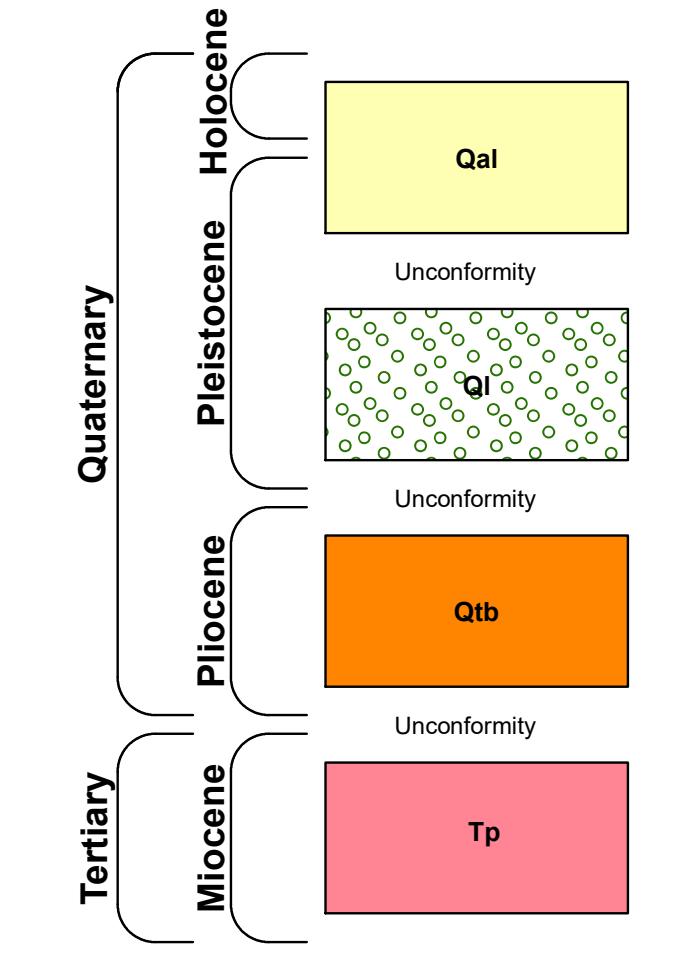


Correlation of Map Units



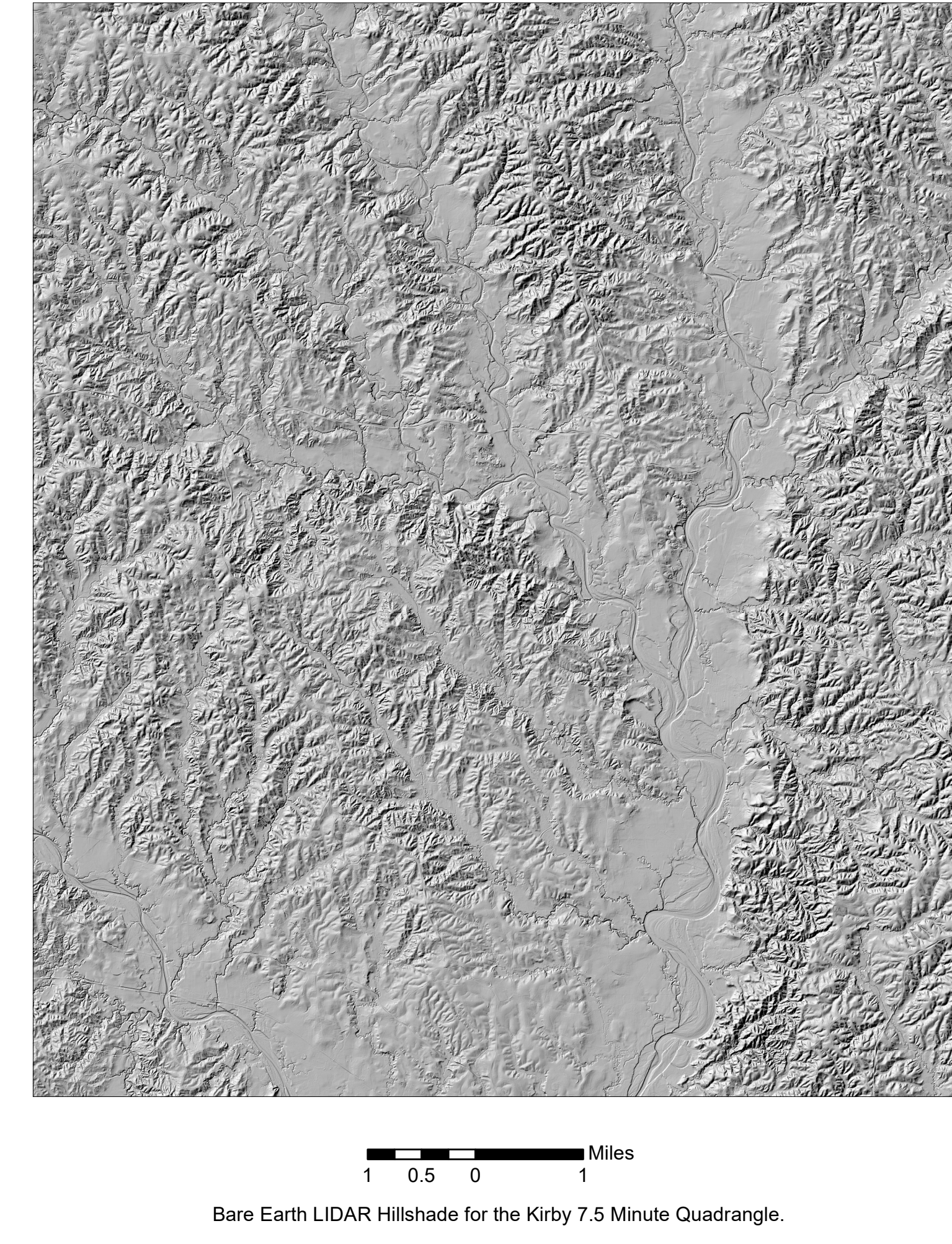
Descriptions of Map Units

Alluvium
Sand, medium- to brownish-white, very fine- to very coarse-grained, subrounded to rounded, predominantly quartzose, silty, clayey; commonly containing organic matter; heavily leached with occurrences of gravels eroded from terrace deposits. An unusual outcrop of a thick deposit of ancient carbonaceous stream alluvium of a former backswamp is exposed beneath a bed of channel gravels and indurated sands and loess-derived floodplain silts along the active channel of Lehmann Creek.

Loess
Silty, buff to tan, pale yellow, red, gray-green where in anoxic conditions; quartzose to feldspathic. Loess is an eolian deposit derived from glacial outwash. Loess is typically calcareous with dolomite and calcite; however, the upper portion of the loess is highly weathered, leached/non-calcareous, clayey, and has been referred to as "brown loam." Loess deposits unconformably blanket the Pre-loess topography with substantial local variation in thickness. In places, weathered loess contains secondary deposits of small calcareous concretions of calcite locally referred to as loess dolls. Loess can be locally and sparingly fossiliferous, commonly containing tests of stinkens of pulmonate gastropods and less commonly containing fossils of Pleistocene Vertebrates.

