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A Texas Aquatic Plant Management Society Publication

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Texas Aquatic Plant Management Society Newsletter

On the Water

President's Update *Jordan Austin—San Jacinto River Authority*

As we have all experienced, Texas has seen an historical amount of rain this year. This was greatly needed from a water-supply perspective. It has also presented challenges and opportunities for aquatic plant managers. Many lakes that were extremely low have rebounded significantly. Lake Travis's lake level has increased approximately 45 feet, which is only 12 feet below normal level, something they haven't seen in years. Lake Conroe was at full pool of 201 ft/msl in the month of June, after we finally shut the gates, releasing continuously from May 11 - June 5. In fact, since January 1, 2015, Lake Conroe has released enough water to almost completely turn over the lake. However, as follows most large rainfall events, we've seen the need for increased aquatic plant management. Here on Lake Conroe, water hyacinth and giant salvinia have really taken off. Things are under good control this season; however, with the growing season still in full swing and with the potential for more substantial rains, we will continue to closely monitor the situation.

The TAPMS Board has been actively working to enhance our society's image and resource capability, as well as creating better opportunities for sponsorships and advertisements, in order for our society to support the aquatic plant management's industry and provide a valuable resource for aquatic plant managers to utilize. I am excited to announce that our website is in full operation, <http://www.tapms.org/>. This has been a tedious and burdensome task, but with the hard work and effort of our Board members, this has been a huge milestone to complete. The new website makes our society more attractive to consumers and business owners to visit, and hopefully become a member of TAPMS. The new features make it easier to navigate, easier to interpret where information is located, and is a great source for advertisement opportunities for any business owner. As with any website, new information is key to grabbing someone's attention and keeping it focused, we will be

updating the TAPMS website with the latest information available, as provided. I urge everyone to visit the website to learn about TAPMS and its Board members, access the newsletters, locate resources of information and sponsoring businesses, register for the conference and become a member, and contact the Board with any comments or new information. The Board has also created a new way to sponsor TAPMS, which will give your company the maximum amount of exposure with different levels of sponsorship, and give you the opportunity to place an advertisement on the website, make sure to visit the website for further details.

After searching for a great venue to host our next annual TAPMS conference, the Board has decided on Tapatio Springs Resort in Boerne, TX. This is a great venue, with lots of amenities, centralized location for everyone to access, and it's owned by George Strait, how much better can you get? I hope everyone is able to attend and take advantage of this great opportunity to visit amongst peers and develop professional relationships, listen to a vast variety of presentations on interesting topics related to the aquatic plant management world, and acquire your CEU's for your State applicators license. We will be hosting a golf tournament Monday October 12 at the Tapatio Springs Resort Golf Course, prior to the commencing of the conference, please sign up if you're interested, the information is on the website. As always, we are constantly searching for new innovative ways to outreach to new members and make the public aware of our existence, by staying involved as much as possible with different academia's and organizations. If you have any ideas please feel free to contact any Board member, you can find all contact information on the website. TAPMS can only be as good as its members and advisors make it to be, so keep up with the good I look forward to continuing to serve TAPMS, and I appreciate all the hard work everyone has contributed to make TAPMS the society it is today.

Texas Aquatic Plant Management Society

Annual Conference October 12-14, 2015

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All TAPMS members and others who are interested in aquatic plant management, biology or ecology, or who are involved in the protection, management and restoration of water and wetland resources, are invited to attend the 2015 TAPMS Annual Conference. Whether you work in the public or private sector, as an aquatic weed management professional, water resource manager, researcher, or regulatory official, the 2015 conference will deliver up to date information on aquatic weed management tools and techniques, recent technological advances, research results that are relevant to your work, laws and regulations, public outreach initiatives, and TAPMS business. TDA certified aquatic pesticide applicators will receive CEU credits for attending.

