

GEOLOGIC MAP OF THE PINNACLE MOUNTAIN QUADRANGLE, PULASKI COUNTY

DIGITAL GEOLOGIC QUADRANGLE MAP
PINNACLE MOUNTAIN QUADRANGLE, ARKANSAS
DGM-AR-00697

Geology by Boyd R. Haley and Charles G. Stone

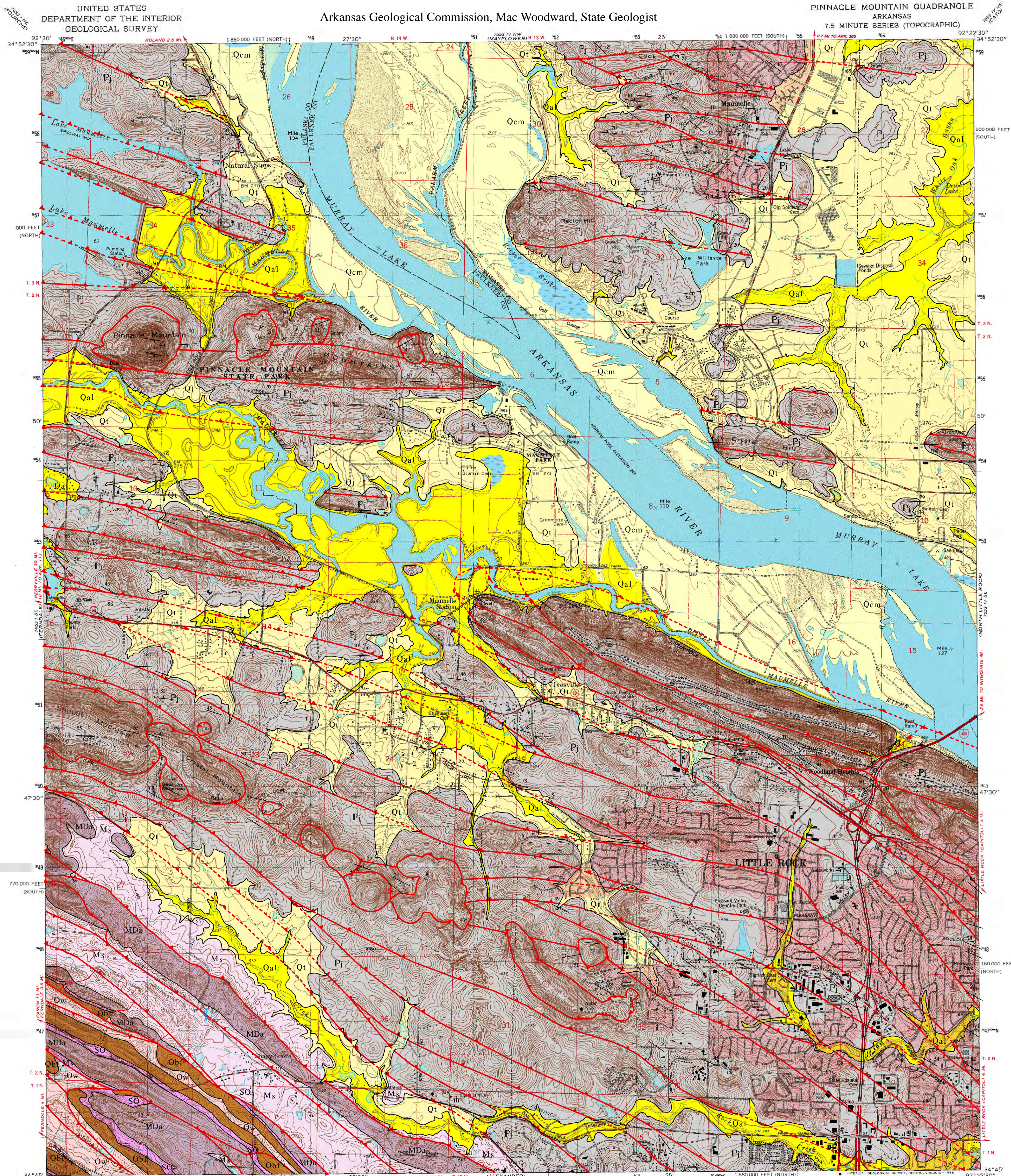
2003

Digital compilation by William D. Hanson and Jerry W. Clark

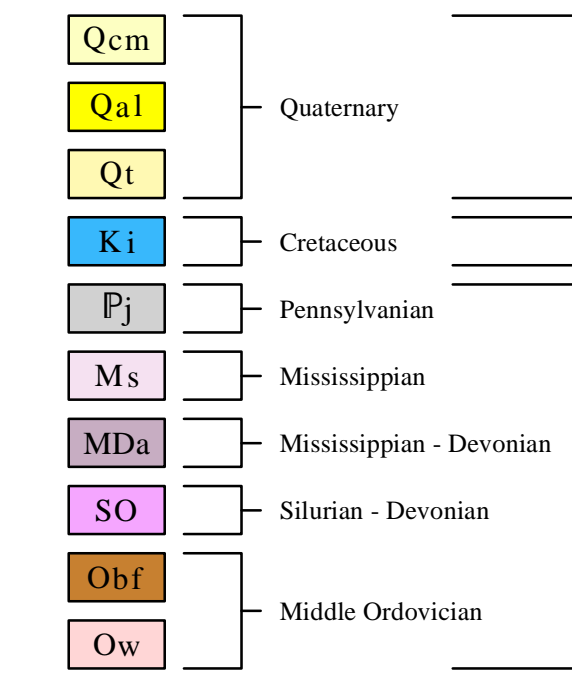
Edited by William D. Hanson

Arkansas Geological Commission, Mac Woodward, State Geologist

PINNACLE MOUNTAIN QUADRANGLE
ARKANSAS
7.5 MINUTE SERIES (TOPOGRAPHIC)



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qcm** **Alluvium (Quaternary) (Channel Meander)** - The unit represents the more recent channel meanders and current flood plain deposits of significant streams. Channel meander scars are distinct in this unit. The partition of this unit from other Holocene alluvial deposits was based more on geomorphic considerations than lithic or age considerations. Fossils are rare. The lower contact is unconformable. The thickness is variable.
- Qal** **Alluvium (Quaternary)** - Variably sized gravel overlain by unconsolidated sand, silt, and clay comprises the unit. This unit occurs in the floodplains of streams and rivers. The sediments form a rich loam and are excellent for agriculture. Gravels, primarily novaculite, originated in the Ouachita Mountain region and from local Cretaceous formations. Thickness varies from 0 to 25 feet. Areas of alluvium are presently receiving sediment deposition.
- Qt** **Terrace Deposit (Quaternary)** - Terrace deposits generally grade from basal gravel to silt and clay at the top. Gravels, primarily novaculite, originated in the Ouachita Mountain region and from local Cretaceous formations. Thicknesses are generally less than 50 feet. Terraces are topographic features which are former floodplains of nearby streams and/or rivers. The sediments form a rich loamy soil. The basal gravel is sometimes utilized for water-well production and gravel-mining operations.
- Ki** **Igneous Rock (Cretaceous)** - Greenish-black (weathers reddish-brown) lamprophyre dikes, some are biotite- and augite-rich.
