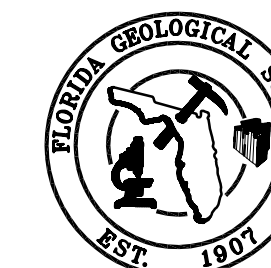


GEOLOGIC MAP OF THE EASTERN PORTION OF THE U.S.G.S.  
1:100,000 SCALE SARASOTA QUADRANGLE AND THE WESTERN  
PORTION OF THE U.S.G.S. 1:100,000 SCALE ARCADIA  
QUADRANGLE, SOUTH-CENTRAL FLORIDA

BY  
RICHARD GREEN, P.G. # 1776,  
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1998



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STATE GEOLOGIST AND CHIEF

The eastern portion of the U.S.G.S. 1:100,000 scale Sarasota Quadrangle and the western portion of the Arcadia Quadrangle lie entirely within the Sarasota River District (Scott, 1998, in prep.). The abundance of rivers and streams in the study area is the result of the presence of impermeable and low permeability sediments of the Hawthorn Group underlying the mapped area. The geomorphic features recognized in the map area include the Gulf Coastal Lowlands and the Polk - Desoto Plain (Scott, 1998, in prep.). Elevations in the study area range from less than five feet (1.5 meters) in the southwestern corner of the map along the Peace River, to nearly 100 feet (30.5 meters) at the northeastern edge of the area.

Very few natural exposures of sediments, other than undifferentiated Quaternary siliciclastics (Qu), occur within the study area. Natural exposures of older sediments are sometimes present where streams and rivers have downcut through these undifferentiated sediments. Numerous exposures of these older sediments were sampled throughout the study area, primarily in stream-cuts, quarries, borrow pits, and excavations for retention ponds. Additional information was gathered through the inspection of cores, drill cuttings, driller's logs, and water-well permits.

Mapping of undifferentiated surficial siliciclastics provides little information regarding geology of the region. As a result of this factor, the practice of mapping the first identifiable lithostratigraphic unit within 20 feet (6.5 meters) of the surface was adopted. If the undifferentiated Quaternary sediments exceeded 20 feet (6.5 meters) in thickness, they were mapped as Qu. In cases where undifferentiated Quaternary sediments were less than 20 feet (6.5 meters) thick, the underlying stratigraphic unit was mapped. Cross sections A-A' through F-F' reflect the presence of the undifferentiated Quaternary sediments throughout the mapped area.

The oldest unit shown on the cross sections is the Tertiary (Oligocene-Miocene) Arcadia Formation, Hawthorn Group (Thp). Lithologically, the Arcadia Formation consists of various admixtures of carbonate (mostly dolomite), quartz sand and silt, phosphate grains, and clay with fossils and molds and casts (Scott, 1998; Brewster-Wingard et al., 1997). The carbonate sediments range from well indurated dolostones to poorly consolidated limestones. The Arcadia Formation underlies the entire study area and dips to the east and south (cross sections A-A' through F-F').

The Miocene-Pliocene Peace River Formation, Hawthorn Group (Thp) disconformably overlies the Arcadia Formation (Scott, 1998). It is the oldest unit shown on the geologic map. This unit consists of variably phosphatic siliciclastics and carbonates. Carbonate matrix and beds are usually dolomite/dolostone. These sediments are generally unconsolidated to poorly indurated with some beds containing fossil dolostones are most abundant within the Peace River Formation in the southeastern portion of the mapped area. In this area, dolosilts and dolostones assigned to the Peace River Formation may belong in the Tamiami Formation but further research and age-dating of these units is necessary to determine into which unit the sediments should be placed.

The undifferentiated Tertiary/Quaternary fossiliferous sediments (TQsu) disconformably overlie the Peace River Formation in the southern portion of the map area. There are problems in mapping these sediments as separate units

because their historical definition is biostratigraphic, not lithostratigraphic (Scott and Allmon, 1990; Scott and Wingard, 1995). Scott (1993) informally applied the name Okeechobee formation to these sediments in an effort to provide a lithostratigraphic framework for these sediments. McCartan and May (1995) mapped several units in this area based upon ages inferred from fossils, stratigraphic position, and geologic age dates. Due to the similar lithologies of these units, and the difficulties encountered in attempting to differentiate them in drill cuttings, they are placed within the TQsu on this map. Ongoing research by staff members of the F.G.S. and U.S.G.S. will provide the necessary lithostratigraphic framework for these sediments. Since the Okeechobee formation has not been formally proposed, however, we have combined these undifferentiated Tertiary/Quaternary fossiliferous sediments for the purposes of this map.

