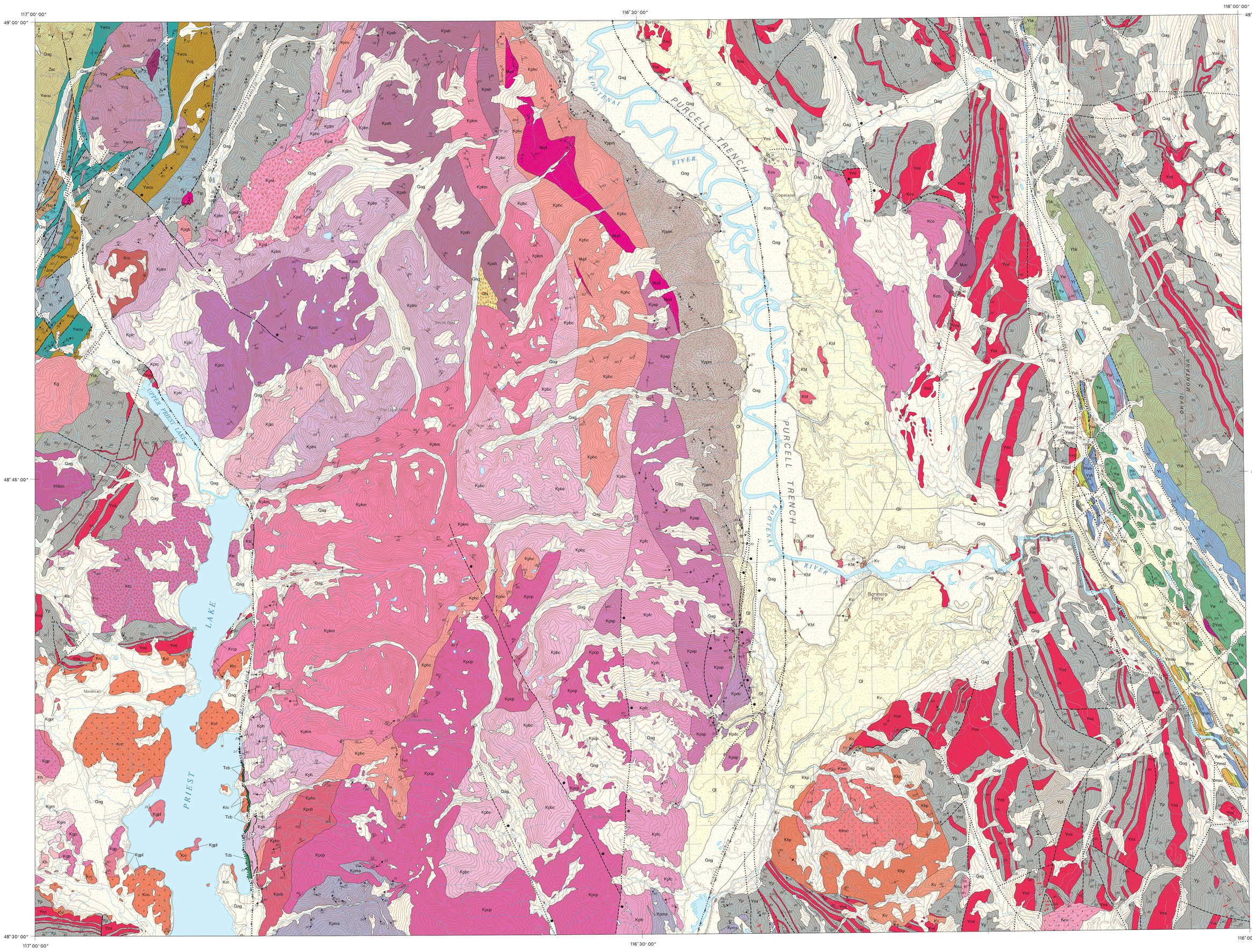
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF-2426
Pamphlet accompanies map



Base from U.S. Geological Survey Bonners Ferry 1:100,000 scale map, 1983; U.S. Geological Survey Bonners Ferry East and West digital line graphs (DLG), 1983