The 2015 TAPMS Annual Conference will be held on October 12-14, 2015, at Tapatio Springs Resort & Spa. Meals included in conference registration include: Tuesday breakfast, AM & PM breaks, lunch, and banquet dinner; Wednesday breakfast and AM break. TAPMS currently has rooms blocked at a discounted price of \$129/ night for the nights of October 12 & 13. Please contact Tapatio Springs Resort with the information provided below to make your reservations in advance and ensure you receive the accommodations you desire.

2015 TAPMS Conference Presentation “Sneak Peek”

Bryan Cook; LCRA: Highland Lake Aquatic Weed Control Program

Lake LBJ is a multiuse reservoir in the Highland Lakes chain of the lower Colorado River. It has experienced rapid expansion of Eurasian watermilfoil over the past 4 four years. LCRA and TPWD have worked to develop a management plan for the reservoir which implements a zonal system to streamline the treatment and notification process.

Lakeside properties on lakes LBJ, Marble Falls and Inks have designated herbicide treatment zones. These zones inform applicators and property owners when they can apply approved herbicides to manage aquatic plants. The zones also inform property owners when lake water may not be suitable for irrigation or potable purposes.

Dr. Michael Hare; TDA: A Perspective on Pesticides

My presentation will cover several general areas dealing with the toxicity to humans of pesticides and other chemicals. The initial discussion focuses on the differences in the terminology of science and that of art. We will look at specific phrases and words that may be helpful in differentiating facts from speculation. We will briefly touch on perceptions of science and pesticides. Following these concepts we will enter into a discussion of the science of toxicology in general and in terms of EPA's requirements for registration of pesticide products. We will discuss the concept of “dose” leading to specific comparisons between chemicals and species. This discussion leads us into the science of risk assessment and how EPA uses risk assessment in registration decisions. Throughout the talk, we will give some attention to perspective. Specifically, the idea is that maybe we can better grasp the relative risk of things we don't know so much about by comparing them to assessments of things which we are familiar. Finally, we will acknowledge that pesticides do not exist in a vacuum. To properly assess our vigilance to risk of synthetic chemicals, then we should assess our risk to naturally occurring chemicals also.

Terry Corbett; LNVA: Controlling Invasives by Season

Management approach to effectively controlling invasive species by season. Treatment timelines will identify significance of conditions such as water temperature, plant dormancy trends and frost damage of problematic species. Discussion of treatment success directly correlating to timing, growth habits and plant susceptibility.

Thomas Decker; TPWD: Biological Control 101

Biological control is the use of other organisms to control pest species. This presentation aims to give a brief overview of the types of biological control, the pros and cons of biological control, and the role of biological control in an integrated pest management strategy. Specific focus will be given to the salvinia weevil (*Cyrtobagous salviniae*) and its use in controlling giant salvinia (*Salvinia molesta*).

Dr. Mark Matocha, TDA: Drift Minimization

The drift minimization program will discuss the two basic types of drift: particle drift and vapor drift. Physical characteristics of spray solutions, factors that influence drift, and applicator influence on drift will also be discussed.

