



# THE NORTHERN LAKES MANAGER

SPRING 2023

WWW.MAPMS.ORG

## FROM THE DESK OF THE PRESIDENT: AMY KAY

Dear Fellow MAPMS Members and Friends,

I hope this finds you well and amidst the beginning of a safe and successful field season! Thank you for the trust you've placed in me and your Board of Directors to lead this respected Society that we all have been given the opportunity to be a part of. I am truly grateful to serve as your President. As I reflect on entering my seventeenth season of saving lakes, and my ninth year serving the MAPMS Board, I think about how fortunate I am to be connected to you all in one way or another. It's all about the relationships. The people that make up my day-to-day professional life, and those that connect and contribute to our Society and others throughout our industry have made such a profound impact on my life. If you have yet to experience this, I challenge you to get involved, connect with your peers, and find a network of mentors – these relationships make the difference, and our collaborative efforts lead to winning.

The theme of the 43<sup>rd</sup> meeting of the Midwest Aquatic Plant Management Society was “*Equipped*”. As the Board of Directors worked through updating the Society's strategic plan last year, having a program that would align with our refreshed mission, vision, and goals while continuing to bring the scientifically sound program our members expect was the utmost importance. The program was designed not only with this in mind, but also from the direct feedback received from the membership through the survey results following each annual meeting. Our hope is that you felt the program added value to your membership and that each attendee walked away from the conference with at least one new tool, strategy, or connection to better equip themselves with heading into the 2023 season.

Highlights of the meeting held at the Amway Grand in Grand Rapids, Michigan were plentiful. After many years of discussion and evaluation of topics, logistics and costs, the Board moved forward with a unique approach and hired Mark Ostach to kick off our program. Mark's presentation, *Fostering Connection and Wellness in 2023: Developing the Courage to Connect*, challenged our group to slow down, become vulnerable with one another, and connect. Mark built value to the importance of genuinely connecting by unplugging and focusing on the relationships in our lives both personally and professionally. Following our engaging keynote speaker came 25 educational and dynamic presentations - thank you to all our speakers for your valuable contributions.

We were able to honor long time members and contributors, Nick Gowe and Bob Langhjar with Honorary Memberships. The Society awarded \$10,000.00 to Zhaozhe Chen from The Ohio State University via the Robert L. Johnson Memorial Research Grant, presented awards to 3 student paper contest winners, and executed strong fundraising efforts through our traditional means of the silent auction and raffle. Following the MAPMS program, a special session was hosted by RISE which provided valuable guidance, dialogue and training in the area of discussing responsible pesticide use. These highlights are made possible by the ongoing and generous financial support of our sponsors, the strength and dedication of our Board of Directors, our contributors and membership. Because of this support, MAPMS continues to maintain what we believe to be the strongest regional chapter of APMS.

Along with these great accomplishments during our time together in March, came great loss in learning of the passing of our friend, colleague, and mentor, Joe Bondra. While unexpected and sad, I know that personally, I found comfort in being together and know many of us felt the same.

Joe was a pillar not only to our Society, but the aquatics industry, and his numerous contributions will live on in what we do - be it in our efforts to manage aquatic plants and algae, our business practices, and/or our relationships with one another. Joe's leadership and tenacious ways will remain alive through those he impacted, and his iconic laugh will surely echo the halls of our annual meetings in the years to come. While many of us are still processing the loss of a mentor and friend, we hope to continue honoring Joe and his legacy by upholding the values of MAPMS.

(Continued on page 2)

## FROM THE DESK OF THE PRESIDENT: AMY KAY (CONTINUED FROM PAGE 1)

I am honored to share that the Board of Directors recently approved a motion to rename the Distinguished Service Award in Joe's memory. In 2012, Joe was the first recipient of this prestigious award.

*Given by the President of the Society, the Distinguished Service Award is for an individual or group who has successfully completed a project taking considerable effort and time resulting in advancement of plant management science, educational outreach, and performance above and beyond the call of duty as an officer, chair or special representative of MAPMS; or achievement in the science of aquatic plant management, and/or participation in MAPMS leading to the advancement of its members, goals, and objectives.*

For those that knew Joe, this greatly characterized his contributions, making it exceptionally fitting to rename this award *The Joe Bondra Distinguished Service Award*.