Universal Transverse Mercator projection, zone 11

N
MN
17°
Declination at center of map, 2003

SCALE 1:100,000

1 0 2 1 3 4 5 6 7 MILES
1 0 1 2 3 4 5 6 7 8 9 10 11 KILOMETERS

CONTOUR INTERVAL 50 METERS

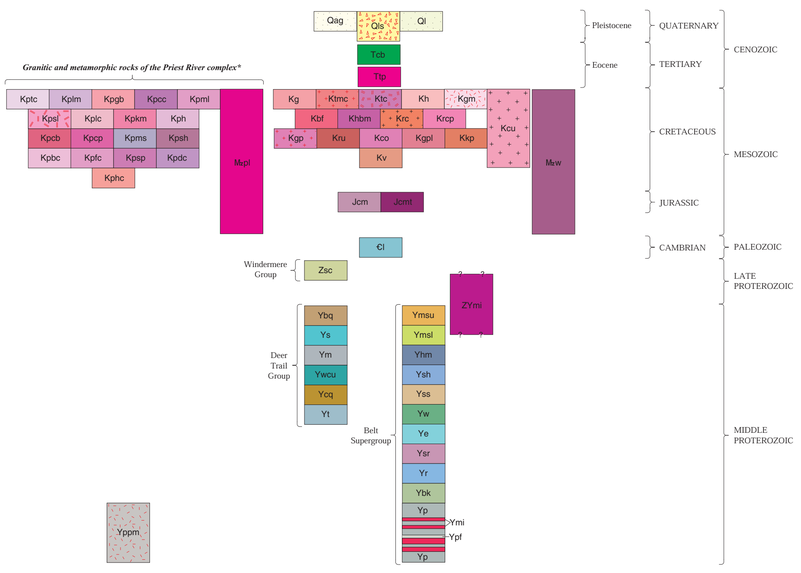
LOCATION MAP

Geology mapped by Fred K. Miller, 1977-1993; Russell F. Burmester, 1980-1988

Edited by Jane S. Clener and Jan L. Zigler

Manuscript approved for publication November 12, 2003

CORRELATION OF MAP UNITS



* The Priest River complex in the Bonners Ferry quadrangle is an Eocene structure made up of at least 19 lithodemes that range in age from Cretaceous to Triassic(?) and includes one highly metamorphosed Proterozoic unit. All of the units yield Eocene conventional potassium-argon biotite ages. The units shown in the connected boxes are probably not distinct sequentially emplaced plutons but rather represent one or more, inhomogeneous, composite intrusive masses that are variably intermixed with metamorphic rocks. All of the granitic units are probably Mesozoic in age, and the intermixed metamorphic rocks are derived from the Belt Supergroup or from sills that intrude it. The arrangement of the boxes, either by column or row, has little petrogenetic significance, but corresponds to the sequence in List of Map Units, proceeding by row from left to right. The disconnected boxes are positioned in the Correlation of Map Units to reflect the known or presumed age of their respective protoliths, and are described in the order of their position.

LIST OF MAP UNITS

Qag — **Glacial and alluvial deposits (Quaternary)**

Qls — **Landslide deposits (Quaternary)**

Ql — **Glacial-lacustrine deposits (Quaternary)**

Tcb — **Chlorite breccia and cataclastic rocks associated with the Newport Fault zone (Eocene)**