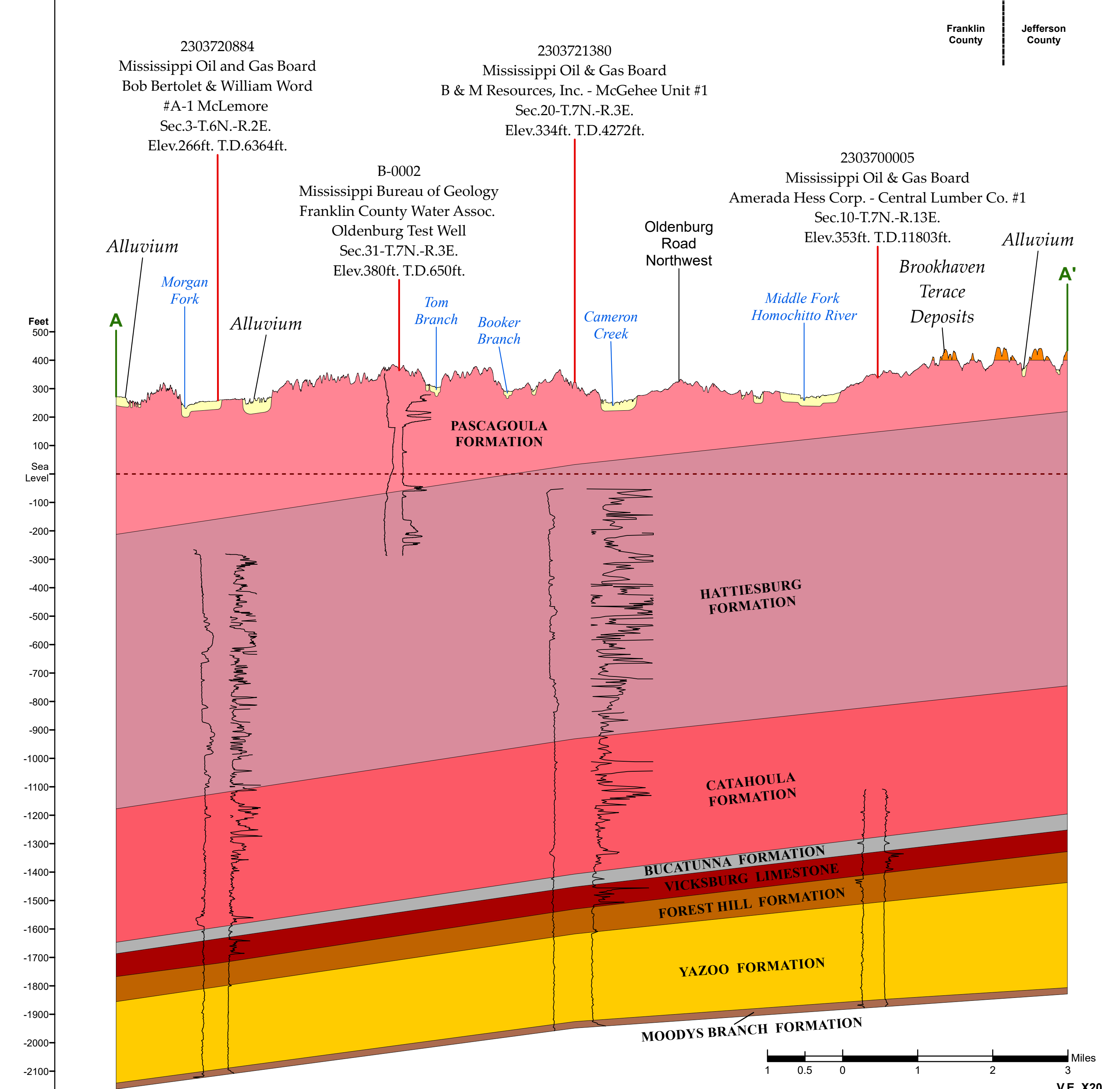
Brookhaven Terrace
Ancestral Tennessee-Ohio River System terrace deposit. Sand, yellow, orange, purple red, pink, fine- to coarse-grained, predominantly quartzose, cross-bedded to massive; graveliferous, pea to cobble size (no more than 3 inches) predominantly chert with lesser amounts of vein quartz, metaquartzite, agate, and sandstone; clay pink to white, generally occurring as discontinuous lenses in the upper portions and as rip-up clasts in basal portions. Conglomeratic ironstone ledges are common in the graveliferous sands at the base of the formation, which overlies the Hattiesburg Formation unconformably. Now severely eroded, the terrace once covered much of the area up to approximately 500 feet MSL. The terrace lines upward to a brown to reddish-brown silty to sandy loam that often contains a hardpan which consists of a mineralized horizon of iron-manganese buckshot nodules.

