**WYOMING STATE GEOLOGICAL SURVEY**
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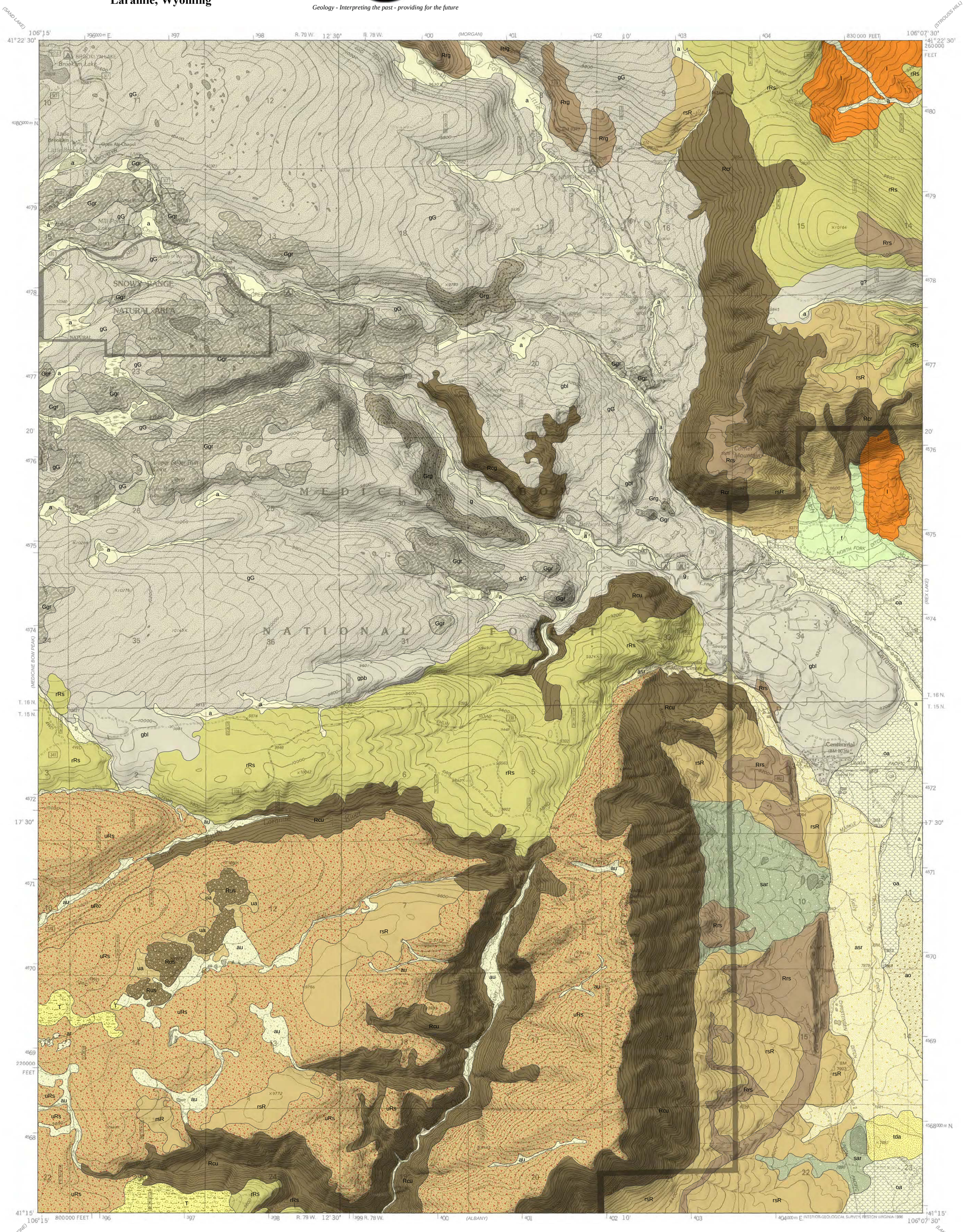
**Laramie, Wyoming**

*Geology - Interpreting the past - providing for the future*

**Prepared in cooperation with the U.S. GEOLOGICAL SURVEY**

# OPEN FILE REPORT 12-4
# Centennial 1:24,000 - scale Surficial Geologic Map




## EXPLANATION

### DESCRIPTION OF MAP UNITS

**Alluvium**—Unconsolidated detrital material deposited during comparatively recent geologic time by a stream or other body of running water, as a sorted or semi-sorted sediment in the bed of a stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope; stream and river deposits. Does not include subaqueous deposits in seas, estuaries, lakes, or ponds

- Alluvium **(a)**
- Alluvium and outwash **(ao)**
- Alluvium and residuum **(ar)**
- Alluvium and slope wash with minor components or residuum **(asr)**
- Alluvium and grus **(au)**

**Terrace deposits**—Relict alluvial deposits on relatively flat, horizontal, or gently inclined surfaces which are bounded by a steeper ascending slope on one side and a steeper descending slope on the opposite side.

- Dissected terrace deposit and alluvium **(tda)**
- Structural terrace **(T)**

**Alluvial fan deposits**—Fan-shaped deposits made by a stream or debris flow where they have run out into a level (or nearly level) plain.

