CFAES

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

MONDAY, DECEMBER 9, 2019 | 2 P.M. | KOTTMAN 245

GRADUATE EXIT SEMINAR

Tania D. Burgos Hernández

Investigating Soil Quality and Carbon Balance for Ohio State University Soils

Advisor: Dr. Brian Slater

Soil ecosystems are known to provide critical ecological and economic services such as water retention, nutrient storage, and carbon sequestration, and provide green spaces to clean pollution and cool urban heat islands. These ecosystems can be greatly affected by management practices. Urban soils are highly disturbed by anthropogenic activity and the impact on soil function is not well understood. The overall goals of this work are to establish a database and spatial distribution maps of soil properties at The Ohio State University, and to evaluate the role of these soils in the carbon cycle. This step of utilizing Ohio State soils as a test bed for our research not only provides us with the data we need to understand the current status of Ohio State soils, but the depth profiles help us understand how these urban soils have been modified over time.

This work is divided into two stages: (1) finding and characterizing relatively undisturbed soils at Ohio State to use as a baseline, and (2) an intensive sampling for numerical classification and mapping of the urban soils. Historical campus maps were used to locate and sample three areas where undisturbed soils were likely to be found. Also within the study area, 108 random sites have been sampled, characterized and used to create three-dimensional soil maps. From these samples, heavy metals, physical and chemical properties and carbon fractions were analyzed. These soil properties indicate the current status of the soils at Ohio State and the role they play and its potential for carbon sequestration.