



BIG CYPRESS — Some of the most beautiful plants in Florida waters are also some of the most destructive to the native ecosystem.



Alfonso Tigertail, ERMD weed control technician, sprays herbicide in a Big Cypress canal March 14 in order to control the growth of water hyacinth, water lettuce and other invasive species in the ecosystem. (Beverly Bidney)

A few dozen Tribal members and employees learned how to effectively combat invasive species at a training March 8 sponsored by the Environmental Resource Management Department in Big Cypress. Employees from recreation, buildings and grounds, tribal landscape companies, culture, cattle owners and ERMD attended the session. Guest speakers included scientists and professionals in the field of invasive plant management and herbicide usage.

“The goal is to teach the community more about native and exotic plants and how to treat the ones we don’t want,” said Mandy D’Andrea, ERMD biological forestry technician. “Everyone here will learn more about the plants around us.”

Lyn Gettys, assistant professor at the University of Florida Institute of Food and Agricultural Sciences in Fort Lauderdale, started the day off by introducing the crowd to “Florida’s Dirty Dozen,” a list of exotic aquatic weeds that are wreaking havoc on the environment. Some have been a scourge on the ecosystem for hundreds of years.

The Dirty Dozen is comprised of water lettuce, water hyacinth, alligator weed, hydrilla, hygrophila, crested floating heart, yellow floating heart, giant salvinia weed, rotala, feathered mosquito fern, tropical American watergrass and redroot floater.

Gettys explained that two of the Dirty Dozen got to Florida by accidental introduction and hurricane winds, but 10 of the 12 species came to Florida as ornamental plants for water gardens and aquariums.

“We can’t resist pretty new things from other places,” Gettys said. “But they interfere with our native ecosystems.”

It is believed that water lettuce ([Pistia stratiotes](#)) has been in Florida waters since before the 1750s. The floating plant is dense, blocks light and oxygen and creates an unsuitable habitat for native plants and animals. It also clogs irrigation intakes and causes other problems due to their exuberant

growth. The plant can also survive on land as a semi-rooted plant.

In 1884, water hyacinth ([Eichhornia crassipes](#)) plants were given away at the New Orleans World Cotton Exposition as souvenirs. The floating aquatic plants boast purple flowers and grow extremely fast; one plant can grow to cover an acre of water in four months. Gettys told a story of a plant owner whose plants overwhelmed her pond after the New Orleans Expo so she put some in the St. Johns River, the main shipping lane through Florida at the time. Within 10 years it blocked navigation on the river and led to the creation of the Rivers and Harbors Act of 1902.

"The Army Corps of Engineers was charged with keeping the waters navigable," Gettys said. "Congress let them clear the way by using any means necessary. This was before the EPA and Silent Spring; we didn't know then what we know now. They tried sulfuric acid, arsenic and all sorts of nasty stuff. It killed the plants but it also killed the cows that grazed on the plants."

In the 1890s alligator weed ([Alternanthera philoxeroides](#)) was probably introduced as ballast from a ship from South America. The plant grows underwater and above the surface of the water. At one time it was a big problem, but the alligator weed flea beetle keeps it in check. Herbicides aren't necessary to control it.

Introduced in the 1950s, hydrilla ([Hydrilla verticillata](#)) is "the plant we love to hate," Gettys said. "It's our job security plant if you're trying to keep canals clear."

Originally called the star of India vine, no one is sure of the plant's origins. It was used as an aquarium plant since it is a good oxygenator, but ultimately the plants were dumped in canals. Hydrilla grows underwater and lays flat on top, is dense, blocks light and oxygen and interferes with recreation.

"Outboard motors can't get through it," Gettys said. "Once the plant is broken by a propeller, it will grow a new plant. People have drowned by getting tangled in it while swimming."

Also introduced in the 1950s was hygrophila ([Hygrophila polysperma](#)) which, like hydrilla, roots from fragments and grows very well under submerged conditions.

"It's a federally listed noxious weed, but you can still buy it on the internet," Gettys said. "It's a nasty, nasty plant."

