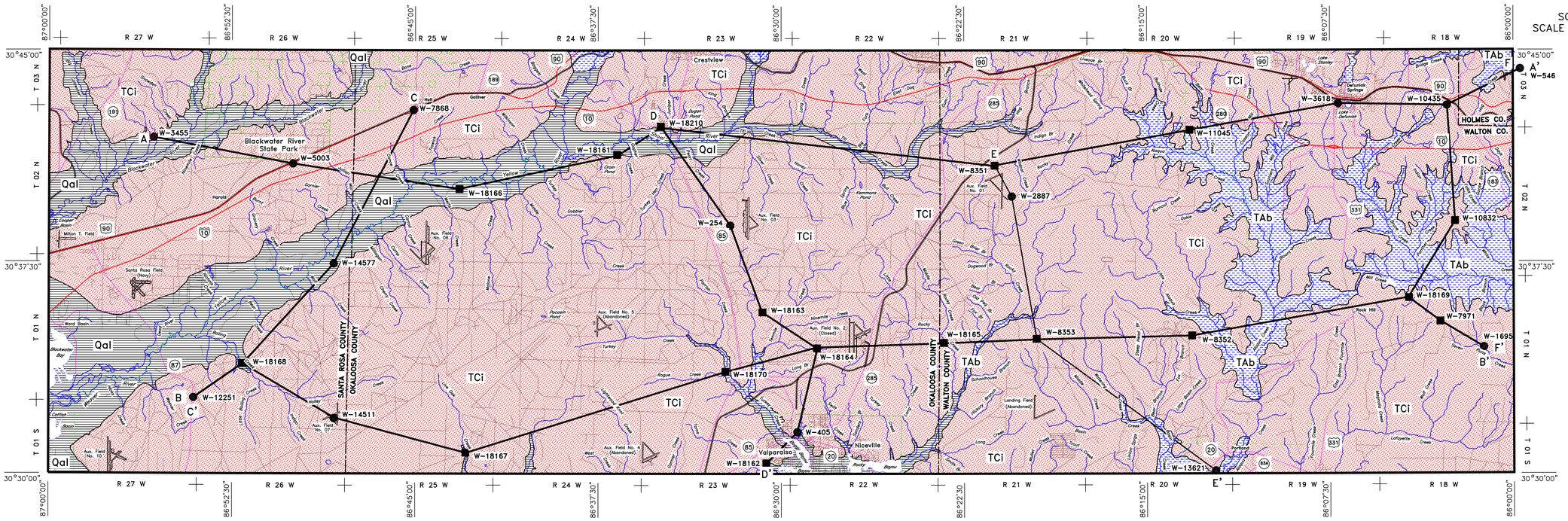
GEOLOGIC MAP OF THE SOUTHERN PORTION OF THE U.S.G.S. 1:100,000 SCALE CRESTVIEW QUADRANGLE, NORTHWESTERN FLORIDA



LEGEND FOR GEOLOGIC MAP

- Qal — QUATERNARY ALLUVIUM
- TCi — TERTIARY CITRONELLE FORMATION
- TAb — TERTIARY ALUM BLUFF GROUP
- EGLIN A.F.B. BOUNDARY
- INTERSTATE/STATE/COUNTY HIGHWAY
- COUNTY LINE
- RAILROAD
- BLACKWATER RIVER STATE PARK BOUNDARY
- CROSS SECTION LINE
- SELECTED WELLS (CORES AND CUTTINGS)
- W-# F.G.S. WELL NUMBERS

FLORIDA GEOLOGICAL SURVEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OPEN FILE MAP SERIES NO. 90

SURFICIAL AND BEDROCK GEOLOGY OF THE SOUTHERN PORTION OF THE U.S.G.S. 1:100,000 SCALE CRESTVIEW QUADRANGLE, NORTHWESTERN FLORIDA

BY

RICHARD C. GREEN, P.G., #1776,
GUY H. MEANS,
THOMAS M. SCOTT, P.G.,
MABRY M. GABOARDI,
WILLIAM L. EVANS III, P.G.,
DAVID T. PAUL,
AND KENNETH M. CAMPBELL, P.G.

