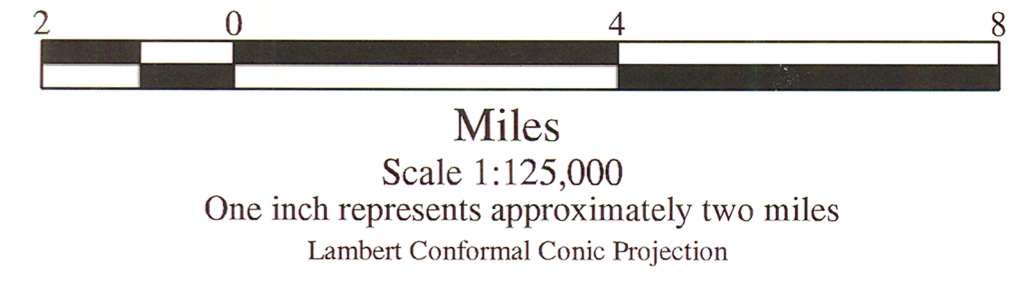
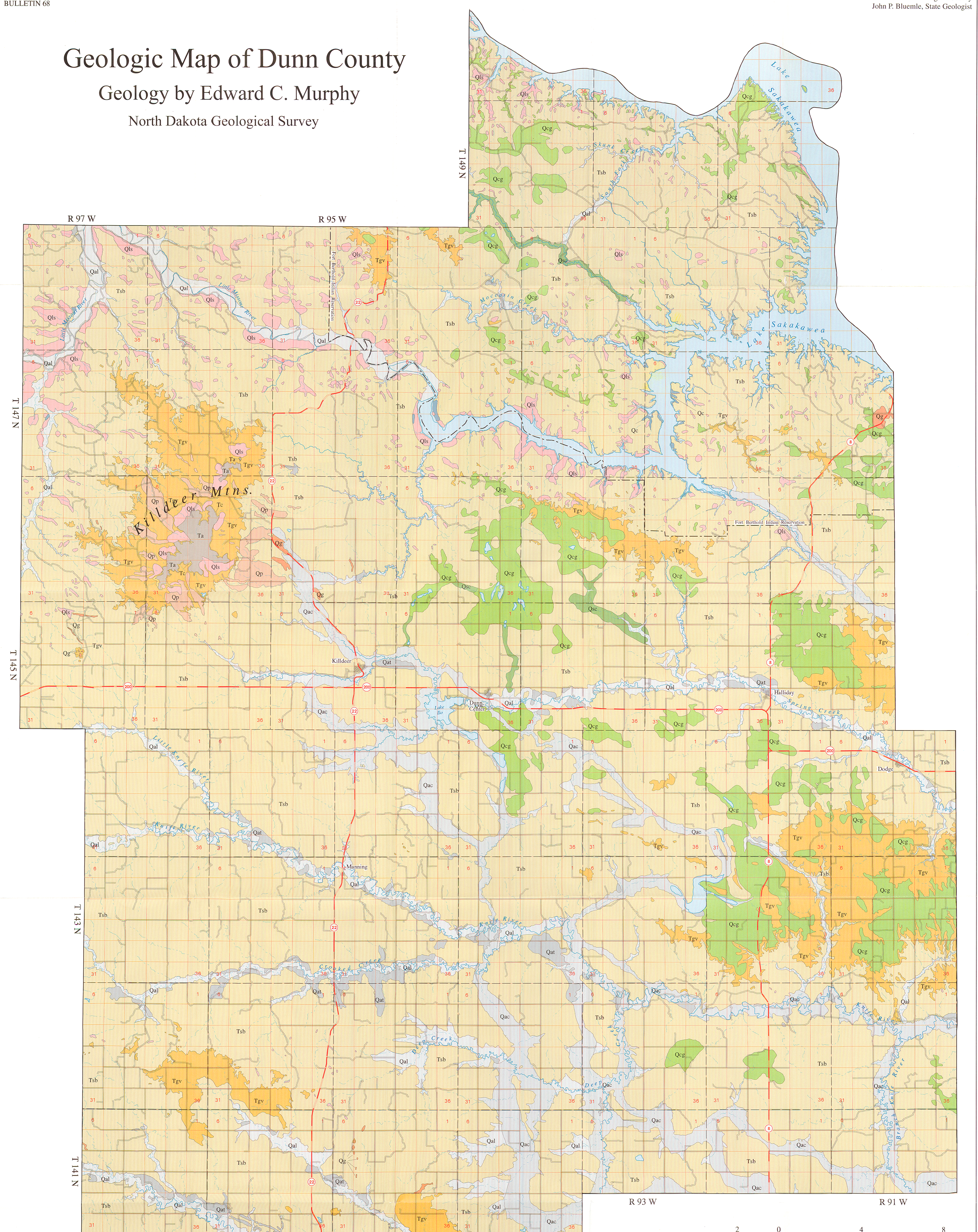


