



The **DARTER**

V42-N4

JULY/AUGUST 2016

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Cover -
Discus and Friends - ACA '16
By Pat Tosie



FEATURES

Volume 42, Number 3



16



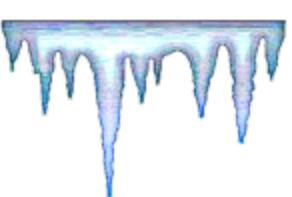
20



23



25



28



2017/2017 Executive Council

6

Raising Tropical Fish in a Pond Environment in the Midwest



19

Madagascar Lace Plant - Growth, Varieties and Reproduction



Hemianthus callitrichoides (HC) From Seed

21

Findings on a Visit to Brine Shrimp Direct



A West African Challenge - *Neolebias ansorgii*

24

Quarantine is not an insult!



27

Welcome to a New Missouri resident!



The Icicle Hitch: A Superior Knot for Seining

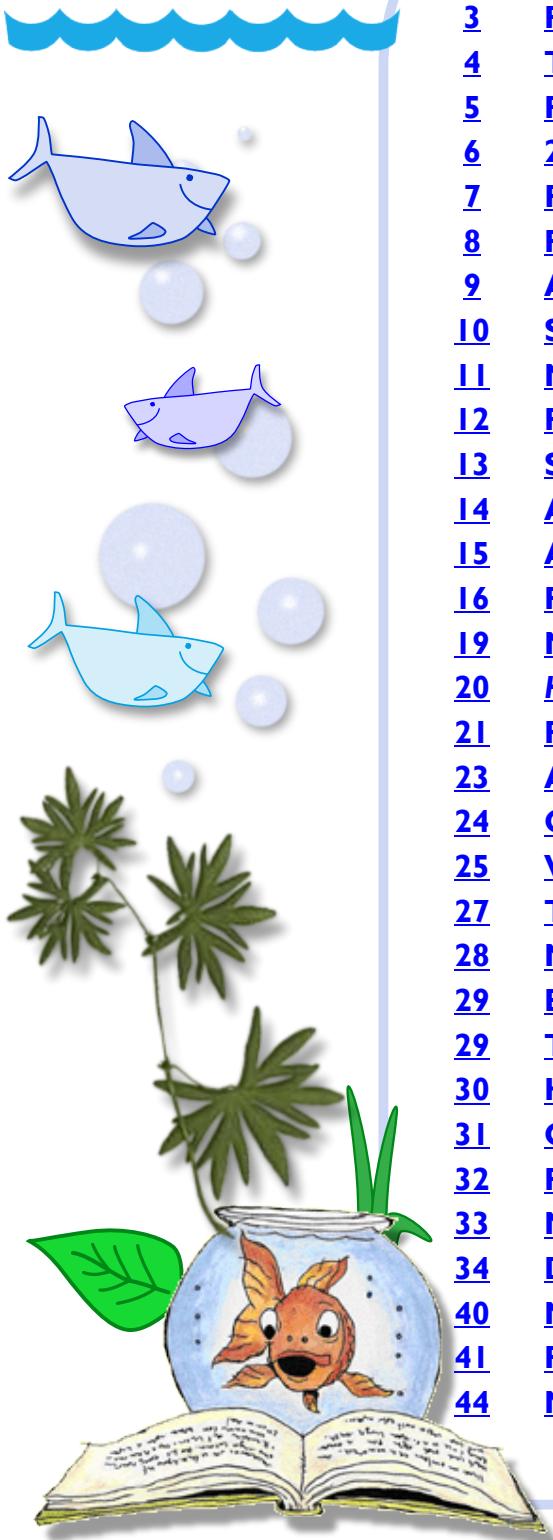
Marine Hobby Attacked for Collecting Practices

40

MASI Supporters and Friends



INSIDE THIS ISSUE



<u>3 Features</u>	
<u>4 Table of Contents</u>	
<u>5 From the President's Tank</u>	Pat Tosie
<u>6 2017/2017 Executive Council</u>	
<u>7 Program General Meeting July 21</u>	
<u>8 Future Speakers Jack Heller & Ian Fuller</u>	
<u>9 Auction Message</u>	Mike Hellweg
<u>10 Spring Convention & Workshop</u>	Gary Lange
<u>11 MASI Superbowl</u>	Gary Lange
<u>12 Fall SWAP</u>	Kevin Wise
<u>13 SWAP Flyer</u>	Kevin Wise
<u>14 ALA Conference 2017</u>	Derek Walker
<u>15 ALA Conference Flyer</u>	
<u>16 Raising Tropical Fish in a Pond in the Midwest</u>	Gary Lange
<u>19 Madagascar Lace: Growth & Reproduction</u>	Holly Paoni
<u>20 Hemianthus callitrichoides (HC) From Seed</u>	Dick VanHytte
<u>21 Findings on a Visit to Brine Shrimp Direct</u>	Gary Lange
<u>23 A West African Challenge - <i>Neolebias ansorgii</i></u>	Mike Hellweg
<u>24 Quarantine is not an insult!</u>	Kathy Deutsch
<u>25 Welcome to a New Missouri resident!</u>	Mike Hellweg
<u>27 The Icicle Hitch: A Superior Knot for Seining</u>	Kurt Zahringer
<u>28 Marine Hobby Collecting Practices</u>	Mark England
<u>29 Breeder's Award Program</u>	Steve Edie
<u>29 The Old Fish-Head Cartoon</u>	Kathy Deutsch
<u>30 Horticultural Award Program</u>	Mike Hellweg
<u>31 Club Hopping</u>	Steve Edie
<u>32 Fishes as Dishes</u>	Pat Tosie
<u>33 Member Classifieds</u>	
<u>34 Darter Advertisers & Sponsors</u>	
<u>40 MASI Supporters and Friends</u>	
<u>41 Revised ByLaws</u>	
<u>44 Mail Sheet & Monthly Bowl Show Entry Form</u>	Chris Mohrley

Article Photos are provided by the Author unless otherwise noted.

To move around more easily, use the CurleyQ in the lower right corner of any page to bounce back here. Then tap/click the article you want to read next.



FROM THE PRESIDENT'S TANK



Pat Tosie

Elections are over and we have a few new faces on council. The four officers stay the same as they were all reelected; (Pat Tosie as President, Gary Lange as Vice-President, Daniell Kinder as Treasurer and Kevin Wise as Secretary), as well as a few council members (John

VanAsch, Leroy McCreary and Mark Theby.) Newly elected to Council are Cory Koch, Tom Corridini and Debbie Sultan. Gary Lange is our new Show Chairman, thank you Gary for volunteering to serve this BIG job, let's all support him as you have Kathy and the past Show Chairs. Charles Harrison will serve as the voting position for the Show Chair as Gary cannot have 2 council votes. We welcome you three and thank you in advance for your willingness to serve your club and help to guide it in the right direction.

I would also like to thank the departing Council members; Larry Alright, Charles Harrison, and Robby Simmons as well as Kathy Deutsch, our Show Chairman. Thank you for serving your club and helping to make it one of the best fish clubs in the country.

Things are looking good for the upcoming year, we still have an auction and a swap meet before the year ends as well as a GREAT speaker lineup which includes Ian Fuller in October! In 2017 you will have a lot to look forward to, with MASI's

Convention in April and in May we will be hosting the ALA Convention! Start getting your fish ready now and help both events to be as successful as we can make them!

I just got back from a very successful ACA and our club had a strong presence felt with 10+ members making their way in search of the newest and rarest cichlids they can find. I brought back several species myself!

Keep looking below water....

Summer Auction August 14

Superbowl Show September 15

SWAP Meet September 25

Ian Fuller speaks to us October 20

Other social events in planning!

Watch the O-Fish-L for additional information.

Next Executive Council Meeting July 23 at Mike & Angela Hellweg's

FROM THE EDITOR

Chuck Bremer

This Darter has 10 pages of MASI upcoming events and 13 pages of 9 Fishy Articles - all but one page written by your fellow MASI members!! -and that doesn't include the normal news and columns or the newly revised Bylaws reprinted and made official on pages 41-43!

That's information in those pages. Look for an updated index of Darter articles from 1968 to present in the next issue and the Library list will also be here soon. Some folks you would think should be very prolific have nearly no Darter articles.

If that's you, we will be looking for new articles for next issue. It doesn't have to be a scholarly, in-depth article. When was the last time you saw a simple article for the beginner? Our club has all kinds of fish keepers, beginning, intermediate and advanced and support them all. Can you write about the problems you had getting started with your first tank? **It's been a long time since we've had a Guppy, Goldfish or Koi article.** How about a human interest article? They always play well and have won many of the Ralph Wilhelm Writer of the

Year awards recently...and winning that is worth \$100 that you could put toward a 2nd tank or more fish for the one you have.

Chris Mohrle is doing a fantastic job with the Monthly Bowl Show, so to help him the upcoming classes and an Entry sheet are on the back page. Print that page and fill it out to enter. If you're new in the club it's a good way to let others know what you have in your tank and get some awards to put on your "Bragging Wall". We'd like to see your fish and it's also good practice for the Super Bowl coming up in September, that



entry form will also be in the next issue.

Happy Reading! And as always, if you've got an idea we'd like to share it with others!

Chuck B

[Send Feedback and Letters to the Editor to: editor@missouriaquariumsociety.com](mailto:editor@missouriaquariumsociety.com)



Can you recognize your 2016/17 Executive Council?



As of this month the next year's Executive Council takes office.

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

Temporarily on the Council to fill short term vacancies are Charles Harrison who will be filling the voting role of Show Chairman and Jim Mueller who is acting Treasurer for the 2017 ALA conference and filling in temporarily for Daniell Kinder while she is unavailable.

Above you will find a list of the 2016/17 Executive Council as well as other Committee Chairs and Service positions within our Club. The voting positions normally attending Executive Council meetings are marked in BLUE but please feel free to contact anyone on the list to provide your input. Most voting members are identified with a photograph for easier recognition.

Position	Name	Email	Phone
President	Pat Tosie	pattosie@yahoo.com	314-616-4316
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Social Events Coordinator	John Van Asch		
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Advertising & Promotions	Mark Theby		
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Webmaster	Charles Harrison		
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Librarian	Dave Rush	fishydale2@yahoo.com	314-291-8932
Membership & Welcoming	Ron Huck	emperortraron@yahoo.com	314-481-2915
Monthly Bowl Show	Chris Mohrle	lazyreed05@yahoo.com	314-541-3897
Points Tabulator	Ed Millinger	amazoneddy1@yahoo.com	573-883-9943
Refreshments	Bob & Lora Watson	robertwmrmsh@yahoo.com	217-532-3238
Treasurer Interim Temporary	Jim Mueller	muellerj_44@yahoo.com	636-343-6271
Fish Raising & Publicity	OPEN		

...and Remember, anyone is invited to attend the Council meetings to bring up issues, contribute to the discussion or just to see how they are run. Meetings are normally held the 3rd Saturday of each month but are changed to fit schedules on occasion. They are normally held at a Council members home so it is also a good time to view fish and fishrooms!!

Maybe we'll see you at the next Council Meeting?



Next General Meeting - Thursday, July 21!!



Join us for our own
Pat Tosie
and a night of Fishy
Trivia!

Door and Trivia Contest Prizes will be Awarded!!

MASI meets on the third Thursday of each month at 7:30 PM.



Father, business owner, homebuilder, Real Estate agent, and fantastic all around guy(His words!).

Hobbies include photography, tropical fish keeping, hunting, fishing, dancing, movie watching and having FUN!

Pat maintains over 3000 gallons of freshwater in 100+ aquariums, predominantly containing cichlids and livebearers. He is an active member in the MASI Breeders Award Program, spawning over 300 species.

