

# Experimental Outplanting of *Encyclia tampensis*



CHICAGO  
BOTANIC  
GARDEN



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## Introduction

- *Encyclia tampensis* is a common epiphytic orchid distributed from Florida to the Bahamas.
- Grows in a wide range of habitats, including mesic hammock, pine flatwoods, and scrub.
- When outplanted to its seed source habitat vs. a different habitat, how well does *Encyclia tampensis* survive?
- **We predict orchids outplanted to their source habitat will have the highest survival rate.**
- We will evaluate methods of capturing the genetic diversity of populations from different source habitats.

## Methods



Figure 1. Locations of Outplanting Sites at Pine Jog Preserve

- **2019:** Seeds from mesic hammock, pine flatwoods, and scrub habitats were collected from Halpatiokee Regional Park, Pine Jog Preserve, and Juno Dunes Natural Area respectively, then propagated at the Pine Jog Environmental Education Center.
- **2021:** 35 orchids from each population were taken and ~7-14 from each source were outplanted into mesic hammock, pine flatwoods, and scrub sites located in Pine Jog Preserve. Monthly surveys were conducted and growth data was collected.
- **2023:** Surveys conducted every 3 months, leaves collected from remaining plants + additional ~20 from each site. DNA was extracted from each sample using sorbitol extraction. To compare expected and observed heterozygosity & levels of inbreeding, 10 microsatellite primer pairs were used following standard protocol.

## Results

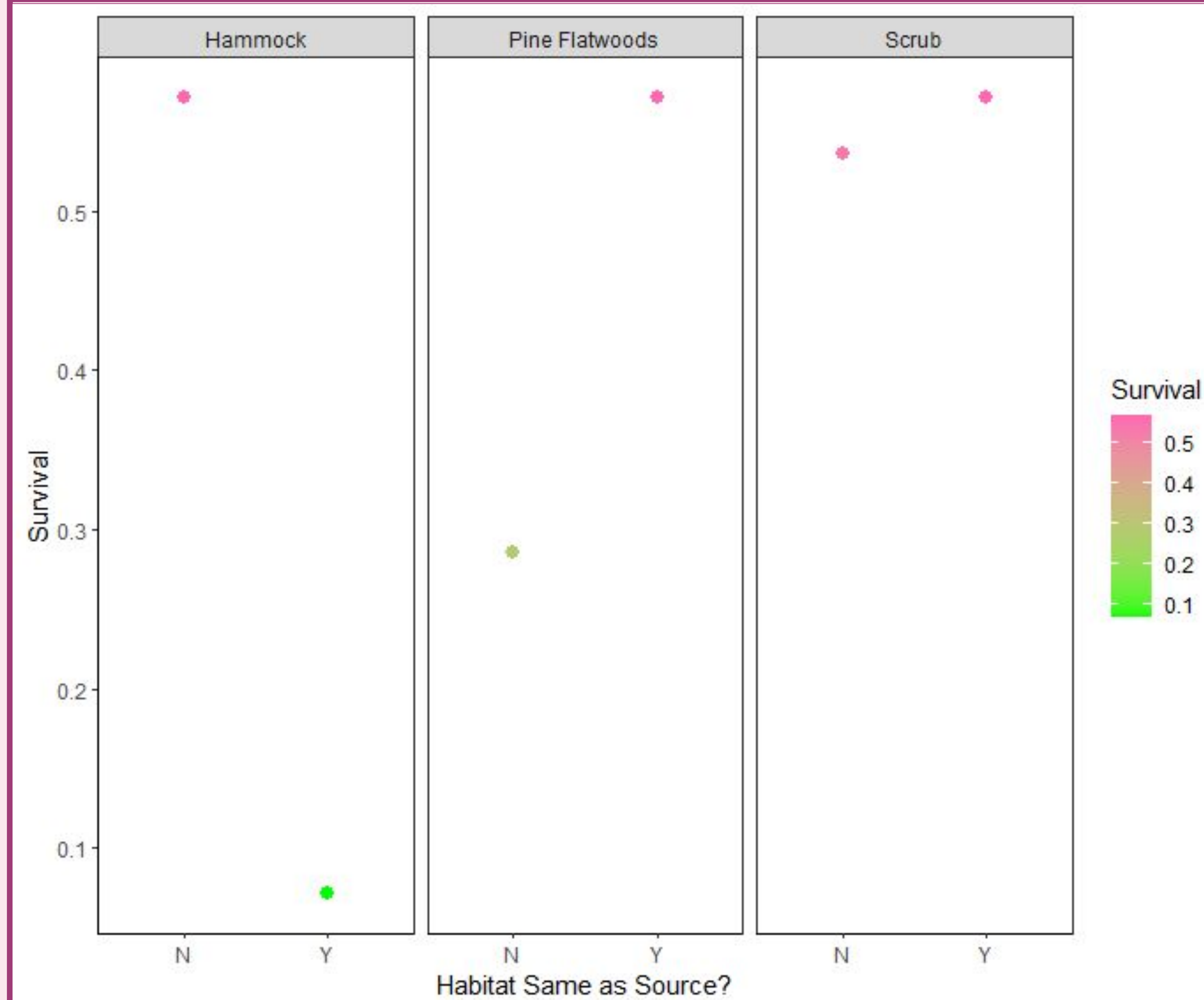


Figure 2. *E. tampensis* Survival in Source Habitat vs. Outplanting Habitat Seeds were propagated from hammock, pine flatwoods, and scrub habitats in Florida and 7-14 from each source were out-planted into each of the three sites. Survival data was collected. Survival is depicted by a proportion of how many plants are still alive as of June 6th, 2023 to how many were originally out-planted.

Source	Outplanting Site	Survival (%)	Surviving/Total
Pine Flatwoods	Hammock	78.6%	25/35
Pine Flatwoods	Scrub	71.4%	
Pine Flatwoods	Pine Flatwoods	57.1%	16/35
Scrub	Scrub	64.3%	
Scrub	Hammock	35.7%	
Hammock	Scrub	35.7%	8/35
Scrub	Pine Flatwoods	28.6%	
Hammock	Pine Flatwoods	28.6%	
Hammock	Hammock	7.1%	

Table 1. Survival Rate of *E. tampensis* in Source Habitat vs. Outplanting Habitat Survival data on all plants was collected in a recent survey and survival percentage was calculated.

## Conclusions & Discussion

- Orchids sourced from the hammock habitat generally had the lowest survival rate, whereas those sourced from pine flatwoods had the highest survival rate.
- Orchids from the hammock source all had the same mother plant, low survival rates may be a result of underlying genetics i.e. inbreeding.
- Orchids sourced from the scrub site only had a slightly higher survival rate when outplanted in their source habitat.
- Some outplanted orchids in this study were poached, a common issue that harms orchid populations worldwide. Florida is a known hotspot for orchid poaching.
- Time limitations prevented us from completing analyses of genetic diversity and inbreeding in each population.
- Future directions may include outplanting in sites located at the three different parks rather than only habitats within Pine Jog Preserve, which may correlate with the higher survival rate of plants sourced from the Pine Flatwoods habitat.

## Acknowledgments

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