

Florída



## LAKEWATCH

Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume 85 (2019)

#### Florida LAKEWATCH 2018 Citizen Science Information Survey

Citizen science programs generally have several overlapping goals that yield benefits in three major areas: outcomes for scientific research, outcomes for participants including education, and outcomes for social-ecological systems like conservation, stewardship and policy. То better understand Florida and serve our LAKEWATCH participants we asked volunteers to fill out a short three question survey during our 2018 Regional meetings. Surveys answers were confidential, and this article summarizes the responses.

Seventy-five volunteers filled out surveys during the 2018 regional meetings. The volunteers averaged eight year in the LAKEWATCH program and ranged from one to 28 years. Some responded with three answers to each question while others with only one or two responses and some left questions blank. Thus, this summary considered each response as one for that individual question not considering any rank to the importance of the response.

For question number one the most common response (58 responses) was that people participated in LAKEWATCH because they wanted to protect the health of "My Lake, My Estuary, and/or My River". This was not surprising because most people willing to spend time and resources to sample and process water samples are truly interested in protecting that system. Many people also participate in LAKEWATCH to contribute to scientific knowledge (27), give back to the community (23), learn more about their aquatic systems (20) and as it should be

#### In this issue:

Florida LAKEWATCH 2018 Citizen Science Information Survey 1	
Salty Solutions for Brazilian Peppertree Management 4	
TrophyCatch celebrates second-heaviest bass in the program, caught on Orange Lake	
Something New at the Center for Invasive and Aquatic Plants (http://plants.ifas.ufl.edu/)10	
Volunteer Bulletin Board12	



LAKEWATCH Regional meeting in Hillsborough County. Photo credit Dan Willis.

many uses it as a good excuse to get out and enjoy their system (25).

Question 1. List one to three reasons in order of importance why you participate in the Florida LAKEWATCH Program (number of responses are listed in parentheses)

#### **Responses:**

- Protect the health of "My Lake, My Estuary, and/or My River" (58)
- Contribute to scientific knowledge (27)
- Gives good reason to be out on the lake (25)
- Gives back to the community (23)
- Learn more about aquatic systems (20)

- Being a good resource steward (16)
- Documenting current conditions to look for future trends (15)
- For the free meal once every year
  (3)

For question number two the most common way volunteers thought the LAKEWATCH data should be used was in the management of aquatic systems both locally and statewide (54 responses). Again, this was not surprising to LAKEWATCH staff as many volunteers are aware of our continued collaboration sharing data with many groups/agencies charged with managing Florida's aquatic resources. Many people also think that LAKEWATCH data should be used to educate neighbors and other stakeholders (38), educate local and state agencies and legislators (29), look for trends (25) and use to inform science (18).

Question 2. List one to three ways, in order of importance, how you think the LAKEWATCH data should be used (number of responses are listed in parentheses).

#### **Responses:**

- Manage aquatic resources locally and statewide (54)
- Educate neighbors and other stakeholders (38)
- Educate local and state agencies and legislators (29)
- Look for trends (25)
- Use to inform science (18)
- Find pollution sources (8)
- Personal interest (4)

Finally, most people answering question 3 suggest the recognition that LAKEWATCH currently uses and especially the annual meetings with dinner and discussions is what they prefer (53 responses). Many volunteers feel they need no recognition because they are doing what should be done (17). Two people listed an interesting way to recognize LAKEWATCH volunteers/program and that was to post a sign by the aquatic system being sampled to let everyone know LAKEWATCH and volunteers are involved in monitoring the resource. As the Director of LAKEWATCH I think this is a great idea and will pursue it to see how it might be incorporated into the LAKEWATCH recognition program. We will keep you posted.

Question 3. List one to three ways, in order of importance, how you would like to be recognized for your participation in the LAKEWATCH Program (number of responses are listed in parentheses)

#### Responses:

- Happy with current LAKEWATCH recognitions (53)
- No recognition needed (17)
- List volunteer names on website, newsletters and possibly Facebook Page (7)
- Annual certificate with number of years (4)
- Send recognition to local authorities
  (4)
- Field trip to LAKEWATCH laboratory (2)
- Give sign to post on lakes the it is monitored by LAKEWATCH (2)

LAKEWATCH thanks everyone who filled out the 2018 survey and we will use the information generated to better serve LAKEWATCH volunteers and other stake holders.

