



Mapping Methods

Foraminiferal tops and bottoms in the FGS database represent the subjective picks of a number of different workers over a period of many years. Every effort was made to insure reasonably consistent criteria for identifying the sediments composing the Hawthorn Group. In some cases, cores were spot checked to confirm the position of the signature horizon. The signature horizon in the Hawthorn Group is the presence of phosphate. Phosphate is commonly reworked into younger sediments, possibly biasing the true position of the top of the unit, and hence affecting the isopach configuration. In wells where this was recognized, the position of the Hawthorn Group was delineated based primarily on other lithologic criteria or lithology changes.

The original data were digitally-extracted from the FGS Wellfile Database using software specifically written for the purpose by Dr. David Allison. This software permitted direct importation of the well locations and Hawthorn thickness data into the Autodesk, Incorporated program AutoCad, an IBM compatible computer program. The well locations were initially imported as a separate file provided by the SRWMD, and later merged into a District-wide map. While most of the well locations are not field checked, they are based on the best available information. Variation in the true positions of wells may affect the map's configuration. The data points are plotted at the center of the well completion interval, and the isolines digitized into the basecamp files using AutoCad's

Hatched lines are used to indicate thinner areas within the main body of the Hawthorn Group unit. They do not provide specific information concerning the geometry of the upper or lower surfaces of the Hawthorn Group.

The base grid for the map is the Florida State Plane Coordinate System (east), a Transverse Mercator projection. County boundaries and township and range grids corners were imported into Autocad from the SRWMD Arcinfo files.

This map represents the thickness of only the Hawthorn Group sediments. It should not be confused with or interpreted as a Floridan aquifer system overburden isopach. In most areas, an interval of undifferentiated sand and clays is present above the Hawthorn Group.

This map is currently produced on demand from the FGS Autocad files. It is anticipated that this format will allow the most flexibility in continually updating the isopach map as new data becomes available, while maintaining publishing economy in this era of scaled-down budgets.

Shape and Extent

The present configuration of the Hawthorn Group unit was influenced by a series of structural features and erosional processes. Deposition of the Hawthorn Group sediments during the Miocene occurred under shallow marine conditions, and the resulting unconformable contact with the Ocala is well documented. Fluctuating sea levels during the Miocene formed a variety of paleoenvironments, ranging from occasional exposures of dry land to shallow lagoon and prodelta. The present configuration of the Hawthorn Group is the result of erosion of the Ocala Platform trends northwest-southeast under present day Levy County. Hawthorn sediments were probably deposited against the flanks of this feature, and the Miocene Ocala Platform was eroded from the crest and the flanks. The highest point removed the Hawthorn from the crest and areas to the southwest of the feature. Northeast of the SRWMD, a structural low made the Jacksonville Basin (Carr, 1961, 1964) a depositional center. The Hawthorn Group sediments dip toward the Hawthorn Group sediments dip and then rise in this basin.

Infilling of paleokarst depressions and sinks in the underlying carbonates by Hawthorn sediments, or deposition over karst highs undoubtedly influenced thickness locally. Post Hawthorn karst activity, coupled with both subaerial and submarine erosion could have further modified the unit in many areas. The unit is absent in the northern portion of the SRWMD, where there is much of the southwestern portion of the SRWMD. In general, the Hawthorn Group is absent in counties in the coastal counties of the SRWMD today. Streams have cut down into the Hawthorn Group, in some case producing excellent exposures of the unit along the stretch of the Suwannee River between Hamilton and Columbia Counties.

Within the SRWMD, the Hawthorn Group sediments are highly variable in thickness, generally ranging from 0 feet along a line approximately parallel to and about 40 miles inland of the present Gulf coastline, to a maximum of just over 100 feet in the northernmost part of the county. In the northernmost counties, the Hawthorn attains a maximum thickness of about 100. Maximum thicknesses generally increase to the northeast, in eastern Hamilton County, and in Columbus County, where the Hawthorn reaches about 100 feet in thickness. In Gainesville in Alachua County, the unit reaches 160 feet thick. The Hawthorn rapidly thickens to the northeast, as it dips into the trough of the Jacksonville Basin, as well in northeast Bradford County penetrated to 150 feet.

