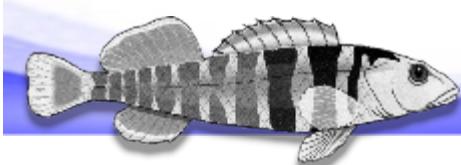


The **DARTER**



V48#3

May/June 2022



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MEMBERSHIP

[join MASi](#)



Annual Voting membership in the Missouri Aquarium Society is \$15; annual Corresponding membership is \$10; both include 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.

EDITOR **OPEN** editor@missouriaquariumsociety.com www.missouriaquariumsociety.com



Cover: LaBarque Cr. Collecting Trip by Pat Tosie



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Article Photos are provided by the Authors unless otherwise noted.

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FROM THE PRESIDENT'S TANK

Pat Tosie

**MASIS
elections will be
happening
soon!**

**Get involved in how
our club runs, be an
active member,
volunteer, and run for
an office.** In the
upcoming months,
Steve Coxon is looking
for members to run for
President, Vice-
President, Secretary,
Treasurer, and Council
members. We would
love to have multiple
people running for all
positions- I for one will
run for another term as
club President.

Talk to him, drop him a
note or send an e-mail
to Steve Coxon and get
your name on our June
ballot. Please talk to
him about being one of
these important people
who will guide the club

into the future. We are always looking for ideas to better our society, so make it your mission to be an active participant.

An immediate need is for an Editor as Chuck wants to retire from that position. Please let Steve or me know if you are interested in trying your hand. We have a great club and could use you to make it even better.

We just had our annual Spring Swap Meet and Auction and things went well. You should have received your check if you sold anything.

Steve has a fantastic line-up of speakers listed elsewhere in this Darter plus we have a wonderful location to have our meetings at Jost Chemical. Be sure to tell your family and friends to come to a meeting. Remember that membership is just \$15 a year, \$10 for Corresponding, and anyone can join with Robby Simmons at the meeting or online from our website.

Write an article, take a picture of your favorite fish, plant or tank and submit them to the editor for publication in our widely read Darter – and get famous! (We exchange with clubs from all over the world!) What can you share with everyone about your successes, failures, trials and or attempts that you have made in the hobby? Can you draw a picture or make a puzzle, maybe a seek and find? What can you add or what would you want to see in the Darter? Everything helps and adds to our publication. Have you been to the St. Louis Aquarium? Maybe a Pet shop that you would like to write a review?

It would be nice to see each member submit something for the rest of us to learn from.

Keep looking below water....



OPEN

FROM THE EDITOR

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!

Content deadline for the 4th Darter of 2022 is July 12th!!
Send Feedback and Letters to the Editor to: editor@missouriaquariumsociety.com



Letter to the Editor, actually, to all MASi members, from Mike Hellweg

The End of the Aquarium Hobby?

Many of you have no doubt heard about the proposed legislation that was sneaked into the COMPETES Act back in February overnight, passed the US House of Representatives the next morning on a party line vote, and was sent on to the US Senate for consideration. It was caught by USARK, the United States Association of Reptile Keepers, buried in nearly 3000 pages of legislation.



Even a cursory read of the legislation is scary. Problem is, it was never actually even debated or discussed by the US House of Representatives. It was just tacked on to some good sounding legislation that would improve US competitiveness with China. How could that be bad? Overall, the original bill is actually pretty good, bolstering US based businesses, but the part amending the Lacey Act could very much end the pet industry as we know it. And it wouldn't do a thing to the Chinese pet industry. How would that possibly be good for US competitiveness?

I won't go into details due to limited space. If you want to read more for yourself, go to the Pet Advocacy Group page at petadvocacy.org or the USARK page at usark.org

You might think I sound like Chicken Little running around saying "the sky is falling". But it's already passed the US House of Representatives in a party line vote with no discussion or debate, so it is real. And it's a huge threat. It's not me saying this. Folks in the pet industry are really worried. They're about to have their livelihoods seriously curtailed or even eliminated if it becomes law!

For us hobbyists, it means no more importing or interstate movement of fish unless some unelected government official says a particular species is okay. No more Aquabid. No more eBay. No more trading new fish with other members of national groups like the ACA, ALA, AKA, IFGA or IBC! No local pet shops buying new fish from importers, or even from fish farms in Florida. People who do so can actually be charged with a crime, face large fines and imprisonment. For trading new fish? For going to a club auction in another state? For raising fish? Sounds crazy, doesn't it? But it's real. And it's already passed the US House of Representatives.

Now I know that all of the You Tube "experts" and even many of our national organization gurus have said not to worry. One major US magazine hasn't even addressed it at all! Everything will be okay. But folks in the industry are worried. Really worried. As of May 12, when the reconciliation committee had their first meeting, they have been inundated by folks from anti-pet groups who support this ban and have heard very little from those of us who are opposed to something like this, making it likely to pass unless we speak up NOW.

Get off your butts and let the government folks on the committee know you're opposed. It's not hard to do. You can go to the Pet Advocacy Group and fill out the form at this link: [Advocacy Campaigns - Pet Advocacy Network](http://petadvocacy.org/lobby). Our own local Congresswoman Anne Wagner is on the reconciliation committee. Call her local office at (636) 779-5449 and let them know you're opposed to the proposed changes to the Lacey Act that are included in the COMPETES/USICA legislation. The specific legislation is in Section 71102. Be friendly. Don't be nasty and angry, just let them know how you feel.

Tell them that the proposed changes to the Lacey Act would hurt jobs and our already well-regulated industry, putting tens of thousands of people out of work, shuttering thousands of small businesses, and causing cascading job losses in related businesses all over the US.

For example, I'm just a one person operation. Doesn't seem like much if I lose my job and my business, and in the big picture, it's not. But I regularly do business with more than two dozen other small businesses who would also lose income, jobs and maybe their business as well. And the larger businesses they do business with would be affected as well. Multiply that by thousands of other small businesses, and you see how it cascades.

Get involved. Speak up. Join the Pet Advocacy Group. Do something! Or soon you'll be complaining because every remaining pet store has the tiny selection of a big box store since that's all that will be available!

In short:

The specific legislation is Section 71102 of the COMPETES/USICA which changes the Lacey Act.

To write Congress: [Advocacy Campaigns - Pet Advocacy Network](http://petadvocacy.org/lobby) :
<https://petadvocacy.org/lacey-act-campaign>



To contact Congresswoman Anne Wagner: (636) 779-5449

Sincerely,

Mike Hellweg

Editor's Note: The Missouri Aquarium Society's 501(c)(3) status as Non-Profit Organization precludes MASi's direct involvement in any political activity. However, as a private citizen its members can react to any important development within our hobby and act on their own.



MASI General Meetings: 7:30 PM CT, 3rd Thursdays, 2022!!



May 19th: Alex Scharnberg: West African Cichlids

BIO: Alex got into tropical fish at 8 years old when his dad got him a 5 gallon tank and he became hooked on the common krib, *Pelvicachromis pulcher*. Since then he has been interested in reptiles, birds, orchids, native colubrid snakes and tarantulas.

After teaching Environmental Education in New England he attended UNC Charlotte for a Masters in Education. His experience at summer camps got him into education and he will soon be spending his 13th summer at Camp Mondamin in Western North Carolina running the nature lab. Currently Alex is finishing his fourth year of teaching 8th grade science in Charlotte, previously teaching K-5 elementary science for 2 years. He is past president and treasurer of the Charlotte Aquarists Society. Alex spent a few years in the tropical fish business with Fintastic.

Currently specializing in West African riverine cichlids and the genus *Pelvicachromis*, he is also building a sunroom for his orchid collection - maintained since he was 14 and also grows over 60 different roses. Although his nine fish tanks specialize in West African cichlids, he also keeps two pairs of bull snakes, three corn snakes and two Goliath tarantulas. Besides West Africans, he enjoys keeping different types of swordtails and Cyprinidae and growing Swords, Aponogeton and Cryptocoryne plants in his tanks.



At MASI's NEW meeting location:

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

Follow the signs - Map on MASI's Website



MASI General Meeting: 7:30 PM CT, Thurs, June 16th, 2022!!



Dean Tweeddale
Raising Fry and My Fry
Rack System

Dean Tweeddale is a master breeder who started keeping fish over 50 years ago. He started with guppies, moved on to discus, and has since bred countless species of freshwater fish. Always an innovator, throughout his fishkeeping career Dean has built three in-house fish rooms and developed an incredible fry system.

Some of his proudest moments in the hobby are developing a system to raise discus artificially, breeding many rare dwarf cichlids, continuous spawning of German blue rams, and spawning several L-number plecos including most recently zebra plecos.

He has previously shared with MASI his collecting trip for wild fish in Peru and has appeared on a number of YouTube channels including Aquarium Co-Op, Swishkey, L.R.Bretz's Aquatics, and Dustin's Fish Tanks.



At MASI's NEW meeting location:

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

Follow the signs - Map on MASI's Website



MASI General Meeting: 7:30 PM CT, Thurs, July 21th, 2022!!



Scott Fellman: Tannins in Your Tank!



Scott Fellman is owner and "Chief Tint Officer"- of Tannin® Aquatics, Driven by Life, Fueled by Passion, and Inspired by Nature.

Scott's Says: *"A lifelong tropical fish hobbyist, I suppose that I'm probably best known in the aquarium world as a reef aquarium author, lecturer, and aquatic industry entrepreneur. Prior to launching Tannin, I was co-owner of a popular marine livestock vendor, Unique Corals. Of course, my first love was freshwater, and I can't ever seem to stray from it."*

Tannin Aquatics' story really began with my lifelong love for all things aquatic, and a vision to provide freshwater tropical fishes with the most natural captive environments possible. Environments with a certain look... A certain feel. A certain vibe. Earthy. Organic. Natural - Tinted."

The Talk: "Tannin" is derived from leaves and wood and tints the life-giving waters of tropical rivers and streams with a beautiful brown color that is so alluring. The dark waters, tangled roots and earthy-colored leaves found off the shores of tropical "blackwater" rivers, ponds, and streams can be replicated in our aquariums. We provide hobbyists with the products to use a carefully curated selection, along with information, inspiration, and appreciation for creating representations of the beautiful blackwater world that exists where land meets water.

You'll be shown how to use "aquatic botanicals" in aquariums, terrariums, vivariums, paludariums, and ripariums- where they offer unique aesthetics to help create memorable blackwater or brackish, "botanical-style" aquatic microcosms- different than is "currently popular" in the aquascaping world.



An unusual specimen of driftwood, exotic-looking aquatic botanicals, aquatic-themed art, or that crazy leaf, should get YOU excited, too. We've studied it for years. Romanced it. Curated it. Branded it. Loved it. Every item is scrutinized as if it were going into our own aquarium.



