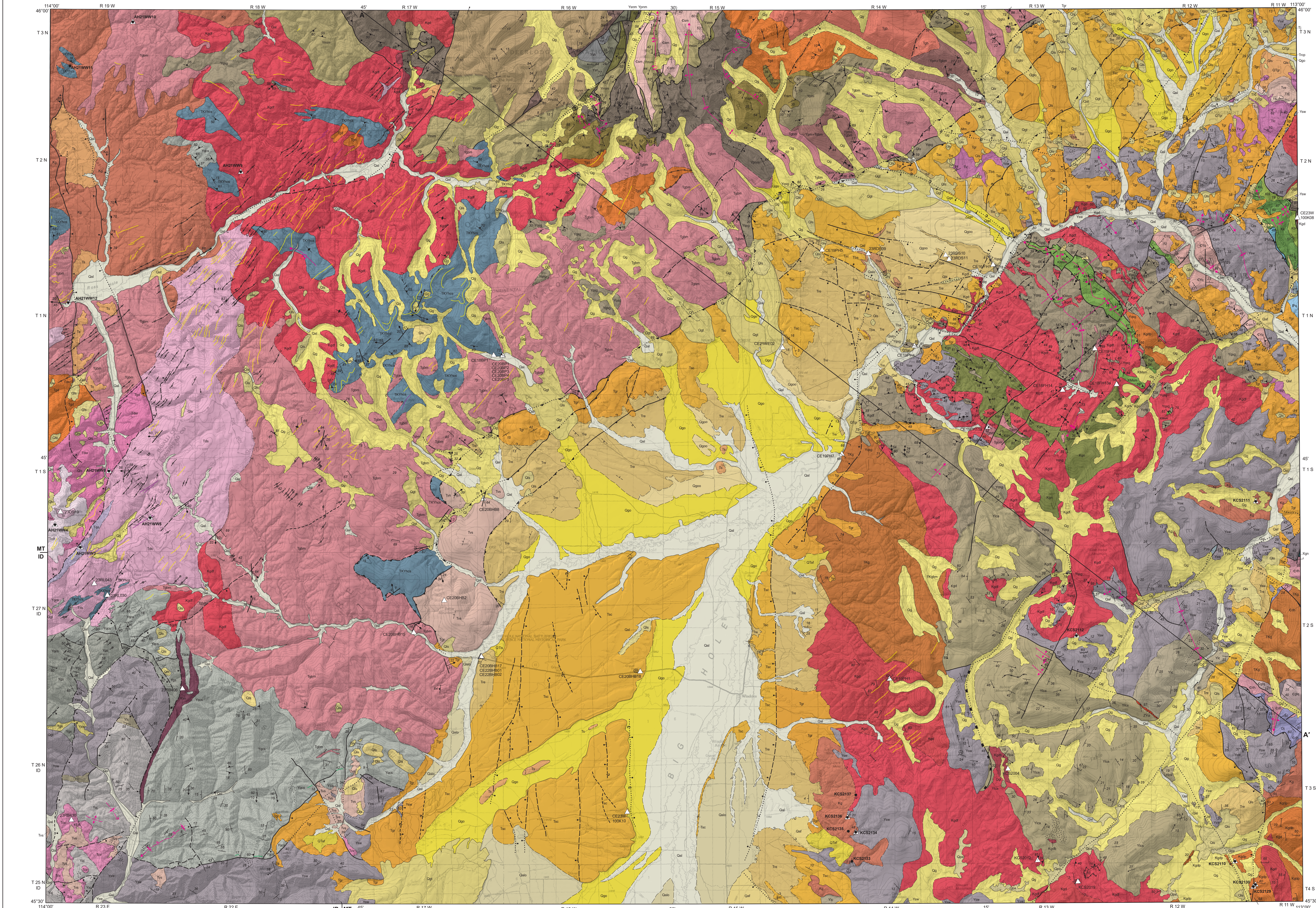
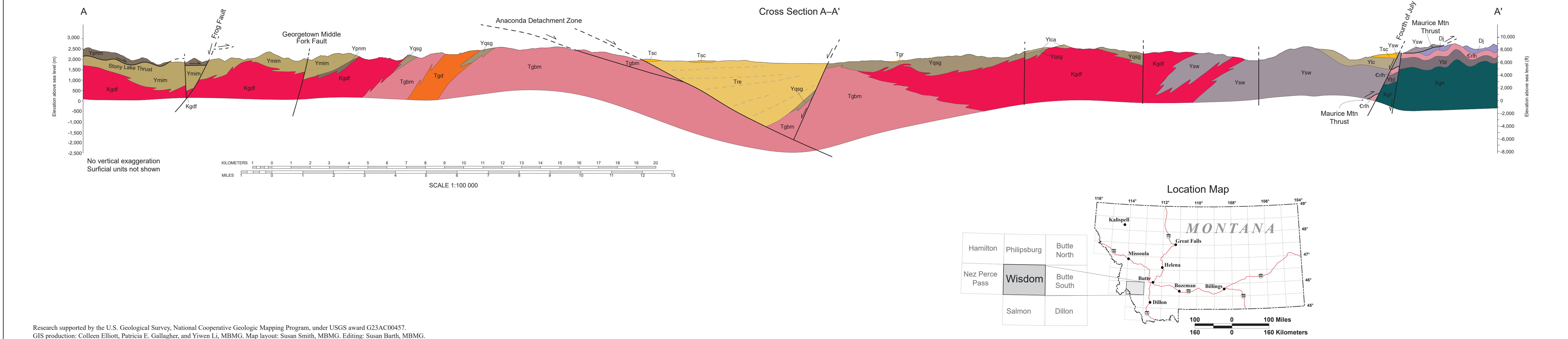