- Pj** **Jackfork Formation (Pennsylvanian)** - The Jackfork is thin to massive-bedded, fine to coarse-grained, brown, tan, or bluish-gray quartzitic sandstone with subordinate brown silty sandstones and gray-black shale. Toward the north of its outcrop area the shale units of the lower and middle Jackfork takes up more of the section and the sandstones are more lenticular, often occurring as chaotic masses in the shale. Minor conglomerates composed of quartz, chert, and metaquartzite occur notably in the southern exposures of the formation. The Jackfork rests conformably on the Stanley. The formation is generally found to be between 3500 to 6000 feet thick.
- Ms** **Stanley Formation (Mississippian)** - The Stanley is composed predominantly of grayish-black to brownish-gray shale, with lesser amounts of thin to massive-bedded, fine-grained, gray to brownish-gray feldspathic sandstone. Weathering causes the shale to turn olive-gray and the sandstone to become more porous and brown. Interbedded layers of thin black siliceous shale and chert are present and are used to subdivide the formation in other areas. Locally, volcanic tuffs (primarily the Hatton Tuff Member) and a quartzose sandstone-chert conglomerate unit (Hot Spring Sandstone Member) are present in the lower Stanley. Cone-in-cone and calcareous silty concretions are present in the quadrangle. All of the formation is exposed except for about 1,600 feet of the upper portion and 1,200 feet of the lower portion. Most of the Stanley is Late Mississippian (Chesterian) as indicated by conodonts and plant fossils. The formation is a deep-water marine turbidite sequence, derived primarily from a landmass.
- MDa** **Arkansas Novaculite (Mississippian-Devonian)** - Three divisions of the novaculite are recognized. The Lower Division is white massive-bedded novaculite with some interbedded gray shales near its base. The Middle Division is greenish to dark-gray shales interbedded with many thin beds of dark novaculite. The Upper Division is white, thick-bedded, and often calcareous.
- SO** **Missouri Mountain Shale-Polk Creek Shale (Silurian-Ordovician)** - Includes Missouri Mountain Shale which is dark-gray shale that weathers green to maroon in color or with a few thin beds of dark gray chert near the top of the formation. The Polk Creek Shale is dark-gray to grayish-black shale some of which is slaty and siliceous.
- Obf** **Bigfork Chert (Middle and Late Ordovician)** - Dark-gray siliceous shale and thin bedded dark-gray chert.
- Ow** **Womble Shale (Middle Ordovician)** - Dark-gray shale and limy dark-gray siltstone, with a few beds of silty, dark-gray limestone.

