

Michael W. Sole
Secretary

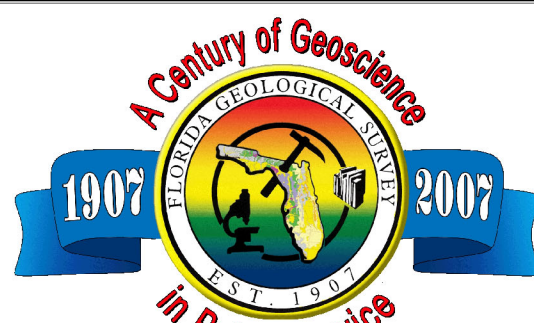


OPEN-FILE MAP SERIES NO. 98-03
GEOMORPHOLOGY, SPRINGS, AND KARST FEATURES FOR THE EASTERN PORTION
OF THE U.S.G.S. PERRY 30 X 60 MINUTE QUADRANGLE, NORTHERN FLORIDA

2007

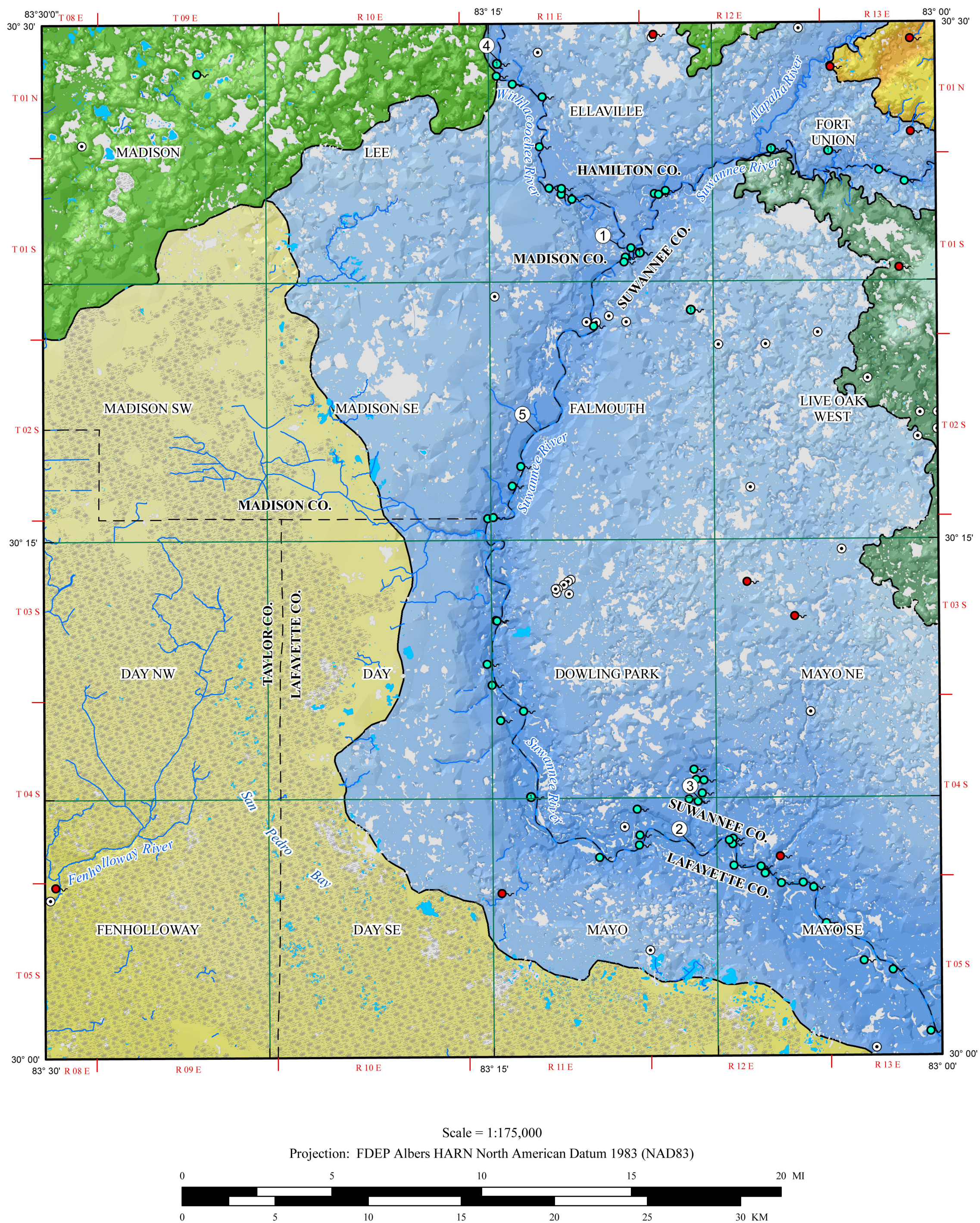
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Figure 1. Geomorphology, Springs, and Karst features, modified from Scott (in preparation),
shown with 15 Meter Digital Elevation Model (DEM)



