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Secretary



OPEN-FILE MAP SERIES 102, Plate 3
GEOLOGIC MAP OF THE EASTERN PORTION OF THE USGS
INVERNESS 30 X 60 MINUTE QUADRANGLE, CENTRAL FLORIDA

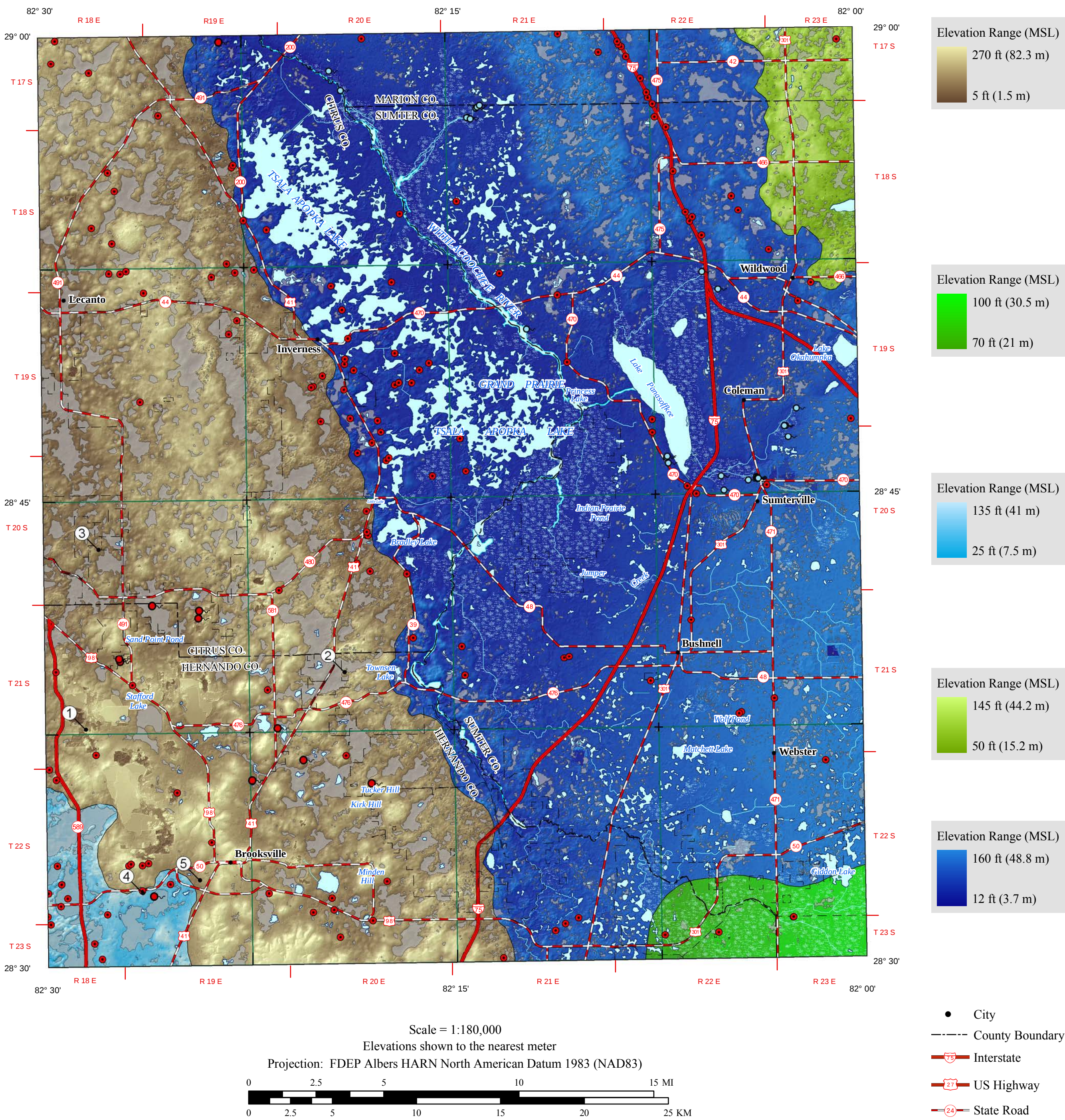
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BY

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Figure 1. Geomorphic Provinces (modified from Scott et al., in preparation), Springs, and Karst features shown with LiDAR-based Digital Elevation Model (DEM).



