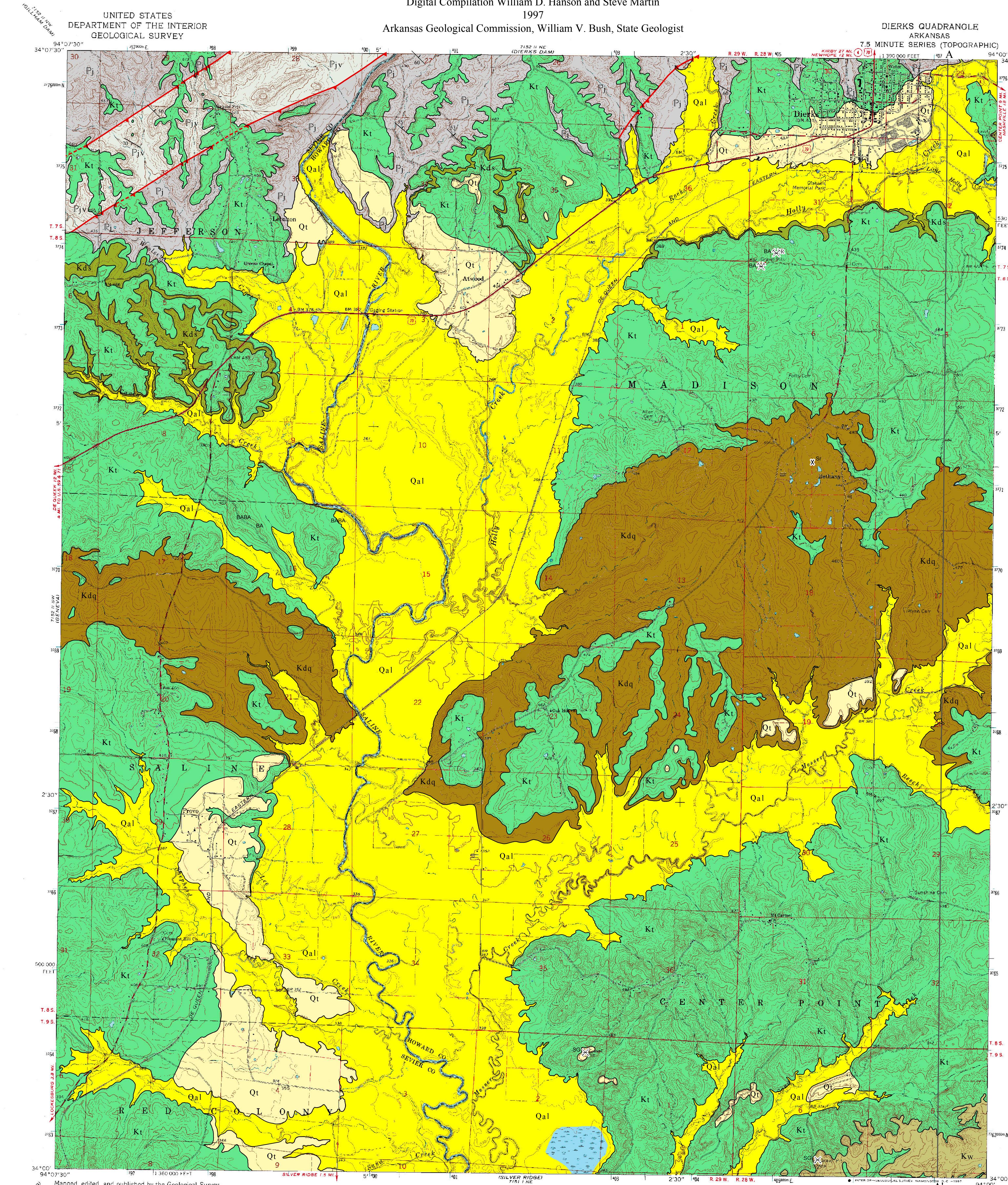


GEOLOGIC MAP OF THE DIERKS QUADRANGLE, HOWARD AND SEVIER COUNTIES, ARKANSAS

Geology by William D. Hanson, Benjamin F. Clardy, and Steve Martin
Digital Compilation William D. Hanson and Steve Martin

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Arkansas Geological Commission, William V. Bush, State Geologist



Correlation of Map Units

Qal	Quaternary	CENOZOIC
Qt		
Kw	Unconformity	Upper Cretaceous
Kt		
Kdq	Unconformity	MESOZOIC
Kds		
Pjv	Unconformity	Paleozoic
Pj		

Description of Map Units

Qal Alluvium (Quaternary) – Variably sized gravel overlain by unconsolidated sand, silt, and clay comprises this unit. This alluvium occurs in the floodplains of streams and rivers. The sediments form a rich loam suitable for agriculture. Gravels, primarily novaculite, originated in the Ouachita Mountain region and local Cretaceous formations. Thickness varies from 0 to 25 feet. Areas of alluvium are presently receiving sediment deposition.

