Aquatics

WINTER 2012

A Publication of the Florida Aquatic Plant Management Society

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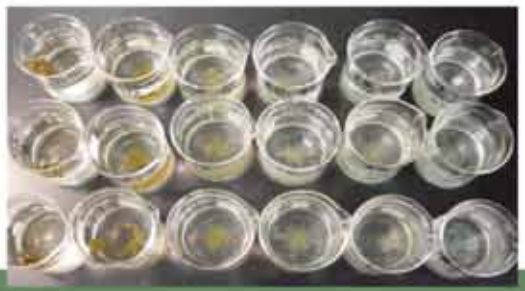

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Brown ducks on the run? See article page 18.

Steve Nutter, SFWMD, took 1st place in the Vic Ramey Photo Contest, Operations Category with "Let Us (Lettuce) Reflect" featuring applicator Heith Crum (Applied Aquatic Management – Lakeport) on 10 Mile Creek.

Contents

To become a member of FAPMS and receive Aquatics magazine, please visit the website at: www.fapms.org

The mission of FAPMS is "To Preserve Florida's Aquatic Heritage." FAPMS was formed in 1976 and provides a forum for those interested in aquatic plant management to meet, discuss and exchange ideas and information.

FAPMS 2012 Board of Directors

Officers

BOARD OF DIRECTORS

FAPMS 36th Annual Training Conference —through the eyes of a past president

by Jerry Renney

Well, the dust has settled and the fallout is mostly complete from what appears to have been another successful Annual Meeting and Training Conference of the Florida Aquatic Plant Management Society.

In spite of continuing travel restrictions and difficult economic times, the final registration count stands at 309. In addition, the conference was blessed with over 30 sponsors and 28 vendors. In a rare display of support, we also had two Grand Sponsors—**Helena Chemical** and **UPI LLC**. Without these people and businesses, none of this would be possible and their continued support is one of the driving forces behind our successful Society.

This year it was truly an honor to serve as president of the Society. If for no other reason, I was afforded the opportunity to present two awards that were very special to me. At this year's conference the Society presented **Carlton Layne** with an **Honorary Lifetime Membership**. Already a Charter Member, Carlton served as President of the Society in 1983 and has never failed to support us since in any capacity. His easy conversation and wit while instructing us all has proven to be a mainstay of our annual meetings. I also was personally proud to present a **Presidential Award** to **Don Doggett** for his many years of service to the Society. In the 36 years of FAPMS, Don has attended every annual meeting except one, sometime in the 1970s, and who really remembers the '70s? He served as President in 1996, has

Don Doggett

served as a Board member, as Secretary and for the past 10 years as President of the FAPMS Scholarship Foundation. Just before this year's Annual Meeting, Don let us know he would be retiring from his day job and would most likely be stepping down from some of his responsibilities to the Foundation. It truly was a pleasure to present this award to him and it is my hope that he can move on to other things knowing that what he did for us and the Society will not be forgotten.

The feedback I've received regarding the meeting has been mostly positive. The presenting speakers were very informative and, despite some last minute schedule changes beyond our control, the program ran very smoothly. Thanks again to **Mike Hulon** and the **Program Committee**. With several new products available to us and a few new target species, there was much to discuss and we still have not touched on all of it. Next year already promises to be an exciting time in the industry. One of the best papers this year was presented by **Bryan Finder**, an applicator with Polk County. Bryan's paper, "Alternative Herbicides for Hyacinth and Lettuce Management" was absolutely cutting edge with regards to aquatic plant management. For his efforts Bryan won the **Best Applicator Paper of the Year** award and $300. His paper can be read on page 6 of this issue.

After a lull in nominations for the **Aquatic Plant Manager of the Year Award** in 2011 we had several to choose from this year. In the end the Awards Committee judges named **David Dove**, from the City of Weston, Aquatic Plant Manager of the Year. His well-rounded participation in all aspects of the industry along with a 26 year career made him a very deserving choice. Congratulations to David and thanks to those that nominated him for their participation in this prestigious award presentation.

I was also pleased to see several participants in the annual **Vic Ramey Photo Contest**. I know many of the photographers personally and they were very excited to be able to showcase their photos. One of the perks of the job is the benefit of being able to see things in the outdoors that very few have the opportunity to witness. Actually being there to capture that rare photo reminds us of that and I am glad applicators and plant managers are kind enough to share their photos with us to continue the competition. First prize in the **Aquatic Operations** category went to **Steve Nutter** from the SFWMD and his photo is featured on the cover of this issue. First prize in the **Aquatic Scene** category

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President Elect James Boggs and Past President Jerry Renney

went to **Jeff Schardt** from the FWC Invasive Plant Management Section. See all winning photos on pages 16-17 of this issue.

The annual Duck Race to raise funds for the Scholarship Foundation was once again a big success and all of the ducks sold out early. **Bob Blackburn and the Future Horizons** crew once again made it all possible by supplying the implements necessary for the competition with the exception of the Calvin. **Calvin "The Wonder Walrus" McClary** came courtesy of **Texas Aquatic Harvesters** who also donated the shotgun as one of several prizes for the event.

Tina Bond

James Godfrey

I would also like to send out a personal thanks to the outgoing officers. **Tina Bond** continued her term as Editor of *Aquatics* magazine even though a job change pulled her from the industry. She, along with the Editorial Committee, worked harder than many will ever know to produce this publication. I wish her all the best. Outgoing Board members **Ed Harris** and **James Godfrey** provided crucial input at every Board meeting. James had many scheduling difficulties but always managed to overcome them to fulfill his service. And Ed could always be counted on to stay on task and get the tough work done. The other outgoing Board member is really not going out at all. **James Boggs**, although completing his three year Board term, is now **President Elect** so we can look forward to his assistance for at least three more years.

