The Greater Akron Aquarium Society

# Tank Topics

## December 2011

Inside this issue:




Bring your largest male and largest female bristlenose pleco from the Growth Program to this meeting. Separate prizes for the largest of each sex.

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**Important Dates for 2011**

**March 6**
**Spring auction**

**July 9 & 10**
**Ultra Aqua 2011**

**November 6**
**Fall auction**

Check out our website: www.gaas-fish.net

# THE GREATER AKRON AQUARIUM SOCIETY

**WHO ARE WE?** We are a local group of aquatic enthusiasts. Formed in 1952, the Greater Akron Aquarium Society is a non-profit, non-commercial organization. Our membership ranges from the beginning hobbyist to the advanced aquarist with many years of experience. The goals of our club are to promote the care, study, breeding and exhibition of aquarium related aquatic life and to promote interest in the aquarium hobby.

**MEETINGS:** Our meetings are held on the first Thursday of each month at 8:00 p.m. at the Mogadore Community/Senior Center, 3857 Mogadore Road, Mogadore, Ohio. It is located East of Route 532 across from McDonald's in the former post office building. Visitors are always welcome, it costs absolutely nothing to attend a meeting and look us over.

**MEMBERSHIP:** The cost is only $7.50 for adults, $10 for a couple or a family (includes children under 10 years of age) and $5.00 for a junior membership (10 to 17 years) Membership provides an opportunity to socialize with other that share your interests, a subscription to our bi-monthly magazine, library usage and more.

**AGENDA:** Our meeting agenda is simple and informal. The meeting will begin at 8:00 p.m. with a short business meeting. Immediately following is the program for the evening which usually lasts about 45 minutes. Our programs consist of a speaker, slide program, movie or perhaps a panel discussion always on a particular subject related to the hobby or various species of fish. Following the program is a short refreshment break. After which the winners of the Bowl Show are announced, the Breeder's Award Program fish are auctioned and tickets are drawn for the equipment and book raffles.

**THE BOWL SHOW:** Each month members can bring in fish for specific classes to compete for first, second and third place awards. The charge for each entry is only $.25. Members also compete for annual awards by accumulating wins throughout the year.

**BREEDER'S AWARD and HORTICULTURE AWARD PROGRAMS:** members can receive recognition for spawning species of fish or propagating aquatic plants. All that is required is to turn in a minimum of six fry from the spawn that are between 30 and 90 days old. Members earn certificates for each species and can work towards plaques in different categories.

**LIBRARY:** At the library table are a number of books and other publications covering all areas of the aquarium hobby. Members may borrow the books for a month at a time. Also each month several books are raffled off.

**EQUIPMENT RAFFLE:** The raffle table has such items as tanks, fish food and aquarium accessories that are donated by national manufacturers, area dealers or purchased by the Society. Tickets may be purchased by anyone attending the meeting. Save your losing tickets for the Christmas Party raffle.

**ANNUAL SHOW:** The Ultra-Aqua show is held during the summer at the Tallmadge community Center. This has become one of the largest all-species tropical fish shows in North America. It is an international gathering of hobbyists to display their fish in class competition, talk fish and to learn about the hobby from each other.

**TANK TOPICS:** is published on a bi-monthly basis for the members of the Greater Akron Aquarium Society. Articles and comments for this publication are welcome and encouraged. Such articles are to be submitted no later than the board meeting prior to publication. All articles may be reprinted as long as the author(s) and GAAS are given proper credit and two copies of the publication containing the reprint are sent to GAAS. Please send any correspondence regarding this publication to:

Editor/Tank Topics, P.O. Box 494, Akron, OH 44309-0494 or email to G_A_A_S@hotmail.com

## The Greater Akron Aquarium Society Membership Form

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

Phone _____ email _____

How did you find out about GAAS? _____

Memberships are due one year from the date of joining. Completed membership forms can be turned in at a meeting or mailed to the membership chairman at this address:

GAAS Membership Chairman, P.O. Box 494, Akron, OH 44309-0494

☐ New ☐ Renewal

☐ Electronic ☐ Mail

| | | |
|---|---|---|
| Adult (18 years and older | 1 year | $7.50 |
| | 2 years | $12.00 |
| Family | 1 year | $10.00 |
| (includes children under 10) | 2 years | $15.00 |
| Junior (10-17 years) | 1 year | $5.00 |
| | 2 years | $7.00 |

Dues Collected _____ Date Received _____

# President's Message

Happy Holidays folk's, that means Merry Christmas to most of us! Hope you are ready to enjoy the up coming days and get to share them with good friends.

Just a few things to speak of, first don't forget to come to the Christmas party, if you can, bring a covered dish of some kind to help with refreshments.