Pascagoula Formation
Clay, green, gray, brown, weathers pink to off-white, silty to sandy, locally lignitic; sand, gray, pale yellow to white, fine- to coarse-grained, cross-bedded to massive with bedded pebbles (pebbles consist of black, grey, brown chert, and milky quartz, are highly polished, sub-angular to well rounded), often indurated to sandstones and siltstones at surface, predominantly quartzose with lesser amounts of chert, metaquartzite, mica, and heavy minerals, slightly glauconitic in places, silicified and coalified wood common. An unusual outcrop of massive Pascagoula kaolinic clay is exposed along the active channel of Lehmann Creek in contact with carbonaceous alluvium. The kaolinic clay, at the contact with the carbonaceous stream alluvium, is marked by a thin layer of limonite.



- ✕ Surface mine pit
- B-0002 Drill-hole locality and identification number
- Unconformable Contact
- A—A' Line of Section
- National Forest Boundary

Structural Cross-Section of the Kirby 7.5-Minute Geologic Quadrangle



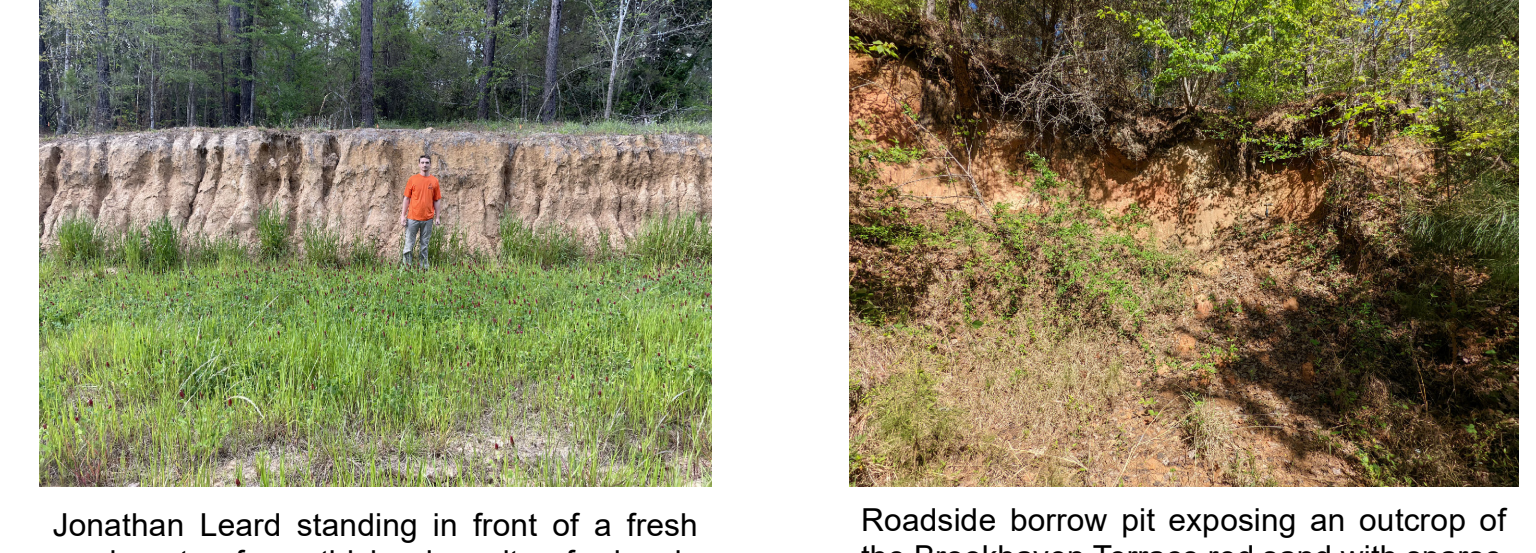
The active channel Cameron Creek with stream alluvium choked with Brookhaven Terrace derived sand and gravel. Section 17 Township 7N, Range 3E. Photographed on March 8, 2022.



