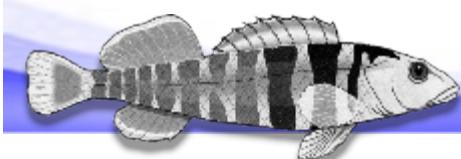


November/December 2022

V48#6

The
DARTER





The DARTER

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MEMBERSHIP:

[join MASI](#)



Annual Voting memberships in the Missouri Aquarium Society are \$25 Family or \$20 Individual; annual Corresponding non-voting membership is \$10; each includes an electronic subscription to The Darter, published six times per year.

Join or renew membership at any meeting, most club events, by PayPal from the MASI Website's Membership Page or by contacting the membership chair.



Cover: Little Red Riding Hood Shrimp by Steve Coxon



INSIDE THIS ISSUE



<u>Inside this Issue</u>	<u>3</u>
<u>The President's Message</u>	<u>Mike Huber</u> <u>4</u>
<u>From the Editor</u>	<u>Chuck Bremer</u> <u>4</u>
<u>November Meeting Program</u>	<u>Balin Shaw</u> <u>5</u>
<u>December Christmas Party</u>	<u>6</u>
<u>Operation Food Search</u>	<u>Kathy Deutsch</u> <u>7</u>
<u>January & Febuary 2023 Meeting Programs</u>	<u>Steve Coxon</u> <u>8</u>
<u>New Membership Information</u>	<u>Bob Watson</u> <u>9</u>
<u>Council Minutes</u>	<u>Angela Hellweg</u> <u>10</u>
<u>November 6, 2022 Auction message</u>	<u>Mike Hellweg</u> <u>12</u>
<u>Spring Hobby Day</u>	<u>Bob Watson</u> <u>13</u>
<u>Exchange Editor's Corner</u>	<u>Kathy Deutsch</u> <u>14</u>
<u>2022 Challenge - Lake Miragoan Project</u>	<u>15</u>
<u>2023 Challenge - Save Ayamaru Lakes Community</u>	<u>Gary Lange</u> <u>15</u>
<u>Award's Night Update & Photos</u>	<u>17</u>
<u>September 25th SWAP Photos</u>	<u>21</u>
<u>Collecting Native Fishes in IL & MO</u>	<u>Robert Hrabik</u> <u>25</u>
<u>A Mess Free Approach to Microworms</u>	<u>David Farel</u> <u>28</u>
<u>Forgettable Live Foods</u>	<u>David Farel</u> <u>31</u>
<u>Fish-O-Nomics 101</u>	<u>Mike Hellweg</u> <u>34</u>
<u>Fish-O-Nomics 102</u>	<u>Kevin Plazak</u> <u>39</u>
<u>Proserpinaca palustris - Mermaid Weed</u>	<u>Micah Issitt & Adrienne LeGault</u> <u>41</u>
<u>Shop Hopping</u>	<u>44</u>
<u>BAP link to Current Rules</u>	<u>Steve Edie</u> <u>45</u>
<u>Horticulture Award Program Update</u>	<u>Mike Hellweg</u> <u>46</u>
<u>HAP Blooms</u>	<u>Various</u> <u>47</u>
<u>Club Hopping</u>	<u>Steve Edie</u> <u>48</u>
<u>Member Classifieds</u>	<u>49</u>
<u>Advertisers & Supporters</u>	<u>50</u>
<u>Corporate Supporters</u>	<u>52</u>

Article Photos are provided by the Authors unless otherwise noted.

Click/Tap this to bounce back here. Then tap/click the article you want to read next!





THE PRESIDENT'S MESSAGE

Mike Huber

fish questions. Everybody had a good time. Future Awards will be given out during the April meeting so everyone can see all of the awards.

The swap was good. We had 42 tables sold to vendors and 161 paid adults through the door. Some vendors stated that they did really well. Per the swap chair, the next swap will probably be \$3.00 for early buyer entry and free for normal entry. Hopefully we get a lot more people to come and check out the swaps. There was a lot of good stuff for sale and a lot of us bought plants from the carnivorous plant people. I got 5 fish species breeder groups.

The Auctions have had a commission change. For all items sold the break down is 80% for the seller, 15% for MASi, and 5% to the MASi challenge. Starting in 2023 all Auctions and swaps will be held on Saturdays. So come join in and have fun.

MASi Hobby Day this spring will be on March 25th. There will be commercial vendors, swap vendors,

speakers for advanced, and speakers for beginners and kids. We plan a kids corner where, while supplies last, kids with parents permission can take a free bag of fish home. There will be something for everybody from advanced to beginners and kids.

Food and drinks will be on site. Pulled pork as well as other HOT food will be supplied by the caterer who supplied the food for the Banquet.

Bob Watson will need several people to help the day of Hobby Day for set up and running the Hobby Day programs.

I would like to thank all the members, new and long term, that are helping run the club, as well as the elected council and appointed positions. Hope everyone likes the changes and if you have any ideas let me know. If it helps the club we will try it.

Thank you everybody and have a good time at the meetings and events.

Sincerely,

Michael J. Huber

OPEN

FROM THE EDITOR

**This is a
VERY Full
Darter issue,
the biggest in
a while.**

8 1/2 pages of photos from MASi activities, including Awards Night, SWAP, Auction, etc. Are you in any of these photos? Did you participate in any of the events?

16 1/2 pages of articles! This issue has information that can be used to feed the 64 pairs of new Bettas in MASi tanks- two good

We're looking for a new DARTER Editor.

Are you interested or know someone who might be?

Contact either the President, Vice President or the Editor to explore.

Thanks for your help!

articles by a new contributor to the Darter. Check them out.

Two articles are by members who specialize in selling fish and introduce a new illustrator for the Darter. There's an article on Native MO plants. Bob Hrabik recapped his program on collecting regulations for those who missed it at out last meeting.

Yes, this is a full issue- All 52 pages of it!

The well is dry, write something! There's space for articles about the hobby you enjoy for the first issue of 2023!



Content deadline for the 1st Darter of 2023 is January 10th!!

Send Feedback and Letters to the Editor to: editor@missouriaquariumsociety.com





MASI General Meeting: Thurs, November 17th!!

Algae and Strategies for Control! By Bailin Shaw, Aquascaper

Bailin will describe the various types of algae found in planted aquaria and the remedies a hobbyist can use to control and minimize these pests.



**Bailin
Shaw**

Bailin Shaw has had a love of fish keeping since receiving his first aquarium for Christmas at the age of 5, always having at least one running since then. To relieve the stress of graduate school, he started learning about planted aquaria through the Aquatic Plant

Digest list serve and has been an avid planted tank enthusiast since.

As a way to get others excited about planted tanks, he helped restart the Oklahoma City Aquarium Association and served as president for 2 years before moving to Dallas where he also founded and served as president of the Dallas-Fort Worth Aquatic Plant Club, the first aquarium club specifically for planted tanks. The club eventually grew large enough to host



an Aquatic Gardeners Association (AGA) convention and is still active. His next move brought him to Connecticut, where he founded the New England Aquatic Plant Society and was president of the club for two years before moving to Chicago.

Working the Aquatic Gardeners Association booth at the Chicago Aquatic Experience, he collected names of locals interested in starting a planted aquarium club and they founded the Chicago Aquatic Plant Society (CAPS) in early 2016 in a meeting room of Panera Bread Co. CAPS has since grown to be one of the largest and strongest planted aquarium clubs in the United States.



Bailin serves as the president of CAPS, is an executive board member for the AGA and is the chairperson for the annual Aquatic Gardeners Association International Aquascaping Contest.

When he's not working on various club duties, Bailin runs 6-8 low maintenance and high-tech planted tanks. He is passionate about educating hobbyists of the benefits of keeping naturally planted aquaria and was instrumental in hosting this year's AGA Convention!

**Watch
MASI's Social
Media for
Dinner with
the Speaker**

Meeting Includes Mini-Auction and Door Prize Raffles

**Jost Chemical Complex: 8195 Lackland Road
St Louis, MO 63114**



Food, Fellowship & Fun!

Missouri Aquarium Society Christmas Party

MASI Christmas Party

Christmas Party, December 15, 2022

Jost Chemical Complex: 8195 Lackland Rd., St Louis, MO



Includes Gift Exchange

Bring a Fishy gift to Exchange or bring a non-Fishy one if you prefer. Everyone who brings a gift is entered into a like Raffle and receives a replacement to take home!!

To help planning, please tell Eric Somheil at the November meeting what dish you are bringing to share for Christmas and how many there will be in your group!

He wants to know if you plan to bring any of the following:

Sweet potato dishes

Green bean casseroles

Breads

Stuffing

Mashed potatoes

Corn dishes

Desserts

Cranberry relish/sauces

Please email him @

2somheil@gmail.com or Text to 636-542-2261 to sign up for or ask if any of the items are needed.

Eric wants to insure we don't end up with a small variety.





2022 Missouri Aquarium Society Food Drive

Although most take for granted how easily we can get healthy food for ourselves and our families, many don't have the ability, funds, or resources to feed themselves. Operation Food Search connects people and food resources. Anyone calling them can receive information on how to access good food in less than ten minutes.

If you've ever been hungry, you know how important our contributions can be ...

At the door to our Christmas Party, we will be collecting canned goods and shelf stable items to support Operation Food Search. I will also provide a "Gift Box" at the Party for envelopes containing monetary donations and will provide a direct link for contributions in future emails.

Money raised helps Operation Food Search purchase



nutrition dense foods like fresh produce and heart healthy meat.

Operation Food

Search keeps track of what MASI donates, and will send final tallies of pounds of food donated and how much money MASI contributed.

I ALSO NEED THE HELP OF SOMEONE WITH A VEHICLE:

this year Operation Food Search cannot pick up food donations unless they weigh over 1000 lb. MASI's past donations have been in the 250-500 lb range and we need volunteers to deliver the food we collect to Operation Food Search about 10 min from Jost Chemical. This must be delivered sometime M-F 12 to 3:30 when OFS is open. I have instructions on where to go, which I will pass on to those who agree to help.

If able to help deliver, please contact me before Dec. 15th via Facebook, or cell/text (314) 503-5168.

THANK YOU TO ANYONE WHO CONTRIBUTE THEIR RESOURCES AND TIME, INCLUDING MR. JOST for allowing us to use his facilities to make this collection.

**Contact: Kathy Deutsch
MASI's Operation Food Search**



Help the Missouri Aquarium Society support Operation Food Search.

Bring your food Donations to the Christmas Party; 7:30 PM on December 15th, 2022 at Jost Chemical Complex: 8195 Lackland Rd, St Louis, MO 63114

Most Wanted Food Drive Donations

- Light Tuna & Salmon (canned & pouches) & Canned Chicken
- Soup, Chili, Stews with Meat/Beans (a meal in a can)
- Canned fruit (in natural juices)
- Diced Tomatoes, Tomato Paste, Canned Spaghetti Sauces (low sodium appreciated)
- Canned beans (low sodium appreciated)
- Instant Brown Rice, Whole Wheat Pasta
- Boxed Meal Kits
- Canned Vegetables
- Dried Spices: chili powder, garlic powder, cumin, oregano, basil
- Deodorant, Toothbrushes & Toothpaste



Healing Hunger. Strengthening Our Future.

Items NOT Accepted in OFS Food Drives

NO Glass containers (due to breakage)

NO Expired Items

NO Medicine

NO Open containers—Partially eaten food

NO Junk food, chips, candy, sweets

NO Ramen Noodles

NO Alcoholic beverages & soda

NO Juice boxes & Juice pouches

NO Perishable food





MASI General Meetings:

Thurs, January 19, 2023

Beginning Killifish

Presented by S.L.A.K.A.



Chromaphyosemion splendopleure

Killifish, some of the most colorful and desirable fish in the hobby, are small and although some take specialized methods to spawn they are generally easy to keep. However, many are rarely seen in the hobby.

The St Louis Area Killifish Association, SLAKA wants to change that by assisting others to enjoy killifish. SLAKA members will introduce the genre and help you enjoy the hobby with tips on keeping, spawning and acquiring these fish for the home aquarium.

SLAKA is a local subchapter of the American Killifish Association, one of the largest and oldest national associations of fish keepers.



Thurs, February 16, 2023

Remy "Bahama Llama Coral"

Reef Aquascaping



From the algae to the invertebrates and everything in between, if you're considering a macro algae aquarium, go for it! They are a great habitat for hundreds of creatures!

Remy reviewed a Beautiful Macro Algae Tank at Aquashella Dallas featuring Lettuce Nudibranchs that was inspirational!

Click to see
him explore Macro
Algae Tank
Aquascaping on his
YouTube Channel
[HERE->](#)





MEMBERSHIP CHAIRMAN

Bob Watson

Jamie Steele

Imperial, MO

Hayley Svendsen

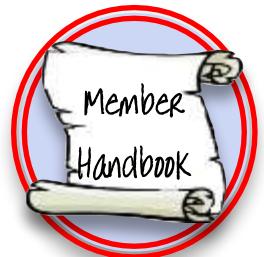
Affton, MO

Wally Calvert

Ellisville, MO

Diane Mueller

Florissant, MO



Welcome these new Members!

since the last Darter!



Missouri Aquarium Society Memberships are for calendar year:

January, 1 - December, 31.

Joining or renewing in November and December receive Memberships through the following year. For seamless continuity, previous year renewals are required prior to March.

Paid memberships receive this DARTER newsletter by email and may participate in other programs of the club, such as BAP, HAP, Social Media, Social events, etc.

Annual Dues are:

Full/Voting*:

- Individual = \$20.00** - Voting Membership w DARTER for 1 Email
- Family = \$25.00** - Voting Memberships w DARTER for 2 Emails. (Both voting parties must be named and provide emails.)

Corresponding = \$15.00 - Non Voting Membership w DARTER for 1 Email**

*Full/Voting membership is recommended if attending most meetings and available for voting. Corresponding membership is recommended if not available because of distance, only desiring MASI's Social Media or other reasons.

**Corresponding members apply for Auction Seller status with the public.



Memberships

Join or renew membership at any meeting, most club events, by PayPal from the MASI [Website's Membership Page](#) or by contacting Bob Watson, membership chair, Email: robertwmrmsh@yahoo.com.





