STATE OF OHIO
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QUATERNARY GEOLOGY OF PICKAWAY COUNTY, OHIO

by
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Digital Map Series QG-2-PIC
Pickaway
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PICKAWAY COUNTY QUATERNARY

Introduction

Pickaway County is located in central Ohio and as of 2020 had a population of 58,539 (U.S. Census Bureau, 2021). The northern third of the county and communities adjacent to U.S. Highway 23 (US-23) are experiencing rapid economic and population growth due to their proximity and accessibility to the state capital, Columbus. The county is bisected by the Scioto River which runs nearly north to south across the county and recharges important aquifers for portions of Columbus and surrounding communities. Additional major streams, including Darby Creek, Deer Creek, and Walnut Creek, meander through the county before converging with the Scioto River. Sand-and-gravel deposits adjacent to these streams provide important aggregate resources for economic development within central Ohio. Detailed mapping of Quaternary geology is crucial for understanding the availability of natural resources and for future growth within the region.

The central portion of Pickaway County is within the Columbus Lowland of the Southern Ohio Loamy Till Plain (Brockman, 1998). This portion of the county is characterized by low, hummocky ground moraine dissected by major steams and former meltwater valleys. The western third of the county lies within the Darby Till Plain, a low, hummocky ground moraine with broad recessional moraines. Notable recessional moraines in the county include the London Moraine and the herein named New Holland Moraine (formerly considered a segment of the Marcy Moraine). The eastern extent of the county is dominated by the north—south trending Berea Escarpment and the glaciated Allegheny Plateau. Often 50 meters (m; 164 feet [ft]) above the Columbus Lowland, this area is characterized by higher-relief, bedrock-controlled topography, and deeply incised streams. This portion of the county provides the best exposures of glacial deposits, but these unconsolidated materials are generally thin (Powers and Swinford, 2004). In areas of thin drift and rugged terrain, moraine ridges (especially those of the Marcy Moraine) become difficult to trace. Bedrock varies greatly from west to east in the county with the west being dominated by Silurian and Devonian carbonates including the Greenfield Dolomite, Tymochtee Dolomite, Salina Group, and Columbus Limestone. Bedrock in the center of the county is comprised of Devonian Olentangy and Ohio Shales. The eastern portion of the county is underlain by interbedded Devonian and Mississippian rocks including the Bedford Shale, Berea Sandstone, Sunbury Shale, Maxville Limestone, Logan Formation, and Cuyahoga Formation (Slucher and others, 2006).

Background

Despite its proximity to Columbus, the Quaternary geology of Pickaway County has not been mapped at the county scale since Schuster mapped the county in 1952. The earliest description of major glacial landforms of Pickaway County can be found in Leverett's 1902 monograph. Leverett covered the entire state and described prominent glacial features, including the Marcy Moraine; Circleville Esker; and outwash along the Scioto River, Darby Creek, and Big Walnut Creek. More focused mapping of Pickaway County resumed during the 1950s through the 1960s. Aided by topographic maps, Schuster produced the first detailed map of the landforms first identified by Leverett and provided subsurface context in his thesis, *The Glacial Geology of Pickaway County* (Schuster, 1952). Kempton and Goldthwait (1959) identified five distinct outwash terrace levels along Scioto Valley from Circleville south to Portsmouth by assessing elevation and soil leaching. Using relative chronology, they found the two youngest terrace levels (Circleville and Worthington) in Pickaway County. This early mapping by Goldthwait and his students culminated in the publication of the *Glacial Map of Ohio* by Goldthwait and others (1967). At the same time, interest in developing the groundwater resources of Pickaway County increased with the publication of *Ground Water for Industry in the Scioto River Valley* (Walker and others, 1965) which included several cross sections constructed from an unpublished seismic refraction survey through the Scioto Valley (Struble, 1962). Additional groundwater investigations focused on more site-specific studies including *The Ground-Water Situation in the Circleville Area, Pickaway County, South-Central Ohio* (Norris, 1975). Mapping of the county would shift in the decades following to larger regional and statewide maps including the statewide *Quaternary Map of Ohio* (Pavey and others, 1999), which relied heavily on Goldthwait's 1967 map for the Pickaway County area. The 1:500,000-scale map compilation was followed by 1:100,000-scale surficial stack mapping performed by the Ohio Geological Survey (Brockman and others, 2005a; Brockman and others, 2005b). In the 2000s, Quaternary research and mapping in the county focused on site-specific studies of parks and preserves, including Stage's Pond State Nature Preserve (Venteris and Larsen, 2009). This map and conclusions build on recent county-level mapping of the Scioto Sublobe (Nash, 2020; Valachovics and others, 2022).

