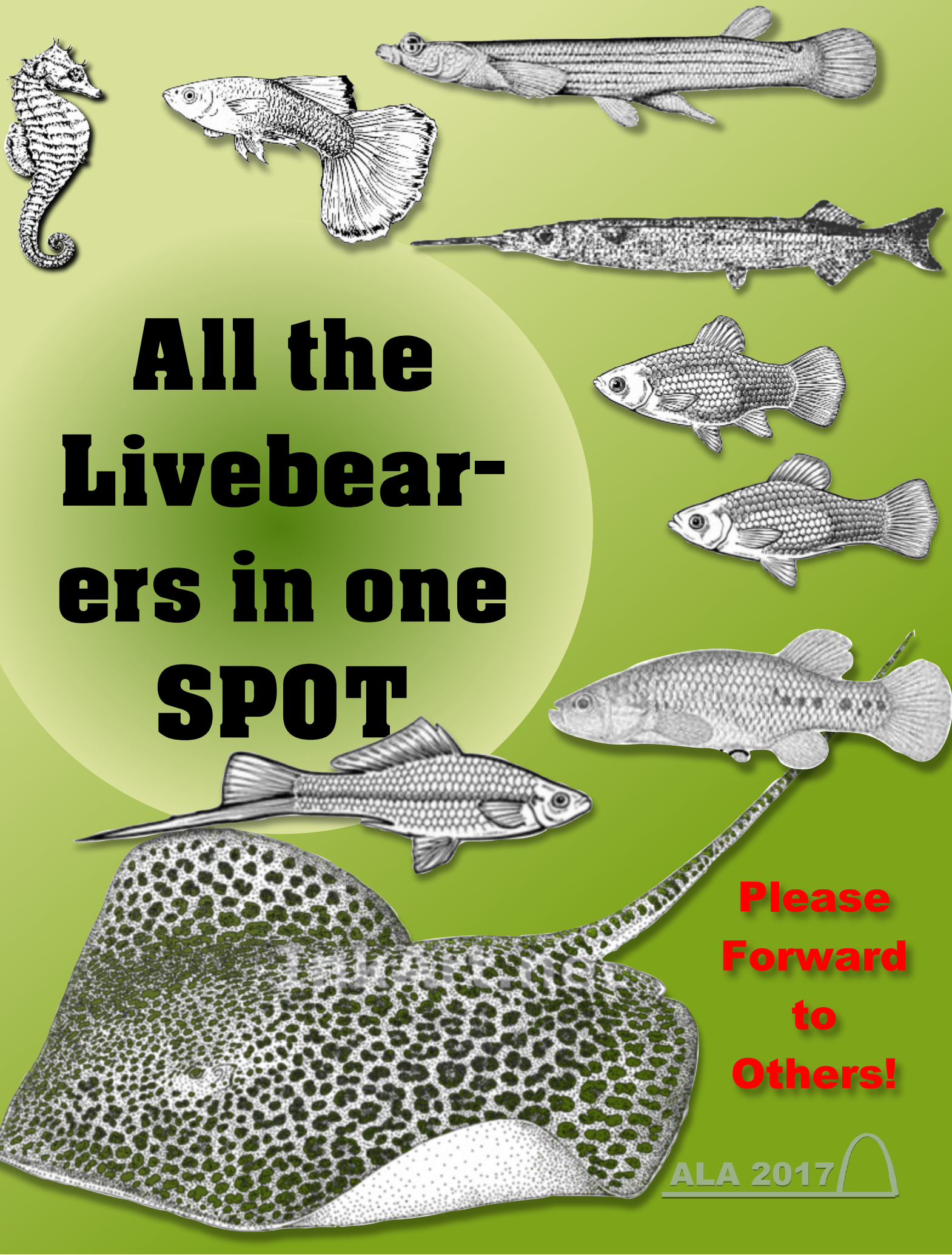
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ALA 2017

American Livebearers Association 2017 National Convention

May 4-7, 2017; St Louis, Mo

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Please feel free to forward this publication to others to help spread the word about LIVEBEARERS!

Comments, corrections or complaints about this publication may be sent to editor@missouriaquariumsociety.com

Questions about the 2017 Convention should be sent to ALASTL2017@gmail.com or answered at WWW.ALA2017.COM

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May 4-7, 2017 in St. Louis

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Photo: Bryan Chin

See WWW.ALA2017.COM for Partial Fish List

The American Livebearer Association (ALA), the Missouri Aquarium Society (MASI), and the Gateway Guppy Association (GGA) are working together to ensure you have the most enjoyable and productive time at the 2017 Convention. Their goal is to ensure this is a very educational and productive Convention with something for every Livebearer Enthusiast who attends.

