

## 2008 Refined soil survey of the NATL Old Field Plots

The refined soil survey completed in 2008 consisted of doing soil auger borings at selected points along the boundaries of the natural soils, disturbed soils, and highly disturbed soils as delineated following the preliminary survey in 2007. Dr. Tom Walker selected the points at which to complete the borings so that the boundaries between the different soils could be more precisely mapped. Auger borings were made at a total of 25 points to a depth of 1.5 m. GPS coordinates were determined at the location of each auger boring. The soil auger borings and soil descriptions were completed by Ronald J. Kuehl, soil scientist, Florida Soil and Environmental Services.

The NATL has a 50 m grid system and each grid intersection is marked. The location of the soil borings in this refined soil survey was measured in meters from the grid intersections.

Soil samples were collected of the 0 to 6 inch layer in each boring for fertility analyses. The samples will be provided to Dr. Mark Clark.

A brief soil description was completed at each boring to show the estimated field soil textures and depth and thickness of the clay layers. The primary objective of this refined soil survey was to better define the boundaries between homogenous soil units so that researchers working on the NATL Old Field Plots can better understand the differences in plant growth and succession taking place.

The following are some of the things shown by the sampling and describing of the 25 sites in 2008 that can be used to refine the preliminary soil survey of the Old Field Plots:

1. Along the western side of Old Field Plots A and C, the area of natural soils extend further east than shown in the preliminary survey.
2. In the southern part of Old Field Plot C and the southwest corner of Plot D, the highly disturbed soils extend further south than shown in the preliminary survey. Except for the southwest corner of Plot C, the highly disturbed soils in Plot C appear to extend southward almost to the trail.
3. In Old Field Plot D, the highly disturbed soils are more extensive than shown in the preliminary survey. It appears that the highly disturbed soils extend into most of the northeast area of Plot D. The sample taken at a point 12.5 m south of Grid Point H4 showed mixed sands and clay along with piece of glass and roof shingles. In the preliminary survey, the soil at point H4.5 (halfway between Grid Point H4 and H5) was described as disturbed. However, this soil also contains considerable clay and could be included in the highly disturbed soil area. Therefore, it appears the soils in the northeast area of Old Field Plot D could be shown as highly disturbed except for Grid Point H4 and the sample site 12.5 m west of H4 in which natural soils occur.
4. Most of the samples taken in Old Field Plot B showed natural soils indicating that the area of natural soils is larger than shown on the preliminary survey.

5. The area of highly disturbed soils in northern area of Old Field Plot A does not extend as far to the west as shown in the preliminary survey.

The following soil groupings were used in 2008 as defined in the preliminary soil survey completed in 2007. The soils were grouped into 3 major units: (1) natural soils; (2) disturbed soils; and (3) highly disturbed soils. Natural soils refer to the soils in which no disturbance was noted above a depth of 150 cm. The disturbed soils contain what appeared to be chunks of clay mixed with the sands. Thick layers of clay were not apparent in the disturbed soils. The highly disturbed soils are the soils that contain thick, distinct layers of clay. The following subgroups were made within each of the major units:

**1(a) Natural soils - brown and yellowish brown sands > 1.5 m in thickness**

**Soil sample point 12.5 m west and 25 m north of Grid Point F4**  
**Soil sample point 12.5 m west and 25 m south of Grid Point F4**  
**Soil sample point 12.5 m west of Grid Point F5**  
**Soil sample point 12.5 m west and 12.5 m south of Grid Point F5**  
**Soil sample point 12.5 m north and 12.5 m east of Grid Point G4**  
**Soil sample point 12.5 m north and 25 m east of Grid Point G4**

Natural, undisturbed soils consisting of brown and yellowish brown sands that extended to a depth of more than 1.5 m were observed in the western parts of Plots A and C and also at two points in Plot B 12.5 m north of grid point G4.

**1 (b) Natural soils - thick light brownish gray and gray sands > 1.5 m in thickness in lower lying areas**

**Soil sample point 12.5 m north of Grid Point G3**  
**Soil sample point 12.5 m east of Grid Point G3**  
**Soil sample point 25 m east and 12.5 m south of Grid Point G3**  
**Soil sample point 25 m north and 12.5 m west of Grid Point H4**

These points are located in lower areas in the northeastern part of Plot B and the berm of the sinkhole in Plot B. The gray-colored sands observed at these sites are an indication that the soils are wet following periods of heavy rainfall.