Mapping Methods

Descriptions and interpretations of the spatial relationships between glacial sediments were made from the analysis of existing data and field observations. County soil survey maps (Kerr and Christman, 1980) and previous geologic mapping provided an initial guide to map-unit areas. These areas were modified through interpretation of local geomorphic features from a digital elevation model (DEM) and derivative shaded-relief and percent-slope models. Other data that indicated deposits at depth, such as well logs, provided the basis for a description of map units that summarize, as accurately as possible, subsurface geologic materials. Preliminary mapping was cross-checked and revised from field observations. Field data were collected from a total of 265 sites, many of which were located along the banks of streams and road cuts. Where exposures of glacial sediments were absent, field data were collected using hand auger borings, soil probes, and dug pits. Lithologic field descriptions included comments on material composition, texture, structure, color, contacts, and leaching. New samples that provided chronologic control were collected from five sites within the county. Organic material such as wood and plant debris were collected from two outcrops and sent to Woods Hole Oceanographic Institution in Massachusetts for radiocarbon dating. An additional three samples of organic material from the Worthington Outwash within the Scioto Valley in southern Franklin County were also sent to Woods Hole to provide additional chronological control. Two samples of sediment collected in small opaque steel casings from outcrops on outwash terraces (in addition to one sample from an outwash terrace in southern Franklin County) were collected (following methods described in Nelson and others, 2015) and sent to the Optically Stimulated Luminescence (OSL) Dating Laboratory at the Illinois State Geological Survey for OSL analysis.

Quaternary Geology

Pickaway County and much of Ohio experienced at least three periods of glaciation: the pre-Illinois glaciations (Marine isotope stage [MIS] >19?), the Illinois Glaciation (MIS 6) and the Wisconsin Glaciation (MIS 2). Only deposits from the most recent incursion, the Wisconsin Glaciation, remain on the surface of the county. However, beneath the surface the bedrock topography provides clues to the characteristics of the pre-Wisconsin Quaternary geology.

Pre-Illinoian and Illinoian Drainage

The origins of the Scioto Valley predate the Wisconsin Glaciation. The earliest iteration of the valley was as a primary trunk of the Teays River System, a major pre-Quaternary drainage network that eroded into bedrock (fig. 1). The Teays River entered Pickaway County from the south (following the same course as the modern Scioto River) until reaching South Bloomfield where the Teays turned west, exiting the county near Orient (Brockman and others, 2003). The Laurelville Valley (Pickaway Township) and the Adelphi Valley (Salt Creek Township) are pre-Illinoian or Teays Stage valleys (Stout and others, 1943). The bedrock valley north of South Bloomfield, known as the Newark Valley, was eroded or at least substantially widened by pre-Illinoian meltwater (Stout and others, 1943). The anastomosing nature of the bedrock valley suggests that meltwater draining through the Newark Valley breached the constraints of the Teays Valley and formed a braided bedrock channel. The Illinois Glaciation likely further modified the existing drainage network as Illinoian meltwater was routed through the Scioto Valley and into the Ohio River.

Wisconsin Glaciation

The Scioto Sublobe (fig. 2) of the Laurentide Ice Sheet is responsible for the unconsolidated surficial deposits in the county. The Scioto Sublobe entered the county from the north approximately 27,000 years ago (fig. 3) and overran the existing boreal forests established on the pre-Wisconsin surface. Evidence of the advance over the ancient forests comes in the form of buried wood found entrained within till in the northern part of Pickaway County and in southern Franklin County (MW-3C, OGS-R1 through OGS-R16, W-127; table 1). The Scioto Sublobe reached its terminal position at the Lattaville Moraine in Ross County to the south approximately 25,000 years ago (OGS-R29 through OGS-R32; table 1). During this advance and subsequent retreat, the sublobe deposited the Caesar Till (cag; cagb), described in Quinn and Goldthwait (1985), and moraines (came) when the ice front was stable. The Caesar Till is found west of the Circleville Fan and the Marcy Moraine and is characterized by its loamy matrix texture, blue-gray tint (10 YR 4/1), and loess cap (absent where overrun by Darby Till). After deposition of the Lattaville Moraine, the ice began to retreat northward depositing the Circleville Outwash (gfoc) found in Salt Creek Township. During this retreat the palimpsest New Holland Moraine, formerly correlated with the Marcy Moraine (Schuster,1952; Valachovics and others, 2022), was deposited. Evidence of the palimpsest nature of the New Holland Moraine includes fluting continuing over a portion of the moraine in Pickaway County and the uncoupling of the Bloomingburg Moraine from the New Holland Moraine in Fayette County (Schuster, 1952; Valachovics and others, 2022).

A second advance of the Scioto Sublobe correlated with the Reesville Moraine in Fayette County, culminated around 22,000 years ago (Nash, 2020; Valachovics and others, 2022). Known as the Darby Till (dag; dagb), the till deposited during this advance became siltier, perhaps by incorporating loess that had been deposited atop the Caesar Till. The Darby Till is browner (10YR 4/4) and siltier than the Caesar Till. Where both tills are found in outcrop, the Caesar Till is always missing its distinctive loess cap making differentiating between the two tills difficult. However, well logs throughout the Darby Till Plain note the relationship of "brown clay," over "gray clay," and multiple outcrops with both tills can be found in the county, including an outcrop on Little Walnut Creek near Hedges Chapel that contains a shear zone between the two tills. The Darby Till is often less than 6 m (20 ft) thick on ground moraine except where the ice front paused long enough to construct a moraine (dame; daml). Further complicating the deglacial history, the Darby Till often exists as a thin draping over the preexisting landscape, allowing covered features such as moraines to exhibit palimpsest characteristics.

