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**An expanded role for *in vitro* symbiotic seed germination as a conservation tool: two case studies in North America (*Platanthera leucophaea* and *Epidendrum nocturnum*)**

Interest in using mycorrhizal fungi to cultivate orchids from seed *in vitro* (=symbiotic seed germination) has intensified in recent years and this approach is now an important conservation tool worldwide. In North America, symbiotic germination has been attempted for a number of terrestrial orchid species in peril (*e.g.*, *Platanthera holochila*, *P. leucophaea*) as a means to acquire seedlings suitable for reintroduction. During the past decade, however, the role of *in vitro* symbiotic germination has expanded beyond simple propagation - it can be a useful tool to answer ecologically-based questions originating *in situ*. One case study involves the eastern prairie fringed orchid, *Platanthera leucophaea* - a US Federal Threatened species native to tallgrass prairie remnants and wetlands of the Midwest. In a collaborative effort between Illinois College and The Morton Arboretum, seeds of *P. leucophaea* derived from artificial hand pollination were collected, some of which were the result of cross pollination between individuals in disjunct populations separated by several kilometers. Using symbiotic germination as a tool, seed germination and seedling development were assessed to determine if long-distance cross pollination had a significant effect on seedling development compared to self-pollination, and cross-pollination within the same population. Although symbiotic germination has been applied mostly to temperate terrestrial orchids like *P. leucophaea*, it also may have practical merit for epiphytic species, exemplified by a second case study involving *Epidendrum nocturnum* from south Florida. In collaboration with the University of Florida's Plant Restoration, Conservation, and Propagation Biotechnology Program and the Florida Panther National Wildlife Refuge, mycotrophic seedlings of *E. nocturnum* acquired through *in vitro* symbiotic germination were reintroduced in 2005. Efforts are now underway to develop symbiotic protocols for other rare epiphytic orchids of Florida (*e.g.*, *E. amphistomum*, *E. rigidum*, *Polystachya concreta*). This talk will present a synopsis of these two case studies with the goal of fostering further research of this kind beyond North America.