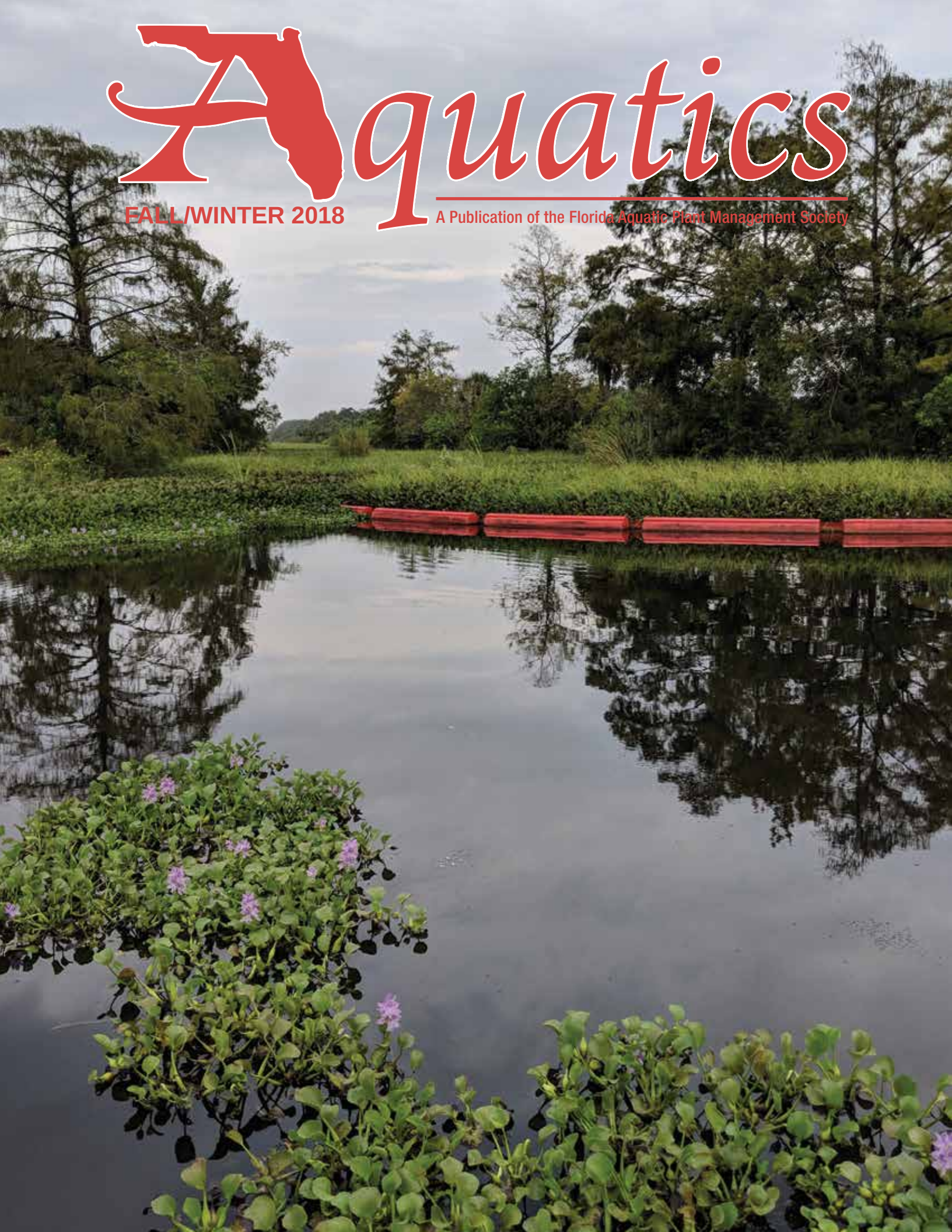

Aquatics

FALL/WINTER 2018

A Publication of the Florida Aquatic Plant Management Society

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FALL/WINTER 2018 Volume 40, Number 3/4

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INTRODUCTION

Welcome Amy Giannotti, the new editor for Aquatics!

Amy Giannotti has been actively involved in freshwater and marine vegetation dynamics for over 20 years, with the last 15 years of her career focusing on Florida's aquatic plant communities with a specific interest in *Hydrilla* management. A native of West Virginia, Amy holds a B.S. in biology from Marietta College (OH) and earned her M.S. in environmental sciences at the University of Virginia. She is a Certified Lake Manager and currently works as the Lakes Division Manager for the City of Winter Park (FL). Amy is also the founder/owner of AquaSTEM Consulting, LLC, and she serves an Advisor to the University of Florida's Center for Aquatic and Invasive Plants. Prior to joining the City of Winter Park, Amy spent six years working for the state as a regional biologist with the Florida Fish and Wildlife Conservation Commission's Invasive Plant Management Section and one year as a biological scientist for the Florida Park Service. Amy is an avid scuba diver and enjoys exploring reefs offshore and our beautiful spring systems. Please contact her with articles or ideas for magazine submissions at: aquaticsmagazine@gmail.com

Dr. Michael D. Netherland

1963 – 2018

Dr. Michael D. Netherland was born and raised in Lawton, Oklahoma, and attended Cameron University where he received his Bachelor of Science degree in biology and chemistry in 1986. After graduation he pursued his Master of Science degree at Purdue University in Indiana with Dr. Carole Lembi. There he studied the effects of plant growth regulators on submersed plants and began his long association with the Aquatic Plant Management Society and numerous regional societies. In 1989, Mike joined the Chemical Control Technology Team as a Research Biologist with the US Army Corps of Engineers, Engineer Research and Development Center, Environmental Laboratory in Vicksburg, MS.

During the next 9 years, he conducted several groundbreaking studies on the use of aquatic herbicides including developing Contact/Exposure Time requirements for several submersed plant/herbicide combinations. He also was one of the first to utilize rhodamine dye to track and evaluate water exchange in relation to herbicide concentrations in lakes, reservoirs and flowing waters. These studies allowed for development of more predictable and effective large-scale aquatic plant management programs throughout the U.S. and internationally.

Mike's highly successful research prompted him to pursue his Ph.D. degree in 1996 at the Center for Aquatic and Invasive Plants at the University of Florida. His research included in-depth studies on the physiology and biology of hydrilla turion development and sprouting. It was during these studies that he noted that hydrilla might be developing resistance to fluridone.

Following receipt of his doctoral degree in 1998, Mike was employed as the Global Technology Leader in Aquatics for SePRO Corporation. In this position, he gained national experience in large-scale weed control operations and was the research leader that helped advance the genetic understanding of fluridone resistance in hydrilla.

In 2003 he returned to the US Army Corps of Engineers and was assigned to work at the UF Center for Aquatic and Invasive Plants where he has made many contributions in both research and education. He was a Courtesy Faculty Member at the University of Florida and possessed Adjunct Professorship appointments at North Carolina State University and Grand Valley State University, where he has advised 4 graduate students and served as committee member for 12 others. While in Florida, he continued to lead many significant research programs such as the development of hydroacoustic vegetation monitoring, large-scale management of fluridone-resistant hydrilla, developed new management strategies for invasive and hybrid watermilfoils, and assisted with the registration of several new aquatic herbicides. His efforts have been valued by researchers and practitioners throughout the U.S. and in many other countries, including Australia, Canada, and New Zealand.

Dr. Netherland has earned the great and lasting respect of his peers. He was elected to be President of the Aquatic Plant Management Society, and as such served as Program chair in 2013. He has been nominated for and won multiple awards, including the Outstanding Research Contributor (2010), T. Wayne Miller Distinguished Service (2011), Outstanding Journal Publication (2014), and the President's Award (2016) from the Aquatic Plant Management Society. He was also asked to serve as Editor of the Journal of Aquatic Plant Management for six consecutive years. His achievements were also recognized on two occasions by the Northeast Chapter of the Aquatic Plant Management Society with the Aquatic Plant Research Award in 2007 for his work on the control of invasive watermilfoils and again in 2016, for research on monoecious hydrilla. In 2008, Mike received the Department of the Army's Commander Award for Civilian Service and the prestigious Federal Laboratory Consortium Award for excellence in technology transfer efforts related to aquatic plant management.