COUNCIL MINUTES

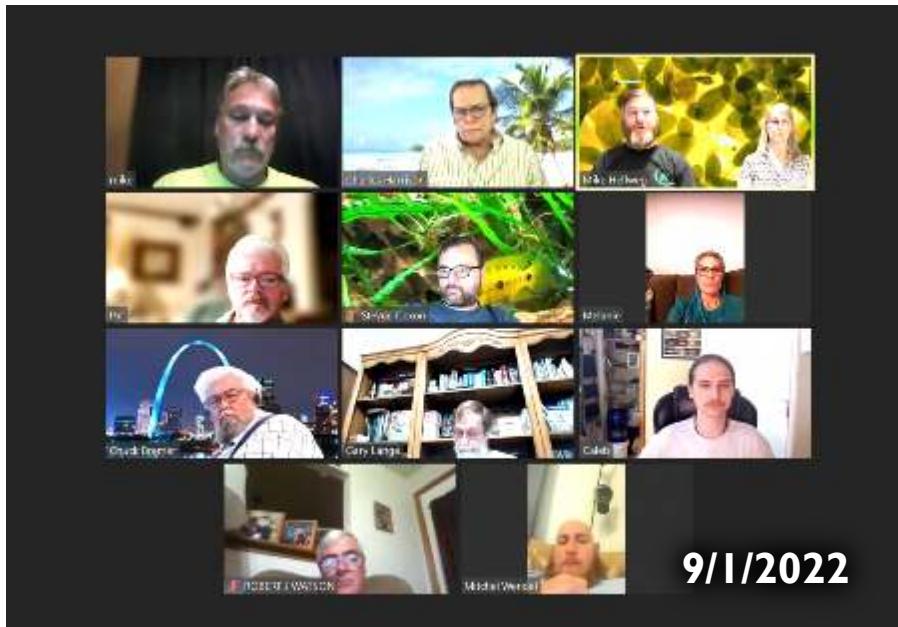
Executive Council

The voting portion of the Executive Council consists of 4 elected officers, 6 elected council members and the 3 appointed positions: Auction Chair, Editor and Show Chair.

See page 2 for their contact information.

Members are invited to attend the Council meetings. Meetings are currently being held by invitation on the ZOOM platform. Contact the Webmaster (Charles@inkmkr.com) if you desire an invitation.

Give the Council your Feedback or Support!



COUNCIL MEETING

9/1/22

Mike Huber called the Zoom meeting to order at 7:30. Present were Steve Coxon, Angela Hellweg, Caleb Pitman, Charles Harrison, Gary Lange, Melanie Holmes, Pat Tosie, Mike Hellweg, Chuck Bremer, and Bob Watson. Our guest was Mitch Wendel.

ANNOUNCEMENTS

- The next Council meeting is Sep 22.
- The MASiC Awards banquet is Sep 25.

REPORTS:

- **SECRETARY:** Angela read the Minutes from the Aug meeting. A motion to approve was made by Mike Hellweg and was seconded by Chuck Bremer. The motion passed.
- **TREASURER:** A motion to waive the Treasurer's report was made by Pat Tosie and was seconded by Caleb Pitman. The motion passed.
- **EDITOR:** The deadline for Darter submissions is Sep 6.
- **SPRING WORKSHOP:** Bob is working on a proposal for a Spring workshop in 2023.

Next Executive Council Meetings, many by ZOOM: at 7:30 PM:

Future Dates:

Dec 1, 2022, Jan 19*, Feb 2, 2023

***7:00 At General Mtg**

☺ **ADVERTISING:** The Swap and banquet information has been posted on BAND and Facebook.

☺ **CORRESPONDING:** Mitch has received donations.

☺ **SWAP:** All tables for the Swap have been sold.

OLD BUSINESS

None

NEW BUSINESS

- It was inquired if the MASiC insurance policy had been paid. Mike Huber said Scot was paying it.
- A motion to allow the AGA to borrow the MASiC projector as a back-up at their convention was made by Gary Lange and was seconded by Pat Tosie. The motion passed.
- MASiC will cover the shipping and import fees for the purchase of bettas from the betta wholesaler (sales to members only).
- The 2023 Auction dates will be Feb 11, Apr 29 and Nov 4.

A motion to adjourn at 9:10 was made by Mike Hellweg and was seconded by Charles Harrison. The motion passed.

This Council Group Email Address reaches all the Executive council at once: Council@MissouriAquariumSociety.com





COUNCIL MEETING 9/22/22

Mike Huber called the meeting to order at 7:30. Present were Steve Coxon, Angela Hellweg, Charles Harrison, Mike Hellweg, Chuck Bremer, Justin Warnock, Melanie Holmes, Pat Tosie, and Bob Watson. Guests were Mitch Wendell and Eric Bazzell.

The next Council meeting is Nov 3.

REPORTS:

SECRETARY: Angela read the Minutes from the Sep 1 meeting. A motion to approve was made by Mike Hellweg and was seconded by Steve Coxon. The motion passed.

TREASURER: A motion to waive the Treasurer's report was made by Pat Tosie and was seconded by

Charles Harrison. The motion passed.

EDITOR: The deadline for Darter submissions is Nov 7.

AUCTION: The next auction is Nov 6. The club now has a credit card terminal for auction and MASI functions.

MEMBERSHIP: It is now time for membership renewals. The MASI website will list the prices and membership types.

SOCIAL ACTIVITIES: A possible club trip to Springfield Mo to visit the aquarium was discussed.

SWAP: The swap dates for 2023 are Mar 25, June 3, and Sep 9.

OLD BUSINESS

None

NEW BUSINESS

A motion to approve spending \$300.00 to hold a Spring Workshop on Mar 25 2023 was made by Melanie Holmes and was seconded by Steve Coxon. The motion passed.

A motion to adjourn at 8:31 was made by Charles Harrison and was seconded by Chuck Bremer. The motion passed.



6131 Ronald Reagan Drive
Lake St. Louis, Missouri
Phone: 636-685-2952

Hours:
Mon - Sat 10 AM - 9 PM
Sun 11 AM - 7 PM

The Fish Room at Petland has a broad variety of freshwater and saltwater fish and invertebrates, as well as a wide assortment of freshwater plants.





MASI AUCTION MESSAGE

Mike Hellweg

Hi Everyone,

The Fall 2022 auction is now History!

I hope everyone had a great time. Things seemed to flow easily, and the auction was over by about 3:45 or so. It seems to have gone off without a hitch! Chuck reported to me that there were no errors in our data recording so we had a quick time reconciling the books the following Wednesday, after which, we hope we got the seller checks in the mail quickly enough for you.

I think Eric discovered that warm pizza is a hot commodity! We sold 6 pizzas in just about an hour. We'll talk about it before the Winter auction and may have more pizzas available. Any other suggestions for refreshments will be considered.

Thanks everyone for making the auctions so much better for everyone!

As always, we can use your help setting up, running and cleaning up after any auction.



And for now, 'nuff said,

Mike :

Auction@missouriaquariumsociety.com



The Fluval Flex 15 appeared to be a popular tank! Look for more at future auctions.



Thanks to Pat Tosie for these photos of the event!

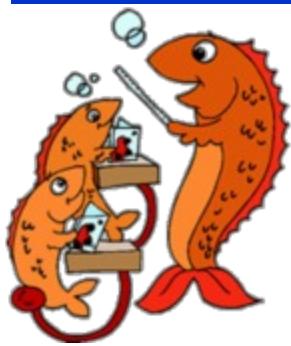




CONVENTION/SHOW CHAIR

Bob Watson

The Planning Committee is hard at work on this event!



From the Proposal approved by your Council:

The Spring Weekend will be a single hard-hitting day with plenty of activities for both Advanced or Beginner Aquatic Hobbyists in one place for a most concentrated Hobby experience.

Our huge indoor venue will be active from 9:30 am until 4:00 pm. Filled with concentrated activities and concurrent programs. Food truck and other amenities on scene!

Some elements of MASI's Aquatic Hobby Day:

- Expert/Advanced programs
- Intermediate/Family programs
- Active Vendor Space for Corporate Sponsors
- Concurrent MASI Tri-Annual SWAP
- YouTube Style DIY Video Corner
- "Kids" Korner

Volunteers will be needed!!

MASI Spring Hobby Day
A Public Educational Program

Missouri Aquarium Society would like to invite the public to a day filled with plenty of activities for Expert, Beginners, and Family Aquatic Hobbyist.

Saturday, March 25th 2023

Located at: Jost Chemical Complex,
8195 Lackland Rd. St. Louis MO 63114

• Expert/Advanced Programs
• Intermediate/Family Programs
• Active Vendors
• MASI SWAP
• YouTube Styled DIY Videos
• Kids Corner
• And More!!!



1905 West Highway 50
Fairview Heights, Illinois
62208

618-624-8003
1-877-388-6200

Monday - Saturday : 9:00am - 9:00pm
Sunday : 10:00 am - 8:00 pm

thetyedyediguana.com

admin@thetdi.com

Tye-Dyed Iguana

50+ Tanks!

TDI now has Fish too!!





EXCHANGE EDITOR's CORNER

Kathy Deutsch



Huge congratulations to those who take the time to write for The Darter. We are fortunate to have so many excellent authors.

On 9/29/2022 MASI received this:

I'd like to say how impressed I am with the September/October Darter. I just finished writing my review column for the October Reflector, and the MASI articles took up the entire column! Pls thank Huber, Hellweg, Coxon, Lange and Warnock for their excellent work.

Clifford Crain, Exchange Editor, the Reflector, Central New York Aquarium Society, Inc.

There is always room for more writers. Share your experiences with all of us. I plan to write articles like the ones I enjoy reading. An article in the Reflector about crushed coral was so informative. It was focused on a specific topic. Gave quick-to-digest info. Solid conclusion.

Reading through the exchanges from other clubs. These stood out for me:

Greater Pittsburgh Aquarium Society, PA "Finformation" September 2022

“*Melanotaenia kamaka*” by Jim Felix; Super-short, with pics. Easy read, lots of info.

Greater Pittsburgh Aquarium Society, PA "Finformation" October 2022

“*Characodon lateralis*, Los Berros: The Rainbow Goodeid” by Ed Moats; is a straightforward species article, well-written. I enjoy these. Easy to read, interesting.

“**Surrounded by Heros**” by Joe Doyle; Discussed what fish clubs did to survive during the pandemic. Mobile swap meets, zoom meetings, etc. The author encourages other fish keepers to write about how they made it through.

The Sacramento Aquarium Society, CA “The Tropical News” October 2022

“**Part 2 “Did ja' Know?”** By: Richard C. Griffiths; This was easy to pick up, even though I had not read Part 1. A lengthy article about fish eyes, and what they can see. There is info on wavelengths, what fish can recognize, etc. Very detailed article, with references at the end, for further reading.

Kitchener-Waterloo Aquarium Society, Canada “Fins and Tales” October 2022

“**Glo fish tank**” by Rita Duchesne; Neat article with photos, of a newly set up Glo Fish tank.

Greater City Aquarium Society, New York, NY October 2022

Note: 100 Continuous Years of GCAS! Wonderful!

“**Memories Are Made Of This**” by Sue Priest; A nostalgic trip down memory lane, Sue recalls the strengths, events, and quirks of the Greater City Club.

“**The Origin of the Greater City Aquarium Society**” by Joseph Ferenzi; It is exactly that, historical info on the club. Interesting, with lots of memories. A fun read.

“**There is also a reprint** of an excellent article Mr. Ferenzi wrote for the 75th anniversary of the club. It talks about the club itself, past presidents and the like.

“**Tails From the Tank- Name That Fish!**” by Dan McKercher; Breezy, funny article about how a couple types of fish got their scientific names.

“**The “Undergravel Reporter”** wrote an article called “**Sounding Off**” about the noises fish make. It's light, not a heavy duty scientific article. Had info I had not seen.

Greater City Aquarium Society, New York, NY November 2022

“**Stripping Mouth Brooding Cichlids**” by Dan McKercher; Good article that discusses a new way of getting the brooders to release their fry. It comes with a disclaimer. I think it is risky, but it makes sense. I won't strip a brooder, but that's me. Others do it and have great results.

“**Undergravel Reporter article: “You Won't Find this Lion at the Zoo”**”. It's about, yes, Lionfish. This year there was a contest in Florida to fish out these invaders. Short and entertaining. Personal note: even a tiny Lionfish sting is insanely painful. Soak the area in hot water for a long time. And hope you aren't allergic. Hospitals typically don't have the anti-venin.

The Greater Seattle Aquarium Society, WA “Northwest Aquaria” October 2022

“**Benefits of Crushed Coral in Planted Tanks**” by Roy Slettevold; This article is not only easy to comprehend, it also has some cool graphics explaining mineral interactions, and also pH affecting plant nutrient uptake. It was an “ah-ha” moment for me.

If anyone would like to read a specific article, please let me know with an email to:

Exchange@MissouriAquariumSociety.com

Kathy





GOAL:
\$2000+

MASI's 2022 Challenge is the Lake Miragoâne Limia Project!

Dr. Rodrigues-Silva, manager of the Lake Miragoâne project, will speak to MASI in June, 2023 about the project at such time MASI will present him with a check to assist his work. He will discuss the fish, the Project's plans and needs. Several of his papers have described new species of *Limia* from Lake Miragoâne in Haiti.

Limia populations on Hispaniola are stable on the Dominican side, but several species on the Haitian side have limited ranges and may be in trouble. The infusion from MASI will be helpful to keep it going.

Boeseman's Rainbowfish *Melanotaenia boesemani*

Status: Endangered

Estimated number:
Unknown

Population trend: Unknown

Location: West Papua New Guinea, Indonesia

The fish lives in three Ayamaru Lakes in the central Vogelkop Peninsula, Irian Jaya.

Save Ayamaru Lakes Community is MASI's 2023 Challenge!

WHY ARE THEY UNDER THREAT?

BOESEMAN'S RAINBOWFISH IS threatened by fluctuations in water levels, associated with Global Warming, and a declining water quality. A big problem is over harvesting too, since it has become a popular aquarium fish. By the end of the 1980's, roughly 60 000 males were exported from the Ayamaru Lakes region each month. Today, the government has restricted the



trade in an effort to prevent over-harvesting and decrease the mortality rate.

Proper conservation and management of Lake Ayamaru must be carried out!

The endemic fish of Danau Ayamaru, including Boeseman's Rainbow, are threatened with extinction due to various activities carried out in and around Lake Ayamaru. Massive development, open road access, clearing of forests and land for development needs in villages and Maybrat Regency and the emerging of the Ayamaru Lake a tourist destination location in Papua's Bird's Head are accumulative threats to its ecosystem.

