

Exotic Species Threaten Rare Ferns in Miami-Dade County

by Jennifer Possley, Fairchild Tropical Botanic Garden

When envisioning Miami, most people are likely to conjure up images of traffic jams, South Beach, salsa music, and exotic flora...and they would not be wrong! But it may surprise you to know that Miami-Dade County is home to a unique assemblage of *native* flora, often found on postage-stamp sized parcels of county-owned natural areas. The rockland hammock preserves are a special place for fern enthusiasts. Here, sinkholes, solution holes and cliffs provide substrate for rare ferns, some of which are found nowhere else in the United States.

But alas! Those ferns that have managed to escape the titanic threat of south Florida urbanization have to contend with a tough gang of invasive species with their sights set on the ferns' turf. Controlling these offenders is not easy for county crews. Recent funding cutbacks have reduced invasive species management efforts. But even with adequate funds in place, near-constant

attention is needed to eliminate the threat of invasive plants that can replace a native canopy and/or grow much taller and faster than natives.

In monitoring some of our rarest ferns, we've become acutely aware of the threats posed by some of the FLEPPC-listed species. These threats are documented through photographs and herbarium specimens. The following photos are selected from the past year of monitoring.

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Schefflera duff (J. Possley)

Schefflera actinophylla (FLEPPC Category I)

Large mature Queensland umbrella trees (right) create serious problems in the hammocks of Miami-Dade County and often favor the same habitat as rare ferns. Their copious leaf litter fills the nooks and crannies of the karst limestone formations, making them unsuitable for fern establishment (above). Furthermore, stands of *Schefflera* cannot simply be removed because the sudden canopy openings would burn any existing ferns and provide gaps for more aggressive invasive vines like pothos and *Syngonium*.

Schefflera actinophylla stand (J. Possley)



Epipremnum pinnatum cv. *aureum* (FLEPPC Category II) and *Syngonium podophyllum* (FLEPPC Category I)



1. *Asplenium verecundum* and pothos (A. Rosenberg)



2. *Tectaria fimbriata* and pothos (J. Possley)



3. Juvenile *T. sclerophylla* and pothos (A. Rosenberg)

(4) Another *T. sclerophylla* keeps company with *Syngonium podophyllum*. While the fern will not grow much larger, the vine has the potential to gain dozens of meters. Note that *Syngonium* sometimes sports variegated seedlings, and this seedling is showing the incised, palmate-leaved form that is more typical of the mature vine. (5) Immature *Syngonium* creeps next to a boulder that is home to TWO Florida endangered ferns: *Asplenium verecundum* and *Tectaria fimbriata*. Here, you can see why one of the common names of this morphologically plastic invasive plant is “arrowhead vine.”



4. Juvenile *Syngonium* and *T. sclerophylla* (A. Rosenberg)



5. *Syngonium*, *A. verecundum*, *T. fimbriata* (J. Possley)

Pothos (*Epipremnum pinnatum* cv. *aureum*) and *Syngonium* are difficult to eradicate once they become established in the hardwood hammock understory. These vines pose threats to ferns when they extend runners over the ground. If unchecked, they can completely blanket fern habitat. These photos show the imminent danger that both of these invasive species present for our rare native ferns.

(1) *Asplenium verecundum* (FL-Endangered) peeks out from between the leaves of a sprawling pothos runner, while young *Schefflera* establishes nearby. (2) *Tectaria fimbriata* (FL-Endangered) clings to the side of a large, bathtub-sized sinkhole, but it is still not safe from pothos. (3) A juvenile *Thelypteris sclerophylla* (FL-Endangered) grows toward pothos – and it is also a neighbor to several *Schefflera* seedlings.

Majority Threatened

Just as the rare ferns in Miami hammocks face being overwhelmed by invading exotic plants, so do most of Florida's other rare native plants.

A compilation of case studies in the late 1990s, supported by FDEP's Bureau of Invasive Plant Management, revealed that over half (60%) of Florida's 534 native plant species currently listed as endangered or threatened are up against additional threats from invasive exotics.

About 30 listed species were documented as having already suffered some degree of population loss from displacement by EPPC Category I invasives. Over 170 other listed rare species faced imminent loss from invasives occurring within their habitats. Another 120+ listed species had invasives “at the door” — occurring in adjacent habitats. Involved in these plant-vs.-plant interactions were 28 Category I and two Category II pest-plant species (the *Schefflera* and *Epipremnum* shown here make it 32 species total!)

Recognizing the direct adverse effects of exotic pest plants on rare native plants is now a basic element of setting priorities for control of invasives in Florida. For more information or to add new observations, write kburks@fnai.org.

— K. C. Burks, Florida Natural Areas Inventory, FSU



(J. Possley)



(J. Possley)

Fern-on-fern action

Sad, but true, Florida's ferns are threatened even by their own kind. This photograph shows a park in Miami-Dade County before (left) and after (right) removal of the FLEPPC Category-I invasive fern *Tectaria incisa*. The understory of this hammock appeared to be nearly a monoculture of the non-native fern but, after removal, we can see that native *Thelypteris kunthii* managed to maintain its foothold. This photo also provides a great view of the type of substrate that ferns (native and non-native) love.



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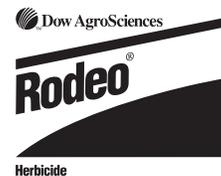
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(J. Possley)

Say it ain't so!

This past spring, several biologists from Fairchild and Miami-Dade County located *Lygodium microphyllum* at the Deering Estate - the crown jewel of Miami's park system. The (thankfully) sterile frond was climbing up the base of *Acrostichum danaeifolium*, the giant leatherfern. Until then, *Lygodium* hadn't been seen in the county south of the northern county line. We quickly removed this individual, vouchered it to Fairchild's herbarium, and reported its occurrence to Dr. Wunderlin at the USF Herbarium.



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