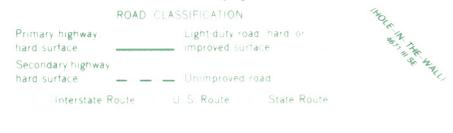


EXPLANATION

- |                               |   |  |
|-------------------------------|---|--|
| QUATERNARY                    | <b>Qal</b> Alluvium                     | Unconsolidated deposits of alluvium along stream valleys at or near present stream levels.   |
|                               | <b>Qac</b> Mixed alluvium and colluvium | Unconsolidated tributary stream alluvium and colluvium.  |
|                               | <b>Qls</b> Landslide deposits           | Blocks of bedrock or loose slope debris.   |
|                               | <b>Qtl-5</b> Terrace levels             | Black, pebbly terraces along Beaver Creek, Red Draw, and Middle Fork of Powder River. Qtl is lowest surface and Qts is highest.  |
|                               | LOWER CRETACEOUS                        | <b>Kmr</b> Mowry Shale   |
| <b>Ke</b> Thermopsis Shale    |   | Black, papery shale with some interbedded bentonite layers. Muddy Sandstone Member at top. Thickness is 180-210 feet.  |
| <b>Kcv</b> Cloverly Formation |   | "Rusty Beds" at top are tan to black shale with interbedded siltstone and sandstone. Lower portion is white to gray sandstone, variegated claystone, and chert pebble conglomerate. Thickness is 100-150 feet.   |
| <b>Jm</b> Morrison Formation  |   | Upper portion composed of variegated claystone, siltstone, and siliceous channel sandstones. Lower portion includes calcareous sandstone, shale, and mudstone. Thickness is 190-210 feet.  |
| <b>Js</b> Sundance Formation  |   | Olive green, glauconitic, silty shale with minor sand lenses in upper part. Lower portion primarily yellowish gray, fine-grained sandstone. Locally, the lowermost 0-15 feet contains oolitic limestone. Included with the Sundance Formation is 0-4 feet of gypsum which probably represents the southerly pinchout of the Gypsum Spring Formation. It occurs immediately above the Crow Mountain Member of the Chugwater Formation in Minecke Draw and in the northeast quarter of the quadrangle. Total thickness for the Sundance is 250-300 feet. |
| TRIASSIC                      | <b>Fc</b> Chugwater Formation           | Includes Crow Mountain Sandstone Member, Alcova Limestone Member, and Red Peak Member, top to bottom. Crow Mountain is reddish orange, fine-grained, massive sandstone; Alcova is purplish gray limestone; and Red Peak is red shale, siltstone, and fine-grained sandstone. Thickness is 800-900 feet.  |
|                               | <b>RPg</b> Goose Egg Formation          | Dark red to reddish orange shale and siltstone with interbedded gypsum, limestone, and dolomite. Thickness is 250-350 feet.  |
| PERMIAN                       | <b>RPe</b> Tensleep Sandstone           | Gray to buff to salmon pink, fine-grained, massive to crossbedded sandstone; gray to pinkish gray thin limestone and dolomite units common toward base. Thickness is 300-400 feet.   |
|                               | <b>RPa</b> Asenden Formation            | Includes from top to bottom: Ranchester Limestone Member - gray to purplish limestone and dolomite, interbedded with shale, siltstone, and sandstone; Horseshoe Shale Member - reddish brown to maroon shale and siltstone with thin beds of sandstone and carbonates; and Darwin Sandstone Member - gray to buff, fine-grained to medium-grained, crossbedded sandstone, extremely variable in thickness ranging from 0-100 feet. Total thickness is 200-600 feet.  |
| MISSISSIPPIAN                 | <b>Mm</b> Madison Limestone             | Alternating units of light tan to gray limestone and dolomite. Upper portion bluish gray limestone with karst surface at the top. Lower portion mainly dolomite and dolomitic limestone. Entire formation is fossiliferous. Thickness is 250-500 feet.   |
- 
- |         |  |
|---------|--|
| ---     | Formation contact  |
| - - - - | Dashed where approximately located.  |
| ---     | Fault  |
| ---     | Dashed where approximately located or concealed. Bar and ball on downthrow block.  |
| ↑       | Anticline  |
| ---     | Trace of axial plane and direction of plunge. Dashed where approximately located or concealed. Short arrow indicates steep limb of asymmetrical anticline. |
| ---     | Syncline   |
| ---     | Trace of axial plane. Dashed where approximately located or concealed. Short arrow indicates steep limb of asymmetrical syncline.                          |
| ---     | Strike and dip of beds   |

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PREPARED IN COOPERATION WITH THE U.S. GEOLOGICAL SURVEY  
 Base by U.S. Geological Survey (1984)



**PRELIMINARY GEOLOGIC MAP OF THE BARNUM QUADRANGLE,  
 JOHNSON COUNTY, WYOMING**

By  
**Alan J. Ver Ploeg, Rodney H. De Bruin and Phillip L. Greer**