

ENVIRONMENT

A century ago, it was a Florida landscape shrub. Now, it's a pest plant that keeps spreading

BY SARAH LOFTUS

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Decorative landscaping in the early 1900s introduced a new shrub to Florida whose young leaves were pink and whose berries were a deep purple. The plant, called shoebutton ardisia, started invading forests and wetlands within decades. It continues spreading throughout southern Florida, capable of taking over ecosystems that otherwise support native animals and beckon tourists.

One recently sprouted in Big Cypress National Preserve, a sprawling expanse in Southwest

Florida, and the staff hopes to stomp out the fast-spreading invasive before it gains more ground. They're alerting visitors to help detect this invasive species.

"We're aggressively trying to limit its spread," said Courtney Angelo, a botanist for the preserve and a member of its invasive plant management team. "We really want people to be aware of this species and on the lookout, and to notify us if they see it."

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Shoebuttan is a problem plant across South Florida, including in the wetlands of South Miami-Dade County.

The shoebuttan's distinctive berries have fueled its expansion, said Gwen Burzycki, a wetland ecologist for Miami-Dade County who manages the wetlands. Birds and other animals eat the plant's berries and then deposit the seeds in entirely new locations with their poop. These seed bombs can erupt into new plants that start producing their own berries in just one to four years.

"A 6-foot tall plant can produce hundreds of fruits and hundreds of seeds," said Burzycki.

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Shoebuttan ardisia berries are dark purple when ripe and are not perfectly round.
MIAMI-DADE COUNTY ENVIRONMENTALLY ENDANGERED LANDS PROGRAM STAFF.

There are [several characteristics](#) to look for to identify the plant, which often grows beneath the canopy of other trees. Some can reach up to 12 to 15 feet tall. The Southeast Asia native is called shoebuttan because its berries resembled fat buttons on button-up shoes from the late 1800s, which required a shoe hook to fasten, said Burzycki.

New stems and leaves are colored pink before turning green. Leaves are thin and long, up to 8 inches. The plant's pale purple flowers are clustered where leaves attach to the branch. These

flowers develop into dark purple berries that aren't perfectly round. They look like small grapes "that somebody has squished just a little bit," she said.

LOOKS A BIT LIKE A NATIVE

Shoebuttan can look similar to a native shrub called the marlberry, but there are some key differences. Marlberry flowers and berries are at the ends of branches rather than the base of the leaves, and marlberry flowers are white.

People might spot shoebuttan on the fringes of mangroves, at parks in coastal counties and at Everglades National Park, said LeRoy Rodgers, the lead invasive species biologist for the [South Florida Water Management District](#), which includes 16 counties.

The first recorded shoebuttan siting in Big Cypress National Preserve was in 1999, said Angelo. The latest siting is on the roadside of Upper Wagonwheel Road, an unpaved road that hikers, hunters, and all-terrain vehicles might use. There are three other known shoebuttan sites in the preserve. Two are on Loop Road, one near Monroe Station and one near Crooked Culvert, and the other is north of Interstate 75 near Tarpon Lake.

A PLANT WITH NO PREDATORS

Shoebuttan has no predators in Florida, such as insects that eat seeds inside the berries, preventing them from sprouting.

“Nothing chews on this plant,” said Rodgers. With nothing to stop its growth or reproduction, shoebuttan outcompetes native plants that insects and animals depend on, with cascading effects on the ecosystem, he said.

Unlike some of Florida’s other invasive plants like Brazilian pepper, Australian pine and Melaleuca trees, shoebuttan can’t be monitored from the sky with aerial photography because it’s often covered by other plants.

“You have to actually go there and find it in person,” said Burzycki.

Treating shoebuttan after it’s found is labor-intensive and expensive. Ground crews hack each plant with a machete, then spray herbicide on the stump to kill the root, said Rodgers. Crews come back in a year to remove shoebuttan seedlings sprouting up from berries that previously dropped to the ground.

