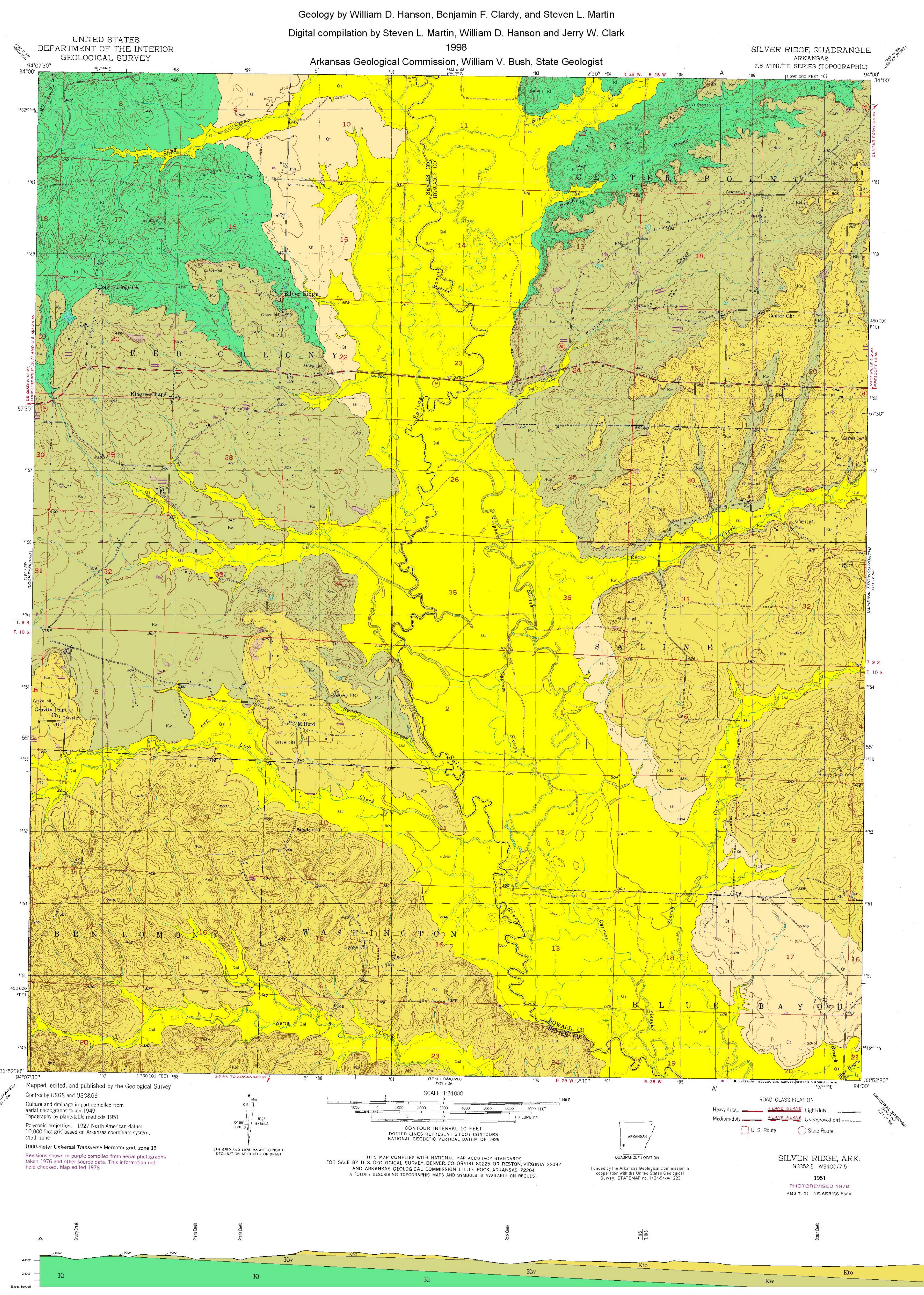
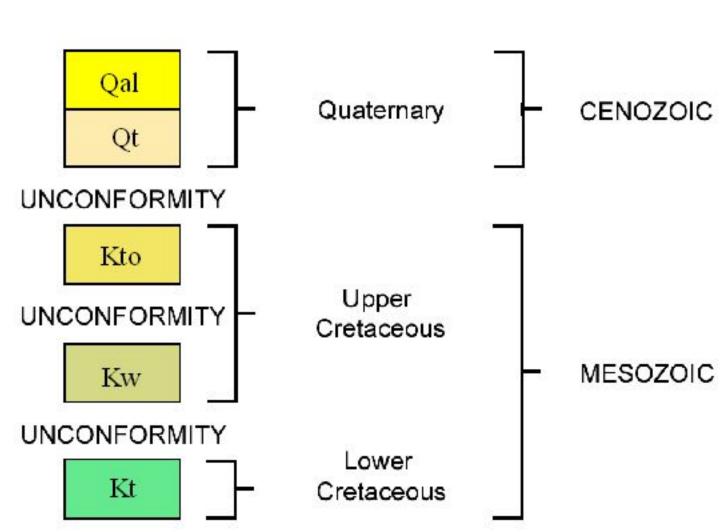
GEOLOGIC MAP OF THE SILVER RIDGE QUADRANGLE, HOWARD AND SEVIER COUNTIES, ARKANSAS



