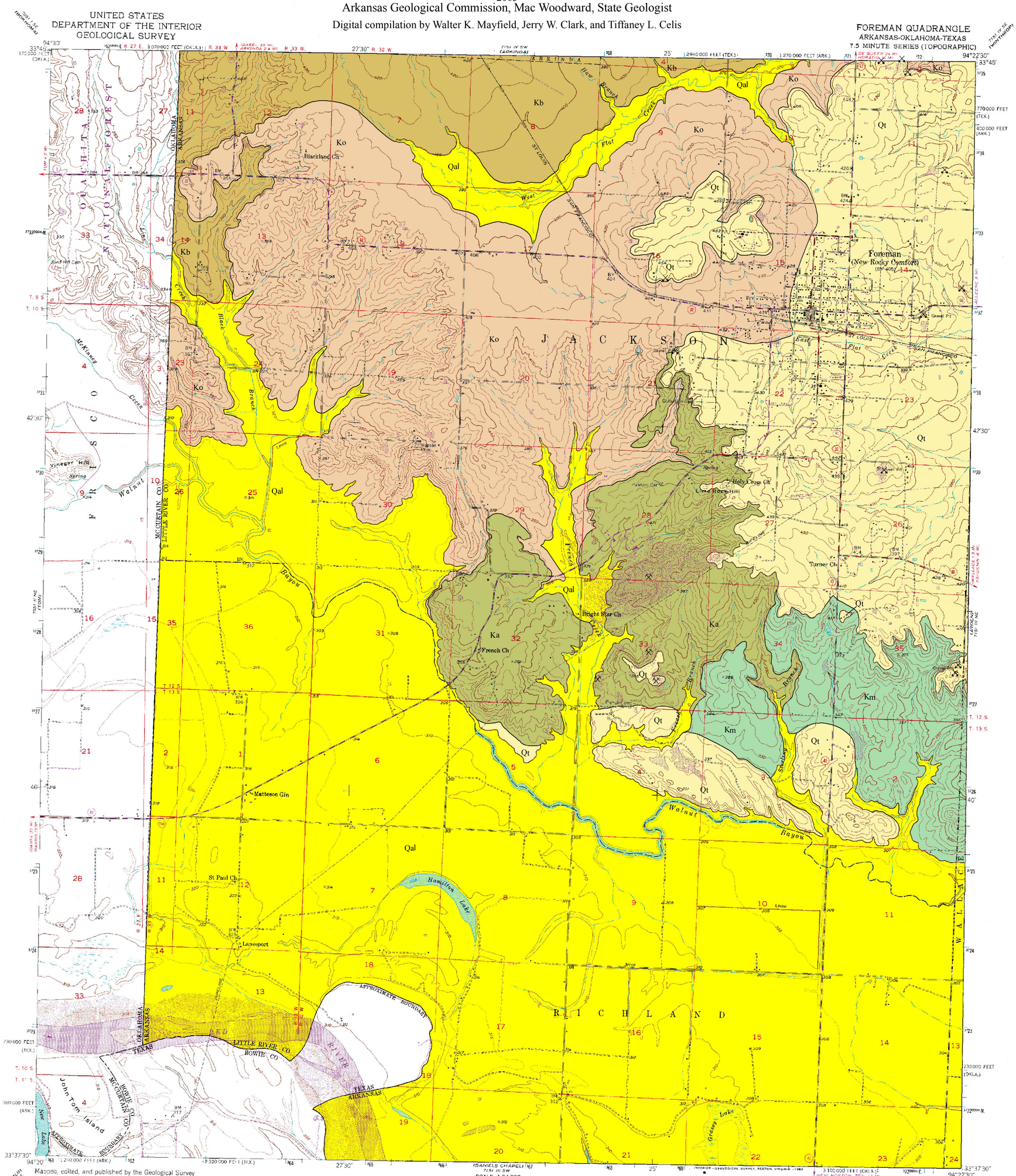
GEOLOGIC MAP OF THE FOREMAN QUADRANGLE, LITTLE RIVER COUNTY, ARKANSAS

Geology by William D. Hanson and Benjamin F. Clardy
2003
Arkansas Geological Commission, Mac Woodward, State Geologist
Digital compilation by Walter K. Mayfield, Jerry W. Clark, and Tiffaney L. Celis



Correlation of Map Units

Qal, Qt	Quaternary		CENOZOIC
UNCONFORMITY			
Km	Upper Cretaceous		MESOZOIC
UNCONFORMITY			
Ka			
UNCONFORMITY			
Ko			
UNCONFORMITY	Lower Cretaceous		
Kb			

Description of Map Units

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 30 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.