Privatization of water for the benefit of individuals by constructing pipelines and tubs for toilets directly at

the spring around the lake, which is the habitat for Rainbow fish and serves as a source of water for the lake. This also reduces the periodic discharge of lake water to Ayamaru Lake which is very dependent on contributing water supplies other than rainfall.

The need for understanding at the community level of the lakes and their ecosystems as an important asset for Adat and the region has not been





strongly recognized. The Ayamaru Lakes Community has written about the forgotten treasure to explain how the lake ecosystem and ornamental fish in the lake are not seen as important by the community.

Since the 1980s, when demand for Rainbows fish increased, fishing in the wild that has brought economic benefits to local communities. However, there is no current effort in the community to build understanding and cultivating the ornamental fish endemic to Danau Ayamaru as a high quality and sustainable commodity.

The Save Ayamaru Lakes Community was initiated and founded in 2013 in Manado, North Sulawesi, Indonesia with the intent and purpose to build collective efforts in the Maybrat indigenous community to save the Ayamaru lake ecosystem and the conservation of Rainbowfish.

A local community organization, all members of the Save Ayamaru Lakes Community are indigenous youth from the Maybrat Tribe. Most of their management comes from 2 villages in West Papua Province : Aves village with 152 inhabitants and Framu villages with 567 inhabitants.

Their work focuses on the communities who directly benefit, the Maybrat indigenous people in Framu and Aves villages- the farmers, fishermen, village officials or those working for government projects.

The Save Ayamaru Lakes Community needs help raising money to educate the community to

protect their assets before it's too late.

ACCOMPLISHED since 2013

- ⦿ Educational videos and photos of rainbowfish and its ecosystem
- ⦿ Initiating discussions related to the importance of rainbow fish conservation
- ⦿ Conducting an expedition to determine the status of rainbowfish in Ayamaru Lake
- ⦿ Beginning campaigns to raise awareness of the ecological importance of Lake Ayamaru
- ⦿ Joining with TRANS 7, Indonesia's National TV, in 2016 to make the Si Bolang multi-part program on guarding the natural habitat of Ayamaru lakes

⦿ Persuading the Maybrat youth to involvement in activities to save the lake and its ecological values

⦿ Other educational efforts:

- ✿ Papau III Film Festival in Sorong 2019
- ✿ Aquatic Expedition Ayamaru 2017
- ✿ Visits by the Ornamental Fish Experts, Gary Lange from USA and Heiko Bleher from Europe in 2019
- ✿ Publishing expeditions and works in several international magazines such as Amazonas Magazine.

NEEDED NOW

The project still needs items to support work in the office and field

- ✿ Electronic devices such as PC, LCD Projector, and video and still Cameras and equipment such as mini display tanks equipped with filters & LEDs, lamp
- ✿ Fish photography boxes for identification aids

Learn more on the Save Ayamaru Lakes community's:

Facebook:

<https://web.facebook.com/SaveAyamaruLakes>

YouTube:

<https://studio.youtube.com/channel/UCqCbiAKTtBrQY55u1kP0sA>





MASI Award's Night 2019, 2020 & 2021



If you missed it you missed a fun and rewarding night with Good Food and Excellent Trivia Contest prize donations from the day's SWAP Meet.

Horticultural Awards

Novice Aquatic Horticulturist

Jake Harris: 2019

Julia Cross: 2021

Laura Morrison: 2021

Megan Moncure: 2021

General Aquatic Horticulturist

Chris London: 2019

Steve Coxon: 2020

Ryan Bush: 2020

Brian Woodrick: 2021

Advanced Aquatic Horticulturist

Ryan Bush: 2020

Steve Coxon: 2021

Brian Woodrick: 2021

Chris London: 2019

Senior Grand Master Aquatic Horticulturist

Holly Paoni & Kevin Wise: 2019, 1775 Pts

Chuck Bremer: 2021, 1560 Pts

Gary Lange: 2020, 1980 Pts

Green Thump Award

Chuck Bremer: 2019 - 22 Propagations

Mike Huber: 2020 - 18 Propagations

Holly Paoni & Kevin Wise: 2021 - 26 Propagations:

Mike Hellweg, Horticultural Awards Program (HAP) Chair presented HAP Awards to those present.



Steve Edie, Breeder's Award Program (BAP) Chair presented BAP Awards to those present.

Breeder's Awards

General Breeder (50 Pts)

Steve Coxon: COVID Special 2020

Jake Harris: COVID Special 2020

Mitchel Wendel: COVID Special 2020

Advanced Breeder (100 Pts)

Steve Coxon: COVID Special 2020

Jake Harris: COVID Special 2020

Mitchel Wendel: 2021

Senior Breeder (200 Pts)

Curtis Skouby: COVID Special 2020

Steve Coxon: 2021

Master Breeder (300 Pts)

Caleb Pitman: COVID Special 2020

Steve Coxon: 2021

Advanced Grand Master Breeder (1000 Pts)

Ed Millinger: COVID Special 2020

Senior Grand Master Breeder (1500 Pts)

Chuck Bremer: COVID Special 2020

Ultimate Grand Master Breeder (3500 Pts)

Mike Huber: COVID Special 2020

Most Exalted Grand Master Breeder (3000 Pts)

Mike Huber: COVID Special 2020

Most Excellent Grand Master Breeder (4000 Pts)

Mike Huber: 2021

WTF Grand Master Breeder (7500 Pts)

Mike Hellweg: COVID Special 2020

Breeder of the Year

Mike Huber: 2019 - 31 Spawns

Mike Huber: 2020 - 35 Spawns

Mike Huber: 2021 - 61 Spawns

CARES Breeder of the Year

Chuck Bremer: 2019 - 11 Spawns

Mike Huber: 2020 - 18 Spawns

Mike Huber: 2021 - 24 Spawns



A new **WTF Grand Master Breeder** level at **7500 Points** was awarded to **Mike Hellweg**.

Mike Huber took home several BAP awards for the night, including 3 Breeder of the Year and 2 CARES Breeder of the Year.



MASI is a big CARES supporter, helping enable re-introduction into the wild of Endangered species.



The Missouri Aquarium Society has gotten wide recognition for its Newsletter.

Thanks to everyone who has contributed!

DARTER Awards

Frequent Writing Contributions:

Kathy Deutsch

Holly Paoni

Special Contributions:

Steve Edie

Steve Coxon

Ian Eggert

Ralph Wilhelm Memorial Writers Award

James Wetzel: 2019 Keeping the Pirate Perch,
Sept 2019

Thomas M. Keevin: 2020 Feeding Fish
Bloodworms, Possible Health Risks, July 2020

Micah Issitt & Adrienne Legault: 2021
Mimulus ringens - Monkey Flower, July 2021

Chuck Bremer, Editor, presented several Writer's Awards. The Writer of the Year Awards, selected anonymously by non-MASI Fishkeepers, came with a BIG check! Which Micah found be a bit heavy.

Frequent and Special Contributors received one of a kind MASI Caps or Darter cover art for their Fish Rooms.



Kathy Deutsch



Holly Paoni



Ian Eggert



Steve Edie



Steve Coxon



Micah Issitt



Tom Keevin



Jim Wetzel

**No, that check is not Fishy Bucks!
It is redeemable for the real thing!**



Heavy Check!





MASI Service Awards are Voted upon by the Membership (V) or awarded based on Service Points accumulated (Pts)

The Novice Awards are rarely presented!

Because COVID measures prevented many activities during 2020 and 2021 many of these annual Awards were suspended but will be awarded again for 2022.. President Mike Huber presented these Awards.

MASI Service Awards

2019 Novice Society Service (Pts)

Caleb Pitman

2019 Hobbyist Society Service (Pts)

Chuck Bremer

2019 Member of the Year (V)

Chuck Bremer

2020 Hobbyist Society Service (Pts)

Mike Hellweg



**Caleb Pitman
2019 Novice Service**



**Mike Hellweg ,
2020 Service**



**Chuck Bremer
2019 Member of the Year
& 2019 Service**

**PET
CONNECTION**



**Between The Hill and
Botanical Garden
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- St. Louis, MO. 63110**

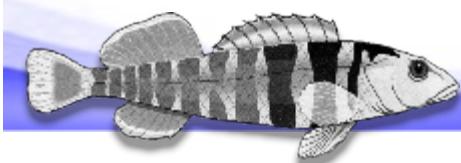
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Sat: 10 AM till 4 PM



**For fish
products
shop the
yellow and
blue aisles.**





MASI September 25th SWAP



The admission line was quite long before the doors opened!

Lots of things to look at resulted in lots of bags in the air!



Fish



Plants



Room for the day's vendors and room for future growth.





MO Aquatics



Ed Millinger,
Ste. Genevieve



Robby Simmons at
the MASi Table

**More Vendors,
local and from
a distance.**

*(Apologies to any
who were missed.)*



Holly and Kevin
Staunton, IL



Dave Zink,
Bloomington, IL



Caleb & Sam Pitman
Festus



Jason Wack
of Jeffco Aquatics



Rick Tinklenberg
of Gilbertsville, KY



Jake Harris was
in rare form!



Alan Womack



Bob & Lora
Watson
Litchfield, IL



Vendors came from Near and Far! Some with their own shops.



Many offerings had several digging deeper into their wallets!



The St Louis Carnivorous Plant Society was well represented and had good traffic.



Pitcher Plants

Sundews

Fly Traps





Collecting Native Fishes in IL & MO: The Laws, Do's & Dont's

-

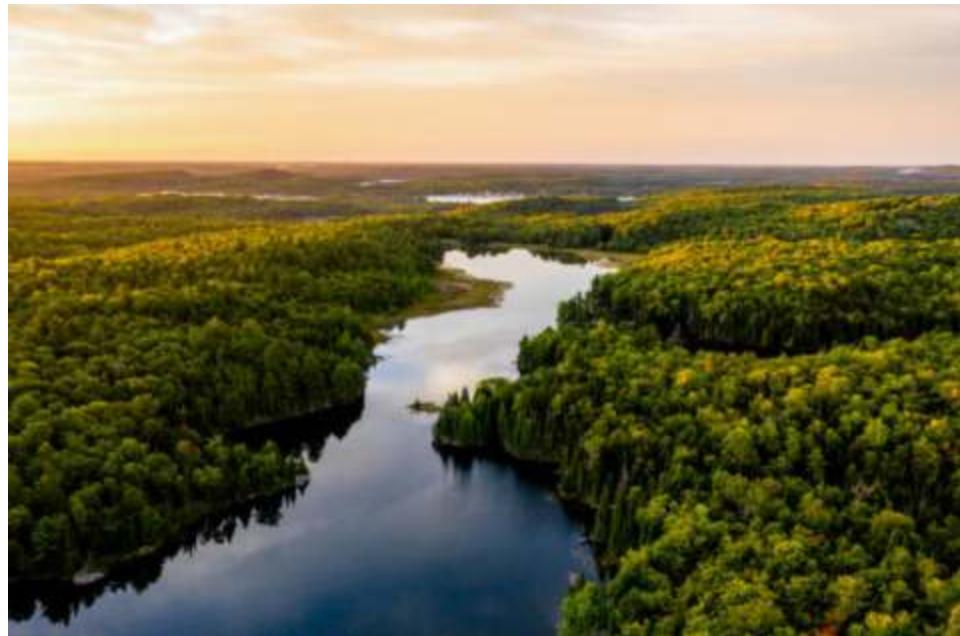
**MASI Meeting
20 October 2022**

**By Robert (Bob) A.
Hrabik**

So, **YOU WANT** to collect native fishes, but don't want to end up in a county courthouse paying a fine simply because you didn't know or understand the regulations?

This presentation was given to impress that water and trespass laws in the United States vary considerably from state to state and region to region. In some states, the laws or regulations are rather straight-forward and in others somewhat complicated - in others still, not even the lawyers have it quite figured out! This is an attempt to simply these rules and regulations and keep most out of trouble.

It would be simple for all of us if we lived in Canada! In Canada, all streams and natural lakes belong to the Crown. What that means is that these flowing and still waters belong to the public! So, if you can find public access to these bodies of water, one is free to float, wade, or walk in them and along the banks and shorelines, probably to some point where a landowner has purchased the ground, but private individuals cannot own the land under a stream or their banks or



along the periphery of a natural lake, although it is not clear how far from the water's edge the land is public. It would be best to simply stay close to the water!

In the United States, it isn't so simple as the water and trespass laws vary from state to state and some states are more lenient than others.

Vermont, for example: their riparian rights are not absolute and may become public domain if declared so by the state. Essentially, in Vermont, landowners own the land to a "discernable low water mark," but they do not own most, or perhaps none, of the bottom of a stream. For the most part in Vermont, so long as staying below the top of the bank, people may move freely between each bank.

Kansas represents a juxtaposed situation from Vermont, and also a dichotomy. Under Kansas law, the State recognizes both "navigable" and "non-navigable" streams. The definition of "navigable" varies somewhat from state to state. It could mean "deep enough to float a log," or mean "deep enough to float a raft or a watercraft of some kind." It is not clear what "navigable" means in Kansas, but under Kansas law, the State own's title to the bed of a navigable river. That

could be interpreted to mean that for the Kansas River, if deemed navigable, the State owns the riverbed, and the public may float it, attach an anchor to the bed, or even walk over it. In Kansas on a navigable river, the landowner owns the bank of the river to the "ordinary" high-water mark, whatever that means.

The dichotomy is that Kansas also recognizes "non-navigable" streams, which we would have to suppose, is any stream that is not listed as "navigable". For non-navigable streams in Kansas, the landowner owns the streambed, and the public cannot use anything from the bed to the water's surface, that may be interpreted to include the water itself! Because of the twisted and contorted interpretation of Kansas water/trespass laws for streams, the State has not even dealt with the issue of "portage." In most states, floaters have a "right of portage," meaning that if the floater encounters a log jam or obstruction that blocks passage from bank to bank, the floater is allowed "reasonable right of portage," thus the floater can "portage" around the obstruction over private property so long as the floater immediately launches the watercraft as soon as the obstruction has been circumvented but, in Kansas, that has not been addressed !





In Missouri, water and trespass law was settled in a court case in 1954 named *Elder v. Delcour*. A concise outcome of that determination is that in Missouri the landowner controls the right to access a stream from the bank, but any person has a right to move upstream or downstream while in the water, even if the creek is non-navigable! This is because Missouri has a long history of people wading the generally shallow, broad, and gravelly Ozark streams to fish for food, thus the court sided with the stream users that their access and movement, and right to catch fish, should not be impeded.