Base from U.S. Geological Survey
Wisdom 30' x 60' topographic quadrangle
Map edited: 1004
Projection: UTM zone 12
Horizontal Datum: 1927 North American Datum
UTM grid declination: 1°47' West
1994 Magnetic North Declination: 16° East
Contour interval: 50 meters
Vertical Datum: National Geodetic Vertical Datum of 1929

Shaded relief created from 10 meter digital elevation model from U.S. Geological Survey National Elevation Dataset.

Maps may be obtained from:
Publications Office
Montana Bureau of Mines and Geology
1300 West Park Street
Butte, Montana 59717-8997
Phone: (406) 456-4187
<https://mbmg.mtech.edu>



Quaternary and Tertiary Sedimentary Deposits

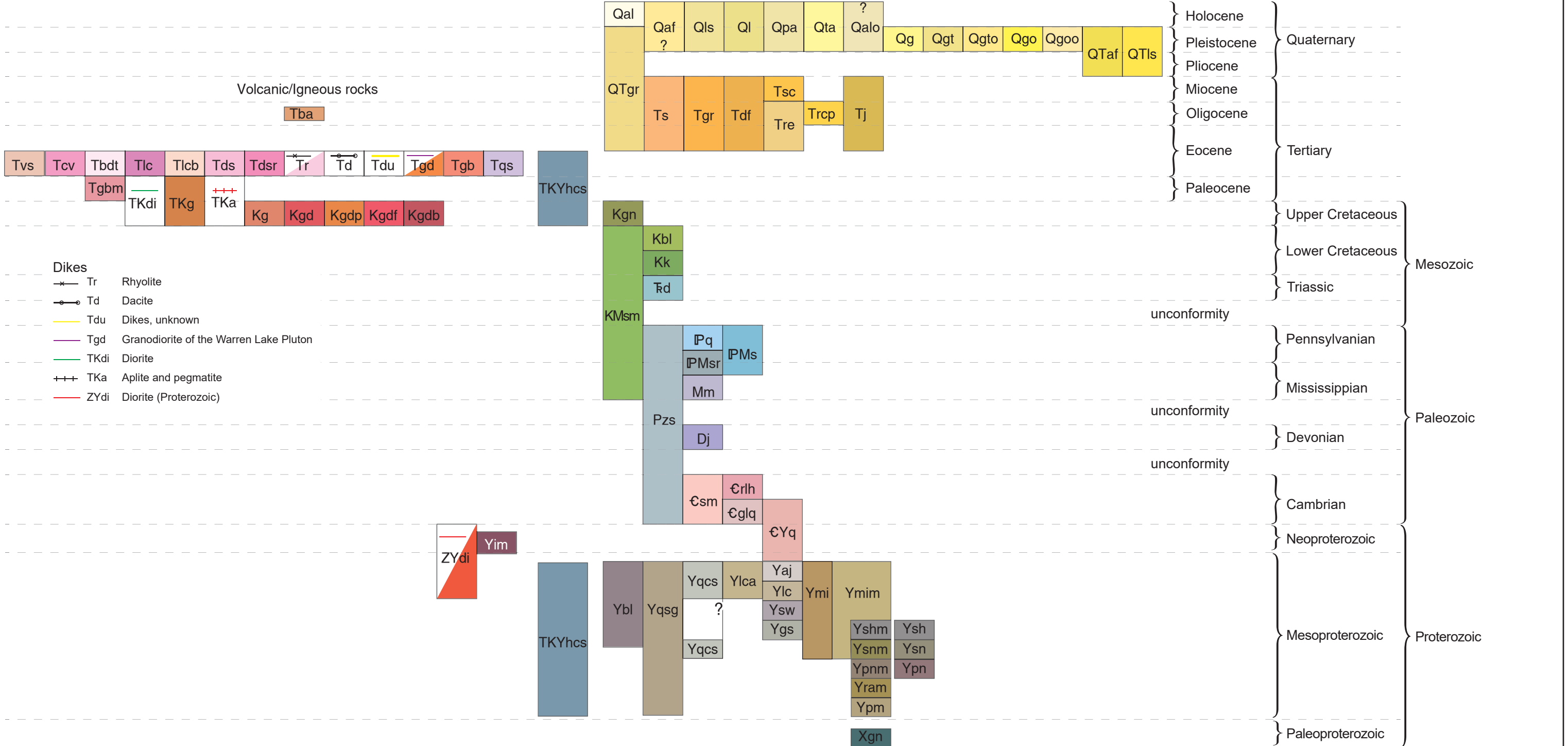
- Qal Alluvium
- Qaf Alluvial fan deposits
- Qls Landslide deposits
- Ql Lake deposits
- Qps Paludal deposits
- Qta Talus
- Qals Alluvium, older than Qal
- Qg Glacial deposits, undivided
- Qgt Glacial till
- Qgts Glacial till older than Qgt
- Qgo Glacial outwash
- Qgoa Glacial outwash, older than Qgo
- QTal Alluvial fan deposits
- QThs Landslide deposits
- QTy Gravel
- Tr Sediments, undivided
- Tgr Gravel
- Tdf Debris-flow deposits
- Tsc Sumite Creek Formation
- Tba Basalt
- Tre Renova Formation, undivided
- Tcp Cabbage Patch Member of the Renova Formation
- Tj Jasperoid breccia
- Tve Volcanic sediments
- Tov Challis Volcanic Group
- Tbdt Biotite dacite tuff
- Tlc Lowland Creek volcanic rocks
- Tlcb Lowland Creek volcanic breccia
- TKhs Hell Roaring Creek-Subcomplex
- Tds Dike swarm
- Tdsr Rhyolite dike swarm
- Tr Rhyolite
- Td Dacite
- Tdu Dikes, unknown
- Tgrf Granodiorite of the Warren Lake Pluton
- Tgs Monzogranite biotite
- Tgsr Quartz syenite
- Tghm Granite, biotite-muscovite
- TKd Diorite
- TKa Granite
- TKa Aglite and pegmatite