In the spirit of channeling some Joe Bondra energy...it's probably time we get back to work! Don't hold back, get after it this year - build those relationships, connect with one another, be grateful for the opportunity to manage our most precious resource together and make it your most impactful year yet.

Amy Kay, President  
Midwest Aquatic Plant Management Society

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## A BIG THANKS TO OUR 2023 CONFERENCE SPONSORS!

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## LOCAL ARRANGEMENTS COMMITTEE: CORY RICHMOND

*"I wanna go back, I gotta go back to Ohio"...* You will be singing this song by The Ohio State University marching band after attending the 2024 MAPMS annual conference in beautiful **Columbus, Ohio from February 26-29, 2024**. You do not have to be a buckeye fan, however, to enjoy this lively, hip, young city. If Big Ten basketball is your thing, come into town a couple days early or stay a couple days after to catch an Ohio State basketball game (possibly against your favorite B1G team!). You can also visit the **Franklin Park Conservatory** (an indoor botanical garden), attend a **Columbus Blue Jackets** NHL hockey game, hop around the bars, restaurants and shops in **The Short North** right next to the venue, or catch a show at one of several nearby music or theater venues. If you need any more pointers on local flare, contact Cory Richmond, [cory.r@kascomarine.com](mailto:cory.r@kascomarine.com). Stay tuned for more local and venue updates in the Fall of 2023.

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## STUDENT AFFAIRS COMMITTEE CHAIR: EDDIE HEATH (PETE FILPANSICK TAKING OVER IN 2023)

Greetings from the Student Affairs Committee,

Student involvement and support is critical to fulfilling the mission and vision of MAPMS, and once again student involvement at the annual conference contributed to an excellent program. This committee strives to increase student attendance at the annual conference, as well as provide a platform for students to share their research with the MAPMS membership.

The Robert L. Johnson Memorial Research Grant is the primary mechanism that MAPMS supports graduate student research. This year's grant award (\$10,000) was provided to Zhaozhe Chen, a Ph.D. student at The Ohio State University to investigate the *Potential of Artificial Floating Islands (AFIs) for Water Quality Improvement of Residential Wastewater*. Phytoremediation technologies may serve a role in future restoration projects, and this research is very applicable to the society. We congratulate Zhaozhe, wish them well in their research endeavors, and look forward to seeing an update of this research presented in late-February in Columbus, OH.

Five students gave oral or poster presentations at this year's conference in Grand Rapids, Michigan. This year's winners are listed below. We applaud the effort and commitment these students have exerted towards the aquatic plant management industry and specifically to MAPMS.

### Oral Presentation Winners:

1st place – Sydney R. Van Frost (University of Wisconsin-Madison) Quantifying the Contribution of Several Transformation Pathways to the Fate of Florpyrauxifen-benzyl, an Emerging Aquatic Herbicide, in Freshwater Environments

2nd place – Lacey D. Rzodkiewicz (University of Pittsburgh) Biotic Interactions as Drivers of Harmful Algal Bloom Ecology and Evolution

3rd place – Ashley L. Wolfe (Montana State University) A Centralized Database of Watermilfoil Strains Across the United States: Initial Insights, and Utility for Stakeholder Communication

The Student Affairs Committee would like to thank Sydney Van Frost (University of Wisconsin) for completing her term as the Student Representative of the MAPMS Board of Directors. Ashley Wolfe (Montana State University) has been appointed as the succeeding Student Representative; we look forward to her input and representation to MAPMS.

Submitted on behalf of the Student Affairs Committee – Eddie Heath

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Congratulations to all of our 2023 MAPMS Student Presentation and Robert L. Johnson Memorial Research Grant Winners! Your contributions to our conference and Society are greatly appreciated.