Pat has been on 15 collecting trips in the countries of Belize, Guatemala, Honduras, Mexico, and Peru. He has also collected native fish in Alabama, Arkansas, Illinois, Florida, Missouri, and Texas and is known for his numerous talks to aquarium clubs across the country.

Pat serves as MASI President, publishes the E-newsletter -The O-FISH-L, and administers the Facebook Fishheads site. He is a long time member of the *Aristogramma* Study Group, American Livebearer Association, American Cichlid Association (ACA), *Cichlasoma* Study Group, and St. Louis Water Gardeners Association and has served two terms on the ACA's board of Directors.

Pat is an auctioneer at the aquarium society, the water gardening society and church fundraisers and has written numerous articles for his local clubs and study groups.

General Meeting Location



Future MASI Speakers

August General Meeting - Thursday, August 18th!!

Jack Heller -Collecting Annual Killifish in the Peruvian Rain Forest



My talk be will about my 2016 collecting trip to Puerto Maldenado, Peru, in the lowland rain forest, to collect annual killifish during the rainy season. It will feature images of rain forest habitats and the fish that I was able to catch and bring back to the U.S. I will also discuss how I have acclimated and housed these fish and how I am breeding them. My target fish, *Moema quii*, recently appeared on the cover of Amazonas magazine!

BIO: **Jack Heller** has been in the aquarium hobby since he received his first aquarium at the age of ten. When he was in graduate school, he walked into a pet store in Granite City Illinois and saw his first Killifish book, "Enjoy your Killifish" by Dr. Bruce Turner and John Pafenyk. Shortly after, Jack acquired his first killifish, *Fundulopanchax gardneri*, and he has been hooked on killifish ever since. In the new fish room that Jack built after retirement he has also raised many other fish including Apisotgrammas, Kribbs, Darios, Rainbows and Blue Eyes and even enjoyed his first tank of discus.

Jack is active in the American Killifish Association, having served four terms on the Board of Trustees and served one term as Chairman of the BOT. Jack also enjoys collecting fish in the wild and was fortunate to accompany two scientists, Dr. Nevin Aspinwall and Dr. Tomas Hrbek, on a trip to Cameroon, West Africa in 1998, where he spent three weeks collecting West African Killifish. In 2013, Jack joined two AKA friends on a collecting trip to Peru where he collected many aquarium fish and experienced the Amazon first hand, including Tarantulas, Wolf Fish and chiggers. He has enjoyed a second Peruvian trip in 2016.



Moema quii

THE World Corydoras expert - October 20, 2016!!

Keeping and Breeding Corydoradinae Catfishes - Ian Fuller

Around 1970 Ian started with a small tank and many of the standard species of the day, such as guppies, neon's, platy's and swordtails. It was not long before graduating to a larger tank, followed by additional tanks and stands.

Ian first became hooked on Corys when he bought a small group of *C. pygmaeus*. The Corys were divided into three jars while the tank was being readied and the constant twice daily water changes in these jars triggered the *C. pygmaeus* to spawn... hooking Ian ever since. To date he has successfully spawned over 140 species of Corydoradinae Catfish and plans to spawn many more. For some he is probably the only person to have bred and recorded it.

He has written four books on Corys, "Breeding Corydoradinae Catfish" in 2000 and included sixty-five species spawning accounts, superseded in 2012 with an updated second edition with 153 spawning logs. Ian and fellow Cory enthusiast Hans-Georg Evers wrote "Identifying Corydoradinae Catfishes" in 2005 and a supplement in 2011. All are self-published. Ian established and runs "Corydorasworld.com", now even more user friendly and informative.



Ian's latest fishy venture started in 2015, when he and Michael Barber began a fish collecting and eco tour business called Go Wild Peru in Puerto Maldonado, southeastern Peru.

Ian is very thankful to spread the knowledge of his favorite fish, giving him the opportunity to meet many wonderful people throughout Europe, Canada and the USA.





MASI AUCTION MESSAGE

Mike Hellweg

EARN A FREE ANNUAL BANQUET TICKET!

Anyone who is interested in coming to the Annual Show Banquet next spring can donate up to two items (items 19 and 20) and 100% of the

proceeds from the sale of those two items will go towards your banquet ticket.

Many folks who take advantage of this get a free ticket each year!

Even if you don't want to sell anything else, you can get a sellers number for just your banquet donations, so anyone can participate. If your spouse would like to come to the banquet, they can sell these two donated items each auction, too. The average item sells for just over \$10. If your donations bring just the average price, you can easily pay for your ticket! Any

excess will go towards the overall costs of the show.

Don't forget, we're going to try something new for this upcoming auction on August 14 - **the hotel will have a lunch concession stand in front of the auction room. They'll sell sandwiches, chips and drinks.** Hopefully this will do well for the folks who don't like leaving the auction room while the bidding is running hot and heavy!

Don't forget to thank Chuck and the guys from Tropical

World Pets for supplying the raffle tank. In addition, we will once again have **three pieces of original artwork from nature artist Sam Scalz up for auction.** He donated them to MASI and the proceeds will go to the MASI Challenge. They will be sold at 2:30 pm.

The next auction will be the Summer Auction August 14. the Fall Auction is October 30.

*Mike
auction@missouriaquariumsociety.com*

Summer Auction August 14, 2016



Viewing 10:00 AM Auction Begins at 11:00 AM

**Crowne Plaza Hotel St. Louis Airport
11228 Lone Eagle Dr., St. Louis, MO 63044**



To be Sold at 2:30!





SHOW CHAIRMAN

Gary Lange

Which Three Fish are You Bringing?

coming up September 25th which may also be a good opportunity for finding some quality show fish. Both can be good places to pick up those extra tanks and lights needed to show fish too.

Another reason ALL MASI auctions are important to you is EASY Banquet Tickets!

It's almost here, are you ready for it?

Our August 14th auction is just around the corner. You might ask why the convention chairperson is reminding me about our auction, isn't that another chair's job? Yeah but it's also very important if you are attending our spring convention. NOW is the time to be looking for new fish for the competition. Keep your eyes open and a few tanks ready for possible subjects. We also have a swap meet

ready for the auction don't forget to add something to line 19 and 20 to go toward your banquet ticket. If your significant other or other family member would like to attend, give our Auction chairman a holler and ask for an extra seller's number for them. Just fill out lines 19 and 20 and before you know it you'll have a free ticket!

certainly much easier than paying full price.

2016 Super Bowl - September 15th

Super Bowl is one month earlier this year because Ian Fuller from England will be here speaking in October and we want everyone to be able to pay full attention to his talk. See this issue of the Darter for the classes and rules. They are pretty simple but if you have any questions don't hesitate to give me a call or send an email. September should also be warmer and easier to bring in fish. We want to see a lot of submissions this year.

Gary

MASI Spring Convention & Workshop

April 28th - 30th 2017

But First get ready for the

September 15th General Meeting

SuperBowl Show & Social

with Q & A Sharing Fishkeeping Tips & Tricks

Information on the following page. Entry form in next Darter



MASI SUPERBOWL

September 15

NO ENTRY FEES!!

Prizes:

- Best in Show, People's Choice, Best Junior
\$20 gift certificate to Tropical World Pets
- Cash awards all Classes:
\$3 first, \$2 second, \$1 third
- Junior Exhibitor (under age 16) any species
Certificate and Cash awards: First, Second, Third

Rules:

- You MUST turn in an entry form BEFORE you put your fish in the Superbowl. Blank entry forms will be available.
- You MUST label your bowls before placing in judging area (show chair will give you the correct labels once you turn in the entry form).
- One flat sided drum bowl or small tank (up to 10 gallons) per species is recommended -*multiples are allowed, however, the fish must fit the tank properly or can be disqualified by the judges*. No heaters, pumps or filters allowed. A lid or tank cover is preferred (Saran wrap and a rubber band works).
- Any fish displaying excessive stress will be pulled from the show.

Judging:

3 Judges will observe each fish. Judges' decision is final. Any judging paperwork is confidential and will be destroyed after the show. Judges do not need to defend their actions.

Entry form:

- Correct common name on entry form, as provided by entrant to the show chairman. Correct Latin name is better. (Correct Latin name may be from older books and commonly accepted nomenclature. No need to have the up-to-the second name. "*Corydoras barbatus*" is ok as is "*Scleromystax barbatus*"
- Junior and novice entries must be indicated by a J or N on judging form and tank label. Juniors and novices compete against regular entrants for placing. Junior is under age 16.

People's Choice:

There will be a voting box, paper and pens. Everyone should observe the entries and vote for their favorite.

Best in Show:

As determined by the judges

Best Junior:

Best single fish by a Junior entrant. Entry label on tank MUST have a "J" designation.



Class List:

Best in Show, People's Choice, Best Junior Entry

1. Old World Cichlid
2. New World Cichlid
3. Rainbowfish
4. Killifish
5. Livebearer: Fancy Finnage
6. Livebearer: Normal or Wild-type Finnage
7. Egglayers: Cyprinids: Barbs, Danios, Rasboras, Minnows, Goldfish; Characins: Tetras, Pencilfish, Piranhas, Pacu, Silver Dollars, etc.
8. Egglayers: Any other type
9. Catfish: Corydoras, Aspidoras, Brochis, Scleromystax and relatives
10. Catfish: All other

The Judges have the final decision if a fish has been properly placed in a category and under the correct name

UPON ARRIVAL AT SUPERBOWL

1. Entrant comes to Superbowl with the entry form correctly filled out and with fish.
2. There will be blank entry forms at the show site as well.
3. Show chairman looks at form and the fish. Chairman keeps form.
4. Show chairman gives accurate tank number labels to the entrant.
5. Entrant places tank number labels on the upper right corner of each tank.
6. Entrant places fish in judging area.





MASI Fall Swap - Kevin Wise

electronics and \$30 if you need power.

Payment for tables need to be to me by Aug 18th so I can have a good idea on table count and layout.

Admission to the Swap will be \$5.00 for the Early Bird at 10:00 am, which will allow you to be one of the first to come through our vendor room and get first dibs on the one fish you have to have before anyone else can get it from you, at 11:00am the normal open hours start and the price will be \$3.00. So for a extra \$2 you get in a hour

early and find that must have fish or aquatic related item you must have. Kids 10 and under will get in for free.

The tables are always full of all kinds of fish related items, so if your looking for something, this is the swap to find it at. To date we have a Aquatic plant vendor, a number of local hometown breeders lined up, and for those of you who love your cichlids, we have a number of those too coming to this years swap, we also have a local who will be bringing in all kinds of odd ball fish that you can not find at your local pet stores, and there will also be a

few very hard to find livebearers that our vendors will have - just in time for next years American Livebearer Conference in Saint Louis.

So on Sept 25th, mark those calenders for the 2016 Masi Swap.

So if you need a table or have any questions please contact me:

On the [MASI Facebook page](#)

Call or Text: [1-217-313-3263](tel:1-217-313-3263)

Or Email:
Kevlar4677@hotmail.com

MASI Fall Swap - September 25th, 2016

Swap Rules:

1. No parking lot sales, the Crowne Point Plaza, is private property. Hotel security will be notified and you will be asked to leave. The club does not condone parking lot sales.
2. Payment for tables need to be done and made out to Masi swap chair 'Kevin Wise" by Aug 18th. No tables for the swap will be sold after this date, unless prior notice has been made and comfirmed with swap chair.
3. Admission Volenteers for the swap get in for free. If you wish to help with the Swap, please contact swap chair to help with the show. There will be one free admission per table to help out the vendor of that table, a total of only 2 helpers will be allowed in for free. So if you have three tables, you still will only be allowed 2 helpers with free admission , any more then that and the extra help must pay admission.
4. Payment for tables may be made out to Masi by check, cash if handed to Kevin Wise. A "Postal "money order may be used, but must be made out to Kevin Wise for easy cashing to be handed over to Masi.
5. Table fees are \$25 per table, \$30 if you need electric power, limited amount of tables for power are available.
6. Sales are between vendors and customers, Masi has no say so in outcome of sales.
7. Doors open to vendors at 9:00am for set up.
8. Early Bird will begin at 10:00 am
9. Normal Open 11:00am to close which will be 3:00 pm
10. Vendors need to bring there own cash and money as MASI will not have change.

