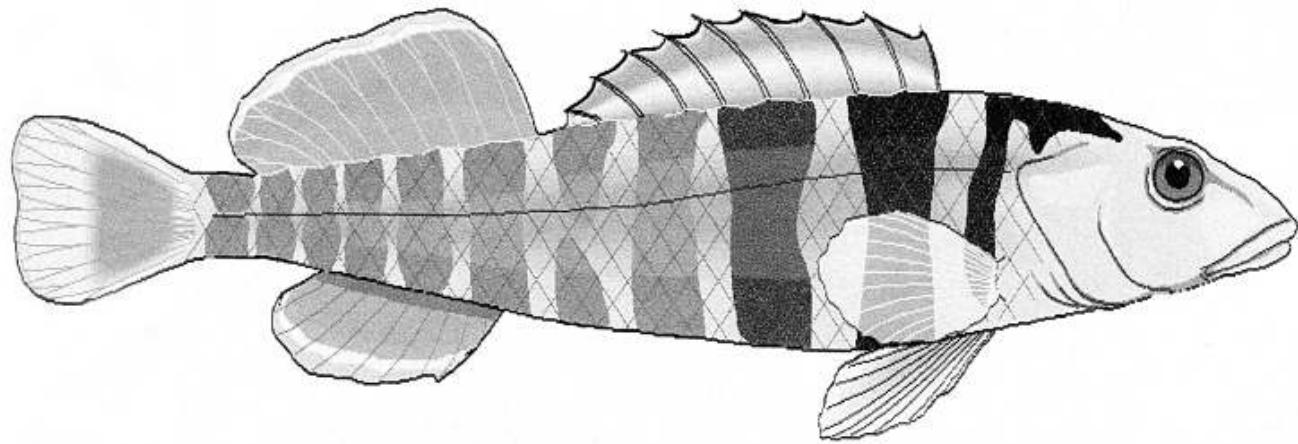


The Darter

January - February 2010



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St. Louis, Missouri

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MASI's official web page: www.missouriaquariumsociety.com

Join the MASIFishHeads Yahoo Group. See web page for instructions.

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The Missouri Aquarium Society will exchange their publication, THE DARTER, with other aquarium societies. Failure to receive three consecutive issues of a society's publication will be considered as a termination of our exchange with that society, unless advised to the contrary.

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Opinions expressed by the contributors are their own and do not necessarily reflect the opinions of the Missouri Aquarium Society, Incorporated.

Places to Be / Things to See

SATURDAY Jan 23, 2010
Executive Council, hosted by Gary McIlvaine

THURSDAY February 18, 2010
General Meeting, 7:30 PM @ Dorsett Village Baptist Church
Program – Fish Judging

SUNDAY February 21, 2010
Auction, 12:00 Start, Gardenville Masonic Hall

SATURDAY March 6, 2010
Executive Council, hosted by Steve Edie

THURSDAY March 18, 2010
General Meeting, 7:30 PM @ Dorsett Village Baptist Church
Program – David Boruchowitz, editor, “Tropical Fish Hobbyist” magazine

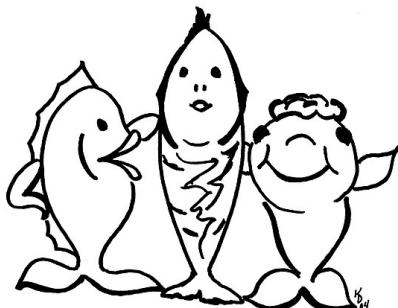
SATURDAY March 27, 2010
Executive Council, hosted by Scott Bush

THURSDAY April 15, 2010
General Meeting, 7:30 PM @ Dorsett Village Baptist Church

April 30 – May 2 2010
MASI Annual Show and Spring Auction, Gardenville Masonic Hall

SUNDAY August 8, 2010
Auction, 12:00 Start, Gardenville Masonic Hall

Membership



Yearly membership in the Missouri Aquarium Society, Inc. is \$20 per calendar year. Membership includes the Darter subscription for the year, which is currently 6 issues. New memberships and renewals can be submitted at club functions such as meetings and auctions, or by contacting Ron Huck, our membership chair.

Presidential Preamble

By Mike Hellweg

Happy New Year everyone. It's 2010 already. Wow! I hope you all had a great Holiday Season, from Thanksgiving straight through New Year's Day. As is customary for this time of the year, it's time to make some fishy resolutions. Let me offer a few suggestions, in case you're having trouble thinking of something.

Do more water changes. As our March speaker, TFH Editor David Boruchowitz will attest, the more water you can change, the more frequently you can do it, the better off your fish are. In his two recent articles in TFH magazine, he proves this mathematically. I can attest to this from practical, hands on experience in the fish room, as can many others in our Society. Just ask. Many people wonder how successful breeders consistently seem to be able to get their fish to spawn, almost on cue, and how they are able to raise their fry so "easily". One of the biggest "secrets" is doing frequent, large water changes. 10 or 20 percent a month is not a water change. Pollutants still build up and eventually the fish are swimming in sewage. 50 percent or more a week IS a water change. Though even that allows for some buildup in the water. On fry tanks, I do big water changes every day or every couple of days. It really does work!

With regards to the Society, maybe you can resolve to participate in the Breeder's Award Program, the Horticultural Award Program, the Fish Raising Contest, or even to write a short article about your fishkeeping experiences for the Darter. Offer our Editor Steve Deutsch a cartoon, puzzle or other fishy doodle. Enter the Monthly Bowl Show and the Annual Show. It's easy, and there are plenty of experienced hands who can offer help if you need it - again, just ask! Maybe resolve to come to an Executive Council meeting and see how the Society runs.

Now is the time to begin to get ready for our Annual Show. It's coming up fast! April 30 - May 2, 2010. Our February program will teach newer members and remind more experienced members what judges look for in a show fish, so after that everyone should have some idea what fish, plant or invert that they have will look good in the show.

Maybe even contact our Vice President Kathy Deutsch and offer to run for Office (President, Vice-President, Treasurer, or Secretary) or for one of the 6 Members-at-large on the Council. All you have to do is show up at one Council meeting a month, and host one of those meetings. It's a great way to get to see other's fish tanks and to show off your own. Plus you get to have a direct voice in the operations of the Society. We used to have at least two, and some years even more than two, candidates for each Office, and sometimes more than a dozen people running for the positions of Member-at-large. I'd love to see that again! And often we changed Officers every year! That would be great! Think of the new ideas we could see from that.

Which brings me to this: my fifth term in a row, and my thirteenth term overall as President, is coming to a close this June. I really enjoy being President as it's just plain fun most of the time, and I've had many great people on the committees and on the Council work hard and make me look good. The big secret to doing a good job as President is to surround yourself with good people who work hard. MASi is really lucky, as we have a lot of great people, and we never have a shortage of volunteers. One of the President's main jobs is to make sure they all have something to do. I've had the good fortune to

have some of the best volunteers running the various committees and working for the Society over the past several years. The rest is “just showing up on time and working hard while you’re there”. That does mean that you have to make time in your work and family life to be at every meeting. You can miss one or two (I think I’ve missed 4 over the past 13 terms), but you really do need to make a commitment to be at the meetings since you will be the one in charge, and each meeting does need someone to lead or there will be nothing accomplished. You also need to have an idea of what is going on in each committee and at each committee meeting.