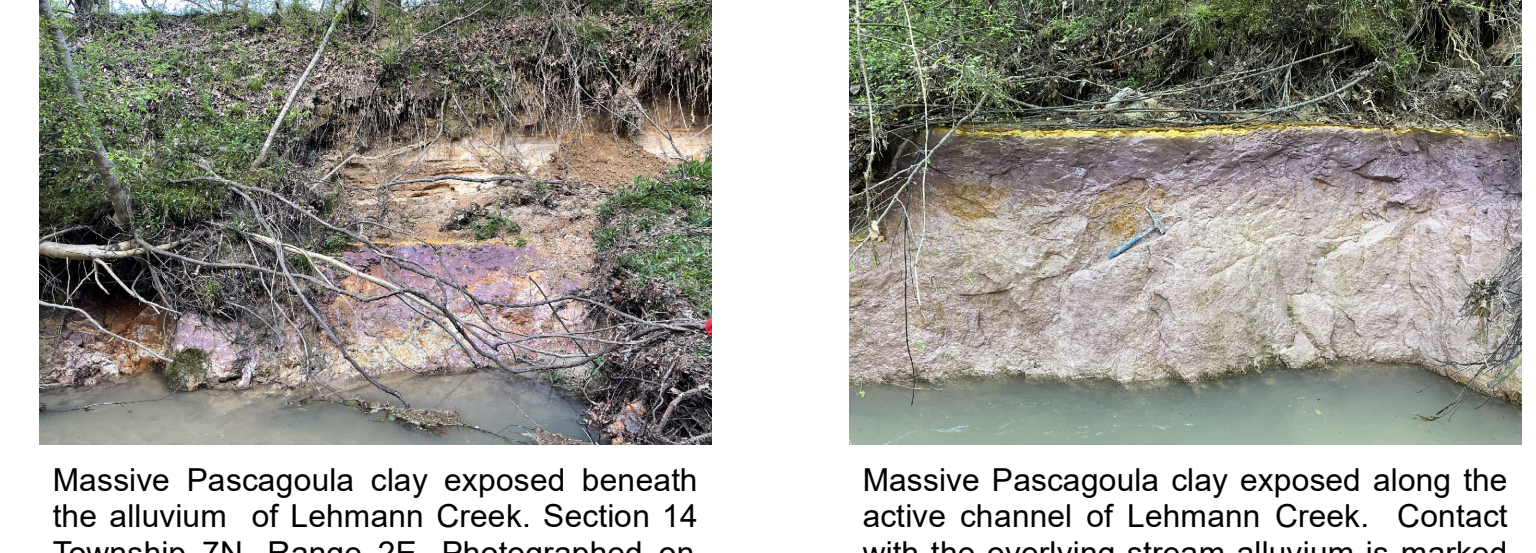
A deposit of ancient carbonaceous stream alluvium of a former backswamp beneath a bed of channel gravels and loess-derived floodplain silts along the active channel of Lehmann Creek. Section 14 Township 7N, Range 2E. Photographed on March 8, 2022.



Carbonaceous stream alluvium with lignitized plant remains beneath channel sands and gravels exposed along the active channel of Lehmann Creek. Section 14 Township 7N, Range 2E. Photographed on March 8, 2022.



Purple manganese-stained Pascagoula clay exposed in the alluvium of the active channel of Lehmann Creek. Section 14 Township 7N, Range 2E. Photographed on March 8, 2022.



