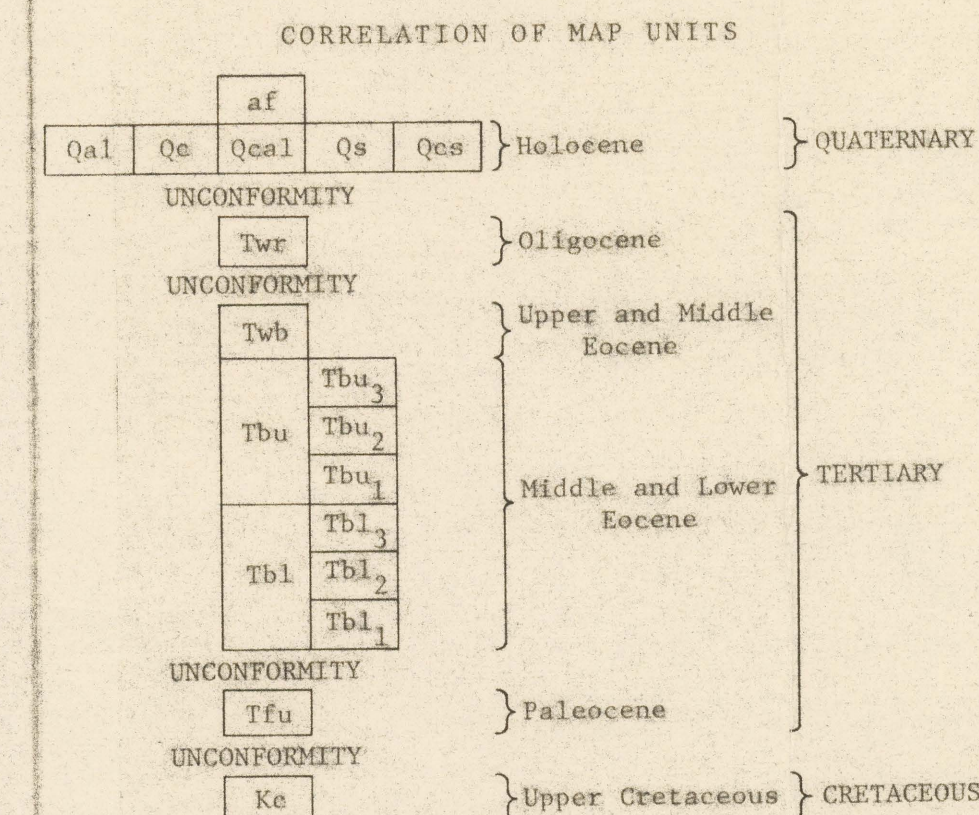


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN-FILE REPORT
77-322
CROOKS PEAK QUAD., WYO.