During the glacial advance 22,000 years ago that deposited the Darby Till, the ice margin extended as far west as the Marcy Moraine and south into Ross County, while at this margin the Circleville Fan was deposited within the Scioto Valley. It is also likely that the replace with: 20-kilometer (12-mile) -long segmented Circleville Esker (e) was deposited while the ice was at this margin. With ice predominantly flowing to the south, the Marcy Moraine in eastern Pickaway County developed as a lateral moraine (daml) abutting the Berea Escarpment. The moraine is characterized by its high-relief, hummocky topography but lacks a well-defined ridge. Near where it enters Fairfield County, the Marcy Moraine shifts from diamicton material into majority sand-and-gravel material in a linear kame (k) deposit known as the Walnut Kames (Wolfe and others, 1962). The London Moraine found in the northwestern portion of the county is a broad recessional moraine with multiple ridges. Although Schuster (1952) suggested that the London Moraine may also be palimpsest, no direct evidence was found in Pickaway County.

The extent of the glacial advance approximately 22,000 years ago is poorly defined in the western portion of the county as there is no correlated moraine and the loess cap atop the Caesar Till is often discontinuous or absent. Quinn and Goldthwait (1985) placed the margin with low confidence in Ross County between Greenfield (Highland County) and Anderson (Ross County). Pavey and others (1999) would move the margin of this advance to the north using a line between Greenfield and Circleville. Radiocarbon ages on a buried forest exposed in Biers Run in Ross County suggest the advance may have reached the Lattaville Moraine during this advance (Quinn and Goldthwait, 1985; Higley and Norris, 2020).

At the Scioto Lobe extent of the glacial advance 22,000 years ago, the Darby Till Plain was scoured by flows of meltwater from the glacier. Many of the smaller tributaries of these meltwater flows are simply erosional features; however, larger meltwater channels are filled with Worthington Outwash deposits (gfow). In places where this meltwater was constrained by topography or dammed by outwash or ice, temporary glacial lakes (gll) existed. The most unique of the meltwater features is Stage's Pond, which has been previously interpreted as a moulin scar by Venteris and Larsen (2009). However, a kettle origin cannot be fully ruled out for Stage's Pond as till capping the surrounding sand and gravel can be explained by the rapid retreat and readvance of the Scioto Sublobe 22,000 years ago. An increase in silt and clay percentage at the bottom of the pond may be remnants of till deposited during this advance that collapsed after the melting of buried ice. Kettles and other closed depressions may contain substantial peat (p) deposits. Many of the former meltwater channels are now occupied and dissected by modern streams and filled with post-glacial alluvium (al). Fine-grained materials sourced from the outwash in these channels were blown into small eolian dunes near Duvall (dun).

DATA SOURCES

Data were collected from numerous sources (see "References"). The concentration of data was greatest near the surface and decreased with depth. County soil survey maps, which describe the top 1.5 m (5 ft) of surficial materials, provided an initial guide to map-unit areas. These data were supplemented by theses and published or unpublished geologic reports, maps, and field notes (on file at the Ohio Department of Natural Resources [ODNR] Division of Geological Survey). Data that indicated changes of deposits at depth includes water-well logs from the ODNR, Division of Water Resources and test-boring logs provided by the Ohio Department of Transportation, Office of Geotechnical Document Management system, available online at https://gis.dot.state.oh.us/tims and at Ohio Environmental Protection Agency and county engineer's offices. These data provided the basis for lithologic unit descriptions that summarize, as accurately as possible, recognized associations of genetically related materials. Total thickness of each surficial deposit was estimated using a modified ODNR Division of Geological Survey open-file bedrock topography map, and bedrock units were summarized from ODNR Division of Geological Survey bedrock geology maps, all of which are available for each 7.5-minute quadrangle in the map area. The Ohio Statewide Imagery Program collected light detection and ranging (LiDAR) data and converted it into a 2.5 x 2.5-ft-resolution DEM. Using this DEM, the ODNR Division of Geological Survey generated a shaded-relief and a percent-slope digital model of the land surface.

