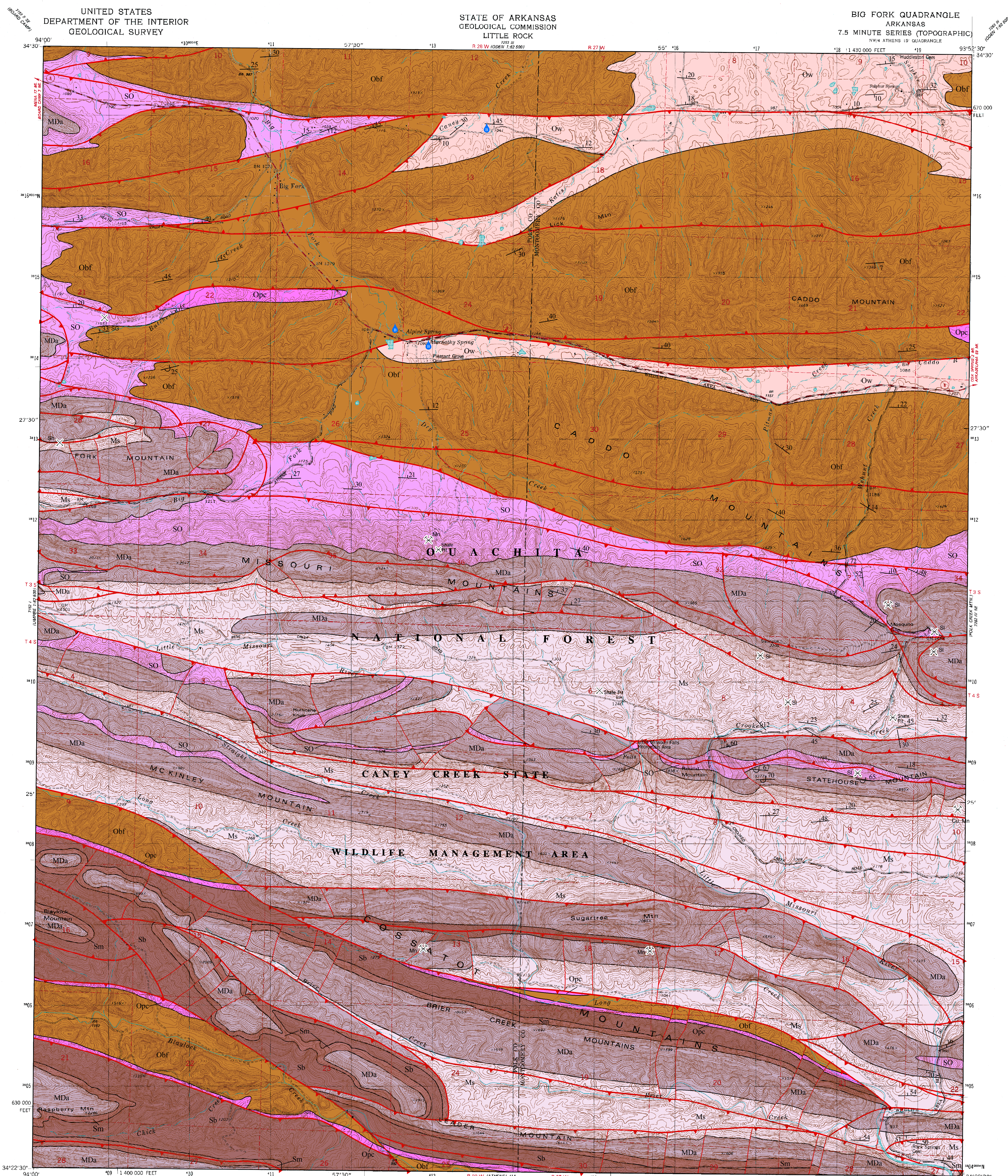
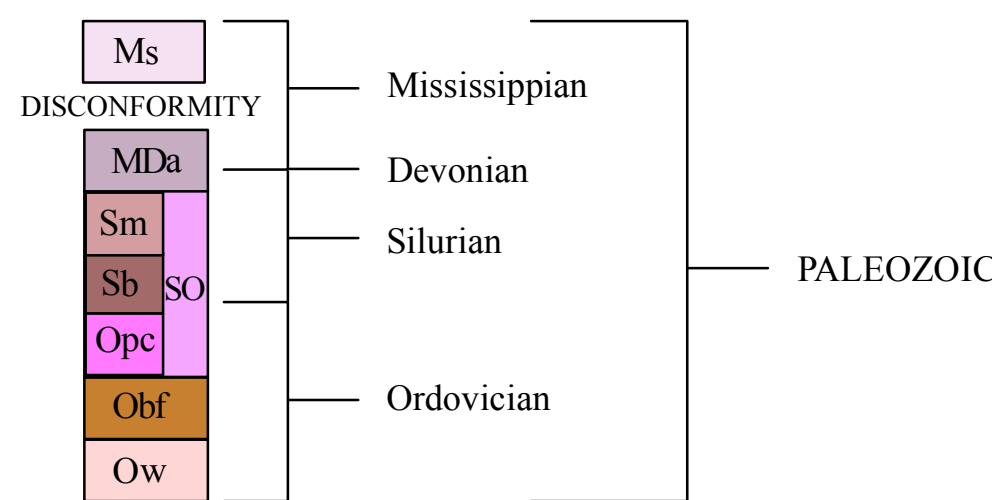