MASI INSULATED FISH BAG



Transport your fish in style!

Insulated, rolls up for easy transport, expandable, fits in luggage, carry your fish anywhere and keep them safe from temperature changes while displaying your pride in your club!

22" x 16" x 12" - holds several fish bags

Made of 100% recycled materials

Get yours today, before they're gone! Available at each monthly meeting or other events while they last!





September 25th , 2016

All Aquatic Swap/Sales Event with Plants, Fish, Foods and Anything Aquatic. Come out and enjoy a Fun Fishy Filled Day with local Fishy Friends from around the area.

10 AM till
3 PM

10 AM
Entry \$5

11 AM
Entry \$3

Age 10 and
under
FREE

Vendor
set up 9
AM

Tables
\$25
(with
power
\$30)



Drawing for Raffle Prizes at 2:30

Location: Crowne Plaza Hotel St. Louis Airport
11228 Lone Eagle Dr., St. Louis, MO 63044

Contact: Kevin Wise at Kevlar4677@hotmail.com



Help Bring the ALA Conference to St Louis

Everyone's help is needed to make it successful!!

Derek Walker & MASI-ALA Conference Committee

The 2017 Annual Conference of the American Livebearers' Association is brought to you May 4-7, 2017 by the American Livebearer Association (ALA), the Missouri Aquarium Society (MASI), and the Gateway Guppy Association (GGA).

These three groups are working together to ensure you have the most enjoyable and productive time at the 2017 Conference. Their goal is to ensure this is a very educational and productive Conference with something for every Livebearer Enthusiast who attends.

Want to see some really high-class fancy livebearers? St Louis is the place to be in 2017. The Gateway Guppy Association is helping ensure the conference will meet the needs of everyone by meeting the needs of Fancy domesticated breeders with special programs and shows sanctioned nationally by the IFGA. We expect this to be a super show because there is a lot of National Rivalry within the IFGA membership and should be a lot of "one upmanship" being played for both guppies and other fancy domesticated species such as Swordtails, Mollies and Platys by their members and other interested parties. Many of those fish shown will end up on the Huge Sunday Auction along with other fancy fish from ALA sponsors.

Of the more than 400 species of freshwater Livebearing fishes available worldwide, we are planning as many Families of Livebearers to be available as possible, including both wild and domesticated strains of Poeciliids (most common family with 290+ species in multiple genera), Hemirhamphids (12 genera/100 species of halfbeaks), Goodeids (19 genera/40 species), Anablepids (3 genera/15 species of four eye family), and maybe even Potamotrygonids (fresh water sting rays). No, there probably won't be any Coelacanth- but you never know what else you may find.

We want to improve the availability of some of the currently difficult to get livebearers and hope there's going to be a lot of fresh BAP material here for those involved in their local club's Breeder's Awards Programs. We're collecting unusual and difficult to find species from private hobbyists, importers, large aquarium suppliers, ALA, GWG and overseas sources. The Missouri Aquarium Society has one of the most active BAP programs and many of the best known breeders in the country who specialize in that oddball fish and will be providing many fish to be purchased at the Sunday Auction. If you've got any difficult to find livebearers in your tanks let us know so we can advertise them if

you plan to make available in May of 2017 through **private sales, box sales, vendors, silent auctions running throughout the Conference or someone's prize purchase at the Huge Auction on Sunday.**

Check out our Speaker page on the website at www.ala2017.com! You'll find it filled with well-known and expert speakers for Friday and Saturday. There will be speakers on many subjects including breeding and keeping fancy domestics, collecting in the wild and care in the tank. Special breeding techniques will be discussed and how to locate and move fish across the US. We are continually updating the speaker list, topics and scheduling so check back often.

The 2017 ALA Conference is located at the center of North America with access to everyone. Being located by the large Lambert International Airport and with easy access from all directions helps ensure this is a well-attended Conference. Nearly anyone in North America can start at home and be at the Conference venue within 8 hours either by driving or a direct flight to St Louis. We expect to see enthusiasts from both Coasts as well as from the 30 local clubs within easy driving distance. This will be an opportunity to network with Livebearer Fanciers you would not meet at Conferences less centrally located.

All Conference functions will be conducted at the Holiday Inn Airport West near Lambert International Airport. There is a special room rate to attendees. Please use the provided link for reservations or call their reservation number and mention the ALA conference for the special rates.

Registration for the 2017 Conference is easy, just use the PayPal link that will be provided on the Registration page. You will find the registration fees more reasonable than other current conferences and some options that give you a choice of pricing. **Register early for the best discount and lock in your calendar for May 4-7, 2017 for the American Livebearer Association Annual Conference!!**



Come to the Conference early and stay late!! To facilitate stays at the Conference we will help you care for any fish acquired early in the conference so you can stay the whole weekend and not worry. There will be help in keeping them over the weekend in the form of conditioned water or other needs. For those flying who don't wish to take their fish with them shipping to a final destination can be arranged. Let us know what you need so we can prepare!

There will be tours of local fish rooms and other activities available on Thursday. Some of these fish rooms are livebearer heavy and all of them show unique ways of organizing daily tasks and housing that can be adapted to livebearers.

Friday and Saturday will be filled with National conferences and informative speakers. Throughout the Conference there will be meetings of various livebearer groups, including the ALA, Guppy Group and Goodeid Working Group. Each provides access to a different group of enthusiasts and provide an excellent way to network and develop new friends and colleagues with which to exchange ideas and fish or just to party for the weekend.





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Raising Tropical Fish in a Pond Environment in the Midwest

Gary Lange

I have been keeping and raising tropical fish outdoors during the summer months for the last 25 years or more, usually putting out one species of rainbowfish, one livebearer and sometimes a few bristlenose plecos. This has been a winning combination which usually yields bumper crops of at least the livebearers and the rainbowfish.

Tubbing also does wonders for the colors



Pond Covered with UV resistant plastic

of the adult fish. My adult *Chilatherina fasciata* from Pagai looked almost as gold colored as they did when we caught our original wild stock. The indoor raised fish still are pretty but more of a red and yellow color instead of an intense gold. Something about keeping them outside for the summer really

intensified their colors. This year I wanted to see if I could duplicate some of the colors I saw in wild caught fish by putting my tank raised fish out in the pond for a few months.

were staying outside for the entire summer. Early temps ranged from 66 to 70 degrees F. The pond already had a decent amount of daphnia so the fish had a really nice feed to start their vacation outside.



This year I started my pond quite early on April 19th. I had been holding off until mid-May because of the weather swings we've had but ten to fifteen years ago by May 1st it was always warm enough to be safe with tropical fish. Just in case I decided to put out a rainbowfish from the Brisbane area of Australia, *Melanotaenia duboulayi* from Snapper Creek. It can tolerate a bit of cold, so if it got down to 65 degrees there still wouldn't be a problem.

Some of the large Snapper Creeks we caught in 2011 were quite red and I was wondering if fish outside would also turn bright red or perhaps this was a genetic aberration instead of just getting the right live foods and sunshine. Two months in the pond should be enough to test this theory. Part of my pond is in ground and 1 foot of it is above ground. I covered it early on with UV resistant plastic, removing the plastic on really warm days. The plastic helped to hold in the heat especially during cold April evenings. Six females and 4 male *duboulayi* were the fish added to the pond. I also added 5 yellow finned white clouds, *Tanichthys thacbaensis*, they

After a few days the large mop placed in the pond was covered with rainbowfish eggs- perhaps as many as 300 or more! I thought I would soon have fry all over

Putting out Rainbowfish, Livebearers and a few bristlenose plecos has been a winning combination which usually yields bumper crops of fish!

the place but this wasn't the case! I would see just a few fry at the surface and then they would be gone. When I took out a mop and brought it inside to hatch I soon had over a hundred fry to feed. There wasn't anything wrong with the parents or their eggs, they hatched





Snapper Creek Brisbane Australia - Home to *Melanotaenia duboulayi* now in my fishroom

just fine inside at 80 degree F. with elevated temperatures.



Melanotaenia duboulayi - Red Form, freshly caught

Some sixty days later on June 21st I moved the parents back inside. The photo shows decent red lines in the body and nice red colors in the fins but no, this fish was never going to be as red as those two wild-caught fish. In the two weeks before I removed the adults the temperatures in St. Louis really soared and the fry were surviving in the pond quite nicely. You should expect to see a



Melanotaenia duboulayi "Snapper Creek" 60 days outdoors nice but still not as red as those wild fish.

In the past I have been pretty forceful about not allowing our Missouri native toads to breed in the pond, pulling out toads, eggs and or tadpoles. These tiny black tadpoles taste bad to native fish and they won't eat them so I didn't want a stupid rainbowfish perhaps getting

Do tree frog tadpoles eat young Rainbow fish?

poisoned by eating one, they are not very smart. Grey tree frogs on the other hand are not a problem and I thought maybe the rainbowfish might even eat a few of them.

Well some of my other "Tubber" friends, Ted Coletti and Leslie Dick, suggested it wasn't a good thing to do. They said that the tadpoles take up a lot of the bio load and that 10-20 gallon tubs they have had with them didn't seem to produce as many livebearers or rainbowfish fry. If you google frog tadpoles some of the links suggest that tadpoles will eat baby fish.

I decided to see if tree frog tadpoles eating young fish was a problem. Pond temperatures were still rather low at 69-71 degrees. I went through my

Can I duplicate the wild colors I saw by putting tank raised fish in the pond for a few months?

After removal of the *Melanotaenia duboulayi* parents on June 21st it was time to start my second experiment for the summer pond. *Chilatherina allenii* from Siriwo also seemed to be variable. We had caught and photographed an especially huge yellow male that we couldn't bring home. Although we



Chilatherina allenii "Siriwo" yellow- field photo



Chilatherina allenii "Siriwo" tank raised - Will it get as yellow as wild caught if left outside for a few months?

brought plenty of juveniles home, none of them ever grew up to be as yellow as that one male. This variety of *allenii* is one of my favorite rainbowfish but I always wondered if I put it outdoors would it also turn bright yellow? Was this another case of color diversity of fish in the stream or would a few months' vacation in the pond make them all bright yellow? **Stay tuned for the second installment of this experiment!**





Hyla versicolor LeConte, 1825 - Eastern Gray Treefrog in my pond

fishroom and picked very eyed-up eggs from my various species that would

few hundred of them in the 450 gallon pond so that's a lot of extra waste. But tadpoles were not the fry killing culprits, low temperatures were.

One other thing I learned this year from my pond is: even though you have lots of hungry fish in your pond don't expect them to eat all of the mosquito larva. During a recent cleaning there were over



hatch in a day or two. After they hatched I placed 9 of them in a 3 gallon plastic tank along with 10 freshly caught grey tree frog tadpoles from the pond. If tadpoles ate rainbowfish fry they would easily find these and make short work of them.