DESCRIPTION OF MAP UNITS

- af ARTIFICIAL FILL--Rock and soil, generally loosely compacted; dumped adjacent to excavations for mineral exploration or mine development.
- Qal ALLUVIUM (HOLOCENE)--Unconsolidated gravel, sand, silt, and clay deposited in stream channels; locally contains woody vegetative matter. Locally includes some colluvium or windblown sand.
- Qc COLLUVIUM (HOLOCENE)--Unconsolidated boulders, cobbles, pebbles, and sand deposited by gravity and sheet wash downslope from outcrops; grades into alluvium.
- Qes COLLUVIUM AND ALLUVIUM (HOLOCENE)--Undifferentiated colluvial and alluvial deposits.
- Qs WINDELOW SAND (HOLOCENE)--Unconsolidated mostly fine to medium grained eolian sand. Derived primarily from poorly indurated Tertiary sediments. Includes both stabilized and unstabilized dunes.
- Qes COLLUVIUM AND WINDELOW SAND (HOLOCENE)--Undifferentiated colluvial and eolian deposits.
- Twr WHITE RIVER FORMATION (OLIGOCENE)--Pale pinkish-gray tuffaceous siltstone and sandstone. Poorly indurated to well indurated. Only isolated small erosional outliers of the formation remain in a graben in the southern part of the quadrangle. May include material of Miocene or Pliocene age.
- Tbu WAGON BED FORMATION (UPPER AND MIDDLE EOCENE)--Upper part is generally well indurated, brownish-gray to pinkish-gray, silica-cemented, conglomeratic arkosic sandstone and conglomerate. Weathers into broad, hard, pink or reddish-brown stained, fluted strike ledges. Thickness 23 meters. Middle part consists of well to moderately indurated, light and dark brownish-gray claystone, commonly with pellet structure, gray sandy mudstone, olive-gray bentonitic mudstone, and light-gray, flaggy, tuffaceous sandy siltstone. Weathers to very light gray and yellowish-gray puffy surfaced steep slopes. Thickness 17 meters. Lower part consists of claystone and sandy claystone overlying light yellowish-gray arkosic mudstone to grayish-white clayey conglomeratic arkose. Forms conspicuous sequence of ledges or benches. Commonly vuggy and gnarly weathering; contains abundant burrow structures. Thickness 8-9 meters. Parts of the formation were not mapped separately; upper part probably correlates with the upper part of unit 3 and lower part probably correlates with unit 1 of the Wagon Bed Formation of Van Houten (1964) exposed west of the Conant Creek anticline in the Wind River Basin. Entire sequence is similar to that described by Van Houten (1964) along the Beaver Rim between the Conant Creek anticline and Muskrat Basin on the south side of the Wind River Basin. Love (1970) mapped this sequence as part of the Bridger Formation. Exposed in a graben in the southern part of the quadrangle. Total thickness 47-49 meters.
- Tbl BATTLE SPRING FORMATION (MIDDLE AND LOWER EOCENE) Upper part, undivided--Mostly greenish-gray mudstone and brownish carbonaceous mudstone, yellowish-gray conglomeratic arkose, and conglomerate. Interbedded with giant conglomerate. Nearly flat lying, and lies with angular unconformity on the more steeply dipping lower part of formation (Tbu). Stephens (1964) first reported the intraformational unconformity but did not separate upper and lower parts of the formation on his geologic maps. Love (1970) has named most of this upper sequence the Crooks Gap Conglomerate and has tentatively correlated it with the Cathedral Bluffs Tongue of the Wasatch Formation. Approximate thickness 580-625 meters.
- Tbu₃ Upper unit of the upper part--Light-green, greenish-gray, and light yellowish-gray conglomeratic arkose and giant boulder conglomerate containing boulders larger than one meter in diameter; unit caps Green Mountain. Giant boulders are of granite, gneissic granite, quartz-feldspathic rock (silicified granite?), and diabase. The conglomerate beds that form Sheep Creek Park in the northeast corner of the quadrangle are believed to be the same as the conglomerate beds that form Sagebrush Park in the Sagebrush Park quadrangle to the east (Schmitt, 1976). Maximum thickness about 185 meters.
- Tbu₂ Middle unit of the upper part--Mostly yellowish gray, light gray, and grayish white arkose, conglomeratic arkose, and conglomerate; forms steep slopes on the flanks of Green Mountain. Commonly poorly exposed and covered by vegetation or rock debris eroded from overlying unit. Appears to be gradational with underlying unit. Approximate thickness 185 meters.
- Tbu₁ Lower unit of the upper part--Yellowish-gray arkose and conglomeratic arkose interbedded with giant boulder conglomerate which are greater than one meter in diameter; commonly stained orange or reddish brown in lower part. Giant boulders are of granite, gneissic granite, quartz-feldspathic rock (silicified granite?), quartzite of the Cambrian Flathead Sandstone, and diabase. Forms small erosional benches on the southwest side of Green Mountain; caps Sheep Mountain and Crooks Peak. Approximate thickness 215-260 meters.