Illinois is a bit more complicated. Water and trespass law is governed under the “Rivers, Lakes, and Streams Act 614, ILCS 5. What is involved here? Somewhat like Kansas, Illinois recognizes “navigable” and “non-navigable” waters. A “navigable” stream or river is based on historical commercial use of a river which dates back to the 1800s. The Illinois River is an obvious example which harbored commercial vessel traffic along almost its entire length. In the Rivers, Lakes, and Streams Act, Illinois lists all rivers deemed “navigable.” With such a designation, the public does not have to obtain permission to be on the water and may walk the riverbank below the top of the bank. If a river or stream is not listed in the “Act,” then the stream or small river is considered “non-

navigable.” Absent state designation or easement, **non-owners of the banks have no right to navigate these streams!** If someone wishes to access a non-navigable stream to float or fish, that person or persons must obtain consent/easement of the landowner! To learn more about the Rivers, Lakes, and Streams Act of Illinois, search online for Mool, R., “Survey of Illinois Public Waters Law.” IDNR Legal Counsel or look here:

https://www.illinoisfloods.org/content/documents/p2-1_ilinois_public_waters_law.pdf

What about collecting native fishes in Illinois and Missouri? What is needed to collect and what may constitute “take?” In Missouri, with a valid Missouri fishing license, a person may “reduce to their possession” 150 crayfish, freshwater shrimp, and “non-game” fish. Check the latest Missouri or Illinois respective annual fishing guides to determine what is a “non-game” fish species because that definition may change somewhat now and then:

 **MO Fishing Guide:**
<https://mdc.mo.gov/fishing/regulations>

 **IL Fishing Guide:**
<https://www.ifishillinois.org/regulations/FishingDigest.pdf>

A list of current “non-game” fish species for Missouri appears in Appendix A of this article. In Missouri, the license holder may take any number of Goldfish and Bighead, Grass, and Silver Carp. These “non-game” species may be taken by trap, dip net, throw net, pole-and-line, or seine. Anglers 15 years or younger who are fishing without a permit may now use any legal method to take fish, live bait, clams, mussels, and frogs. Please note: prior to this new rule, youth without a permit were restricted to using only pole-and-line, gig, bow, crossbow, snagging, snaring, and grabbing.

In Illinois, with a valid fishing license, Mooneye, Goldeye, Common Carp, and Skipjack Herring may be taken by pole-and-line. Bighead Carp, Black Carp, Grass Carp, and Silver Carp can be taken with a cast net or shad scoop and must be killed for bait. Of course, endangered and threatened species may not be taken for any purpose, including bait fishing.

An interesting addition in Illinois’ regulations is the list of “injurious aquatic life species”, those species deemed as potentially causing harm to native species and aquatic communities. For such species -a list was not provided in the 2022 Illinois Fishing Guide- if caught, they must be returned to the waters from which they were caught where they may be released unharmed. For example, a Round Goby caught on pole-and-line, can immediately be returned to the stream/lake where caught. My assumption is that although not stated in the Fishing Guide, this regulation is written in this manner to avoid the possibility that someone catches an injurious species, like the Round Goby, carts it home as bait, and accidentally releases it into a new body of water.



A fun and interesting holdover from the old days is that in Illinois, sport fishers may harvest carp, carpsuckers, buffalo, gars- assuming except Alligator Gar, Bowfin, and suckers by pitchfork!

In both Illinois and Missouri, holders of valid fishing licenses can collect fish from underneath bridges such as off a county road or highway because those bridges and the land underneath are in public domain. Often, however, these are poor places to catch certain native fishes (habitat is usually diminished or destroyed) and sometimes places to park are rather



limited. It does remain an option, however.

Finally, I had been hearing through the grapevine that some states have been “outlawing” the take of non-game fish species. I began to examine the laws and regulations of each state in that regard, a cumbersome and time-consuming process. Instead of providing that here, I found a website that gives a “state-by-state guide” whether each State allows fishing with live bait. The assumption being that if the State allows fishing with live bait, then such bait may be taken by legal methods in the waters of the State. Before going to any state to collect fish, or using live fish as bait, go to the following website and consult the very latest regulations in that state:

<https://strikeandcatch.com/is-fishing-with-live-bait-illegal/>

Brief results of a search for live bait

- use:** if a state is not listed, then live bait can be used
- Alaska, Idaho, Montana (dead bait only can be used).
- Nebraska (live bait can be used statewide except in the Sand

Hills—because there are hundreds of natural lakes there that are very sensitive and contain endemic species, and because Common Carp has long been a problem to control in some of these lakes. About the eastern 1/3 of NE is off limits to moving live bait from one body of water to another: i.e. chubs caught in an eastern Nebraska creek can only be used as bait in that same creek and cannot be transported to another stream or lake outside of that watershed. This was first to control the spread of disease, which turned out to be not warranted, but the regulation was never removed.

- Arkansas and New York has a similar regulation as Nebraska.
- California and Florida: allows live bait in some places, but the regulations differ vastly.
- Colorado: allows live bait but there are restrictions on kind and where.
- Maine, Nevada, and North Dakota all have restrictive regulations.
- Ohio: can use live bait only if purchased from a licensed bait dealer.

- Oregon, Utah and Wyoming: live bait of any kind cannot be used or is greatly restricted
- South Dakota: can use only bullheads as live bait. SD does allow the use of entrails of any species as bait.

Appendix A: List of Missouri's non-game fish species for 2022

- Bluegill
- Green Sunfish
- Common Carp
- Carpsuckers
- Buffalo
- Freshwater Drum
- And all other species not defined as “game fish” in the MO annual regulations
- Cannot take “game fish” or species listed as “endangered” such as the Alligator Gar. *Most folks think of Alligator Gar as a non-game species!*



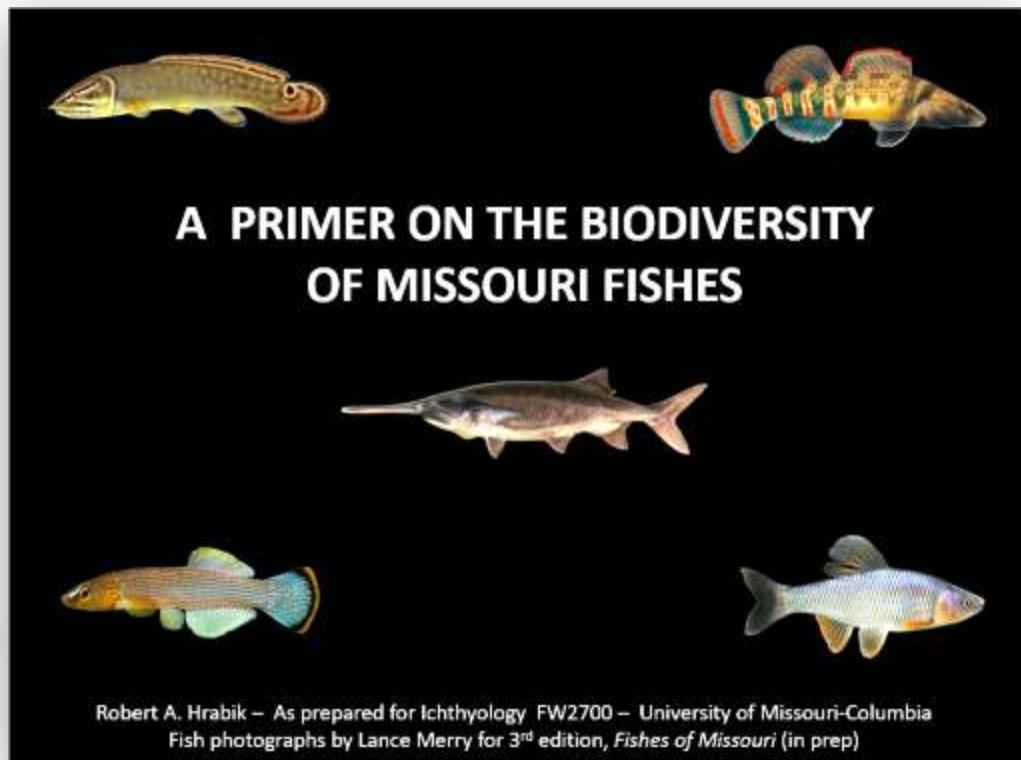
The Alligator Gar is Endangered and a bit large for most home aquaria.



Watch for Bob Hrabik's future discussion on the Fishes of Missouri!

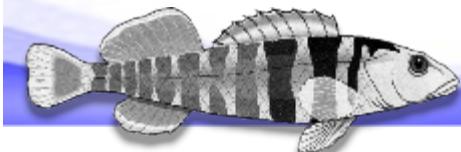


Missouri Ecological Sections and Subsections



Robert A. Hrabik – As prepared for Ichthyology FW2700 – University of Missouri-Columbia
Fish photographs by Lance Merry for 3rd edition, *Fishes of Missouri* (in prep)





A Mess Free Approach to Microworms

Live Food for Young Fry or Nano Fish

By David Farel

TAKE A PRETTY strict approach to live foods. If a culture is messy, smells, takes more than a few minutes per week, is finicky to harvest, is likely to crash, has any reasonable chance of escape, costs more than run-of-the-mill fish food, looks trashy, or takes up much space- I won't culture it!

Most people have similar reservations. The thought of molding worms, stinking media, crashing cultures, or unsightly tupperware keeps them happy to stick to flake food- "Thank you very much."

...This may be a major reason people don't culture live foods. It's work, it's messy and unsavory, the species are finicky, it requires specialized knowledge, cultures are expensive or hard to find, and most importantly, it takes up valuable space and time that we'd all rather spend on fish. As a result, only breeders (who have to), puffer-keepers, and people with a high tolerance for getting their hands dirty end up culturing feeder species.

Stinking media doesn't have to be the case. I regularly keep 15-20 feeder species going at a time, in a very minimal space, at the cost of little more than substrate per year and nutritional yeast. I spend 5-10 minutes per week



maintaining my cultures. A squirt of greenwater here, a spray of water in a few containers there, and then some sprinkled nutritional yeast or food scraps... That's it.

My cultures rarely crash. They aren't messy. There's little smell. Why? Because satisfactory methods do exist. The keeper just needs to find them.

Before looking at methods, let's understand microworms.

Microworms are nematodes (not

actually worms): simple wormlike creatures just a few millimeters long. There are 4 main species cultured in fishkeeping: microworms, Walter worms, banana worms, and vinegar eels. Traditionally, the first three listed are kept on a solid, carb-based medium. The last, vinegar eels, are kept free-swimming in vinegar.

All four microworm types reproduce exponentially, and can produce a culture of millions from a small starter within a week or two. They all feed on bacteria and fungi, which helps: they will naturally keep disease and mold in the culture in check, as long as no microorganism population grows out of control. Because microworms are so small, their main use is for feeding fry and nano fish. As feeders, they have a limited ability to be "gut loaded" but nutrients put into the culture will be passed on to the fish.

A quick search yields numerous methods for culturing microworms.

It will also uncover countless horror stories: crashing cultures, obscene smells, bacterial blooms, etc. The common denominator in these methods is a carbohydrate source, actually included to feed the bacteria the microworms will ultimately eat, and typically, active yeast.

Yeast is considered key. Like microworms, it reproduces exponentially, creates a film on the media where the microworms can live,

Dry Mix Media Recipe

- **¾ C Potato Flakes**
- **¼ C Nutritional Yeast**
- **2 Tbsp Powdered Sugar**
- **½ tsp. Ground Cinnamon**

To make media, mix 2 parts dry mix with 1 part dechlorinated water and 1 part white vinegar. Stir.

This Media works for culturing Flightless Fruit Flies, Microworms & Vinegar Eels.





and provides a practically unlimited food source for the culture.

When first researching microworms, I took immediate issue with the yeast. I knew from a previous bread making craze that yeast cultures were intrinsically unstable. They require constant maintenance, and something always inevitably goes wrong: mold or bacterial growth, pH swings, etc. I suspected this might be the source of the horror stories so I looked for a recipe without active yeast.

The second factor I considered was the base carbohydrate. Recipes suggest all sorts of things: oatmeal, corn meal, baby cereal, potato flakes, and various other grains or starches. My research suggested cornmeal had a low yield, and the grain recipes seemed to rely on fermentation- a dangerous, pungent idea, however, I liked the idea of baby cereal or baby flakes as a likely sterile and therefore more stable media.

Eventually, I found a recipe attractive for the odd reason that it was nearly identical to my best recipe for a fruitfly culturing medium. It contained a dry mix of potato flakes, nutritional yeast, and powdered sugar, which was then mixed with water and vinegar. The dry mix aspect was attractive because I could mix a large bag of dry mix to make media for either flies or microworms as needed. The fact it contained nutritional yeast as a nutrient source, not a live yeast, meant that it could provide some continuous nutritional value. In addition the powdered sugar would feed the other microorganisms on the media.

There was one other ingredient, ground cinnamon, included in the fruitfly recipe. The recipe noted that it would help prevent mold growth on fly

cultures. Since microworm cultures have similar issues, I included it. What I didn't know at the time was that apparently cinnamon is a natural yeast inhibitor as well.

I used the recipe, including the cinnamon, and

managed to cultivate all three species of terrestrial microworms with no trouble. After about 8-9 weeks, the cultures, as typical, began to dry out a bit or develop an odor, but they otherwise flourished without issues. I suspect the cinnamon is a key to stabilizing the microorganism populations within the culture. Perhaps the yield may be a bit lower, but with the welcome reward of a culture that is stable and basically odorless.

With the media recipe determined, the rest of the culturing process is fairly straightforward. I add about 1/2 to 1 inch of media to a small tupperware container. I use a nice container, the finest Dollar Tree has to offer, as I find myself less likely to neglect a culture that looks good; and more likely to hide and "forget" an old leftovers container. I poke enough holes in the top for ventilation, and- after one whitefly infestation, now cover the top with cheesecloth.

With the culture container prepared with media, I use a start swabbed from the side of an old culture and wipe it on the surface of the new culture then spray it with a bit of dechlorinated water to make it easier for the microworms to crawl across the media. In about a week, the culture will be populated and microworms will be crawling up the sides... It is ready to harvest!

Harvesting is simple. I keep a container of Q-tips, already cut in half,

for harvesting. If feeding multiple tanks, use Q-tips to swab the microworms that have crawled up the sides of the cultures and swish into a small container of dechlorinated water. Then use a pipette or medicine dropper to squirt that microworm laden water into the fish/fry tanks.