Thirty six hours later the fry were doing just fine, and both the tadpoles and the fry were eating fry food. So it wasn't the tadpoles eating the fry. When the pond temperatures reached 72 degrees I started to see small schools of fry on the surface. Just to be safe, during a recent water change I removed as many of the tadpoles as possible and move them to a nearby lake. I did keep a few so the adults would have a few progeny to show for all of their efforts. The amount of waste product put out by the 10 tadpoles in the three gallon tank was pretty substantial and I probably removed a



Grey Tree frog tadpoles - Note the filtering and scraping mouth parts.

a dozen large mosquito larva in the pond hiding among the lily pads! I had been giving Mosquito Dunks to my neighbor who has a goldfish pond because goldfish eat few if any of the "mozzie" larva, but here I was raising my own crop of the nasties!!

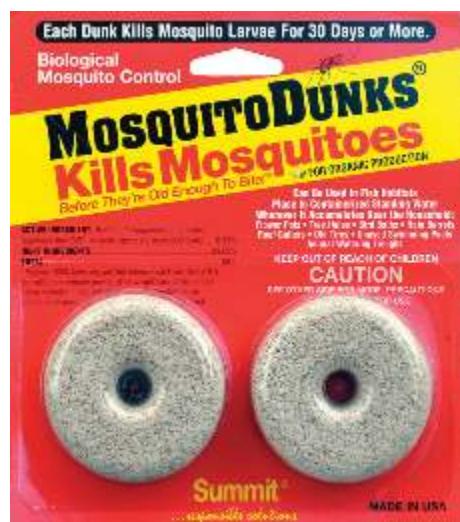
Mosquito Dunks are a product that contains bacterial spores of a particular strain of *Bacillus thuringiensis* that are

very deadly to mosquito larva but harmless to fish, humans, dogs, cats etc.



Mosquito Larva - Use Mosquito Dunks to keep them from becoming flying, biting nasties!

Once the larva ingests a spore the spore hatches and soon it's all over. These have been on the market for many years and are very safe. They are available at Lowe's, Home Depot or probably any



Mosquito Dunks - Available at your local hardware and pond store

good pond store and last 30 days or longer. If you have smaller size tubs you can break up the dunk and just put a small portion in each tub. With the varying types of mosquito diseases that are around these days using them is just the neighborly thing to do anyway.

Even though Midwestern weather may be a little unpredictable at times you can still give your tropical fish a vacation and enjoy a bountiful harvest of young, colorful fish when you collect them in the fall. Try it you'll like it!





The Madagascar Lace Apontogeton, *Apontogen madagascariensis*, is one of the most recognizable aquatic plants in the trade. It is most often used as a centerpiece in the aquascape due to its long, flowing, fenestrated leaf structure. It's said to be difficult to grow successfully but I have found it quite easy.

Madagascar Lace is found thriving under varying conditions on its native island of Madagascar. Conditions ranging widely from full sun to almost complete shade; varying pH, GH and KH readings; temperature variations up to 25 degrees; and substrate types. However, all the substrates are rich in nutrients.

This *Apontogeton* does not take a several month hibernation period like many other species, but does need a deep and very nutrient rich substrate to grow continuously. Growth slows down in the summer so it is actually a cooler water



Leaf fenstration (windowing)

Madagascar Lace Plant

Growth, Varieties & Reproduction

Holly Paoni

plant that takes summer's off without dying back!

I have grown, bloomed, and propagated this plant under varying conditions. My first fish room had a water chemistry that rivaled Lake Tanganyika, an African rift lake with close to the hardest water in the world! My last fish room had moderately soft water. pH was 6.4 to 6.8 depending on time of year and GH and KH each averaged 80 ppm. There were seasonal temperature variations in both fish rooms. Depending on time of year, and placement of the tank, temperatures ranged from 60 to 85 degrees but the Madagascar Lace Apontogeton grew very well in both rooms.

There are actually 3 species and a few hybrids of this *Apontogeton* available in the hobby. The first variation is narrowed leaves with a regular skeletalization, *Apontogeton madagascariensis* var. *Madagascar*. The next variation, *henkalianus*, has wider leaves and an irregular fenestration. The last variation is major with wide leaves and a very regular skeletalization. All are bulbed, rooted plants that form a rosette leaf pattern. The leaves range from a few inches long to three feet long.

I grew mine under very low to moderate light with calm to mild water currents because I use mainly sponge filters. In my experience higher light levels lead to unwanted algae growth on the skeletonized leaves. Madagascar Lace can take higher light and do well under those conditions, but why chance the algae and make maintenance harder?

There are a couple ways to propagate this plant. First, and easiest is bringing the plant to bloom and producing seed. Just changing the light bulb to a brand new and more intense one and adding a new root tab fertilizer was all it ever took for me to get this plant to bloom. The bloom is a stalk of small, paired lavender colored flowers. Pollinate them by using a small, clean toothbrush to brush the inside of each without re-cleaning the brush between. Brush each bloom twice to be certain you have pollinated all the flowers on the stalk. It will take a short time for the flowers to turn into seed.



Double Flower Stalk

The second way to propagate this *Apontogeton* involves splitting the bulb itself and is much more difficult. See Gary Lange's article in the May 2016 Darter for a discussion of this technique.



Hemianthus callitrichoides, commonly called 'HC', is a commonly used foreground plant for aquascaping, creating a foreground that resembles a moss covered field.

Its requirements for growing include **recommendations for high light, a fertilizer regimen and a preference for carbon dioxide fertilization**. It is susceptible to fouling by hair algae, which is difficult to remove without uprooting the plants. But, the effect of using this plant may outweigh the disadvantages, particularly if you want to achieve something with a real 'Wow' factor.



Emersed w flower Bud

It has been over a year since I had searched for blooms on my *Hemianthus callitrichoides*. When I tried to show the inflorescence to the BAP Chairperson at the time, I could not find an open flower, nor any sign of a bud or pod. The flowers are extremely tiny.



Submersed Carpet

Hemianthus callitrichoides (HC) From Seed

—

Dick VanHyfte

—

Reprinted from EIAA Fin Flap

Since then, I only occasionally search again, but have not noticed any. But, my eyes are not quite what they used to be, and I could easily miss them.

Now I will jump forward to December of 2015. The timer for my misting system over my plant table had failed. I would try to manually turn on the mister every day for about 10 minutes. However, I was away for a few days and that got neglected.

I also had not been paying attention to the water level in my emersed HC and Hairgrass trays. So, when I checked, the hairgrass and HC were quite dead. I ran the water level up to see if anything was still viable, but to no avail. Finally I just let the level drop and re-main dry.

About the end of January I decided to raise the water level in the tray to use for some more emersed plants. Shortly thereafter, I noticed extremely tiny green spots on the surface of one of the trays; the one that had contained the HC. Closer examination revealed that tiny HC plants were starting to grow, in many places. I was elated, since I thought that I had lost all of my HC.



HC Sprouts

The hairgrass never did come back.

The temperature had run from 69 to 72 F, and the planted trays, which sat in a water tray, had filter sand mixed with fine sand Fluorite to a depth of about 3/4". Water used was RO water. I have not added any fertilizers yet, since the Fluorite has some present, but I will be adding very dilute solution later.

HC is not difficult to grow emersed, and that technique avoids the algae choking problem. You do have to watch for over-shadowing by larger plants, both emersed and immersed, which can cause it to decrease or at least grow lanky.

The HC can be easily grown in a damp terrarium that is covered, and can resupply your planted aquaria if that becomes necessary. My experience indicates that very little setback occurs when these plants are then immersed in a properly set up aquarium.

Photos:

HC sprouts by Dick vanHyfte

Submersed: Copyright 2004 by Oliver Knott

Emersed closeup with flower bud: Copyright 2009 by Michael Teesdale (Zapins)



Findings on a Visit to Brine Shrimp Direct

Gary Lange



I have a lot of fish to feed so I buy 25+ kilos (55+ pounds) of frozen foods at a time. Although I utilize several suppliers, earlier last winter I ordered 50 kilos (110 pounds) of frozen adult brine shrimp from Brine Shrimp Direct www.brineshrimpdirect.com in Utah and split it with one of my industrial minded guppy friends. When you buy in bulk from most places the price drops to a much more reasonable price and when you buy in the middle of winter and know the next few days are also going to be quite cold you can also get three day ground shipment to St. Louis which is something like 1/3rd of the price of second day air.

I really like Brine Shrimp Direct's frozen brine shrimp as it's mainly shrimp and not so much water. Many of the commercial brands have a lot of water with their product.

At Brine Shrimp Direct the building where your order is processed isn't much to look at, it's part of an old grain operation but this helps keep the prices down. Inside everything is on the shelves ready to be shipped, at least the dry goods. While there I ordered some of their brine shrimp eggs and also got a few samples of other products to try out on my rainbowfish. I am always looking for something to feed the tiny mouths of newly hatched rainbowfish fry and Victoria, also BSD's friendly voice on the order phone, suggested some other foods to try.

I've been a big fan of BSD's "Golden Pearls 5-50 micron size" fry food for many years. It is my go-to product that I feed for 3-10 days to my rainbowfish fry. It is a dry powder that contains lots of important HUFAs (Highly Unsaturated Fatty Acids) which young fry really need. I still try to get them eating live baby brine shrimp (LBBS) as soon as possible. Once they start eating LBBS they grow much quicker and mortality rate also drops. The tiny fry are very fragile.

Even though LBBS is a great food I also like to try and feed my fish an assortment of foods. I've also been using BSD's freeze dried rotifers (100-200 micron) and Victoria suggested that I try their freeze dried copepods (~200 micron) and powdered krill which newly hatched rainbowfish can eat immediately. The copepods are especially high in astaxanthin, a natural enhancer of red and orange colors in your fish. It also contains a lot of important HUFAs. You may have seen another commercial product on the market called "Cyclop-eeze" that is very similar. I tend to like BSD's product better because it is a fine powder where the Cyclop-eeze usually needs to be broken up to feed to the fry. BSD also has a much better price point.

I also tried samples of BSD's FD Brine Shrimp and FD Mysis. The fish certainly liked them but my

choice is that they would rather have frozen or live although it's probably still much tastier than a prepared flake.

Victoria also suggested that I take home the "frozen version" of copepods and rotifers that they call **their "New Wave" products. These are frozen foods yet at normal freezer temperatures they are liquid.** That way you can just remove the container from the freezer pull out just enough for your baby fish and then put it back. With frozen foods you have to thaw the product and rinse before feeding. If you pull too much out it's wasted, not enough then you have to go back and thaw more or somebody goes hungry. I'd always pick frozen over freeze dried or powder and both of these products are very nice. The "New Wave Products" are a bit pricey but for those really important fish they are worth it. The frozen copepods are available in a 16 ounce size so it is a bit more economical.

Brine Shrimp Direct Foods



0.5 inch (12.5 mm) piece of flat toothpick for reference

1. Golden Pearls 5-50 u size
2. Krill Powder (no size given but small)
3. Freeze Dried Rotifers (100-200 u)
4. Artic Copepods Powder - 200 u
5. Killifish Feast Plus #1 - 200-500 u
6. Killifish Feast Plus #2 - 500 - 1,000 u
7. Freshwater Slow Sinking Pellet - 0.6 mm (600 u)



My young fish really like the new wave copepods, especially the *Pseudomugilis* often called "Blue-eyed Rainbowfish". It's often difficult to find a food small enough for these little delights so this is



BSD's New Wave Products

quite handy.

I've also tried BSD's new wave version of "plankton/krill" the *E. pacifica* variety for my adult rainbowfish. This krill is really just a tiny bit larger than adult brine shrimp and my fish really go for it. The krill is also available in bulk in something like a one gallon size but you'll have to call to get pricing, it isn't on the website. The frozen rotifers are something that everyone should keep in their freezer if they are doing a lot of breeding especially with smaller fish. These are really tiny and smaller than live baby brine shrimp. Unfortunately for me they don't work as well with rainbowfish because the material sinks and young rainbowfish often just stay at or near the surface looking for food. But if you don't raise stupid fish like mine this might be a really good food for you to try.



