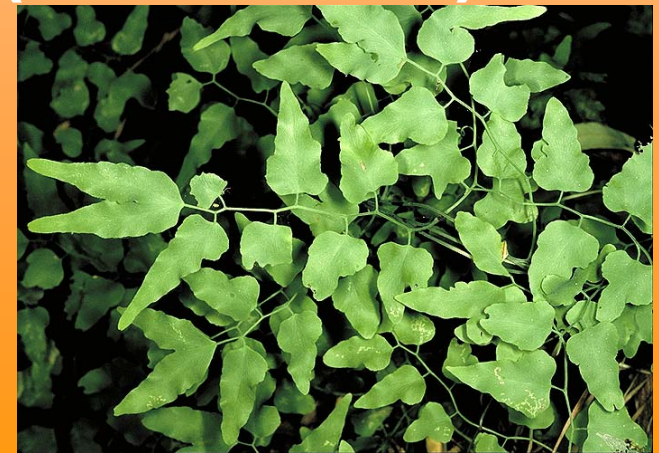


Japanese Climbing Fern Old World Climbing Fern

Lygodium japonicum (Thunb.)

Lygodium microphyllum (Cav. R. Br.)

Lygodiaceae





Biology



- Both are true ferns
- Perennial, vining – climbing or trellis forming species
- Japanese introduced in 1930's – ornamental
- Old World in 1950/1960's – ornamental?
- Both will die back from frost to the ground

Background

Economic Uses

- Both believe to have been introduced for ornamental purposes – attractive foliage





Distribution



- Japanese climbing fern found throughout much of north and central Florida – as far south as Polk and Hillsborough counties
- Also found in southern portions of Georgia, Alabama, Mississippi
- Old World climbing fern found in south Florida, as far north as Polk, Osceola, and Hillsborough counties
- Both found in floodplain, hydric/mesic sites

Climbing Fern Distribution in Florida



Japanese Climbing Fern



Old World Climbing Fern



Impacts



- Both are Category 1 invasive species (FLEPPC) – able to spread into undisturbed sites
- Tower into tree canopies and other plants
- Create fire ladders into canopies
- Outcompete and smother all vegetation
- Create dense rachis mat, inhibiting understory growth and establishment

Identification



Japanese



- Japanese climbing fern causes major problems in pine plantations
- Trellising into pine trees and covering forest floor





Old World



- Old World climbing fern has fronds over 90 feet long, reaching into tree canopies, smothering trees and other vegetation



Leaves

- Japanese climbing fern has finely divided leaflets
- Old World climbing fern has unlobed leaflets that are smooth on underside



Spore Formation

- Ferns do not produce flowers, but small microscopic spores
- These are formed on special leaves that look distinctly different from regular leaves
- Spore formation for both occurs in late summer



Management

Preventative

Cultural

Mechanical

Biological

Chemical

Preventative



1. Constant monitoring of areas
2. Remove existing plants, prior to spore formation in the fall
3. Spores easily transported by wind, water, equipment and humans
4. Avoid intensive management during spore formation to limit spread

Cultural



1. This area of control is limited, but rapid detection and response is a critical strategy
2. Education on the proper identification and problems associated with these species to the general public

Biological



1. A naturally occurring rust fungi (*Puccinia lygodii*) will infect Japanese climbing fern, but limited in effect
2. Insect control agents are currently being evaluated for Old World climbing fern

Mechanical



1. Hand pull young plants, including all roots, repeated pulling for resprouts
2. Mowing is generally not an option and care must be taken to avoid spread
3. Cutting fronds from trees is effective but regrowth occurs, couple with herbicides
4. Fire will decrease biomass, but off-target impacts (movement of fire into the canopy) limits this method

Chemical



1. Most effective on new fronds, limited movement up into trellising vines – generally must pull/cut down from trees
2. Thoroughly wet entire plant with herbicide
 - ✓ Glyphosate – 2 to 3% solution
 - ✓ Metsulfuron – 0.25 to 0.5% solution
 - ✓ Use surfactant at 0.25%
3. Best results applied in fall prior to spores



Useful Links

- Invasive Plants of the Eastern United States:
<http://www.invasive.org/eastern/species/3045.html>
- Lygodium Management Plan for Florida. A report from the Florida Exotic Pest Plant Council's Lygodium Task Force:
http://www.fleppc.org/Manage_Plans/lymo_mgt.pdf
- Center for Aquatic and Invasive Plants:
University of Florida: IFAS:
<http://aquat1.ifas.ufl.edu/welcome.html>

Literature Cited

Langeland, K.A. and K. Craddock Burks. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. IFAS Publication SP 257. University of Florida, Gainesville. 165 pp