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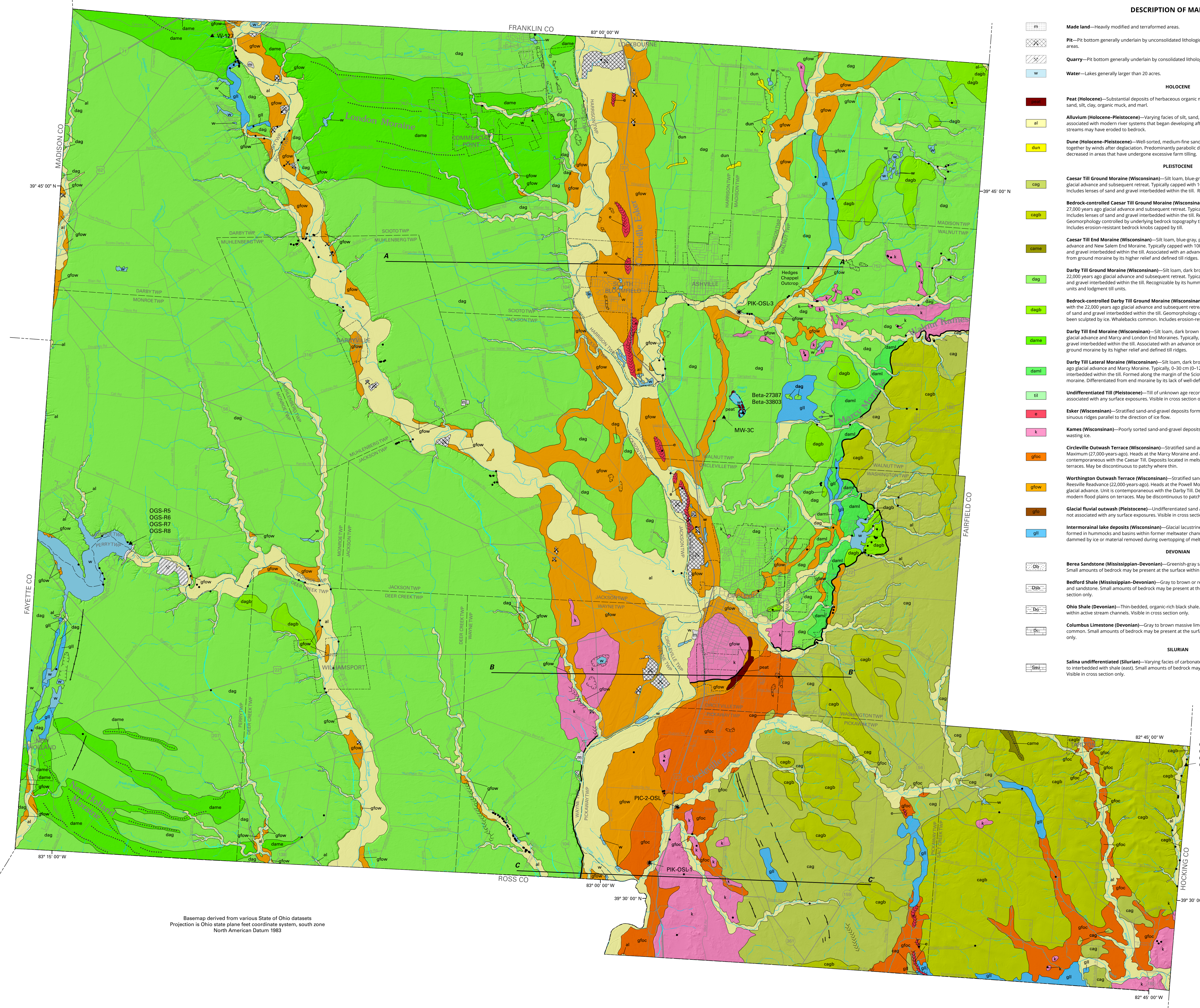


Basemap derived from various State of Ohio datasets
Projection is Ohio state plane feet coordinate system, south zone
North American Datum 1983

MILES 1 ½ 0 1 2 3 4 5
KILOMETERS 1 0.5 0 1 2 3 4 5 6 7

7°W
APPROXIMATE MEAN DECLINATION, 2023
SCALE: 1:62,500

5,000 2,500 0 5,000 10,000 15,000 20,000 25,000 30,000 FEET
1,000 500 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 METERS

EXPLANATION OF MAP SYMBOLS

Field data collection locality
OSL sample
Radiocarbon sample
Quarry
Pit
Esker
Meltwater scar
Moulin scar
Kettle depression
Fluting
Moraine crest
Glacial advance limit
Cross section

DESCRIPTION OF MAP UNITS

m — **Made land**—Heavily modified and terraformed areas.

Pit—Pit bottom generally underlain by unconsolidated lithologic units of surrounding polygon(s). May contain reclaimed areas.

Quarry—Pit bottom generally underlain by consolidated lithologic units of carbonate bedrock. May contain reclaimed areas.

w — **Water**—Lakes generally larger than 20 acres.

HOLOCENE

peat — **Peat (Holocene)**—Substantial deposits of herbaceous organic material found in wetlands. May include minor amounts of sand, silt, clay, organic muck, and marl.

al — **Alluvium (Holocene–Pleistocene)**—Varying facies of silt, sand, and gravel found along floodplains, channels, and bars associated with modern river systems that began developing after deglaciation. Includes patchy alluvial deposits where streams may have eroded to bedrock.

dun — **Dune (Holocene–Pleistocene)**—Well-sorted, medium-fine sand deposited in low 0–2-m (0–6-ft) sinuous ridges blown together by winds after deglaciation. Predominantly parabolic dunes deposited by westerly winds. Deposit sorting may be decreased in areas that have undergone excessive farm tilling.

