

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 of 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 Salmo-Priest Wilderness study area (RARE E6-981, A1-981) in the Kootenai National Forest, Boundary County, Idaho, and the Colville National Forest, Pend Oreille County, Washington. The area is being considered for inclusion in the wilderness system.

MINERAL RESOURCE POTENTIAL

The geologic and geochemical evaluation has pointed out no evidence to suggest a significant exploration target exists in the study area, with the possible exception of the areas of anomalous gold values.

The mineral resource survey indicates that the area has low potential for metallic and energy minerals, fossil fuels, and geothermal resources. Nonmetallic potential, notably shale, is abundant, but adequate supplies are adjacent to the Lehigh cement company plant in Metaline Falls, Washington.

GEOLOGY

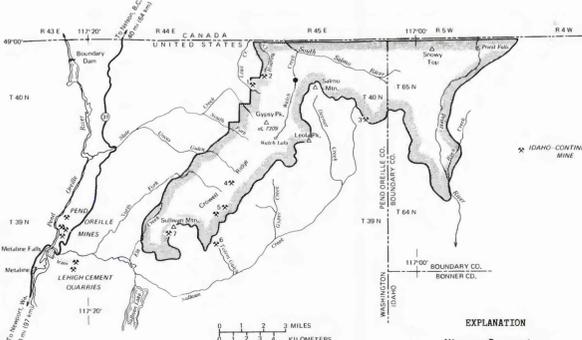
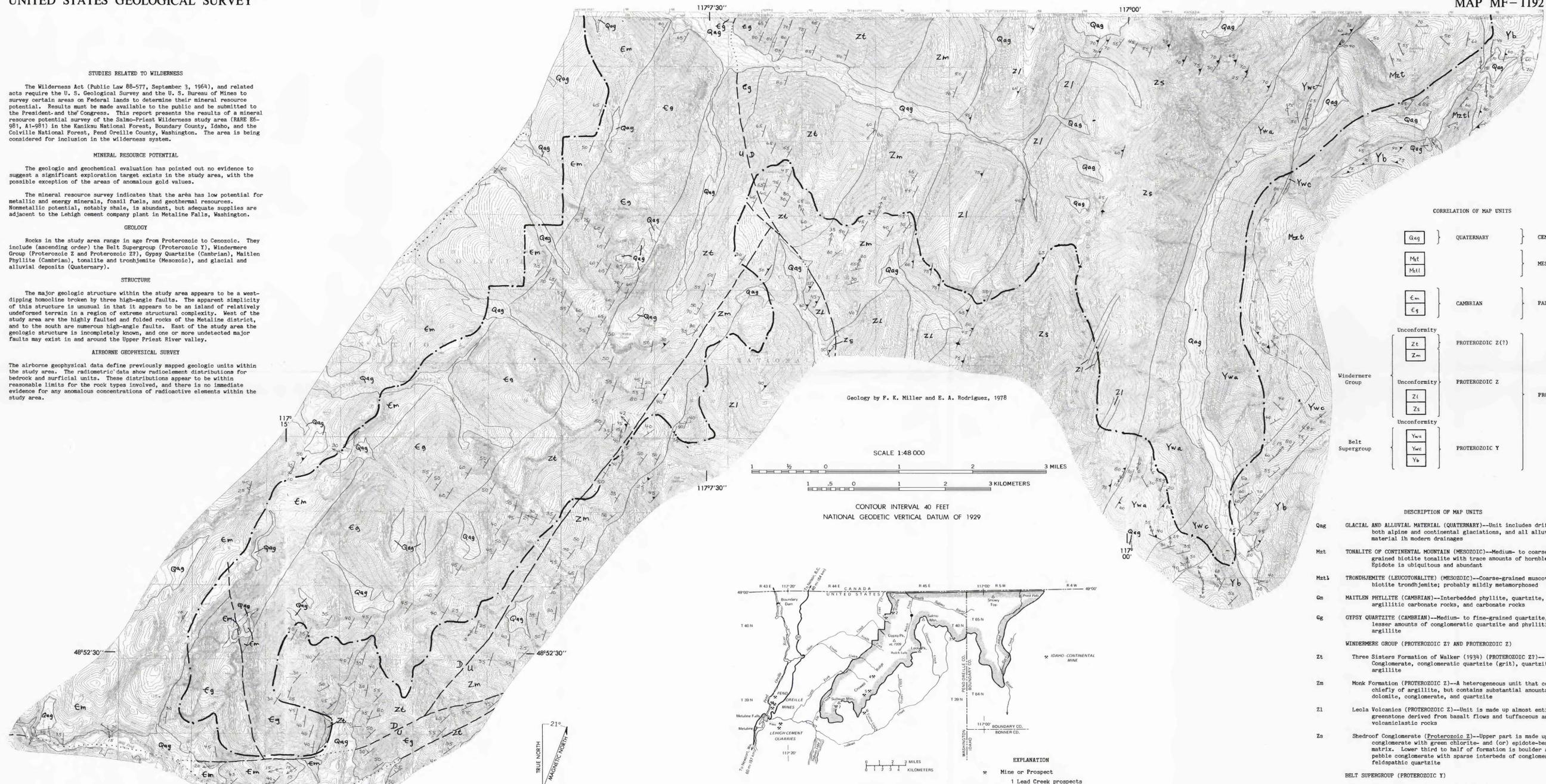
Rocks in the study area range in age from Proterozoic to Cenozoic. They include (ascending order) the Belt Supergroup (Proterozoic Y), Windermere Group (Proterozoic Z and Proterozoic Z?), Gypsy Quartzite (Cambrian), Mattlen Phyllite (Cambrian), tonalite and ironstone (Mesozoic), and glacial and alluvial deposits (Quaternary).