## **EDITORIAL UPDATE: LEIF WILLEY**

Conference Season is always a busy time for the Editorial committee. From the moment the Call for Papers is announced until after the banquet there is much to do; conference communications, website maintenance and updates, organizing virtual content for State Agency personnel, equipment set up, etc. This year was no exception and we always appreciate members feedback on what our committee can do to make members' experiences better as well as letting us know when problems arise on registration forms. Since the conference, two issues brought to our attention have already been addressed and are ready to be implemented for the 2024 conference. First, the online registration form has been updated to allow for easier registration of multiple persons. Secondly, there have been some pages and functions of the website in the last couple years that did not carry through for people who view the website on mobile devices. These pages have been fixed, tested and are now fully mobile device compatible (hopefully).

As mentioned during the business meeting, the committee wants to continue to keep the website looking fresh and active by featuring photography from our membership. Members may submit high resolution images to [admin@mapms.org](mailto:admin@mapms.org) and the editorial committee will review the pictures and if approved, add them as a featured background or banner image on the website. If your photo is accepted, you will be notified of the location in the website and will also be credited on the website for the use of your photo. Submission guidelines are included on page 12 of the newsletter.

Submitted on behalf of the Editorial Committee— Leif Willey, Editor.

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## **NEWS FROM THE GOVERNMENT AFFAIRS COMMITTEE: JASON EUCHNER**

The MAPMS 2023 conference was well attended with 20 government employees represented from midwestern states. The Governmental/ Student Luncheon was also well attended as well with 9 government employees and 5 graduate students in attendance. During the luncheon the group had good discussion regarding increasing attendance and participation in the society among governmental employees and students. There are no other government affair updates to provide since our last report. As a reminder to all membership, if you have any topics, or concerns please provide them to committee chair, Jason Euchner at [jason.euchner@dnr.iowa.gov](mailto:jason.euchner@dnr.iowa.gov) and we can follow up.

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## **MAPMS WEBSITE MEMBERSHIP DIRECTORY INFORMATION UPDATED**

The MAPMS Member Directory is an exclusive service for MAPMS members. By entering the provided password and clicking "I Agree" in the Directory webpage, you agree that you have read and understand the Terms of Use below (also published on the website page).

Please note: there may be times that current members do not show up in the Member Directory search results based on their privacy settings.

By selecting "I Agree" on the MAPMS Directory entry page, you have entered into an agreement with MAPMS that your use of the Member Directory is for your personal use and professional development within the Aquatic Industry. You further agree that the results from the searches you perform will not be redistributed, used for research, transferred to magnetic media or otherwise duplicated. You also agree not to use the information contained in this database to conduct any solicitation of sales of merchandise or services or to otherwise promote your business or that of your clients.

Furthermore, your selection of "I Agree" indicates that you understand that the material contained in this database can be recognized as a trade secret, owned by the Midwest Aquatic Plant Management Society. Unauthorized use of the material contained in this database is prohibited and can subject you to damages plus attorney's fees under the Uniform Trade Secrets Act and Indiana IC 23-17.

**Current Password: 23@Equipped!**



## PUBLICITY COMMITTEE: EMILY HENRIGILLIS

Since our Fall Newsletter, the Publicity Committee worked to update the MAPMS Plant Reference Chart. We are very excited to share it with our membership! Check out page 11 for a sneak peak at the new design! If you are looking for Plant ID charts and/or other MAPMS publications to support any of your clients, for meetings, or for upcoming projects, please reach out. We will make sure to get you what you need.

Thank you to everyone that started following us on [Facebook](#), [Instagram](#), [LinkedIn](#), and [Twitter](#) during the conference! As a reminder, we are using social media to further spread the MAPMS outreach and education goals as it relates to our strategic plan and values. Make sure to follow along! Our Social Media Manager, Amy Giannotti, is putting out great content about midwest aquatic invasive species and other relevant material. We always appreciate a like, comment, or share!

We are also excited to announce that Amy Giannotti is joining us for another year as Social Media Manager. Please feel free to contact Amy with images and/or ideas for stories/posts at [amy@aquastemconsulting.com](mailto:amy@aquastemconsulting.com).

