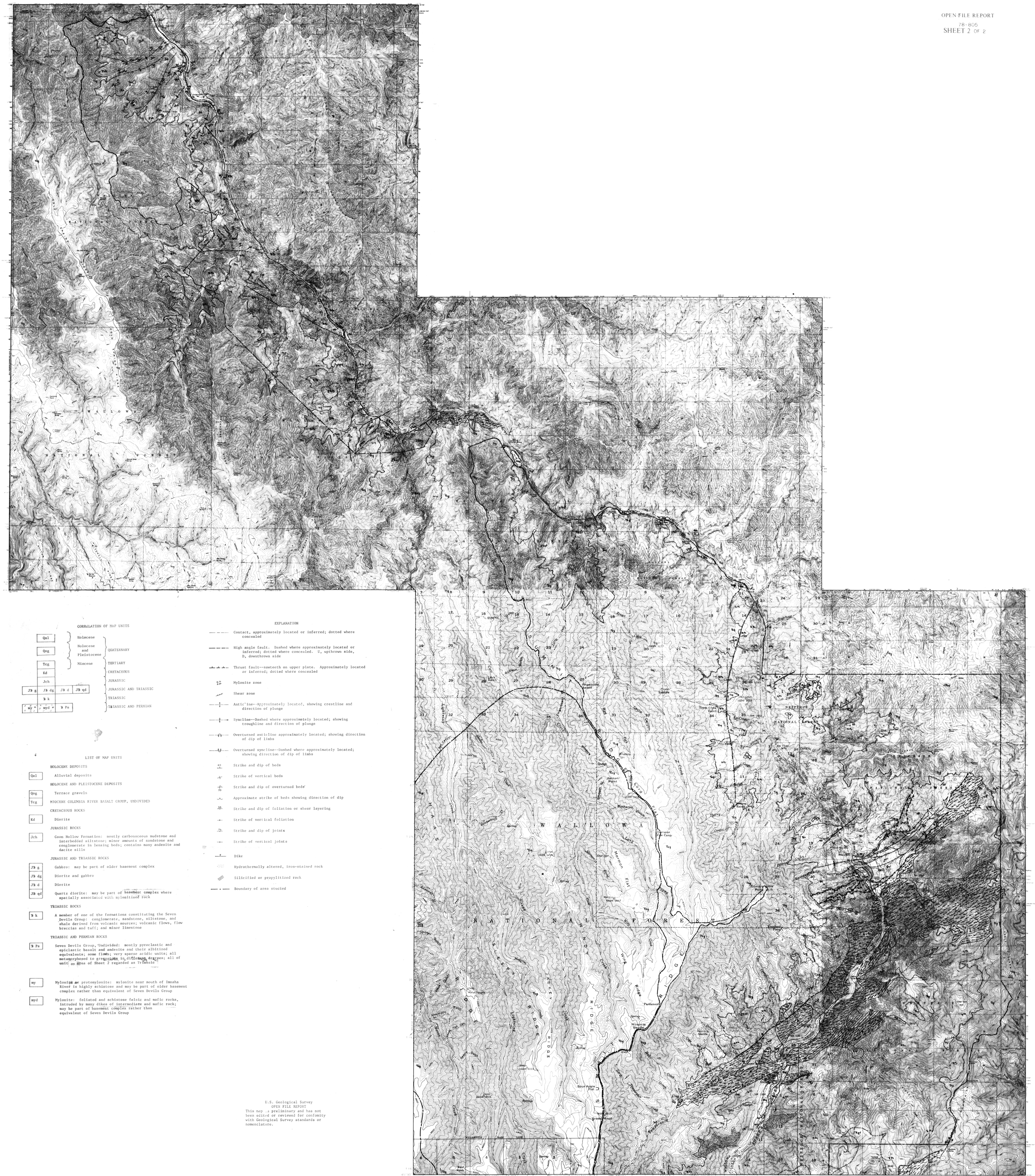
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN-FILE REPORT
78-805
SHEET 2 OF 2