Chris S. Ulman, P.E., TCEQ: Texas Pesticides General Permit TXG870000

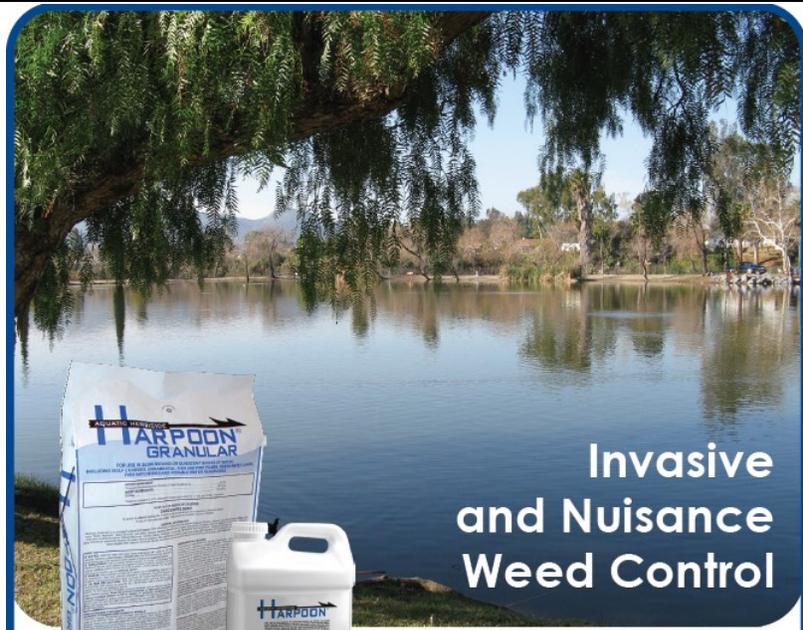
On January 9, 2009 the United States Sixth Circuit Court of Appeals upheld that Clean Water Act permits are required for all biological and chemical pesticides that leave a residue in water when such applications are made into, over, or near waters of the U.S. As a result of the decision, effective October 31, 2011, the discharge of pesticides must be regulated through the Texas Pollutant Discharge Elimination System program. On November 4, 2011 the Texas Commission on Environmental Quality issued a permit, TXG870000, authorizing the point source discharge of pesticides for the control of mosquito and other insect pests, vegetation and algae, animal pest, area-wide and forest canopy pests.

Ryan M. Wersal, Applied Biochemists (A Lonza Business), Alpharetta, GA
Use of Copper EDA for Aquatic Plant Management in Reservoirs in the Southern United States
Gray Turnage, GeoSystems Research Institute, Mississippi State University, Starkville, MS
Paul Westcott, Applied Biochemists (A Lonza Business), Phoenix, AZ
Harry Knight, Applied Biochemists (A Lonza Business), Cullman, AL

Copper EDA (ethylenediamine complex) has been a tool in aquatic plant management for many years primarily as a tank mix partner with diquat for control of hydrilla. Though effective, this combination tends not to be very selective in mixed aquatic plant communities. Over the past several years we have worked to establish use patterns for copper EDA treatments for hydrilla control in both small and large scale applications that could offer more selectivity than combination treatments. We have also established more non-selective use patterns for copper EDA treatments in drinking water reservoirs where nuisance relief of mixed aquatic plant communities is desired. In mesocosm trials, copper EDA liquid alone at both 0.5ppm and 1.0 ppm provided 80% control of hydrilla, while American lotus increased in biomass. These same concentrations provided 60-75% when applied under operational conditions in Pickwick Lake, AL. Copper EDA has been used in the Ross Barnett Reservoir, MS in a maintenance management program since 2010 where hydrilla has been kept to between 0.6 and 1.5% frequency occurrence with little to no tuber production. In California, a granular copper EDA was used in a 5 acre plot at a concentration of 0.75 ppm on a mixed native plant community resulting in 60-80% and nuisance relief. In this demonstration a differential response between species was observed; (from least tolerant to tolerant) *P. crispus*, *P. foliosus*, *M. spicatum*, and *P. richardsonii*. These small and larger scale treatments indicate that copper EDA can be used alone or in a rotational program for a variety of aquatic plant management situations.

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Texas Brigades and Plants for Waterfowl

Christopher Childress



For those unfamiliar with the Texas Brigade Program, it is a series of camps based on different game species. These camps are held each summer and teach youth about conservation, stewardship, natural resources, leadership, habitat, and animal management. One camp focuses on Waterfowl and here are some things I learned.

When managing habitat for waterfowl in Texas, remember ducks come to eat, not to nest. This means you need to manage for food, not cover. Knowing this, it helps to eliminate several invasive species of plants that will later be hard to eradicate such as woody plants like cattails and willows. While these make good hunting cover, it might not be worth it as they could take away nutrients from food producing vegetation.

