Lithologic Discontinuity and Buried Horizons of a Soil in the Sand Hills Soil Province of Georgia

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Published reports of lithologic discontinuity and/or buried soils in the Sand Hills soil province are lacking. Most studies of buried soils have been conducted in areas associated with glacial (Thompson et al., 1981), lacustrine (Glasmann et al., 1980), or eolian (Nausbach et al., 1982; Valentine et al., 1980) deposits. Soils with lithologic discontinuity and/or buried horizons are often associated with kaolin deposits in the Sand Hills soil province.

This study was conducted in support of field observations of buried soils and lithologic discontinuities in soils along the border between the Sand Hills and Southern Piedmont soil provinces in Georgia.

Materials and Methods

The site chosen for study occurs 1.2 km east of Commissioner Creek and 0.2 km north of Ga 49. Surface geology consists of mixed sediments of Lower Cretaceous origin apparently reworked by alluvial action and underlain by granite gneiss residuum. The study area is a freshly exposed cut 5 m in thickness. The soil is a Faceville sandy loam (clayey, kaolinitic, thermic Typic Paleudults).

Morphological descriptions were prepared and samples were collected from horizons identified by field examination. Clay content was determined according to Day (1965) and silt was obtained by difference after wet sieving to determine sand content. Bulk density was determined by the clod method (Blake, 1965) modified to use saran to replace paraffin as a coating (Brasher et al., 1966). Organic carbon was determined by wet oxidation and cation exchange capacity (CEC) was obtained using methods 5Al and 5Alb of SSIR no. 1 (Soil Conservation Service, 1972). Total Si, Al, and Fe were determined according to Bernas (1968). Clay minerals were identified by x-ray diffraction.

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