We are going to have a drawing for some fish and items for members only. Also bring you old raffle tickets and trade them in for Christmas raffle tickets, you can't buy any this time.

Also bring in your growth contest fish, we need to judge them for size and we will have a prizes for that.

The auction went well and we made enough money to pay the bills for another year, lets hope they keep doing well, so we can continue to have a functioning club, thanks to those that helped.

Not much more for now, Bud.

**See you at the meeting**

**Bud White**

# Editor's Message

Wow, here we are again in the midst of another Holiday Season (I'm writing this a couple of days after Thanksgiving). It seems like it wasn't that long ago that we did it the last time. They always say that time feels like it speeds up as you get older. I'll have to agree with that one!

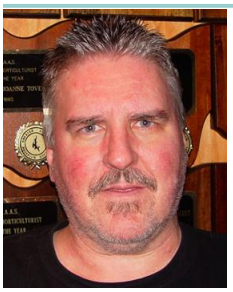
As far as club business, at the last meeting we've had our annual club elections, and yes, I'll be serving as your Editor yet again. It was good to see at least a couple of new names on the roster though.

Also last month we had our Fall Auction. It was another long one, nearly 10 hours. I guess it's a good thing we've moved our start time up an hour. The only kind of rough spot was finding enough auctioneers so that we didn't kill the ones we had! Anyone out there in the membership interested in giving it a try? We could always use some more home-grown talent!

And since I'm speaking about home grown-things, how about home-grown authors and photographers? Yeah, here I go again begging for articles for Tank Topics! Poor Rich & Wayne will be getting writer's cramps if we keep making them do it all! Seriously though, as I've said many times before, we'd love to hear what you have to say about your hobby. It's really not that difficult once you get going, just pick a topic and pretend you're talking to a friend about it. In a few minutes, you'll have that article finished!

You'll also notice that I mentioned photographers. I assume that the lack of any pictures from our recent auction isn't due to not wanting any photos in this magazine. I'd love to have included some, but I didn't receive any from anyone that was there to include. Yeah, I know, I could have taken some, but my camera was non-functional that day (oops, my fault there, but at least I remembered everything else I was supposed to bring that day!) But anyway, please consider submitting something/anything, it only helps make this a better publication for us all.

Don't forget that the December meeting is our annual Christmas Party. . . Lots of food, fun, fish & friends! I'll see you at the meeting! (bring an appetite!!!)



# BAP/HAP Report

**Wayne Toven**

This is the end, of the BAP/HAP year that is, where did the time go? What that means is that it is time to tally up the spawns and plant propagations and flowerings. Why do I do this? Well because no one else wanted to assume the responsibilities of chairman of the Breeder Award and Horticultural Award Programs. We had our annual club elections in November, so I have the privilege of doing it for another year. This year we had a little reversal, there were more plant propagations and flowerings submitted than there were spawns turned in, so needless to say we did not quite match last years total number of spawns. We started off so well then spawns just tapered off. We did have a second member reach the 10 spawn level in a year, so a 16 oz. can of brine shrimp eggs will be awarded to Bob Miller, nice going. A couple of other members came up just a little shy of the mark, so we will have to work a bit harder next year.

We had a new member reach the level of Master Aquatic Horticulturist and the top ranking of Grand Master Aquatic Horticulturist in November, congratulations to Brad Johnson. He had a total of 31 propagations for the year, but came in second to our Horticulturist of the Year with 38 propagations and flowerings: Phil & Tiffany Hypes this seems to be a recurring theme, Congratulations!! The grand total for the HAP this year was 93 plant propagations and flowerings.

We only had 14 members participate in the Breeder Award Program this year down from 19 last year, submitting a total of 67 spawns. Once again our Breeder of the Year is Phil & Tiffany Hypes with 13 spawns, Congratulations!!

Now we start over, everyone is tied for first place in the BAP/HAP; let's see if we can do a little better this coming year.