Florida LAKEWATCH Director

Mark Hoyer

## Salty Solutions for Brazilian Peppertree Management

#### Mackenzie Bell, University of Florida Center for Aquatic and Invasive Plants

My name is Mackenzie Bell and I am currently a second-year graduate student studying invasive plant management with Dr. Stephen Enloe at the University of Florida Center for Aquatic and Invasive Plants. My research focuses on improving techniques for managing one of Florida's worst invasive plants, Brazilian peppertree. My research aims to provide applicators new tools and techniques that can reduce the amount of herbicide applied, enhance applicator safety, reduce time for application, and maintain efficacy of control of peppertree. Brazilian Peppertree (Schinus terebinthifolia) is native to Brazil, Argentina, and Paraguay and was first introduced into south Florida in the early 1800's as a popular ornamental. It

was not long before it was found escaping into natural areas and has since then become one of Florida's worst invasive weeds. Peppertree is a species that alters native plant communities by displacing native species, changing community structures, and disrupting ecological functions (FLEPPC list, 2019). It is also prohibited from use in Florida according to the Florida Department of Agriculture and Consumer Services (FDACS) Noxious Weed Ecosystem impacts List. caused by peppertree include physically shading out native plants, altering fire regime, producing chemical compounds that can inhibit other plants from growing, and creating



impenetrable thickets that reduce habitat for native fauna.

Peppertree is a shrub-like tree with a growth habit that creates a dense multistemmed snarl and can grow as tall as 30 feet (*Figure* 1). It is in the same family as poison ivy (Anacardiaceae) and can cause skin rashes following contact with the sap. Perhaps its most distinguishing feature is its bright, showy red fruits that are typically abundant in the fall and winter but can be seen yearare at great risk of being taken over when peppertree invades and creates monocultures. For example, mangroves are specialists that require a certain zone along the coasts with the right amount of water, salinity, and light availability. Their habitat is already at risk since coastlines are some of the most developed and populated areas in Florida. In addition, with a projected rise in sea level, mangrove range could be shrinking even more. The ecosystem services of



Figure 1. Peppertree multistemmed growth habit

round. However, it can also be identified by its pinnately compound leaves. Peppertree is successful in a multitude of habitats and can be seen across nearly the entire peninsula of Florida from roadside ditches to sensitive habitats like upland scrub, pine forests, coastal dunes, and brackish mangrove communities.

While peppertree can occupy a diverse range of conditions in terms of soil type, light availability, water availability, and salinity, many native Florida plants cannot. Native plants that require specific habitats to thrive mangroves include mitigating pollution in the water, buffering the coastlines by reducing erosion, and sequestering a significant amount of carbon from the environment. Mangrove communities are known to be some of the most productive systems in the world.

It is difficult to manage peppertree in these habitats because it is hard to access the base of the tree for herbicide application and mangroves can be incredibly sensitive to the herbicide treatments commonly used for peppertree control. This article will examine a creative method for peppertree control.

#### Peppertree salinity tolerance?

Research by Ewe (2009) evaluated salinity tolerance of peppertree relative to some native Florida plants. Researchers found peppertree had salinity tolerance similar to the native plant, red mangrove (*Rhizophora* 

#### What about salt-spray on peppertree?

Personal observations of peppertree in coastal dune habitats indicate that salt-spray from the sea breeze appears to defoliate peppertree to a significant degree (*Figure 2*). We investigated this further by mixing a seawater solution and adding a surfactant (d'limonene, at rates of 0, 1, 2, 4 qt/A) to spray over the top of peppertree and



**Figure 2.** Salt-spray damage on Brazilian peppertree growing in interdunes along Florida coast, note the bright red fruits in the foreground that are characteristic of peppertree

*mangle*). Peppertree responds to increased salinity by increasing stem mass and leaf area. This is turn provides an advantage of acquiring light in these mangrove habitats where growth can be light limited (Ewe et. al 2009). This work was conducted by irrigating plants in differing levels of salinity ranging from 0 parts per thousand (ppt) to 15 ppt. The actual salinity of the ocean is approximately 35 ppt meaning the study was a conservative look into salinity impacts.

mangroves. A surfactant helps water spread and theoretically increases penetration into the leaves. It was expected that the seawater solution sprayed as a foliar treatment would defoliate peppertree and leave the mangroves unharmed. We also expected that the surfactant would enhance the defoliating effect. These hypotheses were tested over the spring of 2018 in greenhouses at the Center for Aquatic and Invasive Plants. We tested full strength seawater (35ppt) with and without surfactants on similar sized potted plants of peppertree, red mangrove, white mangrove (*Laguncularia racemosa*), green buttonwood (*Conocarpus erectus*), and black mangrove (*Avicennia germinans*). Deionized (DI) water was applied for the untreated control spray. Treatments were applied to the foliage of the approximately 3-ft tall trees with a CO<sub>2</sub> there was no lasting injury worth pursuing with further field trials.