Qt Terrace Deposits (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 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.

Kw Woodbine Formation (Upper Cretaceous) – 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 (6 meters) thick and form a ½ to 6 inches (1 centimeter to 15 centimeter) in diameter, well-rounded and are composed of novaculite, quartz, sandstone, and quartzite. Iron-cemented conglomerates may be present locally. The source area of the gravel was the Ouachita Mountain region west of the Arkansas-Oklahoma state line. The unit dips to the south 80 feet per mile. The unit was deposited in a near-shore marine environment following a major unconformity which separates it from the underlying Trinity Group (Lower Cretaceous).

Kt Trinity Group (Lower Cretaceous) - The Trinity consists of sand, gravel, clay, limestone, asphalt, and evaporite deposits. Members exposed are the Pike Gravel, Dierks Limestone Lentil, and the De Queen Limestone Member. The Pike Gravel is the basal member of the Trinity and consists of gravel along with a few boulders. Boulders are usually sandstone while the gravels are composed of novaculite, chert, sandstone, and quartzite. This member has a maximum thickness of 100 feet. The sand-rich intervals in the Trinity are medium to fine-grained, cross-bedded, and usually weather orange-red to tan. Some barite-cemented sand intervals and celestite beds occur in the upper part of the unit. The Dierks Limestone consists of interbedded calcareous clay and limestone and is about 40 feet thick. The De Queen Limestone consists of calcareous clay, limestone, marl, gypsum, and celestite. Marginal marine fossils are noted from these two members. The Trinity rests unconformably on a surface of upturned and eroded Paleozoic rocks. The Trinity Group is bounded by unconformities separating it from Pennsylvania age rocks below and Upper Cretaceous age rocks above.

Kdq DeQueen Limestone (Lower Cretaceous) - The DeQueen Limestone consists of marl, calcareous clay, limestone, and gypsum. Marls and calcareous clays weather to red, green, and yellow-brown and are sticky. Limestones are gray to light brown, pyritic, and fossiliferous. The DeQueen was deposited in a restricted nearshore marine environment and dips 80 feet per mile to the south.

Kds Dierks Limestone Lentil (Lower Cretaceous) - The Dierks is an interbedded calcareous clay and fossiliferous limestone found in the lower part of the Trinity Group. The limestones weather to twin slabs and nodular masses. Notable fossils include the *Ostrea franklini*.

Symbols

- Strike / Dip
- Thrust Fault
- Formation Contacts
- Abandoned sand and/or gravel pit
- Abandoned mine or quarry
- Reclaimed mine or quarry
- Prospect
- BA Barite
- SG Sand & Gravel
- Sr Strontium

References

- Bush, W. V., and Clardy, B. F., 1971, Geologic Map of the Geneva Quadrangle, Sevier County, Arkansas: Arkansas Geological Commission Open-File Report, scale 1:24,000.
- Dane, C. H., 1929, Upper Cretaceous formation of southwestern Arkansas: Arkansas Geological Survey Bull. 1, 215 p.
- Miser, H. D., and Purdue, A. H., 1919 Gravel deposits of the DeQueen and Caddo Gap Quadrangles, Arkansas: U.S. Geological Survey, Bulletin 690, 15-29 p.
- Miser, H. D., and Purdue, A. H., 1929 Geology of the DeQueen and Caddo Gap Quadrangles, Arkansas: U.S. Geological Survey, Bulletin 808, 195 p.
- Ross, C. S., Miser, H. D., and Stephenson, L. W., 1929, Water-laid volcanic rocks of early upper Cretaceous age in southwestern Arkansas, southeastern Oklahoma, and northeastern Texas: U. S. Geological Survey Professional Paper 154-F, p175-202.

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