At MASI's NEW meeting location:

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

Follow the signs - Map on MASI's Website



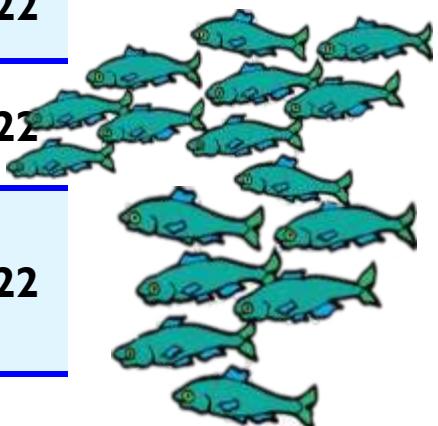
PROGRAM CHAIR'S CORNER

Steve Coxon



Speaker	Topic	Date
Alex Scharnberg	West African Cichlids	5/19/2022
Dean Tweeddale	Fry rack system	6/16/2022
Scott Fellman	Tannins in the Tank!	7/21/2022
Justin Warnock	CO2 in the Planted Tank	8/18/2022
Rodet Rodriguez Silva	Lake Miragoâne Limia Project, MASi's 2022 Challenge	9/15/2022
Bob Hrabik	Native Fish Topics <i>Maybe his new book?</i>	10/20/2022
Balin Shaw	Aquascaping	11/17/2022
Christmas Party!!		12/15/2022

MASI's Own Fish School



Programs will be In-Person at our meeting location:

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

And simultaneously streamed on MASi's Youtube Channel:

MASI
YouTube

tinyurl.com/MASI-video

SEE YOU AT A MEETING SOON!





MASI is still growing!

MEMBERSHIP CHAIRMAN

Robby Simmons

Mark Czajkowski	O'Fallon, MO
Regis de Andrade	Tigard, OR
Michael Dotson	St Louis, MO
Daniel Evans Farkas	Bloomfield, NJ
Dustin Gangwer	Cutler, IN
Gail Hannel	Granite City, IL
Gregory Heck	St Louis, MO
Gina Noltkamper	Florissant, MO
Cierra Parker	Cuba, MO
Andrej Spec	St Louis, MO
Danny Wesche	Florissant, MO
Amy Wisneski	St Charles, MO
Kacey Woulfe	Alton, IL
Jboss Harding	St Louis, MO



**Welcome
these new
Members!**

**since the
last Darter!**

**If you know of
someone who has
not yet renewed
for 2022, please
remind them!**

**Don't Forget to Renew your MASi membership if you want to
continue to get the DARTER in 2022?!!**



The Missouri Aquarium Society's Annual Voting membership is \$15; an annual Corresponding membership is \$10; both include 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 Robby Simmons, membership chair, Email: robby_simmons@yahoo.com.



Memberships

Help MASi Support the Aquarium Hobby!

Support Locally by shopping our supporters.

Support Nationally & Internationally by supporting the MASi Challenge.



Precious Members Pass



Charles "Chuck" Bell
October 28, 1959 - February 14, 2022

CHARLES "CHUCK":

Charles "Chuck" Bell was a caring husband, father, brother, and friend. He left the world suddenly on February 14th, 2022.

Chuck was born to Lloyd "Dean" & Frances on October 28th, 1959. In 1984, he was introduced to his wife, Kathy, by a mutual friend. Together, they have 2 children: Michelle (Kyle) and Phillip (Marisol).

Chuck loved spending his time attending to his fish ponds and flower gardens. He spent many days of his retirement swimming at the Bridgeton Recreation Center swimming pool.

Visitation was scheduled for 11am on Saturday, February 19th, 2022 with memorial service following at 1pm at Collier's Funeral Home, 3400 North Lindbergh Blvd.

In lieu of flowers, please donate to St. Jude's Children Hospital or Stray Rescue of St. Louis.

Editor's Note: Chuck joined the Missouri Aquarium Society in 2018 and immediately became a welcome member, often attending meetings and always outgoing and willing to engage.

He immediately became a regular contributor to the Darter and used it to pass on his love of the outdoors and its possibilities for showcasing the hobby while enhancing his landscaping.

He has been a source of regular photo essays about his craft and hobby since he joined MASI. The most recent one was published only a month before Chuck passed, in the January, 2022 issue.

Everyone will miss Chuck

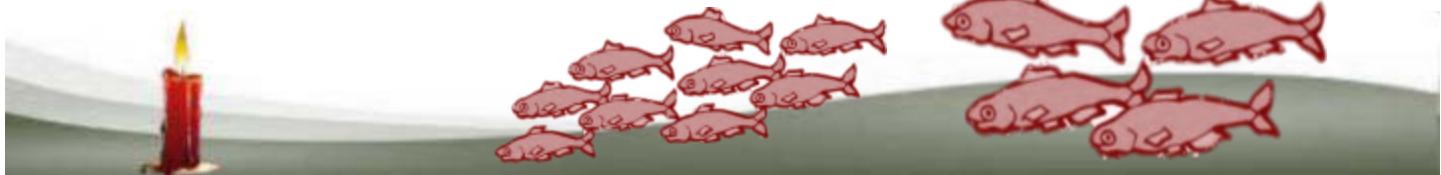


RELECTING ON a cold winter day brings me back to the many animals & plants we enjoyed in 2021.

COVID kept us home bound most of the year, so spending time by the ponds and gardens provided hours of entertainment and relaxation. The ponds & accent plants added a lot of color and beauty, with the sound of the waterfall became our sanctuary, and was therapeutic in this crazy year we just survived.

With our fish and plants, we had a variety of animals make this area their home, and we were able to enjoy watching them. There were at least 3 different types of frogs, both aquatic and tree frogs that led to several different types of tadpoles of many sizes, shapes and colors. We may have lost a few fish to the larger adult frogs, but it added another dimension to the ponds.





Dwayne E. Peters

September 14, 1956 - December 20, 2021

Dwayne E. Peters, age 65, of Granite City, passed away on Monday, December 20, 2021 at Nature Trail Health and Rehab Center in Mt. Vernon.

He was born September 14, 1956 in Riverside, CA, son of Lillian, nee Lockwood, Peters, of Breese, and the late Dean Peters. In addition to his father, he was preceded in death by his brother Danny Peters.

Dwayne is survived by his mother; brothers Dennis (Janette) Peters of Edwardsville and Dale (Sherri) Peters of Breese; uncle, Paul Lockwood of Collinsville; and nieces and nephews.

Dwayne was a veteran of the United States Air Force and later went on to work in maintenance at Union Station. He was a gun enthusiast.



A graveside service was held Monday, December 27, 2021 at 11:30 a.m. at Jefferson Barracks National Cemetery in St. Louis, MO with full military honors accorded.

Memorials in honor of Dwayne may be made online to Disabled American Veterans at www.dav.org and will be received by mail at Moss Funeral Home, 535 N. 5th, Breese, IL 62230, who is serving the family.

Editor's Note: Dwayne was an already well known member when I joined the Missouri Aquarium Society. A frequent meeting attendee, usually setting up to sell part of his excess aquarium residents. He was known for high quality and well kept offerings.

After one purchase from Dwayne, I was invited to his house to see his set up. His fishroom was the back room of the house, about 8 ft by 12 foot in one end of the laundry room. The room contained several tanks of 55 gallon and below. Dwayne would sit in the middle of the circle in his motorized chair and turn around with a clear view of all tanks, usually doing so with his pet Cockatiel sitting on his shoulder. It was one of the best fishrooms I have encountered for observing the residents.

Using this approach he made observations and adjusted his care accordingly.

After learning from Dwayne that Neocardina shrimp would coexist and reproduce when tanked with even some of the larger fish, such as Swordtails, by colonizing the Hornwort he kept floating in the tops of his tanks, I adopted a similar approach.

He purchased difficult to find high quality breeding stock and expected to recoup similar costs when he sold the progeny, either offering them at meetings or at MASi's SWAPs or Auctions. Many of his wares entered the MASi BAP program as new in the area. Although reproducing several 20 pt fish, such as many of the Tanganyika cichlids, Dwayne did not participate in MASi's BAP nor HAP program, preferring to sell his production after the challenge of breeding them rather than turn them into points. The satisfaction that he had been able to spawn and raise a difficult species was sufficient for Dwayne.

Dwayne, too, will be missed.





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.

On page 2 are contacts for the current Executive Council and other Committee Chairs and Service positions within our Club. Please provide input to anyone or attend the Council meetings yourself.

Members are invited to attend the Council meetings to bring up issues, contribute to the discussion or just to see how the club is run. Meetings are currently being held by invitation on the ZOOM platform. Contact the Webmaster (Charles@inkmr.com) if you desire an invitation.

Give the Council your Feedback or Support!



COUNCIL MEETING

2/24/22

Pat Tosie called the meeting to order at 7:32. Present were Steve Coxon, Scot Roach, Angela Hellweg, Charles Harrison, Gary Lange, Mike Huber, Caleb Pitman, Mike Hellweg and Chuck Bremer.

ANNOUNCEMENTS:

- ✓ The next Council meeting is Mar 24.

REPORTS:

- ✓ **SECRETARY:** Angela read the Minutes from the Jan 27 meeting. A motion to approve was made by Mike Hellweg and was seconded by Mike Huber. The motion passed.
- ✓ **TREASURER:** Scot read the Jan Treasurer's report. A motion to approve was made by Mike Huber and was seconded by Charles Harrison. The motion passed.
- ✓ **EDITOR:** The deadline for Mar-Apr Darter submissions is Mar 8.

- ✓ **AUCTION:** The next auction is Mar 13. Help will be needed for set-up on Mar 12.
- ✓ **CORRESPONDING:** Pat said he has received a few donations.
- ✓ **SOCIAL EVENTS:** The MASiC Bowl at Epiphany lanes will be Mar 19 from 6-9 pm.
- ✓ **YOUTUBE:** The Zoom speakers talks have also been posted to the MASiC YouTube channel.

OLD BUSINESS:

- ✓ Two more table carts will be delivered to Jost Chemical by Mar 22.