- #### Mesozoic and Paleozoic Rocks
- Kg Granite
 - Kgd Granodiorite
 - Kgbl Granodiorite, biotite
 - Kgfl Granodiorite, foliated
 - Kgfls Porphyritic granodiorite
 - Kgr Gneiss of Foothill Ridge
 - Kms Metasedimentary rocks
 - Ks Blackleaf Formation
 - Ks Kootenai Formation
 - Td Diweway Formation
 - Pzs Paleozoic sedimentary rocks, undivided
 - Pz Quadrant Formation
 - PMs Snowcrest Range Group and Quadrant Formation, undifferentiated
 - Mm Madison Group limestone
 - Dj Jefferson Formation
 - Csm Metamorphosed sedimentary rocks, undivided
 - Csm Red Lion and Hazmark Formations, undivided
 - Cgl Quartzite of Grace Lake
 - Cyq Quartzite, undivided

- #### Precambrian Rocks
- Zy Diorite (Proterozoic)
 - Ym Intrusive rocks, mafic
 - Yol Black Lion Formation
 - Yos Quartzite, gneiss, schist, and migmatite
 - Ym Missoula Group and Lemhi subbasin strata
 - Ym Metamorphosed Missoula Group and Lemhi subbasin strata
 - Yal Jahrike Lake member of the Apple Creek Formation
 - Yca Lawson Creek and Apple Creek Formations, undivided
 - Ycl Lawson Creek Formation
 - Ym Swaggar Formation
 - Ygs Sunlight Formation
 - Ygs Quartzite and calc-silicate
 - Ysh Shepard Formation
 - Ysn Snowspit Formation
 - Ym Metamorphosed Snowspit Formation
 - Ypl Plegan Group
 - Ym Metamorphosed Plegan Group
 - Kgd Kgd dike swarm hosted by Ym
 - Ym Metamorphosed Ravalli Group
 - Ym Metamorphosed Prichard Formation
 - Tghm Tghm dikes and sills hosted by Ym
 - Cs Gneiss and amphibolite (Paleoproterozoic)

For a more detailed description of the map units and symbols, please refer to the text accompanying this map.

CORRELATION CHART



MAP SYMBOLS

Contacts and Faults

	Identify or existence questionable	Accurate	Approximate	Inferred	Concealed
Contact					
Gradational contact					
Fault					
Normal fault—ball and bar on downthrown block					
Low-angle normal fault—ball on downthrown block					
Reverse fault—flashes on upthrown block					
Thrust fault—swath on upper (downthrown) block					
Structure Lines					
Archean/Archean					
Overturned anticline—beds on one side are overturned, arrows show dip direction of limbs					
Synclinal/synclinal					
Overturned syncline—beds on one side are overturned, arrows show dip direction of limbs					

- Geochronology sample location
- Geochronology sample location
- Recreated area

Orientation Points

- Minor inclined fault, showing strike and dip
- Inclined joint, showing strike and dip
- Minor antiform, inclined axial surface, showing strike and dip
- Inclined fold hinge of minor fold, showing bearing and plunge
- Horizontal bedding
- Inclined bedding, showing strike and dip
- Vertical bedding, showing strike
- Overturned bedding, showing strike and dip
- Inclined bedding, top direction known from primary structures, showing strike and dip
- Overturned bedding, top direction known from primary structures, showing strike and dip
- Gently inclined bedding (between 0° and 30°) as determined from aerial photographs, showing approximate strike and direction of dip
- Moderately inclined bedding (between 30° and 60°) as determined from aerial photographs, showing approximate strike and direction of dip
- Inclined flow banding in igneous rock, showing strike and dip
- Inclined cleavage, showing strike and dip
- Vertical cleavage, showing strike
- Inclined schistosity or mylonite foliation defined by preferred orientation of grains and/or minerals, showing strike and dip
- Vertical foliation defined by preferred orientation of grains and/or minerals, showing strike
- Inclined metamorphic or tectonic foliation parallel to bedding, showing strike and dip
- Inclined crenulation foliation, showing strike and dip
- Inclined gneissic layering, showing strike and dip
- Inclined mylonite foliation, showing strike and dip
- Sklenite on fault surface, showing bearing and plunge
- Mineral lineation, showing bearing and plunge