**October 2011**

**BAP**

| Species | Common name | Class | Points |
|---|---|---|---|
| **Dan McMonigle** | | | |
| *Tilapia zilli* | | Cichlid s.s. | 10 |
| *Microbrachium sp.* | Red claw shrimp | Aquatic animal | 10 |
| **Bud & Cathy White** | | | |
| *Aulonocara caroli* | Swallowtail peacock | Cichlid m.b. | 15 |

**November 2011**

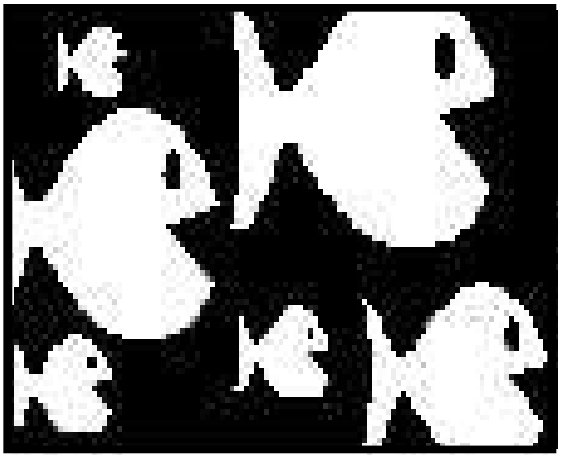
**BAP**

| | | | |
|---|---|---|---|
| **Phil & Tiffany Hypes** | | | |
| *Poecilia gilli* | Gill's molly | Livebearer | 5 |
| **Bob Miller** | | | |
| *Tilapia snyderae* | | Cichlid s.s. | 10 |
| *Herichthys cyanoguttatus* | Texas cichlid | Cichlid s.s. | 5 |
| *Parachromis managuense* | Jaguar cichlid | Cichlid s.s. | 5 |

**HAP**

| | | | |
|---|---|---|---|
| **Brad Johnson** | | | |
| *Pistia sp.* | Dwarf water lettuce | C – vegetative | 15 |
| *Ludwigia ovalis* | | B – vegetative | 10 |
| *Microsorium pteropus* | Java fern var. Philipine | D – vegetative | 20 |
| *Cryptocoryne wendtii* | bronze var. tropica | C – vegetative | 15 |
| *Cryptocoryne wendtii* | var. brown *wendtii* | C – vegetative | 15 |
| *Cryptocoryne wendtii* | var. green gecko | C – vegetative | 15 |
| *Hygrophila pinnatifida* | | A – vegetative | 5 |
| *Echinodoras tenellum* | Pygmy chain sword | B – vegetative | 10 |

| Standings for 2011 | BAP | Points | HAP | Points |
|---|---|---|---|---|
| Phil & Tiffany Hypes | 13 | 140 | 38 | 420 |
| Bob Miller | 10 | 85 | - | - |
| Wayne Toven | 9 | 75 | 1 | 10 |
| Joe Reich | 8 | 65 | - | - |
| Dan McMonigle | 6 | 55 | 14 | 140 |
| Dave Williamson | 6 | 45 | 4 | 45 |
| Orin McMonigle | 4 | 35 | 4 | 40 |
| Frank Mueller | 3 | 35 | 1 | 15 |
| Louanne Coulter | 2 | 10 | - | - |
| Rich Serva | 2 | 15 | - | - |
| Melissa Cole | 1 | 5 | - | - |
| David Girard | 1 | 15 | - | - |
| Russ Kirkendall | 1 | 15 | - | - |
| Bud & Cathy White | 1 | 15 | - | - |
| Brad Johnson | - | - | 31 | 375 |



# Exchange Report

**Wayne Toven**

First of all there was a reprint of Wayne Toven's article Wow it's a Cichlid not a Livebearer, Keeping and Spawning *Heros severus*, in the Missouri Aquarium Society Inc. The Darter: Nov/Dec 2011 issue. If you would like to read any of the articles mentioned below let me know and I will get a copy of it to you one way or another.

**Erie Aquarium Society**: Oct 2011

The Amazon Molly, *Poecilia formosa*, by Caryl P. Haskins

**Aquarium Club of Lancaster County**, Tank Tales: Sept 2011

Breeding Angelfish, by Michael Steffen

Betta: Siamese Fighting Fish, by Joel Antkowiak

*Aulonocara jacobfreibergi* Eureka Red, by Jay Stephan

*Haplochromis sp*. Uganda Fire (*Lipochromis cf. parvidens*), by Jay Stephan

**Aquarium Club of Lancaster County**, Tank Tales: Oct 2011

Aquascaping: is There an Artist in You? by Scott McLaughlin

DIY CO2, by Michael Vogt

*Aulonocara sp*. Blue Neon Chiwindi, by Jay Stephan

Aquarium Plants, by Joel Antkowiak

Cichlids are Special, by Jay Stephan

Saltwater Made Simple – Part 1, by Michael Steffen

**Durham Region Aquarium Society**, Tank Talk: Sept 2011

Breeding Rainbowfish, by Derek P. S. Tustin

The names You Know the People You Don't: Coenraad Jacob Temminck, by Derek P. S. Tustin