Shoebuttan requires many rounds of treatment. “We call them chia pets,” said Rodgers.

If shoebuttan is so dense that there’s nothing else left to save, crews may use a shredder then apply herbicide if seedlings begin sprouting, he said. The District has covered 3600 acres for shoebuttan removal.

A [study](#) published last year found that Florida spends roughly \$45 million of state and federal funding per year to control invasive plants. Rodgers said the District has enough funds to manage invasive shoebuttan, but not all agencies do.

“We don’t have money to treat all the shoebuttan ardisia that we have in this county,” said Burzycki about Miami-Dade.

She said the county works hard to keep shoebuttan out of natural areas frequently visited by the public. But remote areas where shoebuttan thrives, like abandoned farmlands and preserved wetlands, are less prioritized given the limited budget. The county manages [Environmentally Endangered Lands](#), or EEL, a land conservation program that totals 23,500 acres. One of its largest preserves is the South Dade Wetlands, south of Homestead to the east of U.S. Route 1, where shoebuttan is a big problem, said Burzycki.

Burzycki said the EEL program has been trying to treat the invasive plant more efficiently and look into alternative solutions. Restoring drained wetlands could prevent invasive plants from taking over, since shoebuttan can’t handle too much water. Another potential technique is prescribed burning in wetland prairies, which could allow prairie grasses to regrow but not woody invasive plants like shoebuttan.

“We don’t like using herbicide. We like to use nature’s techniques to control these things whenever possible,” Burzycki said.

Shoebuttton is native to southeast Asia, and thrives in Florida because of the similar climate. Florida is generally susceptible to invasive species because this type of tropical and subtropical climate hosts the most variety of plants and animals on the planet, said Deah Lieurance, coordinator of the assessment of non-native plants program at the University of Florida Institute of Food and Agricultural Sciences. Multiple airports, cruise terminals, and ports also increase the chance of non-native species arriving in Florida, whether intentionally or not.

A NOXIOUS WEED LIST MEMBER

Shoebuttton is on Florida’s Noxious Weed List, which means it’s illegal to plant, move, or possess this invasive species. While no one is inspecting people’s private property, Lieurance recommends removing the ornamental plant if anyone might still have it in their backyard. The plant is also on Miami-Dade’s prohibited plant list.

Burzycki said she’s seen the plant only once in a landscaping scenario in Miami-Dade county, but “the damage has already been done.”

“By the early 2000s, when we started managing lands that we had purchased in the South Dade Wetlands, I was seeing it more and more and more,” she said. “It’s one of our worst at this point.”

Rodgers noted that the main actions needed to better contain shoebuttton are more monitoring, more funding, and a biological control. Biological control refers to another species that could munch on shoebuttton and prevent its spread.

Finding an insect that eats only shoebuttton would be extremely difficult because it has similar native species in Florida, though, so it’s on the bottom of the list for biological control, said Burzycki. She said it took over twenty years of research to find an insect that was safe for controlling Brazilian pepper, and the insect is just starting to be released. Three insects have been released for controlling Melaleuca, and at least two for Old World climbing fern, she said.

A partnership between research institutions, national parks, government agencies, tribes and other groups, called the Everglades Cooperative Invasive Species Management Area, shares knowledge about controlling invasive species, provides education and outreach to the public, organizes volunteer workdays and conducts research. Detection and reporting of invasive species like shoebuttton can help prevent uncontrolled growth in new sites that’s expensive to manage and damaging to Florida ecosystems.

The public can report shoebuttan sightings using an app for reporting invasive species in Florida called '[IveGot1](#),' which will notify the appropriate land manager. The public can also call 1-888-IVE-GOT1 or visit www.IveGot1.org. If spotted in Big Cypress Preserve, visitors can notify preserve staff member Billy Snyder at william_snyder@nps.gov.

Sarah Loftus is a [Mass Media Fellow](#) with the American Association for the Advancement of Science, sponsored by the Heising-Simons Foundation.



LEROY RODGERS. SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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