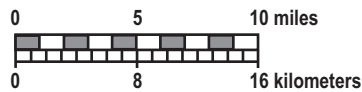
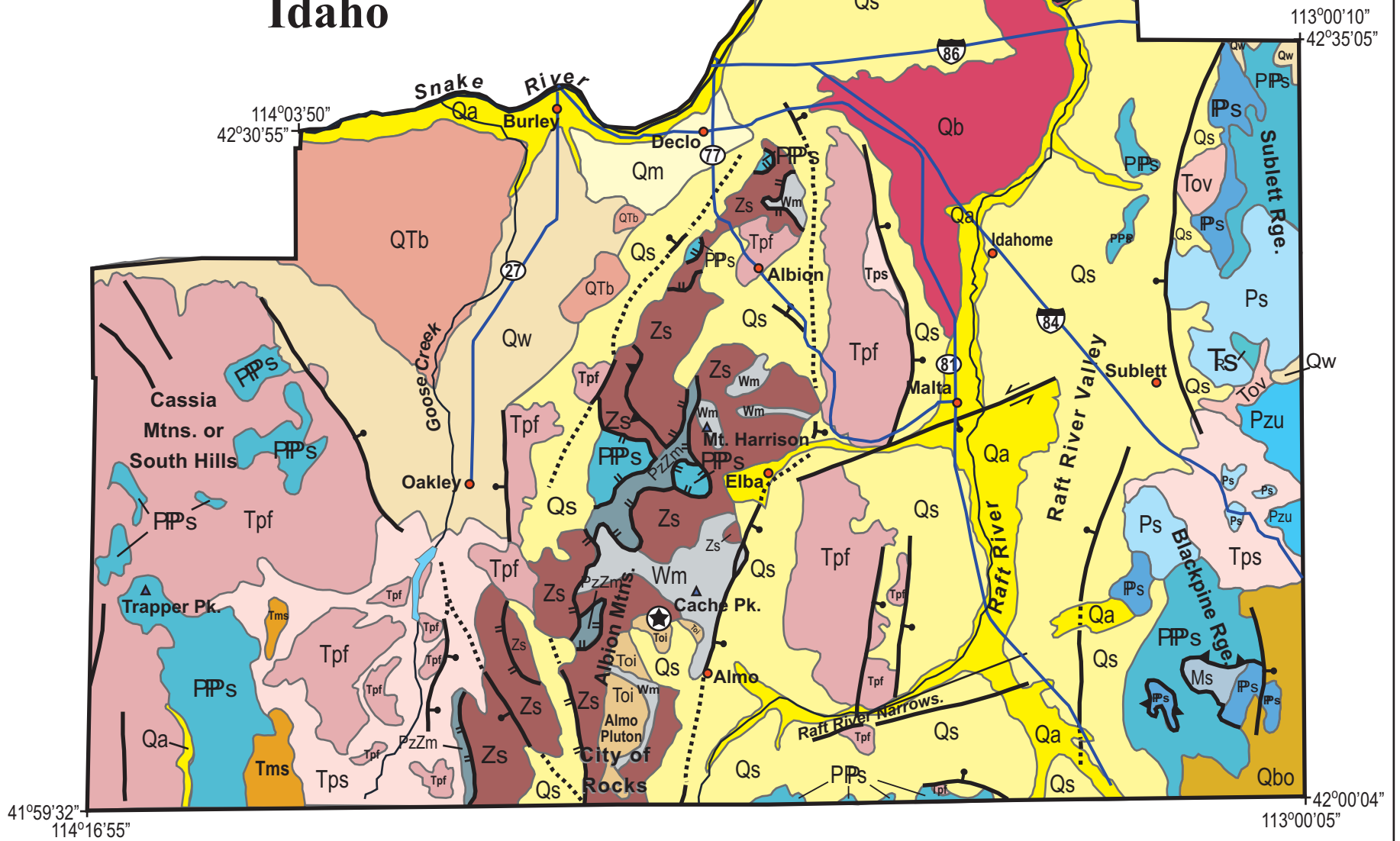


# Cassia County, Idaho



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

## Cassia County

Cassia County, on the south side of the Snake River forms much of Idaho's southern boundary with Utah and Nevada on the west. It contains a diverse assemblage of rocks, including the oldest rocks in Idaho, the metamorphic Green Creek gneiss in the Albion Mountains core complex.

Most of the people in Cassia County live in irrigated agricultural areas near Burley, Declo and Oakley. This area, on the southern edge of the Snake River Plain, is underlain by Quaternary basalt, including shield volcanoes visible today, overlain by windblown loess and alluvium. Thick cobble gravel derived from the Albion Range in Pleistocene time underlies the Oakley valley.