My Green Wet Thumb: Bull****, by Derek P. S. Tustin

**Greater Cincinnati Aquarium Society**, Fincinnati: Sept/Oct 2011

Breeding *Amphilophus sp*. Red Isletas, by John Sipes

Trip to the Tennessee Aquarium, by Steve Smith

**Hamilton & District Aquarium Society**: Oct 2011

Breeding the Crystal Red Shrimp, by Charles Drew

**Hamilton & District Aquarium Society**: Nov 2011

Breeding *Simsonichthys suzarti*, by Charles Drew

**Kitchener – Waterloo Aqaurium Society**, Fins & Tales: Oct 2011

Killifish: the Best Kept Secret, by Al Ridley

White Worms (in technicolour), by Jayne Glazier

Living With Livebearers – the Other Mollies, by Ed Koerner

Another *Neolamprologus* – With an Encore, by Ed Koerner

**Kitchener – Waterloo Aquarium Society**, Fins & Tales: Nov 2011

Expanding My Grow Op., by Brent Lemanski

*Pseudocrenilabrus philander – disperses* A.K.A. the Dwarf Copper Mouth Brooder, by Brent Lemanski

*Pundimilia sp*. Blue Bar, by Terry Clements

Playing the Shell Game, by Ed Koerner

Adventures in DIY: Building a Box of Water, by Rick Glencross

Stirring the Pot, by Jayne Glazier

**Michiana Aquarium Society**, Michiana Tropical Times: Sept 2011

*Gambusia punctata punctata*, by Ben Slocum

*Krobia sp. xinguensis*, by Bruce Haynes

**Michiana Aquarium Society**, Michiana Tropical Times: Oct 2011

*Laetacara dorsigera*, by Bruce Haynes

**Missouri Aquarium Society Inc**. the Darter: Nov/Dec 2011

Keeping and Breeding *Aphanius transgrediens*, the Acigol Killifish, by Kurt A. Zahringer

**Ohio Cichlid Association,** Buckeye Bulletin: Sept 2011

Can You Spot the Difference? By Dave Ayres

3 Simple Tips (Anyone can use) to Get Good Fish Pictures, by Kyle May

**Sarnia Aquarium Society**, Aqua Antics: Oct 2011

Breeding *Melanotaenia boesemani*, by Wayne Cole

*Aulonocara jacobfreibergi* Eureka Flavescent, by Peter Melady

Blind Cave Tetra….. *Astyanax fasciatus mexicanus* A.K.A. Mexican Tetra, by Jack VanderAa

**South Western Michigan Aquarium Society**, SWAM: Nov/Dec 2011

*Staetocrainus tinanti*, by Charlie Grimes

Breeding the Celestial Pearl Danio, by Chase Klinesteker

**St. Catharines & Area Aquarium Society**, the Scat: Sept 2011

*Crencichla lepidota*, by Dave Unruh

**St. Catharines & Area Aqaurium Society**, the Scat: Oct 2011

*Telmatochromis dhonti*, by Dave Unruh

*Eretmodus cyanostictus* – the Horseface Cichlid, by Dave Unruh

**Youngstown Area Tropical Fish Society**, the Youngstown Aquarist: Sept/Oct 2011

Neon Tetra – *Paracheirodon innesi*, by Brian LaNeve

# Bowl Show & Special Activities

**Ken McGill**

Well folks, If you were following the points, you may have seen the come-from-behind upset in the annual points race. Dave has been cruising along with a pretty good lead, but Wayne has been knocking out the points and managed to catch Dave in the very last month! 106 to 104. The difference is 1 third place. These guys each averaged better than a 2nd Place in every Bowl Show Class all year. Great Job to both of you! And, by the way, Jeff Plazak came in third with a very respectable 50 points. The only disappointing thing is that there were only two other entrants in the Bowl Show: Marie Williams and Larissa Jackson. Thank You everybody.

**October**

Arts & Crafts
1st place - Marie Williams
2nd place - Wayne Toven

Marine Fish
no entries

A.O. Old World Cichlids
1st - Wayne Toven
2nd - Wayne Toven
3rd - Wayne Toven

**November**

A.O. Livebearers
1st - Wayne Toven
2nd - Dave Williamson
3rd - Dave Williamson

A.O. Egglayers
1st - Dave Williamson

A.O. Catfish
1st - Wayne Toven
2nd - Wayne Toven

| **Totals** | |
|---|---|
| Wayne Toven | 106 |
| Dave Williamson | 104 |
| Jeff Plazak | 50 |
| Marie Williams | 13 |
| Larissa Jackson | 3 |

**How the Point System works:**
1st - 4 points
2nd - 2 points
3rd - 1 point
1 point per entry,
maximum 12 points per class