- Alluvial fan deposits **(f)**

**Glacial deposits**—Unconsolidated, unsorted materials that have been formed by glacial action, such as till and moraine.

- Glacial deposits of Pinedale age **(g)**, possible glacial deposits **(g?)**, glacial deposits of Bull Lake age **(gbl)**, glacial deposits of potentially pre-Bull Lake age **(gpb)**
- Glacial deposits and glaciated bedrock **(gG)**
- Glaciated bedrock and glacial deposits with minor components of residuum **(Ggr)**
- Glaciated bedrock and residuum with minor components of glacial deposits **(Grg)**
- Glacial outwash **(oa)**

**Landslide deposits**—Soil and rock material that has moved downslope, usually en masse, under gravitational influence; earth and rock which become loosened from a hillside and slides, flows, or falls down the slope.

- Landslide deposits **(l)**

**Slope wash and colluvium**—Slope wash is soil and rock material that has moved down a slope by gravity assisted by running water. Colluvium is a loose, heterogeneous, and incoherent mass of soil material and/or rock fragments deposited by rainwash, sheetwash, or slow continuous downslope creep, usually at the foot of a cliff or on the surface of a slope, and deposited there chiefly by gravity.

- Slope wash and alluvium with minor components of residuum **(sar)**

**Residuum**—A residual deposit remaining in place after the decomposition of rocks. Residue is an accumulation of rock debris formed by weathering and remaining essentially in place after all but the least soluble constituents have been removed, usually forming a comparatively thin surface layer concealing the unweathered or partially altered rock below.

- Residuum with bedrock and minor components of slope wash **(rRs)**
- Residuum with slope wash and minor components of bedrock outcrops **(rsR)**
- Grus and alluvium **(ua)**
- Grus and bedrock outcrops with minor components of colluvium **(uRc)**, or slope wash **(uRs)**

**Bedrock outcrops**—Areas where the underlying bedrock is exposed and unaltered (usually lithified) at the surface.

- Bedrock outcrops and colluvium with minor components of glacial deposits **(Rcg)**, grus **(Rcu)**, and residuum **(Rcr)**
- Bedrock outcrops and residuum with minor components of glacial deposits **(Rrg)**, and/or slope wash **(Rrs)**
- Bedrock outcrops and grus with minor components of slope wash **(Rus)**

## REFERENCES

Blackstone, D.L., 1969, Structural geology of the Rex Lake quadrangle, Laramie Basin, Wyoming: Wyoming State Geological Survey Preliminary Report 11, 17 p., scale 1:24,000.

De la Montagne, J., 1951, Geomorphology of the north end of Centennial Valley—Table Mountain area, Wyoming: unpublished M.A. thesis, University of Wyoming, Laramie, 121 p., scale ~ 1:18,103.

Hallberg, L.L., and Case, J.C., 2005, Preliminary surficial geologic map of the Saratoga 30' x 60' quadrangle, Carbon and Albany Counties, Wyoming, and Northern Colorado: Wyoming State Geological Survey Open File Report 05-2, scale 1:100,000.

Houston, R.S., and others, 1968 (reprinted 1978), A regional study of rocks of Precambrian Age in that part of the Medicine Bow Mountains lying in southeastern Wyoming—with a chapter on the relationship between Precambrian and Laramide structure: Wyoming State Geological Survey Memoir No.1, 167 p., 5 plates, scale 1:63,360.

Mears, Brainerd, Jr., 2001, Glacial records in the Medicine Bow Mountains and Sierra Madre of southern Wyoming and adjacent Colorado, with a traveler's guide to their sites: Wyoming State Geological Survey Public Information Circular no. 41, 26 p.

Sutherland, W.M., Durnan, J.A., and Johnson, J.F., 2010, Unpublished preliminary geologic map of the Centennial quadrangle, Albany County, Wyoming: Wyoming State Geological Survey, scale 1:24,000.

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Base map from U.S. Geological Survey 1:24,000 - scale topographic map of the Centennial, Wyoming Quadrangle, 1992

Projection: Universal Transverse Mercator (UTM), zone 13
North American Datum of 1927 (NAD 27)
1,000-meter grid ticks: UTM, zone 13
10,000-foot grid ticks: Wyoming State Plane Coordinate System, east central zone

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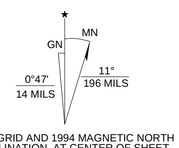



UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

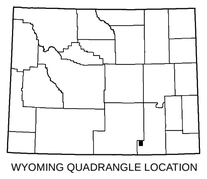
SCALE 1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

CONTOUR INTERVAL 40 FEET
SUPPLEMENTAL CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



WYOMING QUADRANGLE LOCATION

Digital cartography by Robin W. Lyons
Map edited by Suzanne C. Luhr

Prepared in cooperation with and research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under USGS award number G11AC20493. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

# PRELIMINARY SURFICIAL GEOLOGIC MAP OF THE CENTENNIAL QUADRANGLE, ALBANY COUNTY, WYOMING

by

Seth J. Wittke and Brett N. Worman

2012

INTERIOR-GEOLOGICAL SURVEY, RESTON VIRGINIA-1996