GEOLOGIC CROSS SECTION A-A'
(Quaternary deposits not shown)
Vertical exaggeration X5

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Alluvium (Quaternary) - Variable size gravel overlain by unconsolidated sand, silt, and clay comprise this unit. Occurring in the floodplains of present day 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. Mapped areas of alluvium are presently receiving sediment deposition.

Terrace deposits (Quaternary) - Terrace deposits generally grade from gravel at their base to silt and clay at their top. Occurring on benches above the present day streams and rivers, the sediments form rich loamy soils. Gravels, primarily novaculite, originated in the Ouachita Mountain region and from local Cretaceous formations. Thickness varies, but is generally less than 50 feet. River terraces are topographic surfaces which mark former floor levels. Water wells generally produce from the gravels at the base of the unit. Small scale gravel-mining operations produce from the basal gravel of the unit.

Tokio Formation (Upper Cretaceous) - The Tokio Formation consists of cross-bedded sand and gravel, gray clay, and volcanic ash. Basal cross-bedded gravels are approximately 30 feet thick in the mapped area. Minor sand and clay lenses occur within the gravel, while sand commonly fills the interstitial spaces around the gravel. Also, thinner (less than 1 foot) beds and lenses of gravel occur within the formation's sandy intervals. The gravels, from pea-size to 6 inches in diameter and well-rounded, are composed of novaculite, quartz, sandstone, and quartzite. Iron cemented conglomerates may be present locally. The basal gravels form a cuesta in the area. The cross-bedded sands are medium- to fine-grained quartz with minor amounts of heavy minerals, glauconite, iron concretions, and gray clay ripup clasts. The sands weather yellow to orange to red. Gray clays are lignitic, pyritic, fossiliferous, and may contain leaf imprints. The volcanic ash is light gray to white and has altered to a kaolinitic clay. The source area for much of the formation's sediments was the Ouachita Mountains region. The formation outcrop belt extends from near Arkadelphia, southwest to the Arkansas-Oklahoma state line near Arkinda, AR, and dips to the south approximately 80 feet per mile. The thickness of the unit in the mapped area ranges from 0 to 300 feet. The Tokio Formation was deposited in a nearshore-marine environment upon an unconformable surface separating it from the underlying Woodbine Formation.

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 in the mapped area. Also, thinner beds and lenses of gravel occur within the water-laid tuffs. Gravels, 1/2 to 6 inches in diameter and well-rounded, are composed of novaculite, quartz, sandstone, and quartzite. Iron-cemented conglomerates may be present locally. Additionally, pebbles of igneous rocks are interbedded within the tuffs. The basal gravels form a cuesta in the area and the tuffs weather to a distinctive red waxy clay. Unweathered tuffs range from green to blue in color. The source for the volcanic sediments was probably centered in the area between Murfreesboro and Lockesburg, Arkansas. The source area for the gravel was the Ouachita Mountain region and the local Trinity Group. The formation outcrop belt extends from the valley of the Little Missouri River near Murfreesboro, west to the Arkansas-Oklahoma state line and dips to the south approximately 80 feet per mile. The thickness of the formation in the mapped area ranges from 0 to 200 feet. The Woodbine Formation was deposited in a nearshore-marine environment following a major unconformity separating it from the underlying Trinity Group sediments of Lower Cretaceous age.

Trinity Group (Lower Cretaceous) - The Trinity Group consists of gravel, sand, clay, limestone, gypsum, celestite, and barite. The group is exposed in a east-west trending belt dipping southward approximately 100 feet per mile. Sediments composing this unit originated to the north in the Ouachita Mountain region and were deposited following a major angular unconformity developed on an upturned and eroded Paleozoic surface in a nearshore marine environment. The Paluxy sand is the only member of the Trinity Group exposed on this map.

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 to yellow to orange-red. Near the base of this member barite cementing forms sandstone, resulting in the formation of topographic highs. Thickness in the mapped area is less than 300 feet.

SYMBOLS

Gravel and/or sand pits

REFERENCES

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