In the 1990s and 2000s, the crested floating heart ([Nymphoides cristata](#)), was introduced for water gardens. The plant escaped cultivation and wound up in the environment; it can become invasive very quickly.

"It's a very pretty plant with heart shaped leaves and little floating flowers," Gettys said. "It was listed by the state as a noxious weed a few years ago. All you can do with this is kill it, so that's a good thing."

The yellow floating heart ([Nymphoides peltata](#)) looks like the crested floating heart with yellow flowers instead of white ones, but it is a different species. So far, the plant is only found in pockets in Florida but it is widespread in North and South Carolina. Yellow floating heart has the potential to become a problem in Florida.

Also introduced in the 1990s and 2000s, the giant salvinia/kariba weed ([Salvinia molesta](#)) is another federally listed noxious weed. It's actually a floating fern that can form extremely dense populations that look like ground cover, but there is water beneath it. An unusual feature of the weed is that after being cleared from a body of water, the plants can survive in wet soil on the ground and then

spread back into the water.



A showy purple flower of the water hyacinth blooms next to some water lettuce in a Big Cypress canal. Both invasive species are treated with herbicides to lessen the negative impact they have on the native flora. (Beverly Bidney)

Rotala ([Rotala rotundifolia](#)), first discovered here in the 2000s, is becoming one of the newest plants Gettys “loves to hate.” Also among the newest invasive species are feathered mosquito fern ([Azolla pinnata](#)), a federally listed noxious weed, and tropical American watergrass ([Luziola subintegra](#)), which was brought in on hurricane winds. Both species were discovered in Florida in 2007. In 2010, the red root floater ([Phyllanthus fluitans](#)) was found in the Peace River and may be contained there, at least for the time being.

ERMD Maintenance Supervisor Neal Livingston and Weed Control Technician Alfonso Tigertail recently treated some water lettuce and hyacinth clogging a BC canal. The reservation has about 80 miles of canals and keeping them clear is a challenge.

On March 14, Tigertail sprayed the floating invasive plants with the herbicide Diquat. Prior to spraying, Livingston checked the wind speed and the label on the product to make sure conditions were right for application.

That sentiment was repeated during the training session by more than one presenter.

“All herbicides are heavily regulated,” said Jeremy Slade of United Phosphorus Inc. and a board member of the Aquatic Plant Management Society. “The label is the law; you have to follow those guidelines.”

Slade’s presentation described the herbicides and how to calculate the amount to use for different plants and ecosystems. There are 14 registered aquatic herbicides in Florida, all of which work on the plants’ processes. Depending on the herbicide, it can take a few days or longer to get rid of the nuisance aquatic plants. The chemicals are in and out of the environment quickly and don’t affect people.

“It’s a maintenance control program, not eradication,” Slade said. “The concentration and exposure time kills the plants. Once it’s in the water, it dilutes.”

During a question and answer period, issues facing cattle owners were raised since the ranchers use canals for irrigation and drinking water for the animals. Slade told them they can drop the water

level of the canals and use less herbicide. The chemicals break down and are only in the environment for 24 to 48 hours. He said it is possible to hold the water in the canal and release it after the chemicals are diluted.

“Canal water keeps moving, so you have to stay on top of it and manage the vegetation that is there,” Slade said. “If you treat the canals when the water is low, there is less area to treat, less product and lower costs.”

Tigertail, who used to work in the cattle business, noted that water lettuce is in some pastures now.

“Cattle owners lease the land, but whose responsibility is it to treat the problem?” he said. “We need education so both sides understand the issue and not just look for someone to blame. There will always be maintenance involved.”

BC cattle owners Martha Jones and Esther Buster attended the training session to gather more information about the exotic aquatics, the herbicides and whether they harm the cattle forage. Daniel Leckie, of DOW Dupont and a board member of the Florida Vegetation Management Association, gave a presentation on how to treat pastures. James Boggs of Helena Chemical Company and board member of the South Florida Aquatic Plant Management Society, was the last speaker of the day.

The most important lesson Gettys wanted the attendees to get from the class was a simple one.

“Kill the weeds before they get out of control,” she said. “It you catch it early enough you have a chance to eradicate them. If not, you’ll be fighting them for decades.”

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