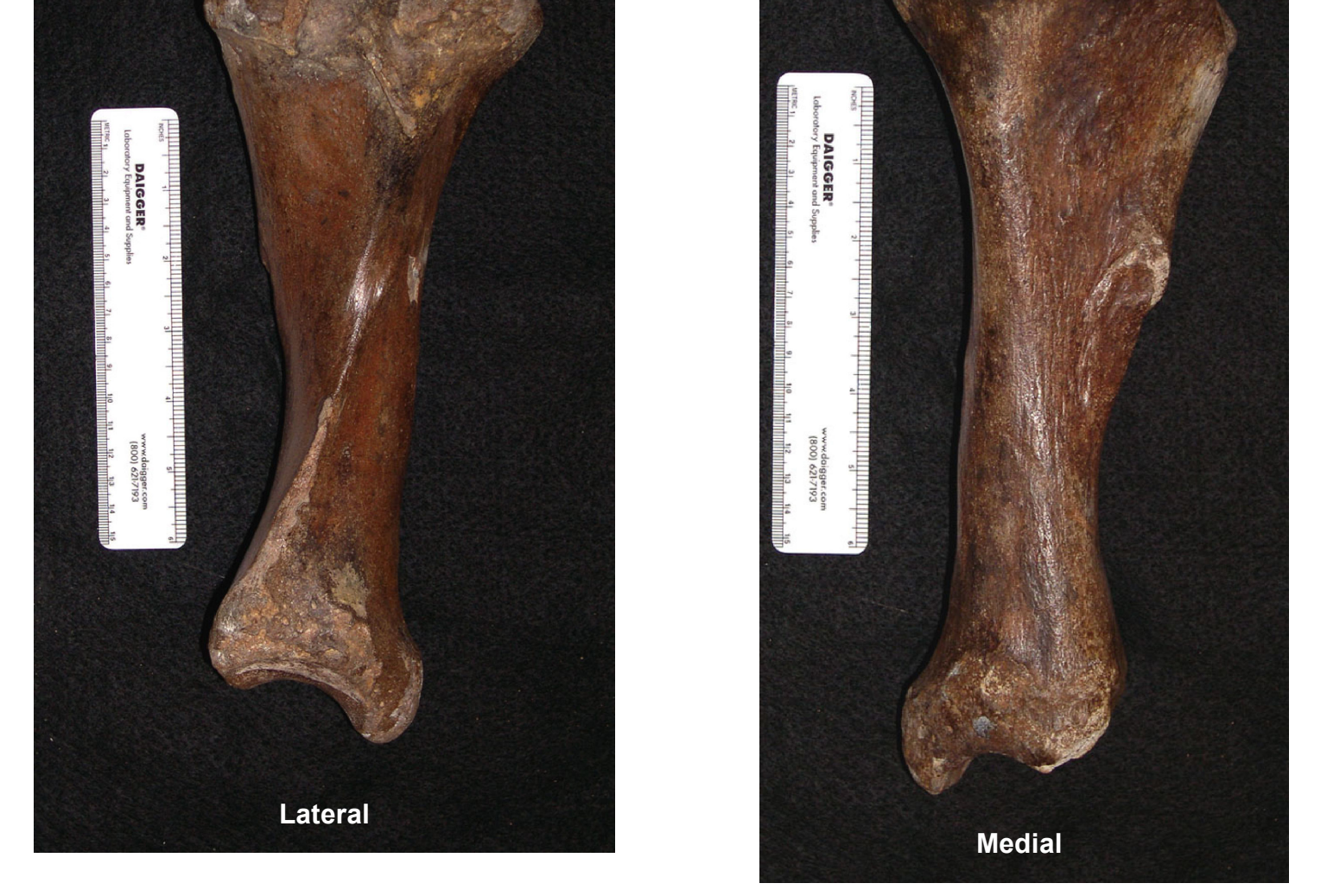
Alluvial sands unusually indurated from closest packing of the sand grains, exposed in the active channel of Lehmann Creek. Section 14 Township 7N, Range 2E. Photographed on March 8, 2022.