While I do enjoy being President, I really think it is time for someone else to step up and take the lead. It’s the beginning of a new decade, and it’s time for a change, a new direction for the Society, if you will. I enjoy the job, but I don’t feel like it’s “mine”, so I will have absolutely no hard feelings toward anyone who thinks they may want the job. In fact, I’ll be disappointed if no one steps up and wants to take over. It would be even better if we have two or more candidates! Remember, I’m looking to step down and do something else for the Society. I’ll be excited to work with you to make the transition smooth and to get you off to a good start.

Here are some of the qualifications I think will make the job easier for you. They are definitely NOT required by our bylaws, which only require that you are a member in good standing for one year. I should mention right up front that the job can sometimes be like trying to herd danios. You might be able to get most of the group going one way, but there will always be a couple darting in the other direction. If you are looking for “power”, you might want to look elsewhere (how much power can you realistically wield over 100 fish fanatics anyway?). I firmly believe the job of President, like every other job in the Society, belongs to the Society, not to any individual. Like all of the other positions, it is really a way of giving back to the Society, a position of service to all of the membership, so you should keep that in mind.

One thing that might make the job easier, but that isn’t necessarily required, is that you have some management or leadership experience. Timeliness is important. People get annoyed if meetings consistently start late or run late. You will need to be able to make sure that all of the meetings run smoothly and on time. You need to be able to politely, but firmly, cut off discussion or debate when it runs too long. You will need to be able to get the General Monthly meeting running and get people in their seats at 7:30 - not 7:45 or 8:00 or there won’t be enough time to get the program, the auction, and the rest of the meeting completed. You will need to be able to stand in front of a crowd and talk. It can be especially challenging if the audience is made up of friends! So you will need to be able to do this.

You will need to try to get to the meetings early, and be prepared to stay late so that you can hear the various people who want to make suggestions or ask questions. One thing you will learn as President is that you cannot possibly talk to everyone at every meeting, so it is best to talk to people outside of the meeting context whenever possible, so you can let others do the talking at the actual meetings. If you’re not organized or if you have trouble managing time, maybe this might not be the best fit for you. But if you think you can and want to know more, please ask and I’ll give you more help than you’ll want!

...and for now, ‘nuff said...

Vacation Time

by Gary McIlvaine

I have a lot of fish tanks. Too many for the normal person to comprehend. The question comes up about how I can go on vacation for two weeks at a time, and I don't worry about my fish. Let me first say before I continue, I learned this from a number of other articles, fishy people, and generally as I just go along. Prior to vacation I make it a point to make it clear to my family, that I have to spend time, extra time in my fish room to prepare my fish for our vacation.

The first thing I do is step up the water changes. I also have two sponge filters in most of my tanks, I never squish out both at the same time. By this I mean running it under my faucet and squeezing out the fish poo. I will over about 3 days alternate cleaning the sponges in my fish room and doing water changes. I will often change about 30% of the water in all my tanks 2 times before I go on vacation the first time I clean the left filter, the second time I clean the right. This takes me about 3 days, because while I love to spend time in my fish room, I have learned not to over do it.

The next thing I do before I go on vacation is talk to my father in this case about taking care of my fish. (I am lucky in this regard, my father has an interest in fish, but not an addiction) He has kept one or two tanks over the years and knows what to do. I label all my tanks with a grease marker that you use on dry erase boards. This also makes it easy to erase later. I try to keep things easy for my dad. This current vacation I have some fry that I want to eventually turn in for BAP points, and while they are not receiving prime care for two weeks I can place them in the capable hands of my father.

I have my father come over every other day. I keep a few different kinds of fish, some vegetable eaters which I feed a green veggie flake, then the rest get a simple flake food. I label my veggie eater tanks "Green food" and I label the others "Flake food" I try to keep things easy. I also have Baby brine shrimp frozen cubes. I label my tanks with my fry feed "one cube" feed "two cubes" This is also where my least favorite nuisance in my fish room becomes a benefit. My fish room is infested with Malaysian trumpet snails. If my father over feeds then the trumpet snails gobble up the excess. If the fish eat all the food, then the tank is good as well.

I also want to point out that I have my father feed them every other day. I believe most fish keepers over feed their fish. Fish are cold blooded, they don't expend near the amount of energy us warm blooded mammals do. A warm blooded mammal expends great amount of energy and food maintaining our body temperature. Our fish counterparts are whatever temperature the environment happens to be. Also a benefit in waiting every other day for my fish to eat is they will greedily consume the food when it is offered. The long period between feedings also allows them to eat the tiny microorganisms, and food that naturally grows in the tank. Normally our fish turn their noses up at eating this, because we provide them with so many other better things to eat. For two weeks this is enough to keep the fish from starving, but also enough for the tanks to not get fouled up by over feeding.

The next component of getting through this two week period, is I also make it clear that the first day back from vacation I again get to spend an entire day in my fish room, just seeing and cleaning the tanks. I will do small water changes the first day and then again step it up over the next few days.

If you are leaving for just a few days or even a week, I have found it is best to just not have any one feed the fish. In fact I am always surprised when I travel to a convention like the American Livebearer Association convention, or the American Cichlid Association when I return my tanks look better than ever. The fish will clean it up for you, the filters allowed to work, will make the tank water sparkle. My wife is always sceptical when we leave, then shortly after we get home, she will comment on how awesome, and clean our 125 gallon fish tank looks. So don't worry about taking that vacation, it will help you keep things balanced in your life. The break also makes you miss your fish, and you know what they say "absence makes the heart grow fonder"

You Know You're a Fish Nut When . . .

By Reet Thomas

Editor's Note: I re-printed a different selection of these last summer, but when I ran across these reprinted in the Nov/Dec 2009 Youngstown Tropical Fish Society Aquarist and noted the author, I figured we could use a few more. Is that a re-reprint? Anyway, Reet, it was good to hear from you again.

- 1.– You have more than 3 broken aquariums in a corner of the basement.
- 2.– Have thirteen fish nets (some need a little repair).
- 3.– Have several working thermometers that float on their sides.
- 4.– Have more than 3 permanent water stains on the carpet.
- 5.– Have worn out a couple of wet-vacs.
- 6.– Late to social gathering because you had to clean those last two filters.
- 7.– Have a container of food the fish wont eat, but can't throw it away. Might need it someday.
- 8.– Have mold growing on living room wall.
- 9.– Have boxes of empty quart jars saved—might raise Bettas someday.
- 10.– More than one incandescent strip light with rusted switch.
- 11.– Have more than 4 air pumps that need new bellows.
- 12.– Have a big box of peat saved—might want to raise killies someday.
- 13.– Have several wide-mouth gallon jars for emergency nurseries.
- 14.– Have 18 back-issues of aquarium magazines you plan to read again.
- 15.– Have a fish carcass in the freezer to show somebody.
- 16.– Have more than 3 different fish club t-shirts.
- 17.– Have recipes for making your own fish food.
- 18.– Can name 10 pet shops no longer in business.
- 19.– Have boiled a tank of fish at least once.
- 20.– Have a gas-powered generator just in case.
- 21.– Have several water-logged watches that don't work

Otopharynx tetrastigma

By Joe Reich

Reprinted from the June/July 2009 Tank Topics of the Greater Akron Aquarium Society

If you're reading this article then more likely than not you belong to a local fish club. And, more likely than not, you've probably attended the local club auction. And if you've ever been to an auction then you've probably seen the bag that goes up for bid that no one wants to bid on. I acquired these fish as a "pity bid". What was the reason for such a low price? A couple of answers come to mind, but I think that in the case of these fish it was more because no one seemed to hear of these fish. No one knew what they would grow up to look like.

