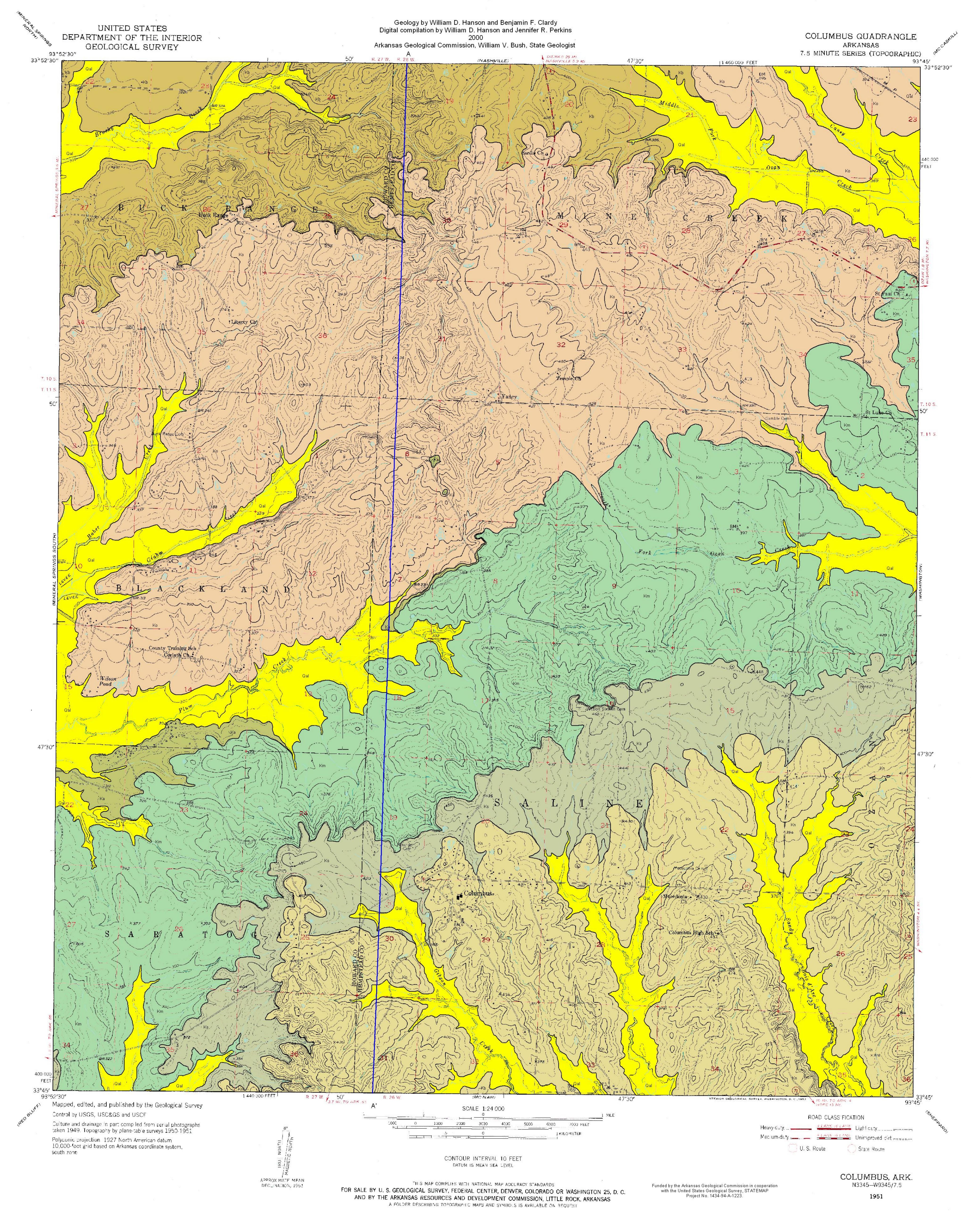
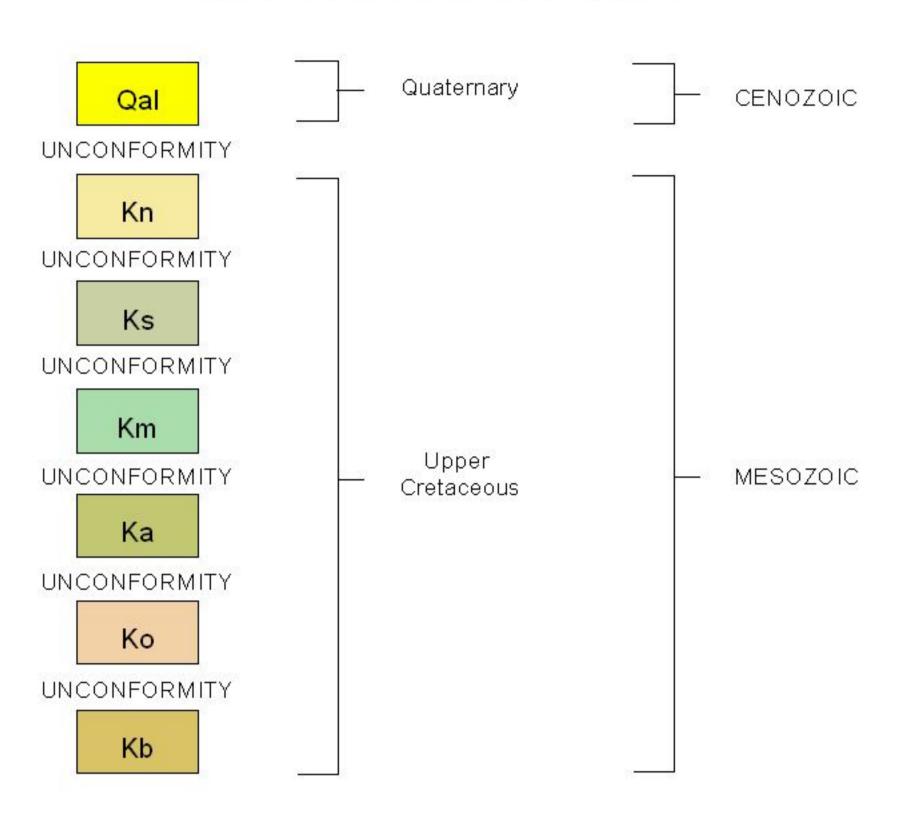
## GEOLOGIC MAP OF THE COLUMBUS QUADRANGLE, HEMPSTEAD AND HOWARD COUNTIES, ARKANSAS