PLEISTOCENE

cag — **Caesar Till Ground Moraine (Wisconsinan)**—Silt loam, blue-gray, pebbly diamicton associated with the 27,000 years ago glacial advance and subsequent retreat. Typically capped with 100–150 centimeters (cm) (40–60 inches [in]) of loess cover. Includes lenses of sand and gravel interbedded within the till. Recognizable by its hummocky to rolling topography.

cagb — **Bedrock-controlled Caesar Till Ground Moraine (Wisconsinan)**—Silt loam, blue-gray, pebbly diamicton associated with the 27,000 years ago glacial advance and subsequent retreat. Typically capped with 100–150 cm (40–60 in) of loess cover. Includes lenses of sand and gravel interbedded within the till. Recognizable by its hummocky to rolling topography. Geomorphology controlled by underlying bedrock topography that may have been sculpted by ice. Whalebacks common. Includes erosion-resistant bedrock knobs capped by till.

came — **Caesar Till End Moraine (Wisconsinan)**—Silt loam, blue-gray, pebbly diamicton associated with the 27,000 years ago glacial advance and New Salem End Moraine. Typically capped with 100–150 cm (40–60 in) of loess cover. Includes lenses of sand and gravel interbedded within the till. Associated with an advance or pause in the retreat of the Scioto Lobe. Differentiated from ground moraine by its higher relief and defined till ridges.

dag — **Darby Till Ground Moraine (Wisconsinan)**—Silt loam, dark brown to tan (10YR 4/4), pebbly diamicton associated with the 22,000 years ago glacial advance and subsequent retreat. Typically, 0–30 cm (0–12 in) of loess cover. Includes lenses of sand and gravel interbedded within the till. Recognizable by its hummocky to rolling topography and includes both ablation till units and lodgment till units.

dagb — **Bedrock-controlled Darby Till Ground Moraine (Wisconsinan)**—Silt loam, dark brown to tan, pebbly diamicton associated with the 22,000 years ago glacial advance and subsequent retreat. Typically, 0–30 cm (0–12 in) of loess cover. Includes lenses of sand and gravel interbedded within the till. Geomorphology controlled by underlying bedrock topography that may have been sculpted by ice. Whalebacks common. Includes erosion-resistant bedrock knobs capped by till.

dame — **Darby Till End Moraine (Wisconsinan)**—Silt loam, dark brown to tan, pebbly diamicton associated with the 22,000 years ago glacial advance and Marcy and London End Moraines. Typically, 0–30 cm (0–12 in) of loess cover. Includes lenses of sand and gravel interbedded within the till. Associated with an advance or pause in the retreat of the Scioto Lobe. Differentiated from ground moraine by its higher relief and defined till ridges.

daml — **Darby Till Lateral Moraine (Wisconsinan)**—Silt loam, dark brown to tan, pebbly diamicton associated with the 22,000-years-ago glacial advance and Marcy Moraine. Typically, 0–30 cm (0–12 in) of loess cover. Includes lenses of sand and gravel interbedded within the till. Formed along the margin of the Scioto Lobe where general ice flow direction was parallel to the moraine. Differentiated from end moraine by its lack of well-defined ridges.

til — **Undifferentiated Till (Pleistocene)**—Till of unknown age recorded on deep borings completed in bedrock valleys and not associated with any surface exposures. Visible in cross section only.

e — **Esker (Wisconsinan)**—Stratified sand-and-gravel deposits formed by meltwater flowing within subglacial tunnels. Occurs in sinuous ridges parallel to the direction of ice flow.

k — **Kames (Wisconsinan)**—Poorly sorted sand-and-gravel deposits formed as groups of high hummocks directly in contact with wasting ice.

gfoc — **Circleville Outwash Terrace (Wisconsinan)**—Stratified sand and gravel deposited during glacial retreat from the Last Glacial Maximum (27,000-years-ago). Heads at the Marcy Moraine and associated 22,000 years ago glacial advance. Unit is contemporaneous with the Caesar Till. Deposits located in meltwater channels or isolated above modern flood plains on terraces. May be discontinuous to patchy where thin.

gfow — **Worthington Outwash Terrace (Wisconsinan)**—Stratified sand and gravel deposited during glacial retreat following the Reesville Readvance (22,000-years-ago). Heads at the Powell Moraine (Delaware County) and associated 18,000 years ago glacial advance. Unit is contemporaneous with the Darby Till. Deposits located in meltwater channels or isolated above modern flood plains on terraces. May be discontinuous to patchy where thin.

gfo — **Glacial fluvial outwash (Pleistocene)**—Undifferentiated sand and gravel of unknown age. Recorded on deep borings and not associated with any surface exposures. Visible in cross section only.

gll — **Intermorainal lake deposits (Wisconsinan)**—Glacial lacustrine silt and clays deposited in temporary meltwater lakes formed in hummocks and basins within former meltwater channels and moraines. Basins may be open where previously dammed by ice or material removed during overtopping of meltwater.

DEVONIAN

Db — **Berea Sandstone (Mississippian–Devonian)**—Greenish-gray sandstone. Facies may be massive to interbedded with shale. Small amounts of bedrock may be present at the surface within active stream channels. Visible in cross section only.