After 3-4 weeks of feeding baby rainbowfish you really want to switch to something a little

more economical. The current price for a one pound can of brine shrimp eggs (Grade A 80% hatch) is \$43 a can so that can get quite expensive quickly. Besides the powdered krill, which works very well for rainbowfish fry, I also obtained some samples of some of their processed foods: Killifish Feast Plus #1 (200-500 u), Killifish Feast Plus #2 (500-1,000 u)

and Freshwater Slow Sinking Pellet 0.6 mm (600 u).

The #1 & #2 products were readily eaten but whether it is any better than just crumbling a flake food that you already like or is easier than carrying another product in your fishroom is your own decision. The slow sinking pellet was of interest to me because medium sized rainbowfish are also not very bright. Often food that hits the bottom of the aquarium will stay there. So having a small pellet that lingers a bit before sinking is a good thing. In my tests it seems to sink pretty much at the same rate as some other 0.6 mm pellets that I've used like Aqua-Pharm.com's "Growth and Maintenance Diet" and many people's favorite New Life Spectrum's "Grow" pellet. So far my young rainbowfish seem to like them all equally well.



0.6 mm Pellet Comparison

1. Aqua-Pharm.com - Growth and Maintenance Diet
2. Brine Shrimp Direct - Freshwater Slow Sinking Pellet
3. New Life Spectrum - Grow

BSD also has several different types of flake foods that are available in relatively small sizes so you can try several different types if you like. If you mention the MASi code (see BSD's ad on the MASi Sponsor page) when you order over the phone you get a 5% discount. It's certainly worthwhile to combine a few orders with other MASi members to save on some shipping charges.

Brine Shrimp Direct's products have made my fish quite happy which makes me happy to see them enjoying it so much. Give them a try and your fish will be happy too.



Coming to us from West African forest streams over a fairly wide area from Cameroon in the north to Angola in the south, the tiny West African Characin *Neolebias ansorgii* has long been sought after by aquarium hobbyists. It's not so common, though, that it has a common name! You might sometimes see it as "Ansorge's *Neolebias*" - not too imaginative! I'd suggest a common name of Redfin Emerald Tetra, if it were up to me.



This diminutive jewel reaches just over 1" at full size, with females being just a bit larger than males. Adult males sport red fins, while those of adult females are clear. This may be the only way to sex them at the shop. But when you get them home and into a proper tank, they really glow. Males become a deep emerald green with metallic green highlights, all on a deep amber background. Their bellies become bright orange/red. Both sexes sport a dark brownish to black line under the lateral line, with a black spot at the base of the tail. This line disappears under the intense emerald green of the males. Interestingly, the dorsal fin is square! And unlike most Characins, they lack an adipose fin.

They will do well in St. Louis tapwater with little additional treatment to it. Our water is soft enough, and not too alkaline. For those on well water, it might be a good idea to filter their water over peat for several days before adding it to the tank. These little guys should be kept either by themselves, or in a small fish community tank. With larger fish, they tend to hide all of the time and don't really show their best colors.

A 10 gallon tank is perfect for a small group of adults. The tank should be well planted with Java Moss and Java Fern, and dimly lit. A dark substrate seems to bring out their colors better, too. I do regular water changes, but don't siphon off the bottom, so a thick layer of mulm accumulates in spots over time. This seems to be beneficial to them.

The surface of the tank should be covered with floating plants, both to cut down on the light, and to give the fry somewhere to hide. More on that in a bit.

In my experience, they can be spawned in a single species tank, with fry appearing at regular intervals. You can remove them as they are seen, or leave them with the adults. The fry appear as miniature three-eighths inch long copies of the adults.

A West African Challenge

-

Neolebias ansorgii

Mike Hellweg

For spawning, feed the adults well on a variety of live foods. I feed live baby brine every day, as well as other foods when I have them. They will take flake, but they don't seem to enjoy it. Most frozen foods are too large for them. I've worked with these fish on and off for years, but did not notice any fry until I started feeding the adults live blackworms via a worm feeder. A few weeks after feeding them black worms for the first time, I was catching a few fish out of the tank and was floored to find fry everywhere!

Along with feeding live blackworms, here's the breeding setup that finally worked: a 20

gallon breeder (made with two tens back to back with their back/front panels removed - a Ralph Wilhelm special). The tank was full of Azolla floating on the surface, and planted with Java Moss and several stands of Italian Val and Java Fern. It is filtered with a sponge filter. There is gravel, and thick layer of mulm on the bottom. 50% water changes are done weekly with St. Louis county tap water. pH is stable around 7, and total hardness is around 125 ppm. I've tried filtered peat water that brought the pH down to 6, but that didn't seem to help, at least with my fish.

Apparently once the fry hatch, they spend several days at the surface hiding in the plants. Without the plants, I'm sure the fry would just be picked off one-by-one. I'm guessing this imitates their heading to the shallows in the wild. After a few weeks, they head to the bottom and can be seen coming out from under the Java Moss for food when the adults are fed. The adults don't seem to bother the fry at all. I removed a few to another tank, where the young males quickly set up their own territories and took on adult coloration as they reached about three-quarters of an inch. The rest of the fry were left in the tank with the breeders, where they've done just fine. More young fish appear regularly, as long as I keep feeding blackworms at least a few times a week. They are slow growing, taking several months to reach three-quarters of an inch.

If you are looking for something unusual and definitely challenging to breed, give the beautiful West African Characin *Neolebias ansorgii* a try!



photos courtesy of Atlas Peces de Agua Dulce & Seriously Fish



Briefly, last article, I mentioned the need to quarantine every fish every time for 2 weeks. Let me expand on that. There is a misconception that if a person gets a new fish from a very good source, then quarantines it, he is saying something negative about the source. Wow, that took a lot of words to say, "If I get a fish from Harry Jones, who always has excellent fish, and I quarantine them for 2 weeks, I am saying Harry is a bad person who probably is a jerk and feeds stale flake food." This is a completely wrong interpretation. Harry's fish are probably fine. It is the new environment the fish are going to that could be the problem.

*Just because you
Quarantine someone's
fish doesn't mean
they're a bad fish
keeper*

Yes, I have dumped new fish straight into tanks (with a little acclimation), and have been extremely lucky. But the last time I did that, after only a one week quarantine, I lost every fish in the bottom half of my tank. It was horrible. Since I love catfish, killing some *Synodontis* and clown loaches was brutal.

Why do I quarantine? (THIS IS THE GROSS PART) The obvious reason is to make sure the new fish don't pass on a parasite or virus/bacteria to the fish they will be joining. Two weeks is enough time for a problem to manifest itself in most cases. I feed sparingly of a good food, and, yes, I check the feces for color and for parasites. A healthy fish's poop will be slightly colored with the color of the food they had. White or very pale poop is a sign there is internal stress. Usually parasites show up in gills or bellies, but once in a while they will be little strings in the poop.

The other main reason why I quarantine is because of our water. It is well water with very high mineral content. Every fish I have gotten seems to enjoy the water, but in 2 weeks I have ample time to make sure they are ok. Of course, if they are stressed by the water, that will show up in their color, feeding habits, etc.

Quarantine is not an insult!

And other lessons from my fish room

Kathy Deutsch

A two week quarantine also lets me understand the fish a bit. Are they responsive to people? Do they fight one another? Are they food hogs?

When it comes time to introduce the new fish, I have an idea if I need to get extra plant cover for the tank so the new fish can hide, or if they will fit in with the school. Maybe the old fish need the cover to hide from the new fish. I introduce the new fish at night, about an hour before I go to bed (ideally). I also feed the tank after I put in the new fish. I try not to pour all the bucket water into the tank, but personally I don't net the fish, I let



them "ride in" on a stream of water. Don't try this with big fish or cichlids over maybe 2 inches-it could kill them. Netting the fish is best for these.

My method of quarantine is simple. A 2 gallon bucket is placed on a towel away from the heating/cooling vent, and by a window

if possible. All the water the fish came with goes into the bucket. Then I add water, about 1 cup an hour (same temp or a touch warmer) for 6 hours or so. The next day, I remove a couple cups of water and replace it with fresh water. Trust me, this is not an exact science and I often skip a day of water change. But a couple days before the great move, I change half the water every other day. Mind you, this is not a lot of water, maybe a 1/2 gallon. Let me amend this: if the fish are big, use a bigger bucket, and more water. Don't cram a 6 inch fish in a gallon of water. And if the fish MIGHT fight, put in dividers/hiding places/clay flower pots so they can avoid one another. And be ready with another bucket and dechlorinated water JUST IN CASE they fight anyway.

LIDS: use them. Even cling wrap loosely taped to the bucket will stop a jumping fish. I never tightly seal a bucket; I put the lid on loosely and check the fish often. HOWEVER, if the fish are jumping a lot, they are fighting. MOVE THEM.

*use the Quarantine time
to learn about a new
fish and adjust its future
environment*

IF YOU HAVE CITY WATER, do yourself a favor and always have a gallon or so dechlorinated and ready to use. Water is a dollar a gallon jug at the grocery store. Buy a couple, then replenish with tap water and dechlorinator.

Speaking of water and changing the subject, I make sure to save my grungiest water from a water change and water the plants with it. Speaking of water changes, another hard lesson I have learned is that buckets and hoses carry and hold bacteria. I use a dilution of 10% Simple Green and 90% water, sprayed in the buckets and siphon hoses, for 10 minutes or so, then rinsed out.

Yes, quarantine is a lot of work. But I try my best to use prevention rather than figuring out a cure- I have never had much luck with fish medicines.

If your filter is running and the fish are at the top, they need more water flow. Just like this tank I am looking at....gotta go.



Welcome to a New Missouri Resident!

Good News for a Change!

Mike Hellweg

In these days when almost all you hear about fish species in the wild is doom and gloom, it's refreshing to read some good news for a change. Here in Missouri, we get to welcome a new species of killie that is expanding its natural range and appears to have become established along the eastern border of the State.

The State of Missouri has been home to seven species of Fundulus killies & topminnows for decades, if not longer. Four species are fairly common in the St. Louis area and not too far to the south - the Northern Studfish (*Fundulus catenatus*) a four to six inch fish

sciadicus); the Blackspotted Topminnow (*Fundulus olivaceus*); and the Blackstripe Topminnow (*Fundulus notatus*). One species was found near the Tennessee border and may actually have been specimens that crossed the Mississippi River from Tennessee as they have not been found since - the Golden Topminnow (*Fundulus chrysotus*). This beautiful species is very common further South and is even available commercially from fish farms down in Florida from time to time. There is also one that has been collect-

ed on a few occasions, but not regularly, in Central and Western Missouri in saline creeks - the Plains Killifish (*Fundulus zebrinus*).

The seventh species is more of a legend - The Starhead Topminnow (*Fundulus dispar*). It has been found along the Mississippi River in St. Charles County, and in the Bootheel area in the Mingo Swamp. I'm not aware of any of us having hunted them in recent years, and it is possible they no longer dwell in St. Charles County. Maybe that is something we should check out on one of our collecting trips this spring!