Arkansas Geological Survey
Bekki White, State Geologist and Director

GEOLOGIC MAP OF THE BIG FORK QUADRANGLE, MONTGOMERY AND POLK COUNTIES, ARKANSAS



Correlation of Map Units



Description of Map Units

- Ms** **Stanley Formation (Mississippian)** - 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 and black chert. Weathered shale is olive-gray, and weathered sandstone is generally more porous and brown. Most of the Stanley is Late Mississippian (Chesterian) as indicated by conodonts and plant fossils, and has a total thickness of about 11,000 ft. The formation was deposited in a deep marine environment and is possibly disconformable with the Arkansas Novaculite.
- MDa** **Arkansas Novaculite (Mississippian-Devonian)** - Three divisions of the novaculite are recognized. The Lower Division is white massive-bedded novaculite with some interbedded gray shale near its base. The Middle Division is greenish to dark-gray shale interbedded with thin beds of dark novaculite. The Upper Division is white, thick-bedded and locally calcareous. The formation was deposited in a deep marine environment. It is about 900 feet thick and conformable with the Missouri Mountain Formation.
- Sm** **Missouri Mountain Shale Formation (Silurian)** - consists of shale interbedded with conglomerate, novaculite and sandstone. The shales are usually gray, green, black or red, but weather to buff, green, yellow or reddish brown. Few identifiable fossils have been recovered from this unit. The Missouri Mountain rests conformably on the Blaylock to the south and the Polk Creek in the northern part of its outcrop range. The unit was deposited in a deep marine environment and is about 300 feet thick.
- SO** **Missouri Mountain Shale-Polk Creek Shale (Silurian-Ordovician)** - an informal group name that includes Missouri Mountain Shale which is a 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. It also includes the Polk Creek Shale which is dark gray to grayish-black shale, some of which is slaty and siliceous. It is found in areas where the Blaylock Sandstone is not exposed, and the Missouri Mountain and Polk Creek shale beds are thin and not easily distinguishable. Aggregate thickness is about 300 feet.
- Sb** **Blaylock Formation (Silurian)** - The Blaylock consists of tan to gray, fine to medium sandstone interbedded with black fissile shale. Graptolite and trace fossils may be found, but are rare. The unit was deposited in a deep marine environment. The formation ranges to as much as 1200 feet thick along the southwestern part of its outcrop area in Arkansas. It is conformable with Polk Creek Shale.
- Opc** **Polk Creek Formation (Ordovician)** - consist of black, sooty, fissile shale with minor black chert traces of gray quartzite and limestone. Graptolites are common in most of the shales in the formation. Its thickness ranges from about 50 to 225 feet and it is conformable with the Bigfork Formation.
- Obf** **Bigfork Formation (Ordovician)** - consists of thin-bedded, dark-gray, cryptocrystalline chert interbedded with varying amounts of black siliceous shale, calcareous siltstone and dense, bluish-gray limestone. Fossils are rare but fragments of brachiopods, crinoids, sponges, conodonts and graptolites have been reported. In Arkansas, the unit is about 750 feet thick and is conformable with the Womble Shale.
- Ow** **Womble Shale (Middle Ordovician)** - The Womble consists of dark-gray shale and limy dark-gray siltstone, with a few beds of silty, dark-gray limestone. It is about 1200 feet thick and is conformable with the Blakely Sandstone.

- | Symbols | Mineral Commodities |
|---------------------------|---------------------|
| Contact | Bottle Water Source |
| Thrust Fault | Cu Copper |
| Tear Fault | Mn Manganese |
| Strike and Dip | Sh Shale |
| Overturned Strike and Dip | SG Sand & Gravel |
| Active Pit | Sl Slate |
| Abandoned Pit | |
| Abandoned Mine | |

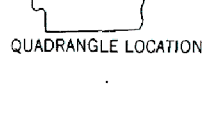
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Projection and 10,000-foot grid ticks: Arkansas coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 15
1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 7 meters south and 18 millimeters east as shown by dashed corner ticks
There may be private inholdings within the boundaries of the National or State reservations shown on this map.
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is un-checked

SCALE 1:24,000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route U.S. Route State Route



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BIG FORK, ARK.
NW4 ATHENS 19 QUADRANGLE
N3422-S-W9352-S/7.5
1980
DMA 7252 IV NW-SERIES Y84

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	Geology by Boyd R. Haley and Charles G. Stone 1994	
	Edited by William D. Hanson 2009	
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