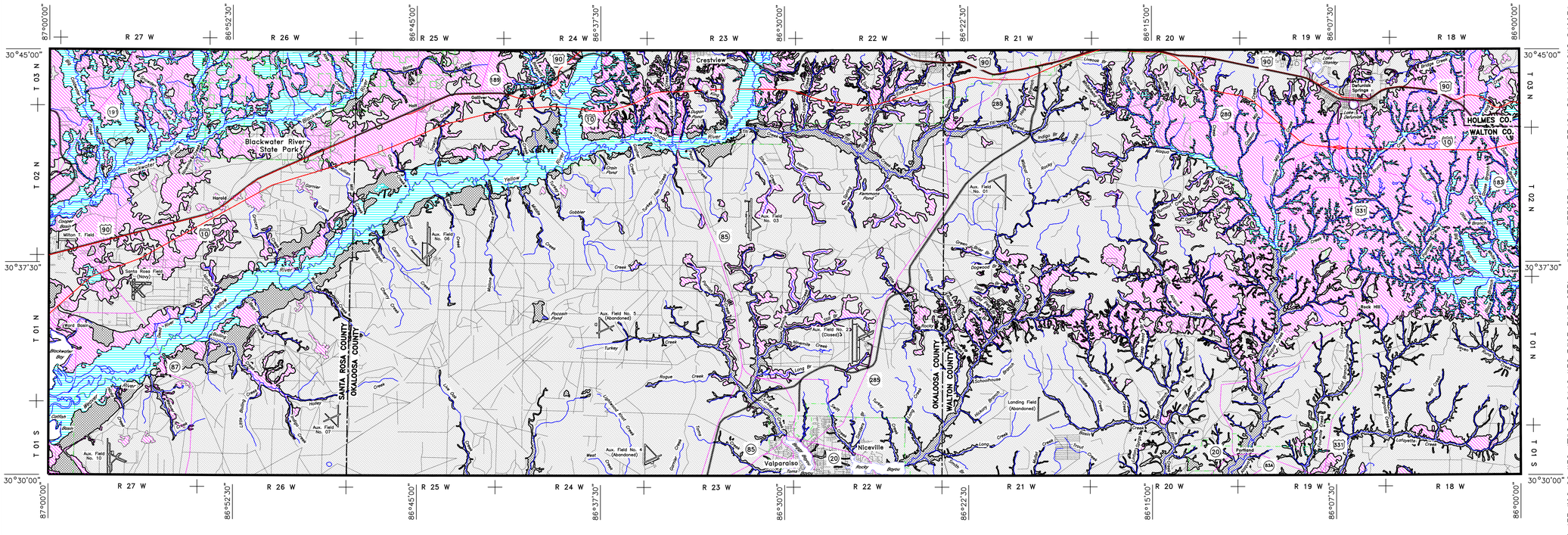
2001

WALTER SCHMIDT
STATE GEOLOGIST AND CHIEF

0 0.5 1 2 3 4 MILES
0 1 2 3 4 5 6 KILOMETERS
SCALE

COOPERATIVELY FUNDED BY THE FLORIDA GEOLOGICAL SURVEY AND THE U.S. GEOLOGICAL SURVEY, NATIONAL COOPERATIVE GEOLOGIC MAPPING PROGRAM, UNDER U.S.G.S. ASSISTANCE AWARD NUMBER 00-HQ-AG-0117. 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.

SURFICIAL SEDIMENTS MAP OF THE SOUTHERN PORTION OF THE U.S.G.S. 1:100,000 SCALE CRESTVIEW QUADRANGLE, NORTHWESTERN FLORIDA



LEGEND FOR SURFICIAL SEDIMENTS MAP

- SAND/LOAM
- LOAM
- SAND
- MUCK

Surficial sediments and soils of the southern portion of the U.S.G.S. 1:100,000 scale Crestview quadrangle are comprised primarily of four lithologic components: quartz sand, loam, muck, and clay. Combinations of these components constitute the four sediment units represented on this map.

Data utilized in creating this map was derived from a variety of sources, including United States Department of Agriculture Soil Surveys, field observations, cores and well cuttings, surface samples, and hand-augered samples. Sediment types shown on this map represent soil from within the upper 6.6 feet (two meters) of land surface.

Between 25 and 70 different soil types are recognized as occurring on the county, by the United States Department of Agriculture (Overing, et al., 1995; Overing and Watts, 1989; Sullivan, et al., 1975; Weeks, et al., 1980). In these soil surveys, soil types were categorized based on factors such as slope, moisture content, texture, distribution of organic matter, acidity and other physical properties. In order to organize these soil types into meaningful lithologic units, soil types were grouped based on shared characteristics. Therefore, the reader is urged to consult the soil surveys for more detailed information about soils in the map area.