As for me, I'm still here and looking to fulfill my next obligation of nominations for next year's slate of officers and directors. See you in 2013.

JCR

Alternative Herbicides for Water Hyacinth and Water Lettuce Management

By Bryan Finder
Photos by the author.

This paper won the Applicator Paper Award at the FAPMS 36th Annual Training Conference.

Photo by Sherry Burroughs

For quite some time I had been anxious to see for myself the effects that some of these "new to us" herbicides would have on floating plants. This past spray season I had the opportunity to set up some herbicide evaluation plots to determine whether some of these chemicals could be used to our advantage here in Polk County.

Lake Arbuckle

On Lake Arbuckle, there is a section on the eastern shoreline that is dominated by bulrush. Also found within this area are spatterdock (nuphar), cattail, duck potato, Cuban bulrush, water hyacinth and water lettuce. We applied 4 oz. of Galleon (penoxsulam) per acre to several swaths of this plot by helicopter. We evaluated the impacts on all species 50 days later and several things were evident. First, water hyacinth was definitely impacted the

Lake Arbuckle on March 29 2012, approximately 30 days after treatment. Area treated with 4 oz. of Galleon (penoxsulam) per acre. Water hyacinths in foreground were not treated.

Lake Arbuckle on May 7 2012. Same area 17 days after re-treatment with 4 oz. of Galleon plus 8 oz. of Clipper per acre.

Lake Arbuckle on June 19 2012, approximately 3 days after an application of 4 oz. of Galleon and 4 oz. of Clipper per acre.

Lake Arbuckle on October 5 2012, 3 months and 19 days after application of 4 oz. of Galleon and 4 oz. of Clipper per acre.

most severely. Treated plants were brown, wilted and appeared dead with no signs of regrowth, but they had not yet sunk to the bottom. Water lettuce was also damaged, although not as drastically as the hyacinth, and was beginning to show signs of regrowth. Spatterdock was showing some minimal impacts; however, there was a simultaneous Sonar (fluridone) treatment taking place on the lake for hydrilla management and fluridone can potentially damage spatterdock.

After re-evaluation of the plot, we decided to add 8 oz. of Clipper (flumioxazin) to the mix in hopes of taking out the water lettuce without harming the bulrush. Within 10 days of this application, there was no live water lettuce left in the treatment area. It was also evident that the addition of 8 oz. of Clipper resulted in serious impacts to the spatterdock. We have since learned that a lower rate of Clipper (4 oz. or less) would cause some damage to spatterdock, but treated plants would generally rebound within a few weeks. Cattails treated with this mix suffered some browning, but within 24 days had started to turn green again. We hoped to measure the effects of this mix on Cuban bulrush and some browning was initially observed, but a storm flushed the Cuban bulrush out of the treatment area. Due to dramatically rising water levels, we were not able to document whether this mix will control duck potato, but we observed minimal impacts to this species.

My observations of 4 oz. of Galleon with 8 oz. of Clipper (flumioxazin) per acre were:

- No severe impacts to bulrush
- Minimal browning on cattails
- Controlled spatterdock; lower the rate of Clipper if spatterdock control is not desired
- Cuban bulrush – unknown
- Duck potato – unknown
- Controlled water lettuce
- Controlled water hyacinth, but is considerably slower than 2,4-D or diquat
- Small water hyacinths are impacted more rapidly than large ones

Lake Rosalie

Next we moved to Lake Rosalie where we evaluated 14 oz. of Clearcast (imazamox) and 4 oz. of Clipper (flumioxazin) mixed in 100 gallons of water and applied by airboat to treat one acre. The plant species found within this area were water hyacinth, water lettuce, cattail, bulrush, pickerelweed, fuirena,

Lake Arbuckle on April 20 2012. Day of treatment with 4 oz Galleon and 8 oz Clipper (flumioxazin) per acre.

Lake Arbuckle on May 4 2012. 14 days after application of 4 oz. of Galleon and 8 oz. of Clipper per acre.

Lake Arbuckle on May 21 2012, 31 days after application of 4 oz Galleon and 8 oz Clipper per acre.

Lake Rosalie. Area treated with 14 oz. of Clearcast (imazamox) and 4 oz. of Clipper (flumioxazin) with 100 gallons of water per acre on April 26 2012.

Lake Rosalie, same area on June 19 2012, 54 days after application.

Lake Rosalie, same area on October 5 2012, 5 months after application. Brown pickerelweed is the result of a separate herbicide application and not a lasting result of the evaluation application.

maidencane, knotgrass, torpedograss, phragmites, buttonbush, spatterdock and smartweed.

We evaluated the plot 23 days after treatment and noticed several major effects. Water lettuce was controlled, and several other species were showing severe impacts: water hyacinth, cattail, pickerelweed, phragmites, smartweed, fuirena and buttonbush. There was only a small amount of bulrush within the plot and these plants were only minimally impacted by the treatment. We also noted that spatterdock, maidencane, torpedograss and knotgrass had rebounded nicely within this 23 day timeframe.

I visited this plot five months later and made additional observations. Water hyacinths, water lettuce, cattail, pickerelweed and smartweed were all controlled with no signs of regrowth. New water hyacinth and water lettuce plants were found, but they had blown into the area by the wind and were not regrowth from plants that had been treated. The fuirena that had been severely impacted or controlled a few weeks after the treatment was growing back from the bottom of the lake. One small patch of phragmites that was treated had small green shoots coming up near the base of the plant five months after treatment. The rest of the species mentioned survived nicely and showed no signs of negative impacts.