So it was that I took home a bag of fish that I had no idea of what they were. I thought, "no problem, I'll just Google them on the internet". Well, I did find some info, but it was very sparse. Wikipedia had the best info via links, but after keeping these fish I found it to be somewhat lacking. The German club sites seemed to have a little more info, but then it depended on whether the web translator

was working for that page or not. Definitely left me feeling that I wish I knew more German. But they had some totally awesome pictures!

Based solely on photo I.D., I'd say that the fish I was keeping was indeed Oto Tetrastigma.

So what about Otopharynx Tetrastigma? Well for starters they're from Lake Malawi, no surprises there. Mostly on the southern end of the lake. They're also found in the Shire River and Lake Malombe. This fish is listed on the IUCN red list as threatened. The red list means it is of least concern. They inhabit areas of marshy-swampy habitat and have a mouth that likes to dig in the substrate for invertebrates. I think of them as African eartheaters. They also seem to be quite fond of veggies, as mine like to nibble algae a great deal and French cut green beans won't be turned away. Mine have also picked at najas grass until it died. For this reason I would be hesitant to put them in a planted tank. Oddly, they don't bother my duckweed. In the aquarium they have yet to act finicky toward ANY kind of pellet or flake. Feeding these guys wasn't a problem or issue in any way what so ever! Both the male and female seem to grow to the same length of around 5 inches or 12.5 centimeters.

These fish like to change color a lot, depending on their mood. So I'll start with describing the "basic" coloration... silver with 3 black dots starting with one from behind the gills, another about mid body and the last on the caudal peduncle. Of course if the mood changes they can be just plain silver or have a horizontal black line from just behind the gills to the caudal peduncle. As the fish mature the female will get some red and a little bit of yellow on the edge of her dorsal fin. The male is just spectacular because he doesn't stay silver overall. When he gets mature he turns metallic blue-green with a lot of red and yellow coloration on all fins except the pectorals. Let's not forget to mention the typical yellow egg spots on the anal fin.

When summer came I set these fish outside in a 300 gallon Rubbermaid container, but they didn't do so well. They were very shy and never came up to the top for food what so ever. They never came out to get sinking pellets either. I added rainbow fish to help them settle in, but I would rarely see them. By the end of summer when it was time to bring them in it looked like maybe only 2 or 3 were still alive. They were quite the challenge to bring in. For starters if you've ever kept fish outside for the summer then you'll know what I'm talking about when I mention bottom muck. I would catch a fish or two and let the muck settle so I could see. But I would never see any Oto's. My logic on this was that they must be good at camouflage and I just didn't see them. It took about another year for me to discover their little trick. In the end, five Oto's in five Oto's out. But they weren't much larger than when I set them out in the beginning of summer. I was disappointed to say the least.

They were then put into a 70 gallon with a ton of turquoise rainbows and after about three months started to color up. I ended up with 2 males and 3 females. The less dominant male was nearly constantly harassed by the dominant male, but I think a couple of things saved him from being killed outright. For starters as I mentioned the tank was HEAVILY populated with rainbows, and that many fish in the tank had him looking everywhere. Secondly, the less dominant male took on the coloration of a female, only he had egg spots. Thirdly the tank was 4 foot long and the dominant male would stay close to his pit which he dug next to the side wall. By spring the dominant male was digging pits and dancing in front of females. By this time I'd had these fish for a year and a half. I had read in one of the German translated web sites that these fish were slow to come to maturity, well they were right. After about 2 months of watching these dances I finally ended up with a female carrying eggs in her mouth. She carried for about 3 and a half weeks before I netted her, fully expecting her to spit out the fry in the net. But she wasn't about to release them so I moved her to her own tank. It didn't take too long, I went up to retrieve a cool malt beverage and when I returned there was a swarm of fry searching for food all around her. I expected maybe 20-30 fry but 50 easy ended up being the norm. But she apparently didn't like my presence as she made some kind of signal that I couldn't pick up on and all the fry went back into her mouth. Definitely one of the coolest things I ever witnessed. After two days she absolutely refused to let any of the fry back into her mouth and it was then that I put her back into the 70.

The next spawn happened about 2 months later with the same female which was earlier than what the German web site had mentioned. Apparently after a female spawns she will rest for about 3 months before spawning again. In my tanks it was closer to a month and a half to two. Soon after the second spawn the other females spawned and the next thing I knew I was putting a female into a fry tank about every three weeks. It didn't take too long before I had a 30 gallon two 29's and a 10 full of fry. The females would only release the fry if she felt comfortable. If she was put into a tank with fry in it already, she would only release fry if the fry in the tank weren't too big. After I ran out of room to put the females in a tank for them to spit out the fry, I would catch the fry in one tank and add them to a tank that already had fry in it. It was at this point that I learned the Oto's secret hiding trick. A couple of the tanks had sand bottoms and while I was netting the last couple of fry I would see the sand swirl from a fish that was darting away. The only problem was I didn't see where it went. I lifted out the sponge filter and no fish. The tank was bare except for sand so I thought maybe it jumped out of the tank. Well after some searching I just couldn't find any fish anywhere, not even on the floor and gave up. But wait, in my empty tank was two more fry that I had somehow missed. I started wondering if I needed my eyes checked. Okay no problem, just net them and we'll be done. Again there was the swirling sand and no fish. I checked the floor again and came up empty. So I went back to the tank and started watching everywhere for these fry. After about 10 minutes the sand swirled where I had last seen it swirl, and bingo, one scarred Oto fry was watching my next move. So that was their little magic trick! I had only seen those sand diving tricks on one of the learning channels, but here it was happening in my own tank, COOL! I have since changed substrate in those two tanks, but I've have had a chance to witness sand diving several more times before it was changed to a more coarse gravel.

These guys might be on the threatened list, but not in my tanks! I think I got quite the interesting buy for a pity bid!

Member Classifieds

Wanted: 1 Female Red-Tailed Goodeid *Xenotaca eiseni* and 1 juvenile Male Yucatan Sailfin Molly *Poecilia velifera*. Contact Tony McMillan at (618) 509-3985.