#### Conclusion

Alas, there is no salty silver bullet for peppertree control, especially in sensitive mangrove habitats. However, all hope is not lost! We are continuing to focus future efforts at the Center for Aquatic and Invasive



**Figure 3.** Chlorophyll measured across rates of surfactant 16 days after treatment (DAT) of all 5 species. X axis: species, Y axis: chlorophyll content. Blue bars represent DI water treatment and orange bars represent seawater treatment.

pressurized backpack sprayer.

Measurements on leaf area, height, stem diameter, and leaf chlorophyll content were recorded at days 0, 7, 14, and 28 after treatment. Results indicate that even with a surfactant such as d'limonene applied at low to high label rates, the use of seawater as a potential defoliating agent of peppertree was not effective. Leaf chlorophyll content was measured to assess health of leaves. Leaves treated with saltwater show no significant difference in chlorophyll from control DI water treatment (*Figure 3*). There appeared to be marginal post-treatment injury on peppertree with leaf blotching, but

Plants on new herbicide chemistries and tank mixes in our search for selective treatments for Brazilian peppertree control in mangroves. In addition, the opportunity for integrated pest management is coming to fruition as two biocontrol agents for peppertree are nearing the final stages for release. Lastly, you can do your part to help conserve native Florida habitats by checking the IFAS page for information on how to control peppertree if you happen to have this plant in your yard or simply doing your best to plant Florida friendly landscape gardens! I would like to acknowledge Dr. Enloe for leading this study, Dr. Haller and Dr. Gettys for support in writing this article, and FWC for funding this study.

# TrophyCatch celebrates second-heaviest bass in the program, caught on Orange Lake



The Florida Fish and Wildlife Conservation Commission's (FWC) TrophyCatch program celebrates its second-heaviest fish ever approved in the program, a 15 pound, 13 ounce Hall of Fame largemouth bass caught and released in Orange Lake by Brian Hammett.

After producing a large number of trophy bass in 2010 and 2011, Orange Lake went almost dry in the winter of 2011. Following

several years of sustained high water, coupled with FWC staff working with local stakeholders to manage the lake, habitat on Orange Lake is once again very good and the fishery has bounced back. Not only has crappie and panfish fishing been very good, but anglers are catching bass again, including trophy bass like Hammett's Hall of Fame catch, as well as nine other TrophyCatch bass weighing at least 8 pounds that were approved in the program since January. Six of the 10 TrophyCatch-approved 2019 Orange Lake bass weighed more than 10 pounds.

FWC staff worked with stakeholders to write the Orange Lake Habitat Management Plan in 2015-2016 and continue to manage the lake's habitat according to the plan. Management activities are discussed at public meetings twice a year, and have included vegetation shredding, tussock harvesting and invasive plant control. These management activities not only enhance habitat for fish but also for other species such as wading birds. In addition to habitat enhancement projects FWC staff also continue to monitor the fish populations through fish sampling, creel surveys (angler interviews) and research projects, such as tagging studies.

FWC biologists have collected nine bass on Orange Lake weighing more than 8 pounds in the past two years. The largest bass weighed 13.5 pounds and was collected this spring—the same week Hammett's Hall of Fame TrophyCatch bass was caught and submitted. The second-largest bass collected by FWC biologists on Orange Lake was collected in March 2017 and weighed 9.75 pounds. That bass was tagged, released and later recaptured by FWC biologists in November 2017, weighing 13 pounds. TrophyCatch is a partnership between the FWC, anglers and fishing industry leaders, such as Bass Pro Shops, that rewards the catch, documentation and release of largemouth bass weighing 8 pounds or heavier in Florida. In order to be eligible for prizes, anglers are required to submit photos or videos showing the entire fish and its weight scale on а to TrophyCatch.com before releasing it back into the water. FWC biologists use TrophyCatch data for bass research, to make informed decisions about the management of Florida bass fisheries and to promote the catch and release of trophy bass. In the past six seasons, TrophyCatch has awarded prizes for the catch and release of more than 8,000 largemouth bass weighing at least 8 pounds. information For more about the TrophyCatch program, email Amber Nabors at Amber.Nabors@MyFWC.com.

For general waterbody information, fishing forecasts, virtual tours, plant control operation schedules and annual workplans, boat ramp information, and more, visit the "What's Happening on My Lake" website at <u>MyFWC.com/Lake</u>.