My observations of 14 oz. of Clearcast with 4 oz. of Clipper per acre were:

- Controlled water hyacinth and water lettuce
- Controlled cattails
- Controlled pickerelweed
- Controlled smartweed
- Very severe impacts (perhaps to the point of control) on fuirena and phragmites
- Temporary impacts on spatterdock
- Temporary impacts on torpedograss
- Very minor impacts on knotgrass and maidencane
- Very minor impacts on bulrush
- As observed with the Galleon plot, water hyacinth control takes longer than when treated with 2,4-D or diquat
- Small water hyacinths are impacted more rapidly than larger ones

Lake Tiger

The final treatment was on Lake Tiger where I evaluated the effects of a mix of 4 oz. of Clipper

(flumioxazin) and 0.50 gallons of 2,4-D in 100 gallons of water per acre. Species present in this plot were maidencane, knotgrass, spatterdock, cattail, pickerelweed and *Ludwigia grandiflora* (largeflower primrose willow). Given our long history of 2,4-D use in the aquatic industry, there are a few things that are "givens" when using this mix; for example, fairly quick results are expected when water hyacinths are treated, and species such as bulrush and spikerush will be controlled. Within 5 days of application, water lettuce was controlled and there were visual impacts on water hyacinth, knotgrass, spatterdock and largeflower primrose willow, as well as a slight grayish color on the pickerelweed. Minor impacts were evident on cattail and maidencane. Within three weeks, all species except water hyacinth and water lettuce were green and recovering or fully recovered.

My observations of 4 oz. of Clipper (flumioxazin) with 0.50 gallons of 2,4-D per acre were:

- Controlled water hyacinth and water lettuce
- Controlled bulrush and spikerush (as expected from past experience with 2,4-D)
- Temporary browning on knotgrass
- Minimal impact on cattail
- Minimal impact on maidencane
- Minor temporary impacts on spatterdock and largeflower primrose willow

I do NOT suggest planning a large-scale treatment based on my observations alone, as we use these newer herbicides at very low rates and any variation in the rate is likely to have an impact on the efficacy of the treatment. Timing of the application could also affect your results. I suggest talking to Dr. Michael Netherland with the US Army Corps of Engineers and the University of Florida before undertaking treatments such as these as he has vast knowledge of these herbicides and has studied them extensively.

I would like to thank Dr. Michael Netherland and Dean Jones for sharing their knowledge with me and helping me determine the appropriate rates for my evaluation plots. I would also like to thank FWC Biologist Danielle Kirkland for her confidence in me and her support of this project.

Bryan Finder, Lead Environmental Technician, Polk County Invasive Plant Management; 863-534-7377; bryanfinder@polk-county.net

Lake Tiger the day of application, May 7 2012. This area was treated with 4 oz. of Clipper and 0.50 gallons of 2,4-D in 100 gallons of water per acre.

Lake Tiger 7 days after application, May 14 2012.

Lake Tiger 28 days after application, June 4 2012.

Registration of Herbicides for Aquatic Use

By William T. Haller

The Federal Environmental Pesticide Control Act of 1972 amended the Federal Insecticide, Fungicide and Rodenticide Act (1947) to add pesticide regulatory authority to the newly formed US Environmental Protection Agency (EPA). Among many subsequent changes in pesticide regulation was the requirement for new studies to be conducted and submitted by the agrichemical industry to EPA for evaluating the potential for a pesticide to pose "adverse risks to man and the environment." Many new studies were required to evaluate these risks and all registered pesticides were to be re-registered every few years as technology improved and new studies were developed and required by the EPA.

Several herbicides used by aquatic applicators in the early 1970s were not re-registered by industry due to the high cost of conducting the required studies and the relatively small market for these niche products. Several were "old products" and were either off patent or only had a short patent life remaining in which registrants could recoup the costs of aquatic registration. Some older readers may remember using dicamba, dichlobenil, dalapon, amitrole, low volatile esters of 2,4-D, simazine and fenac to list a few. In fact, the US Department of Agriculture (USDA) laboratory in Fort Lauderdale, FL and the US Army Corps of Engineers laboratory in Vicksburg, MS conducted screening programs in cooperation with the agrichemical industry to determine possible herbicidal activity to control the major aquatic weeds. In the late 1970s and early 80s, most small chemical companies folded because they could not bear the high cost of pesticide registration or re-registration, and even the large companies ceased screening herbicides for aquatic use due to the small market potential.

The small market potential in the fruit and vegetable markets also affected the availability of pesticides to these "minor use" or low acreage crops even in the 1950s and 60s. Major agrichemical companies saw significant market potential in the millions of acres devoted to the corn, soybean and small grain markets in the US and internationally. In response to concerns for "minor use" growers, Congress appropriated funds to the USDA in 1963 to develop the Interregional Research Project No. 4 (IR-4 Project) in which the USDA, in cooperation with agriculture colleges throughout the US, would develop and determine pesticide residue levels in minor use crops (see IR-4 box). There was no such assistance available to non-food producers such as aquatic weed or mosquito control programs. Combined with changes in registration requirements by the EPA in the 1970s, pesticide availability to aquatic and mosquito control programs rapidly decreased over time. Public Health Pesticides were added to the responsibilities of the IR-4 Project in 2008.