Charles Harrison (314) 894-9761, csharrison@inkmaker.net -

Thiosulfate crystals (Chlorine Remover)	\$3.00 a half pound
OTO double strength Chlorine/Chloroamine test kits - 4 ounce -	\$12.50
Flubendazole, 5% powder 10 grams	\$5.00, 25 grams - \$20.00
Lavamisole HCl Powder - 5 grams treats 100 gallons	\$10.00
Methylene Blue 5% solution (2 ounces)	\$12.75
Acriflavine Concentrate (4%) solution, 2 ounces	\$12.70
Bromthymol Blue pH test solution, 4 ounces	\$7

Wanted: 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. Mike 636-240-2443

MASI Members can place a classified ad in the Darter for free. Ads may be up to 30 words in length. Send your ads to the editor. The ad will run for one issue unless you specify how long to run it, in which case it will run as requested.

BAP Report

Steve Edie

Member	Species	Common	Pts	Total
Nov 2009				
Don Atkinson	<i>Poeciliopsis prolifica</i> *	Black Striped Livebearer	10	175
Don Atkinson	<i>Tanichthys micagemmae</i> @	Vietnam White Cloud	20	195
Charles Harrison	<i>Nannostomus mortenthaleri</i> *	Coral Red Pencilfish	25	2230
Jack Heller	<i>Simpsonichthys constanciae</i>		15	145
Mike Hellweg	<i>Aphyosemion hera</i> (ARKansas 1-2/96)		15	3409
Mike Hellweg	<i>Ilyodon lennoni</i> @	Lennon's Goodeid	30	3439
Mike Hellweg	<i>Lucania goodie</i>	Bluefin Killie	10	3449
Mike Hellweg	<i>Poeciliopsis prolifica</i> *	Blackline Livebearer	10	3459
Mike Hellweg	<i>Steatocranus glaber</i>	Fathead Cichlid	15	3474
Mike Hellweg	<i>Xiphophorus andersi</i> "Rio Atoyac" *	Atoyac Platy	15	3489
Mike Hellweg	<i>Xiphophorus montezumae</i> "Cienega Grande" *	Capuchin Molly	10	3499
Jerry Jost	<i>Moenkhausia pittieri</i>	Diamond Tetra	15	710
Cory Koch	<i>Lipochromis</i> sp. "Matumbi Hunter" * @		40	1072
Cory Koch	<i>Oreochromis niloticus baringoensis</i> * Baringo Tilapia		15	1087
Gary McIlvaine	<i>Hemichromis frempongi</i>	5 Spot Jewel	20	890
Gary McIlvaine	<i>Poecilia reticulata</i> ^	Metal Head Yellow Cobra Guppy	1	891
Jim Miller	<i>Aphyosemion splendopleure</i> "Tiko Green"		15	2249
Jim Miller	<i>Yystichromis phytophagus</i> @		20	2269
Ed Millinger	<i>Poecilia wingei</i>	Tiger Endler's Livebearer	5	590
John Stollhans	<i>Pygocentrus nattereri</i> ***	Red Belly Piranha	35	55
Rick Tinklenberg	<i>Mikrogeophagus altispinosus</i>	Butterfly Ram	15	1915
Rick Tinklenberg	<i>Nanochromis teugelsi</i> *		20	1935
Rick Tinklenberg	<i>Pelvicachromis taeniatus</i> "Moliwe"		15	1950
Rick Tinklenberg	<i>Thoracochromis brauschi</i> **		25	1975

Pat Tosie	<i>Amphilophus zaliosus</i> *	Arrow Cichlid	15	2995
Pat Tosie	<i>Benitochromis batesii</i> "Pouma" *		20	3015
Pat Tosie	<i>Brachyrhaphis roseni</i>	Cardinal Brachy	10	3025
Pat Tosie	<i>Ilyodon furcidens</i>		15	3040
Pat Tosie	<i>Pelvicachromis taeniatus</i> "Njanje" *		20	3060
Pat Tosie	<i>Poeciliopsis prolifica</i> *		10	3070
Pat Tosie	<i>Tilapia snyderae</i> @		30	3100
Pat Tosie	<i>Xenophallus umbratilis</i>	Golden Teddy	15	3115
Pat Tosie	<i>Xiphophorus</i> sp. "Domestic Platy" ^ Blue Platy		1	3116
Pat Tosie	<i>Xiphophorus</i> sp. "Domestic Variatus" ^ Black Sunset Variatus		1	3117
Derek Walker	<i>Pelvicachromis taeniatus</i> "Bipindi"		15	968
Derek Walker	<i>Thorichthys ellioti</i>		15	983

Dec 2009

Charles Harrison	<i>Corydoras panda</i>	Panda Cory	10	2240
Charles Harrison	<i>Xenotoca eiseni</i> #@	Red Tailed Goodeid	15	2255
Mike Hellweg	<i>Mogurnda nesolepis</i>	Goo Obo Gudgeon	15	3514
Pat Tosie	<i>Nanochromis teugelsi</i>		15	3132
Pat Tosie	<i>Xenotoca variata</i> "Jesus Maria Aquascalientes" Jeweled Goodeid		15	3147

* = 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

Over the Thanksgiving holidays I verified all of our BAP records against the currently valid nomenclature per the California Academy of Sciences, our official source for species validation. There have been a few changes. (Damn the lumpers and splitters !) The updates have been made to the Master BAP list. At the far right of the list, I always list the species name "as submitted" if it is not the current name. I have also made it easier to see the CARES species in both lists. The updated Master BAP list and the Species Points list are on the MASI website under BAP.

Sources:

Cal Academy -

<http://research.calacademy.org/redirect?url=http://researcharchive.calacademy.org/research/Ichthyology/catalog/fishcatmain.asp>

CARES -

http://www.carespreservation.com/?FAST=1&merge=priority_list_&SEARCH_SPECIES_ID=A&do_c=priority_list.html

Fish Collection Follies in Tanzania

By Lawrence Kent

In October I attended a conference on the “Grand Challenges in Global Health” sponsored by my employer, the Bill & Melinda Gates Foundation. Its location was in the foothills of Mount Meru in Northern Tanzania, so I threw a few nets into my suitcase, just in case. I also packed a small glass photo tank that Gary Lang had taught me to build.

I was scheduled to be in this part of Tanzania for only three and a half days, and my work kept me extremely busy, almost to the point of forgetting about fish. But one of the conference participants, a German named Peter Beyer, bumped into me during a coffee break and said ‘Hey, Lawrence, are you aware that this is prime *Nothobranchius* territory?’ referring to a beautiful genus of killifish. Peter is one of the inventors of nutritionally enhanced “Golden Rice” and an avid tropical fish hobbyist. I suggested we go find some *Nothos*, but Peter disappeared into the crowd before we could fix a time to do so, and I unfortunately didn’t see him again on this trip.

Later that day, I noticed a billboard advertising a local beer called Kilimanjaro. It exclaimed “It’s Kili Time!” and I thought: that’s a good omen.

