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Current Project Description: Ecological interactions in a longleaf pine – native woody ornamental agroforestry system

Objectives:

- 1.) Determine the effects of shading and microclimate modification from longleaf pine on the stomatal conductance, photosynthesis, growth and yield of 3 native ornamental shrub species: *Ilex glabra*, *Myrica cerifera* and *Callicarpa americana*.
- 2.) Quantify the effects of water uptake by longleaf pine on soil water potential at different depths in the soil profile in the cultivated alleys.
- 3.) Determine how intercropping longleaf pine with woody ornamentals affects the use efficiency, percent utilization and soil retention of applied nitrogen fertilizer.
- 4.) Measure the effect of belowground competition from woody ornamentals on the growth of longleaf pine.

Brief Description: While longleaf pine is widely renowned for its ecological value and for its high quality wood, many landowners are reluctant to plant it due to its long rotation cycle. The incorporation of native ornamental shrubs such as beautyberry (*Callicarpa americana*), inkberry (*Ilex glabra*) and wax myrtle (*Myrica cerifera*), into the understory, however, would provide a source of annual income which would augment the long term returns from longleaf sawtimber sales. It could also be an environmentally friendly alternative to the intensive monoculture practices that are typically used for ornamental plant production. The successful development of an agroforestry system, however, is first contingent on an understanding of the interspecific interactions that take place within it. This study, therefore, will address the above and belowground physiological processes that affect tree and shrub productivity in this system.