By the mid-1980s, there were only six herbicide active ingredients still registered by the EPA for aquatic weed

The IR-4 Project

In 1963, the US Department of Agriculture (USDA) received funding from Congress to develop the Interregional Research Project No. 4 (IR-4) to assist in the development and registration of pesticides used on "minor crops." The USDA was responsible for the registration of pesticides since the US Environmental Protection Agency (USEPA) would not be established until 1970. The agrichemical industry expended the vast majority of their research and development efforts on pesticide products for major crops such as corn, soybeans, and cereal grain, with little effort towards pesticide registration for small acreage crops. The IR-4 project primarily conducts field trials and pesticide residue analysis on pesticides with high potential for use on minor crops. The purpose of these studies is to determine the extent or magnitude of pesticide residues and any metabolites in or on food crops that would potentially pose a threat to human health. Research projects are conducted in several locations around the country depending upon where specific crops are produced. These studies are conducted by USDA and university scientists and at several land grant or agricultural colleges under strict guidelines established by the EPA. These studies and all residue analyses are conducted using "Good Laboratory Practice" and "Quality Control/Quality Assurance" standards in laboratories analyzing pesticide residues. These independent studies follow strict and very specific study protocols and are often conducted by different scientists in different regions of the country.

The IR-4 project has been responsible for the registration of hundreds of pesticides for use in minor crops throughout the US since 1963. In 2008, the IR-4 project was expanded to include "Public Health Pesticides" to their responsibilities. This is a cooperative effort between the Department of Defense, USDA and the IR-4 project and is justified by the concern over potentially serious public health effects from insect-vectored diseases as well as for protection of US military and civilian personnel stationed overseas.

For more information on the IR-4 programs, Google IR-4 or visit the website at http://ir4.rutgers.edu. The IR-4 project is coordinated by Rutgers University, the land grant college in New Jersey.

control (Table 1). Even worse, since it required (and still does) many years to conduct all the studies needed for a new pesticide to be registered, essentially all the remaining agrichemical companies were no longer even screening herbicides for use on aquatic weeds. This hiatus lasted for over 20 years when, between the registration of glyphosate (1978) to the registration of triclopyr (1999), only one new aquatic herbicide (fluridone) was registered for aquatic use. Research on fluridone began with its discovery in 1974 and it took 11 years for its final approval for aquatic use in 1986.

During this 20 year span, the majority of aquatic weed control was accomplished with these six active ingredients. Although some weeds were difficult to control (such as hygrophila, watermeal, lyngbya and other relatively minor weeds), in general the major weeds listed in Table 1 could be controlled by the six registered products. There was certainly little opportunity to alternate modes of action to manage against herbicide resistance. In fact, few weed scientists felt that development of herbicide resistant aquatic weed populations was likely since their spread and survival is primarily by vegetative reproduction.

By the late 1990s hydrilla was the major aquatic weed in Florida and it was spreading north to the Tennessee Valley, west into Texas and even California, and east into Virginia. In some years, Florida allocated over $15 million for fluridone treatments to control hydrilla in public lakes, with additional use of this product in numerous private lakes and ponds. In 1999-2000, it became evident that fluridone was no longer effectively controlling hydrilla in several lakes, most notably in the Kissimmee Chain of Lakes, and several fluridone resistant hydrilla populations were confirmed. Within a few years, diquat resistant populations of *Landoltia* (duckweed) were confirmed and, most recently, endothall resistant hydrilla was reported (and hopefully eradicated).

Thus, herbicide resistance among several vegetatively reproducing or clonal populations of aquatic weeds was documented and likely occurred because the aquatics industry had so few modes of action for aquatic weed control.

Several meetings and field trips were held with Florida weed managers, regulatory officials (EPA and the Florida Department of Agriculture and Consumer Services) and the agrichemical industry to provide information on the severity of herbicide resistance issues in Florida and to develop plans for evaluating and registering new modes of herbicidal action for aquatic use. Since most herbicides developed since the mid-1980s have not been evaluated for aquatic use, a screening program was needed to identify potential candidates. Part II of this discussion will follow in the next issue of *Aquatics*.

Dr. William Haller, University of Florida-IFAS Center for Aquatic &Invasive Plants, Gainesville, 352-392-9615, whaller@ufl.edu

Table 1. The six active ingredients registered for aquatic use in natural waters of the US between 1980 and 2000. Some aquatic herbicides have various salts or formulations available, but the mode of action (MOA) is the same and depends upon the active ingredient.

Herbicide	Date Registered	MOA	Primary Use
Copper	Early 1950s	Unclassified	Algae control and as a contact herbicide, often with diquat for hydrilla control.
Endothall	Early 1950s	Unclassified	Contact herbicide used for submersed weed control, particularly for hydrilla control. Amine salt has algaecidal activity.
Diquat	Early 1950s	PSI	Floating weed control as well as control of submersed weeds. Only product widely used on water lettuce and commonly used on duckweed.
2,4-D	Early 1950s	Auxin	Broadleaf weed control, particularly water hyacinth in the south, submersed Eurasian watermilfoil control in the north.
Glyphosate	1978	EPSP	No submersed activity, emergent grass control, torpedograss, cattail, reed canarygrass, phragmites.
Fluridone	1985	Carotenoid inhibitor	Widespread use for whole lake/pond treatments for hydrilla, Eurasian watermilfoil and other submersed weeds.

Unclassified: may have multiple impacts on plants.
PSI: inhibits photosystem I; photosynthesis.
Auxin: acts as a hormone affecting plant growth.
EPSP: inhibition of enzymes in amino acid synthesis.
Carotenoid inhibitor: inhibits production of the plant pigment carotene.

