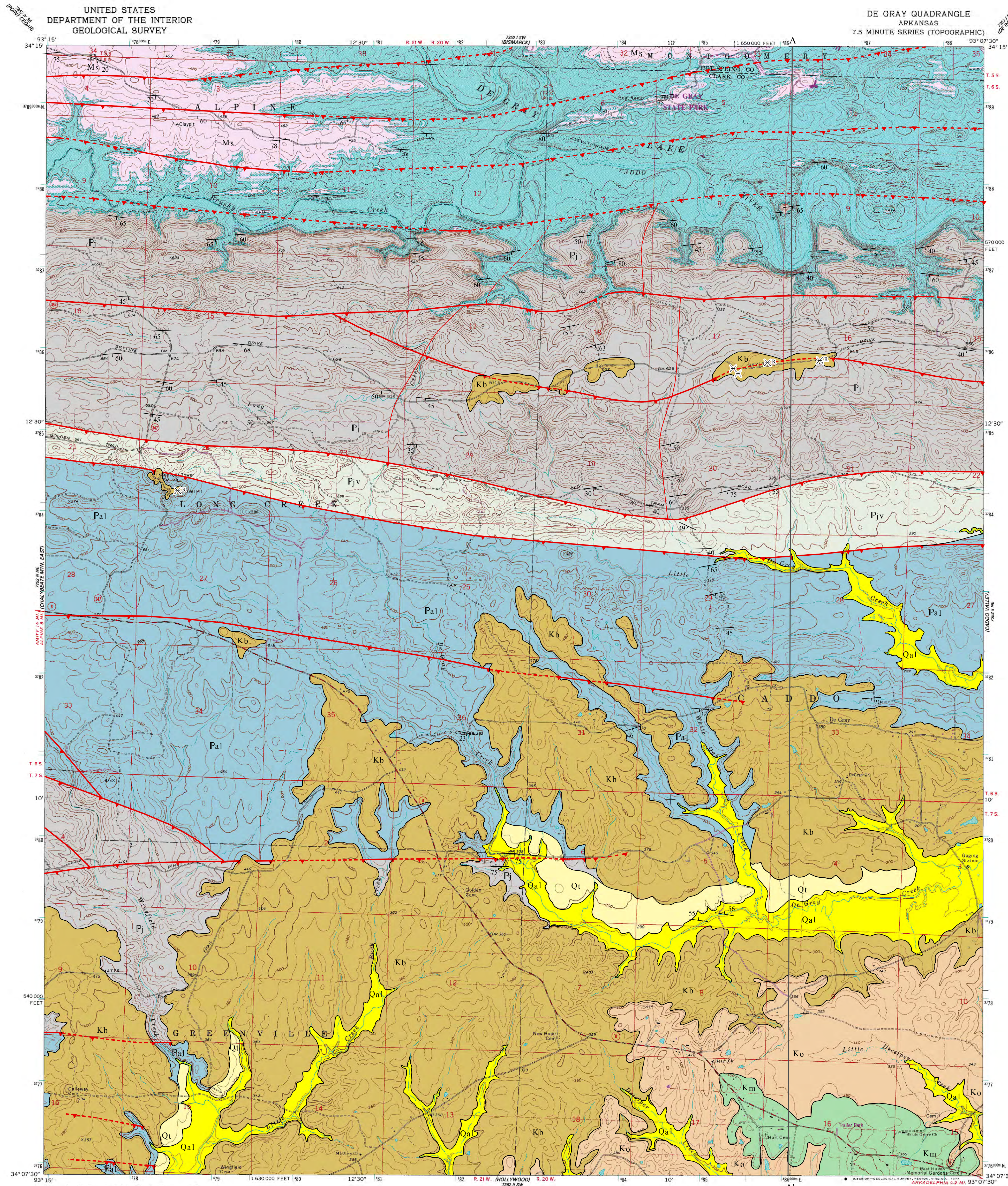


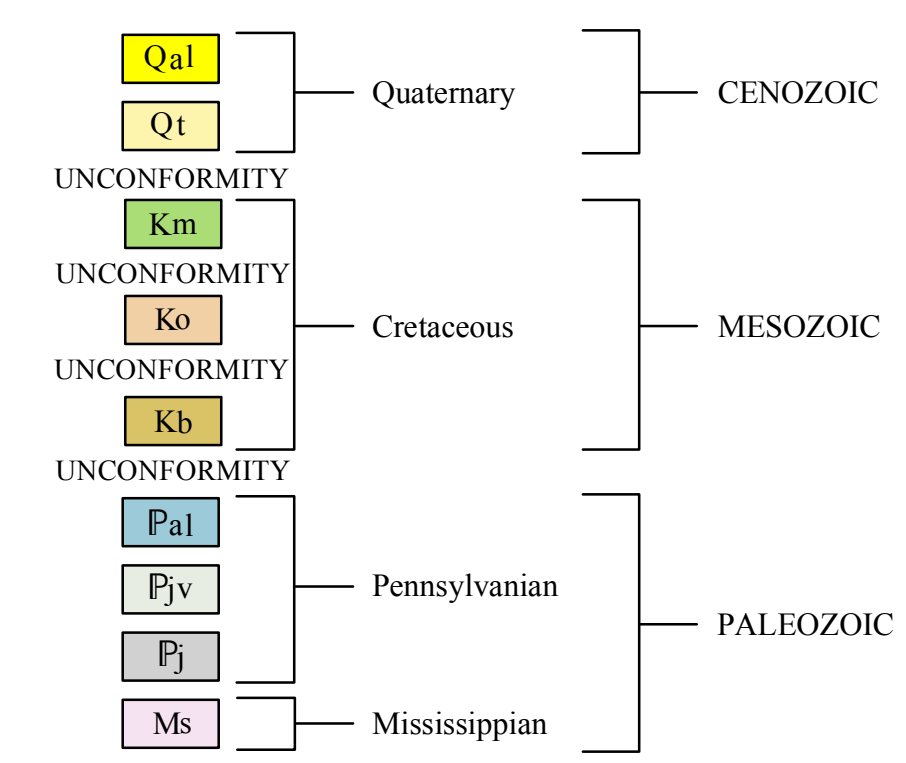
GEOLOGIC MAP OF THE DE GRAY QUADRANGLE, CLARK AND HOT SPRING COUNTIES, ARKANSAS

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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 25 feet. Areas of alluvium are presently receiving sediment deposition.
- Ql 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 reptile remains. The Marlbrook Marl is approximately 30 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 nearshore marine environment and rests unconformably on top of the 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 Lenticle, has shark teeth and phosphate nodules, and is less than 10 feet thick. Overall, the thickness in the 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 220 feet. The unit was deposited in a nearshore marine environment and rests unconformably on the Tokio Formation (Upper Cretaceous).
- Pal Lower Atoka (Pennsylvanian)** - The lower Atoka is a sequence of marine, mostly tan to gray silty sandstones and grayish-black shales. Some rare calcareous beds and siliceous shales are known. This unit has the largest areal extent of any of the Paleozoic formations in the state.
- Pjv Johns Valley (Pennsylvanian)** - The Johns Valley Formation consists of black shale with numerous intervals of brownish sandstone. Also, small amounts of gray-black siliceous shale and chert have been noted. In the frontal Ouachita Mountains large quantities of erratic masses are common. The erratic masses consist mostly of limestone, dolostone, and cherts. This unit was deposited in a deep marine environment and is about 500 - 1500 feet thick.
- Pj Jackfork Formation (Pennsylvanian)** - The Jackfork is thin to massive-bedded, fine- to coarse-grained, brown, tan, or bluish gray quartzite 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 take 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 has a maximum thickness of 6500 feet.