Jonathan Leard standing in front of a fresh road cut of a thick deposit of deeply weathered loess. Section 15 Township 6N, Range 2E. Photographed on March 8, 2022.

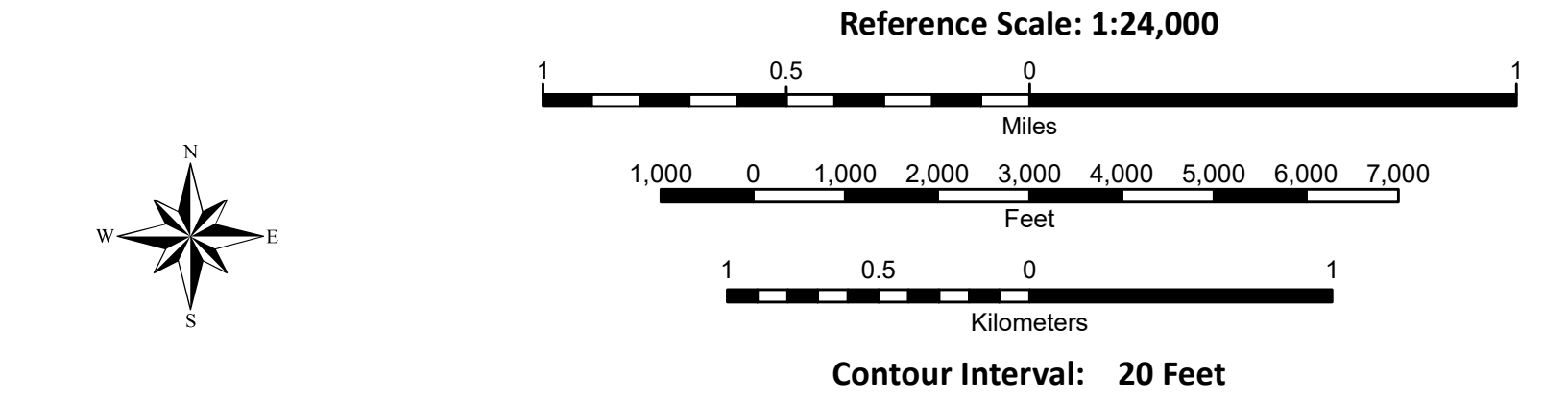


Massive Pascagoula clay exposed along the active channel of Lehmann Creek. Contact with the overlying stream alluvium is marked by a thin layer of yellow limonite. Section 14 Township 7N, Range 2E. Photographed on March 8, 2022.



Posterior, Anterior, Lateral, and Medial view of the semi-aquatic rhinoceros *Teleoceras medicornutum* from the Pascagoula Formation. Collected from Middle Fork Homochitto River south of the Oldenburg Road. Photographed by George Phillips, Curator of Paleontology at the Mississippi Museum of Natural Science.

Base Map produced by the Mississippi Geological Survey
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator
Datum: WGS 1984
Units: Meter
Contour Interval: 20 Feet



This geologic map was funded in part by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under STATEMAP award number #06716. && Geology field checked in 2021 and 2022 using LIDAR. Projection: Mercator Auxiliary Sphere; Datum: WGS 1984, Horizontal Units: Meter, Contour Interval: 20 feet.
MDEQ-GEOLOGY State Geologist: David T. Dockery, III
MDEQ-GEOLOGY Geographic Information Systems: Daniel W. Morse
MDEQ-GEOLOGY Drafters: Archie McKenzie and Trey Midgee
MDEQ-GEOLOGY Geophysical Logging: Andrew Newcomb and Paul Parrish
Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes. The views and conclusions contained in this Open-File Report are those of the geologists and should not be interpreted as representing the official policies, either expressed or implied, of the State of Mississippi or of the United States Government.

GEOLOGIC MAP of the KIRBY QUADRANGLE
Franklin and Jefferson Counties, Mississippi

2022
Geology by
James E. Starnes, RPG and Jonathan R. Leard, RPG