Dr. Netherland's impact on aquatic plant management is significant and lasting. To all who knew him, he was a trusted friend and valued colleague. None of us will forget his brilliant insight into aquatic plant management or his incredible sense of humor. We are all better for having known Mike.

IN MEMORIUM

Mike Bodle

Mike Bodle was the Robin Williams of aquatic plant management with his lightning quick wit and raucous laugh that permeated the room.

Mike Bodle was the Sam Clemons of aquatic plant management. Always on an adventure — whether for work or pleasure, recording it with wry humor and beautiful prose that begs you to read on.

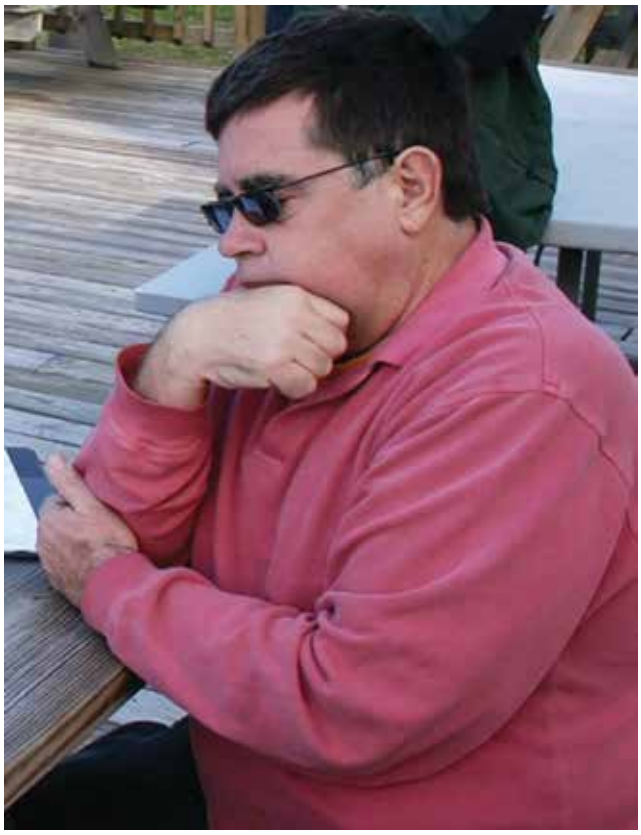
Mike Bodle was the James Garner of aquatic plant management. Like Garner in The "*Great Escape*", Mike was the provider who could deliver any item at a moment's notice — from a gallon of herbicide to a helicopter.

None of us has a weed named after us.

None of us has an EPA herbicide label requiring users to notify us prior to use.

Mike knew everyone — everyone liked Mike.

Mike Bodle was a generous man with an infectious smile and a heart of gold. You are missed, Mike.



"It's on the list": what does that mean?!?!?

By Lyn A Gettys, Ph.D.

I can't count the number of times I've heard someone say, "Oh, you can't have that plant in Florida because it's on the list". When I ask which list, I'm often met with hemming and hawing — or the response that it's a FLEPPC Category 2 plant. There seems to be a fair amount of confusion regarding how non-native plants are regulated in the state because there are multiple lists — but not all lists are created equal. There are five primary lists that categorize non-native plants in Florida, and the goal of this article is to clarify what it means when a plant is "on the list".

1. The Federal Noxious Weed List was developed as a result of the Federal Noxious Weed Act (FNWA), which was enacted in 1975. The FNWA gave the US Secretary of Agriculture the authority to categorize plants as noxious weeds and established a federal program to control their spread by limiting their transportation across state lines. The FNWA was amended in 1990; this amendment required federal land management agencies to take a number of steps to reduce the spread of invasive species. Each agency was expected to develop an integrated program to coordinate invasive plant control on lands under their management and to create cooperative agreements to work with state agencies. They were also required to include funding for the development and execution of the plant management program in their budget. In 2000, most of the FNWA was incorporated into the Plant Protection Act, which is the most current document regulating invasive plant species in the United States. In a nutshell, the Plant Protection Act prohibits the movement of noxious weeds into and throughout

USDA United States Department of Agriculture

Punk or Paperbark tea tree *Melaleuca quinquenervia*

Here are some fun and exciting direct-quote definitions straight from the Plant Protection Act:

*The term "**noxious weed**" means any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.*

*The term "**plant**" means any plant (including any plant part) for or capable of propagation, including a tree, a tissue culture, a plantlet culture, pollen, a shrub, a vine, a cutting, a graft, a scion, a bud, a bulb, a root, and a seed.*

*The terms "**move**", "**moving**", and "**movement**" mean to carry, enter, import, mail, ship, or transport; to aid, abet, cause, or induce the carrying, entering, importing, mailing, shipping, or transporting; to offer to carry, enter, import, mail, ship, or transport; to receive to carry, enter, import, mail, ship, or transport; to release into the environment; or to allow any of these activities.*

You can read the entire Plant Protection Act if you're interested (and I know you are!). It's part of the Agriculture Risk Protection Act of 2000, which is online at www.gpo.gov/fdsys/pkg/PLAW-106publ224/html/PLAW-106publ224.htm. Once you're on the webpage, search "Title IV" to jump down to the Plant Protection Act

the United States. Therefore, the plants on this list are regulated by the United States and doing anything to them — other than killing them — is against the law unless you have a permit.

The Federal Noxious Weed List is managed by USDA, Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) and was last updated in 2010 (although synonyms were added and a typo was corrected in 2017). The list includes a number of species we know and target in Florida, including feathered mosquitofern (*Azolla pinnata*), hydrilla (*Hydrilla verticillata*), hygrophila (*Hygrophila polysperma*), limnophila (*Limnophila sessiliflora*), melaleuca (*Melaleuca quinquenervia*) and giant salvinia (*Salvinia molesta*). You can find the list here: www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/weedlist.pdf

Yellow floatingheart *Nymphoides peltata*

2. The Florida Noxious Weed List is a state-specific counterpart to the Federal Noxious Weed List. It was created in 1993 and has been amended multiple times to add new species that are identified as invasive. The List is administered by the Florida Department of Agriculture and Consumer Services (FDACS), which defines a noxious weed as:

"Any living stage of a parasitic or other plant which may be a serious agricultural threat in Florida; have a negative impact on endangered, threatened, or commercially exploited plant species; or if the plant is a naturalized plant that disrupts naturally occurring native plant communities."

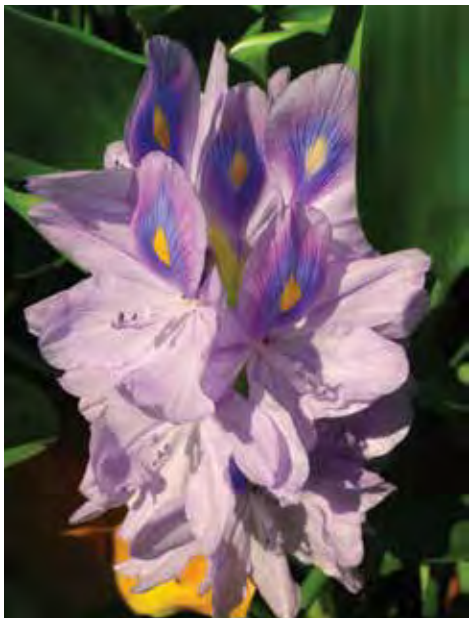
FDACS prohibits the sale of plants on the Florida Noxious Weed List and movement of these species is regulated by the FDACS Division of Plant Industry. Similar to federally listed species, the plants on this list are regulated by the state of Florida and doing anything to them — other than killing them — is against the law unless you have a permit. This list covers many of our upland "job security" plants and incudes shrubs [coral and shoebutton ardisia (*Ardisia crenata* and *A. elliptica*, respectively)], trees [Australian pine (*Casuarina equisetifolia*) and Brazilian pepper (*Schinus terebinthifolius*)], vines [air potato (*Dioscorea bulbifera*), Japanese and Old World climbing ferns (*Lygodium japonicum* and *L. microphyllum*, respectively)], and grasses [cogongrass (*Imperata cylindrica*)]. Historically the Florida Noxious Weed List has been limited to upland species, but invasive aquatic plants such as crested and yellow floatingheart (*Nymphoides cristata* and *N. peltata*) are now finding their way onto this list, which was last amended in 2016. You can see the entire list here: https://www.flrules.org/gateway/notice_Files.asp?ID=18358916

