

also contained kanamycin resistance for the selection of transformants. The coat protein was inserted under control of a *CaMV 35S* promoter in an anti-sense orientation. Putative transformants were selected for four months on media containing 25 µg/mL Geneticin Disulfate (G418). The objective of the present study is to further investigate and characterize the putative

transgenic lines, which have been selected for antibiotic resistance. Molecular characterization of transformants is ongoing. Micropropagation is being carried out to multiply the transformed plant material. Plantlets will be used to develop an *in vitro* inoculation assay to test the resistance to CyMV. Future work will investigate the resistance of these lines to the Cymbidium mosaic virus.

Pestiferous scale insects on native epiphytic orchids in south Florida: a new threat posed by exotic species

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In 2009, phytophagous insects (Hemiptera: Coccidae, Pseudococcidae) were collected from the inflorescences of the ghost orchid, *Dendrophylax lindenii*, at an isolated natural site in Collier Co., Florida, surrounded by an urban area. During the next two years, additional surveys were carried out in more remote orchid-rich habitats to determine if, and to what extent, other native epiphytic orchids were infested. Within the Florida Panther National Wildlife Refuge in 2010, 29 of 46 orchids sampled at one site (Cochran Lake) harbored three species of exotic scales: orchid pit scale (*Asterolecanium epidendri* Asterolecaniidae), brown soft scale (*Coccus hesperidum*, Coccidae), and boisduval scale (*Diaspis boisduvalii*, Diaspididae). Heaviest infestations were noted on *Epidendrum amphotomum*, *E. nocturnum*, *E. rigidum*, and *Prosthechea cochleata*.

The follow-up study the second year (2011) was then expanded to include Fakahatchee Strand State Preserve. A total of 1,726 orchids spanning 10 taxa were surveyed at seven locations. Boisduval scale was detected on 2.3% of the orchids from six of the ten orchid species in both the Florida Panther NWR and Fakahatchee Strand. *Prosthechea cochleata* and *E. amphotomum* appeared to be most vulnerable to this scale, with infection totals of 5.8% and 2.1%, respectively. Of 44 scales collected from the 39 orchids, 27% hosted hymenopteran parasitoids in various stages of development. The presence of *D. boisduvalii* adds an additional burden to state-endangered orchid populations and indicates that resource managers may need to expand management approaches to include plant-parasitic insect control.