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Title: Initial Assessment of Potential Relationships Between Plant Communities and the Soil Microbiome in Closed Forest and Longleaf Pine Restoration Sites.

Longleaf pine is an endangered ecosystem characterized by high levels of biodiversity.

Our study took place in the Sheffield Wildlife Management Area located in the Piedmont ecoregion of Georgia in Paulding County. Fifty plots of 10 x 30 m<sup>2</sup> were setup on south or north facing slopes, some in covered forest, and some in an area actively being restored for the longleaf pine. All trees above 1.37 m were identified and had their diameter measured, and species diversity, relative density, dominance, and frequency were determined. Herbaceous plant cover percentages were recorded in select plots. Soil samples were also collected in sterile plastic tubes in six of the above-mentioned plots, at the center and 10 m above and below the central point of each plot.

Plant species diversity was slightly higher in south facing compared to north facing slopes, and the soil microbiome suggests high levels of bacterial diversity and differences in fungal microbiome among plots. Our aim is to begin to determine potential associations between below and above-ground communities.

Key words: bacterial diversity, biodiversity, ecosystem, longleaf pine, Piedmont ecoregion, restoration, soil microbiome