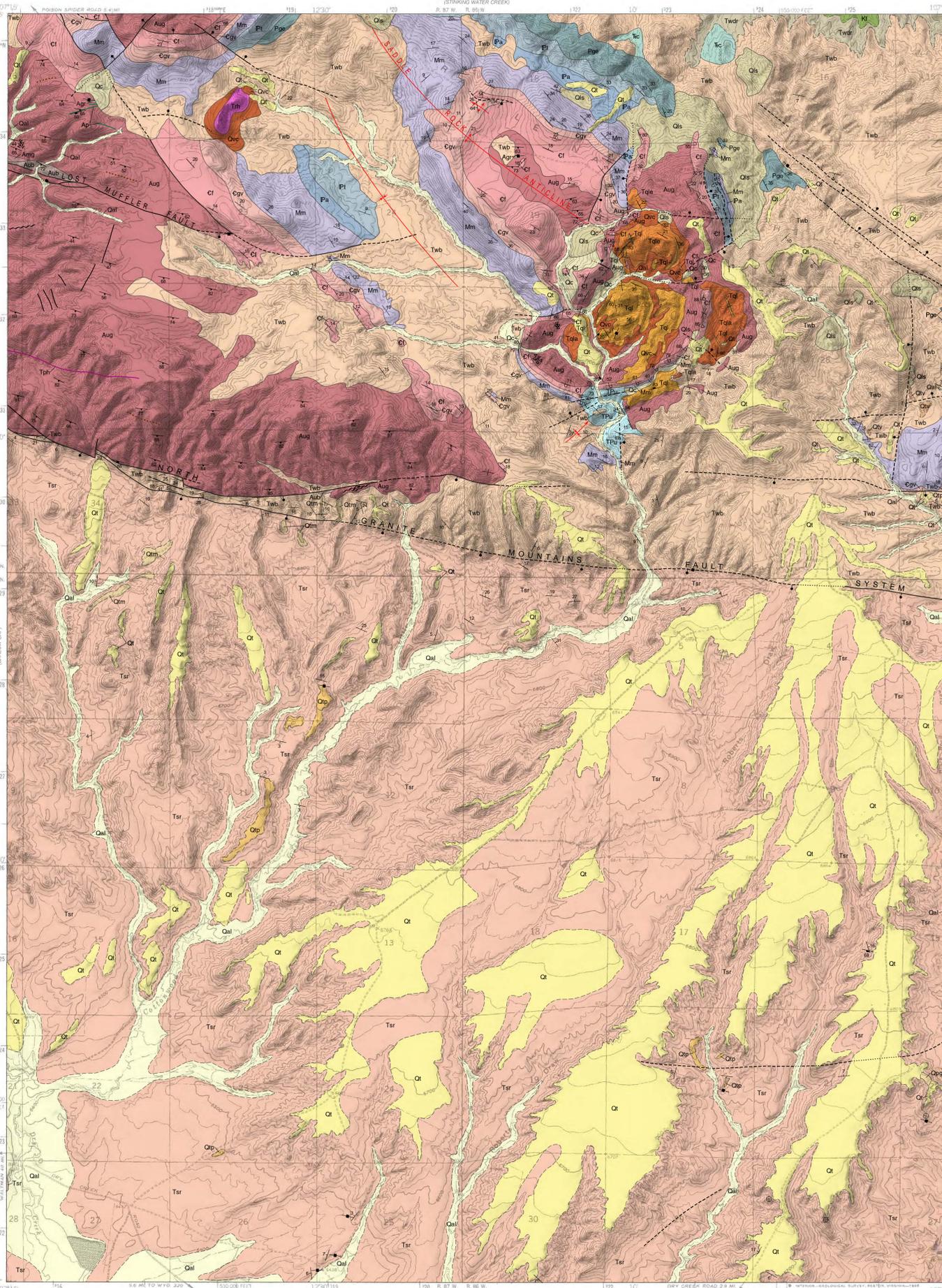




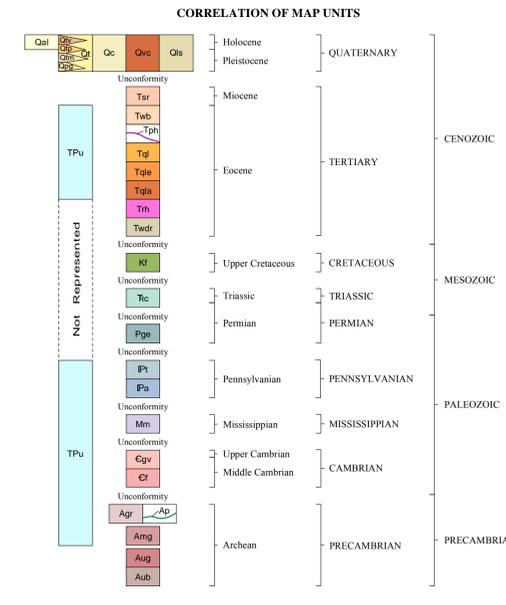
Geology - Interpreting the past - providing for the future