Crested floatingheart *Nymphoides cristata*

3. The Florida Prohibited Aquatic Plant List, which is also administered by FDACS, was created in 1986 and last amended in 1993. According to FDACS Rule 5B-64, "The Department of Agriculture and Consumer Services, Bureau of Plant and Apiary Inspection shall administer the aquatic plant management program of the state as may be necessary for the eradication, control, or prevention of the introduction and dissemination of noxious or prohibited aquatic plants through the importation, transportation, non-nursery cultivation, collection, sale, or possession of aquatic plants". There are two classes in the Florida Prohibited Aquatic Plant List; the rules that apply to plants on the Florida Noxious Weed List also apply to Class I Prohibited Aquatic plants, but nurseries can grow Class II plants provided they have a state-issued permit and only sell the plants to customers outside Florida. A number of Class I plants — including Australian pine, melaleuca, hydrilla and giant salvinia — are also on the Federal Noxious Weed List. However, some Class I plants are only major problems in Florida; these include alligatorweed (*Alternanthera philoxeroides*) and waterhyacinth (*Eichhornia crassipes*).

As with the Federal and Florida Noxious Weed Lists, it is illegal to cultivate, grow, sell, trade or move Category I plants. This list covers many of our upland "job security" plants and incudes Class II plants are waterlettuce (*Pistia stratiotes*), limnophila and hygrophila. Recall that limnophila and hygrophila are Federal Noxious Weeds; as such, I suspect nurseries must only ship these plants to customers outside the United States. You can access the Florida Prohibited Aquatic Plants List here: www.flrules.org/gateway/readFile.asp?sid=0&type=1&tid=5973277&file=5B-64.011.doc

Air potato *Dioscorea bulbifera*



Waterhyacinth *Eichhornia crassipes*

UF IFAS
UNIVERSITY of FLORIDA

4. The website for the IFAS Assessment of Non-native Plants in Florida's Natural Areas (located at https://assessment.ifas.ufl.edu/ and often referred to as "the **IFAS Assessment**") states that "The UF/IFAS Assessment… uses literature-based assessment tools to evaluate the invasion risk of non-native species that occur in the state, new species proposed for introduction, and novel agricultural and horticultural selections, hybrids, and cultivars". The IFAS Assessment differs from the three lists above in a number of ways. For example, plants that have been evaluated using the IFAS Assessment fall into one of four categories:

- Not considered a problem species at this time, may be recommended
- Caution, may be recommended but manage to prevent escape
- Invasive and not recommended except for "specified and limited" use approved by the UF/IFAS Invasive Plant Working Group
- Invasive and not recommended

In contrast to the Federal and Florida Lists, results from the IFAS Assessment are not enforceable — meaning that if a plant is classified as "Invasive", it is still legal to grow and sell (provided the plant is not on a Federal or Florida List). However, researchers and other personnel at the University of Florida are prohibited from recommending the use of an "Invasive" plant. Another difference is the IFAS Assessment can be used as a "white list" of sorts; that is, if the IFAS Assessment has concluded that a particular plant is not considered to be a problem, it should be well-behaved in the landscape and can be included in plantings without concern that it may be invasive. More than 800 species have been evaluated using the IFAS Assessment and the database is growing every day. If you can't find information about a species you've encountered, you can request that it be evaluated — just click the link on the webpage. More information about how the IFAS Assessment works and what types of data are used to reach a conclusion can be found here: edis.ifas.ufl.edu/ag376

5. The final entry in this collection of lists is the **FLEPPC List**. This list is developed by the Florida Exotic Pest Plant Council, a non-profit organization established in 1984 whose membership includes biologists, researchers, resource managers and other interested parties. According to the FLEPPC website (www.fleppc.org/), the mission of FLEPPC is "to support the management of invasive exotic plants in Florida's natural areas by providing a forum for the exchange of scientific, educational and technical information". As with the IFAS Assessment, the FLEPPC list makes recommendations based on scientific information and field observations but is not regulatory.

The FLEPPC list is revised every two years and plants are grouped into two categories based on the level of ecological damage caused by the plant in question. Category I invasive plants are the most destructive on the FLEPPC list and have been shown to alter native plant communities by displacing native plants, changing community structures or ecological functions, or hybridizing with natives. Category II invasive species are plants that are becoming more common

or developing larger populations but have not caused major alterations to native plant communities (although they may be promoted to Category I species if they become more invasive). New Category II plants added in 2017 (the most recent list available at this time) include mother-of-millions (*Kalanchoe x houghtonii*) and common staghorn fern (*Platycerium bifurcatum*), both of which are sold as houseplants on the internet and in some big-box stores. There is certainly overlap between the FLEPPC list and the Federal and State lists; in fact, the FLEPPC list includes a "Govt. List" column to indicate that a species is prohibited by Florida or the United States. The list also includes a "Zone" column to document where a particular plant is likely to have the most serious impacts. The FLEPPC list can be accessed by going to https://www.fleppc.org/list/list.htm and clicking on the most recent list.

Summary

As this article makes clear, it's not enough to say that a particular plant is "on the list". Of the five lists most commonly used to classify non-native plants in Florida, three are regulatory and two make recommendations based on current knowledge. It is illegal to do anything other than kill plants on the Federal Noxious Weed List, the Florida Noxious Weed List or the Florida Prohibited Aquatic Plant List. Species that are categorized as "Invasive" by the IFAS Assessment cannot be recommended by University of Florida personnel and their use should be avoided due to their invasive potential. Finally, plants listed as Category I or Category II by FLEPPC should not be planted because they are likely to escape cultivation. When in doubt, plant native!

Feathered mosquitofern *Azolla pinnata*

Dr. Lyn Gettys (lgettys@ufl.edu) is an Assistant Professor of Agronomy at the University of Florida IFAS Fort Lauderdale Research and Education Center.

James Leary, Ph.D. — New faculty appointment — Research and Extension Specialist in Aquatic Plant Management, University of Florida

By Jay Ferrell, Ph.D

The University of Florida/IFAS Center for Aquatic and Invasive Plants would like to introduce our newest Assistant Professor, James Leary, Ph.D. His appointment is Research and Extension Specialist in Aquatic Plant Management and will be responsible for developing practical solutions to better manage invasive plants in aquatic habitats. His approach will be to participate in conducting site visits, assessing individual problems, and using the Center's resources to test and validate new recommendations that can be readily adopted into your management programs. He will seek to develop productive relationships with all local, state and federal programs responsible for protecting Florida's precious water resources.

Originally born and raised in Michigan, Dr. Leary comes to us by way of the University of Hawaii, where he has accrued over 20 years of tropical weed science experience in managed and natural area landscapes. It is here where he first encountered the miconia plant (*Miconia calvescens*); known as the worst weed invader in Hawaii. Growing at high elevations, this plant is largely inaccessible for management with our common techniques. This led Dr. Leary to develop Herbicide Ballistic Technology (HBT) which incorporates herbicide into paintball pellets. You then simply pull up next to the plant in a helicopter, shoot a lethal dose of herbicide into the plant, then move to the next target. While it is a fun and exciting way to manage invasive plants, this technology has also proven to be highly effective at reducing the spread of this nuisance weed. Over the past few years, this concept has been used to eliminate over 25,000 miconia plants, which has resulted in the protection of over 50,000 acres in the East Maui Watershed. We are excited to see Dr. Leary put this same sort of innovation and dedication to work in Florida.