PLANT CAMP:

Changing Awareness and Acceptance of Invasive Plant Management with Grassroots Support

By Amy Richard

PLANT CAMP is an annual 5-day workshop for school teachers, hosted by the UF-IFAS Center for Aquatic and Invasive Plants (CAIP). The objective is to generate increased interest in the topic of invasive plant management and to provide background information and hands-on experience so educators can teach the material with confidence. To date, more than 300 teachers have participated in the workshop and well over 20,000 students have been reached with invasive plant lessons/activities.

Survey results from this year's workshop (held June 17-21, 2012) suggest the event continues to raise awareness and even greater acceptance of invasive plant management methods. Ever since CAIP began hosting the workshops, we've used pre- and post-tests to determine if participants were experiencing gains in knowledge about invasive plants. For the past two years, we've also taken the opportunity to ask questions about awareness and acceptance of various aquatic plant management methods and strategies. The results were surprising and encouraging.

When asked if the teachers agreed or disagreed with the *necessity* to control aquatic invasive plants using herbicides, mechanical, biological and physical control (respectively), they responded with a major shift into the "agree" and "strongly agree" categories *after* the workshop, whereas pre-workshop survey responses were divided across all response categories (i.e., strongly agree, agree, neither agree nor disagree, disagree, strongly disagree or don't know). Even more surprising were results on the question of whether they favored or opposed use of these same four control methods. Pre-test survey responses were split across the possible responses (i.e., strongly favor, somewhat favor, neither favor or oppose, somewhat oppose, strongly oppose or don't know) for all four methods. However, when posed with the same question after the workshop (i.e. Do you favor or oppose the use of the following aquatic plant management control methods...) post-test surveys showed that a majority shifted into the "somewhat favor"

and "strongly favor" columns for the herbicide category; in fact, the "strongly favor" responses jumped from 4.3% to 65.2%. The biological control category showed similar changes in attitude in the post-test survey: "strongly favor" responses increased from 41% to 87% and "strongly opposed" responses fell from 22% to 0%. The number of teachers "somewhat opposed" to the use of biocontrol in the pre-test fell from 30.4% to 8.7% after attending PLANT CAMP.

Follow-up is needed to see how teachers are sharing their new knowledge with students and colleagues (96% said they plan to teach about aquatic invasive plants during this academic school year). However, it is affirming to learn that education and outreach efforts can make a difference in attitudes about plant management, even among those who began their PLANT CAMP experience with strong opinions against specific control methods.

The results are a testament to those individuals and groups who have been willing to invest in outreach and education. Seven years after its infancy, the UF/IFAS Florida Invasive Plant Education Initiative enjoyed more grass-roots support than ever for its 2012 workshop. Adding to the continued long-term funding from the Invasive Plant Management Section of the Florida Fish and Wildlife Conservation Commission, nine organizations provided co-sponsorship or in-kind donations. Mid-day meals, energy snacks, hydrating drinks, an airboat field trip, a charter bus, conference room costs, and PLANT CAMP t-shirts were made possible with the additional outside support. This type of cooperation has been a tremendous help in stretching dollars and enabling us to continue to provide a quality experience for participating teachers, even during a time of serious budget cuts.

Generous support from the Florida Aquatic Plant Management Society (FAPMS) allowed us to provide a hearty lunch after the aquatic plant field trip to Lake Toho in Osceola County, as well as t-shirts for participants and presenters—this was "icing on the cake" (and a great way to continue promoting the workshop year-round).

Additional partner organizations this year included the national APMS, Mid-South APMS, Aquatic Ecosystem Restoration Foundation and United Phosphorus, Inc. In-kind sponsors included Boggy Creek Airboats, Kanapaha Botanical Gardens, UF-IFAS Osceola County Cooperative Extension Office, and the Cabot Lodge. Participants continue to be greatly appreciative of the extra support and level

of commitment from professionals in the invasive plant management arena and are responding with similar dedication toward teaching the topic in the classroom. With such strong community support, UF-IFAS CAIP will continue to provide invasive plant learning opportunities for teachers, as well as hands-on materials and curricula.

As one teacher said in her post-workshop evaluation, *"I am leaving today feeling very prepared to educate my students and co-workers on what I have learned these past few days."*

For more information about the Florida Invasive Plant Education Initiative or PLANT CAMP, contact Amy Richard at arich@ufl.edu or visit the website at http://plants.ifas.ufl.edu/education/

⇨

Author's note: Doug attended PLANT CAMP 2010, where he portrayed "Eradicator Man" in a short video produced by teachers during a workshop. View it at: plants.ifas.ufl.edu/education/plant_camp/2010/2010_plant_camp_video.html or on YouTube: www.youtube.com/watch?v=XAr3GjMLHXw

Eradicator Man!