Note: second symbol is for multiple observations of one locality

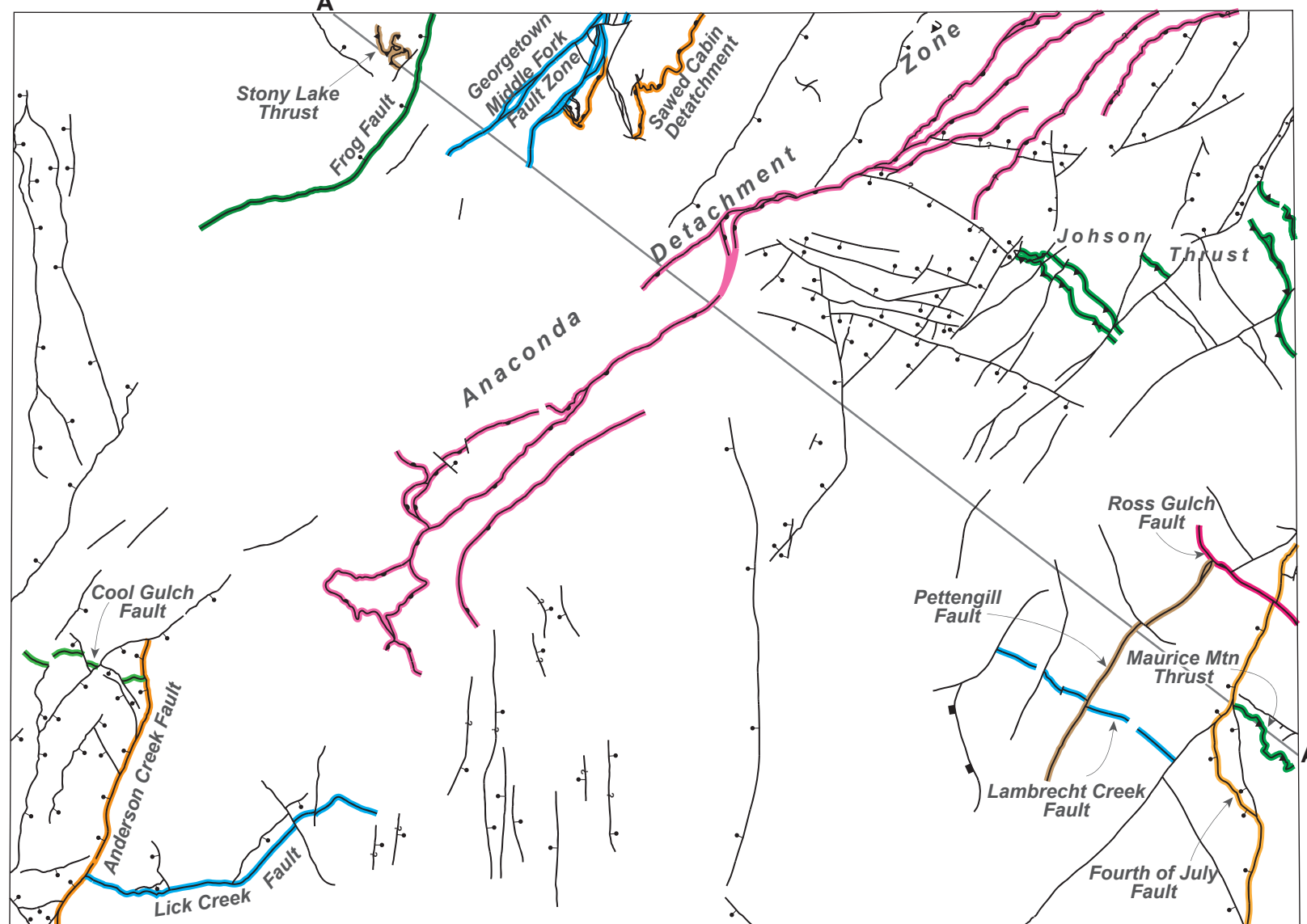


Figure 2. Fault map with cross-section location. Named fault zones are colored to show their extent.

