

## **Environmental Effects on Plant Morphology and Growth**

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South Florida is home to very unique, yet severely threatened ecosystems known as the pine rockland and Florida scrub. These distinct plant communities flourish on either limestone or sand, providing environmental conditions that promote the growth of different types of plants. This research project aims to demonstrate the variable plant life of south Florida through a common garden experiment that will be compared to plants found in Everglades National Park, Archbold Biological Station, and Fairchild Tropical Botanic Garden, all of which are separate pine rockland and Florida scrub ecoregions with flora that thrive in the acidic and basic conditions present. Analyzing the effects of the environmental conditions will be done by collecting seed samples of plants commonly found in these particular habitats, including *Pinus elliotii* var. *densa*, *Serenoa repens*, Sabal palmetto, *Ceratiola ericoides*, *Pinus clausa*, and *Quercus geminate*, to perform a common garden experiment followed by an examination of characteristics in morphology and nutrient composition. The morphological features will be studied by using a digital herbarium, as well as rinsing fresh samples with water, pressing them on herbarium paper, and allowing them to dry prior to data collection like leaf type, color, and size. A soil test kit will be utilized in order to obtain data for the nutrient composition, as the results of these tests indicate the presence of compounds such as nitrogen, phosphorous, potassium, and even the levels of pH. This project takes an ecological approach to address the significant connection between the health of humans and ecosystems that may be jeopardized with these diverse habitats being critically endangered. This research will impact not only the field, but society as a whole as it will place emphasis on the importance to preserve and protect what remains of these extraordinary habitats and its vegetation.