We are always looking to get the word out about MAPMS. If you have a conference you'd like to see an MAPMS booth at, please let us know. For additional information, feedback or questions regarding the Publicity Committee please contact Committee Chair, Emily Henrigillis at [wiplantgal@gmail.com](mailto:wiplantgal@gmail.com)

Submitted on behalf of the Publicity Committee – Emily Henrigillis

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## SILENT AUCTION & RAFFLE COMMITTEE: CASEY THOMPSON

This year's silent auction and raffle raised \$9,000, all funds generated from the auction and raffle go to support the Robert L. Johnson Memorial Research Grant. We look forward to making it better than ever for the 2024 conference in Columbus, OH. THANK YOU to all the volunteers that helped and everyone that donated to the Robert L. Johnson Memorial Research Grant.

We are always looking for volunteers to help organize the silent auction and raffle, solicit item donations, sell raffle tickets, etc. If you interested in serving on the Silent Auction & Raffle Committee for 2023-2024 please contact me at [casey@aquaweed.com](mailto:casey@aquaweed.com)

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## KEEP UP WITH ALL MAPMS NEWS AND INFORMATION: FOLLOW OUR SOCIAL MEDIA PAGES

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## EXHIBITS COMMITTEE: CORY RICHMOND

To all the exhibitors of the 2023 MAPMS annual conference, thank you. Congratulations to Kasco for the 2023 Exhibitor Excellence award. To all exhibitors interested in attending the 2024 conference, registration will soon be available at [mapms.org](http://mapms.org). Columbus is prime location for several large lake management companies. Your target audience WILL be in attendance. You won't want to miss this opportunity. If you have any questions on exhibits, please contact Cory Richmond at [cory.r@kascomarine.com](mailto:cory.r@kascomarine.com).

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## MEMBERSHIP COMMITTEE: STEVE ZULINSKI

On behalf of the Membership Committee and the Board of Directors, I would like to thank all those that support MAPMS through continued membership, financial donations and participation at the conference. MAPMS continues to see not only recovery, but membership growth post pandemic. These are great achievements, but as a committee and board we are always driven to do better for the society and industry.

The committee continues our goal to provide a high-level experience for our membership and guests, not only at the conference but in all aspects of how the society may impact your professional life. After the conference we sent an electronic survey to members with a current e-mail on file. We appreciate all the feedback that has been received so far. If others that attended the conference did not receive this e-mail, please feel free to share it with them. The more feedback we receive it allows the board to better tailor the conference experience for all members.

If at anytime throughout the year, you have comments or suggestions to help guide the committee and board in future planning please feel free to send them along [treasurer@mapms.org](mailto:treasurer@mapms.org)

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## SPONSORSHIP COMMITTEE: GARRETT MCCLAIN

On behalf of the sponsorship committee and the entire society, we would like to send gratitude to all of our 2023 conference sponsors. The success of The Midwest Aquatic Plant Management Society is rooted deeply in the support we receive from our sponsors year after year. As the society continues to grow, we are always looking to provide increased value to our membership and sponsors. If you have suggestions or ideas, please reach out to discuss. If you have inquiries regarding sponsorship, please contact the sponsorship committee chair, Garrett McClain at [garrett.mcclain@cygnetenterprises.com](mailto:garrett.mcclain@cygnetenterprises.com). We wish you all a safe and successful summer and cannot wait to see you again in Columbus, OH in 2024!

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## GET INVOLVED WITH MAPMS!

The Nominating Committee is now accepting nominations for positions on the 2024-25 Board of Directors.

If you would like to be a part of our Societies leadership please contact the committee chair:

Garrett McClain: [garrett.mcclain@cygnetenterprises.com](mailto:garrett.mcclain@cygnetenterprises.com)





## **2023-24 MIDWEST AQUATIC PLANT MANAGEMENT SOCIETY BOARD OF DIRECTORS**



**Left to Right:**

**Steve Zulinski (Treasurer), Garrett McClain (Past-President), Leif Willey (Editor), Casey Thompson (Board Member), Brian Isaacs (Board Member), Pete Filpansick (Vice President), Landon Wiet (President-Elect), Amy Kay (President), Ashley Wolfe (Student Representative), Jason Euchner (Board Member), Emily Henrigillis (Board Member), Michael Hiatt (Board Member), Reid Morehouse (Secretary).**