Ocala Karst District

Brooksville Ridge

The Brooksville Ridge, described by White (1970) as "the most massive of the ridges which rise above the general level of the Central Upland", stands out in stark contrast to the surrounding karst plains. The Brooksville Ridge Province is divided by the Withlacoochee River which separates the ridge into northern and southern sections. The northern portion of the Brooksville Ridge begins in Gilchrist and Alachua Counties and terminates in Levy and Marion Counties. The southern portion extends from Citrus County southward into Pasco County. The topography of the Brooksville Ridge displays significant variability ranging in elevations from nearly sea level to over 300 feet (91 meters). Within the study area, elevations range from 5 feet (1.5 meters) to 270 feet (82.3 meters). The northern ridge section has low, rolling karst hills interspersed with moderately shallow sinkholes. The southern portion of the ridge becomes progressively more hilly and the terrain relief increases from north to south with sand dunes common on the western flank of the ridge. From the vicinity of Brooksville southward, the hills are higher and more closely spaced. North of Brooksville, the hills are more widely spaced and generally lower elevation, an indication of more mature karst. The northern portion of the ridge is composed of Undifferentiated Tertiary and Quaternary sediments derived from the Hawthorn Group and is underlain by the Upper Eocene Ocala Limestone. The southern Brooksville Ridge is more complex geologically than the northern section and is underlain by Lower Oligocene Suwannee Limestone and/or Upper Eocene Ocala Limestone with variable thicknesses of weathered Miocene Hawthorn Group sediments and Tertiary/Quaternary siliciclastics.

Green Swamp

The Green Swamp Province occupies parts of Hernando, Pasco, Sumter, Lake, Polk and Hillsborough Counties. It is bounded on the north by the Williston Karst Plain, on the west by the Brooksville Ridge and Land O' Lakes Karst Plain, on the south and east by the Lakeland-Lake Wales Ridge Complex, part of the Central Lakes District, and on the south by the Polk-DeSoto Plain, part of the Sarasota River District (Figure 3). Elevations of the Green Swamp range from 39 feet (11.9 meters) to 197 feet (60 meters). Elevations within the study area range from 70 feet (21 meters) to 100 feet (30.5 meters). The entire area is very poorly drained and swampy conditions prevail due to the high potentiometric surface of the Floridan aquifer system. Few areas of sand dunes are found in the swamp. Karst features are common throughout Green Swamp but there are few springs. The northern half of the Land O' Lakes Karst Plain, including the present study area, is underlain by the Lower Oligocene Suwannee Limestone under the southwestern part of the area. Miocene Hawthorn Group sediments occur scattered throughout the swamp. Undifferentiated Tertiary-Quaternary and reworked Cypresshead Formation siliciclastic sediments cover much of the Green Swamp. Within the study area, Green Swamp is underlain by Upper Eocene Ocala Limestone and Quaternary undifferentiated sediments.

Land O' Lakes Plain

The Land O' Lakes Karst Plain Province occurs from southwestern Hernando County southward to Pinellas and Hillsborough Counties. It lies west of the southern end of the Brooksville Ridge, west of the Green Swamp and north and west of the northern boundary of the Sarasota River District (Figure 3). Elevations in the Land O' Lakes Karst Plain range from sea level to 142 feet (43.3 meters). Elevations in the Land O' Lakes Karst Plain over the study area range from 25 feet (7.5 meters) to 135 feet (41 meters). The occurrence of karst features varies from abundant and closely spaced to scattered. Sand dunes are present in several areas of the karst plain. This area varies from poorly drained to well drained and there are many springs. The northern half of the Land O' Lakes Karst Plain, including the present study area, is underlain by the Lower Oligocene Suwannee Limestone. The Upper Oligocene to Lower Miocene Tampa Member of the Arcadia Formation, Hawthorn Group underlies the southern portion of the karst plain. Clays and sands of undifferentiated Hawthorn Group overlie the carbonate sediments over much of the area. Quaternary siliciclastic sediments cover much of the karst plain.

Ocala Karst Hills

The Ocala Karst Hills Province occurs from north-central Marion County southward to northeastern Sumter County (Figure 3). Elevations in the Ocala Karst Hills range from 16 feet (4.9 meters) to 193 feet (58.8 meters). Elevations over the study area range from 50 feet (15.2 meters) to 145 feet (44.2 meters). Several large springs are present in the Ocala Karst Hills, including Silver Springs, which occurs near the eastern edge of the province along the boundary with the Central Lakes District. The karst in this province is relatively mature. The Upper Eocene Ocala Limestone underlies Quaternary siliciclastic sediments of varying thicknesses, while Middle Miocene Hawthorn Group Coosawatchie Formation sediments are thin where present, or absent. Within the study area, Quaternary sands overlie Upper Eocene Ocala Limestone with some isolated outliers of Coosawatchie Formation.

