Soil and Sediment Characteristics of a Drained Carolina Bay. (S10-ewing155604-Poster)

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Abstract:

Juniper Bay is a 296ha Carolina Bay in Robeson County, NC, that has been drained and in agricultural production for up to 30 years. It is now being restored back to a wetland. The objective of this work was to describe the soil morphological, chemical and physical properties to quantify the degree that the soils have changed through agriculture. Eighteen paired soil pits, near a ditch and between two ditches, on a randomly placed equilateral grid, were described and sampled. Properties evaluated included hydraulic conductivity, bulk density, organic carbon, pH, CEC and available P. Soils near the ditch were disturbed by additions of soil. This produced constant levels of pH, P, and organic carbon with depth. Organic soil surface horizons developed a granular structure resulting from the oxidization of the original organic surface. Soils within the managed area, away from the ditch, showed similar pH, CEC, and P levels below a depth of 20 cm as those exhibited in an unmanaged area. The drainage and agricultural use of this bay has led to increased oxidization and subsidence of the organic soils. However, agriculture additions of fertilizer and lime have produced depth trends similar to those found through bio-cycling in unmanaged areas.

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