**1 (c) Natural soils – moderately thick sands 1.1 to 1.5m in thickness overlying loamy soils**

**Soil sample point 12.5 m north of Grid Point F3**  
**Soil sample point 25 m east and 12.5 m south of Grid Point F3**  
**Soil sample point 25 m north and 12.5 west of Grid Point F3**  
**Soil sample point 12.5 m west of Grid Point F4**

The borings at these points in slightly lower areas in Plot A showed natural, undisturbed soils consisting of brown, yellowish brown, and pale brown sands that overlie yellowish brown-colored loamy soils (sandy loams and sandy clay loams). The moisture content of the sands increased considerably at a depth of about 1 m above the underlying loamy soils.

**1 (d) Natural soils - thin sands (Sands 55 to 92 cm in thickness overlying loamy soils)**

**Soil sample point 12.5 m east of Grid Point H4  
Soil sample point 12.5 m north of Grid Point H4  
Soil sample point 12.5 m west of Grid Point H4**

Natural, undisturbed soils consisting of brown, yellowish brown, and pale brown sands overlying loamy soils (sandy clay loams and sandy loams) were observed in these borings that were made north, east and west of Grid Point H4 in the southeast area of Plot B. The sands in these borings were underlain by reddish brown, yellowish brown and light gray-colored loamy soils (sandy clay loams and sandy loams).

**2 (a) Disturbed soils with layers of clay < 20 cm in thickness overlying natural soils  
None**

**2 (b) Disturbed soils > 100 cm in thickness consisting of loamy soils and phosphatic rocks overlying sands and loamy soils**

**None**

**2 (c) Disturbed soils with chunks of clay – mixed, multi-colored sands with chunks of gray and greenish gray clay that begin within a depth of 30 cm of the surface and extend > 36 cm in thickness.**

**Soil sample point 12.5 m south of Grid Point F3**

This boring in the west central area of Plot A showed sands mixed with chunks of clay from the surface to a depth of 134 cm.

**2 (d) Disturbed soils with chunks or thinner layers of clay – mixed, multi-colored sands with chunks of gray and greenish gray clay that begin within a depth of 30 cm of the surface and extend < 36 cm in thickness.**

**Soil sample point 12.5 m north of Grid Point G4  
Soil sample point 25 m north and 12.5 m west of Grid Point G4**

These borings in the southwest area of Plot B showed sands with chunks of clay that extended from the surface to a depth of about 23 to 28 cm. Natural sands underlie the mixed sands with the chunks of clay.

**3(a) Highly disturbed soils - mixed, multi-colored sands with layers of gray and greenish gray clay > 36 cm in thickness that begin within a depth of 30 cm of the surface.**

**Soil sample point 12.5 m south of Grid Point H4**

This boring in the northeastern area of Plot D/northwest area of Plot E showed mixed layers of sand and clay that extended from the surface to a depth of 150 cm.

**3 (b) Highly disturbed soils - gray and greenish gray clay on the surface and >75 cm in thickness.**

**Soil sample point 12.5 m south of Grid Point F5**

**Soil sample point 12.5 m south and 25 m east of Grid Point F5**

These borings in the southwest area of Plot C showed thick layers of gray and greenish gray clay. The clay contained many white phosphatic nodules that typically occur in the Hawthorn geologic formation. The nodules were about 1 to 3 cm in diameter and were mostly soft. Some were hardened and were difficult to break apart in the hand.

**3 (c) Highly disturbed soils - gray and greenish gray clay on the surface 48 to 58 cm in thickness overlying natural soils.**

**Soil sample point 25 m east and 12.5 m north of Grid Point F3**

**Soil sample point 12.5 m south of Grid Point G5**

One boring in the northern area of Plot A and a boring in the southeast area of Plot C/southwest area of Plot D showed layers of clay 48 to 58 cm in thickness overlying natural soils.