LILA Tree Islands
Ecosystem Restoration Task Force Abstract
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Tree islands are a critical and endangered component of the Everglades ecosystem. Yet little is known about the formation, sustainability and restoration of these clumps of woody vegetation surrounded by marsh. The LILA project contains eight (8) tree islands where researchers can investigate processes that effect tree island health and test strategies that can be used to restore them.

In 2006 and 2007 approximately 5,500 native trees were planted across all the islands. Species planted were Pond Apple (*Annona glabra)*, Red Maple (*Acer rubrum)*, Gumbo Limbo (*Bursera simaruba)*, Coco Plum (*Chrysobalanus icaco)*, Stangler Fig (*Ficus aurea)*, Dahoon Holly (*Ilex Cassine)*, Wax Myrtle (*Morella cerifera)*, and Swamp Bay (*Persea palustris)*. These trees are being intensively monitored in order to understand their tolerance to flooded conditions (hydroperiod), competition and the consequence of soil type on their survival and growth.

One important feature of the tree islands of the Everglades is the relatively high nutrient levels found in the soils of the islands versus the surrounding low nutrient marsh. The cause behind this difference in soil nutrients is unknown but one hypothesis being tested at LILA is that ground and surface water interactions driven by tree transpiration, where trees actually pull ground water into the soils. The shallow groundwater may be the source of these nutrients allowing species with higher nutrient requirements to exist. From 2006 to 2008 a series of 84 shallow wells were installed across the LILA site from which to gather groundwater samples and monitor ground water levels. Researchers are using these wells to study whether or not the trees in LILA are influencing tree island ground water movement, soil nutrients and tree health.

<u>Other tree island research being conducted at LILA</u>:

1. Monitoring tree island shape and its relationship to water flow
2. Measuring soil accretion, erosion or formation
3. Measuring surface and ground water hydrology and chemistry
4. Measuring carbon cycling and developing a carbon budget