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**Mark your calendars!**

**44<sup>th</sup> Annual MAPMS Conference and Banquet February 26-29, 2024.**

**Hyatt Regency Columbus, OH.**



## WELCOME OUR NEWEST BOARD MEMBERS!

### Meet Cory Richmond:

Cory was born and raised in Ohio although his dad's family is from West Virginia and mom's family from Michigan. He grew up in a small town between Toledo and Columbus called Sycamore, population: about 700. After high school and 9 months of college experience at Bowling Green State University, he moved to Columbus, Ohio to further enhance his collegiate experiences. He graduated from Ohio State University 8 years after moving to Columbus in 2015 with a bachelors degree in Natural Resources Management. In college Cory held jobs as landscaping, fish ecology, and building maintenance including plumbing, electrical installation/repair and carpentry.

After graduation, he worked for AQUA DOC Lake and Pond Management for 7 years. There, he worked his way up from technician to branch manager where he oversaw operations and sales for about 20 employees. He switched jobs in spring of 2022 to Kasco where he manages sales and customer service in Michigan, Ohio, Kentucky, Tennessee, Virginia, West Virginia and Ontario. This is Cory's second current board position. He is also on the board of a local watershed group called Friends of the Lower Olentangy Watershed (FLOW). We pick up litter, remove invasive species, plant native species and educate the public on water and ecosystem quality.



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### Meet Brian Isaacs:

Brian has been with Aquatic Control for 30 years. In 2005, he took on the role of sales associate and began daily sales activities to volume and retail customers. He also dedicated time to assist in our lake management services operations to learn the daily activities and challenges this field experiences. In January of 2017, Brian was promoted to Chemical Sales & Marketing. He has continued in this role managing and developing sales and product support for the aquatic plant and algae management industry.

In his years at Aquatic Control he has had the opportunity to experience aquatic resource management in many ways. He has worked in the fountain and aeration department, he worked summers and eventually filled the role of hatchery supervisor on a 50-acre game fish hatchery previously owned by Aquatic Control. In this role he was responsible for all operations involved with the production and distribution of fresh water game fish. These jobs included the harvesting of fish, counting and sorting fish, monitoring indoor holding tanks, feeding of fish, and disease prevention. As a licensed applicator in the state of Indiana, I was also responsible for managing the aquatic vegetation growth in the 44 outdoor rearing ponds.

As part of his professional career, Brian has been involved in the Indiana Aquaculture Association as a member and a board member, Indiana Chapter of American Fisheries Society, the IAA representative to North Central Regional Aquaculture, Indiana Lake Management Society, Illinois Lake Management Association, Midwest Aquatic Plant Management Society as well as the Aquatic Plant Management Society. In his time away from work he enjoys spending time with his wife, Jennifer, and 3 kids. They stay busy attending sporting events, camping and traveling with family and friends. Brian enjoys spending time outdoors hunting with his kids.

Brian would like to thank the membership for their support in electing him onto the MAPMS Board of Directors and looks forward to helping promote and grow this Society.





# MIDWEST AQUATIC PLANT MANAGEMENT SOCIETY PLANT REFERENCE CHART

## Eurasian watermilfoil (*Myriophyllum spicatum*)



An aggressive plant, this exotic milfoil can grow up to 13 inches per day, forming dense mats at the water's surface. Growing in muck, sand, or rock, it has become a noxious species in many lakes and ponds by quickly outcompeting native species. Identifying features include a pattern of 4 leaves whorled

around a hollow stem. Feathery in appearance, each leaf consists of 10-21 pairs of closely packed leaflets. Out of the water the leaves become limp, compressing against the stem. Hybridization with native milfoil species is common.

## Curly-leaf pondweed (*Potamogeton crispus*)



This undesirable exotic, also known as Crisp Pondweed, bears a waxy cuticle on its upper leaves making them stiff and somewhat brittle. The leaves have been described as lasagna noodles, but upon close inspection a serrated edge can be seen along the margins. Growing in dense mats near the

water's surface, it outcompetes native plants for sun and space very early in spring. By midsummer, massive natural die-offs can release a pulse of phosphorus, lowering oxygen levels, triggering fish kills and potential cyanobacterial blooms.

