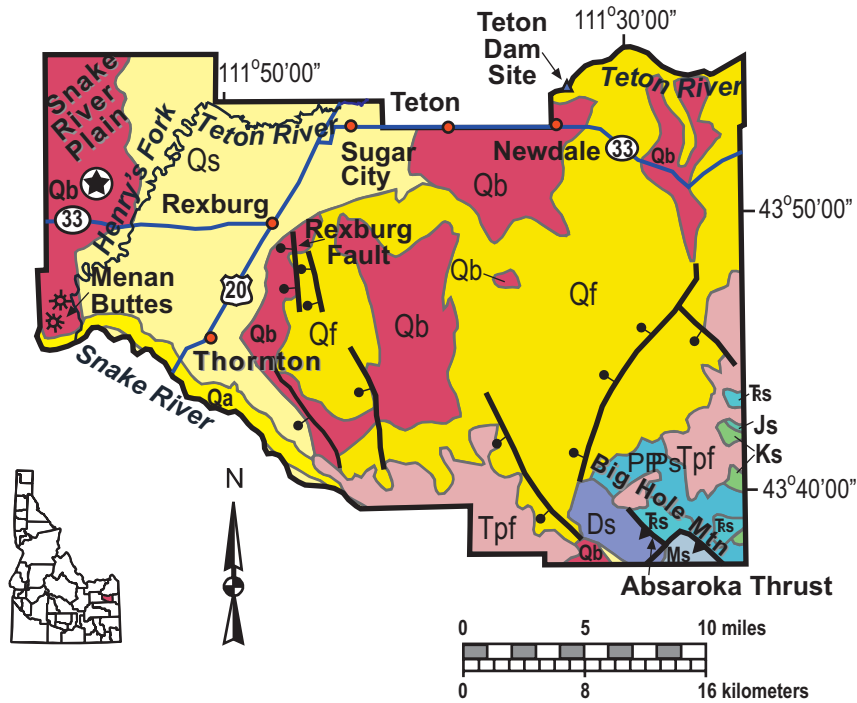


Madison County, Idaho



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<http://imnh.isu.edu/digitalatlas>
 Compiled by Paul K. Link,
 Idaho State University, Geosciences Dept.
<http://www.isu.edu/departments/geology/>

Symbols

- | | | | |
|--|--|--|--|
| | Geologic unit contacts with unit designation. | | Overturned anticline: trace of axial plane. |
| | Normal fault: certain; dashed where approximately located; dotted where concealed. | | Overturned syncline: trace of axial plane. |
| | Thrust fault: certain; dashed where approximately located; dotted where concealed. | | Location of ISU Rockwalk rock from each county. |
| | Detachment fault: certain; dashed where approximately located; dotted where concealed. | | Cities |
| | Anticline: trace of axial plane: large arrow indicates direction of plunge. | | Feature location |
| | Syncline: trace of axial plane: large arrow indicates direction of plunge. | | Roads
Interstate Route
U.S. Route
State route |

Madison County

Madison County contains the northwest end of the Idaho-Wyoming thrust belt in the Big Hole Mountains. On the south is the Snake River half-graben, bounded by the active Rexburg fault. On the north and west are the wide, irrigated Teton bench and Upper Valley of the Snake River Plain.

The Absaroka thrust places Devonian over Mesozoic strata in the Big Hole Mountains, which extend southwestward into the complex mountains of the Idaho-Wyoming thrust belt. The Big Hole range is bounded on the west by a normal fault, the northwest extension of the Grand Valley fault, which controls the location of the Snake River and its half-graben valley west of Heise. North of Heise, in the cliffs below Kelly Canyon ski area are spectacular exposures of rhyolite volcanic rocks of the Heise caldera, erupted between 4 and 6 million years ago.

Quaternary basaltic volcanism has produced the landscape of the western part of Madison county, with still active basaltic lava fields present. Menan Buttes are a phreatomagmatic eruptive tuff cones that formed where basalt magma interacted with Snake River groundwater, producing explosive steam eruptions and the low, wide eruptive cones composed of both basalt tephra and Snake River gravel cobbles and pebbles.

The northeastern part of the county lies on benches above the Teton River. The benches slope upward toward the Yellowstone plateau, and are underlain by Quaternary rhyolite covered by windblown loess. The Teton Dam, which broke with a catastrophic flood in 1976, was located in the Teton River canyon, anchored in Pleistocene rhyolite ignimbrite of the 2 Ma Huckleberry Ridge tuff.

See text on Snake River Plain-Yellowstone Hot Spot in Rocks, Rails and Trails, Topographic Development of Idaho maps, and Embree et al. field trip in Guidebook to the Geology of Eastern Idaho.

P.K. Link, 10/02

Description of Geologic Units for Madison County, Idaho

- Qa** Quaternary alluvial deposits
- Qs** Quaternary surficial cover, including colluvium, fluvial, alluvial fan, lake, and windblown deposits. Included fluveolian cover on Snake River Plain, (Snake River Group).
- Qf** Pleistocene silicic volcanic rocks; rhyolite lava and ash-flow tuff (includes Yellowstone Group).
- Qb** Pleistocene basalt lava, 2 million to 12,000 years old, flows have some vegetation and surface weathering.
- Tpf** Pliocene and Upper Miocene felsic volcanic rocks, rhyolite flows, tuffs, ignimbrites. (in Owyhee County and Mt. Bennett Hills, this should be Tmf).
- Ks** Cretaceous sedimentary rocks.
- Js** Jurassic sedimentary rocks.
- Rs** Triassic sedimentary rocks.
- PPs** Permian and Pennsylvanian sedimentary rocks.
- Ds** Devonian sedimentary rocks.
- Ms** Mississippian sedimentary rocks.