzZrss, PzZrgg } EARLY PALEOZOIC AND(OR) LATE PROTEROZOIC

Break in sequence

Zgu } LATE PROTEROZOIC

DESCRIPTION OF MAP UNITS

Q — Quaternary deposits—Unconsolidated colluvium and alluvium. Coarse bouldery and cobbly gravels, sand, and clay

Unnamed early Paleozoic and(or) Late Proterozoic biotite gneiss, metasandstone, mica schist, amphibolite and hornblende gneiss, granite gneiss, and quartzite assemblage that is informally called the "Richard Russell group" (K. A. Gillon, written commun., 1979)

PzZrg — Chiefly biotite gneiss variably interlayered with and gradational into metasandstone and granitic gneiss; alternates with thin-to-thick layers of biotite schist, muscovite-biotite schist, hornblende gneiss, and amphibolite, calc-silicate layers, and granite and dioritic gneiss. Biotite gneiss is irregularly layered to massive. Pegmatites and granite pods and veins are common. Locally suitable for use as crushed rock

PzZrss — Mostly metasandstone variably interlayered with and gradational into biotite gneiss, interlayered with biotite schist, muscovite-biotite schist, hornblende gneiss, and amphibolite. Discontinuous pegmatite, quartz veins and pods are common. Locally suitable for use as crushed rock

PzZrgg — Principally migmatite of biotite gneiss and granitic gneiss. Biotite and granitic gneisses mixed in all proportions from small granite veins and pods in biotite gneiss to massive granitic gneiss exposures containing only thin wisps of biotite gneiss. Commonly associated with pegmatite pods and veins, and quartzo-feldspathic lenses. Locally suitable for use as crushed rock

Zgu — Undivided Late Proterozoic rocks of Great Smoky thrust sheet—Alternating beds of metasandstone, meta-conglomerate, and mica schist; includes some bodies of granite gneiss

Contact—Approximately located; dashed where concealed

Fault—Dashed where approximately located, showing dip

Thrust fault—Approximately located; sawteeth on upper plate. Dashed where concealed