## Hydrilla (*Hydrilla verticillata*)



This extremely invasive submersed plant contains whorled leaves with the whorls containing 3 to 8 leaves. The leaf has distinctive toothed margins with pointed spines on the underside mid-rib. It is easily confused with native *Elodea*, which has three leaves per whorl and lacking evidence of a toothed leaf margin. This

plant reproduces through union formation and fragmentation. Hydrilla has been confirmed in Midwestern states since 2006.

## Blue-green algae Cyanobacteria



Duckweed and watermeal are often mistaken for cyanobacteria due to their appearance on the water. Cyanobacteria can grow very quickly and poses health concerns. The toxins released by cyanobacteria can cause, for example, vomiting, headaches, and difficulty breathing. Blue green algae differs from the true algae, very commonly found in our waterbodies by not being an available food source to our zooplankton and small fish. Cyanobacteria is the collective name for a group of blue-green algae species.

## Starry stonewort (*Nitellopsis obtusa*)



This plant-like algae (macroalgae) is very similar in appearance to *Chara* spp. and *Nitella* spp.. Unfortunately it is highly invasive, not only outcompeting native submerged plants but exotic species too. It also destroys crucial fish spawning habitat. It has uneven branches growing in whorls from main axis. Branches feel smooth with a green gelatin appearance. A cream colored, star shaped bulb can be found at the base, at or below the sediment surface. This species can be found growing in shallow and slow moving deep waters.

### NATIVE PLANT LOOK ALIKES



**Northern watermilfoil**  
(*Myriophyllum sibiricum*)

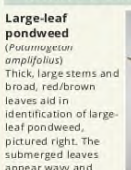
This native species of milfoil, pictured above, can be easily mistaken for the invasive Eurasian watermilfoil. Key differences include Northern watermilfoil remaining stiff when removed from the water, 4-11 pairs of leaflets and the formation of winter buds (condensed leaves) rather than the rooted fragments seen in Eurasian watermilfoil.



**Common bladderwort**  
(*Utricularia vulgaris*)

This free floating plant, pictured left, is actually a carnivorous plant and does not utilize roots. It features finely divided leaves scattered along the stem with many small bladder-like structures attached to the leaves. These bladders act as traps to capture zooplankton. Due to this plant not having roots, floating plants may accumulate in floating mats due to wind or water movement.

### NATIVE PLANT LOOK ALIKES



**Large-leaf pondweed**  
(*Potamogeton amplifolius*)

Thick, large stems and broad, reddish-brown leaves aid in identification of large-leaf pondweed, pictured right. The submerged leaves appear waxy and



**Clasp-leaf pondweed**  
(*Potamogeton richardsonii*)

Appearing extremely leafy at the tip due to frequent branching, clasp-leaf pondweed can be easily confused for curly-leaf pondweed. Both bear waxy submerged leaves, however curly-leaf pondweed's leaves are serrated along the edges. Clasp-leaf pondweed has leaves with smooth edges and a wide base that wraps partially around the stem.

### NATIVE PLANT LOOK ALIKES



**Common waterweed**  
(*Elodea canadensis*)

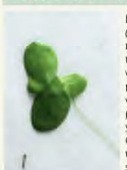
This submersed plant with broad oval leaves at first whorl, appears very similar to hydrilla, however this plant usually has leaves in whorls of three around the stem. Whorls are compact near the growth tip with spacing between the whorls gradually increasing as you move down the stem. This plant has leaves with smooth edges and lack the spine on the underside like hydrilla.



**Slender Naiad**  
(*Najas flexilis*)

Leaves of the slender naiad may occur in pseudo-whorls or oppositely positioned pairs (whorls tend to occur at the end of the stems). The ribbon like leaves are submersed with variable spacing between the nodes. The edges may or may not appear spiny and the leaf tips taper to a fine point. Naiads are annual plants, growing from seed each year, and can form dense, bushy masses by midsummer.