## 2011 Bowl Show Schedule

**January:**
Goldfish, Male Guppies, Minnows Danios & Rasboras

**February:**
Suckermouth Catfish, Swordtails, Characins

**March:**
Barbs, Mollies, Corydoras Aspidoras & Brochis

**April:**
Female Guppies, Platies, Aquatic Invertebrates

**May:**
Goodeids, Rift Lake Cichlids, Aquatic Plants

**June:**
Native Fish, Rainbowfish, Male Betta splendens

**July:**
Synodontis Catfish, Killifish, Angelfish & Discus

**August:**
AO New World Cichlids, Amphibians, Bog Plants

**September:**
Gouramis & Anabantoids, Sharks & Loaches, Photography

**October:**
Arts & Crafts, Marine Fish, All Other Old World Cichlids

**November:**
All Other Livebearers, All Other Egglayers, All Other Catfish

# *The high-backed pygmy swordtail (Xiphophorus multilineatus) from the Río Coy.*

By Rich Serva and Gil Rosenthal

**The Genus**

The fish in the genus *Xiphophorus* are members of the family Poeciliidae. Like other members of this viviparous family, males have a gonopodium which is used for the internal fertilization of females' eggs. These fish have been used extensively in behavioral and genetic studies.

These fish were first described as a separate genus by Heckel in 1948. The etymology of the name comes from the Greek words ξίφος (sword) and φόρος (bearer). Most people think the reference to the sword is due to the tail extension of males of many of the species in this group, but it is not. At the time that Heckel named this genus, he was describing three species: *Xiphophorus helleri* (misprinted as "*hellerii*" in the original description , *Heterandria bimaculata* and *Poeciliopsis gracilis*. The name was given for the modified anal fin, or gonopodium, of the males (1, 2).

*Xiphophorus* are split into three clades: the platyfish, including *X. variatus* and *X. maculatus*, which are broadly distributed from northern Mexico down to central America; the southern swordtails of southern Mexico, and the northern swordtails, restricted to the Río Pánuco and Río Tuxpan drainages of the Sierra Madre Oriental.

In numerous studies, female Xiphophorus have exhibited mating preferences for a variety of physical and behavioral traits of potential suitors: sword (length as well as lack of), color, body size, vertical barring, pheromone cues and courtship behaviors. Some females show preferences for male traits of other species than their own. Behaviors of males are a mixture of those that attract females and those meant to drive off other suitors. With some males, it is a matter of sneaking in at the right time (3).

**The dwarf swords**

Rauchenberger et al.'s 1990 paper remains the most comprehensive treatment of the northern swords. The nine (9) northern swordtails were split into 3 clades of related species - montezumae clade, *cortezi* clade and *pygmaeus* clade. The *pygmaeus* clade, or dwarf swords, contains two sister species, *X nigrensis* and *X. multilineatus*, and a third closely related species, *X. pygmaeus* (4). The behavior and genetics of dwarf swords has been one of the more active areas of study in recent years.

*Xiphophorus pygmaeus* was the first member of the *pygmaeus* clade to be discovered and described as a separate species. The holotype male of this species was collected in the Río Axtla in 1939 by Carl Hubbs and Salvador Coronado. Hubbs and Gordon described it as a separate species in 1943 (5). It remained as the only member of this clade until 1952 when another form of pygmy sword was collected by R T Gregg in a river near Ciudad Valles, less than 100 miles away. In the 1960 paper by Rosen, he described *Xiphophorus nigrensis* as a new subspecies (2). By the time Rosen's 1979 paper was published, a second population of *Xiphophorus nigrensis* was known from the Río Coy. Unlike *X. nigrensis*, some males from the Coy population exhibited prominent vertical bars used in courtship and aggressive interactions. Rosen suggested that further study of the population might lead to the description of a new species (6). In 1990 *Xiphophorus multilineatus* was described as a separate species by Rauchenberger, Kallman and Morizot (4). The name was taken from the Greek: multi-, many; -lineatus, line.

**Phenotypic traits of the male morphs**

All three species of the *pygmaeus* clade are polymorphic for a variety of xanthic (yellowish) pigment patterns ranging from completely yellow bodied to yellow caudal or yellow caudal margins to no yellow. [the "no yellow" males are a striking iridescent blue especially in the wild]. As in most fish, female pygmy swords keep growing throughout adult life. Males, however, grow until the gonopodium starts to differentiate and then stop growing after sexual maturity. Like mammals, male swordtails have Y chromosomes: When a male matures is determined by a gene on the Y chromosome called the P locus. Depending on which allele, or copy, of the P gene they carry, males mature early and small, and chase after females, attempting to 'sneak' matings; or they mature later, at larger size, and perform courtship displays. In *X. pygmaeus*, there is only one allele of P, and every male matures early and sneaky. In *X. nigrensis*, there are three P locus alleles, and in *X. multilineatus* there are four.