#### CORRELATION OF MAP UNITS



#### DESCRIPTION OF MAP UNITS

Alluvium (Quaternary) - Variable sized gravel overlain by unconsolidated sand, silt, and clay comprises this 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 0-25 feet. Areas of alluvium are presently receiving sediment deposition.

Nacatoch Sand (Upper Cretaceous) - The Nacatoch Sand is composed of unconsolidated, cross-bedded, yellowish and gray fine quartz sand, hard fossiliferous sandy limestone, highly glauconitic sand, fine argillaceous blue-black sand, and bedded gray clay and marl. Near the base of the unit, hard fossiliferous limestones are present. Fossils found in the unit include corals, echinoderms, bryozoa, annelids, bivalves, gastropods, crab remains, and shark teeth. The Nacatoch is approximately 140 feet thick, and dips to the south-southeast at 80 feet per mile. The unit was deposited in a near-shore marine environment and may be inpart fluvial. The Nacatoch is bounded by unconformable

Saratoga Chalk (Upper Cretaceous) - The Saratoga Chalk is a hard, fossiliferous, glauconitic chalk with beds of marly chalk and sandy chalk. It is blue-gray when freshly exposed and weathers white, light gray and light brown. Fossils found in the unit include sponges, bryozoa, echinoderms, annelids, bivalves, gastropods, and fish teeth. The unit is 30-40 feet thick in the mapped area, dips to the south-southeast at approximately 80 feet per mile, and was deposited in a near-shore marine environment. The Saratoga Chalk rest unconformably on the Marlbrook

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 species and reptile remains. The unit is approximately 200 feet thick, dips to the south-southeast at 80 feet per mile. It was deposited in a near-shore marine environment. The Marlbrook rest unconformably on the Annona Chalk.

