

Researchers start to pinpoint biological control for Brazilian peppertree

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A South American insect could help control the invasive Brazilian peppertree in places where it supplants critical habitat for many organisms, according to University of Florida and U.S. Department of Agriculture scientists.

Brazilian peppertree has clusters of hundreds of small, red berries, and grows about 10 feet per year, to about 30 feet. It is native to Brazil, Argentina, Paraguay and Uruguay. The tree has moved around the world as an ornamental plant and has become invasive in several states and countries, including Florida, Texas and Hawaii as well as Australia, New Zealand and some Caribbean islands.

In Florida, Brazilian peppertree has infested nearly 700,000 acres in the central and southern regions. It has been particularly abundant in the Everglades. In general, the trees take over space where native plants should be. Animals such as white-tailed deer, the Florida panther and migratory birds that depend on native vegetation, such as mangrove, for food and shelter are deprived of that habitat.

"This can have cascading effects through the food chain," said Bill Overholt, an entomology professor at UF's Indian River Research and Education Center in Fort Pierce.

Herbicides are sometimes used to kill Brazilian peppertree, but researchers are looking for environmentally friendlier biological agents to permanently suppress growth and reproduction of the tree. Although

scientists have not come up with a specific cost for Brazilian peppertree eradication efforts, the South Florida Water Management District estimates it spends \$1.7 million per year to control the invasive tree.

For the experiments, UF and USDA researchers brought two types of thrips—tiny insects that often feed on plants—from Brazil to Florida laboratories. There, scientists tested them for temperature requirements, reproductive ability and their plant impact.

Both thrips feed on the Brazilian peppertree, but scientists found Ouro Preto was more cold-tolerant than a thrips from farther north in Brazil. Scientists predict the insect will thrive in Florida, where temperatures sometimes dip below freezing, which is only slightly colder than the insect is used to.

"The idea of biological control is to reunite these highly specialized [natural enemies](#) with their host plant, in this case Brazilian peppertree, to help reduce plant densities in the invaded area," said Veronica Manrique, a UF senior biological scientist and lead author of the study. "We are also working with two other natural enemies, a psyllid and a defoliating weevil, which should further reduce Brazilian peppertree growth and reproduction in Florida."

Scientists will now seek permission to release the thrips into areas Brazilian peppertree is growing. The USDA Animal and Plant Health Inspection Service will review the joint UF/IFAS and USDA petition for the thrips' release, Overholt said. That agency typically takes 1½ to two years to decide whether the thrips is a safe control agent.

"If we get this far, we will release the thrips at several locations in South and Central Florida, initially mostly on public lands, because that's where the problem is biggest," Overholt said. "If we have success here, I'm sure folks in Hawaii and Texas will want to introduce the insect. Eventually,

there may also be interest in other areas of the world, such as Australia."

Starting in the 1800s, two types of Brazilian peppertree were brought to Florida, Overholt said. A southern Brazil variety was brought to an area along the Gulf Coast, probably near Punta Gorda; the other, from northern Brazil, was introduced in the late 1800s near Miami.

Provided by University of Florida

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