Dr. Leary has a strong passion for protecting ecosystems from invasive species and an aptitude for creativity in problem solving. Even though his research and career were both growing in Hawaii, Dr. Leary was looking for new opportunities and exciting challenges, and Florida was a good fit! He welcomed this new position at the Center for Aquatic and Invasive Plants because of the well-established history of science and management efforts, coupled with the culture of professionalism and comradery that is clearly evident here.

Dr. Leary is looking ahead, excited to begin working with his new colleagues and partners to advance our invasive plant management techniques with new knowledge and his state-of-the-art technologies. He acknowledges that he has much to learn, but he accepts the challenge with confidence knowing it starts by building strong relationships with experts and peers in the Florida aquatic plant management community. Dr. Leary, his wife Cynthia, and his two sons, Diego and Paulo, are all looking forward to new experiences and careers in Gainesville, FL.

Dr. Jay Ferrell (jferrell@ufl.edu) is a Professor and Director of the University of Florida/IFAS Center for Aquatic and Invasive Plants.

Chapter updates

MidSouth Aquatic Plant Management

www.msapms.org

The MidSouth Aquatic Plant Management Society recently held its 37th Annual meeting in Chattanooga, Tennessee. This was only the second time since the society's inception that it has been held in the Volunteer state with the first time occurring in 2007. The meeting started off with a guided tour for members at the Tennessee Aquarium Conservation Institute where we witnessed captive propagation of sensitive fish species, including Lake Sturgeon and Southern Appalachian Brook Trout underway for reintroduction into the Tennessee River basin. The tour culminated with a short jaunt over to the well regarded Tennessee Aquarium for a visit to experience aquatic ecosystems across a multitude of landscapes.

Following the tour, a wide scope of aquatic related topics were addressed in the general sessions. From professionalism, IPM, all things *Lyngbya*, a riveting driving safety lecture from Tennessee State Troopers, regional updates and challenges from Alabama, Louisiana, Georgia, Kentucky and Arkansas to the future of our industry represented by post-doctoral and several student presentations, along with other industry related research, we covered a wide breadth of information in a short time!

Carlton Layne of AERF receives special recognition as an honorary member of MSAPMS.

Officers announced for this year were:
President: Scott Jackson, Syngenta
President elect: Brett Hartis, Duke Energy
Past President: Jeremy Slade, UPI
Secretary: Gray Turnage, MSU
Treasurer: Harry Knight, Nutrien
Editor: Brad Sartain, ERDC USACE
Director: J.J. Ferris, Cygnet Enterprises
Director: Adam Charlton, Aquatic Control
Director: Wes Anderson, Alabama Power

We are currently in the process of selecting a destination and time for the 38th annual meeting and welcome all who may be interested in participating to attend!

Submitted by Scott Jackson (scott.jackson@syngenta.com)

Plant Management Society

www.mapms.org

President: Nathan Long
(natel@aquaticcontrol.com)
President-Elect: Jake Britton
(jbritton@clarke.com)
Past President: Paul Hausler
(hauslerp@progressiveae.com)

Midwest Aquatic Plant Management Society (MAPMS) members have been busy this past year. Like many APMS chapters, one of our largest endeavors is our annual conference. This year's conference was held February 26-March 1 at the Westin Downtown in Cleveland, OH. The 2018 conference had over 220 in attendance, representing 23 different states, along with 27 exhibitors. Attendees were greeted by warm Cleveland weather, which is typical for most of our conferences! Thank you to all the volunteers that donated their time and efforts putting this conference together and all the sponsors, exhibitors, and silent auction/raffle contributors! Highlights of the conference included our inaugural Student/New Member mixer, a very well attended President's reception with live music at the House of Blues, and a variety of conference sessions highlighted by an HAB panel discussion. The 2018 program was made up of 29 presenters from government, academia, and industry. Six student presenters braved the stage and shared their knowledge with the membership.

The event was capped off with a very well attended banquet. President Paul Hausler awarded David Isaacs with a much-deserved Honorary Membership. Thank you, David for all you have done for our society! Greg Chorak, from Montana State University ($7,500), and Dalton Sink, from the University of Michigan-Flint ($2,500), were awarded Robert L. Johnson Memorial Research Grants. The best student oral presentation award went to Clemson University's Tyler Geer ($300), followed by another Clemson student, Ciera Baird ($200), and Colorado State's Kristen Tanz ($100). MAPMS greatly values student participation and sincerely appreciates their contributions to our society. These students are our industry's future and our future looks bright!

MAPMS members have remained active during the busy treatment season. Our government affairs committee works hard to keep the membership up to date on federal, state, and local regulations that may impact the industry. The publicity committee has recently updated and printed additional plant reference charts. The board is also researching the potential for having a Midwest Plant Camp in the region. The Midwest faces several new and difficult issues like starry stonewort, harmful algal blooms, and hydrilla, so educating our members and our educators on these topics is a high priority.

Our Program and Local Arrangement committees are busy preparing for our 2019 conference which will take place February 25-28, 2019 at the world-famous Palmer House in Downtown Chicago (extended forecasts call for beautiful weather much

like we saw in Cleveland). Mr. Torres and the Local Arrangements Committee were able to secure very low room rates for such a historic hotel. Transportation will be more challenging than what we are used to in the suburbs, but detailed tips for getting in and out of the hotel will be posted shortly on the website (www.mapms.org). We hope to see you all in Chicago this February!

Submitted by Nathan Long (natel@aquaticcontrol.com)

JJ Ferris receives the SCAPMS Member of the Year award.

△ Conference poster signed for Tommy Bowen

◁ Award-winning students with VP Nawrocki at SCAPMS.

South Carolina Aquatic Plant Management Society

http://scapms.org/index.html

President: Hugo Burbage (hugo.burbage@santeecooper.com)
Vice President: Justin Nawrocki (justin.nawrocki@uniphos.com)
Past President: Ben Willis (ben.willis@sepro.com)

The 40th annual SCAPMS meeting was held in North Myrtle Beach just two weeks after Hurricane Florence moved through the area. Attendance was on par with previous years, but sponsorship was the highest it has ever been. This is due to the efforts of JJ Ferris (Cygnet) who was recognized when he won the Member of the Year award. Ken Manuel (Duke Energy) was awarded Honorary Member of the Year and Steve Hoyle (NCSU) was awarded the Distinguished Service Award. Five students representing Clemson, NCSU and UGA competed in the student paper contest with Kara Folley (NCSU) winning 1st, Tyler Geer (Clemson) and Andrew Howell (NCSU) tied for 2nd and Eric White (NCSU) and Amanda Howard (UGA) tied for 3rd. Amanda also won the Phillip M. Fields scholarship worth $4,000. We had great attendance with our golf and off shore fishing outings which helped raise scholarship funds.

The gavel was passed from Ben Willis (Sepro) to Hugo Burbage (Santee Cooper) who will preside over 2019's SCAPMS meeting to be held back in Myrtle Beach. Newly elected board members include Directors JJ Ferris and Chris Page (SCDNR) and Justin Nawrocki (UPI) as Vice-President.

Tommy Bowen, a pillar of the SCAPMS society, recently passed away and we all will miss his friendship and warm smile. We wish his family the best in these sorrowful times.

Submitted by Justin Nawrocki (justin.nawrocki@uniphos.com)

Texas Aquatic Plant Management Society

https://www.tapms.org/

President: Brad Vollmar (brad@texaspondmanagement.com)
Past President: Trent Lewis (trent@pondmedics.com)
President-Elect: Monica McGarrity (monica.mcgarrity@tpwd.texas.gov)

Highlights from the TAPMS 2018 Annual Conference Agenda

The final agenda for the 2018 conference in San Antonio on November 26-27, 2018 was posted on the website and it was a great event. This year's program included six different thematic sessions that provided overviews of chemical control innovations and research and product testing results; technical training on pump selection, sprayer calibration, and drift minimization; highlights of cutting-edge aquatic plant management technology from drones to robotics; web and mobile-based tools for aquatic nuisance/invasive plant monitoring and management; aquatic plant ecology and restoration; and diverse integrated pest management strategies from manual removal to weevils to endocides. Speakers this year ranged from Craig Aguillard (APMS) and Carlton Layne (AERF) to some of the best industry experts, researchers, and aquatic plant management professionals out there—not to mention some great student presenters who travelled from around the southeast.