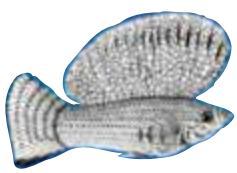
St Louis is the place to be in 2017 whether you are interested in Livebearer conservation or want to see some really high-class fancy livebearers. The Gateway Guppy Associates and IFGA are helping ensure the Convention will meet the needs of everyone by meeting the needs of Fancy domesticated breeders with special programs and shows sanctioned

Networking

Education

Fishroom Tours

New Fish!



MISSOURI MASI AQUARIUM SOCIETY

Gateway Guppy Associates

ALA 2017

nationally by the IFGA. We expect this to be a super show because there is a lot of rivalry and a lot of "one upmanship" being played for both guppies and other fancy domesticated species such as Swordtails, Mollies and Platys by members and other interested parties. Many of those fish shown will end up on the Huge Sunday Auction along with other fancy fish from ALA sponsors.

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

We want to improve the availability of some of the currently difficult to get livebearers and hope there's going to be a lot of fresh BAP material here for those involved in their local club or ALA's Breeder's Awards Programs. We're collecting unusual and difficult to find species from private hobbyists, importers, large aquarium suppliers, ALA, GWG and overseas sources. The Missouri Aquarium Society has one of the most active BAP programs and many of the best known breeders in the country who specialize in that oddball fish and will be providing many fish to be purchased at the Sunday Auction. If you've got any difficult to find livebearers in your tanks let us know so we can advertise them if you plan to make available in May of 2017 through **private sales, box sales, vendors, silent auctions running throughout the Convention or someone's prize purchase at the Huge Auction on Sunday**. Check the potential fish list on www.ALA2017.com and add to it if you can.

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

There will be tours of local fish rooms and other activities available on Thursday and Friday. Some of these fish rooms are livebearer heavy and all of them show unique ways of organizing daily tasks and housing that can be adapted to livebearers. To save you time, meals are being provided in conjunction with these tours.

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

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

The Convention will have a large Vendor room next to the speaker room. Take advantage of it to add fish, plants, equipment, rare books and other must-have items to your fish room. The vendor list continues to grow so visit www.ALA2017.com to see the latest.

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

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

Registration for the 2017 Convention is easy, just use the PayPal link that is provided on the Registration page of www.ALA2017.com . You will find reasonable registration fees and options that give you a choice of pricing. **Register early for the best discount and earliest access to the SPECIAL LIVEBEARER SALE then lock in your calendar for May 4-7, 2017 for the American Livebearer Association Annual Convention!!**

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TROPICAL FISH HOBBYIST MAGAZINE

American Livebearers Association Convention 2017

Thursday

2:00 PM - Early registration
5:30 PM - Jerry Jost's HUGE Cory Lab!
Over 100 tanks,includes Pizza dinner

Friday

8:00 AM - Registration opens
8:30 AM-3:OO PM - Multi Fish Rooms Tour
Fancy Guppies-Killies-General Rooms w BBQ meal at the hotel
2:00PM-4:30PM - Vendor Room – Show Room Setup
4:00PM - North American Goodeid Working Group Meeting & NAGWG Auction - Dr. John Lyons Moderator
6:30PM - Gene Anderson
7:30PM - Cichlids of Mexico and Their Habitats - Dr. John Lyons
8:30PM – 9:00PM - FISH BOX SALE Setup
9:00PM - FISH BOX SALE & Hospitality Room Opens!