LEGEND

Ocala Karst District

Alachua Karst Hills

The Alachua Karst Hills, present along the eastern edge of the study area, are part of White's (1970) Northern Highlands. This physiographic unit is well drained and formed in response to karstification of uplands covered by the Statenville Formation of the Hawthorn Group (Ths) and undifferentiated sediments (Qu). The karst hills are part of an erosional scarp retreat being formed as the Hawthorn Group and younger sediments are eroded and karstified. This scarp is part of the extensive Cody Scarp of Puri and Vernon (1964). In the study area, the Alachua Karst Hills are only present within central Suwannee County along the eastern boundary of the mapped area (Figure 1). Elevations in the Alachua Karst Hills range from approximately 70 feet (21.3 meters) to 170 feet (51.8 meters) above Mean Sea Level (MSL) within the map area.

Branford Karst Plain

The Branford Karst Plain, which covers much of the eastern two-thirds of the map area, occupies the Suwannee River valley, the Alapaha River valley, and the Withlacoochee River valley. Within the study area, elevations of the Branford Karst Plain range from 20 feet (6.1 meters) along the Suwannee River valley in the southeastern corner of the map area to 140 feet (42.7 meters) above MSL in the northeastern portion of the map area. The Lower Oligocene Suwannee Limestone (Ts) occurs in the northern half of the Branford Karst Plain and crops out within the Withlacoochee and Alapaha River valleys and the northern portion of the Suwannee River valley. The Upper Eocene Ocala Limestone (To) is near the surface with silicified float boulders (remnants of the Lower Oligocene Suwannee Limestone and the Upper Eocene Ocala Limestone) common in the southern part of the Branford Karst Plain. Drainage within the Branford Karst Plain is primarily through karst features with relatively few surface streams, most of which are west of the Suwannee River. Closed topographic depressions (CTDs) are numerous throughout the karst plain, particularly east of the Suwannee River (Figure 1).

Perry Karst / San Pedro Bay

The Perry Karst / San Pedro Bay complex occupies much of the western and southwestern parts of the study area. Within the map area, elevations of the Perry Karst/San Pedro Bay range from 45 feet (13.7 meters) to over 100 feet (30.5 meters) above MSL. The Suwannee Limestone underlies much of the unit, although it is absent under the central-southern and southeastern portions of the physiographic feature. In the San Pedro Bay, a clay layer up to five feet thick (1.5 meters) overlies the limestone, providing partial confinement to the Floridan aquifer system (FAS) (Copeland, 1982). Plio-Pleistocene sediments cover the entire area, and the unit is poorly to very poorly drained. Recharge to the FAS is low to moderate, while recharge to the FAS may be moderate to high along the transition between the Perry Karst/San Pedro Bay and the Branford Karst Plain (Copeland, 2005).

Okefenokee Basin District

Northern Okefenokee Basin

In the current study, the Northern Okefenokee Basin is only present in the northeastern corner of the map area. Plio-Pleistocene siliciclastics underlie much of the northern Okefenokee Basin east of the study area but are poorly drained due to the near surface presence of the Hawthorn Group clayey sediments and low relief. The Statenville Formation of the Hawthorn Group (Ths) is at the surface in the basin within the current study area. Karst features are uncommon throughout most of the basin. Karst features occur primarily in the transition zone with the Ocala Karst District where the Hawthorn Group is thin and breached by sinkholes. Within the map area, elevations range from 60 feet (18.3 meters) near the Suwannee River to 160 feet (48.8 meters) on some of the hilltops.

Tifton Upland District

Madison Hills

The Madison Hills are present in the northwestern portion of the map area. A small area of the Madison Hills (separated from the main body of this zone by the Withlacoochee River Valley) is also present in southern Hamilton County. Elevations range from 70 feet (21.3 meters) above MSL to 200 feet (61 meters) above MSL on some hilltops. The valleys within the Madison Hills are broad and poorly drained. The Miccosukee Formation (Tmc) forms the higher areas while the Torreya Formation of the Hawthorn Group (Tht) sediments underlie the lower portions of the landscape. Karst features occur in the eastern part of the district where the Suwannee Limestone lies near the land surface.