Williston Karst Plain

The Williston Karst Plain Province occurs from northwestern Gilchrist County southward through Alachua, Levy, Marion, Citrus, Sumter, and Hernando Counties. Elevations of the Williston Karst Plain range from 8 feet (2.4 meters) to 162 feet (49.4 meters). Within the mapped area, elevations of the province range from 12 feet (3.7 meters) to 160 feet (48.8 meters). The Williston Karst Plain, located on the eastern flank of the Brooksville Ridge, extends eastward to the Hawthorne Lakes Region, the Fairfield Karst Hills, the Ocala Karst Hills, the Tavares Lakes Region, and the Lakeland-Lake Wales Ridge Complex and is underlain by the Upper Eocene Ocala Limestone (Figure 3). The current study area is covered with variable thicknesses of undifferentiated Quaternary sediments (Scott et al., in preparation). Scattered wells in the Isala Apopka Lake region reveal that occasionally the Upper Eocene Ocala Limestone is missing and only Middle Eocene Avon Park Formation is present.

Legend for Figure 1

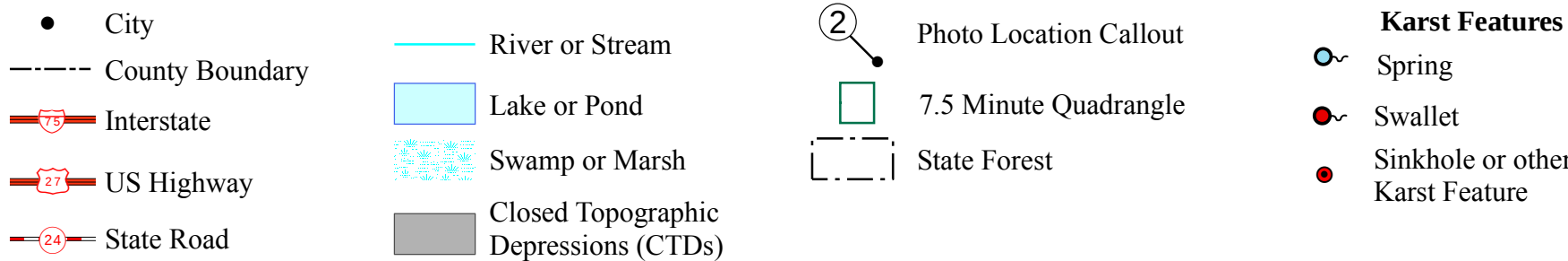


Figure 2. Geomorphic Districts (modified from Scott et al., in preparation).