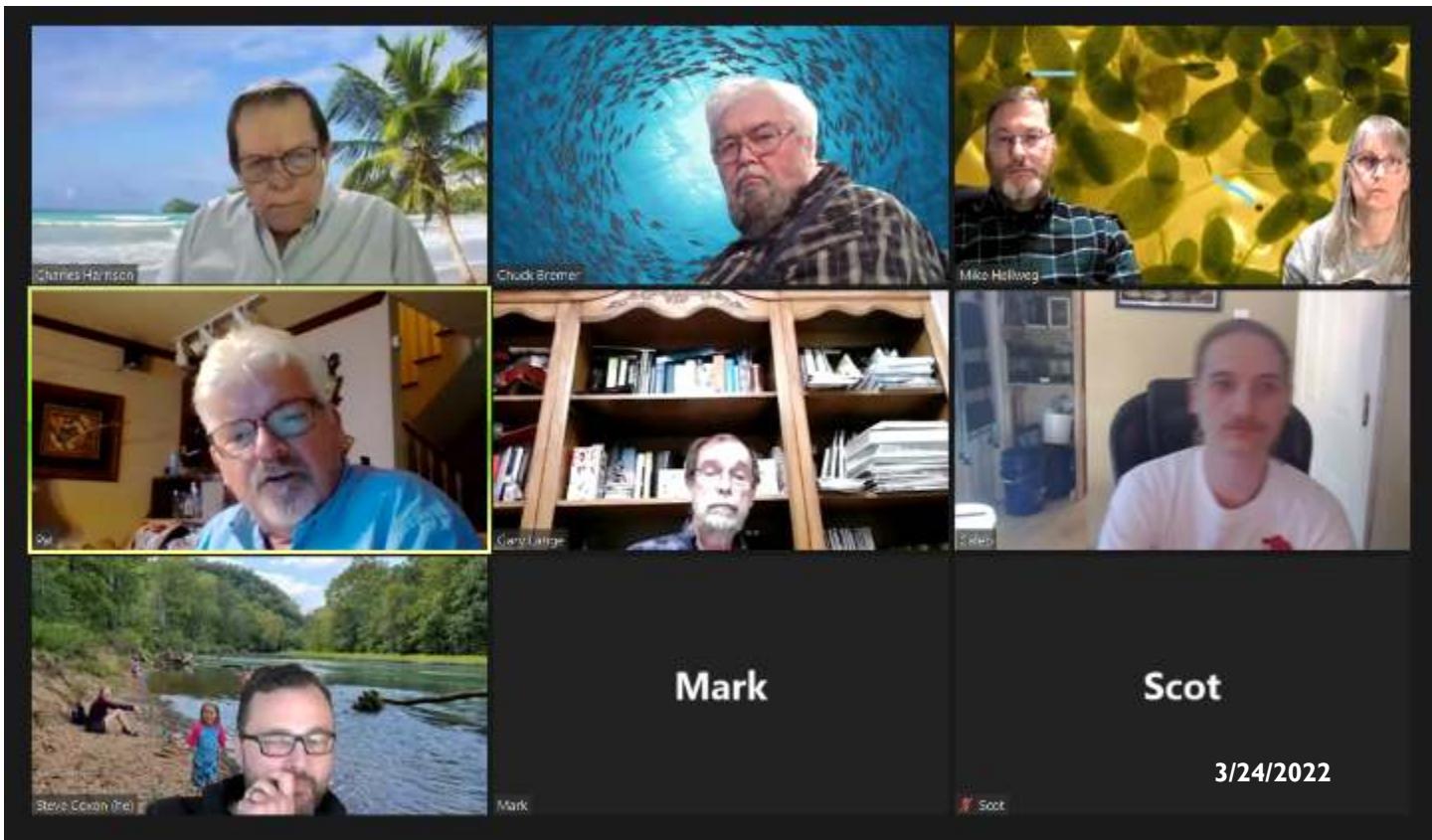
NEW BUSINESS:

- ✓ The 2021 ACA Convention bank account has not been closed yet. One more attempt at collecting Square payments will be made.
- ✓ Changing the auction split was discussed since we no longer have a room fee. This will be brought up again after the next FORC meeting.

A motion to adjourn at 8:14 was made by Charles Harrison and was seconded by Mike Huber. The motion passed.

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





COUNCIL MEETING

3/24/22

Pat Tosie called the Zoom meeting to order at 7:39. Present were Steve Coxon, Scot Roach, Angela Hellweg, Charles Harrison, Gary Lange, Mark Theby, Caleb Pitman, Mike Hellweg, and Chuck Bremer.

ANNOUNCEMENTS:

- ✓ The next Council meeting is Apr 28.
- ✓ The Swap meet is Apr 30.
- ✓ The Spring auction is May 1.
- ✓ The deadline for Darter submissions is May 10.

REPORTS:

✓ **SECRETARY:** Angela read the Minutes from the Feb meeting. A motion to approve was made by Mike Hellweg and was seconded by Charles Harrison. The motion passed.

✓ **TREASURER:** Scot read the Feb Treasurer's report. A motion to approve was made by Caleb Pitman and was seconded by Gary Lange. The motion passed.

✓ **LISTMASTER:** Chuck reported 27 corresponding members and 123 regular members so far.

- ✓ **SOCIAL MEDIA:** Steve said MASi BAND membership is over 800 members.
- ✓ **SWAP MEET:** 20 tables have been reserved so far.
- ✓ **YOUTUBE:** Speakers talks will remain on YouTube as long as the speaker agrees to do so.

Mike will speak to Jerry Jost about getting a better mic for the meeting room.

OLD BUSINESS:

- ✓ Pat still needs to be reinstated to the MASi bank account
- ✓ The MASi Fishy Bowl only had 11 participants. The possibility of a tour of the St Louis Aquarium was suggested for a MASi club event. Steve will look into this.
- ✓ The table carts have not yet been shipped to Jost Chemical.

NEW BUSINESS:

The possibility of having the capability of MASi membership cards printed online by each member was discussed.

- ✓ A motion to approve spending up to \$150.00 to mail membership

cards to members was made by Mike Hellweg and was seconded by Steve Coxon. The motion passed.

- ✓ Steve will talk to the owners of Art of Aquaria about hosting an Aquascaping workshop.
- ✓ A motion to allow Jerry Jost to keep 100% of his regular auction proceeds since he allows MASi to use his facility for club functions free of charge was made by Chuck Bremer and was seconded by Charles Harrison. The motion passed.

A motion to adjourn at 8:47 was made by Charles Harrison and was seconded by Caleb Pitman. The motion passed.

VP, Steve Coxon, is looking for 2022-23 Council & Officers. Please Volunteer! WE NEED YOU!





MASI AUCTION MESSAGE

Mike Hellweg

What a fun weekend!



I hope everyone enjoyed both the Swap and the Spring Auction. It seemed a little different without the Annual Banquet on Saturday evening, but it was a bit less stressful on those who participated in the entire weekend.

The auction itself was a bit more laid back as well. Not quite as much bidding on each item, and only about half the normal bidders overall, keeping prices a bit lower, but still higher than our average item prices going back to the early 2000s. Of course, we were competing with the only beautiful day - smack dab in the middle of two weeks of rain – so no wonder folks didn't show up to bid!

Thank you to Jerry Jost for hosting us, and thank you to all of our volunteers for helping to make it a success.

And for now, 'nuff said,

Mike :

Auction@missouriaquariumsociety.com

Summer Public Auction is August 7, 2022

April Meeting Report

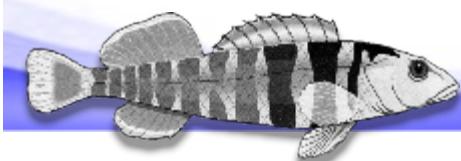


Dinner with Stephan Tanner, prior to his program on Pleco Nutrition. Raffle winners Dave Farel and Julia Cross won Power Sweeps and Aqualights from ZooMed.









MASI's LaBarque Creek Collecting Trip April, 2022

Text: Steve Coxon
Pics: Steve (SC), Gary Lange (GL) & Pat Tosie (PT)

On the Saturday following Stephan Tanner's talk on fish nutrition, a group of us, consisting of Stephan Tanner, Jack Heller, Pat Tosie, Gary Lange and myself, headed to LaBarque Creek to look for native killifish.



I chose LaBarque Creek Conservation Area as it's easy to access, only about 30 minutes southwest of St. Louis, and full of fish—more than 40 species—as well as nearly 40 species of reptile and amphibian. It's also full of Missouri native plants and very few of the invasives that plague our area.



LaBarque is a very special place
I regularly take my children to net, photograph, and release natives and where I volunteer with the Missouri Department of Conservation's Stream Team program monitoring the creek's water quality. It's pristine, which is especially amazing given its proximity to St. Louis where most streams have been ecologically devastated.

Before we had even seen many fish, we found frogs and toads and some tadpoles and eggs. By the day's end, we had seen at least four distinct frog and toad species.



Note: To net Missouri natives, whether you plan to keep them or throw them back, you will need a valid Missouri fishing license.



Unidentified Frog (GL)

This frog was too busy looking for an underwater snack to notice our net and was released right after the photo.

After finding frogs and toads, we began to use dipnets in riffles and quickly netted these male orange throated darters (*Etheostoma spectabile*) in full, spring breeding colors.



Orange Throated Darters (GL)

As we continued downstream through shallows and riffles, we also





caught a large number of young sculpin. Sculpin are distant relatives of marine stonefish. They can easily eat fish almost as big as they are, so be thoughtful about what you bring home. However, with appropriately-sized tankmates, they adapt readily to the aquarium, enjoying thawed frozen foods and live blackworms, as long as you keep the tank cool, such as on a lower rack in a basement fishroom.

Most of LaBarque is shallow, but I put on my waders to help flush out killies from a deeper area. Killies like slower moving areas. Gary and Pat were ready to enjoy a potential slip by me as I waded up to my waist, but luckily for me, I avoided providing them with a laugh. We found two species, the relatively easy to catch *Fundulus olivaceous* and the much



smarter northern studfish, *Fundulus catenatus*.

***Fundulus olivaceous* is easy to keep and spawn, including in outdoor tubs and ponds.**



The northern studfish: Easy to spot, hard to catch. We were able to corner this guy in a backwater and seine him out for this photo. Young studfish tend to adapt better to aquarium life, but need a larger aquarium.



Steve preparing for deeper pools (PT)



Unknown minnow (GL)



Orange Throated Darter (GL)



Minnow #2 (GL)



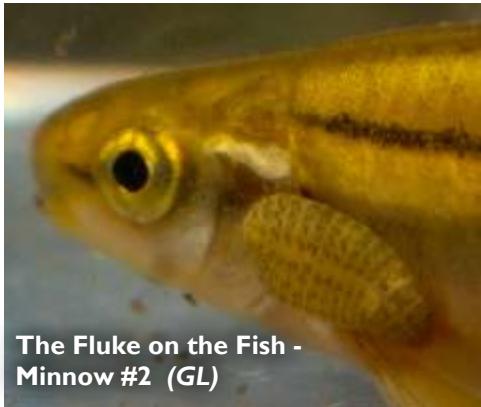
Stephan and Jack check the Seine (PT)

Pat's turn at supervision. (GL)



Gary manned the Photo tank! (PT)





The Fluke on the Fish -
Minnow #2 (GL)



Jack's turn at supervision. (GL)



Another Native (GL)

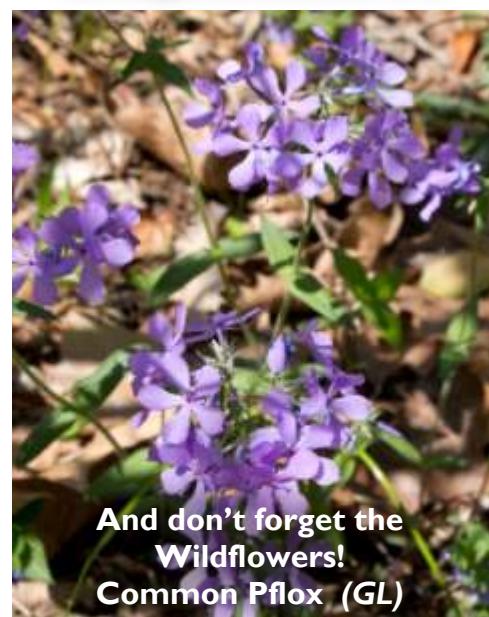
MASI has several collecting trips each year. Join one to see what local surroundings have to offer. Dr. Bob Hrabik will discuss MO Native Fish at the October meeting.



