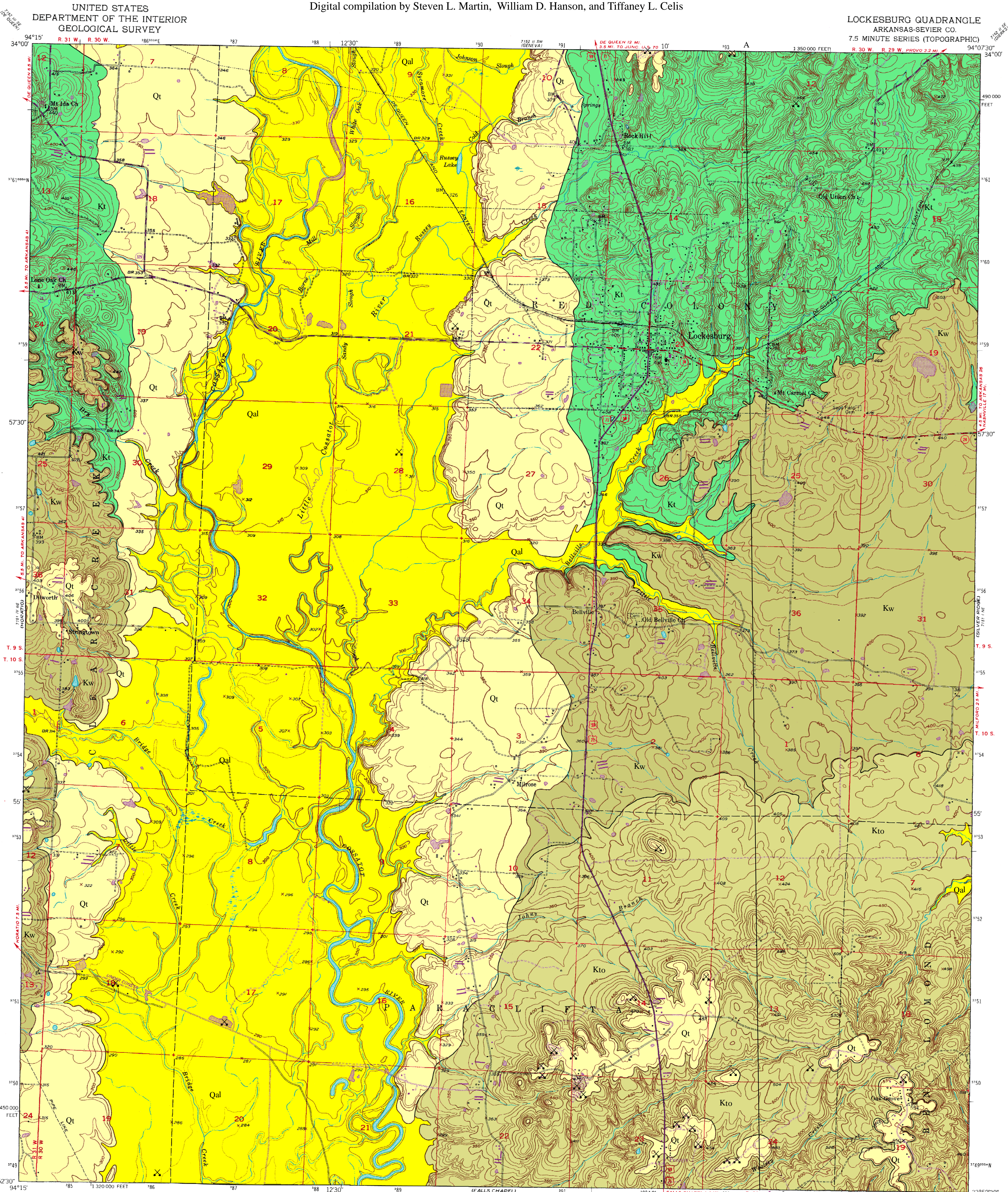


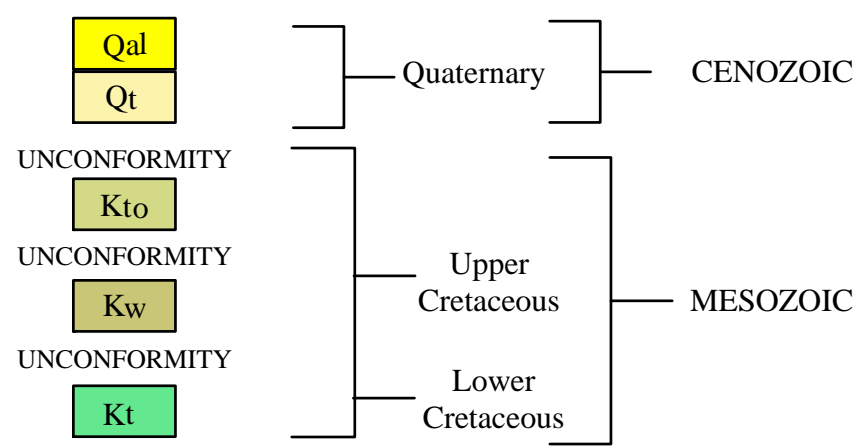
GEOLOGIC MAP OF THE LOCKESBURG QUADRANGLE, SEVIER COUNTY, ARKANSAS

DIGITAL GEOLOGIC QUADRANGLE MAP
LOCKESBURG QUADRANGLE, ARKANSAS
DGM-AR-00494

Geology by William D. Hanson, Benjamin F. Clardy, and Steven L. Martin
1998
Arkansas Geological Commission, William V. Bush, State Geologist
Digital compilation by Steven L. Martin, William D. Hanson, and Tiffany L. Celis



