So why would a trained chemist, born, raised, and educated in the cornfields of the Midwest (Illinois, USA), step out of an air-conditioned laboratory and into foreboding swamps of the Florida Panther National Wildlife Refuge (NWR) to study an orchid? Wearing a white lab coat provides some protection from exposure to dangerous chemicals, but certainly not mosquitoes or alligators. I did not expect I would be wearing snake boots to protect my legs from venomous snakes in south Florida swamps during my professional career! But this was the decision I made earlier this year. I am now on an exciting path to studying an aspect of orchid biology that overlaps my field of study, and I am excited about where this may all lead.

The elusive ghost orchid, *Dendrophylax lindenii*.

Photo A. Herdman

The ghost orchid is a tree dweller with no leaves, and

when it is encountered appears as a delicate, luminescent white bloom floating at eye level or above in its lush, shaded, natural environment (Brown, 2005). Unfortunately, this endangered species can only be found propagating naturally in southern Florida and western Cuba (Coile and Garland, 2004). Several factors continue to threaten it including loss of habitat (DeConto and Pollard, 2016), environmental impact (Wiegand *et al*., 2013), as well as illegal poaching (Coile and Garland, 2004). As many readers may be aware, poaching *Dendrophylax lindenii* was the subject of Susan Orlean's best-selling novel, The Orchid Thief, and the Hollywood movie, Adaptation. Successful conservation of this species requires environmental protection and necessitates an understanding of its propagation via natural pollination mechanisms.

Through the course of a week in early July 2021 our group – Illinois College Hitchcock Professor of Biology, Dr. Larry Zettler; Southern Illinois University at Edwardsville Master's degree candidate, Adam Herdman; Routt Catholic High School student, Audrey Zettler; Illinois College student and research associate,

Tony Ruiz; and myself - sought to find and collect data on native, naturally reproducing ghost orchids at the Florida Panther NWR in Collier county Florida. Our excursions into this protected habitat were overseen and aided by Florida Panther NWR wildlife biologist, Mark Danaher, and his capable and helpful staff, who ensured that we had both safe and productive outings each day. Following our organizational meeting we surveyed ghost orchid populations at five unique sites. Each location was accessed via truck or swamp buggy followed by a careful and sometimes lengthy hike. During these trips we encountered first-hand the great natural beauty unique to southern Florida. At our destination we located trees known to support ghost orchids, pop ash (*Fraxinus caroliniana*) and pond-apple (*Annona glabra*), followed by examination of their branches for the epiphyte. Once found, whether flowering or not, we recorded information on the state of inflorescence, fruit set, location, etc and collected nectar from each orchid in bloom.

Sampling ghost orchid nectar. Pictured (l-r) are Tony Ruiz and Brent Chandler. Photo A. Herdman

The collection and analysis of nectar is intended to contribute to long-term efforts of the Orchid Recovery Program to conserve and understand ghost orchids (Danaher *et al*., 2020) (Mujica *et al*., 2018) (Hoang *et al*., 2017) (Sadler *et al*. 2011). Tony and I seek to contribute to this effort by studying nectar's role from a molecular perspective as a source of nutrition, and how it may aid an effective pollination event and / or discourage a generalist or ineffective pollinator visit. We collected nectar from 13 unique ghost orchids in bloom sampling the nectary as well as the flower's labellum. All samples were frozen and are currently

awaiting or undergoing analysis. We are assessing the molecular components of the collected nectar by a process of derivatization followed by gas chromatography mass spectrometry (GCMS) and aim to report our findings in due course.

Tony and I have found the orchid community to be a passionate, supportive, and knowledgeable collection of individuals, and recognize that our nascent research efforts follow the footsteps of the many researchers, conservationists, and orchid hobbyists that fill its ranks. The people that we met and continue to interact with have been extremely supportive and have inspired us to seek continued opportunities to engage and contribute.

We would like to thank the Florida Panther NWR and Mark Danaher; the Naples Orchid Society - Richard Davenport, Jim Rawson, Kit and La Raw Maran; the Naples Botanical Garden - Nick Ewy and Chad Washburn. These organizations and individuals named and unnamed helped to make our visit memorable and productive. We also gratefully acknowledge the generous financial support provided by the Naples Orchid Society and Illinois College which made our

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