These undifferentiated Tertiary/Quaternary fossiliferous sediments include material historically assigned to the Pincrest, Calosahatchee, Bermont, and Fort Thompson sediments. Lithologies of the TQsu consist of clay, silt, sand, phosphate, and carbonate in varying admixtures. Virtually all of the individual lithologies are fossiliferous, containing some of the most macrofossiliferous sediments in the Atlantic Coastal Plain. For discussions of these sediments and the contained fossils refer to Petuch (1982), Scott and Allmon (1990) and Scott and Wingard (1995).

The undifferentiated Quaternary sediments (Qu) overlie the Peace River Formation disconformably, and the TQsu conformably to disconformably. Lithologically, the Qu consists of siliciclastics ranging from clays to coarse sands. Occasionally, shell fragments occur near the base of the unit. Qu covers virtually the entire area, but is mapped only in those areas where it is more than 20 feet (6.5 meters) thick (see cross sections A-A' to F-F').

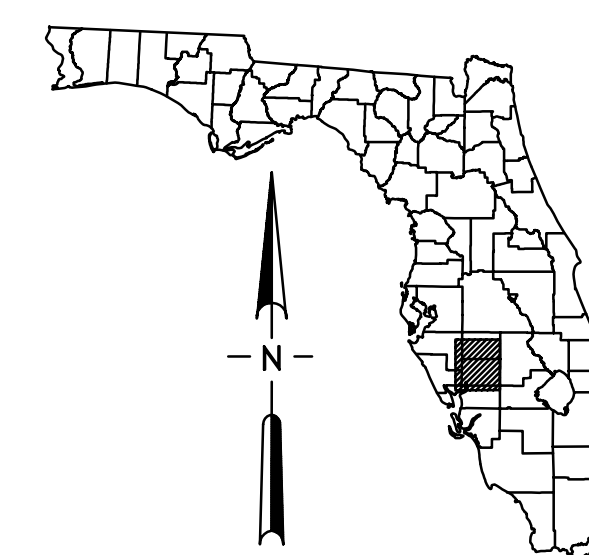
The reworked Tertiary/Quaternary Cypresshead sediments (TQuc) overlie the Peace River Formation disconformably and grade laterally into the undifferentiated Quaternary sediments. The TQuc consists of siliciclastics ranging from clays to very coarse sands with occasional gravel. It generally is found at elevations above 75 feet (22.9 meters). These sediments, which are reworked from the Cypresshead Formation, are found along the flank of the Lake Wales Ridge to the east and north of the study area.

Acknowledgements

The authors would like to thank H.P. "Rowdy" Bateman for his assistance in drilling three cores (W-17648, W-17668, and W-17669) on Bright Hour Ranch property in southeastern De Soto County. Thanks also goes to Brady Pfeil, of the Carlton "2X4" Ranch, and Charlie Matheny of the "Double M" ranch for their assistance in obtaining permission to drill cores (W-17670, and W-17671) on their properties. Tony Gilboy, Kevin Love, and Eric Eshom, of the Southwest Florida Water Management District, are thanked for their assistance in obtaining information about the study area. Steve Wilson of the U.S. Dept. of Agriculture, Division of Forestry in Arcadia, was very helpful in obtaining access to various pits in the area. Ann Tihansky of the U.S. Geological Survey provided invaluable data and samples for the Peace River area. Finally, W. Pollock, M. Panchak, D. Hargrove, J. Stalvey, C. Berninger, S. Mitchell, J. Bone, and F. Rush of the Florida Geological Survey are thanked for their assistance in various phases of this project.

Selected Bibliography  
(See Surficial Sediments Map)

- EXPLANATION
- Qu UNDIFFERENTIATED QUATERNARY SEDIMENTS
  - TQuc UNDIFFERENTIATED QUATERNARY SEDIMENTS (REWORKED FROM CYPRESSHEAD FM.)
  - TQsu UNDIFFERENTIATED TERTIARY/QUATERNARY FOSSILIFEROUS SEDIMENTS
  - Thp PEACE RIVER FORMATION
  - INTERSTATE/STATE HIGHWAY
  - COUNTY LINE
  - CROSS SECTION LINE
  - SELECTED WELLS (CORES AND CUTTINGS)
  - W-# F.G.S. WELL NUMBERS



STUDY AREA  
0 0.5 1 2 3 4 MILES  
0 1 2 3 4 5 6 KILOMETERS

COOPERATIVELY FUNDED BY THE FLORIDA GEOLOGICAL SURVEY AND THE STATEMAP COMPONENT OF THE NATIONAL GEOLOGIC MAPPING ACT, ADMINISTERED BY THE U.S.G.S., DEPARTMENT OF THE INTERIOR, UNDER ASSISTANCE AWARD NUMBER 1434-HQ-97-AG-01808