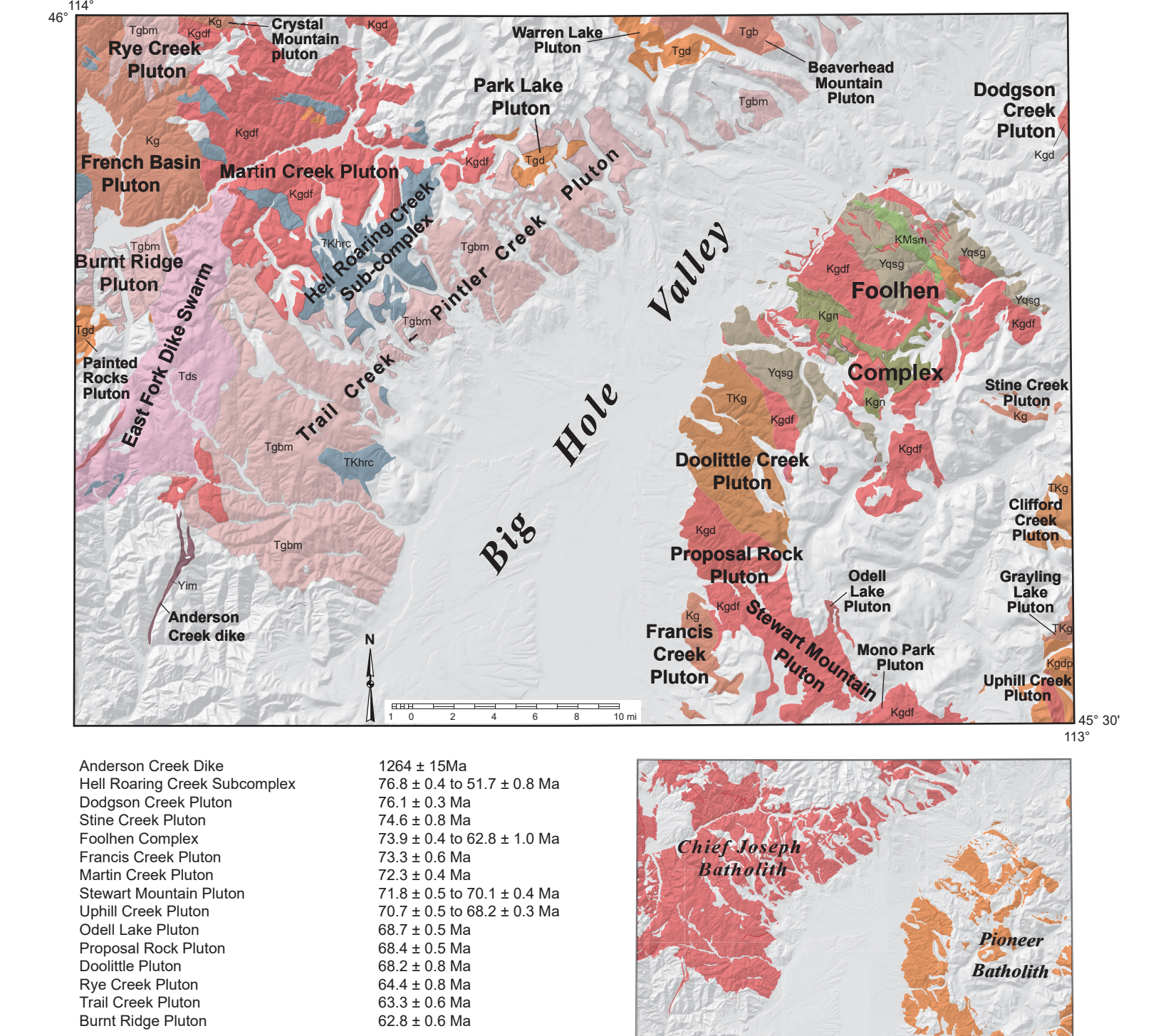


Figure 3. Names, U-Pb zircon ages, and locations of plutons in the Wisdom 30' x 60' quadrangle. See table 1 in the report for sources of age data.