SYMBOLS

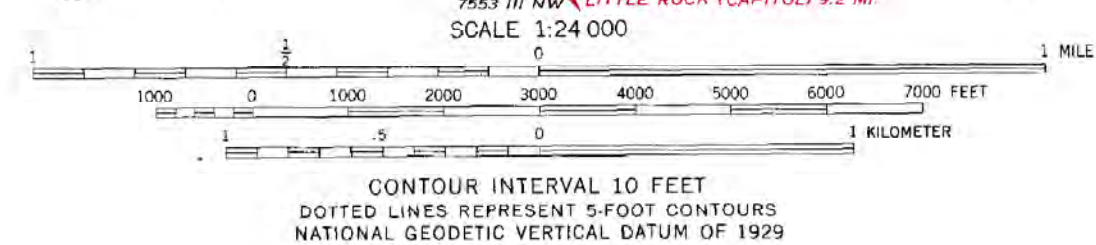
- Decollement
- Thrust Fault
- Tear Fault
- Inferred Fault
- Contacts
- Igneous Dike
- Strike and Dip

REFERENCES

Haley, B. R., & Stone, C. G., 1994 Geologic Map of the Little Rock Quadrangle, Pulaski County, Arkansas: AGC Open-File Report, scale 1:24,000.

McFarland, J. D., 1998, Stratigraphic Summary of Arkansas: Arkansas Geological Commission Information Circular 36, 39p.

Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1962. Revised from aerial photographs taken 1984. Field checked 1985. Map edited 1986
Projection and 10,000-foot grid ticks: Arkansas coordinate system, south and north zones (Lambert conformal conic) 1000-meter Universal Transverse Mercator grid, zone 13 1927 North American Datum
To place on the predicted North American Datum 1983, move the projection lines 7 meters south and 14 meters east as shown by dashed corner ticks
There may be private holdings within the boundaries of the National or State reservations shown on this map
Red tint indicates areas in which only landmark buildings are shown



UTM GRID AND 1983 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092 AND ARKANSAS GEOLOGICAL COMMISSION, LITTLE ROCK, ARKANSAS 72204. A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.



QUADRANGLE LOCATION
Funded by the United States Geological Survey in cooperation with the Arkansas Geological Commission, under the COGEO Map Project

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