Legend for Figure 1

7.5 Minute Quadrangle

County Boundary

River or Stream

Lake or Pond

Swamp or Marsh

Plate 3 Photo Location

Karst Features

First Magnitude Spring

Second, Third, or Fourth Magnitude Spring

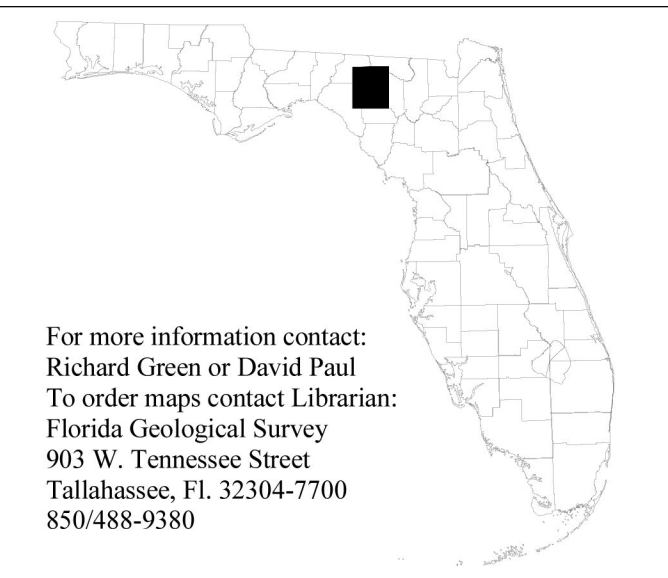
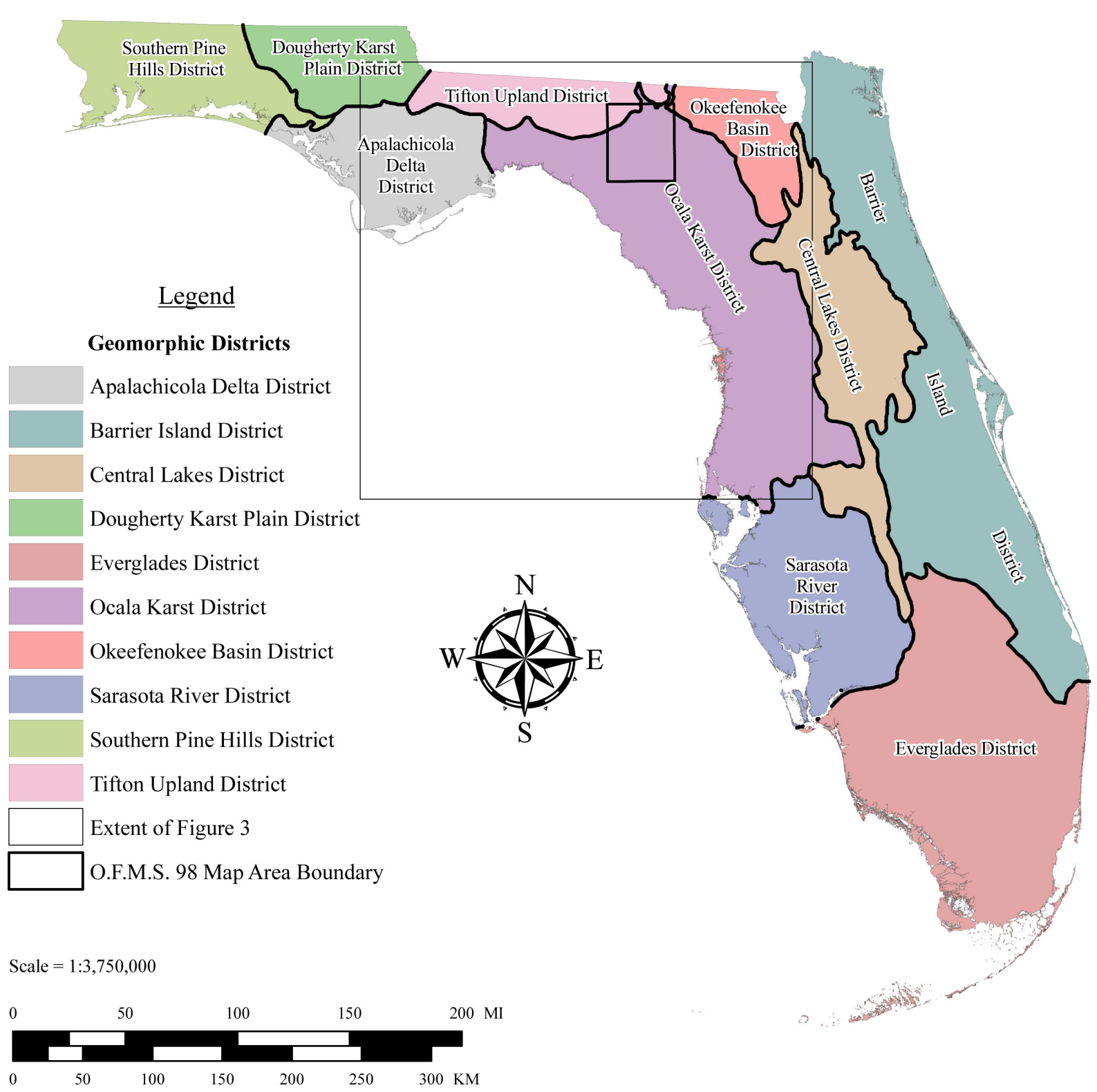
Swallet