By Doug Smith — A 4th grade teacher in Seminole County

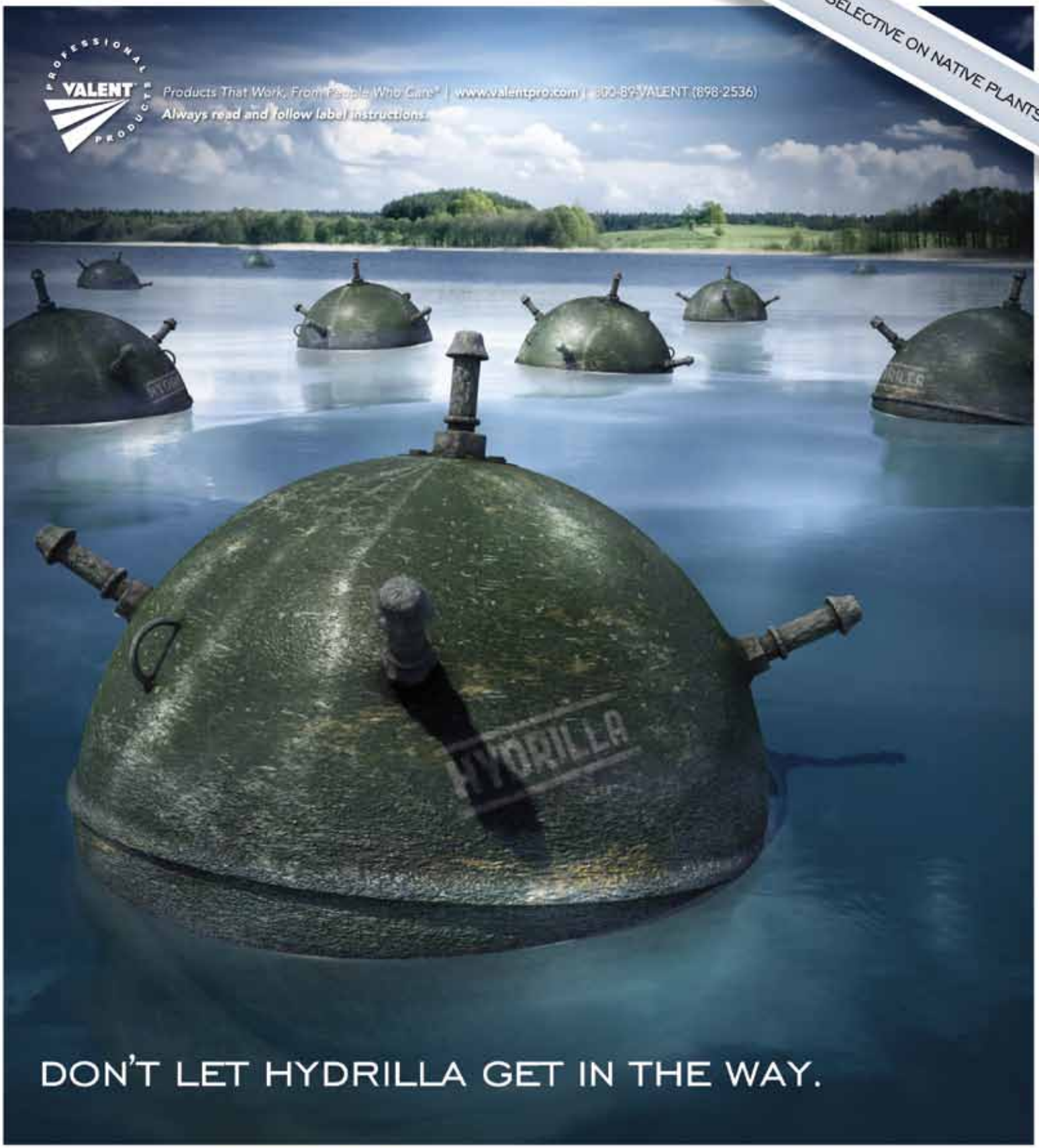
Three summers ago I was just a mild-mannered science teacher, but after having the pleasure of attending the University of Florida-IFAS PLANT CAMP workshop for teachers, I became Eradicator Man! My mission is to eradicate the lack of knowledge that Florida students have about invasive and non-native plants, both aquatic and terrestrial.

Since all materials from the PLANT CAMP workshop correlate to Florida's Next Generation Sunshine State Standards*, I have been able to take these incredible resources and the knowledge I gained into the classroom to share with my students. I help them make personal connections to that knowledge and teach them that these invasive plants can be in their own backyards.

Whether teaching 8th graders in the Panhandle about kudzu, or teaching 4th graders in Orlando about hydrilla, my mission has been a success. Just three weeks ago, through a partnership of APMS and UF-IFAS, my classroom was presented with the Lakeville natural resource management activity—a great hands-on, high engagement tool that gets kids talking about the environment and the many factors impacting their local habitats–both positively and negatively. My students were thrilled with Lakeville!!

All of these resources help create educated students which, in turn, creates better stewards of our environment. Thank you for your continued support and know that your support is invaluable to Florida's classroom teachers.

*The Next Generation Sunshine State Standards are broad statements that describe the knowledge or ability that a student should be able to demonstrate by the end of every grade level from first through twelfth grade. They identify the essential knowledge and skills that students should learn and for which the state holds schools accountable.



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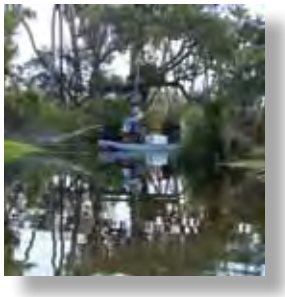
FAPMS 2012 Vic Ramey Photo Contest Winners



1st place, Aquatic Operations category, was won by Steve Nutter, SFWMD, with "Let Us (Lettuce) Reflect" featuring applicator Heith Crum (Applied Aquatic Management – Lakeport) on 10 Mile Creek. This photo is featured on the cover of this issue.

2nd place, Aquatic Operations category. "Who says it don't get cold in southern Florida?" by MacKenzie Lewis, Applied Aquatic Management. Our crew in the Loxahatchee Refuge waiting for the fog to clear in November 2011 with temperatures in the low 30s. My co-workers: Mr. Ernie W. (seen in front), David, Danny, Wade, Gabe, Mike, myself, Mike, and Tim.