Km — **Marlbrook Marl** *(Upper Cretaceous)*- The Marlbrook Marl is a uniform chalky marl that is blue-gray when freshly exposed and weathers white to light brown. The unit is moderately fossiliferous in the upper part and slightly fossiliferous in the lower part. Notable fossils include *Exogyra*, *Gryphaea*, and *Ostrea* oyster species and reptilian remains. The Marlbrook Marl is approximately 60 feet thick in the mapped area. The unit strikes to the northeast and has a dip of approximately 80 feet per mile to the southeast in this quadrangle. The Marlbrook Marl was deposited in a near shore marine environment and rests unconformably on the Ozan Formation.

Ka — **Annona Chalk** *(Upper Cretaceous)*- The Annona Chalk is a hard, massive, thick-bedded, fossiliferous chalk. The chalk is gray-blue when fresh and weathers white. Notable fossils occurring in the unit are *Gryphaea, Echinocory texana,* and *Inoceramus*. The unit outcrops from north of Columbus, AR, southwest to the Arkansas-Oklahoma state line near Foreman, AR, and dips to the south approximately 80 feet per mile. The thickness in the area is about 100 feet. The unit was deposited in a nearshore marine environment following an unconformity separating it from the underlying Ozan Formation.

Ko — **Ozan Formation** *(Upper Cretaceous)*- The Ozan Formation consists of sandy marl, marl, and a sandy glauconitic marl. The unit is fossiliferous, micaceous, and weathers to a yellow-brown sticky clay. The basal sandy glauconitic marl, known as the Buckrange Sand Lentil, has shark teeth and phosphate nodules, and is about 15 feet thick. Thickness of the unit on this quadrangle is about 80 feet. Notable fossils are the *Exogyra ponderosa and Gryphaea.* The outcrop belt extends from west of Arkadelphia, southwest to the Arkansas-Oklahoma border, and dips approximately 80 feet per mile to the southwest. The unit was deposited in a nearshore marine environment and rests unconformably on the Brownstown Marl.

Kb — **Brownstown Marl** *(Upper Cretaceous)*- The Brownstown Marl consists of dark-gray calcareous clay, marl, and sandy marl. The unit is fossiliferous and weathers yellow to gray in color. Notable fossils are the *Exogyra ponderosa and Inoceramus*. The outcrop belt extends from east of Arkadelphia, AR, southwest to the Arkansas-Oklahoma state line, and dips approximately 80 feet per mile to the south. The approximate thickness in the quadrangle is 50 feet. The unit was deposited in a nearshore marine environment and rests uncomformably on the Tokio Formation.

Symbols

Contact

Gravel Pit

Chalk Mine

References

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McFarland, J. D., 2004, Stratigraphic Summary of Arkansas: Arkansas Geological Commission Information Circular 36, 39p.

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Miser, H. D., and Purdue, A. H., 1929 Geology of the DeQueen and Caddo Gap Quadrangles, Arkansas: U.S. Geological Survey, Bulletin 808, 195p., scale 1:125,000.

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Disclaimer

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Control by USGS, USC&GS, and USCE

Culture and drainage in part compiled from aerial photographs taken 1949
Topography by plane-table methods 1949 - 1951

Polyconic projection. 1927 North American datum
10,000-foot grids based on Arkansas coordinate system, south zone, Oklahoma coordinate system, south zone, and Texas coordinate system, north central zone
1000-metre Universal Transverse Mercator grid ticks, zone 15, shown in blue

Revisions shown in purple compiled from aerial photographs taken 1975. This information not field checked

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092.
ARKANSAS GEOLOGICAL COMMISSION, LITTLE ROCK, ARKANSAS 72204,
AND OKLAHOMA GEOLOGICAL SURVEY, NORMAN, OKLAHOMA 73069
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

GN 0°49' 14 MILS

JIM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

To place on the predicted North American Datum 1883, move the projection lines 8 meters south and 19 meters 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

QUADRANGLE LOCATION

FOREMAN, ARK.-OKLA.-TEX.
N3337.5—W9422.5/7.5
1951
PHOTOREVISED 1975
AMS 7151 III NW—SERIES V884

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