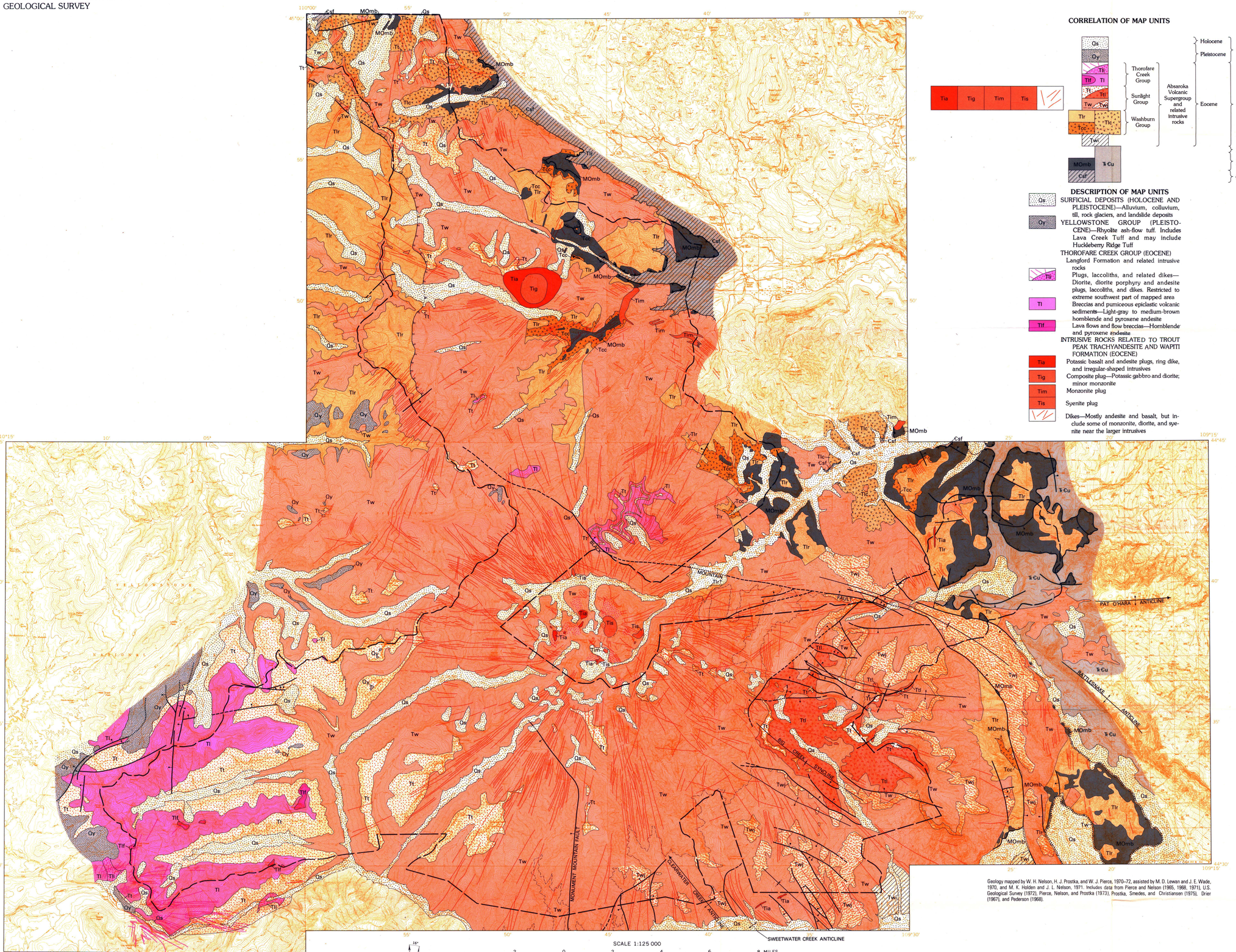


Geology mapped by W. H. Nelson, H. J. Prostka, and W. J. Pierce, 1970–72, assisted by M. D. Lewan and J. E. Wade, 1970, and M. K. Holden and J. L. Nelson, 1971. Includes data from Pierce and Nelson (1965, 1968, 1971), U.S. Geological Survey (1972), Pierce, Nelson, and Prostka (1973), Prostka, Smedes, and Christiansen (1975), Drier (1967), and Pederson (1968).

Base from U.S. Geological Survey
1:62,500: Dead Indian Peak and Pat O'Hara Mountain, 1949;
Beartooth Butte, Pilot Peak, and Sunlight Peak, 1956;
Eagle Peak and Pelican Cone, 1959. 1:24,000: Chimney Rock,
Clayton Mountain, Eagle Creek, and Flag Peak, 1970

APPROXIMATE MEAN DECLINATION, 1979

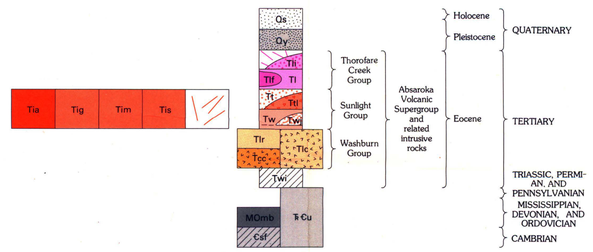
SCALE 1:125 000

2 0 2 4 6 8 MILES

2 0 2 4 6 8 KILOMETERS

CONTOUR INTERVAL 40 FEET AND 80 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qs — SURFICIAL DEPOSITS (HOLOCENE AND PLEISTOCENE)—Alluvium, colluvium, till, rock glaciers, and landslide deposits

