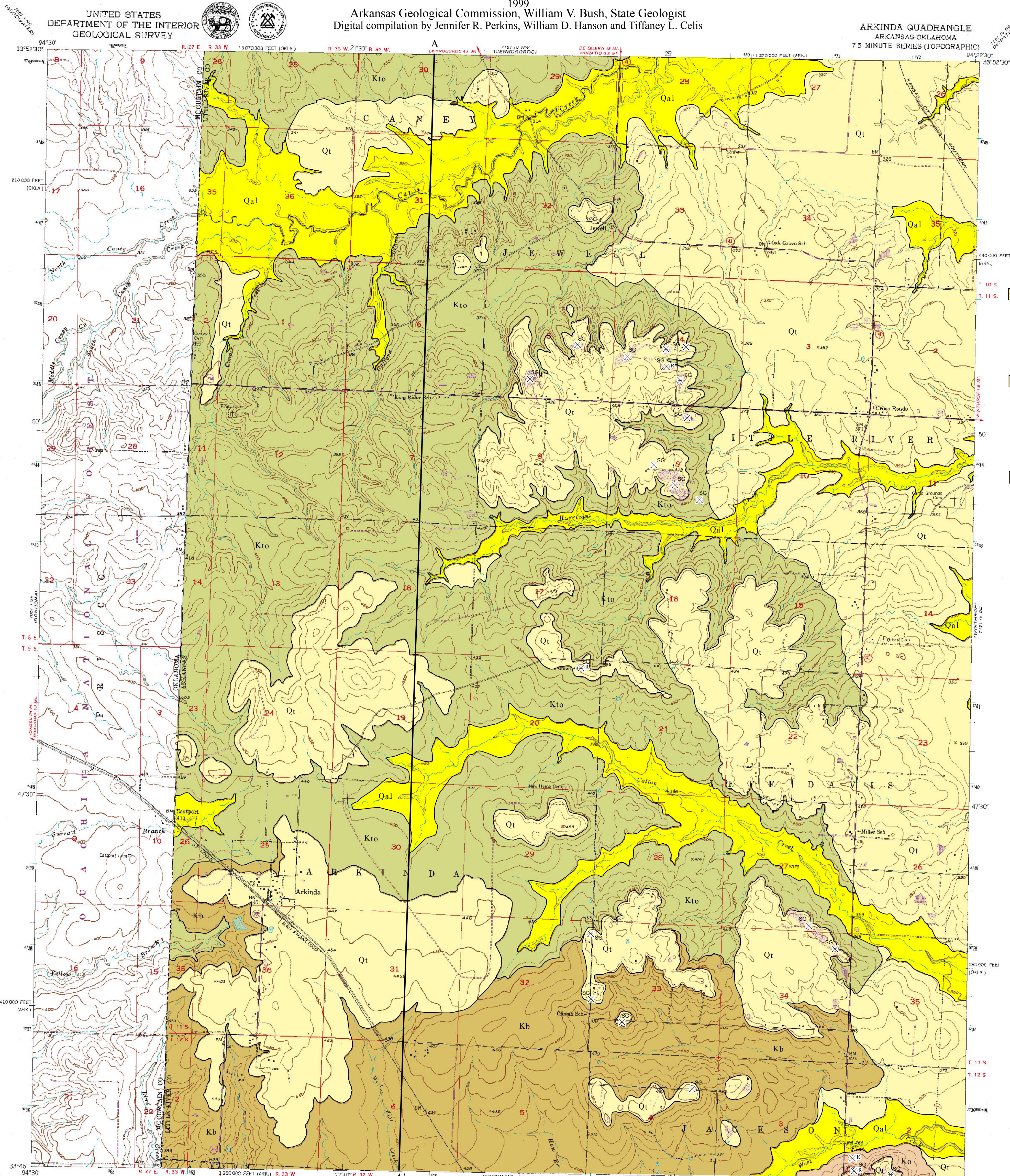


GEOLOGIC MAP OF THE ARKINDA QUADRANGLE, LITTLE RIVER COUNTY, ARKANSAS

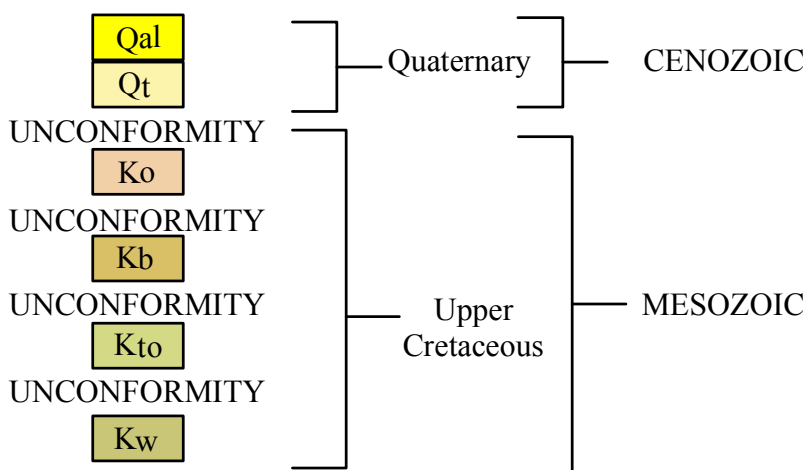
DIGITAL GEOLOGIC QUADRANGLE MAP
ARKINDA QUADRANGLE, ARKANSAS-OKLAHOMA
DGM-AR-OK-00029