Quartz sand is the most common unit throughout the study area, and is generally associated with the Citronelle Formation. Each sediment type shown on this map contains at least some quartz sand. In some places, the unit mapped as sand may contain minor percentages of organic material and clay.

Sand/loam is a unit of quartz sand and loam in which the sand concentration is greater than 52 percent. In the eastern portion of Walton County, the sand/loam unit often coincides with Alum Bluff exposures. This unit is also prevalent north of the Yellow River and the Shoal River in Santa Rosa and Okaloosa Counties, where it is generally associated with the Citronelle Formation.

Loam, which is defined as "soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles" (Overing and Watts, 1989, p.136), is generally associated with drainage features and basins. There are large areas of loam in Santa Rosa County, within the Black Water River basin, and within the Yellow River basin in Santa Rosa and Okaloosa counties.

Muck, which is slowly decaying organic material containing varying amounts of sand and silt, is most common along the Yellow River basin and other rivers and creeks throughout the study area. It has a more restricted areal extent than the previously mentioned lithologic components and is generally confined to swampy regions and drainage basins.

Selected Bibliography

Akers, W.H., 1972, Planktonic foraminifers and biostratigraphy of some Neogene formations, northern Florida and Atlantic Coastal Plain: Tulane Studies in Geology and Paleontology, v. 9, no. 1–4, p. 1–9.

Bryan, J.R., 1991, Stratigraphic and paleontologic studies of Paleocene and Oligocene carbonate facies of the eastern Gulf Coastal Plain [Ph.D. Dissertation]: Knoxville, University of Tennessee, 324 p.

Bryan, J.R. and Huddleston, P.F., 1991, Correlation and age of the Bridgeboro Limestone, a coralgal limestone in southwest Georgia: Journal of Paleontology, vol. 65, p. 864–868.

Campbell, K., 1993, Geologic Map of Holmes County, Florida: Florida Geological Survey Open-File Map Series 24, scale 1:126,720.

Campbell, L.D., and Otvos, E.G., 1992, Neogene bivalve: taxonomy, depositional *Rangia (Miorangia) johnsoni* facies and stratigraphic range: Tulane Studies in Geology and Paleontology, vol. 25, no. 4, p. 157–168.

Clark, M.W., and Schmidt, W., 1982, Shallow stratigraphy of Okaloosa County and vicinity, Florida: Florida Geological Survey Report of Investigations No. 92, 51 p.

Coe, C.J., 1979, Geology of the Plio–Pleistocene sediments in Escambia and Santa Rosa Counties, Florida [Master's Thesis]: Tallahassee, Florida State University, 115 p.

Cooke, C.W., and Mossom, S., 1929, Geology of Florida: Florida Geological Survey Twentieth Annual Report, p. 29–227.

Cooke, C.W., 1945, Geology of Florida: Florida Geological Survey Bulletin 29, 339 p.

Glowa, L.N., 1969, *Pecten perplanus* stock (Oligocene) of the southeastern United States: Alabama Geological Survey Bulletin 91, 179 p.

Healy, H.G., 1975, Terraces and shorelines of Florida: Florida Geological Survey Map Series No. 71, scale 1:1,900,800.

Huddleston, P.F., 1984, The Neogene stratigraphy of the central Florida Panhandle [Ph.D. Dissertation]: Tallahassee, Florida State University, 210 p.

Huddleston, P.F., 1993, A revision of the lithostratigraphic units of the Coastal Plain of Georgia, The Oligocene: Georgia Geological Survey Bulletin 105, 152 p.

Huddleston, P.F., and Wright, R.C., 1977, Late Miocene glacio–eustatic lowering of sea level: evidence from the Choctawhatchee Formation, Florida Panhandle: Gulf Coast Association of Geological Societies Transactions, v. XXVII, p. 299–303.

Isphording, W.C., 1977, Petrology and stratigraphy of the Alabama Miocene: Transactions of the Gulf Coast Association of Geological Societies, v. XXVII, p. 304–312.

Isphording, W.C., and Lamb, G.M., 1971, Age and origin of the Citronelle Formation in Alabama: Geological Society of America Bulletin, v. 82, p.775–780.

Jones, D.S., Mueller, P.A., Hodell, D.A., and Stanley, L.A., 1993, 87Sr/86Sr geochronology of Oligocene and Miocene marine strata in Florida: Geology, V.A., Harris, W.B., Scott, T.M., and Portell, R.W., eds., The Neogene of Florida and Adjacent Regions: Proceedings of the Third Bald Head Island Conference on Coastal Plains Geology, Hilton Head Island, Florida, 1992, Special Publication 37: Tallahassee, Florida, Florida Geological Survey, p. 15–26.