For more information about the recent and ongoing management through the Orange Creek Basin Interagency Working Group or to view the Orange Lake Habitat Management Plan, visit: <u>OrangeCreekBasin.wordpress.com</u>.



## Something New at the Center for Aquatic and Invasive Plants (http://plants.ifas.ufl.edu/)

The University of Florida/IFAS Center for Aquatic and Invasive Plants welcomes a new Education Coordinator, Lara Colley to the Invasive Plant Education Initiative. Her role is to design, implement and evaluate education programs and materials intended to teach audiences about the negative impacts invasive plants have on Florida's ecosystems and economy. Lara is a fifth generation Floridian from Lake County. Her youth was spent paddling around Lake Harris in her Granny's jon boat, fishing for brim in the Dead River, learning to swim in Lake Weir, tromping through the hardwood hammock forests of Leesburg and snorkeling in the crystal-clear waters of Rainbow River. She has been an advocate for the natural world since childhood and as such, knew she needed to land a career that allowed her to spark the same type of enthusiasm within others. She comes to the Center with an M.S. in Forest Resources and Conservation with a heavy focus on **Environmental Education.** 

The Florida Invasive Plant Education Initiative (IPEI), which is the education and outreach "arm" of the Center for Aquatic and Invasive Plants, is currently in a unique state of flux, both in terms of staffing and program goals. Lynda Dillon, IPEI's Program Assistant, retires in July after 13 dedicated years and Collin Bryant, the Project Assistant, leaves for graduate school after 3 years at the Center. While these two integral members of the team will be sorely missed, the Center welcomes Shelby Oesterreicher as the new Communications Manager. She has the ever-important job of communicating to the public all the amazing work the Center does.

Every year for the last 15 years, Plant Camp has been the IPEI's magnum opus, where 24 science educators from across the state are invited to participate in a 5-day invasive plant "boot camp". These fortunate folks are immersed in a whirlwind of hands-on labs, demonstrations and expert guest lectures related to invasive upland and aquatic plants. Plant Camp is designed to empower educators to take lessons and activities such as the Plant ID Challenge, Hands-on Pond Ecology Explorations and the Air Potato Leaf Beetle Lab back into the classroom. These activities are intended to engage students and teach them what invasive plants are and how to identify them, why they should care and what they can do to combat the spread of invasive plants.

The IPEI is poised to begin a new chapter seeking out additional audiences to broaden its impact on the community. As such, there is a need to expand the program's suite of offerings. A variety of potential new programs including workshops geared towards Extension Agents and nature park staff, non-formal courses on invasive species, partnerships with organizations dedicated to invasive species awareness, and teacher and community workshops are on the table.

Lara would love to hear from you and welcomes any and all ideas for engaging with the community about invasive plants. It is becoming increasingly more imperative for the public to be active participants in the fight against invasive plants in order to protect Florida's unique and valuable resources. Lara looks forward to meeting and working with the members of LAKEWATCH and can be reached at laracolley@ufl.edu or 352-273-3665.



"My greatest aspiration in life is to inspire a sense of wonder and care for the environment. Invasive plants are a form of biological pollution that threatens the integrity of Florida's natural ecosystems. If we don't work together to reduce the impacts invasive species are having on our environment, we will certainly find ourselves losing critical habitat and species without an option to get them back." Mark Hoyei

### **Volunteer Bulletin Board**

#### From the Water Lab

Before finishing your lake monitoring duties, please check your data sheets and water bottles for accuracy. Be sure to double-check the stations locations and their numbers and remember that sampling stations should be consistent for each sampling event. In other words: Stations 1, 2 and 3 do not simply refer to the order in which you happen to collect water on a given day, but should instead refer to fixed GPS locations. Thanks, you and keep up the good work!

#### No longer sampling?

If you are no longer able to monitor your lake, please let us know as soon as possible so that we can find a new volunteer to train and continue the work that you have started! It will also enable us to maintain



All unsolicited articles, photographs, artwork or other written material must include contributor's name, address and phone number. Opinions expressed are solely those of the individual contributor and do not necessarily reflect the opinion or policy of the Florida LAKEWATCH program. consistent data if we can train someone before the next sampling date arrives.

#### Kit Roundup

If you are no longer able to sample and you have sampling materials that are in your way, collecting dust, let us help! Please give us a call and we'll decide to pick up the materials so that we can revamp them and re-use them. Like everything else these days, the kits have become more expensive, so we need to be more diligent in collecting and recirculating the unused materials. Thanks for your help!

### **Thank You!**

We at LAKEWATCH would like to thank all our volunteers and friends who have supported us in the first half of 2019. We look forward to serving you in the future!