In the table below is a list of some of the genetic and phenotypic traits that are different between the morphs. Because the size ranges overlap, line breeding the males then looking at the traits of the male progeny is the best way to determine what size morph is the male. Males carry one of four size genes on their Y chromosome: Y-s, Y-I, Y-II or Y-L. In addition, some males carrying the Y-s (small size allele also carry the gene for yellow body color. The Small size and Yellow body color gene appear to be closely linked since the body color gene does not does not show up in any other size morph even during breeding experiments. Since the P gene is on the male-specific Y chromosome, the female parent does not contribute noticeably to the male's size genetics.

Vertical barring develops in males at maturity and is considered a secondary sex character. Females will show barring after treatment with androgenic hormones. In the males there is a strong correlation between standard length (snout to caudal peduncle) and number of bars. Although small size males can show barring, there are a lot less bars on average in the small size males and the bars lack in intensity compared to the bars on the larger size morphs.

In many species of swordtails the presence and intensity of vertical barring is

| | Small Blue | Small Yellow | Intermediate-I | Intermediate-2 | Large |
|---|---|---|---|---|---|
| P allele for size | Y-s | Y-s | Y-I | Y-II | Y-L |
| Size range, mm | 22 - 28 | 22 - 28 | 25 - 32 | 29 - 38 | 32 - 42 |
| Deep body size, larger dorsal & | | | | | + |
| No of vertical bars present | 1 – 7, avg. 2.7 | 1 – 7, avg. 1.7 | 6.5 – 9, avg. 8.4 | 7.5 – 11, avg. 9.2 | 7 -12, avg. 10.1 |
| Blue body color | + | | + | + | + |
| Solid yellow body color | | + | | | |
| Yellow caudal fin | | | | + | |
| Yellow caudal fin margins | | | + | | + |
| Yellow sword | | | | | + |

Size range for male morphs as reported by Zimmerer and Kallman (7, 8), Vertical barring data reported by Zimmerer and Kallman (9)

both an attractant to females and an aggressive move on other males (a move that 'calls out another male'). Barring is still an attractant for a female's attention but in *Xiphophorus multilineatus* males, it is a signal that deters rival males. This bears out through experiments. Males with artificially induced bars (additional bars painted on the males) attract females. In addition a male's bars will intensify as he becomes aggressive towards other males, but the bars will quickly fade if he loses a fight (10).

**Behaviors of the male morphs**

There are certain courtship behaviors that are different between the morphs.

A male will approach a female, touch her genital pore with his snout, corral her (rapid back and forth in front restricting the female's movements) and swing his gonopodium. After repeated episodes of these movements a receptive female may approach the male making jerking motions. The pair will swim together making jerking movements. The male may then attempt to copulate. Males unsuccessful attempt copulation more frequently then they successfully copulate. Large males appear to communicate more readily with females to a successful end. Studies also found that females may prefer Intermediate-2 males to Large males.

Fish with s alleles can switch between frontal displays to darting in to breed (sneaking) with the females. In laboratory studies s males would perform frontal displays for females when in tanks with no larger males present but would only perform sneaking behaviors when larger males are present. This mating behavior remains even with the Y-s males that are larger than the smallest Y-I males which gives credence to the theory that there is a genetic basis to the behavioral polymorphism (11). Females show a preference for the blue small males over the yellow (small) males; however, the yellow males are more dominate and more successful when breeding with females. Y-L morphs may force copulations with females that do not respond to courtship. (12)

When breeding experiments are set up with both a Large and a small male in a tank with a female, 75% of the offspring are sired by the Large male. (7). There is definitely a mating advantage in the wild (you can tell by looking at the fry that wild caught females have produced and see that most of them are sired by large males) but it is offset by the fact that small males are much more likely to reach sexual maturity. Since it's a genetic polymorphism that is maintained in the wild, the fitness of the morphs has to be equal. If small males had a big advantage over large males, they would spread rapidly to fixation. This seems to be what happens in *X. pygmaeus* where there are only small males (there are larger males but the cause appears to be non-genetic and certainly not the p locus).

Another experiment studied the multiple paternity of wild caught females. Fish in the family Poeciliidae are capable of storing sperm for up to 6 months which complicates a study of this nature. The experimenters used DNA fingerprinting techniques to determine whether females were mating with more than one male. Multiple paternity was concluded when more than two paternal alleles were found at a locus among the progeny of a family. The impact of multiply mated broods was small. It is far more usual for one male to father a brood (13).