The evening of my third day at the conference, I decided to skip the ceremonial closing dinner and use the final couple of hours of daylight to try my luck. I walked to the gate of the hotel’s property and saw a group of young Tanzanian laborers lying on a grassy mound, waiting for a bus to take them home. I showed them my seine and said one of the few words I know in Kiswahili: *samaki*, which means fish. Can any of you help me find *samaki*? I tossed the rolled up seine into the arms of one of these men – a strong looking fellow wearing a traditional African Muslim hat. He didn’t hesitate. He jumped up and started walking me down to a nearby stream. Two of his friends followed.

Okay, you are probably thinking, this guy is not going to find *Nothobranchius* killifish in a fast flowing stream, and you are right. But I didn’t have much time to be choosy. I asked my guides if they could take me to a pond or marsh instead of a stream, but they didn’t seem to understand, so we went to the stream.

I asked their names. Ismail was the Muslim and Julius and Rafael were the Christians. Ismail and Julius held the seine across a cool flowing stream, and Rafael and I used sticks to beat the vegetation along the banks, trying to scare any fish out of their hiding places and drive them towards the seine.

The process worked, and we wound up netting a barb, a small catfish, and a dozen small garras. I put them in a plastic bag to take back to my room for further study. It was beginning to get dark. I asked my new friends (I guess acquaintances might be a better word since they spoke little English and I only knew them for 90 minutes) if they would be willing to meet me in the morning to look for more fish, hopefully in a pond or marsh, before my scheduled departure for the airport at 9:30 a.m. They told me to meet them at their workplace at seven o’clock, when they had an official break and could slip away.

Back in my hotel room, I put the fish in the glass photo tank and started shooting. It was the first time I’d used such a tank and the first time I’d used an external flash in conjunction with my simple ‘point and shoot’ camera. I was able to get some okay but not great shots, which I later shared with Mike Hellweg to help identify the fish.

The garra was about two inches long, a dusty olive color, with two pairs of tiny barbels, a forked tail, and a series of darker blotches constituting a rough line along its flanks. It was cylindrical in shape with a sucker mouth located on the underside of its head and its lower lip forming a circular pad or chin disk. Mike identified the fish, tentatively, as the *Dembea* stone lapper (*Garra dembeensis*). According to fishbase.org, this fish is found in rapid parts of rivers in East and Central Africa. It adheres to stones and feeds on algae.

The barb was a couple of inches long and a wonderful coppery color. It had a dark mid-body line and short barbels, but no obvious characteristics to help distinguish it among the many species of barbs found in East Africa. It might have been *Barbus toppini* or *Barbus serengetiensis* or one of the other 41 species of barbs found in Tanzania.

The catfish was only two inches long and probably a juvenile. It was tan, slender and cylindrical, with a somewhat dorsally compressed head and three pairs of unadorned barbels. I tried to identify it using the photos and descriptions on fishbase.com, but I couldn't even identify the genus. Was it a *Bagrus*, a *Lophiobagrus*, an *Amphilus*, or a *Phyllonemus*? I emailed a photo to one of MASI's catfish lovers, Scott Bush, but he was also unable to identify the fish. If the editor of the Darter publishes a photo of this fish, please e-mail me your best guess at lawkentnorton@yahoo.com.

The next morning I found my new friends and asked them again if we could find a different body of water, hopefully a pond. They led me on a mile-long walk through the woods, then down a road, then through a village and into a forest. Ismail pointed to a troop of Black and White Colobus monkeys scrambling overhead. We found a flooded grassy area and tried dragging the seine through it. Nothing. We walked on and found an irrigation ditch with flowing clear water. Not ideal, but we tried it and wound up with more of the same garras, including a bigger six-inch one I decided to put in the bucket. Ismail could sense I was yearning to find something different, so he led us through the forest to a gorgeous natural stream, surrounded by old trees and overhanging African vegetation. We tried the seine and dip net along the banks, but wound up with nothing but garras.

My time was running out, so we went back to the irrigation ditch and this time noticed some small minnow-like fish swimming near its banks. They looked promising, so we started dip-netting and using the seine to catch more. I wound up bringing about ten of these in a bucket back to my hotel room for some quick pictures in the photo tank.

One of the species was an inch and a half long, coppery colored, with a white belly and a livebearer's shape. Was it something unusual or just a *Gambusia*? The other species was smaller and more colorful, with a bright yellow tail and two large black spots on its side. Was it an unusual killifish? I searched fishbase.com but had trouble finding a satisfactory match, so I e-mailed the photos to Mike Hellweg.

Mike responded pretty quickly. The fish were actually a pair, with the more colorful form being a male. They were... guppies! Yes, guppies! British colonists introduced this species over fifty years ago to control mosquitoes in the region. The fish I collected in this beautiful Tanzanian forest over nine thousand miles from home were the same ones being sold in every PetSmart in America. Ay, caramba!

The beer advertisement I had seen earlier was wrong. It wasn't "Kili time" after all. It was guppy time, and it was also time to rush to the airport and fly to my next destination.

You win some, you lose some.

God bless you, and your fish.



MASI Logo merchandise is now available from Café Press. Thanks to Bart Kraeger for creating the site and Michelle Berhorst for creating a high-resolution digital version of the logo, you can now purchase logo merchandise on-line. Pick from T-shirts, jerseys, caps, tote bags, coffee cups, and more.

Go to www.cafepress.com/MOAQS to view and order the merchandise.



Collecting Party tries small stream



Please help identify this little Tanzanian catfish



Garra dembeensis in the photo tank



This forest stream yielded only garras



Ismail helps collect fish



These Tanzanians looked familiar



A Barbus species, tough to identify

{Left Blank for Alignment}

Breeding the White Seam Fighter

By Charles Drew

Reprinted from the October 2009 Monthly Bulletin of the Hamilton & District Aquarium Society

The *Betta albimarginata*, also known as the White Seam Fighter, is a fairly new fish to the hobby. It was first discovered around 1994 and first imported into Germany in 1998. It comes from Borneo and surrounding area. It is found in small black water jungle streams where the light is low and the water is very soft and acidic. The adult fish grow to almost 2 inches long and a pair should be housed in a ten gallon tank. They are quite peaceful and a group can be housed in a larger tank. There is much flaring of fins but they do not damage or injure each other with their mock battles. The males are the prettiest with a reddish brown body and white edging on the fins. The females are duller and mottled.

The fish, being new and rare, are also expensive. Most cost about \$80.00 U.S. for a young pair but I did see a Canadian dealer that wanted \$180.00 a pair. I got a good price on Aquabid but after paying shipping and exchange on the dollar my pair still cost over \$100.00 but they arrived alive and in good health which is what counts. It is a good thing that I checked the water before placing them in a tank as I was surprised to find the water was fairly hard but the PH was about 6. I duplicated the tank to the same range and all went well.