The best food plants for waterfowl in a moist soil setting would be the ones with the most seeds. Plants like Walter's Millet, Barnyard Grass, and Smartweed varieties provide a lot of seeds.

Barnyard grass has 3,635 calories/kg and 7.56% protein which is great for a duck flying long distances. One should do their research on proper plants for their environment and intended use. It is ideal to manage for several key plants rather than many different plants that are of "fair" quality.

I hope this peaks your interest and you do more research for proper plants to attract waterfowl or whatever your goal. Please visit the TexasBrigades.com website for more information on the brigade program and thank you to TAPMS for being a valued sponsor.



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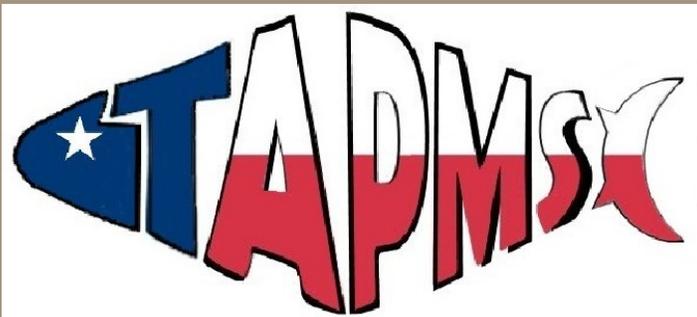
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Editor's Notes

All members and advertisers are welcomed and encouraged to contribute articles and information to the newsletter... Please contact Editor, Chris Smith for more information.

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Promoting Habitat and Healthy Reservoirs through Native Vegetation Restoration

Alice Best
Texas Parks and Wildlife Department
Inland Fisheries, College Station – Houston District

Native aquatic vegetation is a vital component to creating healthy ecosystems for fish, wildlife, and human recreation. It forms protective nurseries for juvenile and small forage fish, and important foraging habitat for fish of all sizes through growth patterns that provide interstitial space in colonies and a low density canopy. Native aquatic vegetation can even reduce turbidity through wave energy attenuation, erosion control, and stabilization of bottom sediments.

Unlike invasive species, most native species exist in a natural ecological niche within an ecosystem, meaning that they face challenges (competition, predation) that inhibit out-of-control infestations often exhibited by invasive species. Compared to the dense growth forms of many invasive species, high interstitial space and low-density canopy of native species allows for better oxygen exchange within colonies and fewer negative impacts to boating and other recreation. Additionally, they can fill ecological niches that invasive species may otherwise occupy, thereby contributing an ecological component to integrated pest management approaches (IPM) which includes physical, mechanical, biological, and ecological control of nuisance species.

For the past two decades, Texas Parks and Wildlife and our partners at the USCOE Lewisville Aquatic Ecosystem Research Facility (LAERF) have, with assistance from many governmental and non-governmental groups, been propagating and introducing these native plants to Texas reservoirs to improve habitat. Very few of Texas's lakes and ponds are natural; most were created from impounded streams and rivers where few native aquatic plant species existed. Without introduction of native plant species most reservoirs will either be unvegetated and turbid, or become a monoculture of an exotic species like hydrilla. We introduce robust, rooted plants as founder colonies in a small area of a reservoir that has the best possible growing conditions and protect them from herbivory with wire enclosures. These founder colonies become permanent colonies which benefit fish and wildlife, create a propagule source to form new colonies throughout the reservoir, and are more logistically feasible than planting an entire reservoir.

Species we choose to propagate are those that will not grow uncontrolled in a system, and the choice of species may vary between water bodies. For example, we may suggest American lotus for a reservoir with a depth profile that provides adequate habitat for lotus only in specific areas, but not for a reservoir whose physical characteristics would allow it to

flourish in areas where it may cause navigation hazards. Some of the most popular species that we and our partners propagate include yellow and white water lilies, spatterdock, American lotus, water pennywort, American and Illinois pondweed, water celery, water star grass, American bulrush, square stem and flat stem spike rushes, pickerel weed, bull tongue, and American water willow.

