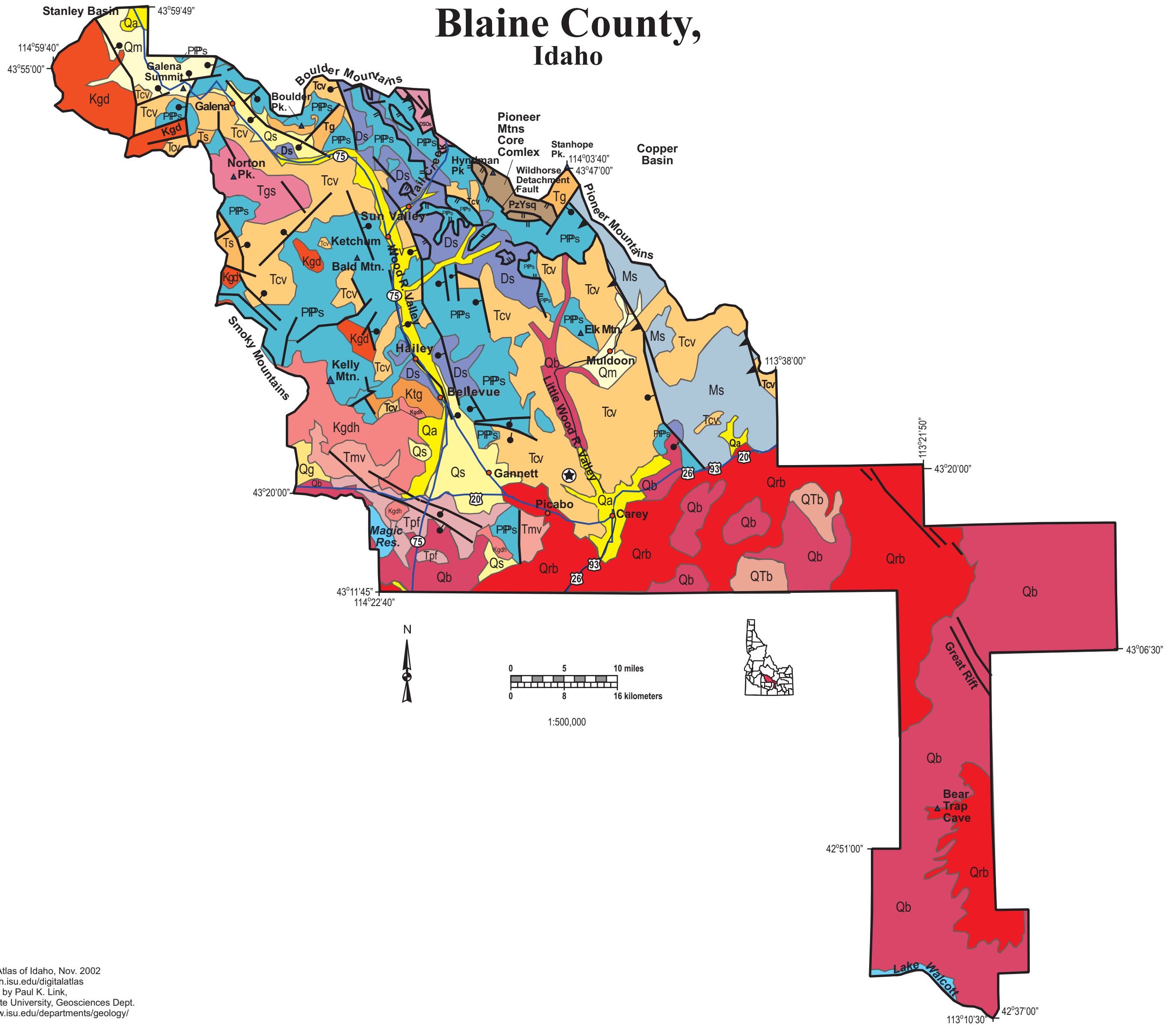


# Blaine County, Idaho



## Blaine County

The geology of Blaine County, like all of central Idaho is varied and complex. In addition of spectacular mountains, the area contains a variety of metallic ore deposits which controlled its past settlement and economy.

The odd shape of Blaine County, with its projection south to Lake Walcott and the Snake River Plain, was engineered in 1890 so that the mainline of the Union Pacific railroad would pass through the county, so as to send tax revenue into the county. Mining interests controlled early Idaho politics.

On the Snake River Plain are Quaternary and recent basalt flows, some of which came from the Great Rift, a northwest trending feature that extends from near American Falls to the Craters of the Moon. In the southwestern part of the county, west of Picabo, are the Magic Reservoir volcanics, a Miocene rhyolitic eruptive center. The Big Wood River flows through this area, in Magic Reservoir.

Blaine County contains the Big and Little Wood Rivers, which drain the Pioneer Mountains on the east side and the Smoky Mountains to the west.

The Pioneer Mountains contain a core of Paleoproterozoic gneiss overlain by younger Proterozoic and Paleozoic metamorphic rocks, uplifted in the Pioneer Mountains core complex along the Wildhorse detachment fault. Uplift occurred in Eocene and Oligocene time, during and after eruption of the Challis volcanics, which occupy much of the southern Boulder Mountains in the Little Wood River drainage. An Eocene intrusion forms the beautiful granitic mountains of the core complex northwest of Copper Basin.