Acknowledgements

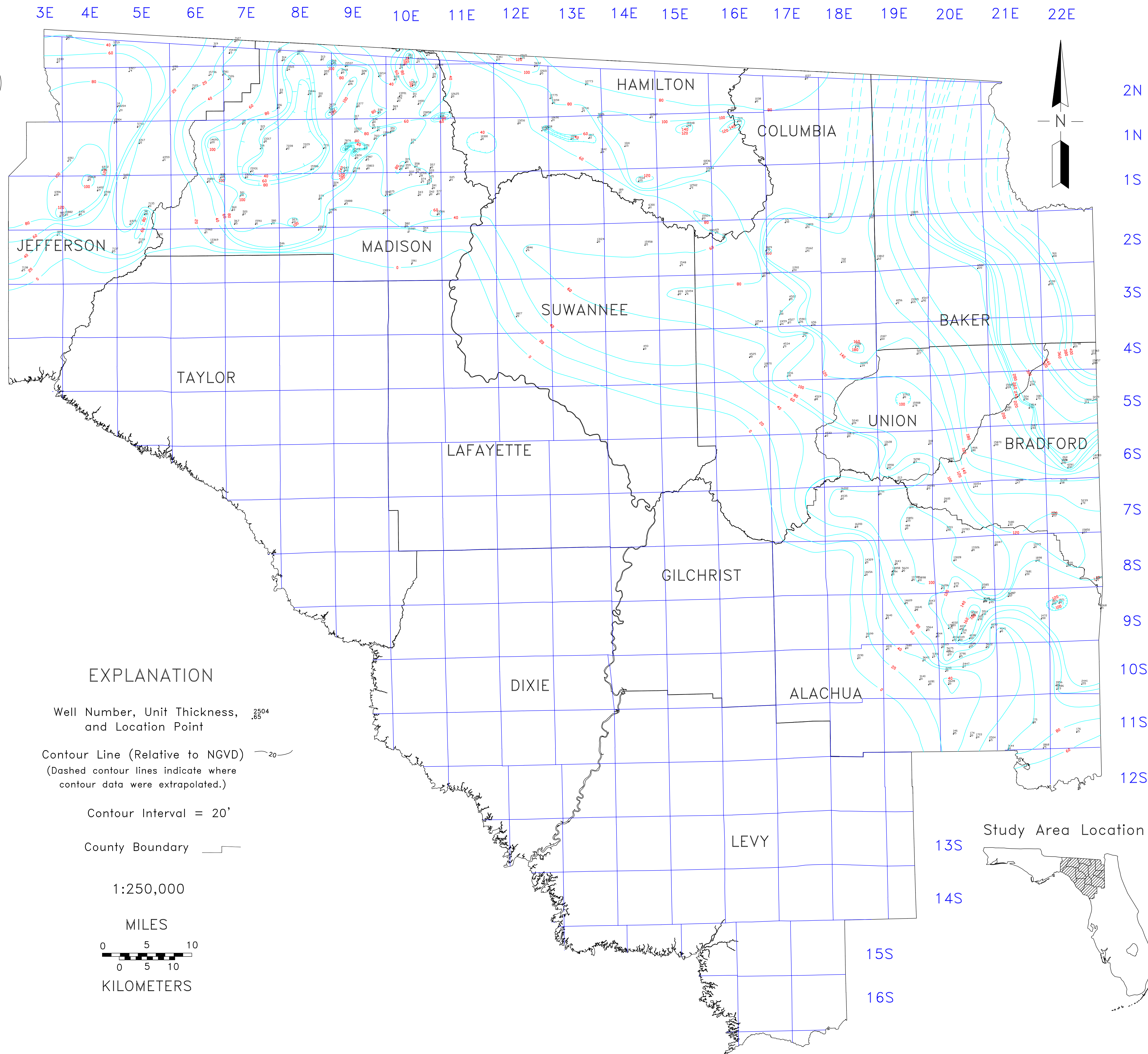
The authors wish to thank a number of people who assisted with data compilation and conversion, and who critically reviewed this map. Thanks are due to J. Michael Weinberg and Renee Cooper, former FGS research assistants, for preliminary data compilation and review. Dr. David Allison, formerly with the FGS and now at the University of South Carolina, wrote the data extraction program that transferred data from the FGS databases to the map-making software. His efforts are appreciated. The helpful and guiding efforts of Ron Ceryak, Nolan Col, and Dennis Price, of the SRWMD, and Drs. Walt Schmidt and Tom Scott of the FGS, who critically reviewed the map text for format and accuracy, are also greatly appreciated. Finally, the authors wish to thank due Nettie Merges, who manually made the numerous last-minute format changes, and merged the map, legend and text into an orderly, useable entity.

References

Goodell, H.G., and Yon, J.W., 1960, The regional lithostratigraphy of the post-Eocene rocks of Florida: Southeastern Geological Society, 9th Field Trip Guidebook, p. 75-113.

Scott, T.M., 1988, The lithostratigraphy of the Hawthorn Group (Miocene) of Florida: Florida Geological Survey Bulletin 59, 148 p.

Southeastern Geological Society ad Hoc Committee, 1986, Hydrogeologic units of Florida: Florida Geological Survey Special Publication 28, 8 p.



Well Number, Unit Thickness, and Location Point

Contour Line (Relative to NGVD) —20—
(Dashed contour lines indicate where
contour data were extrapolated.)

Contour Interval = 20'

County Boundary

1:250,000

MILES

0 5 10

0 5 10

KILOMETERS

References