

Japanese climbing fern [*Lygodium japonicum* (Thunb. ex Murr.) Sw.]

Victor Maddox, Ph.D., Postdoctoral Associate, Mississippi State University

Randy Westbrook, Ph.D., Invasive Species Specialist, U.S. Geological Survey

John D. Byrd, Jr., Ph.D., Extension/Research Professor, Mississippi State University



Fig. 1. Japanese climbing fern, a perennial, was introduced as an ornamental in 1932.



Fig. 2. Japanese climbing fern pinnae showing lower surface of fertile pinnules.



Fig. 3. Japanese climbing fern with fertile (right) and sterile (left) pinnae and pinnules.

Introduction

Problems Caused

Japanese climbing fern [*Lygodium japonicum* (Thunb. ex Murr.) Sw.] is a perennial climbing fern native to East Asia, the East Indies and Australia. It was introduced as an ornamental in 1932. It can be problematic in southern MidSouth states, especially in counties near the gulf coast. Japanese climbing fern is an evergreen in southern Florida, but is usually killed back to the ground in the MidSouth. Dead vines are tan color, and serve as a holdfast for newly emerging vines in spring. Japanese climbing fern can be a very aggressive invader along the gulf coast, but the plant can also be found at scattered locations further inland.

Regulations

Currently, Japanese climbing fern is a Class B Noxious weed in Alabama and a Noxious Weed in Florida.

Description

Vegetative Growth

The 'vine' of Japanese climbing fern is actually a frond with a twining rachis. Stems remain underground, but send up long vine-like indeterminate fronds with a twining rachis reaching 90 feet under favorable growing conditions. The fronds have numerous compound pinnae. Pinnae are triangular in outline, 4 to 8 inches long and about as wide. Each pinnule on the pinnae is pinnate to lobed and stalked often with dissected (pinnatifid) terminal lobes. Pinnules are pubescent below and margins are variously dentate.

Flowering

Fertile pinnules contracted in shape, with two rows of sporangia on the margins, enrolled to partially cover the sporangia which produce spores.

Dispersal

Japanese climbing fern is spread by spores which can be carried long distances by wind and transportation equipment.

Spread By

Although Japanese climbing fern is easily spread by wind, it can also be spread by anything the small spores may adhere to, such as equipment tires, shoes, etc.

Habitat

Japanese climbing fern is a problem in pastures, disturbed areas, fence rows, roadsides, forests, and margins of swamps, marshes, lakes, creeks and woodlands. It occurs in sun or shade and disturbed or undisturbed sites, but generally on damp soils. Under favorable conditions Japanese climbing fern can form dense stands that replace surrounding native vegetation.

Distribution

United States

Japanese climbing fern is native in Eastern Asia and Australia, but considered weedy in the Philippines and Taiwan. It is widespread in the southeastern United States, but much more problematic along the Gulf and Atlantic coastal plain.

MidSouth

Japanese climbing fern occurs in Alabama, Arkansas, Louisiana, and Mississippi, but apparently has not escaped in Tennessee.

Control Methods

Biological

Some research is being conducted on biological controls for *Lygodium*, but currently no biological controls are available for control of Japanese climbing fern.

Chemical

More research is needed on the chemical control of Japanese climbing fern. Currently, chemical control options for Japanese climbing fern are limited to glyphosate as a low volume foliar application at a rate of 4 qt/A or 2%.

Mechanical

Mechanical controls are difficult although visible plants can be successfully removed in small infestations. Eradication from a site can be difficult due to the production of small spores missed during plant removal or dispersed in wind or soil from off-site. Multiple approaches may be more feasible for larger populations. Since the stem is at or slightly below the soil surface, it must be removed along with aerial foliage.

Physical

Since Japanese climbing fern grows in a wide range of conditions, cultural methods are generally not utilized.

References

Langeland, K.A., and K. Craddock Burks. 1998. Identification and biology of non-native plants in Florida's natural areas. University of Florida, Gainesville, FL 32611.

USDA, NRCS. 2007. The PLANTS Database (<http://plants.usda.gov>, 6 August 2007). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

More Information

The Genus *Lygodium* belongs to the Climbing Fern Family (Lygodiaceae), but has also been placed in the Schizea Fern Family (Schizeaceae). There are approximately 20 to 30 species occurring mainly in the tropics. Hartford-Fern (*Lygodium palmatum* Sw.) is native to the MidSouth, but Japanese climbing fern is introduced. The sterile pinnae on hartford-fern are palmately lobed, but pinnate or pinnately lobed on Japanese climbing fern. It can be confused with Old World climbing fern [*Lygodium microphyllum* (Cav.) R. Brown] in Florida.

Victor Maddox, Ph.D.

Mississippi State University, Geosystems Research Institute

Box 9555, Mississippi State, MS 39762-9555

Ph. (662)325-2313, vmaddox@gri.msstate.edu

www.gri.msstate.edu

