Morphology and Genesis of Frigid Residual Soils in the Great Smoky Mountains National Park. (S05-khiel141809-Poster)

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Abstract:

A comprehensive soil survey has been underway in the Great Smoky Mountains National Park (GSM) for the last three years. The GSM is located along the western border of North Carolina and the eastern border of Tennessee and is approximately 210,000 hectares in area. Elevations range from 300 meters to 2,000 meters and the soil temperature regimes range from thermic to frigid. The underlying geology throughout the park is mainly metasedimentary sandstone, slate, and phyllite. There are small areas of granite schist and gneiss at elevations below 1,500 meters. This study will focus on the soil morphology and genesis of three frigid soils that formed from metasedimentary parent material. These soils are newly proposed soil series and are the Luftee, Breakneck, and Guyot soils. All three are classified as Humic Dystrudepts and occur at elevations in excess of 1,400 meters. This combination of metasedimentary geology and elevation do not occur outside the GSM in the Southern Blue Ridge Mountains. The Luftee series formed from Anakeesta slate. The Breakneck series formed from the hard, massive Thunderhead sandstone. The Guyot series formed from the soft sandstone member that is part of the Copperhill formation.

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