Soil-Geomorphic Relations of Florida: 20 Million Years of Marine Influence
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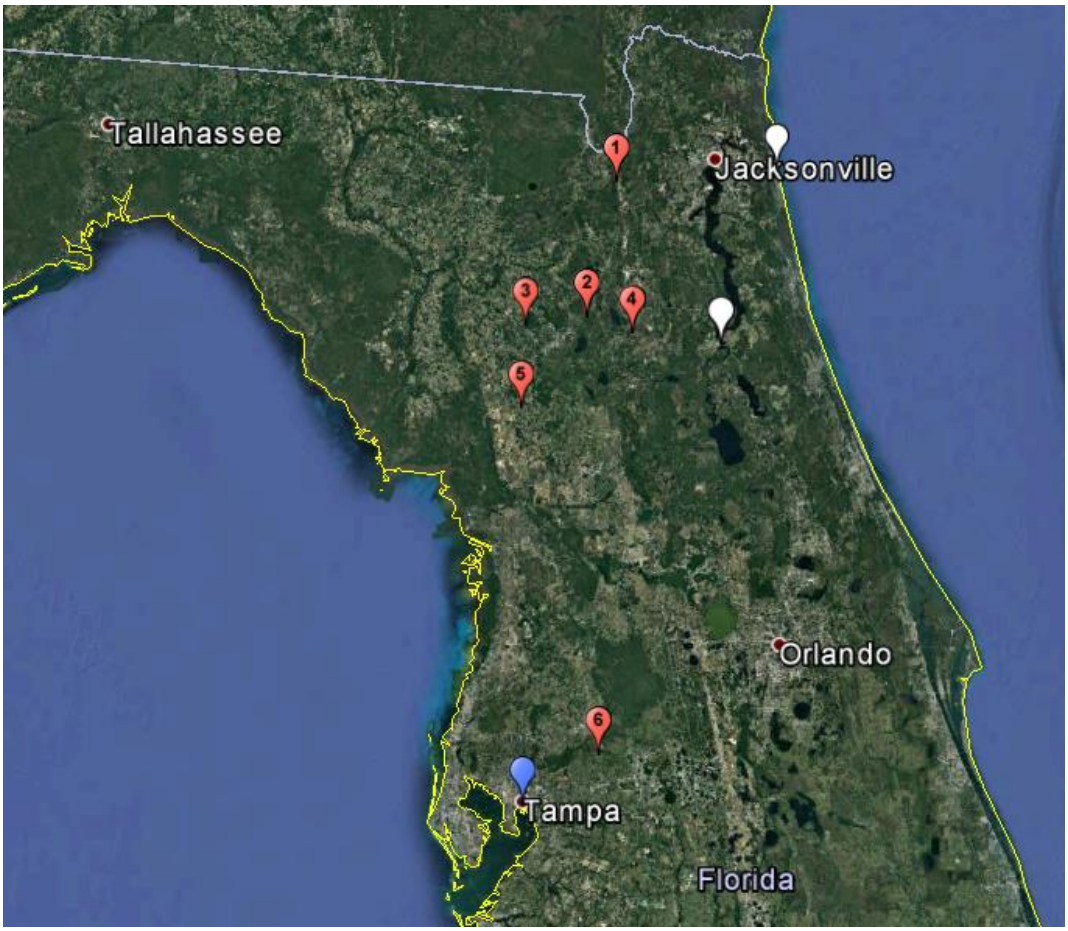
Description
Relict shoreline features are the predominate geomorphic feature of the southeastern United States Coastal Plain. These features (which extend as far south as Lake Okeechobee and as far north as New Jersey) are derived from post-Miocene marine regressions and delineate areas of high and low energy marine deposition. Pedogenesis on the Coastal Plain is inextricably tied to the depositional environment in which sediments were deposited (high energy deposition concentrates coarse sediments more than low energy deposition), and ultimately the distribution, properties, and services of contemporary soils depend on their spatial relationship to relict shoreline features. This tour will utilize the remarkable soil diversity in north-central Florida to examine: (1) how variations in sea level and marine deposition through the Miocene, Pliocene, and Pleistocene have shaped the Coastal Plain surface, (2) how this depositional history influences pedogenesis and the distribution of Coastal Plain soils, and (3) how contemporary human activities and management interact with these pedogenic and geomorphic processes. During this two-day tour participants will see and discuss a variety of deep soil profiles (some more than 10 meters), have multiple opportunities to auger for themselves, and get hands on experience with pedologically influenced marine sediments of Miocene, Pliocene, and Pleistocene age.