Group catch! (PT)

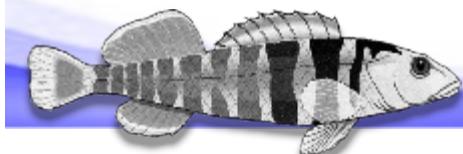


Did we get one this time? (PT)



And don't forget the Wildflowers!
Common Plox (GL)





Aquarium Husbandry of the Tiger Limia

By Paul V. Loiselle



Reprinted from
NJAS's Reporter,
October, 2016



Figure 1. The bars on the flanks of the Tiger Limia vary considerably in width. Pictured is a male of the broad-bar morph. These markings are much more numerous in the narrow-bar morph.

THE GENUS *LIMIA* Poey 1854 comprises twenty- two described and at least one undescribed species. It was placed in the synonymy of *Poecilia* in 1963 (Rosen and Bailey, 1963), while recognized as a subgenus of that genus. However, on the strength of both morphological and molecular data, subsequent workers (Rodriguez, 1977; Ghedotti, 2000) restored *Limia* to full generic rank. With the exception of a single questionable species from Venezuela, all are native to the Greater Antilles. Grand Cayman Island, Cuba and Jamaica are each home to a single species. The remainder are native to the island of Hispaniola, and of these, eight are endemic Haiti's Lac Miragoane. Three species, *Limia vittata* (Guichenot 1852), *Limia melanogaster* (Gunther 1866) and *Limia nigrofasciata* Regan 1913 have a long history

in the hobby, having made their debuts as aquarium fishes in 1907, 1908 and 1912 respectively (Sterba, 1966). Nine of the ten species currently being maintained were introduced to the hobby in the 1980s and 1990s, a period characterized by an upsurge of interest in "species livebearers" by serious poeciliid enthusiasts.

The subject of this article is a representative of the "new wave" *Limia* species. The current aquarium population is descended from fish collected by Dominic Isla in 1989 from the southwest bight of Lake Miragoane. Its distinctive coloration both earned this species its generally recognized common name and led to its initial misidentification as *Limia garnieri* Rivas 1980, a somewhat similarly marked Lake Miragoane endemic known only from the two type specimens.

That species, like most other Lake Miragoane endemics, is placed in subgenus *Odontolimia*. These species differ from representatives of the nominate subgenus *Limia* in having fewer but larger teeth in their jaws (Rivas, 1980). Dan Fromm, who first brought many Haitian *Limia* species to the United States, pointed

out (Fromm, 2000) both that the dentition of the Tiger *Limia* places it in the subgenus *Limia* and that the color pattern of *L. garnieri* differed significantly from that of the Tiger *Limia*. As matters presently stand, this species remains undescribed, a state of affairs that will hopefully change in the near future.

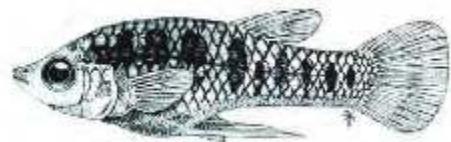


Figure 2. Line drawing of the male-type specimen of *Limia* (*Odontolimia*) *garnieri*. Reproduced from Rivas. L. R. and R. Frantz, 1983.

I first encountered this *Limia* on a visit to my friend Ron Harlan's fish room after speaking to Orange County's C.O.A.S.T. club in March 2016. I was struck by this species attractive coloration, lively behavior and small adult size—the largest of Ron's females was slightly over 1.5" (4.0 cm) SL. Late the following month I spoke to the Greater Cincinnati Aquarium Society. When a bag of subadult Tiger *Limia* came up for sale at their regular meeting auction, I took the plunge and acquired my initial starter culture of this species. In the interest of broadening the genetic base



of my incipient population, I ordered two additional pairs from Select Aquatics, a Colorado based on-line vendor. The fish arrived in excellent condition and joined the Cincinnati fish in a planted five gallon Matineland Eclipse© tank.



Figure 3. A male narrow-bar Tiger Limia. Such individuals have a more elaborate marked dorsal fin than do males of the broad-bar morph.

As a visit to Haiti in 1988 had afforded me the opportunity to do on the spot measurements of water quality in a number of habitats, I was

quite confident that I would have no difficulty providing my new arrivals with water to their taste. The pH in the habitats I sampled ranged from 7.2 to 8.0. Carbonate and total hardness values were virtually identical and ranged from 7 and 18 DH. A mixture of equal parts Rahway tap and R/O water to which was added a level tablespoon of commercial Malawi salt mix gave me water with a pH of 7.2, a total hardness of 17 DH and a conductivity of 650 FSiemens/cm². A vigorous growth of *Vallisneria* and *Ceratophyllum* along with the use of PolyFilter © has to date kept nitrate levels sufficiently low to make large-scale water changes unnecessary. How long this happy state of affairs will continue given the rapidity with which the tank's original population has increased remains to be seen! The tank's heater is set at 72F. (22C.), but as it sits in a west-facing window, incident sunlight can raise the late afternoon temperature as high as 78F. (26C.)F.

The generic name *Limia*, derived from *limus*, the Latin word

for mud, refers to the feeding behavior of these poeciliids in the wild. Like other detritus-feeding fish, Tiger Limia are easily fed in captivity. I feed my fish ZooMed Can o' Cyclops© daily, supplemented with two TetraMin tablets every other day. The grated Repashy FruutLuups© I will sometimes substitute for the tablets is enthusiastically devoured. So is the mixture of live *Daphnia* and mosquito



Figure 4: Like those of most poeciliid species, male Tiger Limia spend most of their waking hours trying to copulate. Very few of these attempts result in sperm transfer. Both of the females pictured are of the narrow-bar morph.



**GOAL:
\$2000+**

**Dr. Rodrigues-Silva,
manager of the Lake
Miragoâne project, will be
speaking to MASi in
August about that project.**

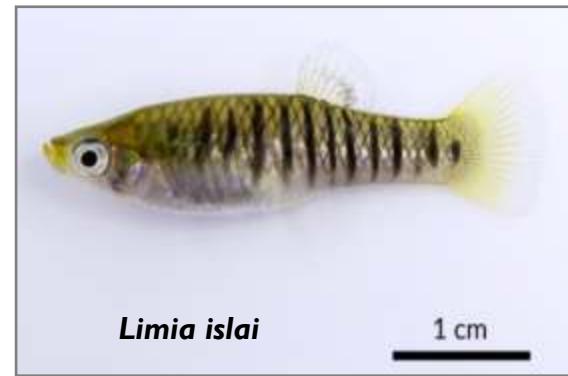
He will discuss the fish, the Project's plans and needs. Since the 2017 ALA Convention in St.

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



**Dr. Rodet
Rodriguez-Silva**

Louis, he has published a couple of papers describing two new species of *Limia* from Lake Miragoâne in Haiti including *Limia islai* (the Tiger Limia),



and reconfirmed *Limia garnieri* from newly caught specimens.

Populations of Limias on Hispaniola are stable on the Dominican side, but the populations of several species on the Haitian side of the island have very limited ranges and may be in trouble. The project is just getting off the ground and an infusion of funding from MASi will be very helpful to get it going.



larvae the fish get as an occasional treat. The enthusiasm and efficiency with which Tiger *Limia* devour the mosquito larvae before starting in on the *Daphnia* argues that this species would perform quite well as a larvivore in its native Haiti.

As previously noted, Tiger *Limia* are active little fish. While I have never regarded poeciliids as the sharpest knives in the piscine drawer, it took this species only two days to make the connection between my appearance and that of food. The only other fish in their tank are two very small Siamese Algae Eaters, so I can only speculate on how Tiger *Limia* would behave in a community setting. However, males tolerate one another rather than establishing a dominance hierarchy in which the alpha fish proceeds to systematically harass his tankmates of the same sex. This suggests that Tiger *Limia* would be appropriate residents in a community of comparable-sized companions. Given its preference for hard alkaline water, I suspect that this species would be an appropriate dither fish for Tanganyikan shell-dwelling cichlids.

Breeding the Tiger *Limia* is simplicity itself— just set fish of both sexes up in a single-species tank and feed them well. Females will deliver a brood every thirty days. While they do become somewhat fuller- bodied as their delivery date approaches, females of this species never become as obviously gravid as do those of many other livebearing fishes. Broods are not large. My record number to date is fifteen fry from a female 1.5" SL. That said, the fry are quite robust. Neonates measure 1.0 cm SL and have a

conspicuous black spot on the dorsal fin. They can take *Artemia* nauplii and finely divided flake food for their initial meal and within a week are large enough to eat sifted *Daphnia*. Tiger *Limia* do not eat their fry. Small brood sizes notwithstanding, in the absence of retroactive birth control Tiger *Limia* numbers in a single species tank can increase with surprising rapidity. The fry grow quite rapidly. Male gonopodial folding begins to be evident at just under 1" (2.5 cm) TL. Females deliver their first broods at an age of four months *post partem*.



Figure 5: Female Tiger *Limia* display neither an obvious gravid spot nor grow heavily full-bodied as they approach their delivery date. This female gave birth to six fry three days after this picture was taken.

This is not the most striking representative of the genus. *Limia nigrofasciata* have more impressive finage, while *Limia melanotata*, *L. melanogaster* and *L. vittata* are much more vividly colored. However, what the Tiger *Limia* lacks in looks, it makes up for in manners, while its modest adult size makes it an excellent choice for smaller aquaria. **This Haitian charmer is well worth the attention of**

neophyte and experienced hobbyists alike.