Showcasing Student Research at TAPMS 2018

For the 2018 annual conference, a TAPMS committee focused on inviting university students and professors to present their research relating to aquatic plant management and ecology. In the last few years, student participation has been low, but we are excited to announce that this year's conference had increased student involvement as part of TAPMS' goal of providing opportunities for students to learn about aquatic vegetation management and conservation as well as establishing valuable connections with professionals and researchers in our field. This year, five students participated in the conference, giving a total of seven oral presentations. Our student presenters hailed from University of Texas – San Antonio, Mississippi State University, and North Carolina State University and presented on topics from aquatic plant control, invasive plant ecology, and habitat diversity to using new technology for aquatic plant management.

Submitted by Monica McGarrity (monica.mcgarrity@tpwd.texas.gov)

Western Aquatic Plant Management Society
https://wapms.org/

President: Andrea Sealock (asealock@cygnetenterprises.com)
Vice President: Tom Warmuth (twarmuth@biosafesystems.com)
Past President: Amy Ferriter (amy.ferriter@cpsagu.com)

In March 2018, the Western Aquatic Plant Management Society held its 37th annual meeting in Reno, Nevada. We hosted approximately 110 members and attendees at the Grand Sierra Resort & Casino. There were four students in attendance, whose travel was supported by WAPMS through the *Barbra H. Mullin Student Scholarship* fund. We would especially like to thank our twenty sponsors and exhibitors for their generosity, as well as Carolyn Ruttan for making CEU's available from TEN western states!

This year, WAPMS has continued to improve our presence on social media via Facebook, as well as outreach to our members through our new website and eNewsletter, *Below the Surface*. In addition, our outreach has included sponsorship of the Flowering Rush Summit, the UC Davis Aquatic Weed School, and the joint conference of the Oregon Lakes Association and Washington Area Lake Protection Association. WAPMS has also renewed its sponsorship of the Aquatic Eco-System Restoration Foundation and continued our partnership with Women of Aquatics to promote female involvement in the society.

As always, we are persistently working to tackle the geographic diversity of our membership. In particular, WAPMS often struggles to develop a conference agenda that meets the needs of all regions represented by our society. At our 2018 conference, we felt we were able to offer a more diverse agenda, including topics that covered harmful algae blooms and flowering rush in natural lake systems, to aquatic weed control in irrigation canals. Overall, we have learned that feedback from our members and attendees through online surveys has been a very helpful method for improvement. We hope to see you in San Diego in July 2019 at the joint meeting of APMS and WAPMS!

Submitted by Andrea Sealock (asealock@cygnetenterprises.com)

Northeast Aquatic Plant Management Society
http://www.neapms.org/)

President: Meg Modley (mmodley@lcbp.org)
Vice President/President Elect: Will Stevenson (wstevenson@solitudelake.com)
Past President: Mark Heilman (markh@sepro.com)

The 19th annual meeting of NEAPMS was held at the Wentworth by the Sea in New Castle, NH January 9th-11th, 2018. Conference highlights included an aquatic plant workshop and special session on harmful algal blooms, followed by a public screening of *Toxic Puzzle: Hunt for the Hidden Killer*. The program was packed with hydrilla control talks, plant growth responses to herbicide treatments, early detection programs, non-chemical control talks related to mechanical and manual harvesting and aeration, and cyanobacteria management. Poster presenters competed in a poster slam session for best scientific presentation, members networked at the exhibitor and poster sessions, elections were conducted during our business meeting, and special awards were shared during the banquet dinner. The banquet raffle and silent auction items continue to bring in funds to contribute to the scholarship fund.

NEAPMS 20th anniversary conference will be held at The Desmond in Albany, NY from January 8-10th, 2019. The program has been designed to highlight and celebrate founding member thoughts about the Society, student scholarship contributions, aquatic plant management scientific advancements, and our member's work over the past two decades. The Board of Directors (BOD) is also looking ahead to the next 20 years. The BOD has been acting to address the membership's support to expand our mission statement to include algae research and control, to develop priorities for a strategic planning process, to ensure the Society's financial security, and expand student support and scholarship opportunities. The aquatic plant workshop will return along with an algae workshop and during the membership meeting we will consider adding a student member to the Board of Directors. We hope to see you in New York in January! www.neapms.org/conference/

Submitted by Meg Modley (mmodley@lcbp.org)

CALL FOR POSTERS – FAPMS 2019 MEETING

The FAPMS 43rd Annual Training Conference will be held October 15-17, 2019 in St. Petersburg, FL. We are looking for posters on herbicide application and mechanical techniques (aquatic, natural area and right-of-way), mixtures, innovative control measures, re-vegetation projects, new exotic plant introductions, research projects, etc. We welcome posters from researchers, scientists, students, applicators and other field personnel – in short, anyone involved in aquatics! You don't have to be a professional speaker to present a poster! Remember, FAPMS was formed for the aquatic plant manager and the annual training conference is a chance to share what you have learned with other members. There will be a separate Poster Session where poster presenters will have a chance to discuss their work.

1st place will receive $150.00, 2nd place $100.00, and 3rd place $50.00.

NOTE: DEADLINE FOR SUBMISSION IS July 31, 2019

Title: _____

Author(s)*: _____

Organization: _____

Address: _____

Telephone: _____ **Email:** _____

*If more than one author, please circle the name of the person who will present the poster at the meeting. Please list all authors you would like to see listed on the final agenda.

Title of Presentation & Brief Abstract:

Biography of Presenter:

NOTE: Posters are to be set up in the Vendor room at the beginning of the conference and taken down the last day of the conference. Presenter of the poster is expected to be at their poster during the breaks to answer questions and field comments.

There will be an official judging of all posters. Announcement of the winners will be made at the banquet.

What category or categories best fit your poster? ☐ Aquatic ☐ Natural Areas ☐ Right-of-Way ☐ Core

Please contact Kris Campbell if you need an easel. Please bring clips and back board to secure your poster. Posters are to be set up prior to the start of the conference which begins on Tuesday at 10:00 AM.

Submit this form to:

Kris Campbell
Florida Fish and Wildlife Conservation Commission
Invasive Plant Management Section
6830 Shadowridge Dr. Suite 201
Orlando, FL 32812
321-246-0682
kristine.campbell@myfwc.com

42nd Annual FAPMS Training Conference

The 42nd Annual Florida Aquatic Plant Management Society (FAPMS) Training Conference took place in Daytona Beach at the Hilton Oceanfront Resort with 282 attendees and 26 vendors from various parts of the globe. **Ms. Kris Campbell, Florida Fish and Wildlife Conservation Commission (FWC) Regional Biologist**, assembled an agenda of excellent speakers and arranged a partnership with the Florida Exotic Pest Plant Council (FLEPPC) to offer an uplands session with accompanying Natural Areas and Right-of-Way Continuing Education Units (CEUs) to the membership. A maximum of 18 CEUs per person were available at this year's conference, including our-of-state CEUs coordinated by **Lyn Gettys, Ph.D., University of Florida/Institute of Food and Agricultural Sciences, Ft. Lauderdale.** Less than one week prior to the Conference, Hurricane Michael made landfall in the Florida panhandle and slightly altered the original agenda and plans for several attendees. However, the organizing committee was able to quickly regroup and fill-in the gaps presenting an excellent seminar and conference for the registrants.