### NATIVE PLANT LOOK ALIKES



**Duckweeds**  
(*Lemna* spp.)

Duckweeds are members of the family containing the world's smallest flowering plants. They are generally a very small floating green plant, usually smaller than your smallest fingernail. Often mistaken for algae, this plant floats on the surface of the water and reproduces very rapidly. This plant may or may not have a root extending from the underside, but these plants are not rooted to the soil.



**Watermeal**  
(*Wolffia* spp.)

These plants are extremely small, no larger than a pin head. It shows no visible roots and looks like green cornmeal or grits. The smallest of the flowering plants, they are usually very abundant when present. They are often mistaken for seeds floating on the surface or as algae. These species are generally very difficult to control, and often coexist with duckweed.

### NATIVE PLANT LOOK ALIKES



**Muskgrasses**  
(*Chara* spp.)

Muskgrasses are typically found growing in clear, hard water. Lacking true stems and leaves, muskgrasses are actually a form of macroalgae. Its stems are hollow with leaf-like structures in a whorled pattern. It may be found growing with tiny, orange fruiting bodies on the branches called oogonia. Thick masses of muskgrasses can form in some areas. Often confused with starry stonewort, or milfoils, it can be identified by a gritty texture and, sometimes, musky odor when crushed between the fingers. The gritty texture is caused by calcium depo on the surface of the stems and branches.



ALL AQUATIC PLANTS, NATIVE OR INVASIVE, CAN REACH NUISANCE LEVELS AND MAY REQUIRE MANAGEMENT. THIS CHART IS A SAMPLING OF AQUATIC PLANTS COMMON TO THE MIDWEST AND IS NOT INTENDED FOR USE AS A POSITIVE IDENTIFICATION KEY. FOR MORE INFORMATION CONTACT: MIDWEST AQUATIC PLANT MANAGEMENT SOCIETY, A 501(C)3.

# MIDWEST AQUATIC PLANT MANAGEMENT SOCIETY PLANT REFERENCE CHART

## Fanwort (*Cabomba caroliniana*)



This submerged invasive species is not common and management tools are limited. Fanwort is very similar to aquarium species. Leaves are divided into fine branches in a fan-like appearance, opposite structure,

panning 2 inches. Floating leaves are small, diamond shaped with an emergent white/pinkish flower. Dense stands can occur forming mats at the water's surface

## Yellow floating heart (*Nymphoides peltata*)



This five petaled yellow floating plant can be growing in slow moving waters. Yellow floating heart has round or heart shaped leaves that can be scalloped. This plant can create dense mats that shade out native aquatic plants and cause problems like increased mosquito breeding habitat, impeding boating activity and causing oxygen level decreases.

Yellow floating heart can spread by seeds or fragmented pieces. Yellow floating heart picture credited to Michigan DNR.

## European frog-bit (*Hydrocharis morsus ranae*)



European frog-bit forms large free floating mats leading to recreation issues and causing an increase in mosquito breeding habitat. The leaves look like very small lily pads that can be round or heart shaped. This plant can look similar to yellow floating heart but European frog-bit has very spongy leaves with a purple underside. The roots of European frog-bit are not anchored into the soil.

## Common reed (*Phragmites australis* subsp. *australis*)



This emergent exotic plant grows extremely tall (15 ft.) outcompeting native wetland plants, altering hydrology and blocking sunlight to aquatic shoreline species. Common reed is a perennial grass that has broad pointed flat leaves (6-24 in. long; 1-6 cm wide), which arise from a very thick stalk. The plant flowers in July through October with dense, fluffy, gray or purple appearance. A native species does also exist.

## Purple loosestrife (*Lythrum salicaria*)



An established invasive species. Outcompeting many wetland species and altering habitat. Plants form dense stands reaching heights of six feet. Leaves are alternate and oppositely attached directly to the stem with a heart shaped base. The flowers are magenta with five to seven

petals. Flowers usually appear in July and continue to bloom through October.