STRUCTURE

The major geologic structure within the study area appears to be a west-dipping monocline broken by three high-angle faults. The apparent simplicity of this structure is unusual in that it appears to be an island of relatively undeformed terrain in a region of extreme structural complexity. West of the study area are the highly faulted and folded rocks of the Metaline district, and to the south are numerous high-angle faults. East of the study area the geologic structure is incompletely known, and one or more undetected major faults may exist in and around the Upper Priest River valley.

AIRBORNE GEOPHYSICAL SURVEY

The airborne geophysical data define previously mapped geologic units within the study area. The radiometric data show radioelement distributions for bedrock and surficial units. These distributions appear to be within reasonable limits for the rock types involved, and there is no immediate evidence for any anomalous concentrations of radioactive elements within the study area.



CORRELATION OF MAP UNITS

Qag	QUATERNARY	CENOZOIC
Mt		
Mt1	CAMBRIAN	MESOZOIC
Em		
Eg	PROTEROZOIC Z(?)	PROTEROZOIC
Zt		
Zm	PROTEROZOIC Z	PROTEROZOIC
Zl		
Zs	PROTEROZOIC Y	PROTEROZOIC
Ywa		
Ywc	PROTEROZOIC Y	PROTEROZOIC
Yb		

DESCRIPTION OF MAP UNITS

Qag	GLACIAL AND ALLUVIAL MATERIAL (QUATERNARY)—Unit includes drift from both alpine and continental glaciations, and all alluvial material in modern drainages
Mt	TONALITE OF CONTINENTAL MOUNTAIN (MESOZOIC)—Medium- to coarse-grained biotite tonalite with trace amounts of hornblende. Epidote is ubiquitous and abundant
Mt1	TROCHJEMITE (LEUCOTONALITE) (MESOZOIC)—Coarse-grained muscovite-biotite trochjemite; probably mildly metamorphosed
Gg	MATTLEN PHYLITE (CAMBRIAN)—Interbedded phyllite, quartzite, argillitic carbonate rocks, and carbonate rocks
Eg	GYPSE QUARTZITE (CAMBRIAN)—Medium- to fine-grained quartzite, with lesser amounts of conglomeratic quartzite and phyllitic argillite
Zt	WINDERMERE GROUP (PROTEROZOIC Z? AND PROTEROZOIC Z) Three Sisters Formation of Walker (1934) (PROTEROZOIC Z?)—Conglomerate, conglomeratic quartzite (grit), quartzite, and argillite
Zm	Monk Formation (PROTEROZOIC Z)—A heterogeneous unit that consists chiefly of argillite, but contains substantial amounts of dolomite, conglomerate, and quartzite
Zl	Leola Volcanics (PROTEROZOIC Z)—Unit is made up almost entirely of greenstones derived from basalt flows and tuffaceous and volcanoclastic rocks
Zs	Shedroof Conglomerate (Proterozoic Z)—Upper part is made up of conglomerate with green chlorite- and (or) epidote-bearing matrix. Lower third to half of formation is boulder and pebble conglomerate with sparse interbeds of conglomeratic feldspathic quartzite
Ywa	BELT SUPERGROUP (PROTEROZOIC Y) Wallace Formation (PROTEROZOIC Y)—Divided into: Argillite—Chiefly dark-gray argillite with sparse interbeds of carbonate rocks
Ywc	Carbonate rocks—Dolomite and limy dolomite interbedded with lesser amounts of phyllitic argillite
Yb	Belt Supergroup, undivided (PROTEROZOIC Y)—Argillite, siltite, and quartzite

- Contact - Approximately located. Queried where uncertain
  - Fault - Dashed where approximately located; dotted where concealed
  - Strike and dip of beds
    - ↗ Inclined
    - ↘ Overturned
    - ↕ Vertical
    - ↗/↘ Variable
  - Strike and dip of foliation or other planar features
    - ↗ Metamorphic rocks
    - ↘ Inclined
    - ↕ Vertical
    - ↗/↘ Igneous rocks—primary foliation
    - ↗/↘ Flattened or smeared-out inclusions in igneous rocks
    - ↗/↘ Cleavage
    - ↗/↘ Slip cleavage
    - ↗/↘ Mineralized veinlet
  - Bearing and plunge of linear features
    - ↗ Minor fold axes
    - ↘ Creulations in schist or phyllite
  - Border of study area
  - Sample locality
- NOTE: Symbols may be used in combination

# MINERAL RESOURCE POTENTIAL MAP OF THE SALMO-PRIEST WILDERNESS STUDY AREA (RARE E6-981 A1-981), PEND OREILLE COUNTY, WASHINGTON, AND BOUNDARY COUNTY, IDAHO

By  
Fred K. Miller<sup>1</sup>, S.W. Schmauch<sup>2</sup>, and E.A. Rodriguez<sup>1</sup>  
1982

<sup>1</sup>U.S. Geological Survey <sup>2</sup>U.S. Bureau of Mines