Bill Haller, Ph.D., recently retired from the University of Florida, presented the keynote address to an audience of several hundred applicators, managers, researchers, biologists, and educators. His talk — *Five Decades of Progress (?) in Aquatic Weed Control in Florida* — focused on the evolution of the aquatic plant management program, how environmental changes have contributed to the distribution of Hydrilla across the state, and the culmination of nearly 50 years of research and design now incorporated into the industry. These efforts have resulted in the registration of several new herbicides and have led to an effective collaboration among university, private, and public sector scientists, applicators, and managers for developing new ways to manage hydrilla and other aquatic weeds. The relatively recent change in management philosophy regarding our public waterways is also changing how the industry is evolving. Dr. Haller's talk was followed by 40 oral presentations, including presentations by four aquatic plant applicators who were competing for monetary awards. Industry representatives from six of the manufacturers provided updates about their products, goods, and services in the general session. This year's conference also welcomed nine student presentations where college and graduate students excitedly shared the details of their ongoing research efforts, and four posters were featured in the poster competition. The annual equipment demonstration took place on the back lawn of the hotel where conference attendees could get a close look at the new technologies at the forefront of aquatic plant management here in Florida and the southeast.

2018 PRESIDENT'S AWARDS

President Keith Mangus selected two individuals as recipients for the 2018 President's Awards: **Mr. Mike Bodle and Ms. Stephanie McCarty**. The following describes the recipients' achievements and contributions as described in the text on each of their plaques:

Mike Bodle, South Florida Water Management District (SFWMD) - West Palm Beach – *In recognition for his contribution to the Florida Aquatic Plant Management Society. Mike Bodle was a generous man with a love of Florida's natural environment. He served as past President and Editor of Aquatics magazine sharing his knowledge of invasive plant ID and control in the State of Florida.* Sadly, Mike passed away on August 26th, 2018, and this award was presented to his family in recognition for his commitment to invasive plant management. **Mr. Francois LaRoche, SFWMD**, accepted the award on Mike's behalf. In addition to receiving the President's Award, the 42nd Annual President's Reception was dedicated in his honor.

Stephanie McCarty, Reedy Creek Improvement District, Retired – To express our appreciation for your many years of loyal and dedicated service to the Florida Aquatic Plant Management Society. You have brightened every board meeting and every Annual Training Conference with your spirited laughter and sincere friendship. Stephanie served as the FAPMS By-Laws Chair for many years and kept the Board of Director Meetings organized and on-task.

2018 HONORARY LIFETIME MEMBERSHIP

Michael D. Netherland, Ph.D., U.S. Army Corps of Engineers & University of Florida, Center for Aquatic and Invasive Plants - Gainesville received the Honorary Lifetime Membership Award. In appreciation of your outstanding leadership and service to the Florida Aquatic Plant Management Society. Dr. Netherland served on the FAPMS Board of Directors and as President in 2009, and he was also cited as an author and co-author of countless articles in the Aquatics magazine. Dr. Netherland served many years as treasurer for FAPMS Scholarship Foundation. Dr. Netherland tirelessly shared his love of aquatic plant management as a speaker, teacher, and mentor to many who work in aquatic ecosystems today.

In addition to his service to the Florida community, Dr. Netherland also was the 2014 president of APMS and served on the FAPMS Board in many capacities, including as Director and Editor. Dr. Netherland has focused his career on the research and development of new aquatic plant management initiatives, and he created many lifelong friendships along the way. Unfortunately, during the FAPMS conference, Dr. Netherland lost his battle with cancer and passed away on October 16th, 2018. This award was presented to his family and accepted by Jay Ferrell, Ph.D., Professor and Director, University of Florida, Center for Aquatic and Invasive Plants.

APPLICATOR OF THE YEAR

Chad Edmund, Applied Aquatic Management (AAM) – Received the 2018

Applicator of the Year Award. Chad has been a member of FAPMS for the past 13 years and has been a tremendous asset in coordinating various activities for the Society, like the Duck Race fundraiser. Chad has worked in the aquatic plant management industry since 2003, and his work has taken him all over the state, from the Big Bend area to the Florida Everglades and over 75,000 acres in between. Chad is also an experienced applicator in wetland and terrestrial environments, and he has most recently been involved in the Kissimmee River Restoration Project. Here he has participated in the removal of 60 acres of tussocks using excavators, barges, and dump trucks to restore this system to its original beauty and flow. Chad is considered by many to be a "go-to" person if a resource needed for a project is out of the ordinary. He has a special way of making sure the job will get done. Chad works with multiple agencies on public and private lands and is responsible for protecting sensitive habitats for endangered species. Congratulations, Chad!!

AQUATIC PLANT MANAGER PRESENTATION WINNERS

Four outstanding managers participated in this year's Aquatic Plant Manager Presentation Competition. Presenters received an initial $100 for participating in the competition, and in addition, winners also took home $300 for 1st place, $200 for 2nd place and $100 for 3rd place. It was tough competition and they all did an excellent job!!

1st Place- Mike Terry, Southwest Florida Water Management District (SWFWMD) - Exciting test plots and treatment results with Method 240 SL in natural areas. Mike works with the SWFWMD as a Senior Crew Leader. Mike holds herbicide applicator licenses in Aquatics, Natural Areas, and Rights-of-way environments, and he is also certified in prescribed fire. He has worked with SWFWMD for 34 years in their vegetation management section and is experienced in both aquatic and terrestrial environments. For the past several years, Mike has conducted test plot research in these habitats for university researchers.

2nd Place- Jim Godfrey, St. Johns River Water Management District (SJRWMD) - ProcellaCOR field study work. Jim works for the St. Johns River Water Management District and has over 20 years of experience with invasive plant management. He is a licensed applicator in Aquatic, Natural Areas, and Right-of-Way. At the FAPMS conference, Jim presented results of ProcellaCOR field trials on Hydrilla, examining the effects of this new herbicide in test plots at the SJRWMD and on the Ockalawaha Restoration Area.

3rd Place- Jason Cull, Lee County Hyacinth Control District - Early field application results using ProcellaCOR on various aquatic plants. Jason currently works for the Lee County Hyacinth Control District and is a native Floridian. A graduate of Florida Gulf Coast University with a degree in environmental sciences, Jason started his career in the private sector as an environmental consultant in Fort Myers. Jason then moved on to Lee County Environmental Services, previously working as a biologist on Sanibel Island and now having served almost three years with Lee County Hyacinth Control District as the Aquatic Field Supervisor.

NEW POSTER PRESENTATION COMPETITION

FAPMS introduced a new poster competition in 2018, which was open to the existing membership and students. This was designed to encourage applicator observations from the field while integrating that with and supporting student research. Financial awards were distributed to the best posters, with prize money valued at $150, $100, and $50. Please consider joining us next year by submitting your field observations and/or research!

1st Place- Mike Terry, Southwest Florida Water Management District (SWFWMD) - Method 240 SL Hack & Squirt results in natural areas.

2nd Place- Jason Cull, Lee County Hyacinth Control District - Integrated management practices controlling submerged vegetation in stormwater canals of Cape Coral.

3rd Place- Alex Onisko, South Florida Water Management District (SFWMD)- Field evaluations of herbicide efficacy on invasive *Scleria* species (*S. lacustris* and *S. microcarpa*) in Florida. Alex is an invasive species biologist with the SFWMD and a graduate student in the Agronomy Department of the University of Florida. She is researching the biology and management of non-native *Scleria* species. Alex has worked in resource management, restoration and invasive species control in natural area in Florida since graduating from the University of Central Florida in 2010. Alex's current focus is management of upland and wetland invasive plant species in natural areas.