A more recently published study on mating preferences of wild females adds a new dimension to the behavior issue – the size of the female. Since female *Xiphophorus multilineatus* will continue growing throughout their lives, smaller females are synonymous with younger females. Smaller females appear to be more inclined to breed with smaller males while larger females are more likely to breed with larger courting males. It is common for females preferences to change based on age, experience and condition. It is not necessarily a bad thing for a younger female to be less picky about whom she mates with. (14).

**Differentiating the *pygmaeus* clade**

*Xiphophorus multilineatus* has a single dense midlateral stripe. Males show numerous vertical bars along the flanks. This trait is most prominent with dominant males. The genes for both sword bearing and sword less males are present in this species. Sword carrying males show dark pigment on the ventral edge of their swords. The dark dorsal edging appearing first at the farthest end of the

sword is rarely present. The sword has yellow pigment. The sword is usually curved in immature males, but becomes straight as the individual's tail becomes longer. Many populations carry the Cb polymorphism, which produces an oval blot on the caudal fin close to the caudal peduncle. This spot is most apparent with dominant individuals. The caudal fin carries 10-13 rays.

Since the northern swordtails can be difficult to distinguish, and fish can be distributed throughout the hobby with the wrong name, the following traits are some ways to differentiate *X. multilineatus* from *X. nigrensis* and *X. pygmaeus* which are closely related to it. *X. multilineatus* and *X. nigrensis* produce both males with and without sword. *X. pygmaeus* is a sword less species of *Xiphophorus*. Large and intermediate (I & II) morph Male *Xiphophorus multilineatus* show numerous vertical bars along the flanks. The bars are more prominent on dominant individuals. Like *X. pygmaeus*, *X multilineatus* produces some males that are entirely yellow (small morph); however, this trait is not in the *X. nigrensis* populations. I find it essentially impossible to tell the yellow OR blue smallest males apart in the three species – *pygmaeus* look just like small multi and small *nigrensis*. You don't want people breeding the smallest morphs and calling them *pygmaeus*. The females are also impossible to tell apart!

**Natural habitat**

*Xiphophorus multilineatus* is found in the Río Coy system, Río Panuco drainage. It is found extensively in Río Coy, Arroyo Tambaque and Arroyo Oxitipa (as far as Octzen).

They are found in fast moving streams with sandy to muddy bottoms with stands of submerged aquatic vegetation.

**Personal observations**

As luck would have it, I (Rich) was given the opportunity to visit Molly Morris' laboratory at Ohio University early last summer. I was given a tour of the laboratory by her technician Jason Brewer. The lab has over 100 aquariums set up for breeding experiments and long term maintenance of her stocks. They keep lines of all five color/size morphs as well as the other species of swordtails. Besides allowing me to observe her set up, I was given the opportunity to photograph the various morphs.

Gil and I had also taken a trip to the University of Texas - Austin where we visited Michael Ryan's laboratory and outside ponds. Dr Ryan maintains stocks both in the lab and in outside ponds. Students were performing a number of behavior experiments involving the various male morphs during the time of our visit. Mike Ryan also allowed me access to his stocks for photographic purposes.

During a trip from Texas to Centro de Investigaciones Científicas de las Huastecas "Aguazarca", we had gotten the opportunity to visit the Rio Coy and photograph the location as well as some of the male morphs. The main channel cut into the bank making a steep entry into the river. Vegetation grew along the edge of the bank. Water was fast moving but quite clear. GGR and his graduate student, Zach Culumber, seined for fish along the bank and in a small channel cut in the bank while I took photographs. They were able to catch 3 of the 5 morphs for photographic purposes.

**References**

1. Heckel, J. Eine neue Gattung von Poecilien mit rochenartigen Anklammerungsorgane. Sitzungsberichte der K. Akademie der Wissenschaften, Vienna, vol 2, pp 289-303 (1848)

2. Rosen, D.E. Middle-American poeciliid fishes of the genus Xiphophorus. Bull. Florida State Mus., biol. sci., vol. 5, no. 4, pp. 57-242. (1960)

3 Rosenthal, G G, and F J García de León. Sexual Behavior, Genes, and Evolution in Xiphophorus. Zebrafish, vol. 3, no 1 (2006)

4 Rauchenberger, M., K. Kallman, and D. Morizot, "Monophyly and geography of the Río Panuco Basin swordtails (genus Xiphophorus) with descriptions of four new species". The American Museum of Natural History, Novitates, no.2975 (1990).