- 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. Cone-in-cone and calcareous silty concretions are present in shale. Most of the Stanley is Late Mississippian (Chesterian) as indicated by the presence of conodonts and plant fossils and has a maximum thickness of about 11,000 feet. The formation is a deep-water marine turbidite sequence, derived primarily from a landmass (Llanoria) that existed along the southern margins of the Ouachita trough.

Symbols

- Contact
- Thrust Fault (dashed where inferred)
- Tear Fault
- Strike and Dip
- Sand/Gravel Pit, Abandoned
- Sand/Gravel Pit, Reclaimed
- Exploratory Well

DISCLAIMER

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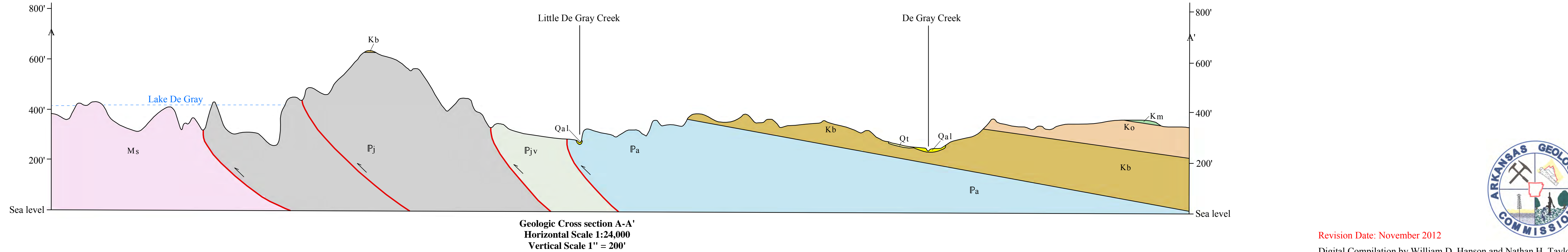
Mapped, edited, and published by the Geological Survey
Control by USGS and USCGS
Topography by photogrammetric methods from aerial photographs taken 1968. Field checks 1970
Polyconic projection, 1927 North American datum
10,000-foot grid based on Arkansas coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue
Areas covered by dashed light-blue pattern are subject to controlled inundation
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unclassified
Revisions shown in purple compiled from aerial photographs taken 1976. This information not field checked

UTM GRID AND 1976 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24,000

ROAD CLASSIFICATION
Secondary highway, all weather, improved surface
Light-duty road, all weather, improved surface
Unimproved road, fair or dry weather
State Route

DE GRAY, ARK.
N34D75-W93D75-7.5
1970
PHOTOREVISED 1976
AMS 7552 II NW-SERIES 7584



Geologic Cross section A-A'
Horizontal Scale 1:24,000
Vertical Scale 1" = 200'