Sinkhole

Closed Topographic Depressions (CTDs)

MSL = Mean Sea Level

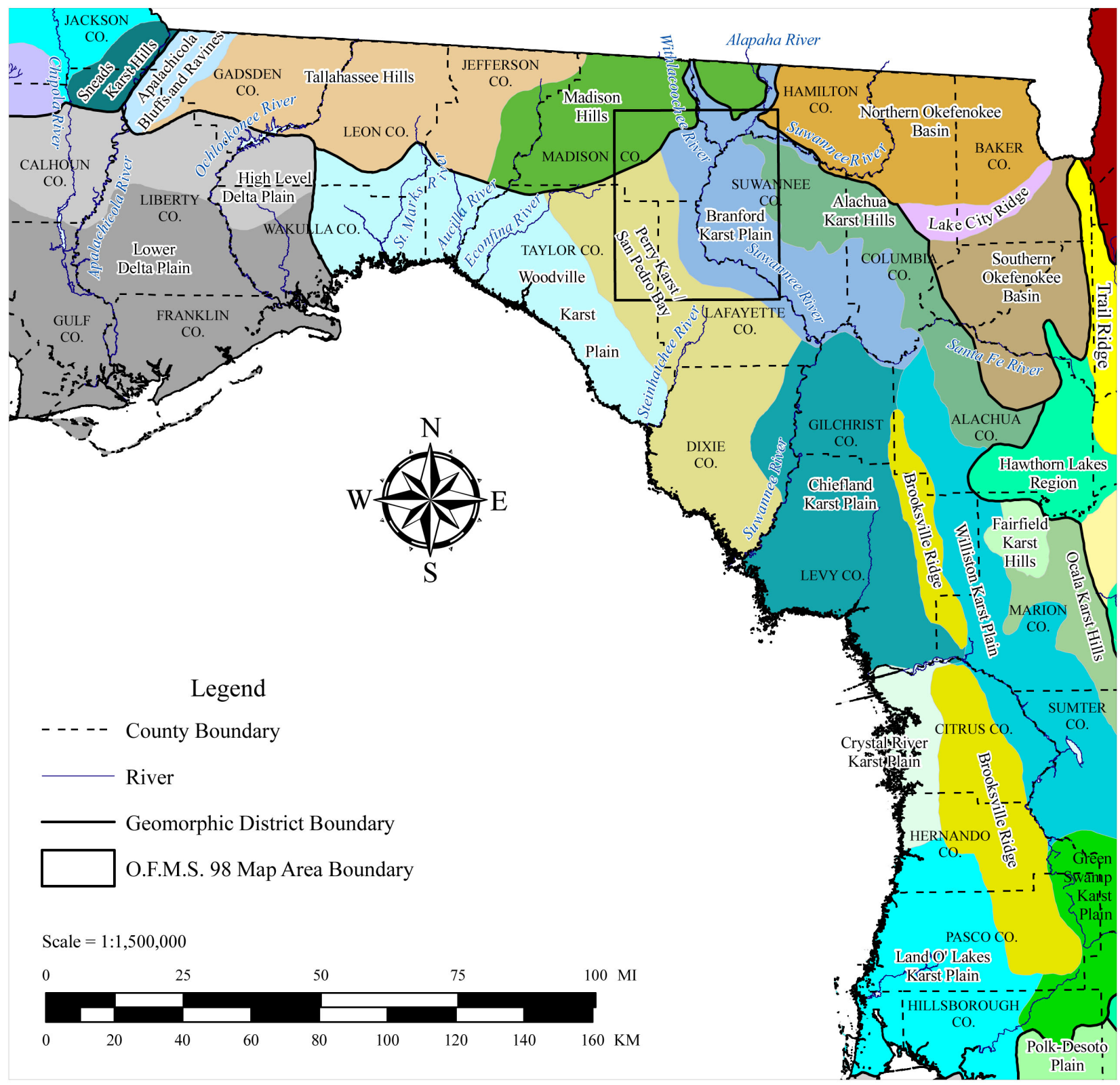
Figure 2. Geomorphic Districts (modified from Scott, 2005)