The Albion Mountains, south of Albion, and west of Elba and Almo, are one of a series of turtleback-shaped uplifts of metamorphosed middle crust that are found along the axis of the Mesozoic Cordilleran orogenic belt, generally at the location of maximum crustal thickening during compressional tectonics. They contain Archean gneiss overlain by Proterozoic Elba quartzite and Paleozoic Clarks Basin and Harrison Summit schist and quartzite, below a low-angle detachment fault. Above the fault are less metamorphosed, folded Paleozoic rocks. The Raft River Mountains, just to the south across the Utah border are a similar feature.

The Oligocene Almo Pluton, which underlies the City of Rocks, was intruded 25 million years ago into this domal uplift. The City of Rocks contains distinctive granite monoliths that were a landmark to the California Trail and are now a rock climber's playground.

The Raft River detachment fault, an east dipping structure, exhumed the Albion core complex and downdropped the Raft River Valley and the volcanic rocks of the Jim Sage and Cottrell Mountains between Elba and Malta. The U.S. Department of Energy drilled a several-thousand-foot geothermal well south of Malta in the 1980s, but the project did not demonstrate economic potential for electrical generation.

Southeast of the Raft River Valley are the Black Pine Mountains, underlain by folded and thrust-faulted Paleozoic rocks in the hanging wall of the Raft River detachment. These rocks formerly were on top of the City of Rocks area, and have been downfaulted to the east to their present location. They contain gold mineralization that was mined in the 1990s and at several previous times in the 20<sup>th</sup> century.

The Sublett Range, east of the Raft River Valley, contains thick upper Paleozoic limestones.

To the west of the Albion Range is Middle Mountain, which contains schistose quartzite that is mined for "Oakley Stone" a decorative flagstone shipped across the world. West of there, across Goose Creek, is the extensive Miocene Trapper Creek basin filled with tuffs and rhyolite ignimbrites from the Twin Falls volcanic center. The Cassia Mountains or South Hills, on the western edge of the county, contain spectacular cliffs in deep canyons, all cut from these rhyolite ignimbrites and fallout tuffs.

See several sections of text in Rocks Rails and Trails.















P.K. Link, 10/02

### Descripton of Geologic Units for Cassia County, Idaho

- Qa** Quaternary alluvial deposits
- Qm** Quaternary moraine (unsorted boulders, cobbles and sand) and glaciofluvial outwash (bedded stream deposits formed from streams draining active glacial ice).
- Qs** Quaternary surficial cover, including colluvium, fluvial, alluvial fan, lake, and windblown deposits. Included fluveolian cover on Snake River Plain, (Snake River Group).
- Qw** Quaternary windblown deposits; sand dunes and loess.
- Qbo** Lake Bonneville deposits, fine-grained lake beds.
- Qb** Pleistocene basalt lava, 2 million to 12,000 years old, flows have some vegetation and surface weathering.

- QTb** Pleistocene and Pliocene basalt lava and associated basaltic tuff (deposited close to basaltic vent).
- Tps** Pliocene and Upper Miocene stream and lake deposits (Salt Lake Formation, Starlight Formation, Idaho Group).
- Tpf** Pliocene and Upper Miocene felsic volcanic rocks, rhyolite flows, tuffs, ignimbrites. (in Owyhee County and Mt. Bennett Hills, this should be Tmf).
- Tms** Pliocene and Upper Miocene sedimentary rocks and interlayered basalts (parts of Starlight Formation, Salt Lake Formation).
- Tov** Oligocene volcanics; Potlatch volcanics, basalt and trachytic pyroclastic rocks [alkali-rich basalts] and Salmon Falls Creek volcanics [andesites].
- Toi** Oligocene City of Rocks granite (About 25 Ma).
- Rs** Triassic sedimentary rocks.
- Pzu** Upper Paleozoic sedimentary rocks.
- Ps** Permian sedimentary rocks.
- PPs** Permian and Pennsylvanian sedimentary rocks.
- Ps** Pennsylvanian sedimentary rocks.
- Ms** Mississippian sedimentary rocks.
- PzZm** Paleozoic/Neoproterozoic metasedimentary rocks, mainly quartzose sandstone (includes formation of Leaton Gulch).
- Zs** Neoproterozoic sedimentary rocks undivided.
- Wm** Archean gneiss and schist, Albion Range, and Priest River complex west of Sandpoint.

### Symbols

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