Strike and dip of bedding

Strike and dip of layering and foliation

Strike and dip of foliation

Inclined

Vertical

Horizontal lineation

Bearing and plunge of lineation

Minor synform showing plunge of axis

Minor antiform showing plunge of axis

Overturned antiform showing plunge of axis

Abandoned quarry

Approximate boundary of roadless area

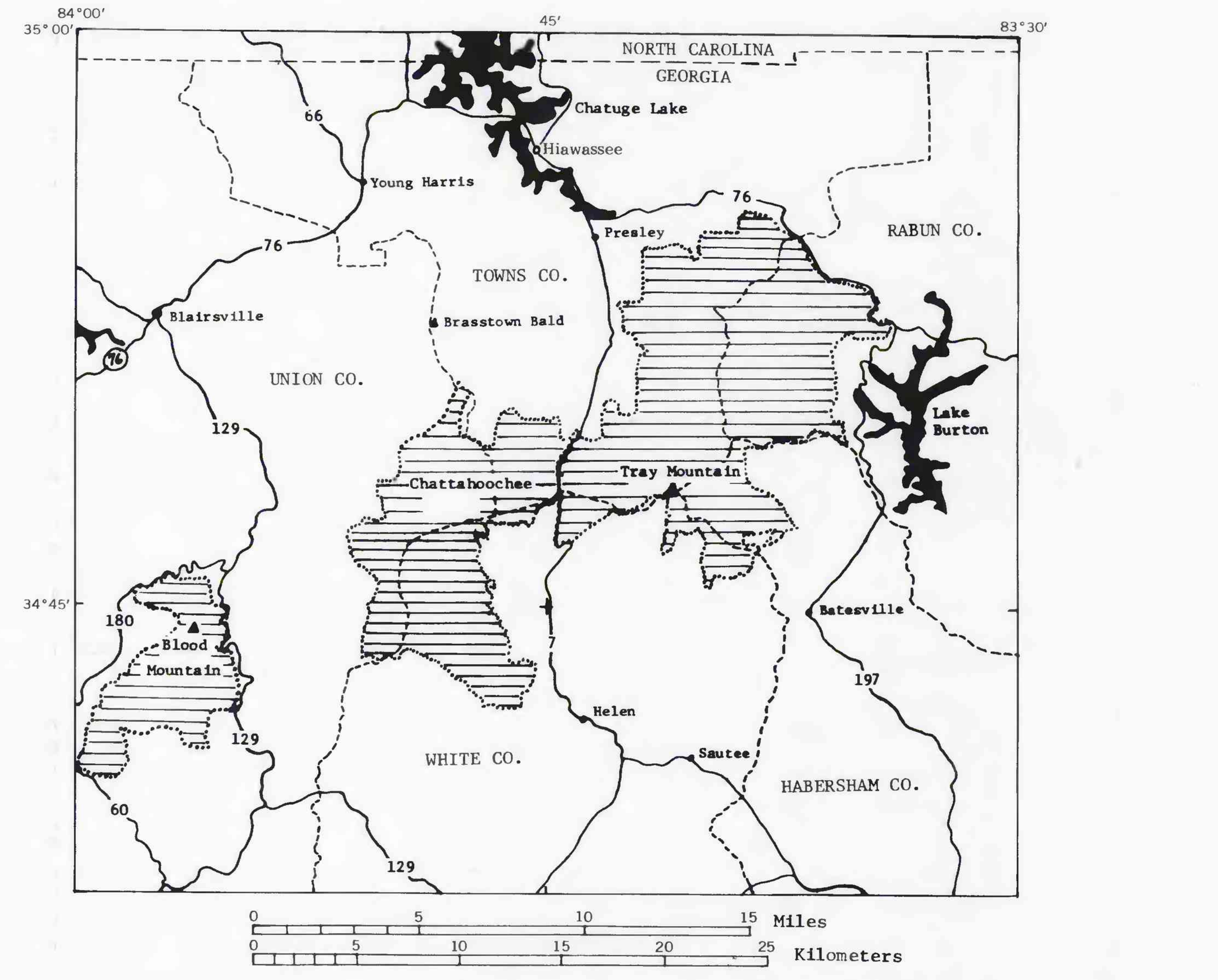

Figure 1.—Index map showing location of the Blood Mountain, Chattahoochee, and Tray Mountain Roadless Areas.

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 potential survey of the Blood Mountain Roadless Area (08-027) in the Chattahoochee National Forest, Union and Lumpkin Counties, Ga. The Blood Mountain Roadless Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

SUMMARY

The Blood Mountain Roadless Area has a low potential for stone suitable for crushed rock and for low-quality sheet mica associated with pegmatites. Although the roadless area lies between two nearby zones of gold deposition, they do not appear to extend into it. Our data from a geochemical survey do not indicate concentrations of gold or other metals likely to be associated with hidden mineral deposits. Sedimentary rocks underlying the metamorphic rocks exposed at the surface have an unknown potential for hydrocarbons in the form of natural gas; no reasonable estimate can be made of the potential without deep test drilling.

INTRODUCTION

The Blood Mountain Roadless Area occupies approximately 10,275 acres in the Chattahoochee National Forest in northern Georgia. This Blue Ridge Mountain area, centered about 11 mi south of Blairsville, Ga., covers parts of two counties, Union on the north and Lumpkin on the south (index map).

A few secondary roads, as well as some logging roads and U.S. Forest Service roads, provide limited access to the area. From the roadless area these roads lead either to U.S. Highway 19, which parallels the area's eastern boundary, or to Georgia Highways 60 and 180, near the area's western and northwestern borders. In addition, the Appalachian Trail gives limited access into some of roadless area's high ground.

GEOLOGY

The Blue Ridge Mountains of northeastern Georgia and adjoining North Carolina consist of metamorphic rocks of two major lithotectonic units—the Great Smoky thrust sheet and the Hayesville thrust sheet (Nelson, 1983). The Hayesville sheet was emplaced by westward-directed tectonic transport over the Great Smoky sheet, along the Hayesville-Fries thrust fault, a major Appalachian feature. Although rocks of the Great Smoky sheet underlie the area at depth, only rocks of the Hayesville sheet are exposed in the roadless area.

In the Blood Mountain Roadless Area, Hayesville sheet rocks consist of biotite gneiss, granite gneiss, amphibolite, and metasandstone; discontinuous pods and veins of pegmatite are abundant and widely dispersed throughout the area. The rocks are compositionally layered, and migmatites of biotite gneiss and granite gneiss are common. Rocks of the area are multiply-deformed and fold interference patterns are commonly seen.

All pelitic rocks in the roadless area are at sillimanite grade of regional Barrovian metamorphism. The highest grade regional metamorphism in the southern Appalachian Mountains is estimated to have occurred 450-480 m.y. ago, during the Taconic orogeny; the migmatite, pegmatite, and felsic segregations in the roadless area probably formed during this time, near the thermal peak of metamorphism.

GEOCHEMICAL SURVEY

Samples of rock chips and stream sediments were evaluated in a reconnaissance geochemical survey to determine if any unidentified mineral deposits exist in the Blood Mountain Roadless Area. The assessment is based on an analysis of the abundance, distribution, and geological association of 31 elements in the geochemical samples. No anomalous elemental enrichments are recognized in the geochemical data, and we conclude that there is little likelihood of hidden metallic mineral deposits in the roadless area (Koeppen and Nelson, in press).

REFERENCES CITED

Koeppen, R. P., and Nelson, A. E., in press, Geochemical survey of the Blood Mountain Roadless Area, Union and Lumpkin Counties, Georgia: U.S. Geological Survey Miscellaneous Field Studies Map MF-1503-B.

Nelson, A. E., 1983, Geologic map of the Blood Mountain Roadless Area, Union and Lumpkin Counties, Georgia: U.S. Geological Survey Miscellaneous Field Studies Map MF-1503-A, scale 1:30,000.

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