Saturday

7:30AM-8:45AM - ALA BOD Board Meeting
9:00AM - The Incredible Journey of a Wholesale Livebearer! - Shelby Bush
10:15AM - Show Guppies, The IFGA Way - Dr. James Alderson
11:30AM-12:30PM - LUNCH BREAK & ALA BOD Committee Meeting
12:30PM - Shipping Fish - Mike Hellweg

2:00PM - Show Room Closes for Judging
1:45PM - Filtration Explained - Les Wilson
Mechanical, Chemical, Biological Filtration and Protein Skimming
3:00PM - Central American Livebearers in the Wild! - Rusty Wessel
4:00PM - SPECIAL FISH, SALE HOUR
5:00PM - Wine Tasting
7:00PM - Convention Banquet

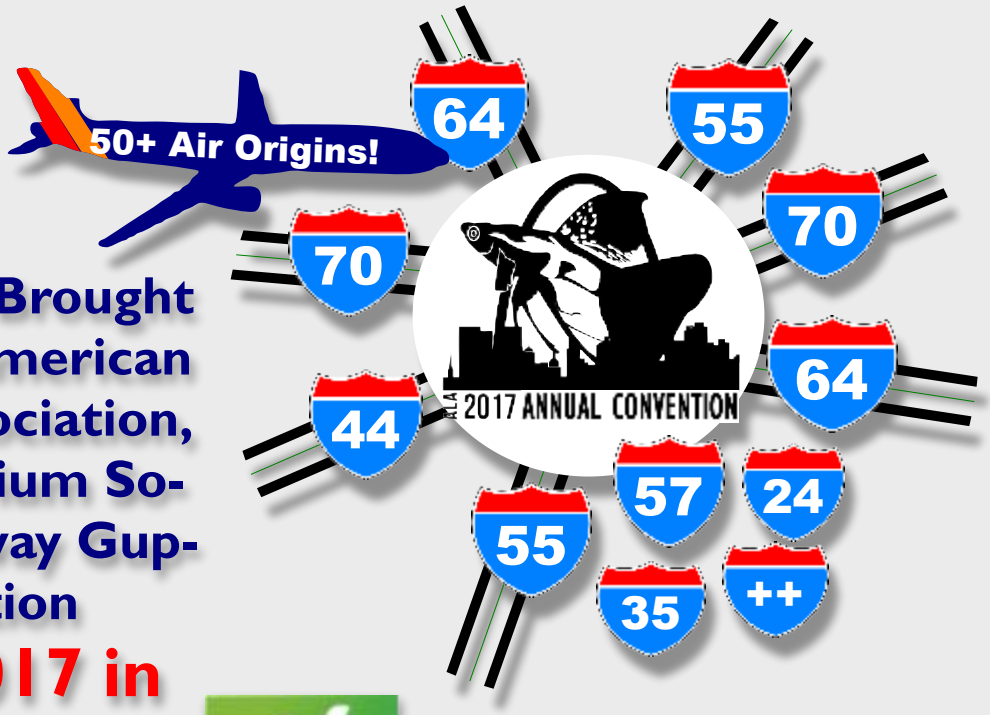
Sunday

Auction!

ALA 2017

ALA 2017 ANNUAL CONVENTION

All routes lead to St Louis in May!



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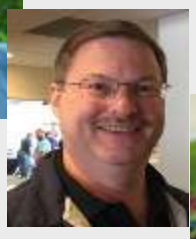
Dr Lyons Cichlids


Mike Hellweg Shipping


Charley Grimes Banquet!


Shelby Bush Segrest


Les Wilson Filtration


Rusty Wessel Livebearers


Gene Anderson Fancys

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The 2017 ALA convention is being held at the Holiday Inn Airport West – Earth City.

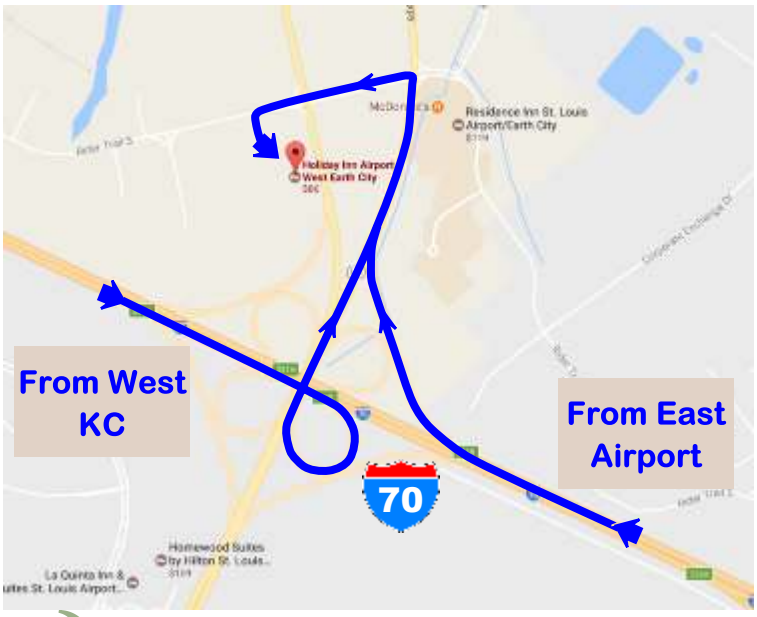
The Holiday Inn Airport West offers easy access to Downtown St. Louis, Historic St. Charles, Lambert International Airport, as well as many other vibrant areas in the Gateway City. This full service facility has been entirely renovated with new guest rooms and over 14,000 square feet of flexible meeting space.