Native plants we introduce to local waters are grown in nurseries from stock that is free of unwanted species or propagules. Most of these nurseries contain monoculture nursery boxes or raceways constructed as 2 foot tall, raised wooden boxes lined with pond liner. There are several aquatic plant nurseries that we draw from for various projects. One is housed with the San Jacinto River Authority in Conroe, and is a cooperative effort between the San Jacinto River Authority, Seven Coves Bass Club, U. S. Army Corps of Engineers, Lewisville Aquatic Ecosystem Research Facility, Texas Black Bass Unlimited (TBBU) and Texas Parks and Wildlife. The Lake Houston Sports and Recreation Foundation maintain a nursery dedicated to habitat improvement at Lake Houston and have already planted over a mile of shoreline on Lake Houston this year. Another nursery, dedicated to establishing native vegetation on Lake Livingston, is organized by the Lake Livingston Friends of Reservoirs Chapter, Piney Wood Lakes Chapter of the Texas Master Naturalists, and TBBU and is housed at multiple area schools where students have the opportunity to build the nurseries, care for the plants and plant them at the lake. Finally, our Texas Parks and Wildlife office in Snook has 18 nursery boxes that can house over 5,400 plants in quart pots. Currently, in addition to our standard quart-pots, we are also housing 10,000 American water willow plugs obtained from Joe Snow Aquatic Plants that are destined for the shores of Lake Conroe in spring 2016. In addition to these nurseries in the College Station-Houston Fisheries District, there is a local TPWD nursery at Lake Waco and a TPWD nursery at the Texas Freshwater Fisheries Center in Athens that supplies plants for TPWD projects across the state. All plant stock for TPWD nurseries were originally obtained from the plant nursery complex at the USCOE LAERF facility. Outside of TPWD projects, LAERF is the primary supplier for vegetation restoration projects in Texas.

The benefits of native vegetation establishment have long been known, and establishment of these plants is becoming increasingly popular. Recent research advances have better defined methods for plant establishment and benefits of native aquatic vegetation for wildlife and fish populations, water

Continued on Page 9

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chemistry, and reservoir geomorphology have become better understood. We currently have two Texas A&M master of science students working through our office to investigate the effects of *Panicum* spp. grasses and American water willow on fish and invertebrate communities, including stable isotope analysis of trophic structure for associated communities that will further elucidate the details of how native plants benefit the ecosystem. Meanwhile, Texas Parks and Wildlife staff and our many partners will continue to improve habitat through native vegetation restoration efforts.

If you have any questions or to learn more about TPWD and native aquatic vegetation please contact us at 979-272-1430 or by email at alice.best@tpwd.texas.gov or mark.webb@tpwd.texas.gov. Also please come visit us on Facebook at <https://www.facebook.com/TPWInlandFisheriesCollegeStationHouston> to see videos and photos of our vegetation surveys and restoration efforts.

Photos with Captions



White water lily blooms in the nursery boxes below Lake Conroe dam. This nursery was a cooperative effort between San Jacinto River Authority, Seven Coves Bass Club, U. S. Army Corps of Engineers Lewisville Aquatic Ecosystem Research Facility, and Texas Parks and Wildlife.



American water willow is introduced to Lake Raven in Huntsville State Park in protective wire-mesh cages which allow the young plants a head start in a system that often hosts infestations of water hyacinth which could smother young plants and herbivores that may uproot them before they have the chance to establish.



Young plants, including the pickerelweed in the foreground grow on the shady banks of Lake Houston at the Lake Houston Sports and Recreation Foundation nursery.



Shallows on the northern edge of Lake Sheldon hosts a diverse community of native plants in 1.5-5 feet of water that provide excellent habitat for wildlife and birds.