This approach helps prevent contamination between the tank and culture or between tanks. If only feeding one tank, skip the container and pipette and swish the Q-tip directly into the tank. If one prefers not to use Q-tips, a paintbrush works just as well- but when feeding from multiple microworm cultures, one should use separate brushes to prevent contaminating one culture species with a species from another.

There really is no maintenance of the cultures. To reduce the risk of bacteria building up in the culture and to keep the moisture level stable, they could probably benefit from stirring the media every week or so but I don't often do this. If the culture seems to be drying out, add a bit of water. If it is getting runny, stir in more solid media. I prefer the media to be the consistency of moist cookie dough.



If the culture begins to develop an off color but isn't drying out, I recommend starting another culture in case the first crashes. One can also try stirring a pinch of cinnamon into the culture. In general, it's best to have two cultures going at a time: one feeding culture, and one smaller backup culture. Backup cultures can be kept in the refrigerator, where they can be forgotten for months without harm.

Overall, microworms are easy.

Using this media and method requires no maintenance or mess, feeding takes seconds, costs little, and



provides nutritional and behavioral benefits to fry and nano-fish that no dry food can provide.

Microworms are useful to nearly every fishkeeper but for the cost-benefit analysis to work, the right culture methods are necessary.



Using this media with vinegar eels.

The standard recommendations for vinegar eels is to culture them in liquid vinegar and in a liquid vinegar culture where they will survive indefinitely. At issue is harvesting. Most procedures require another container, filter floss, and half an hour to a night of waiting, just to feed fry.

At Gary Lange's suggestion, I began culturing vinegar eels using my dry mix recipe made with cider vinegar. The method works.

While the reproduction rate is slower than other methods, a 2x2" container still reliably yields enough vinegar eels to feed a 10 gallon tank.

Because the method is so easy, I now harvest vinegar eels daily for any tank that could potentially have fry.

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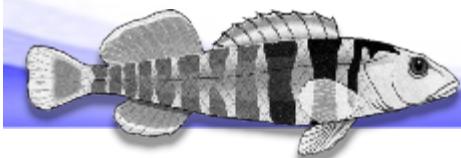
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The DARTER

Forgettable live foods

Three Zero-Maintenance Cultures

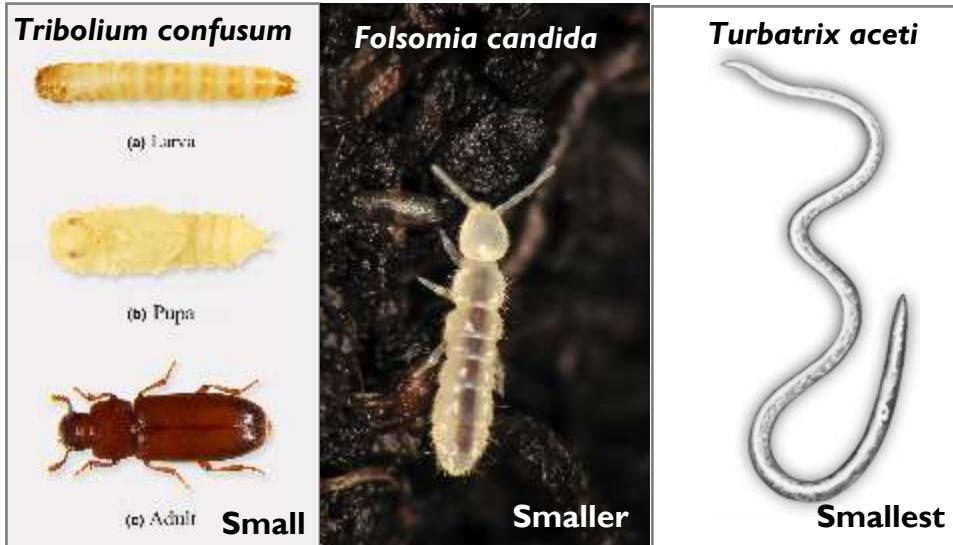
By David Farel

THE BEST CULTURE is a culture you can forget. Not just “forget to feed over the weekend”, but really forget. The kind you can abandon for a month or two and return to find it more or less in the shape it was originally. The zero-maintenance culture.

Fortunately, zero-maintenance feeder species do exist. Typically, they are the species humans have attempted NOT to culture for millennia, and failed. Vinegar Eels, the tiny floating specks occasionally found in raw vinegar; Flour Beetles, the bane of farmers with moldy grain and Springtails, the tiny white bugs that infest your floating plants are all such species.

All these are nearly impossible to kill, need minimal food, and culture in small containers and more or less take care of themselves. Most feeder species are low maintenance, but these are truly zero maintenance.

Vinegar eels, *Turbatrix aceti*, are the simplest and most foolproof feeder species. Free swimming nematodes, just a couple of millimeters long, even smaller than Baby Brine



Shrimp, they feed on bacteria and other microorganisms that live in apple cider vinegar. Vinegar eels can survive freezing to tropical temperatures and have the rare ability to survive at almost any pH.

Setting up a liquid vinegar eel culture is simple. Just add a starter to a clean bottle, a larger bottle is better, containing a 1:1 mix of apple cider vinegar and dechlorinated water. Some recommend adding a slice of apple as a nutrient source, but this is not necessary. Alternatively, one can keep vinegar eels in pure vinegar, but they may survive longer in your tank if the culture's pH is higher. Once set up, a culture should be ready to harvest within a few weeks to a month and you should see clouds of vinegar eels forming in the bottle. Confirm they are vinegar eels, and not another similar-sized microorganism or detritus, by shining a flashlight into the top of the culture. Vinegar eels will swim to the light.

Harvesting, traditionally, is the hard part. A “topping” method is often recommended. First, add liquid from the culture to a smaller, wide-brimmed container, filling it most of the way up. Stuff the top with cotton balls or filter floss, leaving an inch to the top of the container. Then fill the container the rest of the way with dechlorinated water. Vinegar eels will begin congregating at the top within half an hour and if left overnight, it will be

teeming with them. As a shortcut: harvest in a darker room and shine a bright flashlight at the water. The vinegar eels will immediately begin swimming there. Once enough vinegar eels are in the clear water, harvest from it with a medicine dropper or pipette and feed directly into your tanks.

An even quicker method is to harvest with a sieve. Use a brine shrimp sieve, made for newly hatched brine shrimp. Gently pour culture liquid into a small dish or bowl through the resting sieve, then gently lift the sieve out. Pour the vinegar back into the culture, rinse the dish, and fill with dechlorinated water. Gently swish the sieve in the water. The water should be teeming with vinegar eels. Use a medicine dropper or pipette to feed directly to the tanks.



Vinegar eel Culture





Flour beetle culture dish with Siev used to recover the larvae & pupae.

Flour Beetle cultures are just as easy but have wider use. Like vinegar eels, their name sums them up, in an only slightly misleading fashion. There are many species of flour beetles available, including the meal worm, *Tenebrio molitor*, often fed to chickens, reptiles and larger fish. One of the



Confused Flour Beetle culture

smaller most available for culturing is the Confused Flour Beetle, *Tribolium confusum*- small beetles, $\frac{1}{8}$ to $\frac{1}{4}$ of an inch long.

Unfortunately for farmers, but fortunate for us, these beetles can complete their entire life cycle in stored flour or grain needing no additional food or water source. Adults secrete a bitter chemical when distressed, which makes them undesirable to feed most fish. The larvae and pupae, however, are small, soft-bodied, and nutrient-rich: ideal feeders for most small to medium-sized fish. As the beetle population in the culture grows it can produce a prodigious number of larvae.

Setting up a Confused Flour Beetle culture is easy. Fill a clean

tupperware container with about an inch of flour. Size of the container does not matter as flour beetles will reproduce in containers of all sizes, but a larger container will produce more larvae long-term. For the flour substrate, I like to use a variety of flours, and usually mix in some ground flax seed and nutritional yeast. As a general rule, the more diverse the diet, the healthier an organism, including feeders, will be. This should also help “gut load” the larvae for feeding, passing on the nutrients they consume to the fish. Once a culture is established, the only strictly necessary maintenance is changing the flour every 6-12 months.

Some culture guides recommend a secondary food source, such as apple or potato slices. These can get moldy and need to be replaced, but may improve the health and nutritional value of the larvae. If using a secondary nutrient source, I recommend placing it in the sifter used for harvesting, to prevent it from touching the flour and drying out quickly.

Harvesting is easier than vinegar eels. Keep a sifter in the culture, such as a stainless steel drain strainer from Dollar Tree, and use it to sift the larvae from the flour. Both larvae and beetles are sifted out together. From there, shake off any residual flour and dump the beetles and larvae on to the lid of the container. The adult beetles can be easily picked off the lid, returned to the culture, and the larvae fed to the fish. To feed larva one at a time, individual larvae may be picked up with tweezers or a wet paintbrush. They may all also be dumped into a single tank at your choice.

Some culture guides recommend separating the shed exoskeletons when harvesting, but this is a time-consuming step with little benefit. Most fish will eat them along with the larvae and they are additional protein.

Springtails, hexapods in the family Collembola, are not usually the first to come to mind as a fish food.

Small, usually soil-dwelling crustaceans, less than $\frac{1}{8}$ of an inch long, springtails look like tiny white termites. However, springtails are harmless. They primarily eat mold, decaying food, waste, and other generally undesirable “products of nature”. It is usually their presence, not their appetite, which cause them to be considered pests and offensive.



Springtails jump!

The most commonly available species, *Folsomia candida*, is a temperate springtail. However, springtail species are found almost everywhere terrestrial life is found and semi-aquatic springtails living on floating plants at the edge of streams, rivers, ponds, and lakes are present in the habitats of most topwater fish. There's something to be said for a food most fish would encounter in the wild. Currently, springtails are common feeders in the reptile and amphibian hobby, but have yet to be used widely by fishkeepers. Lack of widespread use as a fish food may be due to their



The springtails colonize the charcoal lumps above the water.





Larval springtails are difficult to photograph.

tendency to colonize floating plants, but this risk can be minimized with proper feeding technique.

Like many live foods, there are easy ways and hard methods to culture springtails. The harder method is to raise them in a soil culture. This method, because it requires more maintenance, won't be covered here. To culture springtails the easy way, use a tupperware container, size again unimportant, distilled or dechlorinated water, and lump charcoal. Be sure the charcoal is lump charcoal, not charcoal briquettes, and does not contain any chemical additives. Break the charcoal lumps into 1-inch pieces, and fill the bottom of the container to 2-3 inches. Add water until about a third of the charcoal is covered. Nutritional yeast alone may contain enough calcium for survival, however, small bits of cuttlebone can be added as a calcium source.

The springtails live on the charcoal, not on the water. The water merely keeps the container humid. Springtails produce minimal waste and the charcoal will adsorb any impurities and waste onto its surface. Molds and biofilms then grow onto the dry portions of the charcoal, where the springtails can eat, excrete, and continue the cycle. In a charcoal culture, springtails can survive for months on just a few pinches of nutritional yeast.

Most culture guides recommend a loosely sealed container that allows some oxygen to enter. Although springtails can survive in low oxygen environments they are not ideal. For me springtails reproduce at a higher rate in a container with holes. To prevent infestation by pests, such as phorid

flies which reproduce in similar environments, cover the top with cheesecloth.

Feeding is a point of disagreement in culture guides.

Some say springtails only eat mold, fungus, and biofilms. Others report feeding their cultures a powder-based diet which usually disappears within a day. A quick search will confirm springtails do eat a variety of other foods, not just colonies of microorganisms. The key is most likely crushing the food finely enough to be eaten directly. Feeding frequency is up to you. For a high yield, feed often enough to replace eaten food. For a stable, lower maintenance culture, maintain a culture with a pinch of nutritional yeast every month or two. Keep the culture in a cool, dark place.

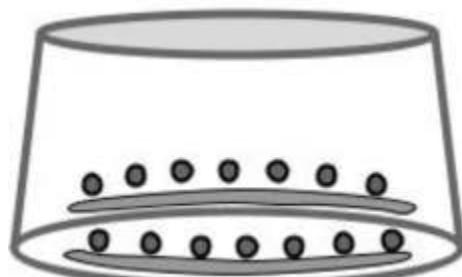
Sealed Springtail cultures can survive longer as I found from experience. I once forgot about a small, sealed culture for 3 or 4 months with no additional oxygen or food. I opened the sealed culture to find the springtails... just fine!

To harvest springtails easily, pick up a lump of charcoal with the springtails on it and tap it over the tank.

If preferring not to have a colony of springtails on floating plants, use a DIY feeding ring alternative. Springtails float, and cannot swim, so they will not swim under the ring—though they can climb. Remember that most feeding rings do little to prevent escape but may provide a convenient raft to escape the fish.

Use a clear container, lighter is better, but make sure it is at least 2-3 inches tall. Use aquarium-safe silicone or super glue to attach at least 3-4 aquarium plant weights about 1/2 inch from the bottom of the container and

let the glue dry then, poke large holes above the weights around the container. The holes should be large enough for water to enter quickly. Test to see that the ring works. Submerge the container, bottom up, into the water and the top of the container should fill with air down to the holes, allowing the container to float above them with the edge of the container stable and below water. If it's unstable, add more weights.



Shake springtails into the bottom of the DIY ring and quickly flip the container face down in the water trapping the springtails underneath to feed. If they attempt to climb the sides, tap gently to knock them back into the water. This same DIY feeder should work for flightless fruit flies, bean beetles, and other floating “escape risks”.

If culturing springtails, there is one more advantage. A number of terrestrial species—Dubia roaches and isopods, to name two—have great feeding potential but unfortunately live on substrate which requires regular cleaning. Springtails, as detritivores, provide a hack: they clean the cultures for you. A sufficient springtail population in these cultures will clean most mold, waste, and leftover food, that might otherwise lead to smelly and unpleasant cultures. This bioactive “co-culturing” approach can simplify Dubia and isopod care.





