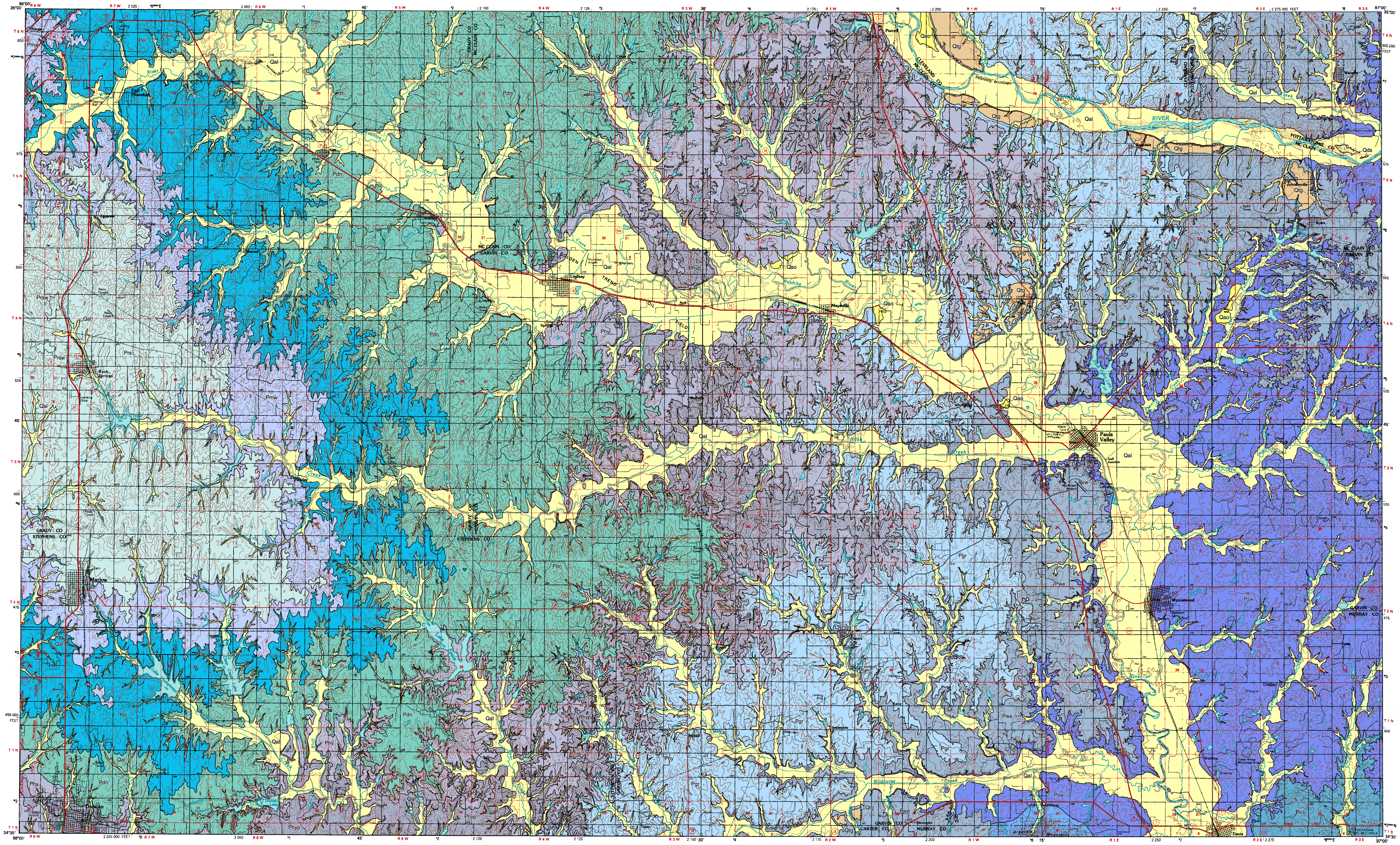
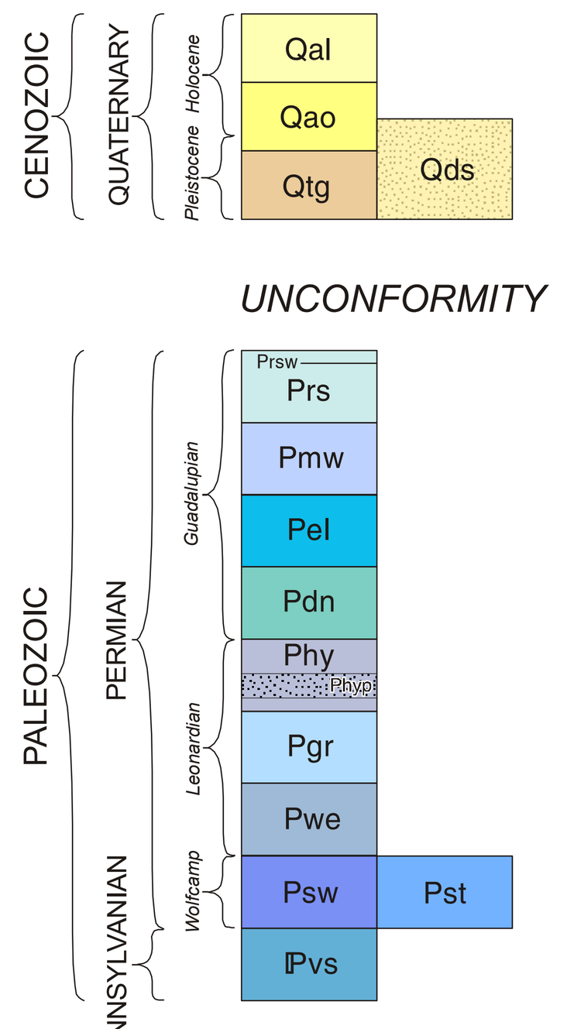
OKLAHOMA GEOLOGICAL SURVEY
G. Randy Keller, *Director*