Geologic Map of Dunn County

Geology by Edward C. Murphy

North Dakota Geological Survey



Dunn County, North Dakota

The North Dakota Geological Survey compiled this map according to conventional cartographic standards, using what is thought to be the most reliable information available. The North Dakota Geological Survey does not guarantee freedom from errors or inaccuracies and disclaims any legal responsibility or liability for any interpretations made from the map, or decisions based thereon. Geology, geologic interpretations, and field work were done by Edward C. Murphy of the North Dakota Geological Survey. Transfer of geology, geologic contacts, and geologic symbols from field sheet to a stable base, and digital capture of geologic information by North Dakota Geological Survey Staff; cartographic compilation by Ryan Waldkirch.

QUATERNARY SYSTEM

- RECENT**
- Qal Alluvium**
Brownish gray to black sand, silt, clay, and lenses of gravel; floodplain deposits (typically less than 30 feet thick) along recent drainages. Not differentiated where it overlies Qac.
 - Qc Colluvium**
Poorly sorted mixture of sand, silt, clay, and gravel forming aprons at the base of steep slopes.
- RECENT/PLEISTOCENE**
- Qls Landslide Deposits**
Variable mixture of strata and deposits that have slid to the base of steep slopes.
- PLEISTOCENE**
- Qcg Glacial Deposits**
Grayish brown, sandy, silty, bouldery clay with lenses of sand and gravel (glacial till). May occasionally include thick deposits of glacial outwash.
 - Qac Proglacial channels**
Generally contain 50 to 200 feet of sand and gravel, silt, clay, and till (meltwater-channel fill). Overlain by Recent alluvium (Qal) of variable thickness. This map unit was created to distinguish between these very thick channel fill deposits and the moderate to thin deposits mapped as Qal. Some modern rivers and creeks, such as Branch Knife River and the eastern segments of Deep Creek and Knife River, flow entirely within the course of these proglacial channels. Others, such as the Knife River (in T.143N., R.94W.) and Deep Creek (in T.142N., R.94&93W.), intercept them at right angles, carving more recent channels. Both the Branch Knife River and Deep Creek flow north within proglacial channels that were originally carved by south-flowing water.
 - Qsc Glacial channels**
Generally contain less than 50 feet of channel fill deposits (sand and gravel, silt, and clay) typically much narrower than the proglacial channels. Overlain by Recent alluvium of variable thickness.

- Qat Terrace Deposits**
Five- to 20-foot-thick layers of sand and gravel (consisting primarily of siltstone, chert, flint, agate, petrified wood, siltstone and, along the Green River, quartzite and porphyries) found beneath flat to gently undulating slopes adjacent to many of the major creeks and rivers.
 - Qg Sand and Gravel Deposits**
Layers of sand and gravel found in two primary deposits: as glacial outwash draping over pre-existing topography or sand and gravel derived primarily from Arikaree and Golden Valley strata, capping narrow, sinuous ridges.
 - Qp Pediment Deposits**
Slopes inclined away from the Killdeer Mountains, capped with layers of gravel consisting primarily of carbonate and chert cobbles and gravel.
- TERTIARY SYSTEM**
- MIOCENE-OLIGOCENE**
- Ta ARIKAREE FORMATION**
Buff-colored tuffaceous sandstone, siltstone, and fresh-water carbonate.
- EOCENE**
- Tc CHADRON FORMATION**
Sandy and pebbly mudstone and clayey sandstone.
- EOCENE-PALEOCENE**
- Tgv GOLDEN VALLEY FORMATION**
Canebrake Member: alternating beds of yellowish brown to brown, micaceous sandstone, siltstone, mudstone, claystone, and lignite.
Bear Den Member: brightly colored, kaolinitic claystone, mudstone, siltstone, and sandstone typically overlain by a thin siliceous bed (siltstone) or lignite.
- PALEOCENE**
- Tsb SENTINEL BUTTE FORMATION**
Alternating beds of grayish brown to gray sandstone, siltstone, mudstone, claystone, and lignite.