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EXPLANATION



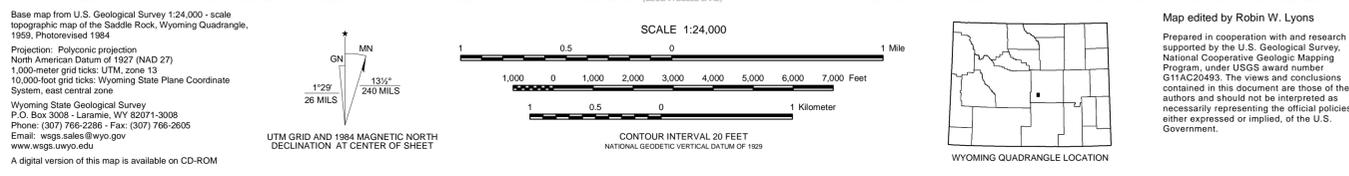
- Paleozoic**
- P1 Tensleep Sandstone (Pennsylvanian)**—About 200 to 300 feet (61 to 91 m) of gray to tan, resistant, massive, fine- to medium-grained crossbedded sandstone with several gray cherty limestones and dolomites in the lower part (Pekarek, 1977; Love and others, 1979); locally silicified
 - P2 Amsden Formation (Pennsylvanian)**—125 to 150 feet (38 to 46 m) of nonresistant, buff to hematite-red siltstone and minor thin gray dolomite, limestone, and shale; a persistent white to buff, 20- to 30-foot (6 to 9 m) thick sandstone marks its base (Keefer, 1966; Pekarek, 1977; Love and others, 1979); this near the northern edge of the quadrangle and appears to be absent locally
 - Mm Madison Limestone (Mississippian)**—About 335 feet (102 m) thick, massive, locally sandy, resistant, medium- to dark-gray limestone containing chert nodules and concretions; cavernous in part (Pekarek, 1977; Love and others, 1979)
 - Cgv Gros Ventre Formation (Upper Cambrian)**—About 280 feet (85 m) of nonresistant reddish-orange to red, crossbedded, very fine grained sandstone, siltstone, and shale (Pekarek, 1977)
 - C Flathhead Sandstone (Middle Cambrian)**—Upper part is resistant, buff to red sandstone, locally cemented with hematite; a middle nonresistant siltstone splits the formation; lower part is a resistant, locally silicified, arkosic pebble conglomerate with interbedded sandstone at the bottom (Pekarek, 1977); total thickness is about 520 feet (159 m)
 - TPu Intensely faulted and broken Tertiary, Paleozoic and (?) Precambrian rocks undifferentiated**—Intensely faulted and broken rocks south of Saddle Rock along Cottonwood Creek include the Tensleep Sandstone, Madison Limestone, Gros Ventre Formation, Flathhead Sandstone, Tertiary quartzite, and possibly some Precambrian metagreywacke; not separable into individual units at 1:24,000 scale
- Precambrian**
- Ag Granite, granodiorite, and light-colored igneous intrusives (Archean)**—A short, 20-foot (6 m) wide gray granite dike cuts metagreywacke of the UT Creek Formation in the north central part of the quadrangle; a second dike occurs in the northwestern corner of the quadrangle
 - Ad Aplitic dike**—Several small west-trending aplitic dikes intrude metagreywacke of the UT Creek Formation in the western part of the quadrangle
 - Amg Intrusive metagabbro**—A small area of metagabbro crops out along the Lost Muffler fault at the western edge of the quadrangle
 - UT Creek Formation (Archean)**—Dominated by fine- to medium-grained metagreywackes and tuffaceous metagreywackes separated by a relatively thick metacalcic member that is locally dominated by foliated to massive, black, fine-grained to aphanitic metabasalts
 - Aug UT Creek Formation metagreywacke**
 - Aub UT Creek Formation metabasalt**

- MAP SYMBOLS**
- Formation contact—Dashed where approximately located
 - Fault—Dashed where inferred, dotted where concealed; displacement unknown
 - Normal fault—Dashed where inferred, dotted where concealed; ball and bar on downthrown block
 - Shear zone
 - Breccia
 - Structural trend
 - Anticline—Dotted where concealed; arrow on end indicates direction of plunge
 - Syncline—Arrow on end or along axis indicates direction of plunge
 - Strike and dip of inclined bedding or layering
 - Strike and dip of bedding
 - Strike and dip of overturned bedding
 - Horizontal bedding
 - Strike and dip of foliation
 - Strike and dip of joint or dike; dip shown where measured
 - Strike of vertical joint