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.
- 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.
- 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, while sand commonly fills the interstitial spaces around 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 240 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)**- 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. Gravels are 1/2 to 6 inches in diameter, well-rounded and are composed of novaculite, quartz, sandstone, and quartzite. Igneous rock pebbles and cobbles are interbedded within the tuffs. Weathering of the tuffs produces a red waxy clay. The unit dips approximately 80 feet per mile to the south and 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 200 feet.
- Kt** **Trinity Group (Lower Cretaceous)**- The Trinity Group consists of gravel, sand, clay, gypsum, celestine, and barite. The group is exposed in an east-west trending belt and dips south approximately 100 feet per mile. Sediments comprising this unit originated to the north in the Ouachita Mountain region and were deposited following a major unconformity on an upturned and eroded Paleozoic surface in a near-shore marine environment. This Member is the only member of the Trinity Group exposed in the quadrangle. The Paluxy Sand Member is composed of cross-bedded medium-to fine-grained quartz sand, minor gravel, and bedded gray, light gray and brown clay. Sands weather from yellow to orange-red in color. The thickness of the unit in the quadrangle is approximately 200 feet.

Symbols

- Contact
- Sand and Gravel Pit

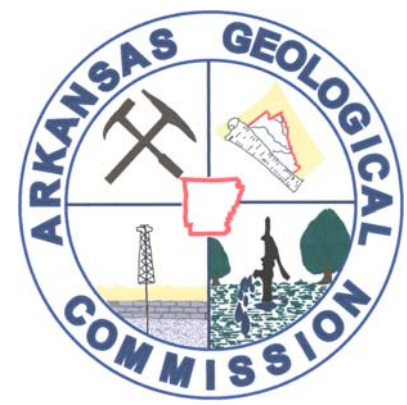
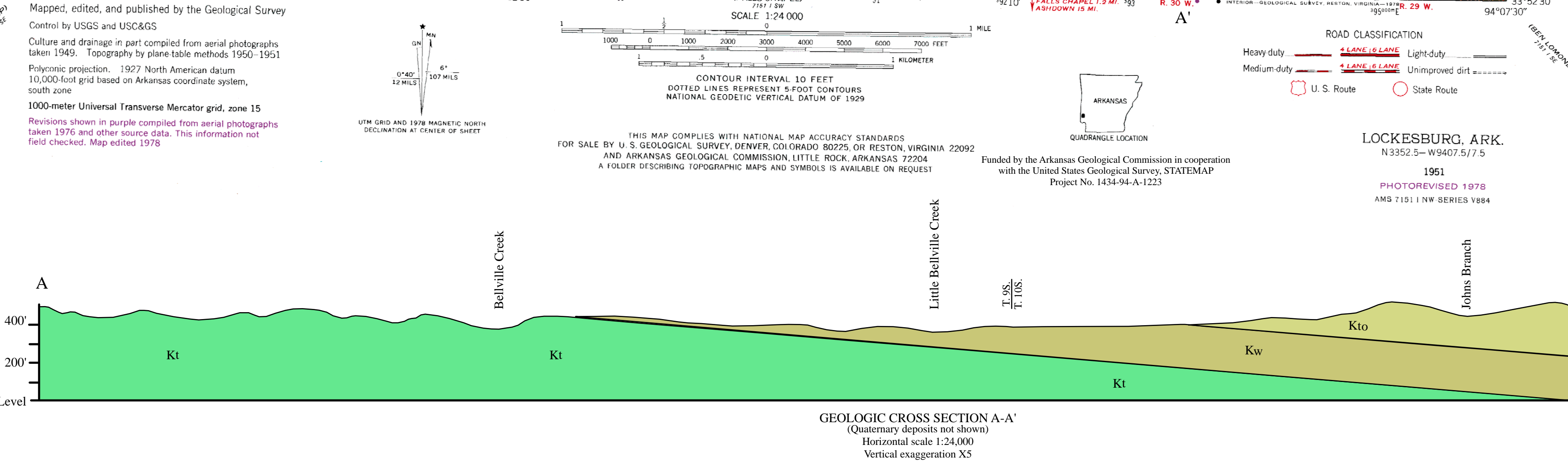
References

- Bush, W. V., and Clardy, B. F., 1971, Geologic Map of the Lockesburg Quadrangle, Sevier County, Arkansas: Arkansas Geological Commission Open-File Report, scale 1:24,000.
- McFarland, J. D., 2004, Stratigraphic Summary of Arkansas: Arkansas Geological Commission Information Circular 36, 39p.
- Dane, C. H., 1929, Upper Cretaceous formation of southwestern Arkansas: Arkansas Geological Survey Bulletin 1, 215p.
- 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.
- Howard, J.M., 2006, Arkansas Mineral Commodity Database, in-house data, Arkansas Geological Commission.

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