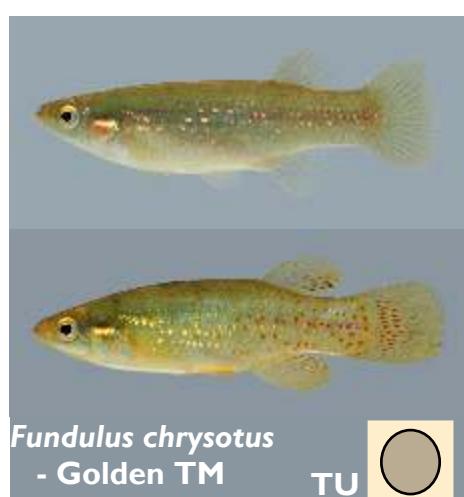
Fundulus diaphanus
- (Western) Banded Killifish

8 possible species
makes Missouri a
hotbed of Killie
activity. Pretty cool!

which can easily clear a four foot seine; the Plains Topminnow (*Fundulus*

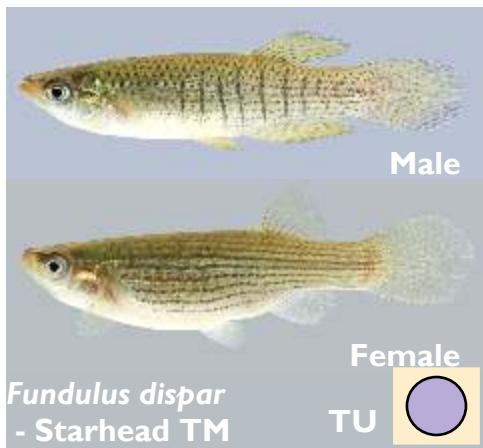


Fundulus catenatus
- Northern Studfish **BZ**



Fundulus chrysotus
- Golden TM **TU**





We regularly collect *F. catenatus*, *F. olivaceus*, and *F. notatus*, and have collected *F. sciadicus* easily on several occasions. There's no need to go far - *F. catenatus*, *F. olivaceus* and *F. notatus* can be found in St. Louis, Jefferson and St. Charles Counties on a regular basis.

Jack Heller, Kurt Zahringer and I have collected a specimen or two of the Plains Killifish- *Fundulus zebrinus* on a couple of occasions near Columbia,

MO, but never found them in quantity where we felt we could take some home, so we've released them.

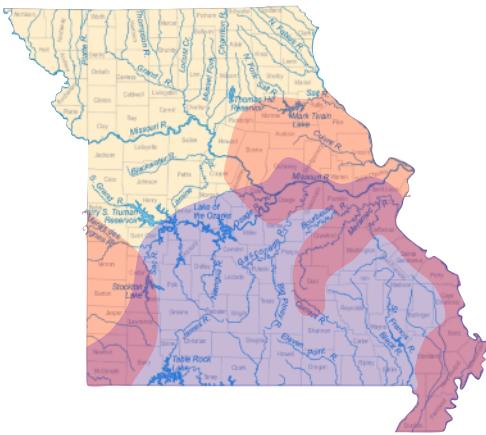
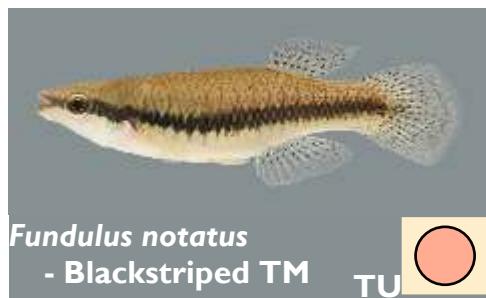
But now, for the exciting news! In late 2014, an eighth species of killie, *Fundulus diaphanus*, the banded killie, was found for the first time. It has been slowly expanding its natural range westward and southward for several years. They are found from Maine down to North Carolina, and along the Canadian border west from Maine to Minnesota. I have caught them in Lake Champlain, Lake Michigan, and in several smaller bodies of water in the Northern US. In Lake Champlain I even got to watch a pair spawn in some floating plants right next to the boat dock in water that was only about 4 inches deep.

They appear to be slowly making their way down the Mississippi River and their movement is believed to be associated with floods, making this a natural dispersal and expansion of their range, which killies often do. They are firmly established north of Missouri as far south as the area around Keokuk, Iowa, so the expansion of their territory into Missouri was really only a matter of time. This past summer they were found as far south as West Alton in St. Charles County. It will be interesting to see how far south they go in years to come, whether they move inland, and how well established they become. Maybe it's time for us to get our cameras, photo tanks and nets and go see if we can find any in the West Alton area?

What's interesting is that two other Missouri species, *Fundulus olivaceus* and *Fundulus notatus*, are also expanding their ranges in the opposite direction - northward - and have been doing so since the early 1940s, or possibly even sooner. *Fundulus sciadicus*, once considered rare, is expanding its range in Central Missouri and we have sometimes found them in places where they weren't supposed to be. They are found in feeder streams on the upper Meramec River and as far north as the Missouri River, so it's probably only a matter of time before they move into

those rivers proper, and, who knows, maybe they'll reach St. Louis someday, too.

This makes Missouri a hotbed of Killie activity. Pretty cool!



References:

Hilgedick, Kristie; [Fish Species Found Along Missouri's Border New to the State](#); The Missouri Conservationist magazine, March 2016, p. 7

Pfleiger, William; The Fishes of Missouri; The Conservation Commission of the State of Missouri; 1997, pp. 235 - 244

Maps drawn after [Nature Serve Explorer](#) and Peterson Field Guide to Freshwater Fish, 2nd Ed

Photos courtesy:

- BZ = Brian Zimmerman
- TU = Uland Thomas
- GL = Gary Lange



The Icicle Hitch

A Superior Knot for Seining

Kurt A. Zahringer

As they say, necessity begets ingenuity, and I have pride in aquarium-hobbyists at exemplifying this quality so well. Such has been the case with my seine-net, which I use for native-fish-collecting. After the first poles of my seine succumbed to wear & tear, I sought to fashion a superior set that would hold up better in the field. I purchased sturdier shovel-handles from my local hardware store, drilled holes through the top & bottom for more secure attachment of the net and drove dowel-screws (double-ended-screws) into the bottom of each pole; improving durability and ease of pushing into gravel.

These improved poles have served me well as I've traipsed around the waters of Southern Missouri. However, as I prepared for my first opportunity to collect fish abroad in Nicaragua, I quickly realized I couldn't take my impressive poles with me. At the advice of more seasoned fish-collectors, I simply took my seine, and purchased a pair of inexpensive broom-sticks at a local shop. Without the means to drill a hole in the poles they would have to be tied.

Even after many years in the Boy Scouts, I regrettably admit that I can't recall the majority of the knots we learned. I attempted to tie the corner of the seine down with a simple bowline— quite inadequate. Bowlines are fine knots for hanging something from a pole, but they don't stand up to being

yanked in multiple directions, as seining typically entails.

On my second trip to Nicaragua, covered in an upcoming article, I was again faced with the challenge of collecting without my own poles for the seine. After researching superior knots for tying ropes to poles, and an online guide to nautical knots, I came across a little gem called "The Icicle Hitch". Described as an easy-to-tie knot that securely grips a pole, and won't slide, even when pulled parallel to the pole. A relatively recent addition to the repertoire of sailor's knots, the site explained, modern mariners had reviewed the knot and approved of its performance. The name is from the assertion that a properly-tied icicle hitch will even securely grip a pole shaped like an icicle.

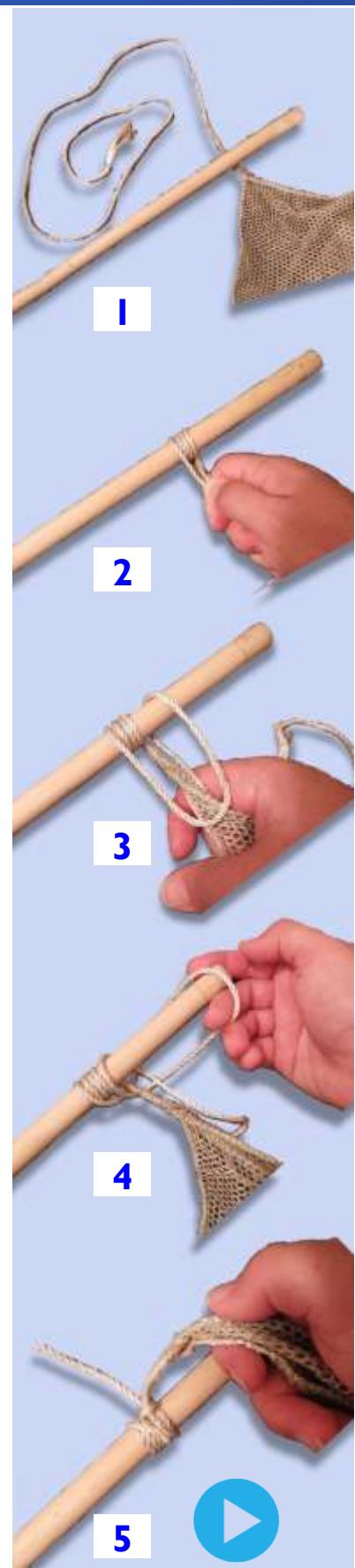
I used the knot on all four corners of my seine before my collecting in Nicaragua. After two long days of intense usage, I can confidently report that the Icicle Hitch held securely to the pole without slipping or coming undone. The load-bearing end withstands forceful yanks in any direction without undoing the knot, yet still can be easily untied when needed. I wanted to illustrate the knot for anyone that might similarly be out seining & require a good means of securing one's sein to its pole.

ICICLE HITCH

1. Lay the pole over the end of the seine's corner rope, keeping the net close to the pole.
2. Bring the end of the rope over the pole, towards yourself, wrapping it around 4 times away from the end of the pole. Cinch it down tightly.
3. Loosely bring the end of the rope back up over the pole on the opposite side of the 4 loops, letting it drape down nearest to you. Pull the end down, parallel to the seine's end.
4. Bring the hanging length around the back of the two strands, towards the end of the pole. Bring the length up & loop it over the end of the pole.
5. Pull securely down both ends to tighten the knot.

To untie: Push forward on the U-shaped loop, pulling the end back through, and the knot will untie.

Happy Fish-Collecting!





Animal rights groups struck another blow against the salt water portion of the hobby in March by filing a legal petition with the government demanding enforcement of the Lacey Act. The Lacey Act prohibits importing animals captured illegally according to the laws of their native country. The Center for Biological Diversity, The Humane Society, and For the Fishes filed the request with the NOAA (National Oceanic and Atmospheric Agency), US Customs, and the US Fish and Wildlife Service. These agencies have authority under the Lacey Act for a wide range of actions.

The petition seeks to enforce existing law and was widely reported by news organizations. According to National Geographic, "Up to 90 percent of the 11 million tropical fish that enter the U.S. each year are caught illegally with cyanide, according to a 2008 report from the National Oceanic and Atmospheric Administration." The largest exporters, the Philippines, Sri Lanka, and Indonesia, all have laws prohibiting use of sodium cyanide, but there is little enforcement effort.

The marine hobby is already faced with declining stocks of fish in the wild and efforts to breed in captivity on a commercial scale have been largely unsuccessful. Losses in the marine fish supply chain are widely acknowledged to be high, but no data captures just how high. Some cyanide-dosed fish die on the reef, others in transit, and

some die months later in hobbyist tanks. Worse still is the reef destruction that occurs with cyanide use.

None of this is new. Cyanide fishing has been going on for at least 50 years. What

Could the marine fish keeping hobby survive real enforcement of the existing laws? Importers are willing to embrace a program provided they can be satisfied as to cost, cross contamination, and other details. More importantly, they do not want to be held accountable for the sins of their supply chains.

It's hard to blame the people who catch the fish. They're desperately trying to earn a living.

Certainly with enforcement of the Lacey Act, the marine fish keeping hobby will not exist as it does today. Prices would surely soar and some species would not be imported or bred at all. High prices would encourage more breeding operations, but in the short term, hobbyists might have to be content with the few species of clownfish, damsels, and other species now bred.