Complimentary Airport Shuttle Service Available for registered guests from Lambert Saint Louis International Airport

Convention room rates are $99 including a Breakfast buffet for up to 2 people per room, per day. Up to two more can be added to each room for $10 each. Reserve a room in the ALA block before 04/27/2017 at which date open rooms are released to the public. Reservation must be made by phone and must indicate the reservation is for the American Livebearer Association Convention.

The preferred direct phone number for reservations is (314) 291-6800; but (877) 320-8454 may also be used.

There is a direct American Livebearer Association Convention Booking Link on the Convention website: www.ala2017.com, using the group block code: ALB. Click/Tap Logo above for Holiday Inn web site.



ALA 2017

TROPICAL FISH HOBBYIST MAGAZINE

Poeciliidae: *Girardinus metallicus*

Livebearers:

More than Just the "Big Four"

Author: Mike Hellweg *An experienced livebearer keeper and American Livebearer Association member writes about the many and varied livebearers available outside the ubiquitous guppies, platies, mollies, and swordtails.*

WHEN MOST FISHKEEPERS hear the term "livebearer," their minds almost automatically jump to one or more of the retail "big four"—guppies, platies, mollies, and swordtails. Nearly every hobbyist has kept one of these livebearers at some point, and it's easy to understand why. They are beautiful, coming in every color of the rainbow and with many attractive fin shapes. They are hardy, easy to care for, and easy to breed. Even a hobbyist with just one or two extra small tanks can develop their own color or fin variant. Livebearers seem to be willing to tolerate many of the beginning hobbyist's mistakes and still thrive.

Some, such as the wild-type guppy, are so hardy and prolific that they are even used as feeders for larger, predatory fish. Guppies are found the world over, as they have been used to control mosquitoes in nearly every nation on earth. If that's not hardy and adaptable, I don't know what is!

But all of these fish represent just four species, or, more correctly, four hybrids, from but a single family of fishes, namely Poeciliidae. Livebearing fishes are much, much more than that—so amazing are these fishes that they draw many of us from all over North America, indeed the world, to get together at the annual American Livebearer Association convention.

The Retail Big Four

Guppies, mollies, platies, and swordtails make up the retail big four. They are found in nearly every pet shop on earth, and feral populations exist in many places where the water is warm enough year-round. It is fair to say that without these four groups of livebearers, the aquarium hobby as we know it would not exist. In fact, the guppy is often referred to as the missionary fish, due to all the new hobbyists it has brought into the fold. From right after World War I onward to today, amateur breeders

Poeciliidae: *Poecilia wingei*

and professional fish farmers have all worked with and counted on the big four for a large part of their income. New variants still appear every year in all four groups. As early as the 1920s, hobbyists, professional breeders, and scientists were working with color variants and starting to learn the genetics of the various members of the group.

At that time, species were not looked at in the same way they are today. Many of what we now know as separate species were considered just variants of the same species. Swordtails,

Poeciliidae: *Poecilia salvatoris*

variatus, and platies (or moonfish, as they were known back then) were crossed to impart different colors and patterns into the various body forms. Two or three different species of mollies were crossed to fix the solid, velvety black coloration we now see in the black molly. Guppies, too, may be crosses of various small species of *Poecilia*. So instead of calling fancy swordtails *Xiphophorus hellerii*, it is more correct to call them *Xiphophorus* sp. domestic swordtail, as they are hybrids of at least three species. The same goes for platies (X. sp. domestic platy) and mollies (*Poecilia* sp. domestic molly). Guppies are still considered to be a highly variable species, *P. reticulata*, but in the future, that may change. Two new species (*P. wingei* and *P. obscura*) were described in the past decade from what had long been considered

Poeciliidae: *Limia perugiae*

just locations of *P. reticulata*, so who knows what the future may bring?