Fish-O-Nomics 101

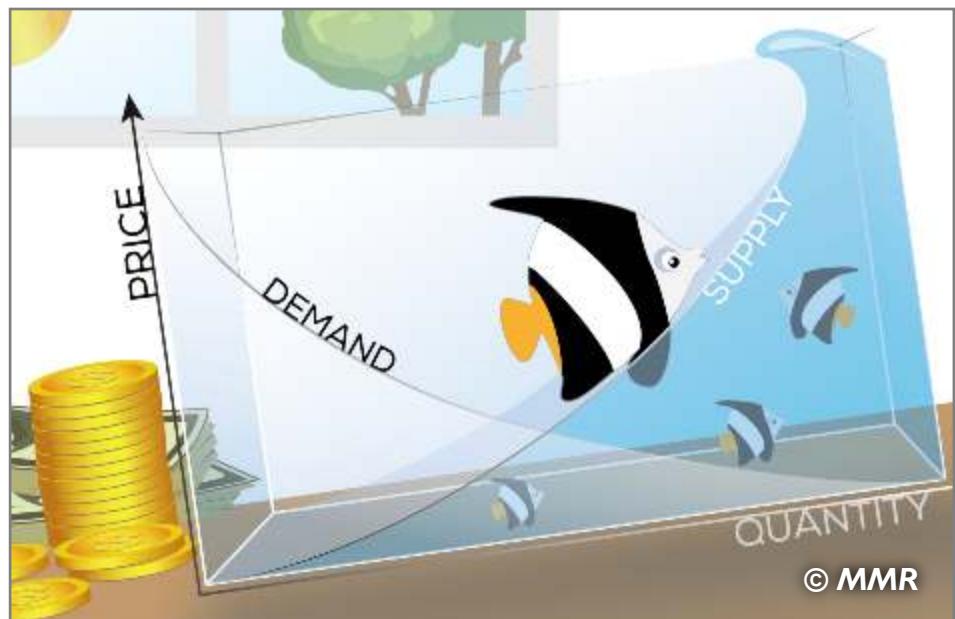
How Much is that Guppy in the Window?

By Mike Hellweg, CFN

GO TO A LOT of club auctions, shops, and swaps all around the US and even some in Canada, and almost always I hear a bit of discussion and even some grumbling about prices of various fish... not just at auctions and swaps, but also at local fish stores.

One common example is mated pairs of angels. Some folks think they should be able to get \$100 for a mated pair of angels at an auction or swap because that is what they paid for them or what they've seen them sell them for online. That just isn't a realistic price in a club auction! In more than 35 years of traveling around to fish clubs all over the USA and Canada, and spending hundreds of hours as an auctioneer at hundreds of fish auctions, I've only seen a handful of pairs of angels, or any other species, for that matter, even come close to that. All of those were fully mature palm sized angels, often show winners.

Most pairs of angels in club auctions sell for less than \$50, and the vast majority sell between \$20 and \$30. Sometimes an exception comes along, but they are few and far between.



Let's take a look at fish pricing and why this is so. Make a Million Bucks!

An old fish farmer's adage goes something like this: "If you want to make a million dollars raising fish, start out with two million dollars."

That means within a year, you will have lost half of your investment! Of all of the thousands of hobbyists met from around the world over the past 4 plus decades, I can count on one hand those who have made a living in the hobby without opening a wholesale operation or a retail store. By adding in those that I've heard about but not met, it might require two hands. If you want to know how many have become rich, well, I haven't met or heard of one yet.

If you work VERY hard at it you might make enough out of your tanks to pay for your hobby, buy some extra tanks, equipment, etc. and maybe even pay for a trip to a convention or two, but that doesn't cover the household bills, much less make you rich. So, if you see a shop selling a mated pair of angels for \$100, why can't you expect to sell yours for that too? Let's do a quick reality check at a few ways people try to make money in this hobby, look at what goes into various forms of pricing, and wrap up with some options for selling your fish.

Get Rich Quick

The aquarium hobby is just that, a hobby. It's not a get rich quick scheme. Some people come into the hobby seeing dollar signs and hoping to strike it rich by breeding and selling a million of some fish or other. I've known a LOT of those over the past 50 years. I've seen people wanting to do discus, angels, rare cories or plecos, clown loaches, and more- expecting to quit their job and just raise these fish.

They want to buy their initial stock for next to nothing (or even better, get it for free) then be able to spawn them easily and sell for a huge profit. Think about it for a minute. Simple economics should tell you if getting something for nothing, that's about what it is worth, likely NEVER to be worth a lot of money... Fish are the same as anything else.

If it breeds prolifically and easily, then anyone can breed them and most probably they will do so. There is little value to anything that easy to breed, so fish like this will never be worth much and certainly not



enough to quit a day job. Most “get rich quick” hobbyists come into the hobby and quickly burn out or fade away. Few of them are there two years after they’ve popped in and even fewer are still keeping fish. They’ve moved on to something else that is better for “getting rich quick”.

Think convict cichlids as an example. They’re nice looking fish, very easy to breed, and very prolific. While they often sell for about \$9 or \$10 each in a store, they’re very rarely worth more than a buck or two for a bag at an auction. This is simply supply and demand. When you’ve got an attractive, easy to breed fish that produces a LOT of fry, they just aren’t worth a lot for long.



Even with very expensive fish, such as Betta macrostoma, which retails for over \$200 a pair, you aren’t going to get rich. I know that from personal experience. A breeding group I had that was so prolific that at one point I had over 1500 of them in my fishroom. They went from \$100 for a group of six fry online, to only \$50 for the same group, to only \$30. After the first round selling to wholesalers, none of them wanted any more. At that time I even had other breeders complaining that I was flooding the market, and that I should be selling them as pairs! Well, I had 1500 of them to move!

The Reality Check for Get Rich Quick

If breeding and raising a lot of good quality fish, and building a good rapport with a couple of local shop owners, you can expect to be able to trade them to these local shops in exchange for other fish, food, or equipment. Some shops may even buy outright if you are a regular customer, though that is rare. Most shops run on a shoestring budget and don’t really



have extra cash laying around to buy a bag of young fish that unexpectedly show up one afternoon in their store. Definitely talk to the shop owner beforehand and let him know what you’re bringing – they may not want or need them at the time.

Don’t try to sell more fish to the shop’s customers while you’re there. I know one hobbyist selling angels to a shop and while there, another customer admired the angels he had brought. Instead of letting the shop sell that customer the fish, the hobbyist offered to sell the shop’s customer ANOTHER bag of angels that he had out in the car! As you can imagine, the shop owner was not happy!

Growing Profit! Buy ‘em small and sell ‘em big

Some people think that if you buy a two inch fish for \$20, when it reaches a foot it should be worth over \$100. With one exception that I can think of, you can’t buy small fish, grow them out, and expect to make money on them. For almost all fish, that cute \$20 baby is about as much as that fish will ever be worth. For others, the amount spent on water changes, electricity, heating, food, and chemicals will far outweigh what you can sell them for once they’re grown.

The Reality Check for Growing Profit!

First, most folks now don’t want big fish. Those that do already have a tank full of them and don’t need anymore. Most other folks in the hobby want small fish for their smaller

tanks. Once larger fish reaches a foot or so in size, especially if they have more growing to do, few are going to want it for any amount! You might even have to pay someone to take it, but you certainly won’t get more money for that monster fish.

The one exception? The clown loach. If you can keep them alive, you might buy small fish for a few bucks, grow them for about 5 or 6 years until they approach eight inches or so, then sell them for \$30 to \$40, or even a bit more, depending on how good they look. That ties up a tank for a LONG time and is not really a “get rich quick” scheme either.

Buy ‘em cheap at an auction and sell ‘em for big bucks online

Many people sell over the internet these days. Sometimes, if you really know your fish, you may buy a bargain at a local auction and then resell them for a profit online. Most of the time the reason they are selling cheap is that everyone who wants them locally has them, or there are just so darn many of them either in the auction or already in people’s tanks that the low price garnered at the auction is about what they are really worth.

Angels go through this cycle constantly. There will be one or two auctions in a row with only a few dozen bags of angels and the prices go fairly high. Then the next few auctions, there are more than a hundred bags and prices collapse, with fish that would





have brought \$20 one auction prior selling for \$5 or less.

This is the simple law of supply and demand. When everyone's got angels, prices drop. When no one has them, prices rise. Unfortunately there is no way of telling which auction will be which. It depends on who in the room is paying attention that particular day at the particular time that particular bag goes through the auction.

So, what about pricing?

Some may have some idea about pricing, but I'll bet many don't. I've been in retail for most of my life, so I'll take a bit to explain where prices come from. Maybe it will help understand things a bit better, and realize why something that seems it should bring a good selling price may or may not do so.

Retail Price

The price seen in a retail store is called a retail price. It is the price paid when you walk in the door. Some shops will negotiate with a regular customer and if they want to buy a group of fish, others won't.

Some retailers will become angry if you merely suggest negotiation or ask for a better deal. I've even seen a shop owner chase someone out of the store because they tried to negotiate! It all depends on the relationship with that shop owner.

The retail price includes the cost of the actual fish to be sold, the cost of all the fish that died, the cost of air freight to get that fish to the local airport, the cost of sending an employee up to the airport or to the local wholesaler to pick up the fish, the food fed the fish, water changed to

keep it healthy, filtration material, water change chemicals, tank heating, tank lighting, employee payroll and all associated taxes, insurance, licenses, local taxes, city taxes, state taxes, federal taxes, building upkeep costs, shoplifting, damaged goods, etc. not to mention rent, utilities (heating, cooling, lighting, phone, water, sewer, garbage, parking lot maintenance, internet access, website maintenance costs, etc.), interest on loans, and then, hopefully, a bit of profit to keep the shop going for next year. That's a LOT of things behind a "simple" price!

Wholesale Cost

When going to sell or trade fish with the store, it will usually be something close to what is known as wholesale cost. That is the price at which the shop can buy the fish from another source. It is the basic price to which all of the other costs outlined must be added before the shop can sell the fish and hopefully make a small profit.

When taking a fish to sell it to the store, you're not going to be paid what the shop sells the fish for. For example, a cardinal tetra that sells for \$4.49 at retail will cost the shop \$1.27 - \$1.50, depending on its origin. They also need to cover all of the other costs listed just to stay in business. So if trying to sell a shop cardinal tetras, don't expect more than a buck each. If trading instead of selling, you might be able to talk them to \$1.50 a fish in trade. At first this might seem like you're getting ripped off, but once all of the other costs are added, that \$4.49

fish isn't bringing a huge profit to the store.

What about selling at a club auction?

The price you get at an auction is a bit different, but the idea is the same. At a club auction, your fish is worth EXACTLY what it sells for. If there are two or more people in the room who really want that fish, expect it to sell for a high price.

If there is only one person in the room who wants that fish, or if there are several lots of that same species, then it's worth whatever the top bid is and no more. For example, angels are always in plentiful supply at an auction. A lot of people raise very nice angels. Unfortunately, a lot of people raise angels just to sell as many as they can as quickly as they can. When there are 50 to 100 lots of angels at an auction, the lower quality ones help drive down the cost of the higher quality ones.

It's just simple economics. With a large quantity of something, the price goes down, no matter the quality as the "perceived value" of all of the angels drops. When there are fewer, the price goes up. Quality doesn't always matter in the overall picture. It should, but in reality, it just doesn't.

The entire market is made up of the 100 or so people in the room.

There is only so much money in the room and each lot will only get a small share of that money. To facilitate ending the auction at a reasonable time, the auctioneers have to move 2 or



3 items a minute. They don't have time to spend on a single item.

Auctioneers try to get as much as they can so both the seller and the club will get a higher price but at some point, often 15 – 20 seconds, it has to be sold to move to the next item.

Auctioneers are not disrespecting any seller or any one item, they just don't have time to dwell on one item and squeeze out another buck from the room. There may be 500 more items that need to be sold.

The Club Split

It seems there has always been grumbling about the club split. Why is the club so greedy? Why is the split so high? Think of the club split like the retail store price described above. The club is a social entity, not a for profit entity, but it still has to make money to pay the bills. It exists to do many things for its members and the auction is only one of them. They must make money to cover expenses and stay solvent. The auction may be the prime way the club makes money. One auction brings in nearly as much money to the club treasury as membership dues for all of the members!



That club split goes to support many other things- not the least of which is running that auction. The room needs to be rented, advertising needs to be purchased, supplies need to be purchased, etc. Then there is the cost of the club publication, the cost of the meeting room, the cost of refreshments, raffle prizes, bringing in speakers for meetings and more.

Some clubs like ours also have the expense of an annual show weekend and may want to subsidize the cost of an annual banquet so that more of members can afford to go than could if charged the full price the venue charges the club. They must support the cost of items for our annual "Fish Bucks" auction free to members, the books and videos for the library, the charities supported, and many other things.

A wise man, Ralph Wilhelm, one of our late Auction Chairmen, once said that "The way I look at taking things to a club auction is that I'm making a donation to a great club to support them. If I get money back, fine. If not, that's fine, too. I get so much more from the club over the course of the year that the selling price of one item at one auction is not going to make or break my experience with the club."

(If you are at the auction solely for the money, see what was said earlier about the get rich quick schemes.)



Selling Online

Many people love to use eBay and Aquabid, and now BAND, to sell their fish. That's great! I use them, too. I'm one of the original sellers on Aquabid, and have been using it for well over 20 years and when I first started selling on Aquabid, back in early 2000, there was only one category. I've sold thousands of lots via Aquabid and I sold fish via mail long before Aquabid came along, too.

The great thing about mail order or online auctions is that you can set a price you think is fair, and let buyers from all over the country decide if you are right or not. The drawback is that it takes a lot of work to get fish ready to ship and to pack and ship them properly. If not willing to do the work, you'll have to look to another method to sell fish and essentially pay someone else, a retailer or a club, to sell the fish for you.

There are differences between online services. eBay has a much wider worldwide audience, Aquabid has a much more direct audience, and a local BAND group may even allow selling directly from home. With eBay, you might get better prices as there is a larger body of bidders. With Aquabid, there is a more focused body of bidders who are for the most part fish hobbyists. Using eBay, you pay a small price up front plus a percentage of the sale. If using Aquabid, all Mark asks

for is a donation if the item sells. If taking PayPal or accepting credit cards online, consider the fees associated with these services in costs, too. You will have to deal with the occasional DOA and with sending refunds or replacements.

With either service there is a lot of work. You also have to create the listing, post the listing to the site and maintain it, answer questions fairly quickly or folks will not want to bid on your item and have to collect the payment -dealing with the occasional credit card chargeback, prep the fish for shipping, pack up the fish properly to ensure they travel safely and meet the carrier's requirements, take them to the Post / Fed Ex / or UPS office, stand in line to drop them off, deal with the grumpy clerk who thinks you're crazy for shipping fish, pay for the shipping, and THEN cross your fingers and hope that the carrier does a good job handling and delivering them for you. If really wanting to make a profit, this is the way to sell your fish. But it is a LOT of work.

Most people burn out on it pretty quickly. Then they're back to using local club auctions, trading with the local store, or trying to get local buyers via Craigslist or something similar.