The ten gallon tank that they were set up in to become their permanent home consisted of a sand bottom with some driftwood and anubias plants and a clump or two of Java moss. The water was R.O. peat water with a few oak leaves added for good measure to help maintain an acid condition. Some people use almond leaves like are used in Asia. They only use them because they don't have oak leaves in Asia. All oak leaves, almond leaves and alder cones do is make water acid and brown with tannic acid. Use our own oak leaves they are free. The tank was dimly lit with a 15 watt light bulb as they prefer low light. The pair was not much more than half grown and so they had a bit of size to put on before being big enough or old enough to spawn. Time passed and the fish grew eating live baby brine shrimp and frozen blood worms as well as a few live black worms on occasion. The pair started chasing and flaring at each other and then one day the male could not be found. After a good search I found him hiding under a piece of drift wood with a bulging mouth obviously full of eggs. The eggs and fry stay in the male's mouth for about 15 days before they are released. The time can change as to what end of their 70-78 F temperature range they are being kept in. Young males often eat their first batch of eggs after a few days and mine was no different. It may be bad eggs or poor fertilization. A couple of weeks later he had eggs again. I did not see them spawn but I have seen it with other betta species that are mouth brooders. After the embrace the female picks up the eggs and spits them to the male that catches them.

Articles on breeding them states that the parents will not eat the fry but that older fry will eat younger fry. Not wanting to take a chance I removed the female to another tank mainly for my peace of mind. Soon one evening I saw something dart by some driftwood. Yes it was a fry. A dark chunky little fellow about 3/16" long and soon I could see a few others. The male was caught and put in with the female in the other tank. They spawned again in that tank but fry were never seen. In spite of some peoples opinion I think the female ate the fry. That would account for them saying the number of fry can be only a few to 50 or more. It would depend on the amount of cover for the fry to hide in.

Back in the first tank the fry did well and ate micro worms and live baby brine shrimp. They were hard to count as they blended into the leaves and driftwood. As they grew more and more were

seen. Now at nearly an inch long and starting to colour up there appears to be about 30. They will soon be ready to find new homes with people that like bettas or even just rare fish and a challenge.

Foot note: I moved the male to a tank of his own as he was looking weak and run down. He has since spit out a dozen or more fry. I'm sure the female ate a batch that I never got to see. I call her Big Bertha. She did not follow the species data as she is larger than the size given. I'm going to rest the male and build him up before he goes back with her. When I first got them he chased her but now she chases him. After a good rest they may produce a maximum spawning.

Xiphophorus nezahualcoyotl, the Northern Swordtail of Tamaulipas Mexico

By Rich Serva

Reprinted from the August / September 2008 Tank Topics of the Greater Akron Aquarium Society

Xiphophorus nezahualcoyotl was described as a separate species by Rauchenberger, Kallman and Morizot (1990). It had originally been described as a population of *Xiphophorus montezumae*. In Rauchenberger's paper the nine (9) northern swordtails are split into 3 clades of related species - *montezumae* clade, *cortezi* clade and *pygmaeus* clade. The *montezumae* clade contains two sister species, *X. montezumae* and *X. nezahualcoyotl*, and a third closely related species, *X. continens*. Prior to the 1990 paper, the population of *Xiphophorus montezumae* that was distributed throughout the hobby was actually *X. nezahualcoyotl*.

Xiphophorus nezahualcoyotl has a dark pigment on the dorsal and ventral edges of its sword. The dark dorsal edging appears first at the farthest end of the sword and it lengthens towards the body as the fish matures. The sword has yellow pigment within the dark edges. The sword is usually curved in immature males, but becomes straight as the individual's tail becomes longer. Many populations carry the Cb trait for an oval blot on the caudal fin close to the peduncle. This spot is most apparent with dominant individuals. Individuals carry the grave spot near the upper caudal fin margin. The caudal fin carries 11-14 rays, typically having 12 or 13. Thin vertical bars are apparent on some dominant individuals. *X. nezahualcoyotl* carries the trait for multiple (2 or 3) longitudinal lines of pigment (one line at the lateral line) which is zigzagged following the edges of scales.

Since the northern swordtails can be difficult to distinguish and fish can too easily be distributed throughout the hobby with the wrong name, the following traits are some ways to differentiate *X. nezahualcoyotl* from *X. montezumae* and *X. cortezi* which closely resemble it. *X. montezumae* has a sword length of 48-62 mm in natural populations. The maximum sword length in *X. nezahualcoyotl* is 48 mm. Both *X. nezahualcoyotl* and *X. montezumae* have 2 or 3 dark longitudinal lines with one at the lateral line, whereas *X. cortezi* only shows one dark line. *X. cortezi* also carries the trait for yellow dorsal fin and yellow in the caudal fin (all yellow or yellow dorsal and ventral margins) whereas *X. nezahualcoyotl* does not.

Xiphophorus nezahualcoyotl is not found below the Rio Tampaon – Rio Santa Maria axis. It is naturally found in the extreme head waters of the Rio Tamesi drainage system. It is found in Rio Sabinas, and Arroyo el Encino Rio Frio. It is also found in the springs near La Muralla and Ocampo and the springs west of Santa Maria de Guadalupe. (These springs empty into Rio Tamesi during the rainy season.) They are found in Arroyo Gallitos, springs at Callejones and a stream near Ricardo Flores

Magon. They are found in the Rio Tampaon tributaries. In the Rio Valles system with populations in Rio los Gatos, Rio el Salto (to falls below Micos and warm springs at El Jaduhe) and Rio Tanchachia. The fish is found in small springs and large pools usually around rock bottoms.

There is considerable on-going research which could further break down nezzies into sub species or even multiple species. For now there is only one species but later there may be more species to distribute.

During this year (2008) we traveled to Arroyo Gallitos where the Tula to Ocampo road crosses the stream. Gallitos is one of the streams in the limestone mountains of the Eastern Sierra Madre range that is formed underground high in the mountains and emerges in the high country just to disappear back under ground before reaching a main body of water. According to the Rauchenberger paper Arroyo Gallitos is an internal drainage. As we entered the valley it was quite easy to spot the stream. Although it was only May 11th the rainy season was over and the land was beginning to parch. The valley was a far cry from the citrus orchards that we saw earlier in the day as we made our way down Route 101 from Brownsville. The land was brown with mainly scrub brush; however, in front of us was a line of green trees that twisted and turned along the length of the valley.

Already the water flow was negligible. Most of the small pools must surely disappear during the height of the dry season. It was already mid day and the temperature had peaked at 103 degrees F. It was warm but the dry heat was tolerable as we sat under the conifer covering that protected the stream. The stream was clear with a rock bottom with no vegetation to speak of besides the tree canopy. We used minnow traps in the rocky bed of the Arroyo which quickly filled with fish. This worked to our convenience since the day was quickly moving along and it was still a long ride before the fish reached their final destination at the CICHAZ field station.

The care of nezzies is pretty much like any of the larger Panuco swords. Give the fish some room with good filtration. Although these swords can live on flakes, they thrive with live and frozen foods. If the fish are fed well then the fry can easily grow and mature in the parents' tank. Personally I find these fish perfect for out door ponds. If the ponds are positioned in a place that is shaded some of the day the fish have no problems with the hot days and cool nights that NE Ohio has to offer in September allowing the nezzies a long out door season.

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Meyer, M. K., L. Wischnath & W. Forster, "Lebendgebarende Zierfische-Arten Der Welt. Mergus-Verlag (1980).