2018 PAUL C. MYERS APPLICATOR DEPENDENT SCHOLARSHIP

The Paul C. Myers Applicator Dependent Scholarship provides funds to deserving undergraduate students whose parent or guardian has been a FAPMS member in good standing for at least three consecutive years. A total of $10,000 was awarded in 2018, and the recipients include: Molly Lovestrand, Jeremiah Lovestrand, Abigail Farr, Kaylie Mangus, Adrianna Rose, Abigail Campbell, and Jeffrey Olson. This scholarship is funded primarily through monies raised at the annual conference, including $5 for every registration, as well as additional funds from the sale of raffle tickets and Duck Race entrants. This year's FAPMS Conference raised $9,400 for the Scholarship fund. Every raffle ticket, duck, and raffle items donated by the sponsors provide support for our members' children - great work! Visit the website for more information about the scholarship program and how you can make a difference!

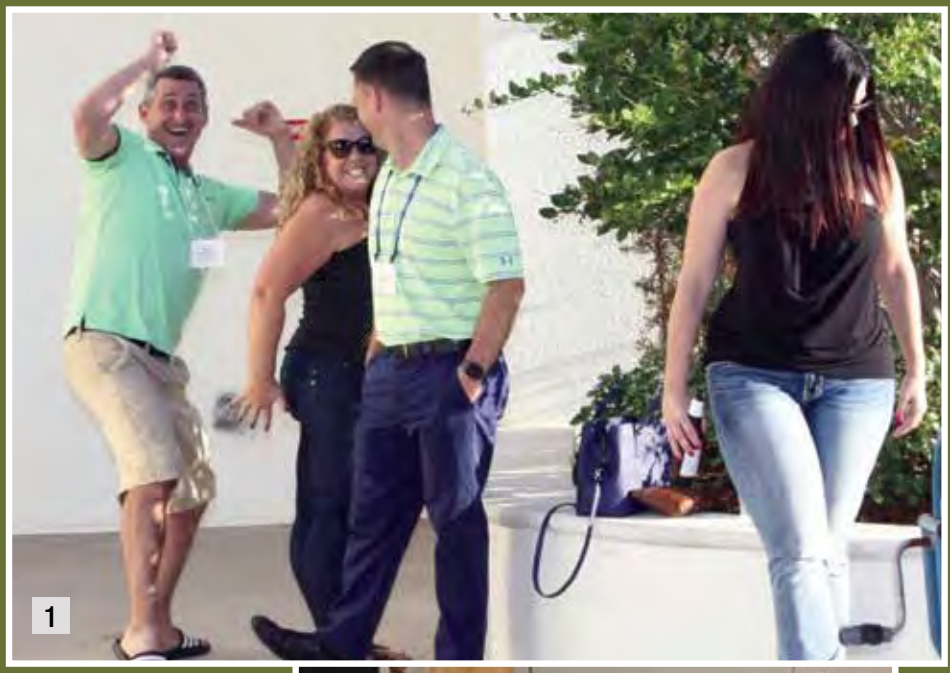
http://www.fapms.org/scholar/myers_scholar.html

DUCK RACES

The FAPMS Annual Duck Race is always an exciting event and the kids had a "splashing" time helping to move the ducks to the finish line.

Yellow Duck Winners

1st- Joyce Hertel- Yeti Cooler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1. Andy Fuhrman getting down and funky. Credit Keith Mangus
2. Angie Huebner and the treasure trove of liquor. Credit James Boggs
3. Keynote speaker Dr. Bill Haller. Credit Andy Fuhrman
4. Army Corps checking out toys at the equipment demo. Credit Keith Mangus
5. Having a good time at the President's Reception. Credit Keshav Setaram
6. Incoming President Kelli Gladding and sponsors. Credit Kelli Gladding
7. Program Chair Kris Campbell and entourage. Credit Keith Mangus
8. This year's President's Reception was held in Mike Bodle's memory. Credit Keshav Setaram
9. More fun at the President's Reception. Credit Randy Snyder

2nd- Chris Land – Arctic Cooler
3rd- Kurt Ramsey- Fishing Reel

Nerd Duck Winners
1st- John Chapman- Echo Show
2nd- Gabe Harper- 32" TV
3rd- Robert Brookins- Base Bluetooth Speaker

The Oh-So-Fun Raffle prize-winner of the large cooler full of adult libations was **Angie Huebner**.

VIC RAMEY PHOTO CONTEST

This year's winners of the annual Vic Ramey Photo Contest were awarded cash prizes for their winning photos. Winners took home $150 for 1st place, $100 for 2nd place, and $50 for 3rd place in each category. Congratulations, photographers!

Aquatic Scene - all 3 pictures were taken by **Joyce Hertel**.
1. Stick Marsh
2. Egan Lake
3. Treating Cow Lily

Ducks!!! Credit Jennifer Myers

Operations
1. Applicator's Dream or Nightmare - **Mandy D'Andrea**
2. Can't you get any closer - **Leonard Malecki**
3. Spying on Operator - **Joyce Hertel**

During the close of the conference, **President Keith Mangus, Applied Aquatics**, welcomed incoming President, **Kelli Gladding, SePRO**. The grand prize kayak raffle was won by **Kevin Damaso, Aquatic Vegetation Control**. Next year's conference will be held October 14-17, 2019, at the Hilton Boardwalk in St. Petersburg. This is a great venue, so mark your calendars now and we will see you there!

CALL FOR STUDENT PAPERS – FAPMS 2019 MEETING

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NOTE: DEADLINE FOR SUBMISSION IS July 31, 2019

Title:_____

_____

Author(s)*: _____

Organization: _____

Address: _____

Telephone: _____ **Email:** _____

*If more than one author, please circle the name of the person who will present the paper at the meeting. Please list all authors you would like to see listed on the final agenda.

Title of Presentation & Brief Abstract:

Biography of Presenter:

NOTE: Length of talk is 25 minutes. Presentations of 50 minutes will be accepted.
If your presentation is shorter or longer, please indicate the length of talk:

_____ **Minutes** (can be condensed if needed)

Check as appropriate: ☐ Aquatic Plant Manager paper ☐ Computer (Power Point)

What category or categories best fit your presentation? ☐ Aquatic ☐ Natural Area ☐ Right-of-Way ☐ Core

The accepted format for presentations is Power Point. If your presentation is in a different format, please contact Kris Campbell to determine if it is compatible with the computers and projector.

Submit this form to: Kris Campbell
Florida Fish and Wildlife Conservation Commission
Invasive Plant Management Section
6830 Shadowridge Dr. Suite 201
Orlando, FL 32812
321-246-0682
kristine.campbell@myfwc.com

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NOTE: DEADLINE FOR SUBMISSION IS July 31, 2019

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Author(s)*: _____

Organization: _____

Address: _____

Telephone: _____ **Email:** _____

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kristine.campbell@myfwc.com

IT'S A BIRD….IT'S A PLANE…. WHAT IS THAT???

By Amy L. Giannotti, M.S., C.L.M.

Of all the unique creatures that inhabit our lakes, probably the ones that prove to be most mysterious are the bryozoans. With their bulbous appearance and slimy gelatinous surface, many people think they are some form of freshwater jellyfish, but they are not. Instead, bryozoa are their own distinct group biologically and are classified as colonial organisms with millions of different individual animals (zooids) living together that functionally contribute to the structure as a whole. The individual animals look like little 'rosettes' or 'spots' on the blob, and each one provides a function or service for the whole unit. It's kind of like an aquatic camp – some clean the colony, some gather food for the residents, some build the colony making it larger in size, some take care of waste removal, etc. Gas exchange occurs throughout the entire surface of the organism, and they may reach several feet in diameter.

Bryozoans come in all different shapes and sizes, and the species most often found in Florida lakes is *Pectinatella magnifica*. The shape of the colony is often directly related to the local hydrology. Globular or 'domal' shaped colonies are found in shallow lakes where water is moving via current or wind. In areas where flow is limited or restricted, the colony takes on a highly branched pattern. Bryozoans in Florida are usually found in clean and clear waters. They are fairly sensitive to pollution and prefer dark tannic waters where little light reaches the bottom. Tannins are produced by surrounding soils and vegetation and make the water look dark, like tea, and bryozoans are happiest in these conditions.

