

EXPLANATION

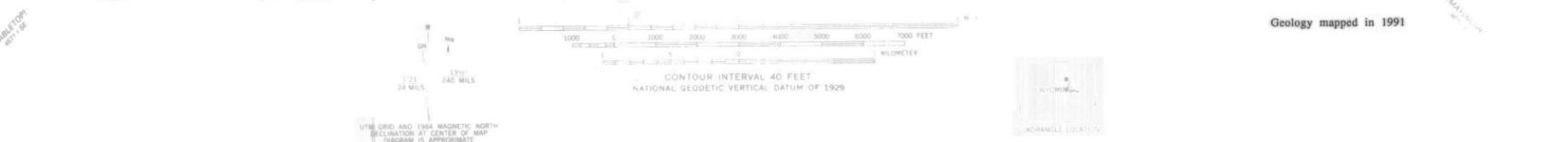
QUATERNARY	Qal	Alluvium Unconsolidated and poorly consolidated clay, silt, sand, and gravel, mainly in floodplains and along stream valleys at or near present stream levels.
	Qac	Mixed alluvium and colluvium Unconsolidated tributary stream alluvium and unconsolidated masses of rock fragments and material on relatively steep slopes (colluvium).
	Qls	Landslide deposits Blocks of bedrock or loose slope debris; arrows point in the inferred direction of movement.
	Qsw	Slope wash deposits Unconsolidated alluvial deposits sloping down and away from dipping bedrock on the western flanks of the Horn uplift. Merges with terrace deposits and some landslide deposits near North Fork of Powder River; may include terrace deposits in some areas.
TERTIARY	Tur?	White River Formation (?) (Oligocene) White, gray, pink, and brown tuffaceous claystone interbedded with lenticular gravel or conglomerate beds. Deposited in pre-Oligocene valleys out into Paleozoic rocks. Thickness less than 100 feet.
	Js	Sundance Formation (Upper and Middle Jurassic) Olive green, glauconitic, silty shale with minor sandstone lenses in upper part. Lower portion primarily yellowish gray, fine-grained sandstone. Locally, the lowermost 0-15 feet contains oolitic limestone. Total thickness is 350 feet.
JURASSIC	Jgs	Gypsum Spring Formation (Middle Jurassic) Reddish brown claystone and siltstone interbedded with 1- to 3-foot thick limestone and limestone breccia beds. Lowermost 2 to 5 feet is usually gypsum. Total thickness is 30 to 75 feet.
	Rc	Chugwater Formation (Triassic) Includes Crow Mountain Sandstone Member, Alcova Limestone Member, and Red Peak Member, from top to bottom. Crow Mountain is reddish orange sandstone; Alcova is purplish gray limestone; and Red Peak is red shale, siltstone, and fine-grained sandstone. Thickness is 700-900 feet.
PERMIAN AND TRIASSIC	Rpe	Goose Egg Formation (Lower Triassic and Permian) Mudstone, siltstone, gypsum, and carbonate rocks. Mudstone and siltstone--reddish brown, laminated to thin-bedded, crumbly on weathered surfaces. Gypsum (mostly in upper half)--white, massive to banded. Carbonate rocks--chiefly dolomite, gray to pale orange, laminated to thin-bedded, algal laminations common. "Nowood Member" occurs locally at base, composed of either dolomite with subordinate sandstone, light gray to pale orange, abundant chert nodules; or conglomerate with angular clasts of chert and carbonates. Total thickness varies from 200 to 250 feet.
	Pt	Tenstep Sandstone (Pennsylvanian) Sandstone and dolomite. Sandstone--mostly fine grained, very light gray to yellowish gray, medium- to large-scale crossbeds, some planar and rippled beds, mostly friable but some hard well-cemented zones, especially in the middle and lower portion. Dolomite--gray, yellowish orange, and pinkish gray, thin bedded to massive, occurs mostly in the lower portion. Thickness ranges from 300 to 350 feet.
PENNSYLVANIAN AND MISSISSIPPIAN	Pma	Amsden Formation (Pennsylvanian and Upper Mississippian) Includes from top to bottom: Ranchester Limestone Member--gray to purplish limestone and dolomite, interbedded with red shale, siltstone, and sandstone; Horseshoe Shale Member--reddish brown to maroon shale and siltstone with thin beds of sandstone and limestone interbedded; and Darwin Sandstone Member--gray to buff, fine- to medium-grained sandstone often stained red to rusty red, crossbedded, and quite variable in thickness. Total thickness ranges from 200 to 250 feet.