Mature bull tongue plants are divided and repotted to propagate new plants for Lake Conroe.



Lake Sheldon is still a battle ground for nuisance and invasive plant species. It hosts infestations of giant salvinia, water hyacinth, parrot feather, and hydrilla. However the Integrated Pest Management plan for the lake which includes grass carp, herbicide application and promotion of native plants has resulted in excellent recreation access and fish and wildlife habitat.

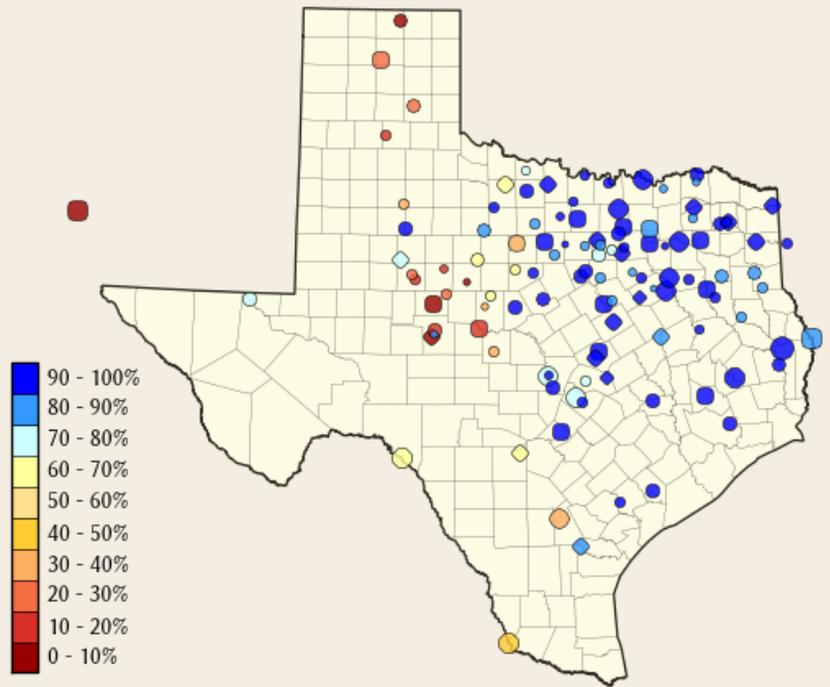
Lake Levels Across the State of Texas as of 9-1-2015

- Lake Buchanan: -11.91' (70.8%)
- Caddo Lake: +.044' (100%)
- Coleta Creek: -1.5' (92.1%)
- Lake Conroe: -1.5' (93.6%)
- Lake Fork: -1.57' (93.3%)
- Lake Houston: +0.54' (100%)
- Lake Lewisville: +0.02' (100%)
- Lake Livingston: +0.31' (100%)
- Possum Kingdom: -0.81' (97.5%)
- Ray Hubbard: -2.10' (97.5%)
- Sam Rayburn: -0.97' (96.2%)
- Lake Somerville: +0.19' (100%)
- Toledo Bend: -3.51' (87.1%)
- Lake Travis: -13.76' (78.3%)

*Information from Water Data for Texas Website

Texas Reservoirs

Date	Percent Full	Reservoir Storage (acre-ft)	Conservation Capacity (acre-ft)
Today 2015-09-01	80.5	30,244,113	31,432,939
Yesterday 2015-08-31	80.6	30,274,009	31,432,939
1 week ago 2015-08-25	81.3	30,599,055	31,432,939
1 month ago 2015-08-01	83.3	32,261,574	31,432,939
3 months ago 2015-06-01	83.9	38,101,147	31,432,939
6 months ago 2014-03-01	68.9	27,713,150	31,432,939
1 year ago 2014-09-01	63.6	24,274,075	31,432,939



Monitored Water Supply Reservoirs are 80.5% full on 09-1-2015