Annona Chalk (Upper Cretaceous) - The Annona Chalk is a hard, massive, thick-bedded, fossiliferous chalk and clayey chalk. The chalk is gray-blue when fresh and weathers white. Notable fossils occurring in the unit are Gryphaea, Echinocorys texana, and Inoceramus. Leaf prints are also found to occur in the unit. The unit outcrops from near the center of this quadrangle southwestward to Rocky Comfort, AR area. The unit is from a feathers edge to 40 feet thick and thickens to the southwest. The Annona dips to the south-southeast at approximately 80 feet per mile, and was deposited in a near-shore marine environment. The Annona rest unconformably on the Ozan Formation.

Ozan Formation (Upper Cretaceous) - The Ozan Formation consists of marl, sandy marl, and sandy glauconitic marl in the lower part of the formation. The unit is fossiliferous, micaceous, and weathers to a yellow-brown sticky clay. The basal sandy glauconitic marl, known as the Buckrange Sand Lentil, contains shark teeth and phosphate nodules. The lentil ranges up to 15 feet thick. Notable fossils are Exogyra ponderosa and Gryphaea. The unit outcrops from near Arkadelphia southwestward to the state line, and dips to the south-southeast at approximately 80 feet per mile. The unit is approximately 220 feet thick in this area. The Ozan Formation was deposited in a near-shore marine environment and is separated from the Brownstown Marl by an unconformity.

Brownstown Marl (Upper Cretaceous) - The Brownstown Marl consists of dark gray calcareous clay, marl, and sandy marl. The unit is fossiliferous and weathers from yellow to gray in color, and is sticky. Notable fossils are Exogyra ponderosa and Inoceramus. The unit outcrops from east of Arkadelphia, AR southwestward to the state line and dip to the south-southeast at 80 feet per mile. The unit is approximately 100 feet thick, and was deposited in a near-shore marine environment. The Brownstown was deposited on an unconformable surface.

### SYMBOLS

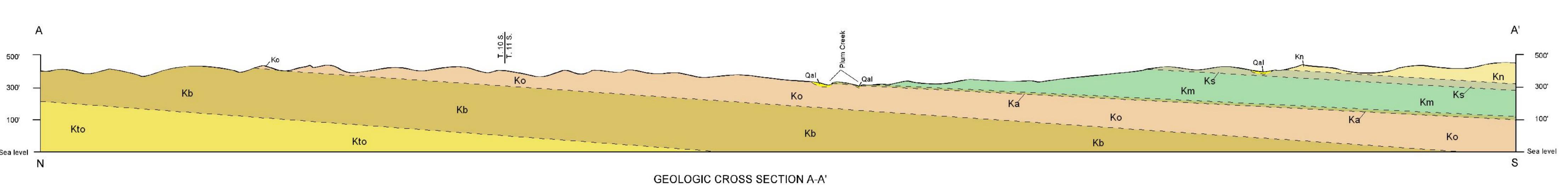
Gra∨el and/or sand pits

# REFERENCES

Bush, W.V., and Clardy, B.F., 1971, Geologic map of the Columbus quadrangle, Hempstead and Howard Counties, Arkansas: Arkansas Geological Commission Open-file Report, scale 1:24,000.

Dane, C.H., 1929, Upper Cretaceous formations of southwest Arkansas: Arkansas Geological Survey Bulletin1, 215p.

McFarland, J.D., 1998, Stratigraphic summary of Arkansas: Arkansas Geological Commission Information Circular 36, 39p.



Horizontal scale 1:24,000