	Mm	Madison Limestone (Upper and Lower Mississippian) Alternating units of light tan to gray limestone and dolomite; chert lenses and nodules common. Upper portion bluish gray limestone with paleokarst surface at the top. Lower portion mainly dolomite and dolomitic limestone. Entire formation is fossiliferous. Thickness is 400 to 500 feet.
MISSISSIPPIAN	Obh	Bighorn Dolomite (Upper Ordovician) and Harding Sandstone (Middle Ordovician) undivided Gray massive cliff-forming siliceous dolomite with a 5-foot thick light gray to yellowish brown siliceous sandstone at base. Some zones of the dolomite and the lower sandstone of the Bighorn Dolomite are quite fossiliferous. Highly pitted weathered surface characteristic of the dolomite member. The basal Harding Sandstone is light gray to red, fine- to medium-grained, siliceous sandstone approximately 30 feet thick. Locally, the basal unit contains primitive fish bones and plates. Total thickness from 150 to 200 feet, thinning to the southeast.
	Oegg	Gallatin Limestone (Lower Ordovician and Upper Cambrian) and Gros Ventre Formation (Middle Cambrian) undivided Uppermost unit (Gallatin Limestone) contains resistant grayish red limestone and thin beds of flat pebble conglomerate underlain by olive green to yellowish brown, glauconitic shale and siltstone. The middle unit (upper Gros Ventre Formation) includes light gray limestone, silty and glauconitic, interbedded with soft grayish green shale and bed of flat pebble conglomerate. The basal unit (lower Gros Ventre Formation) consists of yellowish brown to reddish brown, friable, medium- to coarse-grained glauconitic sandstone. The two formations are not distinguishable for mapping purposes in this area. Landslides are quite common to this unit. Total thickness is nearly 550 feet (Hose, 1955).
CAMBRIAN	Cf	Flathead Sandstone (Middle Cambrian) Tan, brown, and reddish gray quartz sandstone; medium- to coarse-grained and crossbedded to planar bedded. Thin interbeds of green, maroon, and tan siltstone, mainly in the upper portion; arkosic conglomerate in lower part. Thickness is 260 feet (Hose, 1955).
	Ugn	Granitic Gneiss (Archean) Layered granitic gneiss that crops out in Horn uplift. Intruded with numerous quartz diorite and amphibolite dikes. For more detailed map of Precambrian see Palmquist (1961).
PRECAMBRIAN		Formation contact Dashed where approximately located
		Fault Dashed where approximately located. Dotted where concealed. Bar and ball on downthrown block. R located on upthrown block indicates reverse fault.
		Anticline Trace of axial plane and direction of plunge defined by field dip measurements and by photo interpretation. Dashed where approximately located. Short arrow denotes steeper dipping limb of asymmetrical anticline.
		Syncline Trace of axial plane defined by field dip measurements and by photo interpretation. Dashed where approximately located. Short arrow denotes steeper dipping limb of asymmetrical syncline.
		Strike and dip of beds, showing angle of dip. Right-hand symbol indicates overturned beds.

References cited

Hose, R.K., 1955, Geology of the Crazy Woman Creek area, Johnson County, Wyoming: U.S. Geological Survey Bulletin 1027-B, 118 p.
Palmquist, J.C., 1961, Petrology and structure of the Horn area, Bighorn Mountains, Wyoming: Unpublished Ph.D. dissertation, State University of Iowa, 188 p.

PRELIMINARY GEOLOGIC MAP OF THE PACKSADDLE CANYON QUADRANGLE,
JOHNSON COUNTY, WYOMING

By
Alan J. Ver Ploeg and Phillip L. Greer
1992



Geology mapped in 1991