3rd place, Aquatic Operations category. "Thank God, it floats!" by John Farrell, President of FloridAquatic, Inc. I needed to get to the other side of a weir in the community of Rotonda so I simply drove up one side and when the machine went off the other side, this is what it looked like.

This photo shows a gar fish jumping over the same weir and you can see the concrete wall that the machine climbed over.

1st place, Aquatic Scene category. "Standing Guard" by Jeff Schardt, FWC. A juvenile snail kite at the Okeetantie (northwest) boat ramp of Lake Okeechobee on September 12, 2012.

Photo tips:

Unfortunately we are sometimes forced to reject interesting photos because they are "low-res," meaning low resolution. This means that the file size of the photo is too small to look good when printed, or it will only look good if printed as a very small image. Compare it to painting a very large wall with just a quart of paint. Either you will only have enough paint to cover a small area of the wall, or the paint on the entire wall will be so thin that you will barely be able to see it. You can only cover a small space with a quart of paint, and you can only print a small picture with a low-res photo.

Tip 1: Most digital cameras have a setting called megapixels (MP) that determines the file size of the picture. The higher the setting, the better, but as a rule of thumb, setting your camera to at least 5 megapixels will give you a file that can be printed in a magazine. After transferring your pictures to your computer, you can easily check the file size to make sure they are large enough by right-clicking on the image and selecting "Properties" (on PC) or "Get Info" (on Mac). The size of a 5 megapixel photo should be at least 1 MB or 1024 KB.

Tip 2: If you would like to photograph something for the cover of *Aquatics* magazine, please remember to turn your camera sideways or on its end. This will produce a taller, narrower image referred to as "portrait aspect" which is how the cover is viewed. Holding your camera in the normal position produces a "landscape aspect" photo which is wider than it is tall.

by Karen Brown and Charlie Bogatescu, University of Florida-IFAS Center for Aquatic & Invasive Plants.

Portrait aspect

Landscape aspect

2nd place, Aquatic Scene category. "Sunrise" by Wade Harper, Applied Aquatic Management.

3rd place, Aquatic Scene category. "Hyacinth at the Locks – Beautiful but Bad" by Kenneth G. Sonne, Jr., Lee County Hyacinth Control District.

36TH ANNUAL FAPMS TRAINING CONFERENCE HIGHLIGHTS

By Karen Brown
Photos by Sherry Burroughs

The annual FAPMS Training Conference includes some fun for members and their families, including some great contests, chance drawings and prizes. The annual duck races serve as a fundraiser for the FAPMS Scholarship & Research Foundation, Inc., which awards the Paul C. Myers Applicator Dependent Scholarship and the William L. Maier Jr. Memorial Scholarship. Members purchase ducks for the race, either yellow or brown, and races are held in the hotel pool. This year's winners of the yellow duck race were 1st place – **Polly Ellinor** with Helena Chemical who won an iPad; 2nd place – **Andrea Doggett** who won $100; and 3rd place – **James Joiner** who won $50. The brown duck race winners were 1st place –**Jennings Lyng** who won a 12 gauge shotgun; 2nd place – **Bob Greene** who won $100; and 3rd place – **Vernon Vandiver** who won $50. Recipients of the Applicator Dependent scholarship ($1,000 each) were **Tiffany Duke,** a senior at Florida Atlantic University and the daughter of **Dennis Duke** with Old Plantation Water Management District; and **Lyndon Thacker**, a senior at Florida State University and the son of **Dale Thacker** with the Lake Region Lakes Management District. The research scholarship ($1,500) was awarded to **Kyle Wilson**, a University of Florida Master's student in the Fisheries Department studying fish abundance and species composition in dense, surface-matted hydrilla.

The Grand Prize Winner at the Awards Banquet was **Kurt Ramsey** who took home a 46" flat screen TV. The Final Grand Prize Winner on the last day of the conference was **Mitchell Blankenship** who took home an iPad and a 12 gauge shotgun.

Many other prizes are given out at the beginning of presentation sessions and during the Awards Banquet. **Scott Glasscock** heads up the Awards Committee and does a great job of handling this task, which includes overseeing the Applicator Paper competition, the Aquatic Plant Manager of the Year nominations, and the Vic Ramey Photo Contest.

Speaking of Aquatic Plant Manager of the Year, we tracked down two more winners of this prestigious award that were not mentioned in the last issue of Aquatics magazine. **James Godfrey** received the award in 2010. James has also served on the board of directors for the last three years, finishing his term at the training conference. Thank you, James!

The other Aquatic Plant Manager of the Year who James helped us track down was **Thomas Boyette** who won the award in 2008. To see a list of all winners of this award, click on the **Awards** tab at www.fapms.org

Take the Training Conference Quiz!

1. Who presented the following slide:

Lessons Learned

Don't start a significant dye injection at night:

The lockmaster may decide to shut down the water flow.

A potential career ender.

Don't go into WalMart covered in **red** dye and try to buy bleach, rubber gloves, and rags:

You will be questioned by the police.

If you think you practice safe handling of herbicide:

Try the dye – it won't lie!

2. Who said, "I'm really proud of this molecule" (speaking of topramezone)?
3. Who said, "You can't kill a plant past dead."

The answers can be found elsewhere in this issue.

iPad winner Polly Ellinor with Don Doggett.

Andrea Doggett with her $100 cash prize.