Tour stops (red numbered icons), hotels (white icons), and the Tampa Convention Center (blue icon).

Stop #1 Chemours Heavy Mineral Mine 30°14'57.01"N 82° 4'41.00"W

At the Chemours Heavy Mineral Mine we will stand atop Trail Ridge, a more than two million year old beach ridge formed during Pliocene and Pleistocene marine transgressions. We will view a more than ten meter deep excavation that exposes a multi-sequal Spodosol. Specific topics discussed will include:

Regional geomorphological expression of ancient marine transgressions,
The nature and origins of parent material *on* the Coastal Plain's relict shorelines,
Pedogenic pathways following high energy marine deposition, and
Hydro-pedogenic origins of unaccounted for soil carbon in the Coastal Plain subsoils.

Stop #2 Austin Cary Memorial Forest 10625 NE Waldo Rd, Gainesville, FL 32609

At the Austin Cary Memorial Forest participants will auger poorly drained Ultisols and Spodosols in the personification of the "Flatwoods Ecosystem". Specific topics discussed will include:

The nature and origins of parent material *in between* the Coastal Plain's relict shorelines,
Pedogenic pathways following low energy marine deposition, and
Morphologic, hydrologic, & biotic gradients across nearly indiscernible topographic gradients.

Stop #3 San Felasco Hammock State Preserve 11101 Millhopper Rd, Gainesville, FL 32653

At San Felasco Hammock State Preserve we will traverse the largest continuous geomorphic feature in Florida, a relict shoreline called the Cody Scarp (yes, a "scarp" in Florida). We will dig into the scarp to expose the Hawthorne Formation, a fine textured marine sediment dating to the Miocene. Specific topics discussed will include:

The influence of Miocene deposition on contemporary soils and hydrology,
Spatial control of karst features in Florida, and
Management considerations across a confinement gradient of the Floridian aquifer.

Stop #4 Ordway Swisher Biological Station 590 State Rd 21, Hawthorne, FL 32640

At Ordway Swisher Biologic Station we will experience karst terrain atop Florida's Central Ridge. We will view well-drained Ultisols and Entisols, and an underlying fine-textured depositional layer called the Cypresshead Formation. Specific topics discussed will include:

Pedogenic pathways above unconfined limestone,
Fine-textured sediments younger than the Hawthorne,
The pedogenic and hydrologic expression of subsurface topography, and
Contemporary subsoil interactions between biota and the Cypresshead Formation.

Stop #5 Devil's Den 5390 NE 180th Ave, Williston, FL 32696

At Devil's Den we will see first-hand the physical and chemical drivers of karst terrain by traveling into a subterranean limestone cave. Participants will also auger Alfisols influenced by near surface presence of limestone. Specific topics discussed will include:

Soil formation under the influence of limestone,
Congruent vs Incongruent weathering, and
Resource management above an unconfined Floridian aquifer.

Stop #6 Plant City Soil Profile 28° 7'47.78"N 82° 8'21.65"W

Near Plant City, Florida we will excavate a four meter deep profile in a Typic Glossaqualf map unit to expose an A-E-Bh-Bt sequence as well as an (apparent) underlying parent material discontinuity. Specific topics discussed will include:

Soil and Subsoil indicators of regional water use and draw down,
Reduced matrices, and
The origins of high-activity clays in Florida.

Airport: Participants should fly into the Jacksonville International Airport in the afternoon of October 19

Hotels: October 19th - Fairfield Inn & Suites, Jacksonville Beach
(1616 N. 1st Street, Jacksonville Beach, FL 32250, 904-435-0100)

October 20th - Quality Inn & Suites Riverfront, Palatka
(201 N. 1st Street, Palatka, FL 32177, 386-328-3481)

Meals: Breakfasts — Provided by hotels.

Lunches — October 20th - Boxed lunch in the Austin Cary Forest
October 21st - Boxed Lunch at Devil's Den

Dinners — Participants responsible for their own dinner. In and around both hotels there are abundant and diverse dining options.

*Snacks and drinks will also be provided and available throughout the tour