What Are Livebearers?

Livebearing fishes are those fish that practice internal fertilization and brood care and release fully formed juvenile fish at the end of their "pregnancy." There are currently over 500 known livebearing species representing more than 14 families of bony fishes, not counting the cartilaginous sharks and rays. Many of these are marine fishes and are not available in the trade.

Livebearers provide no

Poeciliidae: *Heterandria formosa* (Tiny!)

further brood care after release, and many of them will even prey upon their progeny right after birth, so hobbyists often have to devise ways of separating parents and fry. Contrary to the popular myth that females simply carry the eggs around until they hatch and then release fully formed fry, almost all livebearers provide at least some nourishment to the developing embryos. Various studies over the years have shown that the fertilized eggs cannot develop into viable young outside of the womb.

This can vary greatly from simple gas exchange for those fish, whose embryos actually lose weight as they develop (lecithrotrophs), to those that provide nourishment via a sort of umbilical cord and placenta (matrotrophs), to those that go so far as to provide unfertilized eggs for the developing embryos to eat (oophagy) in the womb, some of which (e.g., *Nomorhamphus ebrardtii*) might even consume some of their developing siblings.

By far the best-known group of livebearers is the family Poeciliidae. The retail big four were all developed from members of this family, but there are many other species popular in the hobby that are available from other hobbyists via aquarium clubs, national clubs, and internet auctions. At recent club auctions, I've seen members of the genera *Xiphophorus* (wild-type swordtails and platies), *Poecilia* (wild-type mollies and guppies), *Limia* (molly relatives from the Caribbean Islands), *Alfaro, Belonesox, Brachyrhaphis, Carlhubbsia, Girardinus, Gambusia, Heterandria, Micropoecilia, Neoheterandria, Phalloceros, Phallichthys, Priapella, Scolichthys*, and other closely related genera. These are primarily freshwater fish, though some of the mollies and *Limia* spp. can be found in brackish or even fully marine environments. They are found from the central United States throughout Central and South America all the way to Argentina, and throughout the Islands of the Caribbean.

The next most popular family in the hobby is the small family Goodeidae. This family consists of about 39 species, plus a few more that might be separated into species as they are studied more closely. This family is exclusively found in the Mexican highlands, where many species are threatened by human activity, including introduced species, water usage for agriculture, pollution, garbage dumping, and other factors. Species that were stable just a decade ago are now fighting for their very existence in the

wild. Fortunately, with just one or two exceptions, every known species is well established in the hobby, and many folks are working hard to maintain these species in their aquaria to prevent


Goodeidae: *Skiffia multipunctata*

them from going extinct forever. The goodeids have become the "poster fishes" for how hobbyists can work to preserve species from extinction—without a single dollar from any government entity, hobbyists, and hobbyists alone, are preserving the entire family from extinction. Without the hobby, this entire family could disappear forever and no one would likely either know or care.


Goodeidae: *Characodon audax*

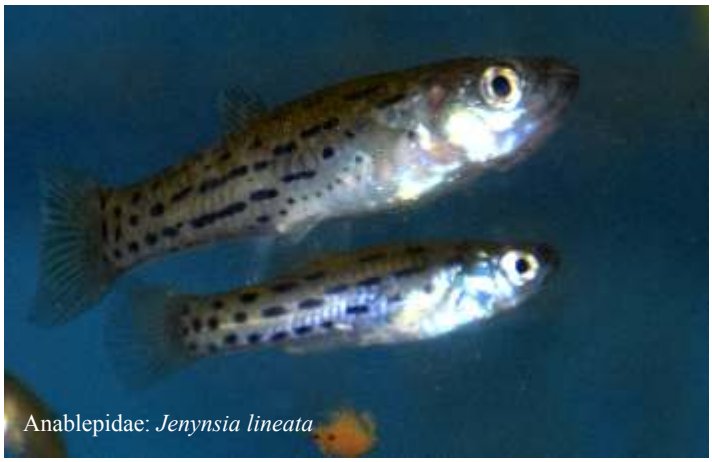
Another group that deserves mention is the Zenarchopteridae. These are the fish we hobbyists know as the halfbeaks. There are dozens of genera and species in the family, but only three genera contain livebearing species of interest to hobbyists. These are *Hemirhamphodon, Nomorhamphus,* and *Dermogenys*. All of these bizarre, surface-dwelling fish are predators that eat


Zenarchopteridae: *Nomorhamphus ebrardtii*

primarily insects in the wild. A meaty diet is required by all. Oddly, for some reason, they are often considered brackish-water fishes even though most are inland fishes found far from salty water. All nine members of the genus Hemirhamphodon are actually blackwater fish—think water similar to that of wild bettas, rasboras, and similar fish. The livebearing Zenarchopteridae are found in Southeast Asia and throughout the islands of the Philippines, Borneo, and Sulawesi.