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Figure 3. Geomorphic Provinces (modified from Scott, 2005)



SELECTED PHOTOGRAPHS



Photo 1. Suwannee Limestone outcrop along the bank of the Withlacoochee River
Located at: T 01 S, R 11 E, S. 13
Photo by Richard C. Green
Date taken: 08/22/2006



Photo 2. Silicified Suwannee Limestone boulder with *Rhyncholampas gouldii* from shoals in Suwannee River near Peacock Slough
Located at: T 04 S, R 12 E, S. 29
Photo by Richard C. Green
Date taken: 08/01/2007



Photo 3. Exposure of Ocala Limestone at Peacock Springs, Luraville, FL
Located at: T 04 S, R 12 E, S.20
Photo by Richard C. Green
Date taken: 08/01/2007



Photo 4. Exposure of Suwannee Limestone at Madison Blue Spring, NE Madison County
Located at: T 01 N, R 11 E, S. 17
Photo by Richard C. Green
Date taken: 08/21/2006

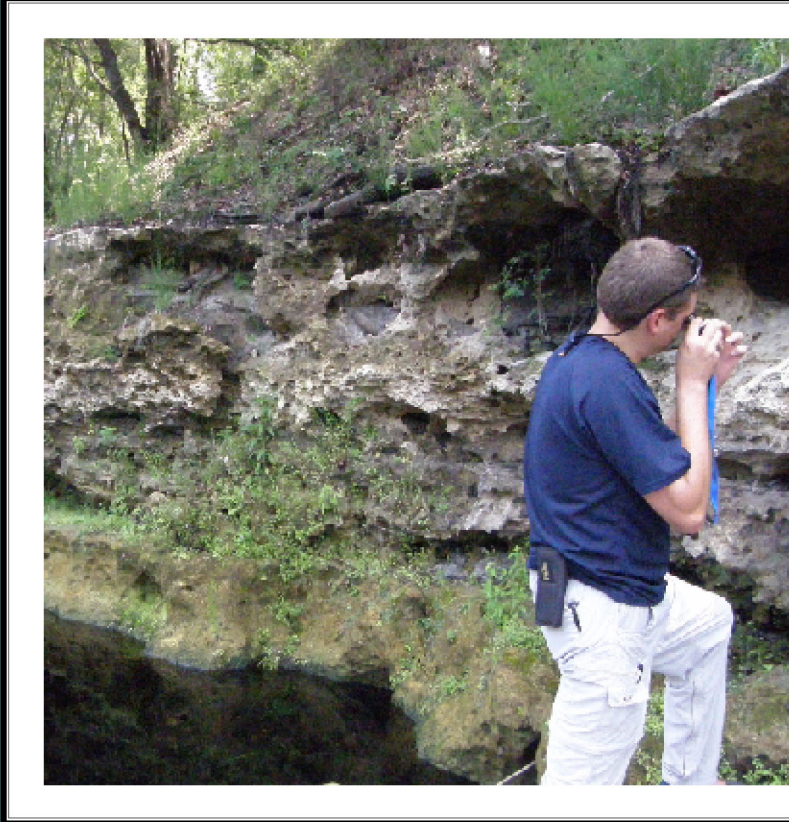


Photo 5. David Paul examines sample from Suwannee Limestone outcrop along the east bank of the Suwannee River
Located at: T 02 S, R 11 E, S. 21
Photo by Richard C. Green
Date taken: 08/13/2007