Effects of Elevated Atmospheric CO2 on Nitrogen and Carbon Cycling in a Model Longleaf Pine Community. (A03-torbert104108-Poster)

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Abstract:

Increasing global atmospheric CO2 concentration has led to concerns regarding its potential effects on the terrestrial environment and the long-term storage of C and N in soil. A study was conducted examining the responses to elevated CO2 on a typical regenerating longleaf pine-wiregrass community. The study consisted of a model community of five plant species: 1) a evergreen conifer (Pinus palustris), 2) a bunch grass (Aristida stricta), 3) a broadleaf tree (Quercus margaretta), 4) a perennial herbaceous legume (Crotalaria rotundifolia), and 5) a herbaceous perennial (Asclepias tuberosa). The CO2-enriched plots had greater aboveground biomass than ambient plots, mainly due to a increased pine biomass. After 5 yrs, soil (Blanton loamy sand: loamy, siliceous, thermic Grossarenic Paleudult) samples were collected from 0-5, 5-10, and 10-20 cm depth increments. Microbial respiration, potential C and N mineralization, and C turnover were measured during a 60 d incubation of the soil samples. Changes in these measures will be discussed.

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