References

- The Horrific Way Fish Are Caught for Your Aquarium-With Cyanide <http://news.nationalgeographic.com/2016/03/160310-aquarium-saltwater-tropical-fish-cyanide-coral-reefs/>
- Legal Petition Seeks Crackdown on Aquarium Fish Caught With Cyanide https://www.biologicaldiversity.org/news/press_releases/2016/cyanide-03-08-2016.html
- Petition to NOAA, US Customs, and the US Fish and Wildlife Service https://www.biologicaldiversity.org/species/fish/pdfs/Lacey_Act_Petition_Cyanide_Fishing_3-8-16.pdf&sa=U&ved=oahUKEwiakYio6LHMAhXBuyYKHeYGCaMQFggKMAI&client=intern al-uds-e&usg=AFQjCNF9y4_9Xf8mgQOcN5JG7_uuEXGBTg
- New Cyanide Test Draws Reaction from 104th Street <http://www.coralmagazine-us.com/content/new-cyanide-test-draws-reaction-104th-street>



Editor's Note: This method of collecting is again in the news after the release of "Finding Dory" as Blue Trigger Fish, unlike Clown Fish, can not yet be bred in captivity.



2016 BREEDER'S AWARD PROGRAM - Steve Edie

May

Member	Genus	Species	Common Name	Points	Bonus	CARES	Total
Chuck Bremer	<i>Pseudotropheus</i>	<i>demasoni</i> #@		0		10	717
Charles Harrison	<i>Corydoras</i>	sp. "C126" *		10	5		2885
Jack Heller	<i>Aphyosemion</i>	<i>volcanum</i> "Chutes d'ekom" (ADK10-330) *		15	5		430
	<i>Aistogramma</i>	<i>borellii</i>		10			440
Jerry Jost	<i>Corydoras</i>	<i>semlaquilus</i> "Napo River" *		10	5		2352
Chris Mohrle	<i>Poecilia</i>	<i>wingei</i>		5			80
Dwayne Peters	<i>Corydoras</i>	<i>paleatus</i>	Long Fin Salt & Pepper Cory	10			89
Debbie Sultan	<i>Aulonocara</i>	<i>jacobfreibergi</i> "Otter Point" *	Lemon Jake	10	5		670
& Tom Corradini	<i>Aulonocara</i>	<i>stuartgranti</i> "Turkis" *		10	5		685
	<i>Copadichromis</i>	<i>virginalis</i> "Gold Crest" #@		0		10	695
Pat Tosie	<i>Aistogramma</i>	sp. "Pebas" *		15	5		5025
	<i>Oryzias</i>	sp "Kendari" *		10	5		5040

June

Member	Genus	Species	Common Name	Points	Bonus	CARES	Total
Gary Lange	<i>Betta</i>	<i>rubra</i>	Spadetail Betta	15			1814
Ed Millinger	<i>Rineloricaria</i>	<i>eigenmanni</i>	Whiptail	20			885
Pat Tosie	<i>Astatotilapia</i>	<i>calliptera</i> "Blue Chizumala" #		0			5040
	<i>Chromidotilapia</i>	<i>kingsleyae</i> *		10	5		5055
Kevin Wise	<i>Xenophorus</i>	<i>captivus</i> @		15		15	820
	<i>Xiphophorus</i>	<i>alvarezi</i>		10			830

* = 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)

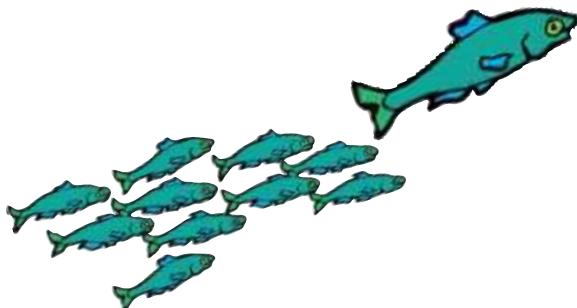
@ = C.A.R.E.S Species at Risk (Double base points)

= 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://research.calacademy.org>

CARES - <http://www.caresspreservation.com>



2016 HORTICULTURE AWARD PROGRAM - Mike Hellweg

May & June

Member	Genus & Species	Common Name	Type	Points
Chris Mohrle	200 pts			
	<i>Cryptocoryne crispatula balansae</i>		V	15
	<i>Limnobium laevigatum</i>	<i>Brazilian Frogbit</i>	V	5
	<i>Ludwigia sp. repens x arcuata</i>	Narrow Leaf Ludwigia	V	10
	<i>Riccia fluitans</i>	Crystalwort	V	10
	<i>Taxiphyllum sp. Flame</i>	Flame Moss	V	5
	<i>Vallisneria asiatica</i>	Jungle Val	V	5
	<i>Vesicularia montagnei</i>	Christmas Moss	V	10
Chuck Bremer	540 pts			
	<i>Phalaris arundinacea Strawberries & Cream</i>	S & C Canary Grass	V	5
	<i>Anubias barteri nana</i>	Dwarf Anubias	IB	20
	<i>Iris louisianae</i>	Black Gamecock Water Iris	OB	10
Gary Lange	1820 pts			
	<i>Aponogeton crispus</i>		V	15
Charles Hoppe	160 pts			
	<i>Vallisneria rubra</i>	Red Val	V	5
Kevin Wise	1335 pts			
	<i>Bucephalandra sp. Apple Brownie Phoenix</i>		V	20*
	<i>Cryptocoryne beckettii</i>	Becket's Water Trumpet	V	15

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



Anubias barteri nana



Iris louisianae



Now is the time to Photograph your Pond and Bog plants for Outdoor Blooms!



The Darter

CLUB HOPPING - Steve Edie

Aug 14 - St Louis: MASI - Summer Auction

Sept 24 - Cedar Rapids, IA: Eastern Iowa Aquarium Association - Fall Auction

Sep 25 - St Louis: MASI Swap

Sept 25 - Alsip, IL: Greenwater Aquarium Society of Chicago - Fall Auction

Sept 25 - Indianapolis, IN: CCAC Auction

Oct 8 - Rogers, AR: NWAAS Auction

Oct 13-16 – Herndon, VA: All Aquarium Catfish Convention

Oct 21-23 – San Antonio, TX: Federation of Texas Aquarium Societies – Annual Convention

Oct 29 - Alsip, IL: Greenwater Aquarium Society of Chicago - Fall Swap

Oct 30 - St Louis: MASI Fall Auction

Nov 5 - Kansas City: Heart of America Aquarium Society - Auction

Nov 4-6 - Chicago: Aquatic Experience

Nov 18-20 - Cleveland: Ohio Cichlid Association – Extravaganza

Nov 19 - Peoria, IL: Tri County Tropical Fish Society - Fall Auction

A Lot yet this Year!

Check with individual clubs for more details
Links to most are on our [webpage](#).

Convention Ads Hotlinked!



2017 MASI Dates to Save

Feb 12 - St Louis: MASI Winter Auction

Apr 28-30 - St Louis: MASI Spring Convention Weekend

May 4-7 - St Louis: American Livebearer 2017 Conf.

Aug 6 - St Louis: MASI Summer Auction

Oct 1 - St Louis: MASI Swap Meet

Nov 12 - St Louis: MASI Fall Auction



It may be **HOT**
outside but I'll bet
these events will be
Air Conditioned!



FISHES AS DISHES

PATRICK A. TOSIE, SR.

We all love our fish! This column is dedicated to using fish for something tasty to enjoy. Try it, you may like it. If you have leftovers, bring them to a monthly meeting for others to enjoy!

Tilapia with Green Beans

Ingredients:

2 - tablespoons all-purpose flour
2 - teaspoons chopped fresh oregano, plus more for garnish
2 - tablespoons chopped fresh parsley
Kosher salt and freshly ground pepper
4 - 6 ounce tilapia fillets
4 - tablespoons unsalted butter
1/2 - pound thin green beans or haricots verts
1 - clove garlic, chopped
1 - cup grape or cherry tomatoes, halved
Juice of 1 lemon



EAT MORE



FISH

Directions:

Combine the flour, oregano and parsley in a shallow dish. Season with salt and pepper.

Place a large skillet over medium-high heat. Dredge the fish in the flour mixture, shaking off the excess. Melt 3 tablespoons butter in the skillet, then add 2 fillets and cook until golden brown on the bottom, about 4 minutes. Flip and cook through, 1 to 2 more minutes. Transfer to a plate and keep warm. Repeat with the remaining 2 fillets.

Add the green beans and garlic to the skillet and cook about 2 minutes. Season with salt and pepper, then add the tomatoes and cook until just softened, about 1 more minute. Stir in the lemon juice and 1/4 cup water, then cover and cook until the beans are tender, about 3 more minutes. Remove from the heat and stir in the remaining 1 tablespoon butter until just melted.

Divide the fish and vegetables among plates. Garnish with oregano.

Total Time: 30 minutes (Preparation: 21 minutes, Cook: 9 minutes) Yields 4 servings



MEMBER CLASSIFIEDS

Buy/Sell	Member	Item	Bid/Asked	Contact
Sell	Jim Miller	Bloodworms and brine shrimp. Brine Shrimp eggs 16 oz. can.		314-638-1134
Sell	Charles Harrison	Thiosulfate crystals (Chlorine Remover) - pound	\$4.00	
		OTO double strength Chlorine/Chloramine test kits - 4 ounce	\$12.50	(314) 894-9761
		Flubendazole, 10% powder 25 grams	\$20.00	charles@inkmkr.com
		Lavamisole HCl Powder - 5 grams treats 100 gallons	\$10.00	
		Methylene Blue 5% solution (4 ounces)	\$12.75	
		Acriflavine Concentrate (4%) solution, 2 ounces	\$12.70	
		Bromthymol Blue pH test solution , 4 ounces	\$7.00	
Buy	Mike	Small Styro shipping boxes - 12 x 12 x 12 or a little bit smaller. If your company uses them and throws them away, save them! Bring to the meeting or I'll come pick them up	Free	636-240-2443
Sell:	Gary Lange	Rainbowfish Males Only - gwlange@sbcglobal.net 314-412-7636		
I have up to 14 extra male rainbowfish that I want to sell as soon as possible. Most are three plus inches so you'll need a big tank, really should have a 4' or larger if you get a bunch of them. Pick up or I can bring them to a meeting.				
<p><i>Chilatherina alleni</i> - "Wapoga", F-1 fish that I collected. 3+ inches. \$25 each 6 available.</p> <p><i>Chilatherina axelrodi</i> - 3+ inches 2 available \$25 each</p> <p><i>Melanotaenia affinis</i> "Pagwi" 3 inches, 2 available \$25 each</p> <p><i>Chilatherina</i> species "Upper Tor" 3+ inches 3 available \$25 each - sorry no pic but outstanding fish</p> <p><i>Chilatherina bleheri</i> 2.5 inches 1 available \$20</p> <p>Buy any six for \$120 or the lot for \$250.</p>				
 Male Rainbowfish Photos				

Got Green Backs swimming in those Tanks?

Got something fishy to sell? Bringing something to sell at the next MASI meeting?

Advertise here!

Deadline is 10 days prior to the January, March, May, July, September or November MASI Meeting. The Darter is Emailed about 3 days prior to each of these meetings.



MASI Members of good standing can place a fish related classified ad in the Darter for free. Free ads may be up to 30 words in length. Send your ads to the editor. The 30 word ad can run each issue unless specified how long to run, in which case it will run as requested.