5 Hubbs, C L and M Gordon. Studies of cypinodent fishes. XIX. Xiphophorus pygmaeus, new species from Mexico. Copeia, no 1, pp. 31-33 (1943)

6 Rosen, D E, Fishes from the Uplands and Intermontane Basins of Guatemala: Revisionary studies and Comparative Geography. Bulletin of the American Museum of Natural History. Vol 162 (1979).

7 Zimmerer, E J, K D Kallman. Genetic Basis for Alternative Reproductive Tactics in the Pygmy Swordtail. Xiphophorus nigrensis. Evolution, vol 43, no 6, pp 1298-1307 (1989).

8 Kallman, K D.Genetic Control of Size at Maturity in Xiphophorus. In (Ecology and Evolution of Livebearing Fishes (Poeciliidae)) edited by G K Meffe and F S Snelson. Prentice Hall, NJ (1989).

9 Zimmerer, E J and K D Kallman. The inheritance of vertical barring (Aggression and Appeasement Signals) in the Pygmy Swordtail, Xiphophorus nigrensis (Poeciliidae, Teleostei). Copeia, no 2, pp 299-307 (1988).

10 Morris, M R, M Mussel and M J Ryan. Vertical bars on male Xiphophorus multilineatus:a signal that deters rival males and attracts females. Behavioral Ecology, vol 6, no 3, pp 274-279 (1995).

11 Ryan, M J, C M Pease and M R Morris. A genetic Polymorphism in the Swordtail Xiphophorus nigrensis; Testing the Prediction of Equal Fitnesses. American Naturalist, vol 139, Issue 1, pp 21-31 (1992)

12 Schroder, J H and I S Otten. Courtship and Female Choice Behavior in the Male-Polymorphic High-Backed Pygmy Swordtail, Xiphophorus multilineatus. Ber. Nat.-med. Verein Innsbruck, Band 86, S. 251-269, Innsbruck. Okt. (1999)

14 Luo, J, M Sanetra, M Schartl and A Meyer. Strong Reproductive Skew Among Males in the Multiply Mated Swordtail Xiphophorus multilineatus (Teleostei) Journal of Heredity 96 (4):346–355 (2005)

15 Morris, M R, O Rios-Cardenas and J Brewer. Variation in mating preference within a wild population influences the mating success of alternative mating strategies. Animal Behavior, 79. pp 673 – 678 (2010).

**The Greater Akron Aquarium Society**

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Meeting Notice - Do Not Delay

# Meeting Notice

## Thursday, December 1 : Christmas Party!!!

This is a party, with award presentations for members who have participated in club activities during the year, no speaker or bowl show. This is when we have our annual "Loser's Raffle" No raffle tickets sold at this meeting, bring in the non-winning ones you've gotten throughout the year and trade them in for new ones. Then there is the fish & plant give-away, if you've been there the last couple of years you know what that's all about! Oh, and don't forget about the gift exchange! If you'd like to participate, bring a wrapped gift (around $15 cost, fish themed or not) and then you get to take home a different one. Pretty simple! And let's not forget about the food! Our refreshment chair people, Bill & Linda, are supplying the main dish, the rest is pot-luck style. . . Bring a desert or side-dish and pass it on!

All general meetings begin at 8:00 p.m. at the Mogadore Community/Senior Center

## Coming Events

It's not too early to start planning for next year!

**March 4, 2012 – Greater Akron Aquarium Society – Spring Auction**
Tallmadge Community Center, 80 Community Rd., Tallmadge, Ohio
For more information: Bud White (330) 848-3856 (bwhite@neo.rr.com), Wayne Toven (330) 296-6322 (wtoven@hotmail.com) or Rich Serva (330) 650-4613 (rjserva@juno.com)

**April 26 – 29, 2012 – American Livebearer Association Convention**
Ft. Lauderdale Airport Hilton, Hosted by the Gold Coast Aquarium Society
21 class livebearer show, collecting trip, fish farm tour and much more!
For more information: www.ALA2012.com

**July 14 & 15 – Greater Akron Aquarium Society - Ultra-Aqua 2012 Show and Auction**
Tallmadge Community Center, 80 Community Rd., Tallmadge, Ohio
For more information: Bud White (330) 848-3856 (bwhite@neo.rr.com), Wayne Toven (330) 296-6322 (wtoven@hotmail.com) or Rich Serva (330) 650-4613 (rjserva@juno.com)

**November 4, 2012 – Greater Akron Aquarium Society – Fall Auction**
Tallmadge Community Center, 80 Community Rd., Tallmadge, Ohio
For more information: Bud White (330) 848-3856 (bwhite@neo.rr.com), Wayne Toven (330) 296-6322 (wtoven@hotmail.com) or Rich Serva (330) 650-4613 (rjserva@juno.com)