Ttp — **Quartz monzonite of Trapper Peak (Eocene)**

Granitic and metamorphic rocks of the Priest River complex

Priest River complex

Kptc — **Granodiorite of Trapper Creek (Cretaceous)**

Kplm — **Mixed granitic and metamorphic rocks of Lookout Mountain (Cretaceous)**

Kpgb — **Garnet-bearing granodiorite (Cretaceous)**

Kpcc — **Granodiorite of Caribou Creek (Cretaceous)**

Kpml — **Mafic granodiorite of Marsh Lake (Cretaceous)**

Kpsl — **Granodiorite of Search Lake (Cretaceous)**

Kplc — **Mafic granodiorite of Lucky Creek (Cretaceous)**

Kpkm — **Monzogranite of Klootch Mountain (Cretaceous)**

Kph — **Two-mica granitic rocks of Horton Creek (Cretaceous)**

Kpcb — **Mafic granodiorite of Cavanaugh Bay (Cretaceous)**

Kpcp — **Mixed granitic rocks of Camels Prairie (Cretaceous)**

Kpms — **Mixed granitic and metamorphic rocks of Soldier Creek (Cretaceous)**

Kpsh — **Monzogranite of Shorty Peak (Cretaceous)**

Kpbc — **Mixed two-mica rocks of Ball Creek (Cretaceous)**

Kpfc — **Granodiorite of Falls Creek (Cretaceous)**

Kpsp — **Tonalite of Snow Peak (Cretaceous)**

Kpdc — **Granitic and metamorphic rocks, undivided (Cretaceous)**

Kphc — **Monzogranite of Hunt Creek (Cretaceous)**

Mpl — **Monzonite of Long Canyon (Mesozoic)**

Yppm — **Prichard Formation, metamorphosed (Middle Proterozoic)**

End of granitic and metamorphic rocks of the Priest River complex

Kg — **Monzogranite of Granite Pass (Cretaceous)**

Ktmc — **Two-mica monzogranite or granodiorite of Twenty Mile Creek (Cretaceous)**

Ktc — **Monzogranite of Tango Creek (Cretaceous)**

Kh — **Monzogranite of Hungry Mountain (Cretaceous)**

Kgm — **Monzogranite of Gleason Mountain (Cretaceous)**

Kcu — **Granitic rocks, undivided (Cretaceous)**

Mw — **Monzonite of Wall Mountain (Mesozoic)**

Kbf — **Granodiorite of Bonners Ferry (Cretaceous)**

Granodiorite of Hall Mountain (Cretaceous)

Khbm — **Boulder Mountain pluton**

Krc — **Granodiorite of Reeder Creek (Cretaceous)**

Krcp — **Porphyritic, muscovite-bearing, biotite granodiorite**

Kgp — **Galena Point Granodiorite (Cretaceous)**

Kru — **Granodiorite of Ruby Creek (Cretaceous)**

Kco — **Granodiorite of Copeland (Cretaceous)**

Kgpl — **Granodiorite of Priest Lake (Cretaceous)**

Kkp — **Granodiorite of Kelly Pass (Cretaceous)**

Kv — **Granodiorite of Road V-78 (Cretaceous)**

Jcm — **Tonalite of Continental Mountain (Jurassic)**

Jcmt — **Trondhjemite of Continental Mountain (Jurassic)**

Cl — **Dolomite (Cambrian)**

Windermere Group (Late Proterozoic)

Zsc — **Shedroof Conglomerate**

ZYmi — **Mafic intrusive rocks (Late or Middle Proterozoic)**

Deer Trail Group (Middle Proterozoic)

Ybq — **Buffalo Hump Formation**

Ys — **Stensgar Dolomite**

Ym — **McHale Slate**

Ywcu — **Wabash Detroit Formation and Chamokane Creek Formation, undivided**

Ycq — **Quartzite unit**

Yt — **Togo Formation**

Belt Supergroup (Middle Proterozoic)

Mount Shields Formation

Ymsu — **Upper part**

Ymsl — **Lower part**

Yhm — **Argillite of Half Moon Lake**

Ysh — **Shepard Formation**

Yss — **Snowslip Formation**

Yw — **Wallace Formation**

Ye — **Empire Formation**

Ysr — **St Regis Formation**

Yr — **Revett Formation**

Ybk — **Burke Formation**

Ymi — **Mafic sills**

Ypf — **Prichard Formation**

Contact—Generally located within ±25 m, except within Priest River complex where many contacts are highly gradational and subject to interpretive placement

Faults

High-angle—Includes normal, reverse, and multiply reactivated faults. Solid where located within ±25 m; dashed where located within ±50 m; dotted where concealed; queried where location uncertain. Bar and ball on downthrown side.

Low-angle normal (detachment)—Solid where located within ±25 m; dashed where located within ±50 m; dotted where concealed

Folds

Anticline—Arrow indicates direction of plunge

Syncline—Arrow indicates direction of plunge

Strike and dip of bedding*

70 **Inclined**

Vertical

70 **Overturned**

Strike and dip of primary igneous features*

70 **Foliation**

Inclined

70 **Vertical**

Strike and dip of secondary foliation, igneous rocks

Strike and dip of foliation, metamorphic*

70 **Inclined**

Vertical

Bearing and plunge of lineations*

70 **Stretching**

70 **Primary igneous**

70 **Minor fold axes**

*Symbols may be used in combination

Figure 1. Simplified geologic map showing relations of major structures in Bonners Ferry quadrangle to other major structures in the region. Bonners Ferry quadrangle outlined in green. HRF, Huckleberry Range Fault; JOJ, Jumpoff Joe Fault; N, Newport; C, Chewelah. ◉ Town.