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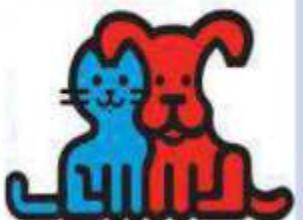
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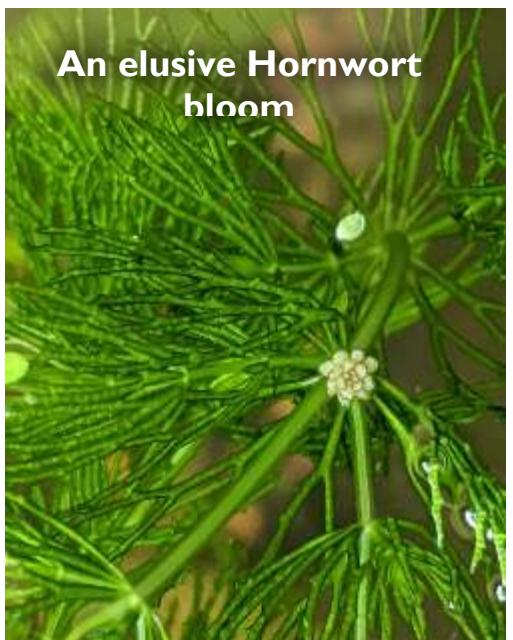
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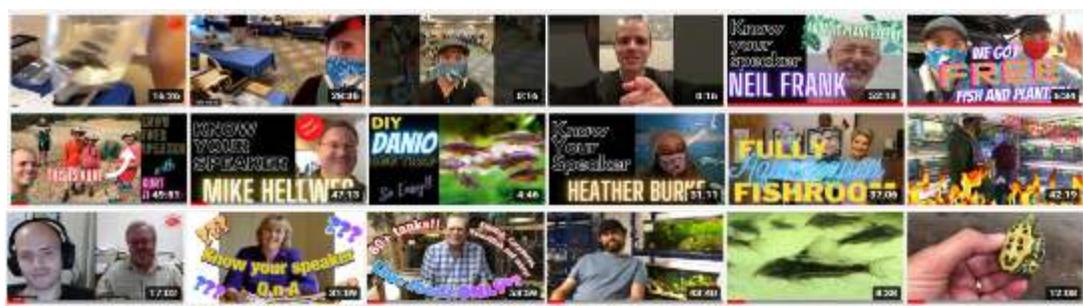
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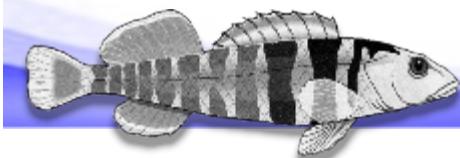
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Minifins

The Green Neon Tetra

Paracheirodon simulans

By Mike Hellweg, CFN
(Certifiable Fish Nut)

TETRAS ARE AMONG the most popular of all aquarium fishes, and have been for more than a century. They are generally small, colorful, and peaceful, making great community fishes. Many are traditional schooling fishes, while others like to hang around in the same area without actually schooling with one another. But overall, almost all tetras are at least gregarious and do best in a group of their own kind.

Among the tetras, those we collectively call the “neons” are the most popular of all. They are so popular they have reached the status of “bread and butter” fishes- in other words, they are fish that almost all shops need to carry as they are always in demand. Many folks don’t realize, however, that there are actually three different species of “neons” – the original neon (*Paracheirodon innesi*), the cardinal (*P. axelrodi*), and the green neon (*P. simulans*).

At first glance all three species look similar, but upon closer



Paracheirodon simulans

© Coburg Aquarium

inspection, they are very different. In this article we look at the least common and most different of the three, the green neon, *Paracheirodon simulans*. Early on, they were thought to be the “missing link” between the neon and the cardinal, but this turned out not to be the case. First described in the April 1963 issue of TFH by the famous ichthyologist Jacques Gery who specialized in characins, they were originally considered different enough than the cardinal and the neon that, even though they were put with them into the genus *Hypseleotris*, Dr. Gery noted that their jaw and tooth structure was different from both *Hypseleotris* and *Cheirodon* and would likely require another look at a later time.

Dr. Jorgen Scheel noted that the three species had different chromosomal counts – the neon has 16, the cardinal 26 and the green neon has 25. Later Dr. Stanley Weitzman would move the three species to their own genus, *Paracheirodon*, and note that while they look a lot alike, a great example of convergent evolution, where unrelated or only distantly related species of animals living in similar environments but very different parts of the world take on similar appearances, they aren’t that closely related. This happened long before DNA sequencing became commonplace. It will be interesting to

see how that would show their relationship.

I have kept and worked extensively with all three species over the years, and have been lucky enough to have the green neon spawn successfully for me on several occasions. Size of spawns is likely one of the biggest differences. Unlike the cardinal and the neon, in which a single spawn from a single female can produce hundreds of fry, the green neon is not very productive. Spawns of a couple dozen fry are common, and often a dozen fry should be considered a good success. At first, I thought it



Paracheirodon innesi

© Adrienne Legault



Paracheirodon axelrodi

© Adrienne Legault



was just me or the fish I was working with, but after reading several other hobbyists' accounts, I found that everyone experiences the same low rate of reproduction. I raised just nine fry from my first green neon spawn. Subsequent spawns have also been small, with only three to twenty fry.

Green neons are the smallest of the three neon species, with most fish barely reaching an inch in standard length (snout to the base of the caudal fin). The literature now describes them as maxing out at an inch and a quarter to an inch and a half, but this large is not likely. Of the thousands of wild caught fish that I've seen over the years, I've never seen one larger than an inch, and more commonly a half inch to three quarters of an inch is the norm. Gery noted in his original description a maximum size of 16 mm (just over a half inch).

The fish that I have now are the largest I've ever seen, with the biggest three year old male topping out at 1 inch, and the largest female from the same batch topping out at about seven eighths of an inch... which is another thing that makes them different than the other neons – when full grown the males are longer than the females.

Unlike female cardinals and neons, female green neons never get very heavy bodied. They are thicker bodied than male green neons, but not overly so. This is probably why they don't produce large numbers of fry – they just don't produce large numbers of eggs.

Over the years I have kept groups of green neons from a dozen to maybe 20 or so fish in tanks from 10 to 30 gallons in size. I've never until recently tried to keep them with other fish, which was probably a good thing, as I've found out. I kept all of the tanks set up pretty similarly – a low light tank with a large piece of driftwood covered with Java moss, a couple of handfuls of dried leaves, a sponge or Mattenfilter, and sometimes a box filter filled with peat or alder cones to add tannins and lower the pH of the water. The adults hang around together in mid to upper mid water, and fry occasionally appear under the piece of driftwood or pile of leaves and, as they grow, start joining the group of adults as they reach a half inch or so in size.

With my most recent group I added some nickel body sized tank raised Leopoldi angels to the tank for a short period of time. A few weeks later I noticed that the Leopoldi angels were looking pretty rough, with most of their fins completely nibbled off. I figured they were beating each other up, so I moved them to a larger tank with more cover. They quickly recovered and regrew their fins. One day when feeding the green neons, I noticed one poor Leopoldi angel that I had missed in their tank – it was quarter body sized so it had grown and been eating, but it was almost completely devoid of fins! I moved it to another tank where it recovered quickly and within a month or so I couldn't tell that it had ever been chewed up.

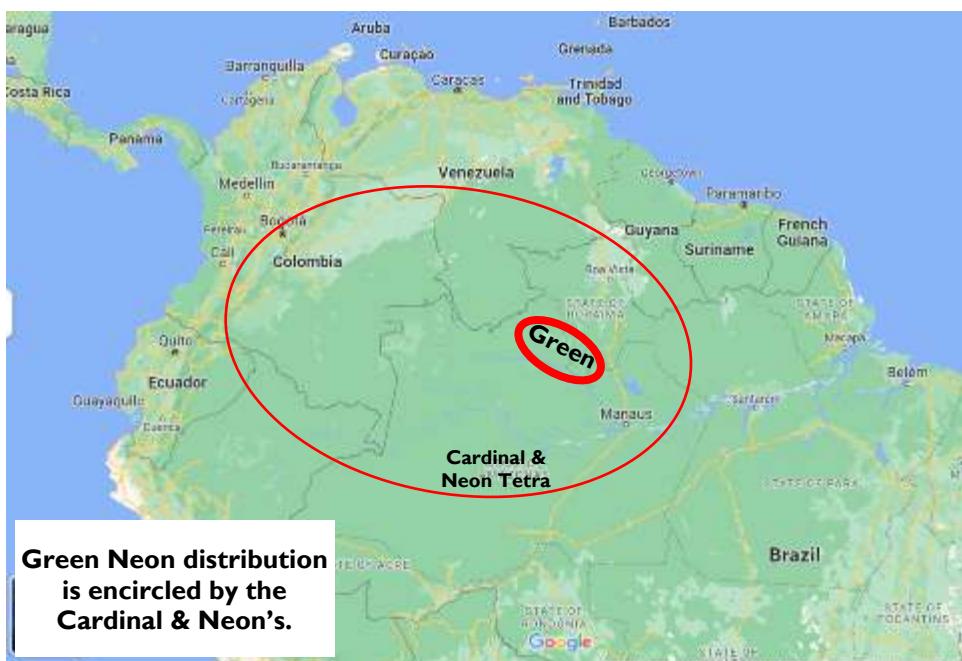
I began to look a bit more closely at the green neons and noticed that all six of the males in my current group are very well beaten up, with unpaired fins all chewed up. The females are untouched. I pulled up a stool and watched for a while over several days. The males are all about an inch long, so I assume they are full grown. They constantly nip each other's fins and chase each other, but pretty much ignore both the females and the juveniles that I also noticed were hanging around under the driftwood and in the pile of leaves.

I wondered, had they been the cause of the damage to the angels? I added a single male guppy to the tank while I watched. Almost instantly, the adult male green neons attacked the male guppy's tail. I removed him, but not before they had done quite a bit of damage to the poor guppy's tail. I apologized and fed him well for a couple weeks until his fin was completely recovered.

Are the green neons fin nippers? After reflecting, almost every group that I ever kept had nipped fins, though I never watched closely to see what was going on. Is this normal behavior? Is it something that just the males do? I'm not sure. But after watching my group and some groups of newly imported juveniles, I can say the males are definitely nippers and start when they are about half grown.

Green neons are reported by some collectors to be found with cardinal tetras, but unlike the





cardinals, they do not have a very wide distribution, being reported only from the Rio Jufaris in Brazil, while the cardinal is found in Brazil, Peru, Colombia and Venezuela. Like the neon, the green neon tolerates cooler water than the cardinal, with a seeming preference for water in the low to mid 70s. Like the cardinal, they seem to prefer lower lighting conditions. In brightly lit tanks they spend most of their time hiding, while in lower lit tanks they are almost always out in the open.

They prefer water with lots of tannins. Adding peat, alder cones or dried oak leaves to a box filter will help add tannins to the water and keep them happy. I'm convinced the young also nibble on the fungi and bacteria that break down these plant products as the young fish are usually found near the leaves or under the driftwood in the tank. This provides them with cover and with food at the same time.