MacFadden, B.J., and Dobie, J.L., 1998, Late Miocene three–toed horse *Protohippus* (Mammalia, Equidae) from southern Alabama: Journal of Paleontology, vol. 72, p. 149–151.

MacNeil, F.S., 1944, Oligocene stratigraphy of the southeastern United States: American Association of Petroleum Geologists Bulletin 124, 415 p.

Manning, E.M, and MacFadden, B.J., 1989, Pliocene three–toed horses from Louisiana, with comments on the Citronelle Formation: Tulane Studies in Geology and Paleontology, v. 22, no. 2, p. 35–46.

Marsh, O.T., 1966, Geology of Escambia and Santa Rosa Counties, western Florida panhandle: Florida Geological Survey Bulletin 46, 140p.

Means, G.H., Green, R.C., Bryan, J.R., Scott, T.M., Campbell, K.M., Gaboardi, M.M., and Robertson, J.D., 2000, Surficial and Bedrock Geology of the Northern Portion of the U.S.G.S. 1:100,000 Scale Quadrangle, Northwestern Florida: Florida Geological Survey Open–File Map Series 89, 2 maps.

Otvos, E.G., 1995, Post–Oligocene stratigraphy and mapping of southern Mississippi–comments with update: Mississippi Geology, v. 16, no. 3, p. 60–62.

Otvos, E.G., 1998, Citronelle Formation, northeastern Gulf Coastal Plain: Pliocene stratigraphic framework and age issues: Gulf Coast Association of Geological Societies Transactions, v. XLVIII, p. 321–333.

Overing, J.D, and Watts, F.C., 1989, Soil survey of Walton County, Florida: United States Department of Agriculture, Soil Conservation Service, 139 p., 90 maps, scale 1:20,000.

Overing, J.D, Weeks, H.H., Wilson, J.P. Jr., Sullivan, J., and Ford, R.D., 1995, Soil survey of Okaloosa County, Florida: United States Department of Agriculture, Natural Resources Conservation Service, 107 p., 52 maps, scale 1:20,000.

Schmidt, W., 1984, Neogene stratigraphy and geologic history of the Apalachicola Embayment, Florida: Florida Geological Survey Bulletin 58, 148 p.

Schmidt, W., and Clark, M.W., 1980, Geology of Bay County, Florida: Florida Bureau of Geology Bulletin 57, 84 p.

Scott, T., 1993a, Geologic map of Okaloosa County, Florida: Florida Geological Survey Open–File Map Series 16, scale 1:126,720.

Scott, T., 1993b, Geologic map of Santa Rosa County, Florida: Florida Geological Survey Open–File Map Series 15, scale 1:126,720.

Scott, T., 1993c, Geologic map of Walton County, Florida: Florida Geological Survey Open–File Map Series 17, scale 1:126,720.

Scott, T., 2000, (in preparation), Geomorphic map of Florida: Florida Geological Survey, scale 1:750,000.

Scott, T., (editor and compiler), Campbell, K.M., Rupert, F.R., Arthur, J., Green, R.C., Means, D.B., Duncan, J., Missimer, T., Lloyd, J., and Yon, J.W., 2001, Geologic map of Florida: Florida Geological Survey, scale 1:750,000.

Sullivan, J.L., Weeks, H.H., Duffee, E.M., Thomas, B.P., Simmons, H.C., Harrell, M.L., 1975, Soil survey of Holmes County, Florida: United States Department of Agriculture, Soil Conservation Service, 61 p., 37 maps, scale 1:20,000.

Vernon, R.O., 1942, Geology of Holmes and Washington Counties, Florida: Florida Geological Survey Bulletin No. 21, 161 p.

Vernon, R.O., and Puri, H.S., 1956, A summary of the geology of panhandle Florida and a guidebook to the surface exposures: prepared for the Field Trip of the Tallahassee Meeting of the Southeastern Section of the Geological Society of America: Tallahassee, Florida: Florida Geological Survey, 83 p.

Weeks, H.H., Hyde, A.G., Roberts, A., Lewis, D., and Peters, C.R., 1980, Soil survey of Santa Rosa County, Florida: United States Department of Agriculture, Soil Conservation Service, 91 p., 87 maps, scale 1:20,000.

Yon, J.W., Jr., and Hendry, C.W., Jr., 1969, Mineral resource study of Holmes, Walton and Washington Counties: Florida Geological Survey Bulletin 50, 161 p.