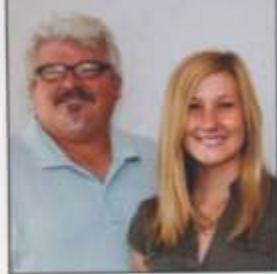
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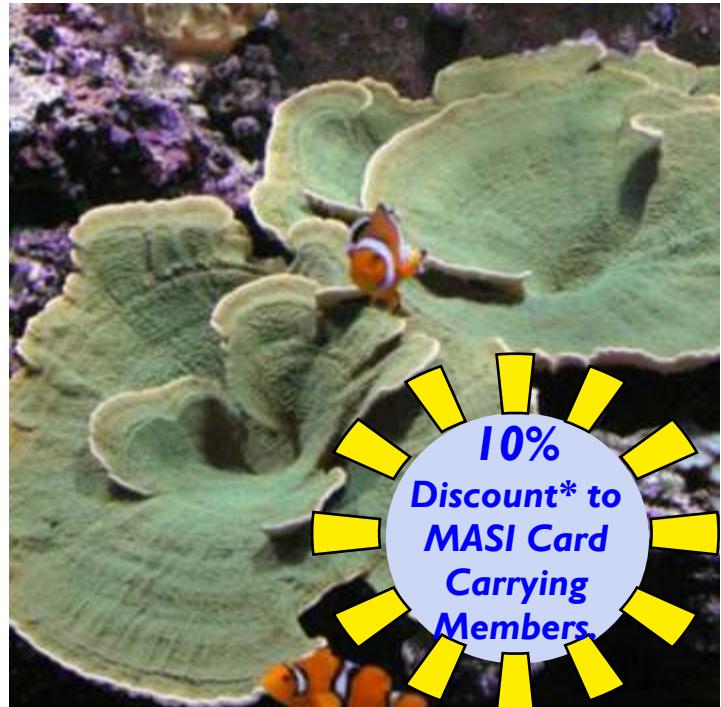


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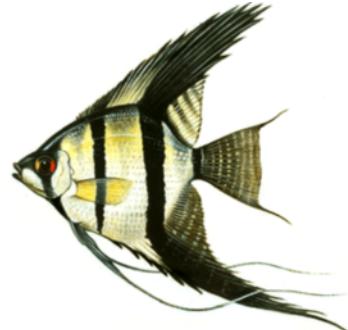
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Bylaws The Missouri Aquarium Society (MASI)

Incorporated 1959, Revised by General Vote June 16, 2016

Article 1: Name:

The Society will be called the Missouri Aquarium Society.

Article 2: Purpose:

The corporation is formed and shall be operated exclusively for charitable and educational purposes as set out in Paragraph 501 (c) (3) of the Internal Revenue Code or any subsequent corresponding provision of the Internal Revenue Laws of the United States; more particularly, for the propagation and care of tropical and marine fishes; the instruction and dissemination of information on the propagation and care of tropical and marine fishes to the public; the purchase of supplies and equipment for the maintenance and operation of aquaria for educational, charitable and scientific purposes, to promote the keeping of aquaria for purposes of occupational therapy; and to promote the hobby of aquarium keeping.

Article 3: Membership:

The Society shall be composed of Regular Members, Family Members, Professional Members, Honorary Members, and Corresponding Members as shall have been admitted to the membership hereafter in accordance to the provisions of the by-laws.

Article 4: Officers:

The officers of the society shall consist of a President, Vice-President, Secretary, and Treasurer. Term of office shall be one year. All officer candidates shall be members in good standing for at least one year prior to running for office.

Article 5: Executive Council:

The affairs of the Society shall be charged to an Executive Council composed of 13 members:

- 1) The four Officers of the Society
- 2) The Show Chairman, appointed by the President at the first general meeting of tenure in office
- 3) The Editor of the publication of the Society, appointed by the President at the first general meeting of tenure in office
- 4) The Auction Chairman, appointed by the President at the first general meeting of tenure in office
- 5) Six (6) members at large elected from the floor.

Termination of tenure:

Failure of an Executive Council member to attend 3 council meetings (unexcused absences) in any one year shall be deemed neglect of duty and grounds for expulsion from the Executive Council.

Article 6: Affiliation:

Affiliation with other Societies is allowed when desirable and approved by the Executive Council and the membership.

Article 7: Dissolution:

If for any reason it becomes necessary to dissolve this corporation, the assets held for charitable, educational and scientific purposes shall be applied so far as feasible toward carrying out the purposes stated in the articles of incorporation, excluding similar societies not Incorporated.

Article 8: Amendments:

These By-laws may be altered or amended by a two-thirds plus one majority of all voting members present, if a quorum is present. (A quorum shall consist of two-fifths of all voting members.) The proposed amendment shall be first submitted in writing to and approved by a majority of the entire Executive Council. The proposed amendment shall be published in the bulletin prior to voting.

Article 9: Membership:

Section 1) Eligibility: Any person interested in tropical fish and related subjects.

Section 2) Regular Members: Admittance to membership shall be considered valid after a membership donation is made.

Section 3) Honorary Members: Honorary membership may be conferred on any individual for outstanding contributions to the Society by:

- a) Recommendation of the Executive Council.



- b) Recommendation of a member and approved by the Executive Council.
- Section 4) Family Membership: Family membership shall be limited to 2 adult votes (15 years of age or older).
- Section 5) Professional Membership: a professional member shall be considered as one actually engaged in the buying and selling of tropical fish and/or aquarium supplies for resale as a means of livelihood.
- Section 6) Corresponding Member: a corresponding member is one who receives the club publication. A corresponding member shall not have a vote concerning club elections or functions.
- Section 7) Privileges: The right to vote shall be restricted to members of the Society (except as defined in Sections 4 & 6). A member must be present to vote.
- Section 8) Termination of Membership: Membership in the Society may be terminated at any time by a two-thirds majority vote of the Executive Council. Failure to donate prior to the close of the February general meeting will be deemed sufficient cause to suspend privileges.

Article 10: Membership Donations:

Annual donations shall be set by the November Executive Council Meeting and published in the club bulletin prior to the January general meeting.

Article 11: Officers:

- Section 1) Eligibility and Tenure of Office: Any member of the Society is eligible for nomination and election to any office of the Society provided they have been a member in good standing for one year prior to running for office. Professional members are eligible for all offices except for President and Vice-President. All newly elected Officers shall take office at the first July meeting.
- Section 2) Nominations and Elections: Nominations shall be made by a Nominating Committee appointed by the President and approved by the Executive Council. At least 2 candidates shall be presented for each Office open for election, or, the Nominating Committee may, with the approval of the Executive Council, present a single name for any Office. Nominations shall be entertained from the floor during the new business portion of the May general meeting annually. Elections will be at the June meeting, annually. A simple majority is required for a valid election.
- Section 3) Executive Council: The Executive Council shall manage the affairs of the Society in the best interest of the Society and in accordance with its purpose as expressed in the By-laws and the Statutes of the State of Missouri.
There shall be a meeting of the Executive Council prior to each regular meeting of the Society.
Any member of the Executive Council can convocate a special meeting whenever it is felt the affairs of the Society require it.

Article 12: Meetings:

The Society shall have one (1) regular meeting each month. The order of business at all meetings and the program of any meeting shall be determined by the Executive Council, or an officer or committee designated by the Executive Council. *R. Roberts Rules of Order Revised* shall be used in conducting the meetings. The President or the Executive Council shall have the authority to invoke these rules whenever necessary, and to appoint a Sergeant at Arms to enforce them.

Article 13: Financial:

The Treasurer shall deposit all Society funds in a federally insured organization in the Society's name. The Treasurer may only issue checks for Society expenses. The Treasurer will submit a financial report once a year. A yearly audit of the Society's account will be made (subject to State and Federal laws) by an Auditing Committee appointed by the Executive Council at the last meeting of the fiscal year. All bills are paid by check. The Treasurer shall keep an accurate account of all funds of the Society. All expenditures shall be approved by the Executive Council. All expenditures so approved must be submitted to the Treasurer within 60 days of incurrence of said expenditure. Checks written on Missouri Aquarium Society account may be signed by the President or Treasurer.

Article 14: Inurement and Propaganda:

No part of the net earnings of the corporation shall inure to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes described in section 501(c)(3). No substantial part of the activities of the corporation shall be the carrying on of propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate in, or intervene in (including the publishing or distribution of statements) any political campaign on behalf of or in opposition to any candidate for public office. Notwithstanding any other provision of these



articles, the corporation shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from federal income tax under section 501(c)(3) of the Internal Revenue Code, or the corresponding section of any future federal tax code, or (b) by a corporation, contributions to which are deductible under section 170(c)(2) of the Internal Revenue Code, or the corresponding section of any future federal tax code.

Article 15: Committees:

Each committee authorized by the Executive Council shall be considered automatically discharged at the close of the term (June meeting), unless the Council or membership take action to continue the committee.

Nominating Committee: Refer to Article 11, Section 2 and shall consist of the Chairman and other appointed members as seen fit. They shall submit a roster of candidates at the Executive Council meeting prior to the May general meeting.

Show Committee: Refer to Article 5 and shall consist of other appointed members as the Show Chairman sees fit. They shall be responsible to conduct the Annual Show or Shows and the Super Bowl Show or Shows in the best interest of the Society.

Article 16: Registered Agent and Historian:

The President is to be the Registered Agent of the corporation, and is responsible for timely execution of all governmental filings regarding corporate status of the organization. The Historian shall be appointed by the President and shall be responsible for maintaining an Archive of all Society activities, as directed by the Executive Council. All officers will turn in a complete record of their tenure to the Historian by the second meeting of each year.

Article 17: Duties of Officers:

The President will preside at all meetings according to the By-laws. The President has the authority to fill any vacated office to complete the unexpired term.

The Vice-President will preside at all meetings whenever the President is absent, or in the event of the President's inability or refusal to act. The Vice-President will also be the Program Chairman and head the Nominating Committee.

The Secretary shall keep accurate minutes of all meetings, regular or special, and submit same at any meetings whenever the President so requests.

The Treasurer's duties are outlined in Article 13. Also, the Treasurer will notify the Membership Secretary of all additions to the membership, and will notify all members who are delinquent in the payment of donations. The Treasurer shall in general perform all duties incident to the office of Treasurer and such other duties as may be assigned by the President or Executive Council.

Article 18: Corresponding Secretary and Membership Secretary:

The Corresponding Secretary shall be appointed by the President solely for the purpose of conducting such business assigned by the President and Executive Council. The Membership shall keep an accurate and current roster of all classes of members, and intervals of every three months compare records with those of the Treasurer.

Article 19: The Editor:

The Editor of the publication of the Society shall be appointed by the Executive Council and must mail announcements of the meetings, dates and places as directed by the Executive Council. The Editor shall be responsible for the publication and all duties connected with said publication as is in the best interest of the Society.

Article 20: Librarian:

The Librarian shall keep the Society's books and magazines in good order. Any funds derived from the Library's use will be used to better the Society. The Librarian shall give a quarterly financial report to the Treasurer. The Treasurer will keep an accurate account of the Library funds.

Article 21: Rules of Order:

Roberts Rules of Order Revised shall be the authority in all transactions of the Society not provided by these By-laws and/or articles of incorporation. (Refer to Article 12)

Article 22: Motions from the Floor:

Motions made and seconded from the floor at a general meeting concerning the regular business of the Society shall be first approved by the Executive Council. If approved by the Executive Council, the motion will be brought before the next regular meeting for discussion and voting by the regular membership.

Article 23: Voting:

All voting concerning changes or additions to the By-laws and Elections shall be by secret ballot.

Article 24: By-laws:

These revised by-laws of April 8, 2016 supersede all previous by-laws and amendments. Any additions or amendments to these By-laws shall be distributed to all members.



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