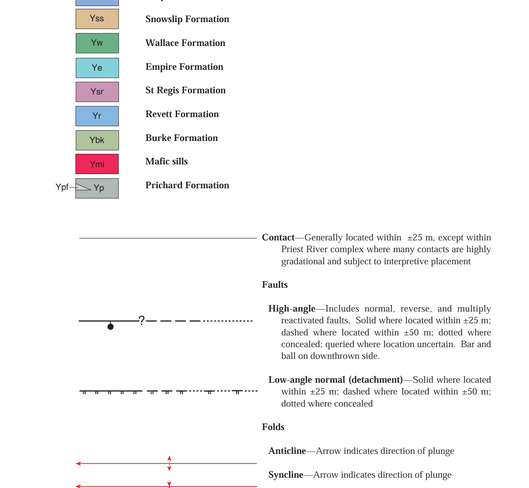


Figure 2. Index map of Bonners Ferry 30' x 60' quadrangle showing geographic and cultural features referred to in the text. Also shown are the approximate areas predominently underlain by (1) Deer Trail Group and Windermere Group, tan; (2) eastern Priest River complex, gray; and (3) Belt Supergroup, green. •Town. ▲Mountain peak. × Specific feature.

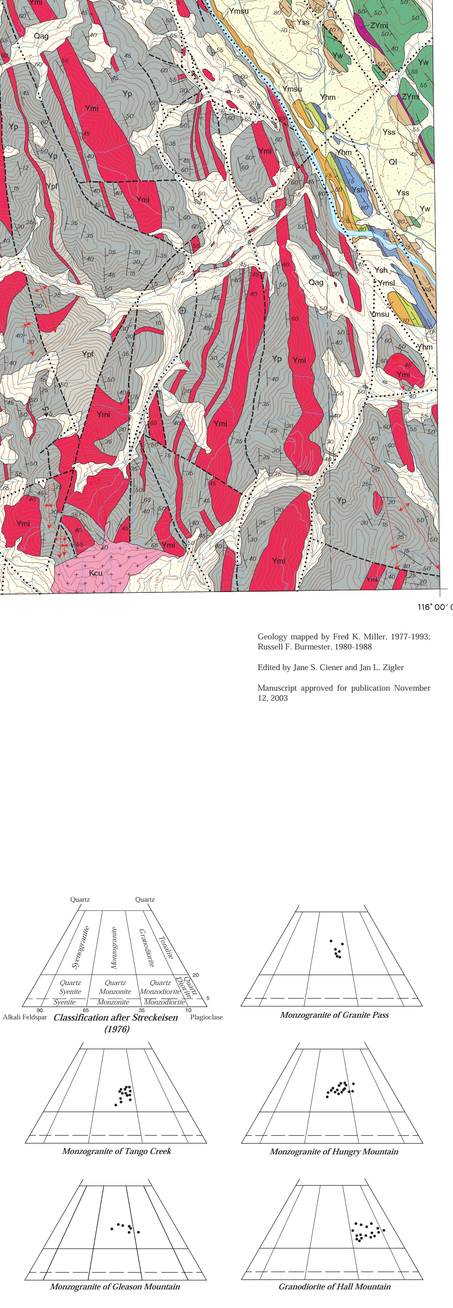


Figure 3. Modal compositions for selected granitic units in Bonners Ferry quadrangle.

Any use of trade, firm, or product names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government.

This map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and between X and Y directions on the same plotter, and paper may change size due to atmospheric conditions; therefore, scale and proportions may not be true on plots of this map.

For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225, 1-888-ASK-USGS

Digital files available on World Wide Web at *http://geopubs.wr.usgs.gov/map-mf/mf2426*

Geologic Map of the Bonners Ferry 30' x 60' Quadrangle, Idaho and Montana

By
Fred K. Miller and Russell F. Burmester

Digital preparation by Pamela M. Cossette and Pamela D. Derkey

2003

125