In the upper plate of the detachment fault, and forming the bulk of the Pioneer Mountains, are dark-colored sandstones and conglomerates of the Mississippian Copper Basin Group. These deep-water sediments accumulated rapidly in a fault bounded basin in front of uplifted mountains of the Antler orogenic belt to the west and south. These Antler mountains contained folded lower Paleozoic sedimentary rocks deposited on the continental shelf and basins to the west. One of the most important of these strata is the Devonian Milligen Formation, which is the host for many of the mineral deposits of the Idaho Black Shale Mineral Belt, which extends from Bellevue and Muldoon north to Stanley and the Salmon River. Mines for lead, silver and zinc dotted this region in the late 19<sup>th</sup> and early 20<sup>th</sup> century.

The Pioneer Mountains were also deformed by compressional folding and thrusting in Cretaceous time, as part of the Sevier orogeny. These folded and faults can be observed on the drive up the Trail Creek road from Sun Valley east toward Summit Creek and Mackay. The huge Atlanta lobe of the Idaho batholith was intruded west of the Pioneers in late Cretaceous time.

Then, in the Eocene, extensional tectonic activity replaced compression, and the Challis Volcanics were deposited, followed by uplift of the core complex, and several phases of Eocene to Recent extensional faulting and basin formation. Extensional and strike-slip low-angle normal faults, shown on the map with double ticks, formed in the upper plate of the core complex.

The Smoky Mountains, west of the Big Wood River, contain upper Paleozoic sedimentary rocks of the Sun Valley Group (Wood River, Dollarhide, and Grand Prize Formations), intruded by the Cretaceous Idaho batholith, and Eocene Challis granites. Challis volcanic dacite lava flows make up much of the Smoky Mountains west of Hailey and northwest of Ketchum.

The Bald Mountain ski hill, of the Sun Valley Company, is underlain by Pennsylvanian and Permian Wood River Formation, of the Sun Valley Group. Dollar Mountain is underlain by Challis dacite lava.

North of Sun Valley and Ketchum are the spectacular Boulder Mountains, uplifted on a west-dipping normal fault which forms the mountain front scarp from Galena south to the Sawtooth National Recreation Area headquarters. The view from the mouth of Baker Creek, near Russian John Guard Station shows a cross section of the Boulder Mountains, with an Eocene pink granite at the base, intruding previous Eocene granodiorite and Paleozoic sedimentary rocks of the Devonian Milligen and Pennsylvanian Wood River Formation, and finally overlain by thin cap of Challis Volcanic dacite lava.















These Challis Volcanic Group lavas are well exposed on the drive over Galena Summit to the Stanley Basin.

The northwest trend of the Wood River Valley is controlled by a west-dipping normal fault, which has Quaternary activity.

See sections of Rocks, Rails and Trails discussing the central Idaho black shale mineral belt, the Wood River Valley area, Idaho batholith and Pioneer Mountains core complex.

## Unit Descriptions for Blaine County, Idaho

<b>Qa</b>	Quaternary alluvial deposits
<b>Qm</b>	Quaternary moraine (unsorted boulders, cobbles and sand) and glaciofluvial outwash (bedded stream deposits formed from streams draining active glacial ice).
<b>Qg</b>	Quaternary gravels; forming terraces above modern stream levels, mainly mapped on western Snake River Plain. Unit generally represents detrital glacio-fluvial systems.
<b>Qs</b>	Quaternary surficial cover, including colluvium, fluvial, alluvial fan, lake, and windblown deposits. Included fluveolian cover on Snake River Plain, (Snake River Group).
<b>Qw</b>	Quaternary windblown deposits; sand dunes and loess.
<b>Qrb</b>	Recent basalt lava, less than 12,000 years old, lava flows are fresh, poorly vegetated, and show original flow geometry.
<b>Qb</b>	Pleistocene basalt lava, 2 million to 12,000 years old, flows have some vegetation and surface weathering.
<b>Tpf</b>	Pliocene and Upper Miocene felsic volcanic rocks, rhyolite flows, tuffs, ignimbrites. (in Owyhee County and Mt. Bennett Hills, this should be Tmf).
<b>Tmv</b>	Miocene felsic volcanics.
<b>Tcv</b>	Eocene Challis Volcanic Group, volcanics and volcanoclastics; Older andesitic lavas, intermediate age dacite lava and tuff and younger rhyolite flows and tuffs; 51 to 44 Ma. (Includes Potato Hill and Kamiah volcanics of northern Idaho).
<b>Tgs</b>	Eocene granite, pink granite, syenite, rhyolite dikes, and rhyolitic shallow intrusive; last phase of the Challis magmatic event (46 to 44 Ma). Forms craggy scenic mountain landscape in central and northern Idaho.
<b>Kgd</b>	Cretaceous granitic rocks of the 2 mica suite. Idaho batholith and related plutons; granite and granodiorite that contains both muscovite and biotite. Sodium (Na) rich. Intruded between 80 and 65 Ma.
<b>Kgdh</b>	Cretaceous granitic rocks of the hornblene-biotite suite; granite, granodiorite and megacrystic granodiorite. Potassium (K) rich. Age about 80 to 90 Ma.
<b>Ktg</b>	Cretaceous tonalite and quartz diorite; hornblende and biotite bearing early phases of the Idaho batholith. Intruded about 90 to 95 Ma.
<b>PPs</b>	Permian and Pennsylvanian sedimentary rocks.
<b>Ms</b>	Mississippian sedimentary rocks.
<b>Ds</b>	Devonian sedimentary rocks.
<b>DSOs</b>	Devonian, Silurian, and Ordovician sedimentary rocks.
<b>PzYsq</b>	Paleozoic/Mesoproterozoic schist and quartzite; age uncertain.

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