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- DESCRIPTION OF MAP UNITS**
- Qal Alluvium (Quaternary)**—Unconsolidated clay, silt, sand, coarse gravels and cobbles; may include eluvial deposits, slope wash, colluvium, and small alluvial fans
 - Qt Terrace deposits (Quaternary)**—Cobbles, gravel, sand, and silt covered terraces cut across sedimentary units along mountain flanks and drainages. These terraces merge in places with eluvial, alluvial and colluvial deposits. Different terrace levels were not designated, although some areas have multiple terrace levels
 - Qtv Quaternary terrace gravels dominated by Tertiary volcanic rocks
 - Qtp Quaternary terrace gravels dominated by Precambrian rocks
 - Qtm Quaternary terrace gravels dominated by angular metagreywacke of the UT Creek Formation
 - Qsg Quaternary polygenal ground, representative of Pleistocene periglacial environments, on the surface of terrace deposits
 - Qc Colluvium (Quaternary)**—Colluvial deposits at or near the base of steep slopes
 - Qvc Volcanic colluvium (Quaternary)**—Colluvium derived from Tertiary volcanic rocks; may include various volcanoclastics; compositions vary according to their adjacent intrusive or extrusive rock types
 - Qls Landslide debris (Quaternary)**—Locally derived landslide debris and slumps from unstable, generally steep slopes; often involves Paleozoic or Tertiary units near faults or along steep folds
 - Tsr Split Rock Formation (Miocene)**—Soft, weakly cemented, white to cream, tan, and gray, very fine to fine-grained, well-sorted, generally crossbedded, tuffaceous sandstone; some cream to white ash beds; sandstones contain conspicuous well-rounded and frosted grains; chert nodules and siliceous aggregates can be found throughout the formation
 - Twb Wagon Bed Formation (Upper-Middle Eocene)**—Dominated by medium- to coarse-grained, crossbedded sandstone and coarse conglomerate, with angular to subangular clasts up to 2 feet (0.6 m) or more in diameter; poorly consolidated to well-cemented with silica; ash layers, and minor silicified limestone; minor exposures of pale yellowish-green to pink and tan siltstone, mudstone, and ash
- Upper-Middle Eocene volcanic and subvolcanic rocks**
- Tph Phonolite dike**—An east-trending dike of phonolite composition cuts Archean metagreywacke of the UT Creek Formation near the northwestern edge of the quadrangle (Hausel, 1996)
 - Tqf Quartz latite**—Quartz latite is the dominant rock type at Saddle Rock in the northeastern part of the quadrangle; Pekarek (1977) reported a K-Ar age of 44.6 ± 2.6 Ma for quartz latite at Garfield Peak, three miles northwest of the quadrangle
 - Tqla Layered extrusive quartz latite**—Thinly layered quartz latite generally dips away from Saddle Rock on the hill to the north; thicker layers immediately adjacent to the main plug dip inward toward Saddle Rock
 - Tqla Quartz latite agglomerate**—Massive, welded agglomerate just east of Saddle Rock varies in texture from that of an extremely coarse conglomerate with clasts up to 3 feet (0.9 m) in diameter to medium-grained, with clasts on the order of 0.125 inch (0.3 cm). Near-vertical dikes cut the agglomerate at several locations
 - Tm Rhyolite**—A rhyolite plug surrounded by colluvium of the same rock crops out in section 14, T32N, R87W in the northwestern part of the quadrangle (Pekarek, 1974)
- Wind River Formation (Eocene)**—Variegated soft, tuffaceous in part, claystone, siltstone, and sandstone with several widespread white tuff beds, and lenses and beds of arkosic conglomerate (Love, 1970); thickness ranges from 0 to 1000 feet (0 to 305 m), but varies greatly due to its disposition on a surface of high local relief

- Mesozoic**
- Kf Frontier Formation (Upper Cretaceous)**—Black shale and siltstone interbedded with gray and brown, fine- to coarse-grained sandstone; white to yellow bentonite, porcellanite, and thin impure coal beds are found in the lower part (Love and others, 1979); thickness is about 670 feet (204 m) (Pekarek, 1977)
 - Tc Chugwater Formation (Triassic)**—About 800 feet (244 m) of red shale interbedded with siltstone and silty sandstone; may include the Popo Agie Member, made up of red shale and siltstone interbedded with minor green shale, tan to white sandstone, gray limestone pellet conglomerate, and dolomitic claystone; the Alcovia Limestone Member is a resistant, thin-bedded, gray to pinkish-gray, laterally-persistent limestone about 20 feet (6 m) thick (Pekarek, 1977)
- Mesozoic and Paleozoic**
- Pgs Goose Egg Formation (Triassic and Permian)**—Approximately 400 feet (122 m) of orangish-red, gypsiferous shale and siltstone interbedded with gypsum layers and gray to purple, dense platy limestone and dolomite members that contain abundant chert layers; upper part includes Lower Triassic beds equivalent to the Dinwoody Formation (Pekarek, 1977; Love and others, 1979)
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PRELIMINARY GEOLOGIC MAP OF THE SADDLE ROCK QUADRANGLE,
NATRONA COUNTY, WYOMING

compiled and mapped by
Wayne M. Sutherland, Brett N. Worman, and Suzanne C. Luhr
2012

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