TROPICAL FISH HOBBYIST MAGAZINE
Special Feature

The Anablepidae are sometimes seen in the hobby. Usually the four-eyed fish, *Anableps anableps*, is seen, though sometimes *A. dowei* is also available in the trade. They can be found as 3- to 4-inch (7.5- to 10-cm) juveniles, surprising their owners when the males grow to 8 inches (20 cm) and the females to nearly a foot (30.5 cm)!


Anablepidae: *Jenynsia lineata*

They enjoy hanging out at the surface and basking out of the water like turtles. My group loved to bask sitting on floating plants, while others have used Styrofoam or even floating turtle stands.

Their cousins the *Jenynsia* are sometimes available in hobbyist circles. There are a dozen or so species that have been popularized as the one-sided livebearer. Males have a gonopodium that orients either to the left or right, and females have a genital pore that opens either to the left or right. Hobby lore has it that a right-handed male can only mate with a left-handed female, or visa-versa. However, when actually keeping the fish, one can see this is a myth and will observe how resourceful and acrobatic the males can be! They can be found in southern Mexico and Central America (*Anableps*) and Southern Brazil, Uruguay, Paraguay, and Argentina (*Jenynsia*).


Syngnathidae:
Seahorses & Pipefishes

The final group that is regularly available is the family Syngnathidae—the seahorses and pipefish. These are primarily marine species, though several pipefish species are found in fresh water. Several seahorse species are threatened by collection for trinkets and for traditional medicines (they are believed to prevent everything from impotence to headaches). The entire genus is protected by CITES, though this is likely more of an economic benefit to the few farms al-

lowed to produce them legally than it is a safeguard for the species, which are still collected by the ton for traditional medicines, a practice that is either exempt from or ignored by CITES.

Though the hobby gets the blame for the demise of these species, in fact all of the specimens ever taken for the hobby are likely less than what is taken in a single month for the medicinal market. The unusual reproductive strategy seahorses and pipefish use is that the female lays her eggs in the male's pouch or on a spongy brood pad, and he fertilizes them internally and develops a placenta-like web of vascular tissue that surrounds the developing embryos and provides nourishment to them. He even goes into labor as the young are expelled!

Livebearer Reproduction

One characteristic that all livebearing species share is that they give birth to living young that are fully developed and ready to fend for themselves at birth. The parents provide no further care. A popular myth is that the male simply darts in and inseminates the female with no participation on the part of the female. In truth, many studies have shown that courting behavior is much more complex and fertilization requires the cooperation of the female. In fact, females often chose their mates based on a preferred color or some external display, such as the size of the sword in male swordtails.

In many species, males perform a complicated dance for the females, often including other males to show their worthiness over their rivals. Males are often brightly colored to catch the female's attention in murky water. The intense color is usually not only appealing to the females, but also attracts predators, so it often occurs in small patches that are brought to bear only when the male is dancing to attract the female's attention.

At other times, they hide when they can, as exemplified by *Micropoecilia picta*, whose colorful males can most readily be found under floating debris. In the wild, males can be seen dis-

Zenarchopteridae: *Nomorhamphus liemi liemi*

playing for one another out in the open while females watch the display from the safety of cover in the surrounding area. Sailfin mollies (*P. latipinna*) are a spectacular example of this. The males perform with their fins fully extended and their bodies at an angle to catch the sunlight.

An extreme example of females choosing their mates can be found among the halfbeaks. In captivity at least, females in the group will kill all but the most impressive male. I've witnessed this behavior firsthand in several *Nomorhamphus* species. Another extreme example is *Gambusia panuco*. Females of this species, at least in captivity, actually nip off the ends of most of the males' gonopodia, allowing only a chosen few males to retain theirs.