Dsb — **Bedford Shale (Mississippian–Devonian)**—Gray to brown or reddish-brown shale interbedded with intervals of siltstone and sandstone. Small amounts of bedrock may be present at the surface within active stream channels. Visible in cross section only.

Do — **Ohio Shale (Devonian)**—Thin-bedded, organic-rich black shale. Small amounts of bedrock may be present at the surface within active stream channels. Visible in cross section only.

Dc — **Columbus Limestone (Devonian)**—Gray to brown massive limestone and carbonate-rich dolomite. Solution features are common. Small amounts of bedrock may be present at the surface within active stream channels. Visible in cross section only.

SILURIAN

Ssu — **Salina undifferentiated (Silurian)**—Varying facies of carbonate-rich dolomite and limestone. Facies may be massive (west) to interbedded with shale (east). Small amounts of bedrock may be present at the surface within active stream channels. Visible in cross section only.

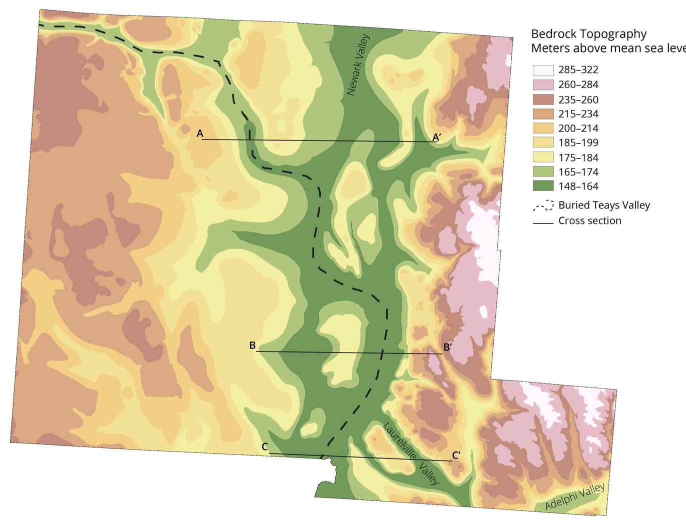


FIGURE 1. Bedrock topography map of Pickaway County showing major bedrock valleys (Stout and others, 1943). Modified from Brockman and others (2003). Buried Teays Valley shown as dashed line. Cross section lines match those on the main map frame.

FIGURE 2. Last Glacial Maximum (LGM) Sublobe map of Ohio showing location of Pickaway County (red). Basemap is hillshade derived from digital elevation model (OGRIP, 2006).

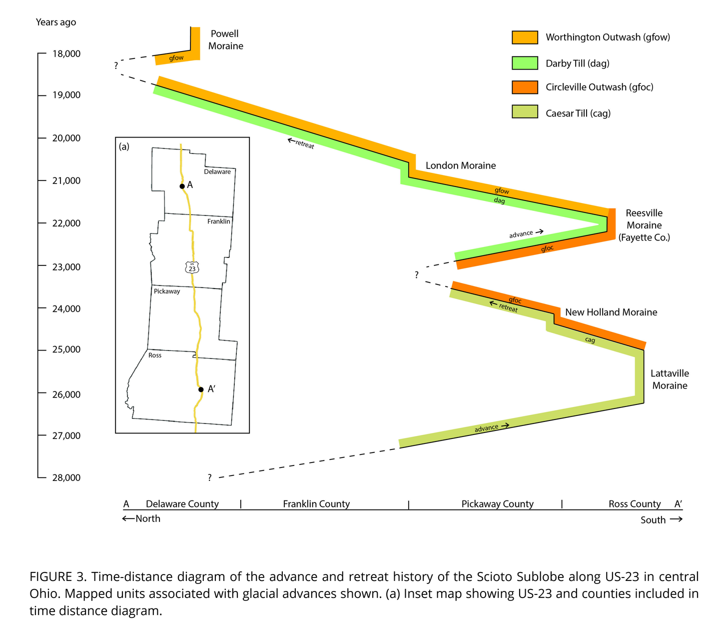
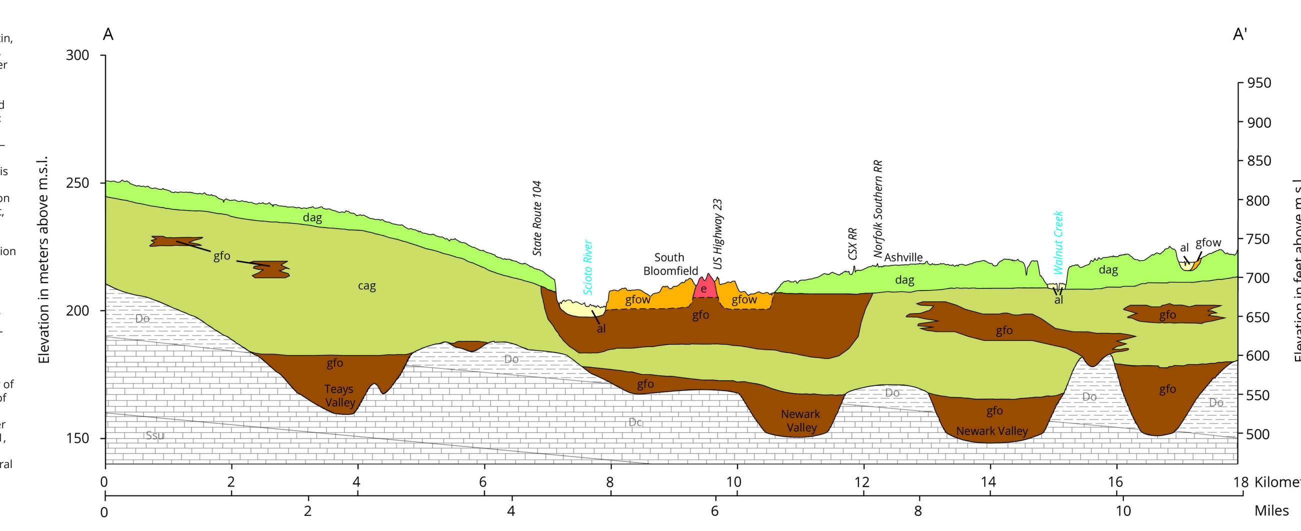