Don Doggett calls the duck races.

Calvin McClary (the Wonder Walrus)

Scott Glasscock, Awards Committee Chair

Which way do we go?

Yellow ducks.

Brown ducks.

New! FAPMS license plates were provided to each attendee.

Shotgun winner Jennings Lyng with Don Doggett (left). Jim Vaughn (second from left) and Mikel Hulon (right) are with Texas Aquatic Harvesting and sponsored the prize.

A SPECIAL THANK YOU TO THE 2012 FAPMS ANNUAL TRAINING CONFERENCE SPONSORS

Sponsor Level	Organization
Grand	Helena Chemical Company
Grand	United Phosphorous Inc.
Diamond	Applied Biochemists
Diamond	Crop Production Services
Diamond	Sepro Corporation
Diamond	Syngenta Professional Products
Diamond	Winfield Solutions, Llc.
Platinum	Applied Aquatic Management, Inc.
Platinum	Biosafe Systems, Llc
Platinum	Clarke Aquatic Services, Inc.
Platinum	Clean Lakes, Inc.
Platinum	Texas Aquatic Harvesting, Inc.
Platinum	Valent Professional Products
Gold	Airmax Ecosystems
Gold	Alligare, Llc.

Sponsor Level	Organization
Gold	Applied Polymer Systems
Gold	Aqua Master Fountains And Aerators
Gold	Aquatic Eco-Systems, Inc
Gold	Aquatic Vegetation Control, Inc.
Gold	Biosonics, Inc.
Gold	Brewer International
Gold	Chemical Containers
Gold	Contour Innovations, Llc
Gold	Diversified Waterscapes Inc.
Gold	FloridAquatic Lake Management
Gold	Industrial Helicopters
Gold	Remetrix
Gold	Vertex Water Features
Silver	Allstate Resource Management, Inc.
Silver	Becker Underwood, Inc.
Silver	Nufarm

New Editor for *Aquatics*

Karen Brown from the University of Florida-IFAS Center for Aquatic & Invasive Plants has taken over the helm as Editor of *Aquatics* magazine after a fine performance by **Tina Bond**. Tina worked hard to get the magazine back on a quarterly schedule in her two years as Editor. She also added the popular feature, *Applicator Accolades*, which she hopes to continue as time permits. Karen has worked as Associate Editor with Tina for the past two years, and has worked in the Information Office of the Center for Aquatic & Invasive Plants for more than 20 years with such notables as Bill Haller, Ken Langeland, Mike Netherland and others. She also edits *Wildland Weeds* magazine for the Florida and Southeast Exotic Pest Plant Councils. Next year, expect **Lyn Gettys** from the UF-IFAS Fort Lauderdale Research and Education Center to take over as Editor after serving as Associate Editor this year. We plan to continue to provide the fine publication that *Aquatics* has been for more than thirty years. We welcome contributions of articles, stories from the field, letters to the editor, photographs and other news of interest to aquatic plant managers in Florida and around the country. Feedback about the magazine is also encouraged. Please contact us at aquaticseditor@gmail.com or (352) 273-3667.

FAPMS Training Conference Abstracts Online

For the first time ever, a Book of Abstracts was provided to all those who attended the FAPMS 36th Annual Training Conference. The book is also being provided as a PDF file online at the FAPMS website (www.fapms.org) — click on the **Conference** tab and select 2012. You may also view the 2012 Program. We would like to thank **Dr. Lyn Gettys** for providing the layout and design for the book, as well as the printing.

FAPMS Training Conference Photos on Facebook

View candid photos of the 2012 Training Conference on Facebook. Click on the **Facebook** link from the FAPMS home page (www.fapms.org) and then click on **Photos**. Who knows? Your photograph may be in there! (Note: You do not need a Facebook account to view the FAPMS Facebook page.)

Answers to Quiz

Dr. Michael Netherland
Dr. William Haller
Dr. Brett Bultemeier

Calendar of Events 2013

January 22-24

Northeast APMS
14th Annual Conference
Westbrook, CT
www.neapms.net/

February 4-7

Weed Science Society of America
53rd Annual Meeting
Baltimore, MD
www.wssa.net/

March 3 - 6

Midwest APMS
33rd Annual Conference
Cleveland, OH
www.mapms.org/

March 25-27

Western APMS
32nd Annual Conference
Coeur d'Alene, ID
www.wapms.org/

April 21-25

18th International Conference on Aquatic Invasive Species
Niagara Falls, Ontario, Canada
www.icais.org

May 6-9

UF/IFAS Aquatic Weed Control Short Course
Coral Springs, FL
www.conference.ifas.ufl.edu/aw/

June 17-20

Florida Lake Management Society
24th Annual Conference
Southeast NALMS Regional Conference
Daytona Beach Shores, FL
http://flms.net/

Too Many Weeds Spoil the Fishing

Exotic invasive aquatic plants such as Hydrilla, Eurasian Water Milfoil, Curlyleaf Pondweed, Water Chestnut and Water Hyacinth can be detrimental to a healthy fishery in lakes across the country.

These invasive plants when left unmanaged can alter the ecosystem of lakes and reservoirs, causing a decline in the fishery, as well as interfering with other valued uses of waterbodies.

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Successful aquatic habitat management is all about achieving a balance in the aquatic ecosystem. United Phosporus, Inc. offers assistance and a full line of aquatic products for properly managing exotic and invasive plants and algae to achieve and maintain a healthy aquatic environment for native aquatic plants.

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Hydrothol® 191 Aquatic Herbicide & Algicide
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