Qy — YELLOWSTONE GROUP (PLEISTOCENE)—Rhyolite ash-flow tuff. Includes Lava Creek Tuff and may include Huckleberry Ridge Tuff

THOROFARE CREEK GROUP (EOCENE)

Langford Formation and related intrusive rocks

Ttl — Plugs, laccoliths, and related dikes—Diorite, diorite porphyry and andesite plugs, laccoliths, and dikes. Restricted to extreme southwest part of mapped area

Tt — Breccias and pumiceous epiclastic volcanic sediments—Light-gray to medium-brown hornblende and pyroxene andesite

Tlf — Lava flows and flow breccias—Hornblende and pyroxene andesite

INTRUSIVE ROCKS RELATED TO TROUT PEAK TRACHYANDESITE AND WAPITI FORMATION (EOCENE)

Tia — Potassic basalt and andesite plugs, ring dike, and irregular-shaped intrusives

Tig — Composite plug—Potassic gabbro and diorite; minor monzonite

Tim — Monzonite plug

Tis — Syenite plug

Dikes—Mostly andesite and basalt, but include some of monzonite, diorite, and syenite near the larger intrusives

SUNLIGHT GROUP (EOCENE)

Tt — Trout Peak Trachyandesite—Trachybasalt and trachyandesite, lava flows and flow breccias, locally interlayered with epiclastic volcanic sediments. Flows mostly thick and coarsely porphyritic. Includes lower part (Ttl) where that unit is very thin

Ttl — Lower part—Lava flows and flow breccias of trachybasalt and trachyandesite; flows mostly thinner and less porphyritic than overlying flows. Mapped as a separate unit in the southeastern part of the mapped area where the two units are separated by a prominent angular unconformity and where the lower part is exceptionally thick. Intertongues with upper part of Wapiti Formation

Wapiti Formation

Tw — Breccias, tuffs, volcanic sediments, and lava flows—Dark- to medium-brown pyroxene andesite; minor hornblende. As mapped may locally include some rocks of Lamar River Formation

Twj — Jim Mountain Member—Lava flows and flow breccias of trachyandesite; minor interbeds of tuff and volcanic sediments. Where this member grades laterally into flow breccia indistinguishable from that above (Tw), the approximate base of the member is shown as a dashed line within the breccia unit (Tw)

WASHBURN GROUP (EOCENE)

Tlr — Lamar River Formation—Medium-brown breccias and volcanic sediments locally cut by related intrusives of andesite and andesite breccia. Clasts are of hornblende-pyroxene andesite and hornblende andesite

Tcc — Cathedral Cliffs Formation—Medium- to light-gray volcanic sediments, tuff, and breccia of hornblende andesite and hornblende-biotite andesite. Locally intertongues with Lamar River Formation

Tlc — Lamar River and Cathedral Cliffs Formations

Twi — WILLWOOD FORMATION (LOWER EOCENE)—Varicolored clay, sandstone, and shale; minor conglomerate

Ꞓ Cu — CHUGWATER AND DINWOODY FORMATIONS (TRIASSIC), PARK CITY FORMATION (PERMIAN), TENSLEEP SANDSTONE (PENNSYLVANIAN), AMSDEN FORMATION (PENNSYLVANIAN AND MISSISSIPPIAN), AND MADISON LIMESTONE (MISSISSIPPIAN) THROUGH FLATHEAD SANDSTONE (CAMBRIAN)

MOmb — MADISON LIMESTONE (MISSISSIPPIAN), THREE FORKS AND JEFFERSON FORMATIONS (DEVONIAN), AND BIGHORN DOLOMITE (ORDOVICIAN)—Occur as Heart Mountain fault masses

Csf — SNOWY RANGE FORMATION, PILGRIM LIMESTONE, GROS VENTRE FORMATION, AND FLATHEAD SANDSTONE (CAMBRIAN)—Below Heart Mountain bedding-plane fault

CONTACT—Dashed where approximately located; dotted where concealed

HIGH-ANGLE FAULT—Dashed where approximately located; dotted where concealed. Bar and ball on downthrown side

HEART MOUNTAIN FAULT—The nature of the parts of the fault, listed below, is described in the text

Bedding-plane detachment fault separating lower plate rocks from Paleozoic rocks of Heart Mountain fault blocks—Dotted where concealed. Sawteeth on detached blocks

Surface of tectonic denudation—Ticks extend onto tectonically denuded fault surface; rocks of Wapiti Formation (Tw) deposited on this plane; rocks of Lamar River Formation (Tlr) in part slid onto and in part may have been deposited on this plane

Breakaway fault—High-angle fault scarp formed as Heart Mountain fault blocks slid away to the southeast. Volcanic rocks deposited (thin line) or tectonically emplaced (thick line) against it protected it from erosion. Ticks on side of former scarp

Transgressive fault and fault on former land surface

Thrust or detachment fault related to Heart Mountain fault

MAJOR FOLDS—Dashed where approximately located; dotted where concealed

Anticline—Showing plunge

Syncline

AREA OF EXTENSIVE HYDROTHERMAL ALTERATION

BOUNDARY OF NORTH ABSAROKA WILDERNESS—From U.S. Forest Service 1969

GEOLOGIC MAP OF THE NORTH ABSAROKA WILDERNESS AND VICINITY, PARK COUNTY, WYOMING

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