FIGURE 3. Time-distance diagram of the advance and retreat history of the Scioto Sublobe along US-23 in central Ohio. Mapped units associated with glacial advances shown. (a) Inset map showing US-23 and counties included in time distance diagram.

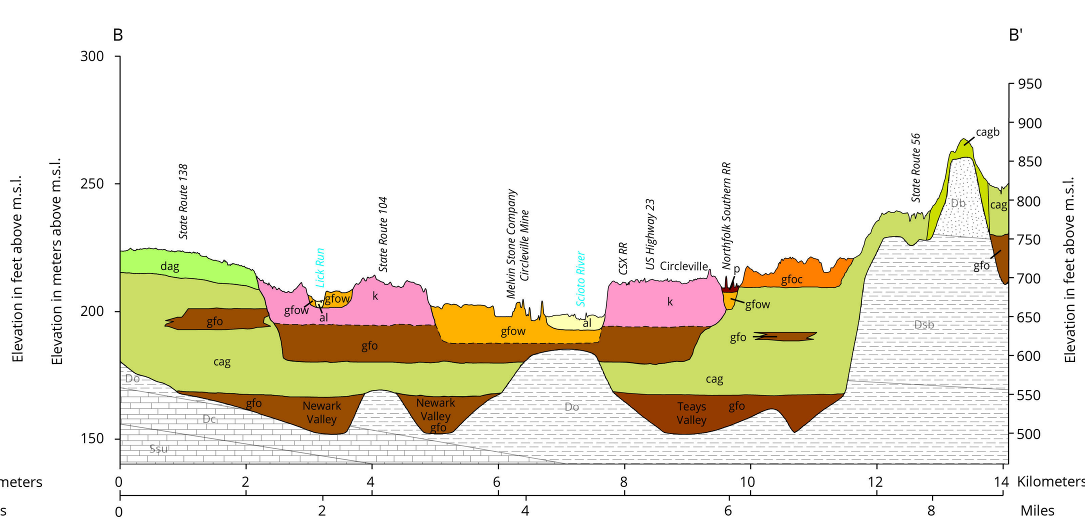
TABLE 1. Radiocarbon samples from Franklin and Pickaway Counties.