- Tbl₁ Lower part, undivided--Mostly yellowish gray arkose and conglomeratic arkose with interbedded gray arkosic mudstone. Generally poorly indurated; locally well indurated. Commonly contains iron-oxide concretions and widely scattered calcite-cemented arkose lenses and concretionary masses. Exposed as scattered outcrops in the central and eastern parts of the quadrangle. Correlates, at least in part, with the main body of the Wasatch Formation. Possibly contains, in a few places, zero to a few feet of strata assignable to the Tbu₁ unit. Approximate thickness 305-1,065 meters.
- Tbl₂ Upper unit of the lower part--Gently to moderately dipping, mostly yellowish gray arkose and pebble to boulder conglomerate, gray to greenish-gray arkosic mudstone, and brownish-gray carbonaceous arkosic mudstone. Boulders generally less than one meter in diameter. Generally poorly indurated but locally contains well-indurated outcrops; on the northeast side of Crooks Peak contains hoodoos of conglomeratic arkose. Limestone concretions common; lenses and concretionary masses of calcite-cemented arkose locally present. Anomalous radioactive locally and contains commercial uranium deposits in the upper part of the unit near Sheep Mountain. Well exposed in the northwestern part of the quadrangle. Nearly everywhere the base of the overlying Tbu₁ unit is a giant boulder conglomerate which marks the contact with Tbl₂. However, on the southwest slopes of Green Mountain fine-grained strata as much as several meters thick may be present in a few places between the giant boulder conglomerate and the unconformity, and are included in the Tbl₂ unit. The contact nearly everywhere is covered by wash from the overlying conglomerate of the Tbu₁ unit. Contact with the underlying Tbl₂ unit is not exposed in the quadrangle but elsewhere is gradational. Contact with the Fort Union Formation and Cody Shale on the southeastern nose of the Crooks Gap anticline between Crooks Peak and Sheep Mountain is sharp and unconformable. Minimum thickness 230 meters.
- Tbl₂ Middle unit of the lower part--Mostly conspicuously white or grayish white, locally yellowish gray arkose and pebble to small boulder conglomerate, and lenticular purple to red and gray to greenish-gray arkosic mudstone. Iron-oxide concretions and carbonaceous material sparse to absent. Unit is exposed only in the western and eastern parts of the quadrangle but is well exposed in the Brenton Springs quadrangle to the west and in the Sagebrush Park quadrangle to the east. The unit appears to grade laterally into material indistinguishable from units Tbl₁ and Tbl₂ throughout most of the Crooks Peak quadrangle; however, strata that would confirm this relationship are largely covered by eolian sand and colluvium. Thickness indeterminate.
- Tbl₁ Lower unit of the lower part--Mostly yellowish gray to yellowish brown arkose and conglomeratic arkose, and interbedded gray arkosic mudstone, locally carbonaceous. Limestone concretions common; calcite-cemented lenses and concretionary masses of arkose are a characteristic feature. Resembles upper unit of the lower part of the formation (Tbu₁) but generally contains more fine-grained clastic material and more calcite-cemented arkose. Well exposed only in the western part of the quadrangle. May be an arkosic facies of the Paleocene Fort Union Formation. Thickness unknown but is probably at least 300 meters.
- Tfu FORT UNION FORMATION (PALEOCENE)--Gray to light yellowish-gray silty mudstone interbedded with yellowish-gray sandstone and dark-gray carbonaceous mudstone with coal seams. Lenses of limonitic chert-pebble conglomerate locally. Thin purplish-brown ironstone beds or lenses are a conspicuous feature. Poorly exposed in a small outcrop in the northwestern part of the quadrangle but well exposed to the north. Exposed thickness approximately 20 meters.
- Kc CODY SHALE (UPPER CRETACEOUS)--Gray to olive-gray silty shale interbedded with yellowish-gray sandstone. Poorly exposed only in the northwestern part of the quadrangle but well exposed to the northwest. Unconformably underlies the Battle Spring Formation and Fort Union Formation. Exposed thickness approximately 25 meters.

- CONTACT--All contacts are approximately located; short dashed where inferred; dotted where concealed; queried where uncertain. Solid triangle indicates selected locality where contact was well exposed at time of mapping.
- NORMAL FAULT, SHOWING DIP--Dashed where approximately located; short dashed where inferred; dotted where concealed; queried where probable. U, upthrown side; D, downthrown side.
- ANTICLINE--Shows crestline and direction of plunge; dashed where approximately located; dotted where concealed.
- STRIKE AND DIP OF BEDS
- Inclined
- Horizontal
- APPARENT DIP DIRECTION OF BEDS--Dot marks point of observation.
- PROSPECT PIT--Validation pit or trench for uranium claims.
- ADIT--Approximately horizontal passage to explore for or mine uranium.
- DRY HOLE--Oil test; shows operator and lease names, thickness of the Battle Spring Formation penetrated in the hole, and total depth in meters.
- CORE HOLE--Shows operator and lease names and total depth in meters.
- WATER WELL--Shows operator and lease names and total depth in meters.
- ALTRATION BOUNDARY--Approximate lowest stratigraphic limit of red supergene oxidized alteration (probably hematite); dotted where concealed. Letter r on side of boundary with indicated alteration.

REFERENCES CITED

- Love, J. D., 1970, Cenozoic geology of the Granite Mountains area, central Wyoming: U.S. Geol. Survey Prof. Paper 495-C, 154 p.
- Schmitt, L. J., Jr., 1976, Geologic map of the Sagebrush Park quadrangle, Fremont and Sweetwater Counties, Wyoming: U.S. Geol. Survey Open-File Rept. 76-676.
- Stephens, James G., 1964, Geology and uranium deposits at Crooks Gap, Fremont County, Wyoming, with a section on Gravity and seismic studies in the Crooks Gap area, by D. L. Healey: U.S. Geol. Survey Bull. 1147-P, 82 p.
- Van Houten, Franklin B., 1964, Tertiary geology of the Beaver Rim area, Fremont and Natrona Counties, Wyoming: U.S. Geol. Survey Bull. 1164, 99 p.

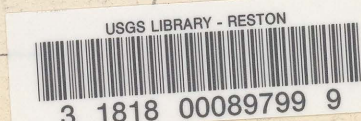
Base from U.S. Geological Survey, 1961.

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.

Geology mapped by L. J. Schmitt, Jr. in 1971 and 1973-74; assisted by Loren T. Bailey in 1973 and Gerald L. Pearson in 1974.

PRELIMINARY GEOLOGIC MAP OF THE CROOKS PEAK QUADRANGLE, FREMONT AND SWEETWATER COUNTIES, WYOMING

By
Leonard J. Schmitt, Jr.
1977



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