Oklahoma Geologic Quadrangle OGQ-81
Preliminary Geologic Map of the Pauls Valley
30'X 60' Quadrangle



CORRELATION OF UNITS



DESCRIPTION OF UNITS

Qal ALLUVIUM — Clay, silt, sand, and some gravel composed of locally derived unconsolidated sediment deposited in channels and on flood plains of modern streams

Qao OLDER ALLUVIUM — Clay, silt, sand, and some gravel composed of locally derived unconsolidated sediment located between 5 to 20 feet above and adjacent to modern flood plains and alluvial valleys.

Qds DUNE SAND — Generally windblown, fine- to very fine-grained, unconsolidated sand formed into definite dune structure and ridges. Deposits most likely derived from aeolian reworking of modern and older alluvial and terrace deposits, often vegetated except for most recently formed structures.

Qtg TERRACE GRAVEL — Unconsolidated gravel, sand, silt, and clay deposited at several levels above and along the former courses of modern rivers and streams.

WHITEHORSE GROUP

Prs RUSH SPRINGS FORMATION — Consists predominantly of red to reddish brown, fine-grained, cross-bedded sandstone, with local occurrences of dolomite and gypsum. The Weatherford Gypsum (Prsw) is mapped as isolated blocks, and based on previous mapping in other quadrangles, probably occurs 9 to 18 meters below top of formation. Thickness of Rush Springs about 85 meters.

Pmw MARLOW FORMATION — Consists of orangish-brown, interbedded massive sandstone, fissile to thin-bedded sandstone, with local and minor occurrences of fissile to blocky shale. Top of formation mapped at the top of the Emanuel Gypsum bed. Thickness about 41 meters.

EL RENO GROUP

Pel EL RENO GROUP, Undifferentiated — Includes all or parts of the Dog Creek and Flowerpot Formations; consists of poorly exposed, reddish-brown silty shale, with local interbeds of thin dolostone and friable, fine-grained sandstone. Thickness about 100 meters.

Pdn DUNCAN SANDSTONE — Consists predominantly of sandstone and some shale. Sandstone may be massive, thin-bedded, or cross-bedded; shale usually blocky-bedded and may be dark red, red, ochre, or maroon in color. Thickness about 120 meters.

Phy HENNESSY FORMATION — Overall, a reddish-brown, blocky to well laminated shale with local occurrences of red siltstones and very fine-grained sandstones. The Purcell Sandstone Member (Phyp) consists of tan to light brown-colored, fine-grained sandstone and siltstone, with minor interbedded shale. Total thickness of the Hennessey Formation varies from 55-98 meters.

SUMNER GROUP

Pgr GARBER SANDSTONE — Consists predominantly of thin- to medium-bedded, reddish, fine-grained, trough-cross-bedded sandstone, with local occurrences of interbedded shale, and siltstone- and limestone-pebble conglomerate. Thickness about 40 meters.