They like a bit of current, so if you use sponge or box filters in their tank, be sure to turn it up high to keep the water moving. Lots of large water

changes will help keep the water in good condition. Since they seem to prefer cooler water, I've never used a heater in a tank with them.

Like most tetras, they will eat just about anything. Watching a group of them eat is like watching a school of piranhas attack! They will eat flakes, small pellets, frozen foods like bloodworms, glassworms and brine shrimp, and live foods like baby brine shrimp, blackworms, daphnia, and glassworms. Even though glassworms and blackworms are a bit large, they don't seem to have any trouble eating them. As long as the adults are well fed, they don't seem to show any interest in the juveniles.

This article should remind you as working with green neons did me - don't forget to sit in front of the tank and spend time just watching and enjoying your fish! You never know what kind of behavior you're missing unless you watch them. After all, isn't that why we all got into this wonderful hobby in the first place?

In the next article we'll take a look at the neon and the cardinal tetra, species about which there is a lot more information available.



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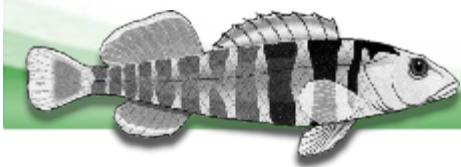
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Phyla lanceolata and *Phyla nodiflora*

Fogfruit, frogfruit, match head, or turkey tangle

By Micah Issitt & Adrienne Legault

THE VERBENACEAE CONTAINS a whopping 800 species split into 32 genera, most of which are tropical. The tremendous and economically essential tree *Tectona grandis*, better known as “teak”, and the culinarily-important herb, *Aloysia triphylla*, known as lemon verbena, are just two of the many economically essential representatives of this wide-ranging and diverse family.

There are far fewer members of the Verbenaceae in North America, and just a few of these 800 recorded species range into Missouri’s natural environments. Among the verbenids that appear in Missouri, however, many make lovely and useful additions to the native garden.

There are at least 16 native species of verbenids found across Missouri, most of which are herbaceous plants, though a few develop a more robust, woody characteristics. Native gardeners might be familiar with the bush known as “American beauty berry,” or *Callicarpa americana*,



Phyla lanceolata



Phyla nodiflora

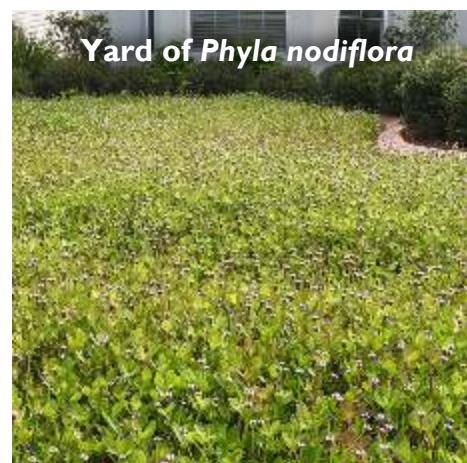
which is notable for the addition of rich purple berries to the fall swath of colors. Another familiar “garden variety” member of the plant family is “rose vervain” or “rose verbena,” a low-growing herb with beautiful magenta-to-white flowers that is quite common in rocky, dry environments across the state. For those interested in prairie gardening, the “hoary vervain”, *Verbena stricta*, a perennial that forms narrow spikes of purple flower, is a good choice for adding late summer color, and provides an essential host plant for the Common Buckeye caterpillar, *Junonia coenia*, which then goes on to produce one of Missouri’s loveliest native butterflies.

When it comes to the water garden, the Verbenaceae family offers Missouri native gardeners with two options, both members of the genus *Phyla*, which is derived from the Greek term meaning “tribe” and refers to the dense mats of stems and leaves that these species form as they wend through the environment. Basically, the two species of *Phyla* in Missouri are essentially the wetland version of the more popular and better-known rose verbena. Whereas rose verbena is a common ground cover for native gardens featuring rocky, dry soils, the

two *Phyla* species in Missouri are excellent ground-cover species for moist soils.

Missouri’s two *Phyla* species, *Phyla lanceolata* and *Phyla nodiflora*, are very closely related and fill a similar niche in the garden. *P. nodiflora* has small, short, spiky leaves, while the other native species, *Phyla lanceolata*, has longer, pointed, “lance-shaped” leaves. Both species produce long trailing and creeping tendrils, each node of which can drop roots and become its own plant and, in the right environment.

***Phyla* species can spread quite rapidly**, even becoming something of a



Yard of *Phyla nodiflora*

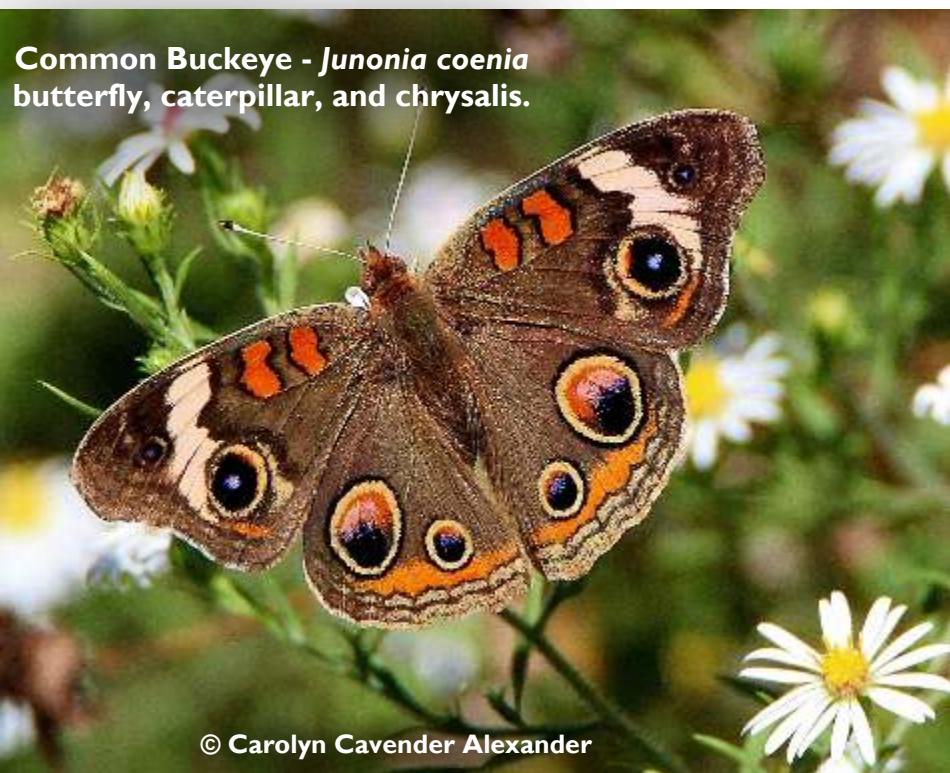


nuisance. This tendency to grow a little out of control is more than made up for by the fact that both species can replace grass and other nuisance, invasive weeds in places where one needs to cover considerable areas. While neither species much appreciates dry conditions, anywhere where the ground is reasonably moist, *Phyla* species can form at-times dense green mounds. *Phyla nodiflora* is the more useful species for covering the ground, as the species is slightly shorter and has shorter, more compact nodes, while *Phyla lanceolata*, which is the more northerly of the two species, tends to be a little longer and lankier in full growth.

Both of the *Phyla* species begin flowering in the spring and continue into the fall. The flowers produced by these species are truly unusual, appearing on erect stems they have whorls of flowers around the central spike, ranging in color from white to pink to light purple, often with subtle hints of yellow or orange. While not, perhaps, individually striking, large groups of *Phyla* in full bloom are very attractive, especially when large patches of the plant are in bloom together, with dozens of pale pink or purple flowers dancing above the tangle of leaves and stems that carpet the ground.

One of the reasons that these two species are important in Missouri is that they provide an essential food plant for both the Common Buckeye butterfly and the Phaon Crescent, a lovely little orange and black butterfly that are common in Missouri wetlands and around ponds where this species has been planted. The tiny flowers also provide nectar that attracts many other creatures. Leaf-cutting bees, Halictid bees, Syrphid flies, Tachinid flies, and skippers are among the species that benefit from area where this prolifically-flowering plant is found.

For water gardeners, the best way to use these species is to plant them around a pond or sunken water garden. Not only are the *Phyla* species adapted to moist soils, but they will gladly range into shallow water as well, throwing off water roots and trailing along the surface of the water. We have found the plant extremely useful for anchoring the mud around



the edges of ponds, or where water spills over into rain garden paths. This is also one of a few species that are excellent for planting on a ramp leading into a pond, with the dense, robust stems and leaves providing structure to prevent erosion.

For those who don't have the room or desire for a full pond, Missouri's *Phyla* species can still be quite useful. *Phyla lanceolata* does quite well wherever the soil rises just above the water's surface, and so the plant can be used to fill in around bog plants positioned in pots in a tub or small fountain.

We like to plant fog fruit cuttings at the edges of pond planters, allowing

the leaves and stems to form mats along the upper edge of the container, and then letting the extended shoots trail over the sides of the planter. Used in this way, *Phyla* stems will fall into the water, where they will shoot off water roots and will continue to grow, searching for wet soil in which to root again. In our larger pond, fry of the red-bellied dace, *Chrosomus eos*, seemed to prefer a section of the pond where a bunch of *Phyla* stems and leaves crossed into the water and we also found that southern leopard frogs liked to lay their eggs in this part of the water garden.

Though this is a very hardy plant, *Phyla* species that grow wild in



Missouri need winter rest and the plants do poorly when treated like tropicals. Growing *Phyla* species indoors is possible, but requires high light and plants may become susceptible to many different kinds of pests. *Phyla* species are therefore of limited use to aquarists during the temperate winter, but they will survive quite easily in a wet, bog planter over winter, and quickly return in the spring.

Those interested in finding these species might need to know the common names that have been attached to them over the centuries.

In some parts of the country, *P. nodiflora* is also known as the “match head,” because the slightly rounded flower heads somewhat resemble little white match sticks as they stand erect above the leaves. In Missouri, the *Phyla* species are more commonly known as “turkey tangle,” because of the tangled growth habit of the viney stems and because turkeys and other fowl feed on the flower heads and seeds.

In some areas, both species are called “lippias,” which is a reference to the previous genus name

“Lippia,” which many assume is a reference to the “lips” around the edges of the flowers. The name was actually taken from Augustin Lippi, a French botanist of Italian descent who made a name for himself collecting plants in North Africa. The genus was named in Lippi’s honor after he and most of his European traveling companions were killed while traveling through the



Sudan in the early 1700s, though a later taxonomic revision saw the plants shifted to the *Phyla* genus.

The most common name for the *Phyla* species is “fogfruit,” or “frogfruit.” Given that the plants appear in wetland environments and around lakes, streams, and ponds, one might assume that the name “frog fruit” came from the fact that frogs were often found in close proximity. One might also assume that the alternative “fog fruit” is derived from the misty atmospheric conditions that might be common in such areas. As it

turns out, neither of these assumptions is correct.