Colonies of bryozoans are usually more prevalent in summer months where the water temperatures exceed 72°F. This is when the colony is most actively growing and expanding. Small microorganisms like algae and diatoms comprise the diet of these very efficient filter feeders. Under ideal conditions, each individual within the colony can clear 9 mL of water per day via filtration through their cells. Massive colonies, like the one pictured here, have the ability to filter up to several thousand gallons of water water daily. As winter approaches and temperatures drop, the colony becomes less active and may die off if temperatures fall below 60°F. However, a

unique structure called a statoblast helps to ensure the colony's survival should environmental conditions remain unsuitable for a long period of time. Statoblasts form at the beginning of summer when temperatures are rising, and remain viable during periods of extended drought, temperature change, or changes in water quality, sustaining the bryozoan colony when environmental conditions may be less than ideal.

So, although these bryozoans may cause you to look twice, they are an important part of the lake ecosystem not only serving as food for invertebrates and fish, but also filtering the water and cleaning it of excess algae and sediment. Bryozoans are found in both fresh and saltwater environments worldwide. Although approximately 4,000 marine species exist, only about 50 species are known to inhabit freshwater systems.

Amy Giannotti, MS, CLM, is the Lakes Division Manager for the City of Winter Park and the founder/owner of AquaSTEM Consulting, LLC. She can be reached at: aquaticsmagazine@gmail.com

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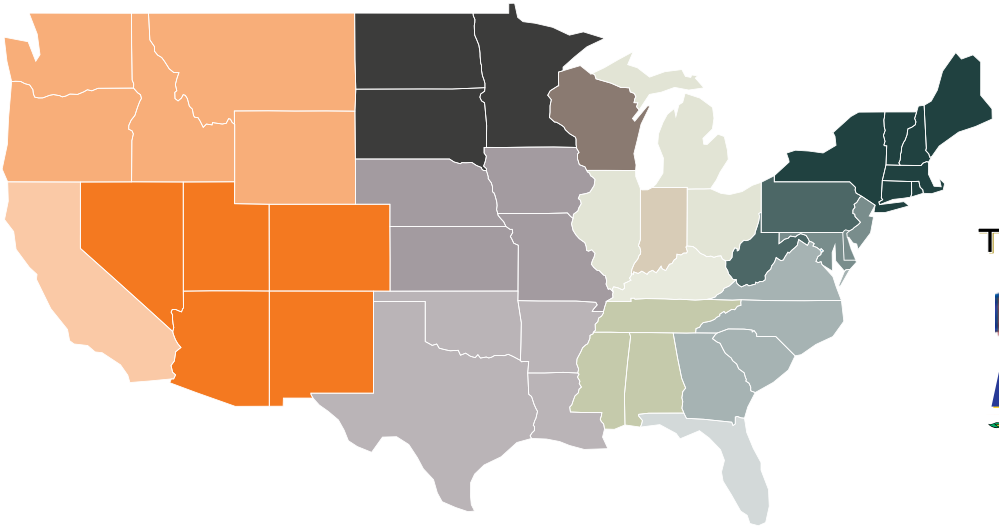

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These are some of the folks in the Gettys lab: from left to right in the back row — Mohsen Tootoonchi, Dr. Gettys, Kyle Thayer, and Ian Markovich. Visiting MS student Megan Reid (Rhodes University, South Africa) holds down the floor. Send in your articles for ***Aquatics Magazine****! Photo courtesy Lyn Gettys, UF/IFAS.*

We are actively seeking articles for upcoming issues of *Aquatics Magazine*, the official publication of the Florida Aquatic Plant Management Society. Our goal is to keep interested parties informed on matters related to aquatic plant management, particularly in Florida, but we welcome contributions from our out-of-state colleagues too. We accept informative articles, summaries of scientific papers, and editorial reviews that focus on aquatic plant management, aquatic wildlife, or related topics. Articles that clearly advertise specific products or technologies will not be accepted unless coauthored by an impartial party (such as a university or public agency) and worded in such a way as to inform the readers without necessarily soliciting purchases of said products or technologies.

We encourage you to submit articles regarding techniques, "tips of the trade", equipment reviews, research in process, helpful web sites, summaries of scientific papers, or any information associated with aquatic plant management. Think you're a bad writer? Don't worry, we can help — send your article and we'll clean it up for you.

Submission Guidelines

Article files

Please email your article (MS Word file, please) to the Editor. All material submitted for possible publication in *Aquatics Magazine* will be reviewed by the Editor for relevance to the magazine and its readers and will be copy-edited as needed. All material should include author and co-author name(s), affiliation, and email address. You can include your phone number and mailing address if desired, but it is not required.

Pictures, graphs and other images

We welcome pictures, especially when they help to tell the story. All images must be high-resolution (typically with a file size 2Mb or greater). If you are unsure about the resolution of an image, please send it to the Editor and we will determine whether it will reproduce well. *Aquatics Magazine* is professionally formatted by a graphic designer so it is not necessary to provide articles in a design layout unless you wish to do so for the purposes of position and clarity. Images may be embedded in the Word document to indicate positioning but they should also be submitted as separate files. Please be sure to provide captions and credits and please label image files appropriately.

Cover photos

All images submitted for the cover of *Aquatics Magazine* should list photographer's name, affiliation, contact information, and provide a description of the photograph (where, when, comments). Payment is not provided for the use of cover photographs.

Editorial Calendar

Quarterly Issue	Submission Deadline
Spring	February 1
Summer	May 1
Fall	August 1
Winter	November 1

Please send all submissions to the Amy Giannotti, *Aquatics Magazine* Editor, at aquaticsmagazine@gmail.com

Thanks — we're looking forward to reading your submission!

2019 Calendar of Events

February 4-8
Florida Mosquito Control Association Dodd Short Course (Gainesville, FL)
https://floridamosquito.org/Public

February 11-14
Weed Science Society of America Annual Meeting (New Orleans, LA)
http://wssa.net/

February 25-28
39th Annual Meeting of the Midwest Aquatic Plant Management Society (Chicago, IL)
http://www.mapms.org/

February 28
South Florida Aquatic Plant Management Society General Meeting (location TBA)
http://sfapms.org/

March 4-5
Florida Weed Science Society (Haines City, FL)
https://sites.google.com/site/floridaweedsciencesociety/

April 8-12
Florida Vegetation Management Association Annual Conference (Daytona Beach, FL)
https://www.myfvma.org/

May 6-9
University of Florida IFAS Aquatic Weed Control Short Course (Coral Springs, FL)
http://conference.ifas.ufl.edu/aw/

June 13
South Florida Aquatic Plant Management Society General Meeting (location TBA)
http://sfapms.org/

July 13-17
Aquatic Plant Management Society 59th Annual Meeting and Western Aquatic Plant Management Society Joint Meeting (San Diego, CA)
http://www.apms.org/

September 26
South Florida Aquatic Plant Management Society General Meeting (location TBA)
http://sfapms.org/

October 14-17
Florida Aquatic Plant Management Society 43rd Annual Training Conference (St. Petersburg, FL)
http://www.fapms.org/

October 27-31
21st International Conference on Aquatic Invasive Species (Montreal, Quebec)
https://www.icais.org/

Need CEUs but don't see anything that fits your schedule? Visit the FDACS website and search for available CEU classes here:

http://aessearch.freshfromflorida.com/AvailableClassSearch.asp.

For more information about licensing, certification and finding Florida CEUs, check out "CEUs just for you" in the Summer 2014 issue of *Aquatics* magazine (http://fapms.org/aquatics/issues/2014summer.pdf)

They're everywhere…

Where there are people, there are invasive species. Where there are boats, those invasive species are aquatic plants. While in Ireland for a conference in September 2018, Ian Markovich and Lyn Gettys encountered *Nymphoides peltata* in Lough Leane (County Kerry) in Killarney National Park in southwestern Ireland. All photos courtesy Ian Markovich; map from Biodiversity Ireland/National Biodiversity Data Centre https://species.biodiversityireland.ie/profile.php?taxonId=29307&taxonName=nymphoides