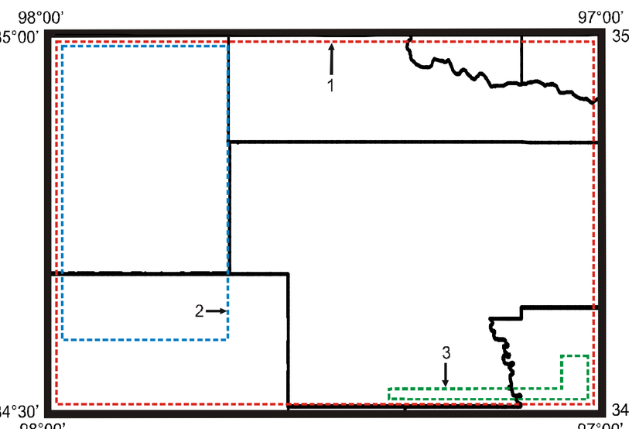
Pwe WELLINGTON FORMATION — Consists of reddish-brown shale with interbedded very fine-grained sandstone and limestone-pebble conglomerate. Base of formation mapped at the base of the Fallis Sandstone, which is more of a fine- to locally medium-grained sandstone interval. Total thickness about 46 meters.

PONTOTOC GROUP

Psw STILLWATER FORMATION — Predominantly a reddish-brown concretionary mudstone, with local interbeds of reddish-orange, friable, fine-grained, micaceous channel sandstones; dolomite- and siltstone-pebble conglomerates common at base of sandstone intervals. Base of formation mapped at the base of the Hart Limestone. Total thickness varies from 90-150 meters.

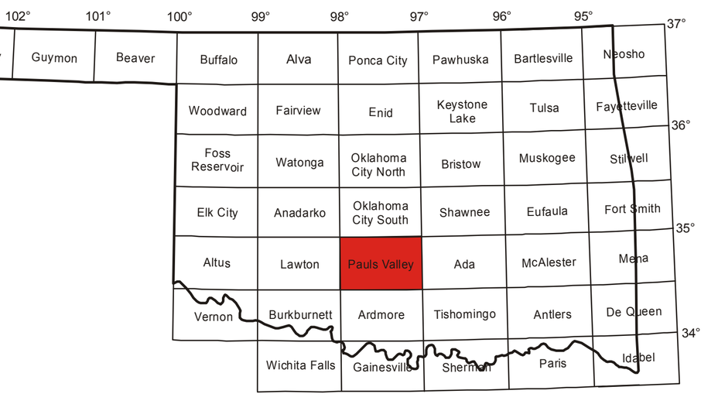
Pst STRATFORD FORMATION — The formation consists of arkose, arkosic conglomerate, and limestone-clast conglomerate, along with local occurrences of limestone and shale. It represents, more or less, the conglomeratic facies of the Stillwater Formation adjacent to the Arbuckle Mountains. The Hart Limestone constitutes the base of the formation. Thickness about 45 meters.

IPvs VANOSS FORMATION — Formation similar to the Stratford Formation, consisting mainly of calcareous and non-calcareous arkosic sandstones, limestone-clast conglomerates set within arkosic sandstone matrix, reddish brown shale, and recrystallized limestones. Thickness about 50 meters.



MAP REFERENCES

1. Hart, Jr., D.L., 1974, Reconnaissance of the water resources of the Ardmore and Sherman Quadrangles, southern Oklahoma: Oklahoma Geological Survey Hydrologic Atlas, HA-3, 4 sheets.
2. Davis, L.V., 1955, Geology and ground water resources of Grady and Northern Stephens Counties, Oklahoma: Oklahoma Geological Survey Bulletin 73, 184 p.
3. Fairchild, R.W., Hanson, R.L., and Davis, R.E., 1990, Hydrology of the Arbuckle Mountains area, south-central Oklahoma: Oklahoma Geological Survey Circular 91, 112 p.



Map of Oklahoma showing the locations of the 30′ X 60′ quadrangles. Red shaded quadrangle represents the current map

This is a preliminary map with revisions still to be done. Quadrangle boundaries (7.5') within the map are visible and will be removed when the final version is complete. Base map modified from a USGS topograhic map of the Pauls Valley quadrangle, dated 1986. Universal Transverse Mercator projection. 1927 North American Datum. Geology by Julie M. Chang and Thomas M. Stanley, 2009-2010. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under G09AC00174. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. Cartography and layout prepared by G. Russell Standridge, 2010.

APPROXIMATE MEAN DECLINATION

SCALE 1:100 000

CONTOUR INTERVAL 10 METERS

PRELIMINARY GEOLOGIC MAP OF THE PAULS VALLEY 30′ X 60′ QUADRANGLE, CARTER, CLEVELAND, GARVIN, GRADY, MC CLAIN, MURRAY, POTTAWATOMIE, AND STEPHENS COUNTIES, OKLAHOMA

Compiled by Julie M. Chang and Thomas M. Stanley
Cartography by G. Russell Standridge

2010