### NATIVE PLANT LOOK ALIKES



**Coontail**  
(*Ceratophyllum demersum*)

Supporting waterfowl, fish, and insects, Coontail can be a desirable aquatic plant. However, thick growths around shore can be problematic. Lacking true roots, it commonly flowers near the surface later in the summer. Stiff leaves are whorled, sometimes toothed, around a hollow stem in groups of five to twelve. Coontail can be differentiated from milfoils by its forked, not feathery leaves. Leaf spacing is highly variable, but the ends are often bushy, like a raccoon's tail.



**Water marigold**  
(*Bidens beckii*)

This aquatic marigold has solitary yellow flowers above two emergent leaves. The submersed leaves are highly divided and become limp when removed from the water. Water marigold is usually unbranched and can be up to 2 meters in length. Water marigold differs from fanwort by the flower and the leaf branching. Fanwort has small white flowers and leaves are arranged oppositely where water marigold has yellow flowers and whorled leaves.

### NATIVE PLANT LOOK ALIKES



**White water lily**  
(*Nymphaea odorata*)

Large round pad with a cleft running almost to the mid-vein. Leaves are usually 6-8 inches in diameter and the leaf veins radiate outward from the petiole. The underside of the leaf is a purplish red color and the flower is white with many rows of petals. This plant has a thick, fleshy rhizome network buried in the sediment.



**Watershield**  
(*Brasenia schreberi*)

Also known commonly as Dollar Bonnet. This plant's leaves are oval to elliptical with a smooth edge. The stem is attached to the middle of the leaf. Leaves are 2-5 inches in length. Mature plants will have a slimy, gelatinous coating on the leaf underside. This plant produces a dull purple flower in late summer, grows from roots.

### OTHER COMMON NATIVE PLANTS



**Long-leaf pondweed**  
(*Potamogeton nodosus*)

Floating leaves are oval and the base tapers to a distinct petiole. The submersed leaves of this plant are often lance-like, and also taper to a long petiole. This plant generally has sparse leafing that is arranged alternately.



**Southern naiad**  
(*Najas guadalupensis*)

Closely resembling slender naiad, southern naiad tend to be leafier with reddish brown stems. Leaves appear spiny along the margins. Sheaths at the base of the leaves surround the stem and may conceal seeds. This plant can form dense colonies along the bottom of our waters.



**Wild celery**  
(*Vallisneria spiralis*)

Also known commonly as eelgrass or tapegrass, this submersed plant is highly valuable for fish and waterfowl. The grass like leaves have a distinctive pattern used to identify the plant. Flaccid when out of the water, the foliage occurs in tufts, much like turf grass. Soft muck bottoms are its preferred substrate.



**Arrowhead**  
(*Sagittaria* spp.)

This plant is named for its arrow shaped leaf. This emergent plant may also have some elliptical emergent leaves and sometimes will also have ribbon, or tongue-like submersed leaves. This plant is a true underground rootstocks with tubers and may at times have tiny white flowers present.



**Bulrush**  
(*Schoenoplectus* spp.)

This plant has long, tall triangular or round stems that may or may not contain leaves. This plant has a cluster of brownish, flowers and seeds located at the end of the stem. This plant will generally be found along the shoreline or in shallow waters.



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## MAPMS WEBSITE FEATURED PHOTO CONTEST

MAPMS Editorial Committee wants your help to keep our website looking new with your photos! Submit your high resolution photos from the field to [admin@mapms.org](mailto:admin@mapms.org) and each month the committee will select submissions to be featured images within the website. If your photo is selected, you will receive credit by name on the page. We encourage photos of any aquatic scene to be submitted, however some rules and restrictions do apply.

1. All photos must be original. No copied images will be accepted
2. All photos must be in landscape orientation and at the highest resolution possible
3. Photos must not contain company logos or names
4. Photos must be of aquatic scene, but may include people or equipment
5. If people other than yourself are in the photo, please be sure to obtain permission from them prior to submission
6. If picture is from private property, you must obtain permission from the landowner prior to submission
7. By submitting a photo you agree that you have permission to submit the image and to have it potentially used as a featured image on the website in exchange for name credit on the page of use