Selling on Craigslist and BAND

Recently hobbyists are starting to sell fish on Craigslist, BAND and similar local listing services. The problem with these is weeding out the real buyers from the kids and players who just string you along. There seem to be more and more of these as time goes by. You also have to deal with the whiners who complain about your charging rehoming fees that are actually sale prices for fish you bred instead of trying to simply rehome unwanted pets. I guess they don't have anything better to do.

Then you have to make arrangements to get the fish to the buyer. Will you let a complete stranger that you met on the internet come into your house to pick out fish? Not really a good idea. Will you meet them somewhere? For that you'll tie up your time to go somewhere and hope that the person shows up (and that they aren't a mass murderer!). This, too, gets old pretty quickly.



Missouri Aquarium Society

Band.us@masiclub
Or
Band.us@masiswap

[Join This Band](#)

I've found that listing fish as "Porch Pickup" works best for me, and also seems to be most preferable for buyers. Many are leery of going into a complete stranger's home, but a quick transaction on the porch is not usually a problem. It's even better if they can pay by PayPal or Venmo so there will be no cash to deal with.

All online payment services report your annual movements of cash to the IRS, so you need to keep track of sales and report them as income at the end of the year. Some states also will require collecting sales taxes which need to be disbursed to the state. You may also have to purchase a business license, and that will add costs and restrictions on how business is done. All of this means that with any method, there is some bookkeeping involved.

Swap Meets

Recently, clubs have begun switching from auctions to swap meets for members to move their extra fish. One main reason is because the numbers of volunteers is declining, even though physical membership is increasing.

Running an auction takes about a dozen people, plus up to a dozen runners. It only takes about 4 or 5 people to run a swap meet, not including those needed to help set it up and tear it down. Swap meets generally only run for two or three hours, but an auction can run from 5 hours to as long as 8 or even more hours! That's a long

time to depend on volunteers, and way too long to expect buyers to sit in a chair waiting for a random bag of fish to come up for auction.

At a swap meet, the buyer can deal directly with the seller, ask questions, see the fish up close, negotiate a price, buy any new fish offered, check out all other items for sale in the room, and head out the door in only a half hour or so.

Even at swaps, I hear sellers grumbling that nothing is selling. Well... if the seller just sits there with their arms crossed or looking at their phone, chances are good no one will even stop at their booth.

Engage with folks who come to your booth, look them in the eye, greet them, ask questions and answer questions, maybe even negotiate prices, etc. Some vendors don't like to do that and for these, auctions are still the best choice.

Generally, don't expect to get retail prices, and try to bring a bit of variety. If you've a bunch of items that are all the same, it's back to finding buyers. Even at a large swap, if there



are too many of the same items, there are likely only a few buyers interested. If that's the only thing you brought to sell, after a couple of bags are sold, you've likely found all the buyers that want those items.

You can't avoid it

All methods of selling fish have costs involved. Selling to a retailer you'll get wholesale or less. Selling online means you have to do all of the work posting, handling payments, prepping, packing and shipping, not to mention bookkeeping. Selling via Craigslist or BAND means you have to do all of the work posting, prepping,

packing and delivering -or hoping the stranger you let into your home is not the next Charles Manson.

With all of these considerations, I think that having the club sell your fish for a 20 or 30 percent cut is a bargain! All that must be done is to pack them up and drop them off, sit down and enjoy the auction, then in a week or so you get a check. How easy is that?

Don't forget that there is SO MUCH more that this money does for so many people. Don't look at the club's cut as the club "ripping you off" but rather as your donation to help keep our awesome club running for another 60 years. And now a portion of MASi's club split goes towards the annual MASi Challenge, supporting worthwhile fishy charities.

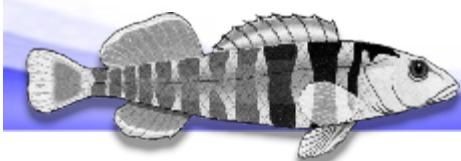
If breeding fish to help cover fish-room costs, some of the best, most reliable choices that have been consistent sellers over the past 60 or so years are angelfish, fancy guppies, Corydoras (any species, but oddly the more common ones sell best), and Bristlenose catfish. But if you want to Get Rich Quick, go for one of the late night infomercials and follow one of those crazy schemes. It's got just as much, if not more, potential for success as getting rich out of a few tanks in your basement.

* Illustrations by Matthew Montoya Rush

**11/8/2022:
\$2.04 Billion
Powerball: 10, 33,
41, 47, 56, + PB 10**

**Did You Get
Rich Quick?!**





Fish-O-Nomics 102

What is the value of a guppy?

By Kevin Plazak

DON'T KNOW THAT
Midwesterners will appreciate Argentinean philosophy or Oregonian "wisdom", but took a swing at combining them here. Hopefully this might bring home an answer to each of our dear readers.

While there is a lot of merit in giving values to living things, when I toiled in Worker's Compensation Insurance, I found valuing a thumb at \$20,000 to be upsetting. (*If this sort of thing brings you joy, visit: <https://www.marketwatch.com/story/how-much-are-your-body-parts-worth>.*) Ultimately the value of such things needs to be known in order to help the person being harmed, but it gets grim really fast. End of first paragraph... might want to grab a drink – we're going deep.

Which brings us to the value of a life... a fish life. Since I am in the business of weighing the lives of fish against the needs of my customers, my employees, my business and the fish themselves, I may be able to shed some light on all this. And when you see a fish and you talk about it as if money should enter the equation, you can start to feel the weight of the topic. When a fish is no more than folding money, you should look for a different



hobby. IE: Remote Control airplane clubs are also known for their club functions...

Okay, we've made it to the third paragraph and we haven't really touched on the very dark stuff that makes people join PETA. Let's say that the grain of truth that holds that amalgam together is a big truth: people harm animals. This truth, more than any other, is why putting a price on a living thing is so very tricky. Life is invaluable and talking about pennies in the face of a life is "Gouche" at best and unethical at worst.

Perhaps an Argentinean poet can shed some life on the nature of reality. (Bet you wished you had gotten that drink now.) Jorge Luis Borges posited in the Three Versions of Judas that all living things exist as three things at once. His theory, to which I wholly subscribe, is that I exist as I see myself. I also exist as you see me. There is also a reality that is true that no one can see. I can't see the true version of me nor can I see your version of me – I'm stuck seeing me through my own lens.

Let me give you an example:

Say you were getting that drink just now and you thought I might like one as well. You sit down with your Coors Light and you give me the same. You were right about my wanting a drink, but Coors Light gives

me a headache. Your version of me existed as a Coors Light drinker. In either event, you were kind enough to try to provide me something and the thing you provided would have been consumed by me with a hope that I can find enough water to dilute the incoming headache.

I existed as a Coors Light lover and a Coors Light hater all in the same situation. *Who knows what Coors Light actually does to me today as I haven't touched it since the last headache.*



Okay, so we can understand how two reasonable people could see the same thing differently... thanks to Borges!

A fish also exists in a state of different values to different people. Let's say you have a tank full of female *Xiphophorus signum* and someone offers you six female *X. signum* for \$20, it isn't a very good deal for you. It is a very rare fish, but you have lots of



females already and don't need six more.



X. signum

Now, let's say they offer you six males for the same \$20. Now it is a VERY good deal. From the point of view of the seller, it may seem strange that you only want males since you need females to make more fish.

Without the knowledge of your home tank being full of females, your seller can't understand your choice. The thing is, *X. signum* is not a particularly attractive swordtail. Small sword, brownish green color with some black lines and yellow on the sword. If you are very lucky, they can look a bit like a bad Marigold Swordtail. If you had to choose a swordtail to stare at, this fish might not be on the list.

But here's the thing- your use of the fish will have one value for you and another value to someone else at the same moment. Is there an actual value for a fish all the time? Conditionally, yes – actually, no. With all economic theory, supply and demand will monkey with the price. If there is a low supply there will be a higher demand as rare things have more value than common things due to their relative rarity.

Rare things that are artificially rare command higher prices than their worth as the "worth" shifts with the buyers... *Toilet paper was very valuable not that long ago.*

Let's say you could find a group of six small *X. signum* for sale today. I couldn't, but let's assume for this example you could find some to buy. Let's say they were \$100 for the group of six. Seeing that they aren't being offered for sale anywhere else, we have no idea if that is a good value or not. If your bank account had \$150 in it, you might pass. But, let's say you owned every other *Xiphophorus* except *X. signum* and you had \$150 in your bank account. You can see how that price is the same, but the value of the fish shifted a LOT with the right conditions.

See, there is no fixed truth on the value of any fish!

So, you paid \$100 for six juvenile *X. signum*, it doesn't mean they are worth that much money – all it means is that they are worth at least that much money to you in a certain situation. All of this preamble is coming to this point – the only fish that have fixed values are those that are sold every day in the SAME fish store. Finding a fixed price on any fish across any state will give you a surprising number of prices for one fish.

Getting to the meaning of this conversation – your fish is valuable to people who want your fish and has no value to those who do not want your fish. It does not have a fixed value within any random group of fish keepers, ever. If every club member was offered 100 Cardinal Tetras that were healthy, happy and big in a closed auction where the bids were sealed, there would be almost all different bids INCLUDING a number of people who would not bid due to a lack of tank space. The value of the lot would vary from \$0 per fish to maybe as high as \$2 a fish, but likely no more than that.

Stores buy Large Cardinal Tetras from my company in 100 lots all the time and their thought is that 100 Cardinal Tetras are worth \$125. They think this because that's our price and they will sell them to their customers for \$5 each which is the price their customers will pay. All in, our cost is between \$.32 cents and \$.50 cents to get them from South America to the United States. When we get them from Asia they are between \$.52 cents and \$.57 cents each. Our cost is around 50% of the sales price and that margin is fixed.

Now let's go back and talk about your bag of six *X. signum* that sold at auction for \$5 and you paid \$20 per fish at the same auction when you bought yours. The person who bought your fish had bid \$5 and no one else bid higher. The blame should be squarely on the shoulders of the person who did not bid higher against the buyer. The blame is also on the buyer for not paying full price when \$5 was enough to win the lot – they should have just paid more. The fault was also on the seller for not knowing the future and bringing the exact fish that would bring the highest reward.

And that's the deal – you are gambling when you are playing at buying and selling fish. It is a rush to have your fish sell for WAY more than they are worth. It is exciting, fun and profitable... sometimes. And when you are grumbling about a fish not selling for more, just know that your opportunity to sell your fish extends well beyond the auction room. That said, did you pack them well? Were they nicely labeled? Was a picture included? Did your bags look better than everyone else's in the room? Did you think about what the attendees might want to buy? You can tilt the odds in your favor by making your bags really nice, or you can bring fish that you want to bring and accept the response of the buyers.

Ultimately, think of a lower than anticipated bid at an auction as loaning your co-hobbist money. You will never see that \$10 again, just let it go. They may pay you back and that's great. Sometimes, they pay you back and bring you a sandwich as a "thank you", but most of the time it is a losing proposition.

Taking your fish to the auction will clear up space at home and might pay for your gas and snacks at the meeting. Expecting to go home with a big wad of cash is not recommended. It is always a crap shoot and sometimes you lose.

Fish pricing variability will play out at wholesalers, at fish stores, at swap meets and anywhere else you choose to offer your fish. People will be offered fish for more than you feel they are worth and you will be offered fish that are a good deal. Sometimes people will pay too much for a fish being sold for too much as it is worth that price to the buyer. Sometimes you can't sell a species for close to the price you paid.

What's a guppy worth?

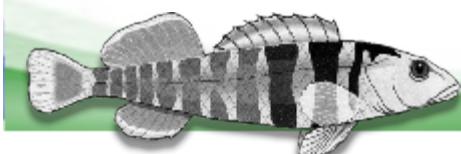
Whatever the last bidder has bid...

Whatever the store owner offers you...

Whatever you paid for them.

Thanks, Borges!





Missouri Native Plants for
Aquaculture

Proserpinaca palustris

Mermaid weed, marsh mermaid weed

By Micah Issitt & Adrienne
LeGault



PROSERPINACA PALUSTRIS, sometimes called “Mermaid weed,” is well known in the aquarium hobby and regularly available from a variety of online retailers, but many aquarists might be surprised to learn that this interesting plant is a Missouri native with an unusual lifecycle that has captivated botanists for some time.

Around two thousand some years ago, Pliny named a plant species that he encountered “Proserpinaca.” According to Asa Gray, one of the greatest American botanists of the 19th century, Pliny was describing a different aquatic plant that was reclassified later into the genus *Polygonum*, but the name was preserved and transferred by later botanists to describe a widespread weedy plant that grew across North and South America, the species now known as *Proserpinaca palustris*.

The name given by Pliny, means “of Proserpina,” which was the Roman name used for the Greek goddess Persephone, goddess of

harvests, fertility and wine—a pretty fun goddess. Pluto, the king of the underworld, wanted Proserpina for his wife, but she didn’t like him, perhaps because he lived in the underworld surrounded by the ancient Roman version of ghosts. In any case, in a tragically exploitative bit of historical mythology, Proserpina’s father, Jupiter, conspired with Venus and Pluto to let Pluto kidnap his daughter.

Proserpina’s mother, wasn’t having it. She stopped doing her heavenly job, which was to provide bountiful harvests, and there was a massive famine on earth. Finally, Jupiter agreed to allow his daughter to return, but like the truly despicable man he was, he forced her to spend half of her life with Pluto in the underworld, returning to the realm of the earth to live out the rest of her life.

Pliny in Naturalis Historia -The philosopher, author and naturalist Gaius Plinius Secundus (23-79 CE), better known as “Pliny the Elder,” is one of the earliest nature writers in western culture. Among many essays and other scattered writings, Pliny is credited as the author (more likely editor) of the extensive tome - a tremendous attempt to encapsulate the totality of Roman knowledge of the natural world.



This is one of the myths that expresses the observed phenomenon of seasonal variation, but why would the mermaid weed acquire a name based on this Greek goddess? Because, like Proserpina, the mermaid weed lives a double life, existing in one very distinct form when it occurs on land, and in a completely different form when it grows beneath the surface of the water.

Aquascapers, gardeners, and hobbyists might be aware that many aquarium plants can take on different characteristics when grown “emerged,” which is typically taken to mean growing in a boggy or marshy condition, partially submerged and partially exposed to the air. Plants may develop different kinds of leaves and other tissues, often with different shapes and colors than the same species might adopt under the water. Many aquarium plants will come into bloom and seed when allowed to break the water’s surface, or when grown as a marginal, bog plant, rather than in its fully aquatic form.

