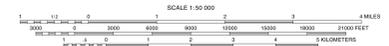


Map showing mine and karst feature symbols: ● collapse structure; ● breccia pipe; ▲ sinkhole; × uranium mine; ▲ prospect; major folds, 7.5' quadrangle boundaries, and proposed segregated lands (thick red line) of the House Rock Valley area.

Based from U.S. Geological Survey 1:50,000-scale Coyote Buttes, House Rock Spring, House Rock, and Cane quadrangles, 1985, and revised to include House Rock, Cane, and Cane Spring quadrangles, 1985. Original topographic maps prepared by the U.S. Army Corps of Engineers, 1927 North American Datum.



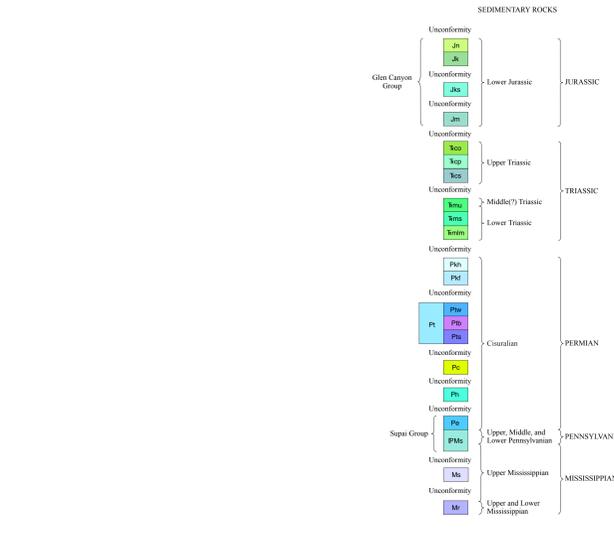
Geology mapped by George H. Billingsley, 2009-2010. 022 features and map compilation by Susan S. Priest. Edited by Carolyn Davis. Manuscript prepared for publication December 31, 2010.

LIST OF MAP UNITS

- [Some unit exposures on the printed map are too small to distinguish the color for unit identification. These units are labeled where possible, and unlabeled units are attributed in the database.]
- SURFICIAL DEPOSITS**
- Qaf Artificial fill and quarries (Holocene)
 - Qa1 Stream-channel deposits (Holocene)
 - Qf Flood-plain deposits (Holocene)
 - Qas Young colluvial sand sheet deposits (Holocene)
 - Qal Young sand sheet and dune deposits (Holocene)
 - Qap Young parabolic dune deposits (Holocene)
 - Qat Young terrace-gravel deposits (Holocene)
 - Qa1 Young alluvial fan deposits (Holocene)
 - Qa2 Intermediate terrace-gravel deposits (Holocene)
 - Qas Ponded sediments (Holocene)
 - Qas Young mixed alluvium and colluvial deposits (Holocene)
 - Qa2 Intermediate alluvial fan deposits (Holocene and Pleistocene?)
 - Qv Valley alluvial deposits (Holocene and Pleistocene?)
 - Qr Talus and rock-fall deposits (Holocene and Pleistocene?)
 - Qa3 Old terrace-gravel deposits (Holocene and Pleistocene)
 - Qa3 Old alluvial fan deposits (Holocene and Pleistocene)
 - Ql Landslide deposits (Holocene and Pleistocene)
 - Qa4 Older alluvial fan deposits (Pleistocene)
 - Qa4 Older terrace-gravel deposits (Pleistocene)

SEDIMENTARY ROCKS

- Jn Glen Canyon Group (Lower Jurassic)
- Na Navajo Sandstone
- Ka Kayenta Formation, undivided
- Sm Springdale Sandstone Member
- Mn Moencopie Formation
- Ch Chino Formation (Upper Triassic)
- Or Owl Rock Member
- Pf Petrified Forest Member
- Sh Shinarump Member
- Mf Moenkopi Formation (Middle(?) and Lower Triassic)
- Ur Upper red member (Middle(?) and Lower Triassic)
- Sh Shaakabab Member (Lower Triassic)
- Lo Lower members, undivided (Lower Triassic)
- Ka Kaibab Formation (Cisuralian)
- Hr Harrisburg Member
- Fm Fossil Mountain Member
- Tf Torowap Formation, undivided (Cisuralian)
- WR Woods Ranch Member
- Br Brady Canyon Member
- Se Seligman Member
- Co Coconino Sandstone (Cisuralian)
- He Hermit Formation (Cisuralian)
- Sg Supai Group
- Pl Euphanes Sandstone (Cisuralian)
- PM Lower Supai Group, undivided (Upper, Middle, and Lower Pennsylvanian and Upper Mississippian)
- Ms Surprise Canyon Formation (Upper Mississippian)
- RL Redwall Limestone, undivided (Upper and Lower Mississippian)



EXPLANATION

- Contact—Contacts between all alluvial and colluvial units are approximate.
- Normal fault—Dashed where inferred, dotted where concealed; bar and ball on downthrown side. Number is estimated vertical fault separation in feet.
- Folds—Showing trace of axial surface and direction of plunge; dotted where concealed.
- Anticline
- Syncline
- Plunging syncline
- Doubly plunging syncline
- Monocline—Axial trace located along steepest part of monocline.
- Strike and dip of beds
- Inclined—Measured in the field or estimated from aerial photographs.
- Implied—Interpreted from aerial photographs; dip amount not determined.
- Strike of vertical joints—Interpreted from aerial photographs; symbol placed where joints are most visible on aerial photographs.
- Doubly plunging syncline
- Breccia pipe—Circular collapse structure characterized by visible brecciated rock column within area of strata dipping inward toward a central point.
- Collapse structure—Circular depression characterized by strata dipping inward toward a central point. May reflect collapse of a deep-seated breccia pipe that originated in the Kaibab Limestone.
- Sinkhole—Circular depression caused by dissolution of gypsum in the Kaibab and Torowap Formations. Typically smaller in diameter than collapse structures with strata truncated around margin. Sinkholes breached by drainages are shown.
- Uranium mine
- Uranium prospect
- Fracture—Commonly open 1 to 10 feet.
- Proposed segregated lands, East Parcel (House Rock Valley area)

Geologic Map of the House Rock Valley Area, Coconino County, Northern Arizona

By George H. Billingsley and Susan S. Priest 2010

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