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NEODAT II database - <http://www.neodat.org/>

Rauchenberger, M., K. Kallman, and D. Morizot, "Monophyly and Geography of the Rio Panuco Basin Swordtails (Genus *Xiphophorus*) with Descriptions of Four New Species". The American Museum of Natural History, Novitiae, no. 2975 (1990).

Wischnath, Lothar, "Atlas of Livebearers of the World". TFH Publications, Inc (1993).

Xiphophorus Genetic Stock Center website - <http://www.xiphophorus.org/>

The Goods on Goodeids

By Wayne Toven

Reprinted from the June/July 2009 Tank Topics of the Greater Akron Aquarium Society

In the early years of my 20 year span of fish keeping I concentrated mostly on cichlids, and Joanne kept the livebearers. As the fish room slowly grew thanks to club auctions, garage sales and yard sales, I branched out into some oddball fish and catfish. The fish room, which some people would say has kind of gotten out of control, actually controls three rooms. The basement has the majority of the aquariums, everywhere you turn there are bubbling tanks with too many fish to count, then went the family room, which contains only five tanks, but the smallest is 120 gallon, the largest 265 gallons. Then the laundry room was the next to get hit, with 15 tanks, four 20 gallon longs, four 40 gallon breeders, four 55 gallons, a 75 gallon, a 90 gallon, and a 180 gallon. I think I have almost reached my limit. Inside that is, outside are seven in ground ponds, and ten 110 gallon tubs. For the last two summers, since I got the tubs from Eric Bodrock, they have been stocked with a variety of livebearers, they also contained various pond plants, marginal plants, and water lilies. The livebearers did quite well and spawned, I guess the live foods, sunlight, algae, and whatever else Mother Nature provided, was just the ticket for success. This year I am trying a few different species, Gold and checkered barbs, not in the same tub of course, Red Irian rainbows (*Glossolepis incisus*), *Geophagus* Red Bahia cichlids, to see if they do as well, and some livebearers. Over the last seven years my fish keeping interests have leaned more towards livebearers, but not that many are of the common varieties, platys, mollies, guppies, and swordtails, out of the 34 species of livebearers I have gotten to spawn, 21 species have been Goodeids.

You might ask, what is a Goodeid? Well I'm, going to try and explain the basics. First of all Goodeids are a family of viviparous freshwater fishes endemic to Mexico. Viviparous means the bearing of live young developed from eggs that have been fertilized internally. In the females womb the developing fry receive all or most of their needs for nutrition and respiration directly from the mother through a trophotaenia. Trophotaenia are out growths from the embryonic fry that intermingle with folds in the vascularized lining of the female's womb to form a placenta. As the embryonic fry mature, the trophotaenia is largest at mid – gestation, then gradually shrinks in size until the Goodeid fry is born, at which time it can be seen still attached for a short time until it is shed. This is one of the specializations that set Goodeids apart from other livebearers, other unique features are the tooth structure, chromosome structure, and a muscular anal fin structure known as an andropodium, which functions as a primitive copulatory organ.

The common name for goodeids is the split fins; the shape of the andropodium resembles a mitten. The first 6 – 8 rays of the anterior (front) section of the fin are crowded, shortened, and separated from the rest of the fin by a notch. This andropodium does not penetrate the female, but is used by the male to pass sperm bundles to her. Female goodeids cannot store sperm like female poeciliids, so the act of copulation is necessary for each pregnancy. Sexual dimorphism is fairly obvious, males are usually smaller than females, and only males have an andropodium.

The family Goodeidae currently has 17 genera containing 37 species. They inhabit warm and cool springs, marshes, lakes, creeks, rivers, canals, and other artificial habitats. Except for a few darter like and big river species, most prefer shallow waters not more than 3 feet deep, with quiet or slow moving currents. These habitats are mostly limited to the Rio Lerma basin located in the central high plains of Mexico, west of Mexico City, at elevations between 1000 – 2300 meters. There is however

some species found in brackish water on both the Atlantic and Pacific coasts. Goodeid populations have noticed significant decreases mainly due to pollution and habitat destruction. Because of the low importance of Goodieds to the Mexican fisheries and industry the family is basically ignored by conservation efforts. Several species are on the threatened, endangered, and extinct in the wild lists, and one species is completely extinct. You will not find Goodeids in pet shops; at least I don't recall ever seeing any. About the only ways to obtain some is through fish club members, club auctions, or go to an American Livebearer Association annual convention. You can talk to other aquarist, hear speakers, and get some of those hard to find endangered fish, and help to keep them from going EXTINCT! There's no going back from extinct...yet. Th... Th... That's all folks!

References:

Freshwater Fishes of Mexico By Robert Rush Miller with the collaboration of W.L. Minckley and Steven Mark Norris

Livebearing Fishes By John Dawes

Wikipedia, the free encyclopedia

Editor's Notes

Happy New Year – at least when I am writing this, if not by the time you are reading it. It is hard for me to believe I am starting the seventh year of doing this. The efforts of our authors and committee chairs to provide the material, and all the help in printing, assembling, and mailing the Darter keep it possible for me to do this.

We have a couple of articles in this issue from our members, one I 'sandbagged' from the last issue since it was full, and one new article on Lawrence Kent's latest adventure. Lawrence's article includes some good photos of the fish and the locale, as usual. Color photos are one of the larger Darter expenses, but do add to some of the articles. Council has budgeted for an average of two color pages per issue. When photos are in black and white, it means we are saving the color for show winners, collecting articles, and so on and is not a reflection on the quality of the photos; just an economic decision. Photos that illustrate the articles are always welcome. Professional photography is not required any more than professional writing – just something to share among friends. As long as the picture is not fuzzy, I can probably do something in Photoshop to make it look good in print.

Since this issue is light on original articles, it gave me room to reprint some of the things I have found in my other job as exchange editor. Between articles and puzzles we have six reprints from five societies. And one item from Reet Thomas that was just reprinted, so as long as it is still making the rounds, why not reprint it here? Which leads to another question – do we want to start reprinting "Blast from the Past" articles from old Darters? If so, I may need someone to dig through the historical files Klaus keeps to pick out and scan articles that look like they are worth another look, either for content or nostalgia. Any interest in seeing this, or in helping?

The deadlines for the rest of this year's issues will be February 15, April 15, June 15, August 15, and October 15.

Club Hopping 2010

Steve Edie

Jan 24 – Chicago: Greater Chicago Cichlid Association – Swap Meet

Feb 21 – St Louis: Missouri Aquarium Society - Auction

Feb 26-28 – Hartford, CT: NEC Annual Convention

Feb 28 - Chicago: Greater Chicago Cichlid Association – Swap Meet

Apr 18 - Chicago: Greater Chicago Cichlid Association – Auction

Apr 22-25 - Detroit: American Livebearer Association – Annual Convention

Apr 30-May 2 – St Louis: Missouri Aquarium Society - Annual Show

May 28-30 – Cleveland: American Killifish Association – Annual Convention

June 10-13 – Irving, TX: North American Discus Association -

June 24 – Indianapolis: International Betta Congress -

July 22-25 – Milwaukee: American Cichlid Association – Annual Convention

Aug 8 - St Louis: Missouri Aquarium Society - Auction

Sept 17 - : Midwest Cichlid Association -

Oct 3 - St Louis: Missouri Aquarium Society – Swap Meet

Oct 21-24 – Baltimore: All Aquarium Catfish Convention

Nov 14 - St Louis: Missouri Aquarium Society - Auction

Nov 19-21 – Cleveland: Ohio Cichlid Association – Extravaganza

Note: The Chicago Cichlid Classic will not be held on Memorial Day Weekend this year. They will be helping with the ACA Convention.