Emerged Form



Proserpinaca palustris is one of those plants that adopts very different forms in or out of the water. Above the water, the leaves become dissected (having a vein down the center) and have toothed edges. The leaves are also typically dark green and somewhat robust. In this form, the plant will eventually produce some small white and purple flowers, as well as tons of seed. Under the water, *P. palustris* changes its habit completely. There it grows simple spiky leaves on simple stems. However, very interestingly, it is possible to get the plant to grow its terrestrial leaf shapes under the aquarium with the right kind of light and conditions.

The double life of Proserpinaca provides an interesting lesson in growing aquarium plants. Most of the plants that are grown in aquaria were originally marsh plants. This is true of *P. palustris*, which typically occurs in marshes or fens, and often in shady spots. Here, the plant grows in small stands, sending up long stems with toothed leaves. The stems stick out of shallow water areas, with terrestrial leaf shapes on the spikes rising from the surface, while submerged leaves retain their submerged form. This is the environment in which this plant can flower, and so complete its life cycle.



It is good for aquarists to remember that aquarium plants grown submerged are always seeking to reach the surface and, ultimately, to complete their life cycle by reproducing and setting seed. Many of the stem plants, like *P. palustris*, have evolved to live in a partially submerged, partially terrestrial environment, taking advantage of the light and gasses available outside of the water, as well as the plentiful moisture and nutrients in the shallows. Bog and marginal plants—straddling the line between terrestrial and aquatic—are essential for fish, amphibian, and invertebrate diversity, providing nutrition, shelter, and cleansing properties for the many, many species that live among the aquatic and emerged stands of stem plants growing in the wild.

For aquarium hobbyists, plants like these provide a new opportunity—experimenting with emerged and fully terrestrial forms. Utilizing a paludarium or other enclosure with high humidity, many different aquarium species can be encouraged to emerge and can be rooted in a shallow planter, perhaps

covered with only an inch or two of water above the surface of the pot. In the summer, especially when humidity levels are high, many aquarium plants can be set outside in shallow water (over mud or enriched sand) and will put off terrestrial shoots that may even come to flower or fruit. *P. palustris* can be grown in this way, to great effect, and makes a lovely emersed display alongside the stems of native *Ludwigias*, like *L. peploides* or *L. repens*.

When grown submerged, *P. palustris* is an excellent species, occupying a similar position in the aquarium as the closely related “parrot feathers,” or “milfoils.” The *Proserpinaca*’s are considered a type of milfoil, and the leaves are undeniably similar. Some of the milfoils, like *Myriophyllum*, have been cultivated to alter coloration. *P. palustris*, in certain breeding strains, also have dramatic color potential. Grown in the right kind of soil, and with the right light levels, and often with CO₂ infusion, mermaid weed can develop deep reds and rich amber, orange tones, a welcome addition to many different types of aquascapes. This color capability has allowed mermaid weed to become familiar in dutch style aquascapes, while they can also provide a pop of green, orange, or red in a more naturalistic style, typically used in the midground or foreground.

Nutritionally, the plants are not exceptionally needy or demanding, and they tend to root well from freshly cut stems, but extremely low nutrients might cause the plant to wither. Some aquarists have had difficulty trying to grow mermaid weed in immature aquaria. In “dirted” tanks, with a layer of loam at the bottom of the tank, mermaid weed grows exceptionally well, and does not require extreme levels of light to keep going.

One of the benefits of using Missouri natives indoors is that plants from temperate environments tend to do well even in water that would be far too cold for many aquarium plants originating in tropical environments. It can sometimes be difficult to find “cold water” plants to use with fish that thrive in cooler temperatures or that require a dormancy period to thrive. For instance, the Japanese rice fish, *Oryzias latipes*, which is actually hardy enough to survive in a Missouri pond



under ice, benefits from being given months of rest, at lower temperatures, to allow their metabolisms to recover from the demands of the breeding season. *P. palustris* is happy to rest alongside schools of *Oryzias*, awaiting the change of the seasons to begin growing again.

***P. palustris* is certainly one of the best Missouri natives for full-time aquarium growth, because they respond well to being kept at subtropical temperatures, at which growth is continuous rather than cyclical or seasonal. However, the plant's emersed form is a different experience for growers and provides different benefits either in the aquarium or in the pond.**



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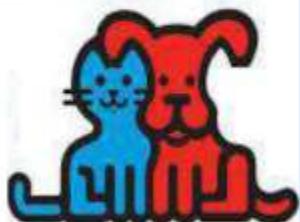
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2022 BREEDER'S AWARD PROGRAM - Steve Edie

BAP: 2022



Look for a complete summary of 2022 BAP in the January, 2023 Darter newsletter. The last quarter 2022 BAP results will be summarized there as well. Time is needed to sort out last minute submissions from the November Auction as well as the September and October meeting submissions.

The latest Breeder Award Program rules can be found on the MASI Website here: <https://www.missouriaquariumsociety.com/BAP/BAP-RulesRev2019.PDF>



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2022 HORTICULTURE AWARD PROGRAM - Mike Hellweg



September & October, 2022

Member	Genus & Species	Common Name	Type	Points
Holly Paoni	2465 points			
& Kevin Wise	<i>Commelina communis</i>	Asiatic Dayflower	OB	10*
	<i>Cryptocoryne aponogetafolia</i>		V	15
	<i>Echinodorus cordifolius</i>	Radican Sword	IB	20
	<i>Iris louisiana</i>	Black Gamecock Water Iris	V	10
	<i>Ludwigia sp. lacustris x arcuata</i>		V	10*
	<i>Lysimachia nummularia</i>	Moneywort	OB	10
	<i>Lysimachia nummularia</i>	Moneywort	S	10
	<i>Rotala macrandra</i>	Mini Butterfly Rotala	V	15
	<i>Sagittaria graminea</i>	Narrow Leaf Arrowhead	V	5
John Van Asch	840 points			
	<i>Najas guadalupensis</i>	Guppy Grass	V	5
	<i>Taxiphyllum barbieri</i>	Java Moss	V	5
Julia Cross	85 points			
	<i>Canna indica Purpurea</i>	Purple Leaf Canna	V	10*
	<i>Hygrophila corymbosa</i>	Willow Leaf Hygro	V	5
Mitch Wendel	90 points			
	<i>Cryptocoryne wendtii rubra</i>	Giant Red Crypt	V	15
	<i>Echinodorus cordifolius</i>	Radican Sword	V	15
	<i>Microsorum pteropus needle leaf</i>	Needle Leaf Java Fern	V	10
	<i>Nymphoides hydrophylla</i>		V	20
	<i>Vallisneria asiatica</i>	Jungle Val	V	5
Steve Coxon	500 points			
	<i>Ammannia senegalensis</i>	Giant Ammania	V	20
	<i>Bacopa monnieri</i>	Water Hyssop	IB	15
	<i>Egeria densa</i>	Anacharis	OB	5
	<i>Rotala rotundifolia</i>	Blood Red	V	15
	<i>Eleocharis parvula</i>	Dwarf Hairgrass	V	10
	<i>Hydrocotyle sibthorpioides</i>	Lawn Marshpennywort	V	10
	<i>Hygrophila corymbosa</i>	Willow Leaf Hygro	V	5
	<i>Lilaeopsis brasiliensis</i>	Micro Sword	V	10
	<i>Mayacca fluviatilis</i>	Bottle Brush Plant	V	20
	<i>Micranthemum umbrosum</i>	Giant Baby Tears	V	15
	<i>Myriophyllum matogrossense</i>	Platinum Southern Milfoil	V	10*

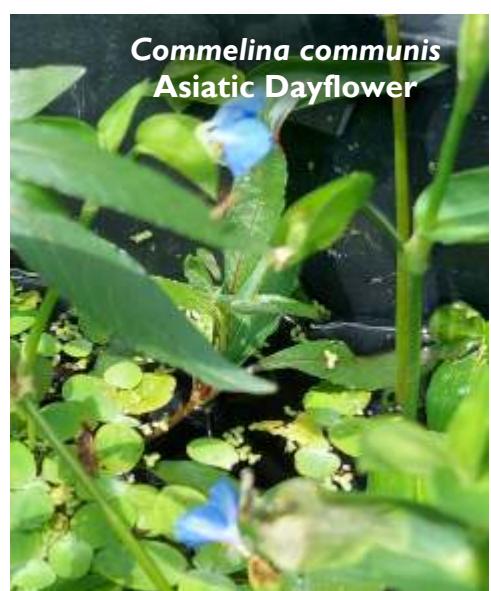
HAP Key: Reproduction Key: V = Vegetative, OB = Outdoor Bloom, IB = Indoor Bloom, S = Seedling; * **MASI First!**



HAP Blooms

Blooms often provide the definitive species ID

September & Octoberr, 2022



2022 SCHEDULE & CLUB HOPPING

Steve Edie



Date Group 2022 Events

11/18/2022	OCA	11/18-20, OCA Extravaganza 2022 - Strongsville, OH
12/4/2022	GCCA	Tropical Fish Swap - Northbrook, IL

Date Group 2023 Events

1/8/2023	QCFS	Quad Cities Fish Swap - Davenport, IA
1/15/2023	GCCA	Tropical Fish Swap - Northbrook, IL
2/11/2023	MASI	Winter Auction - St Louis, MO
2/19/2023	QCFS	Quad Cities Fish Swap - Davenport, IA
2/26/2023	GCCA	Tropical Fish Swap - Northbrook, IL
3/16/2023	NANFA	3/16-19 - Columbia, SC
3/25/2023	MASI	HOBBY Weekend w SWAP - St Louis, MO
3/26/2023	QCFS	Quad Cities Fish Swap - Davenport, IA
4/2/2023	GCCA	Tropical Fish Swap - Northbrook, IL
4/29/2022	MASI	Spring Auction - St Louis. MO
6/3/2023	MASI	Summer SWAP - St Louis, MO
7/13/2023	CATL	7/13-16 ACA & CATFISH CATACLYSM - Madison, WI
9/9/2023	MASI	Fall SWAP - St Louis , MO
9/17/2023	GCCA	Tropical Fish Swap - Northbrook, IL
10/1/2023	QCFS	Quad Cities Fish Swap - Davenport, IA
10/22/2023	GCCA	Tropical Fish Swap - Northbrook, IL
11/4/2022	MASI	Fall Auction - St Louis, MO

Shaded Lines are Local Events

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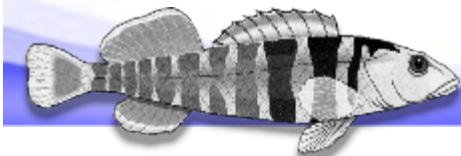
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Contact	For Sale	Price
Charles Harrison ((314)630-8952 Charles@inkmkr.com	Thiosulfate crystals (Chlorine Remover) - pound OTO double strength Chlorine/Chloramine test kits - 4 ounce Flubendazole, 10% powder 25 grams Lavamisole HCl Powder - 5 grams treats 100 gallons Methylene Blue 5% solution (4 ounces) Acriflavine Concentrate (4%) solution, 2 ounces pH test kit. pH meter in a bottle, 4 ounce test solution	\$4.00 \$12.50 \$25.00 \$10.00 \$12.75 \$12.70 \$7.00

Mike Hellweg MiniFins Mike@Minifins.com	General Aquarium Support: Dechlor, Coconut Caves, Flake Foods, Plants & Custom Fish Orders Contact by email or buy at the back of the room at MASi General meetings	Contact for Pricing
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Gary Lange GwLange@sbcglobal.net	Miracle Tubifex Worm Feeder Blackworm Feeder Brine Shrimp Strainer Get One of Each above Freeze Dried Brine Shrimp	   	\$7 or 3/\$18 \$6 or 3/\$15 \$5 \$15 \$2
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Contact	Wanted
Mike Hellweg Mike@Minifins.com Or see me at a meeting or call: (636) 240-2443	I'm looking for one Scattergood Filterking hang on tank filter, made in Missouri from the 1940s to the 1960s.

WHAT'CHA GOT?

Additional Items Changing Constantly on [BAND.us/@MASIswap!](#)

✉ **MASI BAND Swap page** - <https://band.us/@masiswap> - This is now a CLOSED Group specifically for discussion and posting about upcoming MASI SWAPS and other sales efforts among members or others with approval on BAND. Post any sales, re-homes or other livestock exchanges on BAND. **Do NOT post these to FaceBook, they will be removed!**
Those wishing to join will need to register with BAND, and then ask the moderator to join the group. It's not hard, it's just a name, email or phone #, a confirmation text or email. Then request to join, answer all 3 simple questions that are set up and once the Moderator approves, you are in.



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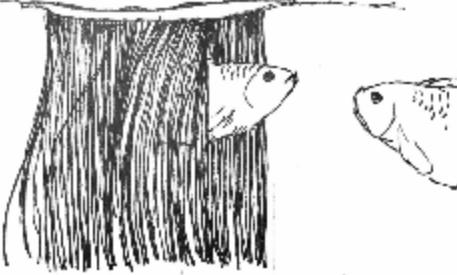
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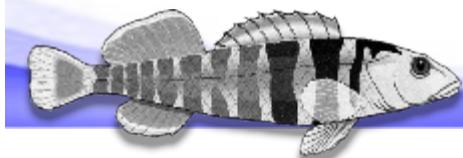
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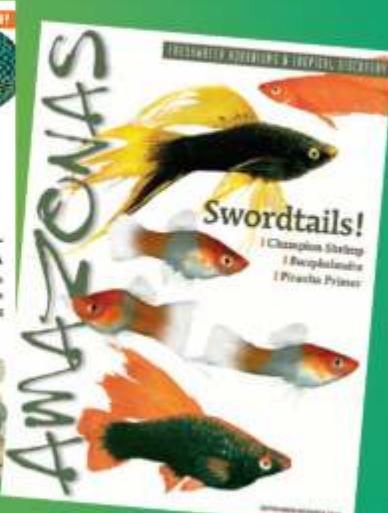
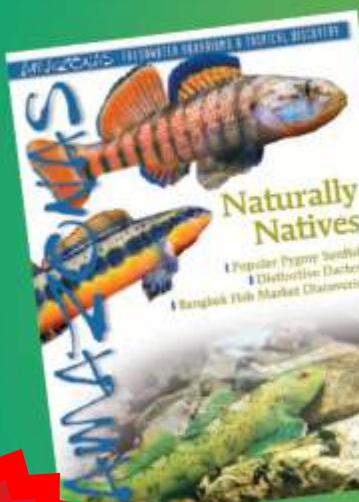
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