Geologic Map 106

Geologic Map of the Wisdom 30' x 60' Quadrangle, Southwest Montana

Colleen G. Elliott, Jeffrey D. Lonn, and
Raymond Salazar

2025

<https://doi.org/10.59691/DOQV3157>

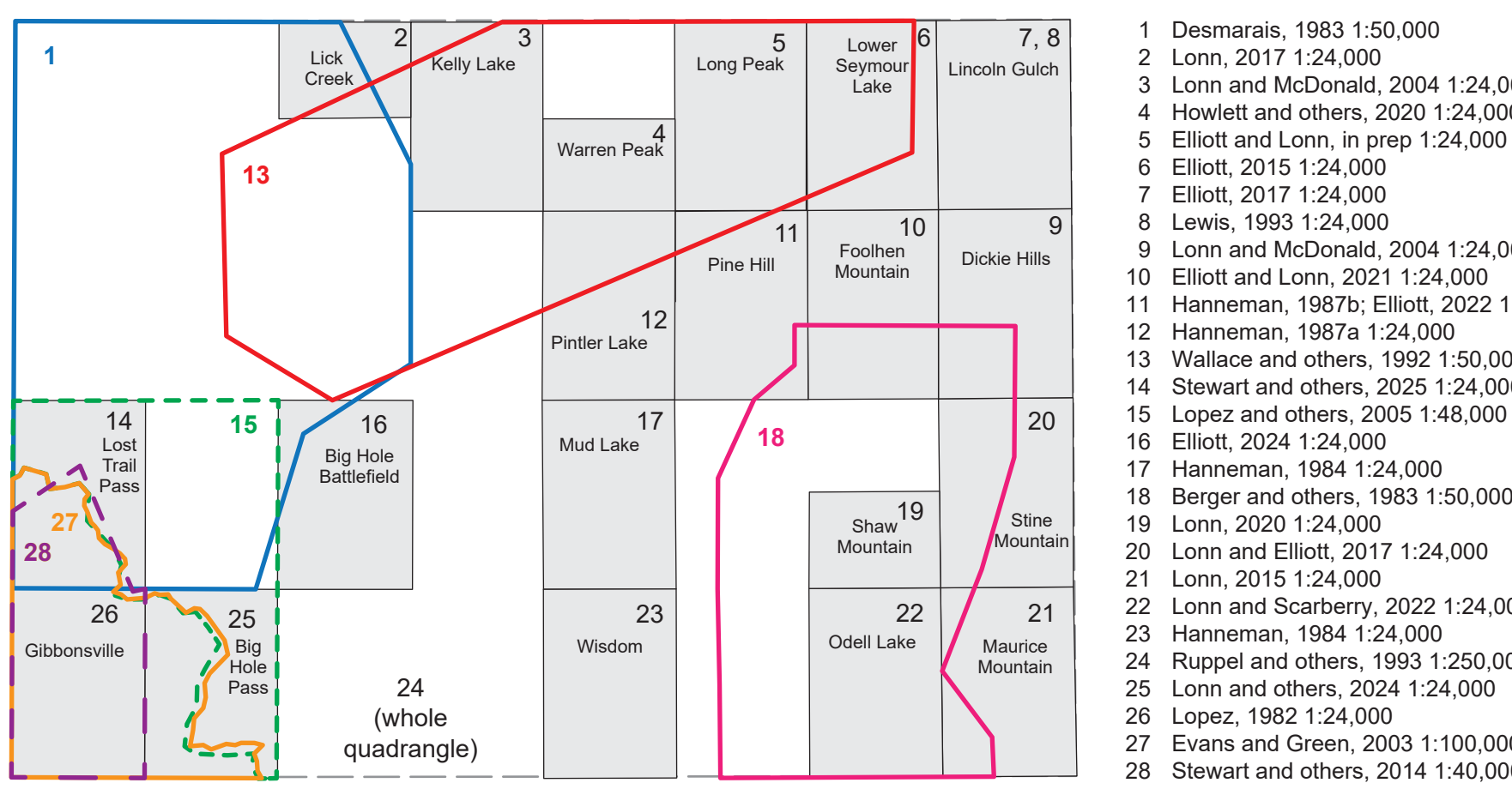


Figure 1. Previous mapping, Wisdom 30 x 60 quadrangle.