More dates will be added as clubs firm up their plans.

Vice-President's Program Report

by Kathy Deutsch

UPCOMING PROGRAMS

February 2010 -Fish Judging-what they look for

We will have photos of fish on screen and local fish judges will discuss what they look for in a winning fish. Possibly, we will have live fish projected as well. This is a great way to understand judging. You can better evaluate your own fish after this seminar.

March 2010 - David Boruchowitz, editor, "Tropical Fish Hobbyist" magazine

We have not settled on a topic, but Mr. Boruchowitz likes to tailor his talks to the host club. He's a great speaker and it is a privilege to welcome him to MASI.

HELP YOUR CLUB! CONSIDER RUNNING FOR OFFICE OR FOR EXECUTIVE COUNCIL.

As Vice-President, it is my job to gather a slate of candidates to run for the various offices and Executive Council. It is a great way to be more involved and help grow the club. If you have ideas about how you would like MASI to progress into the future, being an officer or on Council is a great way to make that happen.

If you are interested in a certain position, just ask the person who has the job. They will tell you about it.

Questions? Ask me-Kathy Deutsch. Email or call: 314-741-0474

Candidates are needed by May 1 for June elections.

One Man's Weed, Another's Feed

A series by "The Undergravel Reporter"

Reprinted from the October 2009 Modern Aquarium of the Greater City Aquarium Society

In spite of popular demand to the contrary, this humor and information column continues. As usual, it does NOT necessarily represent the opinions of the Editor, or of the Greater City Aquarium Society.

The journal of the Aquatic Gardner's Association, **The Aquatic Gardner**, reported in its latest edition that three plant biologists at Rutgers University in New Jersey have convinced the federal government to focus attention on "duckweed's tremendous potential for cleaning up pollution, combating global warming and feeding the world."¹ Yes, duckweed, that same blankety blank small green plant that, once it finds its way into one of your tanks, never leaves.

The article states that “These plants produce biomass faster than any other flowering plant, serve as high-protein feed for domestic animals and show clear potential as an alternative for biofuel production.”

Scientists from North Carolina State University found that growing duckweed on hog wastewater not only helped to dispose of the hog waste, but also produced five to six times more starch per Duckweed acre than corn.²

Currently, most U.S. ethanol is produced from corn, which requires large amounts of toxic pesticides and dead zone-feeding, fuel-intensive fertilizers. The use of corn to produce ethanol has also been blamed for an increase in the price of corn as food. When all costs are considered, corn-based ethanol may not be much “cleaner” than gasoline. Duckweed consumes nitrogen, phosphorous, calcium, and iron. It can be used to clean any type of wastewater. It can be a cheap way of producing a bio fuel that does not adversely impact the supply and cost of food, and an environmentally friendly way to recover polluted bodies of water.

In an article titled³ “Tiny Flower Turns Pig Poop into Fuel,” wired.com reports that “Able to thrive on nutrients in animal waste, duckweed produces far more starch per acre than corn, say researchers. It could be an alternative to corn-based ethanol biofuel, which is disfavored by environmentalists because of waste generated in farming it.” Waste produced from the billions of farm animals raised every year in America has fouled watersheds, especially in the South, and fed oxygen-gobbling algae blooms responsible for rapidly-spreading coastal dead zones.

Production of ethanol by using corn relies on enzymes, yeast, and sugar. Ethanol producers add penicillin and virginiamycin, an antibiotic, to kill bacteria. This raises two concerns. The first is that it might promote the growth of bacteria that are resistant to antibiotics. The second concern is that the antibiotics could find their way to humans through the food chain. Using duckweed to produce ethanol raises neither concern.

I remember one very accomplished aquarist telling me he uses a pair of tweezers to pluck out each and every fragment of duckweed he sees in his tanks. Just about every Greater City auction features a bag of duckweed, usually selling for one (but sometimes as much as two) dollars, and usually purchased by someone for the purpose of feeding it to goldfish. Well, apparently duckweed isn’t just goldfish food any more. The plant so many aquarists hate may prove more useful than we ever imagined.

And, no, I haven’t run across any mention of smoking this weed, but who knows what those Rutgers professors will come up with next? [The author has apparently not attended an auction with the esteemed Mr. Van Asch at the podium if he’s never heard this suggestion – Editor]

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- ¹“Rutgers Researchers Focus on Duckweed” by Joseph Blumberg, **Aquatic Gardner**, July-Sept 2009
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Adipose fin

Anal fin

Anterior

Caudal peduncle

Ctenii

Caudal fin

Compressed

Dorsal spines

Dall

Esophagus

Gill rakers

Ganoid

Head

Heart

Kidney

Lateral line

Myomeres

Opercula

Pectoral fins

Posterior

Pelvic fins

Sert

Soft dorsal fin

Spleen

Swim bladder

Scales

Skin

Soft rays

Stomach

Tail

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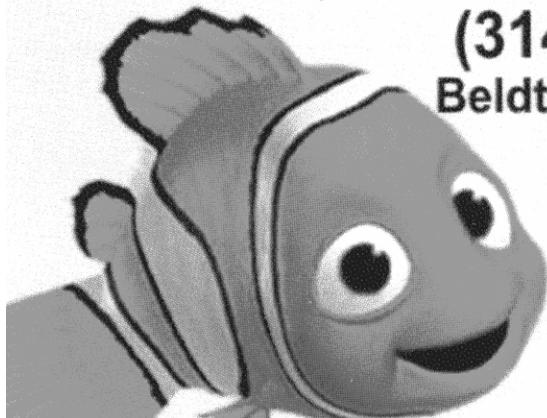
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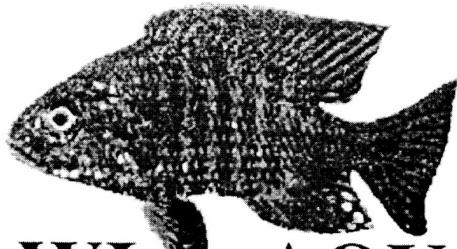
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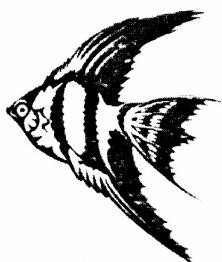
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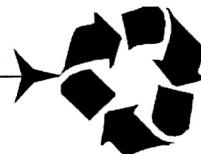
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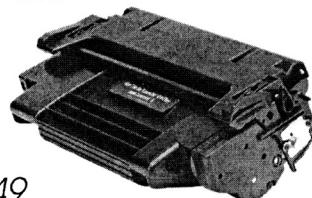
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