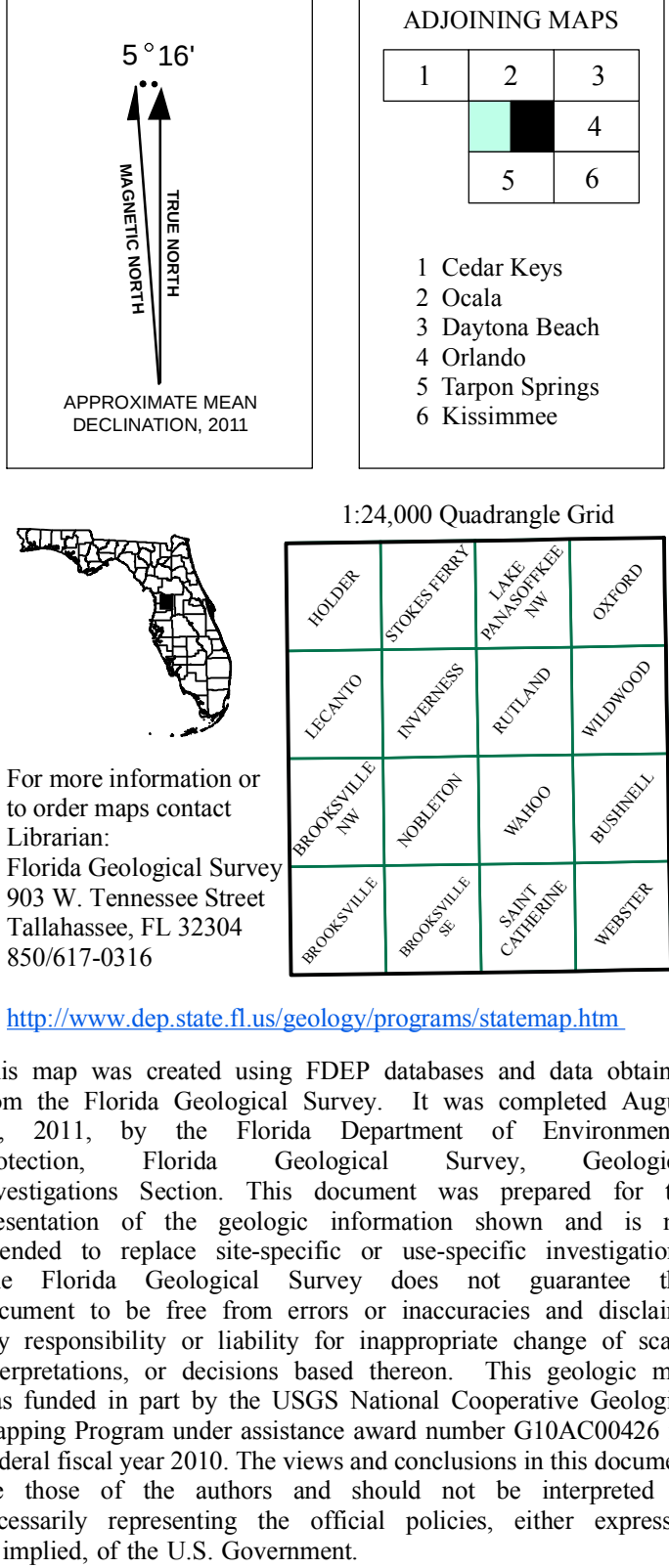
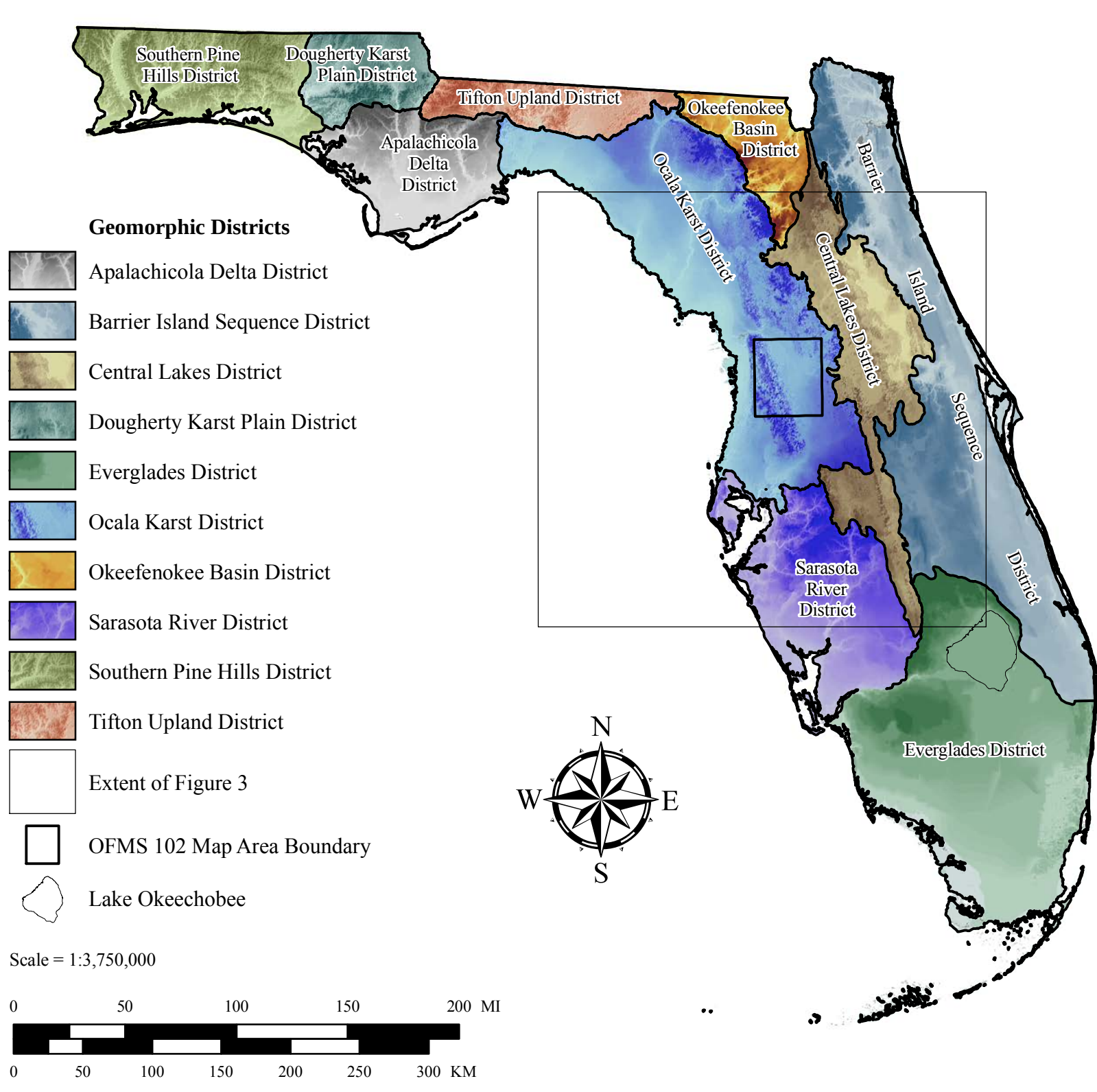
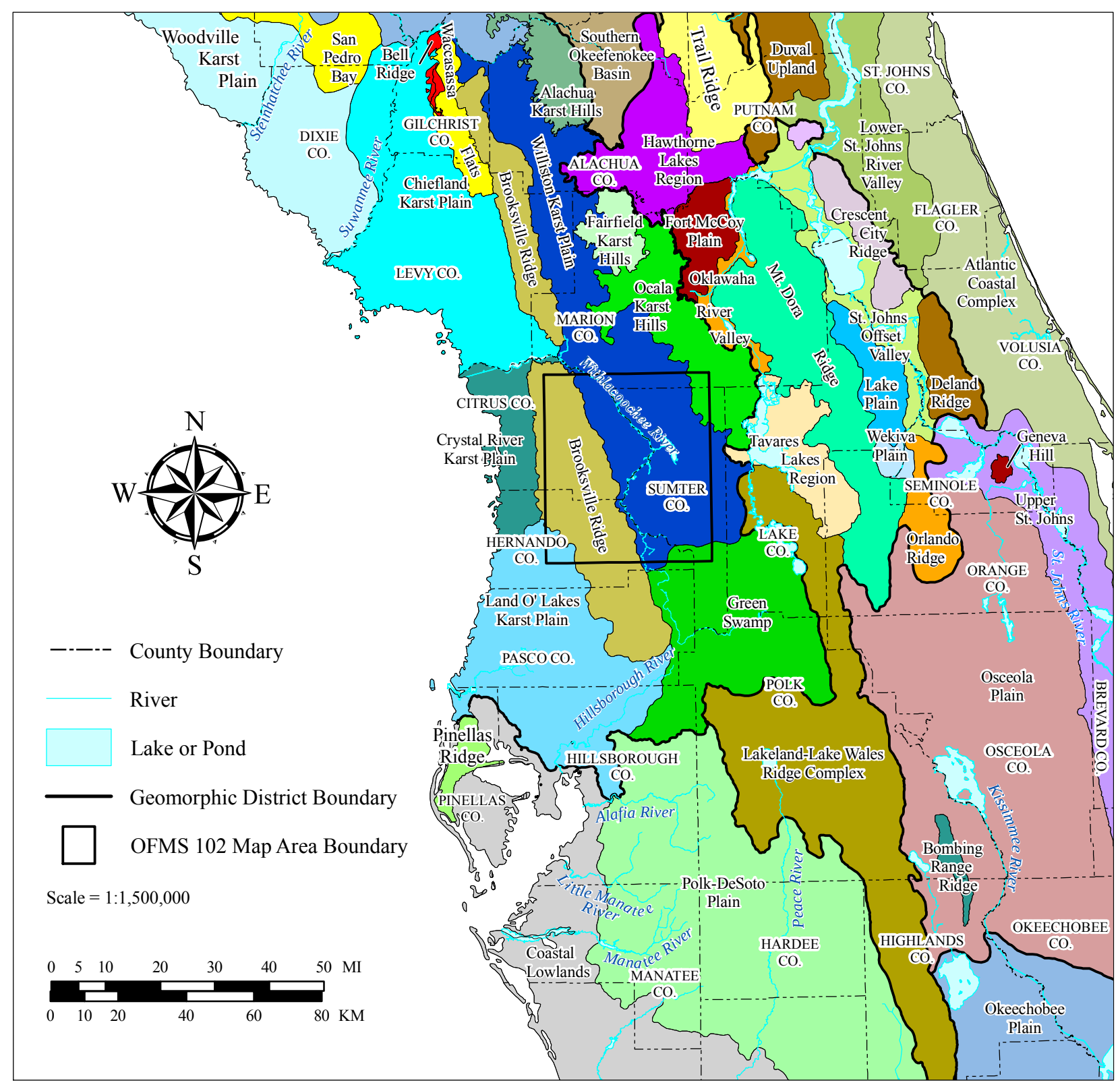


Figure 3. Geomorphic Provinces (modified from Scott et al., in preparation).



SELECTED PHOTOGRAPHS

