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Soil Properties in a South Georgia, USA, Borrow Pit 40 Years After Excavation Ceased

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This study investigates soil properties in an abandoned sand borrow pit located about 11 km south of Valdosta, GA, USA, that was used and then abandoned with no efforts at reclamation, and compares those developing soils to natural soils surrounding the pit. The pit contains two tiers, a deep lower part and an upper terrace. There are distinct vegetative zones within the pit; three are included in this study. The lowest part of the pit is characterized by a mix of slash pines (Pinus caribaea) and deciduous trees including sweetgum (Liquidambar styraciflua) and blackgum (Nyssa biflora) with a well-developed leaf litter cover but a lack of significant underbrush or grass. Water ponds at the surface during wet periods in the lowest part of the pit. The upper terrace has sparse vegetation along its lip including a few stunted slash and longleaf (Pinus palustris) pines and a sparse lichen cover, including "deer moss" (Cladina evansii) on the ground surface, lacks leaf litter cover, and the water table is deep relative to the rest of the pit. There is a gentle slope away from this sparsely-vegetated area towards the edge of the excavation. The edge of the pit along the upper terrace has a healthy stand of mixed pine and deciduous trees similar to that found in the pit bottom, but the ground also includes a thick cover of grass (Andropogon sp.). Water ponds at the surface during wet periods here as well. Native deciduous trees including live oaks (Quercus virginiana), water oaks (Quercus nigra), and magnolias (Magnolia sp.) characterize the area outside the pit. Although soil formation over only 40 years is slight, there are distinct differences in the soils between the vegetative zones that were studied. Soil differences are attributed to differences in topographically controlled access to water and vegetation type. Study of surrounding developed soils reveals that soils within the pit still have a significant amount of development remaining before they reach equilibrium with the natural environment.