ID*	Site	Material	Depth (m)	^{14}C age (BP)	Calibrated Age (Median Probability, BP) †	Latitude	Longitude	County	Notes
Beta-27387[1]	Stages Pond	bulk carbon	0.96	4,070 ± 130	4,576	39.671611	-82.936080	Pickaway	bottom date in organic material
Beta-33803[1]	Stages Pond	bulk carbon	0.39-0.40	2,160 ± 70	2,152	39.671611	-82.936080	Pickaway	in organic material
MW-3C[2]	Stages Pond	wood	35.05	22,160 ± 150	26,393	39.669956	-82.944756	Pickaway	in outwash
OGS-R1	Parsons Road	wood	26.5	22,700 ± 350	26,955	39.839728	-82.981525	Franklin	in till one meter above outwash
OGS-R2	Parsons Road	wood	26.5	22,700 ± 290	26,970	39.839728	-82.981525	Franklin	in till one meter above outwash
OGS-R3	Parsons Road	wood	26.5	22,700 ± 300	26,967	39.839728	-82.981525	Franklin	in till one meter above outwash
OGS-R4	Parsons Road	wood	26.5	22,600 ± 290	26,868	39.839728	-82.981525	Franklin	in till one meter above outwash
OGS-R5	Deer Creek	wood	4.6	23,100 ± 250	27,399	39.624122	-83.215254	Pickaway	in till
OGS-R6	Deer Creek	wood	4.6	23,000 ± 250	27,305	39.624122	-83.215254	Pickaway	in till
OGS-R7	Deer Creek	wood	4.6	22,900 ± 240	27,205	39.624122	-83.215254	Pickaway	in till
OGS-R8	Deer Creek	wood	4.6	23,100 ± 250	27,399	39.624122	-83.215254	Pickaway	in till
OGS-R13	Great Southern	wood	17.0	22,300 ± 260	26,624	39.881617	-83.006911	Franklin	in till beneath outwash
OGS-R14	Great Southern	wood	17.0	22,600 ± 270	26,874	39.881617	-83.006911	Franklin	in till beneath outwash
OGS-R15	Great Southern	wood	17.0	22,500 ± 270	26,783	39.881617	-83.006911	Franklin	in till beneath outwash
OGS-R16	Great Southern	wood	17.0	22,600 ± 250	26,881	39.881617	-83.006911	Franklin	in till beneath outwash
OGS-R17	Great Southern	plant detritus	1.9	10,150 ± 55	11,777	39.879631	-83.006798	Franklin	between alluvium and outwash
OGS-R18	Great Southern	plant detritus	1.9	10,850 ± 50	12,782	39.879631	-83.006798	Franklin	between alluvium and outwash
OGS-R19	Great Southern	plant detritus	1.9	10,200 ± 45	11,868	39.879631	-83.006798	Franklin	between alluvium and outwash
OGS-R20	Great Southern	plant detritus	1.9	11,500 ± 55	13,378	39.879631	-83.006798	Franklin	between alluvium and outwash
OGS-R29	Moccasin Creek	wood	10.2	21,000 ± 210	25,334	39.547896	-82.733241	Pickaway	in till
OGS-R30	Moccasin Creek	wood	10.2	21,000 ± 210	25,334	39.547896	-82.733241	Pickaway	in till
OGS-R31	Moccasin Creek	wood	10.2	21,100 ± 210	25,435	39.547896	-82.733241	Pickaway	in till
OGS-R32	Moccasin Creek	wood	10.2	21,000 ± 210	25,334	39.547896	-82.733241	Pickaway	in till
W-127[3]	Harrisburg	wood	6.1	21,600 ± 1,000	25,809	39.803417	-83.179755	Pickaway	beneath till

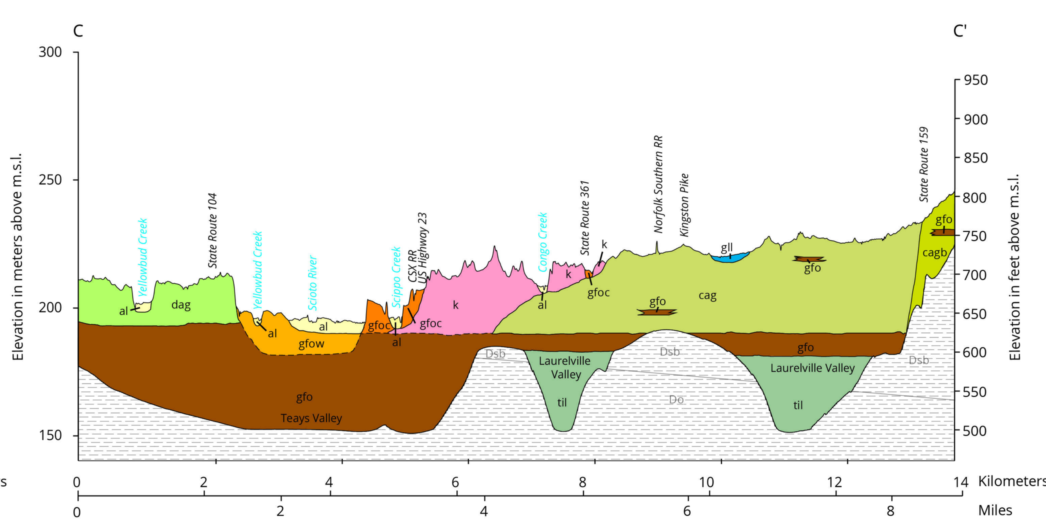
†All ages calibrated using IntCal20 calibration curves (Reimer and others, 2020). Calibrated age shows 2σ median age in calendar years before present (BP). Locations in Franklin County not shown on map.
*OGS-R1 through OGS-R20 were processed at Woods Hole Oceanographic Institution; Woods Hole reports 20221027, 20221031, 20221222, 2023221, and 2023223.
[1] Shane and Others, 2001.
[2] Bennett & Williams Environmental Consultants, Inc., 2001.
[3] Rubin and Suess, 1955.



Cross section showing the Quaternary geology of Pickaway County, Ohio along transect A–A'. See "Description of Map Units" for explanation of symbology. m.s.l. = Mean Sea Level. Horizontal scale same as map. Vertical exaggeration is 40x.



Cross section showing the Quaternary geology of Pickaway County, Ohio along transect B–B'. See "Description of Map Units" for explanation of symbology. m.s.l. = Mean Sea Level. Horizontal scale same as map. Vertical exaggeration is 40x.



Cross section showing the Quaternary geology of Pickaway County, Ohio along transect C–C'. See "Description of Map Units" for explanation of symbology. m.s.l. = Mean Sea Level. Horizontal scale same as map. Vertical exaggeration is 40x.

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