The name “fog fruit” came from the Scottish word “fog” or “fogg,” which means moss or lichen. It was the species’ association with wet, mossy terrain that gave it its common name but then, in 1834, the editors of the *Botanical Teacher for North America* misspelled the name of the plant as “frog” fruit, rather than fogfruit, and, because this book was so influential to common botanical investigations, the name stuck, to the point that the plants are more often known as “frog fruits” than by their original common name.

While the associations were apparently unintentional, these foggy frogfruits do create excellent habitat for native frogs and the misty mounds of whitish-purple flowers might even be said to have a slightly “foggy” quality, so perhaps both names seem to fit in some unintentionally ecological way.

Any way you wish to call them, the fogfruits are an underutilized element in the Missouri wetland garden and one that many gardeners could likely come to appreciate.

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The DARTER

On Poisonous plants, some in Native Water Gardens

By Micah Issitt

THERE ARE A few plants that are famously poisonous. Poison ivy, *Toxicodendron* spp, easily comes to mind for some reason, maybe having something to do with the name. The lovely little plant known as stinging nettle (*Urtica dioica*) is covered in fun little trichomes (sharp, hollow, hypodermic-like needles) and, when touched, these little trichomes inject a combination of chemicals into the skin, including formic acid and histamine. Contact with the plant hurts... A lot!

There are also a lot of plants that are poisonous to eat as well. One native plant that fits this bill is *Phytolacca americana*, better known as "pokeweed," an herbaceous perennial plant that puts out lovely dark purple berries that will make you super sick if you eat them. The plant's poisons are interesting in that they seem to affect only mammals. Harvest mice steer clear of the plant's delectable looking berries, but lots of native birds eagerly snatch them up. Another famously dangerous plant to ingest is poison hemlock, *Conium maculatum*, which contains coniine, an extremely deadly alkaloid that disrupts the central nervous system and can lead to failure of the respiratory system, which is not good.

While the above plants are extremely poisonous, both in terms of ingestion AND topical contact, a huge number of plant species are poisonous in one way or another. For instance, all the plants in the family Solanaceae, also known as the "nightshades," are poisonous to eat. However, the levels of poison vary from species to species and may not affect all herbivores that sample them.

There are more than 2700 species of Solanaceae and many of them are grown in the garden, even as crops, such as tomatoes, peppers, and eggplant, which can all be safely consumed by some species. Likewise, plants in the widespread family Araceae are all poisonous thanks to calcium oxalate crystals in the tissues. Despite these toxic tissues, many species of Araceae are kept in gardens and in homes, such as the popular houseplants in the genus *Spathiphyllum*, known as the "peace lilies," which are also often used as emergent or submerged aquarium plants.

Many of the plants that are poisonous to eat, also taste really bad. This is an evolutionary adaptation that aids in the survival of the plant, because it encourages learning. Imagine ancient humans entering a new area and sampling new plants while foraging for new food sources. If the plant is palatable, but covertly poisonous, a human might eat quite a bit of the plant before dying. Other humans who sample the plant might also cut the plants down, harvest them, or eat large quantities before the fatal poison sets in.

If every creature that samples the plant dies, knowledge of this mistake might also be lost with each death. Animals and plants that are poisonous therefore evolve mechanisms to let other animals know that they are poisonous so as to avoid predation. By investing in creating unpalatable chemicals in their leaves, plants give potential predators a chance to learn and transmit knowledge.

An early human who tried to eat the leaves of a member of the

Araceae family would likely think, "This tastes like crap." They might then tell others "Don't eat that. It tastes like crap." So, humans learn to avoid the plant without having to sample the tissues AND without having to die to spread this lesson.

A little more on the poisonous tissues of the buttercup, and what that means for horticulturists interested in utilizing Marsh Marigold or *Caltha palustris* in their water gardens. Here's the deal with *C. palustris*, the leaves and buds of the plant are technically poisonous due to the presence of a chemical called protoanemonin, otherwise known as "ranunculin," in deference to their Ranunculaceae family's name. The juices inside the plant are the key. Contact with these liquids can cause rashes and blistering of the skin. Ingesting the young leaves and buds can lead to nausea, liver failure, and even paralysis. Amazingly, this unpleasant chemical defense didn't stop humans from eating *C. palustris*.

It was quickly discovered that a quick boil gets rid of the toxic chemicals, making the soft new leaves and buds edible. There are even recipes for the safely prepared buds of the plant, which are often soaked in vinegar, pickled, or served dried with salt. Like many other poisonous plants, *C. palustris* tastes rather bitter and bad without some preparation. Cows and horses do not eat it if they find a patch growing in a pasture. However, they are sometimes accidentally fed *C. palustris* when the plant becomes chopped up or included in bales of hay. Poisoning is only a risk, typically, if the plants are still moist and haven't completely dried.





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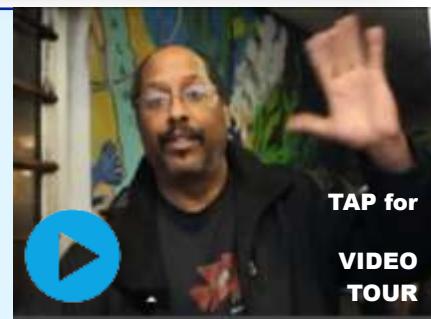


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2022 BREEDER'S AWARD PROGRAM - Steve Edie

BAP: March 2022



Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Steve Coxon	<i>Ancistrus</i>	<i>sp. "Super Red"</i>		10			180
	<i>Aphyosemion</i>	<i>striatum</i>	Red Striped Killie	15			195
	<i>Apistogramma</i>	<i>baenschi</i>	Inca Dwarf Cichlid	15			210
	<i>Apistogramma</i>	<i>ortegai "Papagaei"*</i>		15	5		230
	<i>Apistogramma</i>	<i>sp. "Rio Abacaxis" *</i>		20	5		255
	<i>Betta</i>	<i>albimarginata</i> @	White Seam Fighter	15		15	285
	<i>Heterandria</i>	<i>formosa</i>	Least Killifish	5			290
	<i>Skiffia</i>	<i>francesae</i> @	Golden Skiffia	15		15	320
Steve Edie	<i>Herotilapia</i>	<i>multispinosa</i>	Golden Rainbow Cichlid	5			295
Jack Heller	<i>Heterandria</i>	<i>formosa</i>	Gold Least Killifish	5			815
	<i>Nimboanchax</i>	<i>petersi "Banco Park" *</i>		15	5		835
Mike Hellweg	<i>Gambusia</i>	<i>nobilis "Deadman's Creek" * @</i>	Pecos Mosquitofish	5	5	5	7690
	<i>Paracheirodon*</i>	<i>simulans *</i>	Green Neon Tetra	20	10		7720
Mike Huber	<i>Amatitlania</i>	<i>sajica</i>	T-Bar Cichlid	10			3945
	<i>Chapalichthys</i>	<i>encaustus #@</i>		0		10	3955
	<i>Coptodon</i>	<i>kottae #@</i>		0		10	3965
	<i>Danio</i>	<i>albolineatus</i>	Pearl Danio	5			3970
	<i>Danio</i>	<i>margaritatus</i>	Celestial Pearl Danio	10			3980
	<i>Haplochromis</i>	<i>paropius #@</i>		0		10	3990
	<i>Haplochromis</i>	<i>sp. "44" #</i>		0			3990
	<i>Limia</i>	<i>tridens</i>		5			3995
	<i>Pseudotropheus</i>	<i>sp. "Red Top Ndumbi" *</i>		10	5		4010
	<i>Pyxichromis</i>	<i>orthostoma "Lake Nawamps" #@</i>		0		10	4020
	<i>Skiffia</i>	<i>francesae "Rio Teuchitlan" #@</i>	Golden Skiffia	0		15	4035
	<i>Skiffia</i>	<i>francesae "Sayula" #@</i>		0		15	4050
	<i>Tanichthys</i>	<i>albonubes ^</i>	White Cloud	0	1		4051
	<i>Tilapia</i>	<i>sparrmanii</i>		10			4061
	<i>Xenotoca</i>	<i>lyonsi #@</i>		0		10	4071
	<i>"Xystichromis"</i>	<i>phytophagus #@</i>	Xmas Fulu	0		10	4081
	<i>"Xystichromis"</i>	<i>sp. "Dayglow" #@</i>	Dayglow Fulu	0		10	4091
	<i>"Xystichromis"</i>	<i>sp. "Kyoga Flameback" #@</i>		0		10	4101
Ed Millinger	<i>Geophagus</i>	<i>sp. "Alto Sinu" *</i>	Gold Dust Geo	15	5		1171
	<i>Nematobrycon</i>	<i>lacortei</i>	Rainbow Emperor Tetra	15			1186

Note: Haplochromis sp. "44" is not a CARES species



BAP: March 2022 (cont)

Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Holly Paoni &	Limia	<i>nigrofasciata</i>		5			1207
Kevin Wise	Limia	<i>tridens</i>		5			1212
	<i>Nothobranchius</i>	<i>guentheri</i>		15			1227
Caleb Pitman	<i>Aulonocara</i>	<i>nyassae</i> #@	Nyassa Peacock	0	10	807	
	<i>Haplochromis</i>	sp. "44" #		0		807	
	<i>Ilyodon</i>	<i>whitei</i> #@		0	10	817	
	<i>Poecilia</i>	<i>reticulata</i> ^	Japan Blue Double Sword Guppy	0	1	818	
	<i>Protomelas</i>	<i>taeniolatus</i> "Blue Fire Ndiwe" *		10	5	833	
	<i>Xenotoca</i>	<i>lyonsi</i> "Rio Tamazula" #@	Red Tail Goodeid	0	10	843	
	" <i>Xystichromis</i> "	sp. "Kyoga Flameback" #@		0	10	853	
Curtis Skouby	<i>Cryptoheros</i>	<i>cutteri</i>	Blue Eyed Cichlid	10		300	
	<i>Limia</i>	<i>sulphurophila</i>	Sulphur Limia	5		305	
	<i>Trichopsis</i>	<i>vittata</i>	Croaking Gourami	15		320	
Mike Slater	<i>Hyphessobrycon</i>	<i>megalopterus</i>	Black Phantom Tetra	15		152	

Note: *Haplochromis* sp. "44" is not a CARES species

BAP Key:

* = First MASI species spawn (5 point bonus)

** = First MASI species and genus spawn (10 point bonus)

*** = First MASI species, genus and family spawn (15 point bonus)

@ = C.A.R.E.S Species at Risk (Double base points)

= Species previously submitted = 0 points, except for C.A.R.E.S. base point bonus

^ = Species previously submitted, limited points for additional color varieties

Sources:

Cal Academy <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>

CARES <http://caresforfish.org/>



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BAP: April 2022

Member	Genus	Species	Common Name	PTs	Bonus	CARES	Total
Mike Huber	<i>Ameca</i>	<i>splendens</i> #@	Butterfly Splitfin	0		10	4111
	<i>Aulonocara</i>	<i>ethelwynnae "Chitande"</i> *		10	5		4126
	<i>Buccochromis</i>	<i>rhoadesii</i> *		15	5		4146
	<i>Copadichromis</i>	<i>trewavasae "Lupingu"</i> *		10	5		4161
	<i>Haplochromis</i>	<i>nubilus</i> @		10		10	4181
	<i>Hemigrammus</i>	<i>rhodostomus</i>	Rummy Nose Tetra	15	5		4201
	<i>Ilyodon</i>	<i>whitei "Rio Huamita"</i> #@		0		10	4211
	<i>Neolamprologus</i>	<i>gracilis</i> *		10	5		4226
	<i>Metriaclima</i>	<i>hajomaylandi "Chizumumu"</i> *		10	5		4241
	<i>Placidochromis</i>	<i>sp. "Jalo Reef"</i> *		10	5		4256
	<i>Ptyochromis</i>	<i>sp. "Hippo Point Salmon"</i> @		10		10	4276
	<i>"Xystichromis"</i>	<i>nuchisquamulatus</i> * @		10	5	10	4301
Bruce Mayhew	<i>Ancistrus</i>	<i>sp. "Blue Eyed Lemon Pleco"</i> *		10	5		457
Holly Paoni &	<i>Ameca</i>	<i>splendens</i> #@		0		10	1237
Kevin Wise	<i>Xenotoca</i>	<i>doadrioi</i> #@		0		10	1247
	<i>Xenotoca</i>	<i>lyonsi</i> #@		0		10	1257
Caleb Pitman	<i>Alcolapia</i>	<i>ndalalani</i> #@		0		15	868
	<i>Ameca</i>	<i>splendens</i> #@	Butterfly Goodeid	0		10	878
	<i>Glossolepis</i>	<i>multisquamata</i> #@		0		10	888
	<i>Haplochromis</i>	<i>paropius</i> @		10		10	908
	<i>Melanotaenia</i>	<i>lacustris</i> @	Turquoise Rainbow	10		10	928
	<i>Xenotoca</i>	<i>eiseni</i> #@	Redtail Goodeid	0		10	938
	<i>Xenotoca</i>	<i>lyonsi "Rio Tamazula"</i> #@		0		10	948
Curtis Skouby	<i>Corydoras</i>	<i>napoensis</i> *		10	5		335
Bob Watson	<i>Amatitlania</i>	<i>nigrofasciata</i>	Convict Cichlid	5			606
	<i>Ameca</i>	<i>splendens</i> #@	Butterfly Goodeid	0		10	616
	<i>Jenynsia</i>	<i>onca</i>	Left Side Livebearer	20			636
	<i>Thorichthys</i>	<i>meeki</i>	Firemouth Cichlid	10			646
	<i>Xiphophorus</i>	<i>sp. "Domestic Platy"</i>	Blue Platy	5			651
Mitchel Wendel	<i>Poecilia</i>	<i>gillii</i>		5			200



2022 HORTICULTURE AWARD PROGRAM -

March & April, 2022

Mike Hellweg



Member	Genus & Species	Common Name	Type	Points
Holly & Kevin Wise	2215 Points <i>Bucephalandra sp. Green Amanda</i>		V	20
Julia Cross	70 Points <i>Canna indica</i> <i>Pistia stratiotes</i> <i>Riccia fluitans</i>	Red Flash Canna Water Lettuce Crystalwort	V	10 5 10
Chuck Bremer	1565 Points <i>Cryptocoryne beckettii petchii</i> <i>Typha minima</i>	Petch's Water Trumpet Dwarf Cattail	V	15 5
Steve Coxon	190 Points <i>Echinodorus cordifolius</i> <i>Egeria densa</i> <i>Ludwigia species x. lacustris</i> <i>Helianthium bolivianum vesuvius</i> <i>Sagittaria subulata</i>	Radican Sword Anacharis Vesuvius Sword Common Sag	V	15 5 10 15 5
Noel Roberts	820 Points <i>Salvinia minima</i>	Water Spangles	V	5
Justin Warnock	215 Points <i>Bacopa monnieri variegatus</i> <i>Blyxa japonica</i> <i>Bucephalandra biblis Skyblue</i> <i>Bucephalandra sp. Kedagang Red</i> <i>Didiplis diandra</i> <i>Hydrocotyle tripartita Japan</i> <i>Lagenandra meeboldii Red</i> <i>Lindernia rotundifolia</i> <i>Ludwigia sp. Dark Orange</i> <i>Microsorum pteropus Trident Mini</i> <i>Myriophyllum sp. Guyana</i> <i>Phyllanthus fluitans</i> <i>Phyllanthus fluitans</i> <i>Rotala rotundifolia colorata</i> <i>Rotala rotundifolia indica</i> <i>Sagittaria subulata</i> <i>Salvinia minima</i>	Variegated Moneywort Asian Hairgrass Skyblue Buce Godzilla Buce Caterpillar Plant V 10 20 20 20 15 10 20 15 10 10 10 10 5 15 10 10 10 10 5 15 10 5 5	IB	15 20 20 20 20 15 10 20 15 10 10 10 10 10 10 5 15 10 10 10 10 5
Brian Woodrick	185 Points <i>Microsorum pteropus needle leaf</i> <i>Pogostemon quadrifolius</i>	Needle Leaf Java Fern Octopus Plant	V	10 15

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

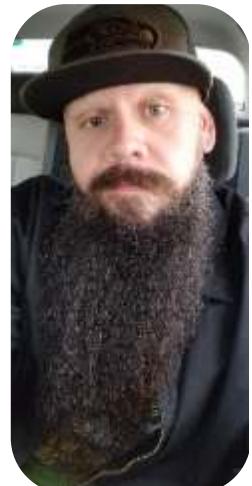


HAP Blooms - March & April, 2022



**HAP blooms by
Justin Warnock.**

His
August
talk
“Plants
and CO₂
in the
Aquar-
ium” will
be a **Must
See!**



2022 SCHEDULE & CLUB HOPPING

Steve Edie

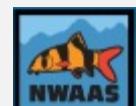


Date Group 2022 Events

5/14/2022	HAAS	Spring Swap - Kansas City, MO
6/9/2022	NANFA	6/9-6/12 NANFA Convention - Winona, MN
7/7/2022	MAS	Summer Online Auction - Minneapolis, MN
7/16/2022	CAFE	Summer Auction - Urbana, IL
7/27/2022	LTFC	7/27-31, Aquatic Triple Crown - Louisville, KY
8/7/2022	MASI	Summer Auction - St Louis, MO
10/8/2022	AQUA	10/8-9 Aquashella, Dallas, TX
8/13/2022	HAAS	Summer Swap - Kansas City, MO
9/18/2022	GCCA	Tropical Fish Swap - Hoffman Estates, IL
9/23/2022	KeyC	9/23-25 Keystone Clash - Morganford, PA
9/25/2022	MASI	Fall SWAP - St Louis, MO
9/25/2022	QCFS	Quad Cities Fish Swap - Davenport, IA
9/30/2022	AGA	9/30-10/2 AGA Natl Convention - Chicago, IL
10/7/2022	AACC	10/7-9 AACC Catfish Convention Herndon, VA
10/8/2022	AQUA	10/8-9 Aquashella, Chicago, IL
10/8/2022	HAAS	Fall Auction - Kansas City, MO
10/30/2022	GCCA	Tropical Fish Swap - Hoffman Estates, IL
11/6/2022	MASI	Fall Auction - St Louis, MO
11/6/2022	QCFS	Quad Cities Fish Swap - Davenport, IA
11/18/2022	OCA	11/18-20, OCA Extravaganza 2022 - Strongsville, OH
12/4/2022	GCCA	Tropical Fish Swap - Hoffman Estates, IL

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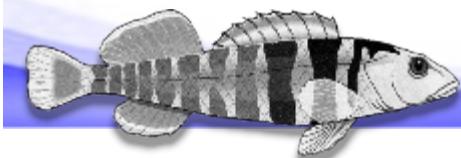
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Mike Hellweg MiniFins	General Aquarium Support: Dechlor, Coconut Caves, Flake Foods, Plants & Custom Fish Orders Contact by email or buy at the back of the room at MASI General meetings	Contact for Pricing	Email: Mike@Minifins.com



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Additional Items Changing Constantly on [BAND.us/@MASIswap!](https://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 here. **Do NOT post these to FaceBook.** **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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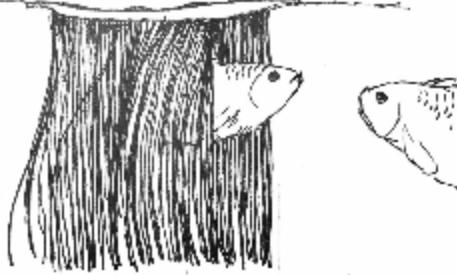
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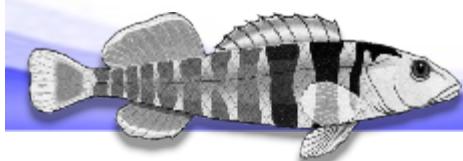
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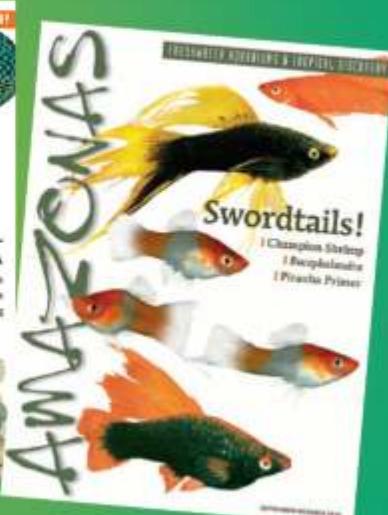
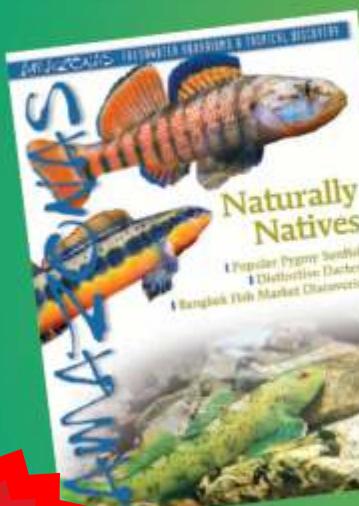


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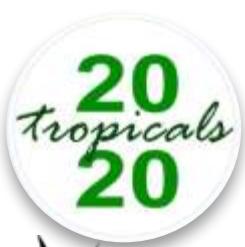
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