CORRELATION OF MAP UNITS

Qal	Holocene	QUATERNARY
Qog	Holocene and Pleistocene	QUATERNARY
Tcg	Miocene	TERTIARY
Kd		CRETACEOUS
Jch		JURASSIC
JTR g, JTR dg, JTR d, JTR qd		JURASSIC AND TRIASSIC
TR k		TRIASSIC
my, myd, TR Ps		TRIASSIC AND PERMIAN

LIST OF MAP UNITS

HOLOCENE DEPOSITS

Qal — Alluvial deposits

HOLOCENE AND PLEISTOCENE DEPOSITS

Qog — Terrace gravels

MIOCENE COLUMBIA RIVER BASALT GROUP, UNDIVIDED

Tcg

CRETACEOUS ROCKS

Kd — Diorite

JURASSIC ROCKS

Jch — Coon Hollow Formation: mostly carbonaceous mudstone and interbedded siltstone; minor amounts of sandstone and conglomerate in lensing beds; contains many andesite and dacite sills

JURASSIC AND TRIASSIC ROCKS

JTR g — Gabbro: may be part of older basement complex

JTR dg — Diorite and gabbro

JTR d — Diorite

JTR qd — Quartz diorite: may be part of basement complex where spatially associated with mylonitized rock

TRIASSIC ROCKS

TR k — A member of one of the formations constituting the Seven Devils Group: conglomerate, sandstone, siltstone, and shale derived from volcanic sources; volcanic flows, flow breccias and tuff; and minor limestone

TRIASSIC AND PERMIAN ROCKS

TR Ps — Seven Devils Group, Undivided: mostly pyroclastic and epiclastic basalt and andesite and their albitized equivalents; some flows; very sparse acidic units; all metamorphosed to greenstone in different degrees; all of unit on area of Sheet 2 regarded as Triassic

my — Mylonite or protomylonite: mylonite near mouth of Imnaha River is highly schistose and may be part of older basement complex rather than equivalent of Seven Devils Group

myd — Mylonite: foliated and schistose felsic and mafic rocks, intruded by many dikes of intermediate and mafic rock; may be part of basement complex rather than equivalent of Seven Devils Group

EXPLANATION

Contact, approximately located or inferred; dotted where concealed

High angle fault. Dashed where approximately located or inferred; dotted where concealed. U, upthrown side, D, downthrown side

Thrust fault--sawteeth on upper plate. Approximately located or inferred; dotted where concealed

Mylonite zone

Shear zone

Anticline--Approximately located, showing crestline and direction of plunge

Syncline--Dashed where approximately located; showing troughline and direction of plunge

Overturned anticline approximately located; showing direction of dip of limbs

Overturned syncline--Dashed where approximately located; showing direction of dip of limbs

Strike and dip of beds

Strike of vertical beds

Strike and dip of overturned beds

Approximate strike of beds showing direction of dip

Strike and dip of foliation or shear layering

Strike of vertical foliation

Strike and dip of joints

Strike of vertical joints

Dike

Hydrothermally altered, iron-stained rock

Silicified or propylitized rock

Boundary of area studied

U.S. Geological Survey
OPEN FILE REPORT
This map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

Base from U.S. Geological Survey, Heavens Gate and Kessler Creek, 1964; 1:24,000, and Earl Butte, 1954, 1:62,500; and Cuprum, He Devil, and Homestead, 1955.

Geologic reconnaissance by J. L. Gualtieri, 1974-75, Darrell H. Finckney, 1976, George C. Simmons, 1974-76, and Harry A. Waldrop, 1974; assisted by James C. Ashleman, 1975-76, R. James Corken, 1974, Kim Pergs, 1976, and Ronald J. Stein, 1975. Parts of map modified from Robert F. Harrison, 1963, and T. L. Vallier, 1973.

PRELIMINARY GEOLOGIC MAP OF THE HELLS CANYON AREA, IDAHO COUNTY, IDAHO, AND WALLOWA COUNTY, OREGON

By
J. L. Gualtieri and George C. Simmons

1978