Geology by William D. Hanson, Benjamin F. Clardy and Jennifer R. Perkins
1999
Arkansas Geological Commission, William V. Bush, State Geologist
Digital compilation by Jennifer R. Perkins, William D. Hanson and Tiffany L. Celis

ARKINDA QUADRANGLE
ARKANSAS-OKLAHOMA
7.5 MINUTE SERIES (TOPOGRAPHIC)



Correlation of Map Units



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.
- Ko** **Ozan Formation (Upper Cretaceous)**- The Ozan Formation consists of sandy marl, marl, and a sandy glauconitic marl. The unit is fossiliferous and weathers to a yellow-brown sticky clay. The basal sandy glauconitic marl, known as the Buckrange Sand Lenticle, has shark teeth and phosphate nodules, and is about 15 feet thick. Thickness of the unit on this quadrangle is about 30 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 60 feet. The unit was deposited in a nearshore marine environment and rests unconformably on the Tokio Formation.
- Kto** **Tokio Formation (Upper Cretaceous)**- The Tokio Formation consists of cross-bedded sand, gravel, gray clay, and volcanic ash. Basal cross-bedded gravels are approximately 30 feet thick. Minor sand and clay lenses occur within the gravel. Thinner beds (less than 1 foot in thickness) and lenses of gravel occur within the formation's sand intervals. The gravels range from pea-size to 6 inches in diameter and are composed of quartz, novaculite, sandstone, and quartzite. Iron-oxide-cemented conglomerates may be present locally. The cross-bedded sands are medium-to-fine-grained quartz with minor amounts of heavy minerals, glauconite, iron-oxide concretions, and rip-up clasts of gray clay. Sands weather yellow to orange-red in color. Gray clays are lignitic, pyritic, fossiliferous, and may contain leaf imprints. The volcanic ash is light gray to white and has altered to kaolinitic clay. The source area for much of the formation's sediment was the Ouachita Mountain region. The formation outcrop belt extends from near Arkadelphia, southwest to the Arkansas-Oklahoma state line, and dips to the south at approximately 80 feet per mile. The approximate thickness in the quadrangle is 300 feet. The unit was deposited in a nearshore marine environment on an unconformable surface which separates it from the underlying Woodbine Formation (Upper Cretaceous).
- Kw** **Woodbine Formation (Upper Cretaceous)**- This Unit is found only in the subsurface. The Woodbine Formation consists of water-laid, cross-bedded tuffs, tuffaceous sands, gravel, and red and gray clay. Basal cross-bedded gravels are approximately 20 feet thick and form a 1/2 to 6 inches in diameter, well-rounded and are composed of novaculite, quartz, sandstone, and quartzite. Iron-cemented conglomerates may be present locally. Igneous rock pebbles and cobbles are interbedded within the tuffs. Unweathered tuffs range from the area between Murfreesboro and Lockesburg, Arkansas. The source area for the gravels was the Ouachita Mountain region west of the Arkansas-Oklahoma state line, and dips approximately 80 feet per mile to the south. The unit was deposited in a near-shore marine environment following a major unconformity which separates it from the underlying Trinity Group (Lower Cretaceous). The approximate thickness in the quadrangle is 30 feet.

Symbols

- Contact
- × Sand and/or gravel pit
- × Abandoned sand and/or gravel pit
- ×^R Reclaimed sand and/or gravel pit
- SG Sand & Gravel

References

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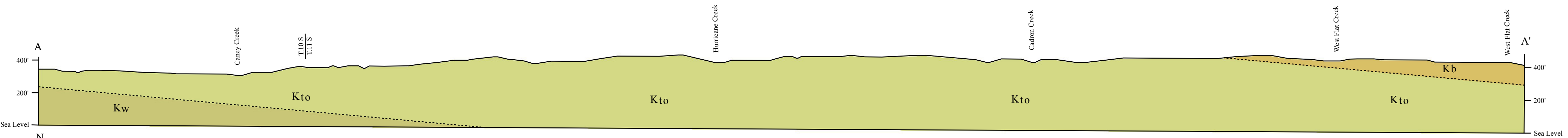
Mapped, edited, and published by the Geological Survey
Control by USGS, USCGS, and USDC
Culture and drainage in part compiled from aerial photographs taken 1949. Topography by plane table survey 1951
Polyconic projection, 327 North American datum
10,000-foot grid based on Arkansas coordinate system, south zone, and Oklahoma coordinate system, south zone
3000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue
Revisions shown in purple came from recent photographs taken 1970. This information on not field checked
There may be errors in the boundaries of the National or State reservations shown on this map



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ARKINDA, ARK.-OKLA.
N3345-W9122.5/7.5
1951



GEOLOGIC CROSS SECTION A-A'
(Quaternary deposits not shown)
horizontal scale 1:24,000
vertical exaggeration X5