The insemination organ is made up of several rays of the male's anal fin and varies from species to species. In some species, such as the *Jenynsia*, it is little more than a tube, while in others, like some of the poeciliids, it is so distinct, with a variety of hooks and soft tissue (the palp), that it is used to differentiate the species. This organ is known as the gonopodium. It is actually inserted into the female's genital pore, and packets called sper-

Goodeidae: *Xenotoca eiseni*

matophores are transferred into the female. In the poeciliids, females can retain these spermatophores for several months, so a male can father fry long after his demise.

In the families Zenarchopteridae and Goodeidae, the anal fin varies somewhat and is known as an andropodium. It is used for holding or grasping the female's anal fin. While the two fish are held thus together, sometimes with the male wrapping his dorsal around the female too, the male fertilizes the female internally with a soft, fleshy organ called a pseudopenis. Females cannot store sperm, so each brood must be fertilized by a separate mating attempt. In some species (many *Nomorhamphus* species, for example), females can carry two developing broods at the same time. In the goodeids and the genera *Nomorhamphus* and *Dermogenys*, the front rays of the anal fin are modified into a clasping organ. In the *Hemirhamphodon*, it is the middle rays of the anal fin that are modified. In these species, the male's anal fin can be spectacular.

In many species, the brood develops in about 28 days, while in the goodeids and some of the halfbeaks, the brood may take 50 days or longer. Some of the halfbeak females may carry two or more broods at once and may give birth to fry at unpredictable times. Generally, females "square off" a day or two before dropping their fry. This is exactly what it sounds like; they suddenly look like they've swallowed a block. Females should never be moved when they are close to dropping, as the stress could cause them to drop stillborn fry. In all species, once the fry are released, they are on their own. They can eat immediately, and it is a good idea to begin feeding them as soon after birth as possible. Newly hatched brine shrimp provides great nutrition and is immediately recognized as food by the newly born fry. I've seen guppy fry, goodeid fry, and seahorse fry begin feeding within a minute or two of birth.

Feeding

For the most part, livebearers are omnivores, eating whatever organic

matter presents itself, from insects and their larvae to crustaceans, aufwuchs, snails, small fish, and algae. In our aquaria, they will take any food offered—flakes, pellets, powders, gels, frozen, and live. It is a good idea to mix up the omnivore's diet from day to day. I feed them a basic diet of spirulina-based flakes and add live foods several times a week. Brooding females need more nutrition, so I make sure they get live foods every day, focusing on some high-protein foods like various types of worms. Some, like *Belonesox* and all of the seahorses and pipefish, are predators and require meaty foods. Many specimens will never adapt to non-living foods, while others will take them easily. If you want to keep these species, be prepared to feed them accordingly.

Give Them a Good Home

A livebearer aquarium doesn't have to be too complicated. Size the tank according to the size of the fish. Guppies and similarly sized fish can be kept in smaller systems, like 5- to 10-gallon (19- to 38-liter) tanks, while larger fish, such as mollies and swordtails, should have at least a 30-gallon (113-liter) tank or larger, with a 55- or 75-gallon (208- or 284-liter) being ideal. Really large fish like *Belonesox* and *Anableps* should have a 75-

Goodeidae: *Neotoca bilineata*

gallon or larger tank, with a footprint of 6 feet by 2 feet (180 by 60 cm) being ideal for Anableps.

Give them a good filter and maintain it regularly. Most livebearers like to be out in the light and need lots of open space for swimming and displaying. They like to have the bright light streaming into the water. In fact, in many species, the males look for brightly lit open areas for performing their displays. Plants around the edges and back simulate the natural areas in streams where many species make their homes. Many livebearers, especially the retail big four, make spectacular residents for community tanks. But many species do better by themselves, especially if you want to breed them—other fish species may consider newborn livebearers a delicacy.

Most livebearers can be maintained in single-species colonies with fish from newborn to mature adults all living together. Some fry will be consumed, but many will survive if the colony is well fed. An interesting thing happens in many livebearer colonies over time: Adult fish in a colony that formerly chased youngsters and considered them food will eventually come to ignore the smaller fish.

Water Parameters

Most folks believe all livebearers need warm, hard, alkaline water, but this isn't necessarily true. Many of the livebearers from northeastern South America need soft, acidic water. Some like it warm, but others can tolerate cooler water. Many of the goodeids and some of the *Xiphophorus* are mountain fish, preferring cooler water in the upper-60s and low-70s F (about 19° to 20°C), and the extreme southern *Jenynsia* are often found in water that ices over in the winter. So learn a bit about where your fish come from before making assumptions about their habitat.

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The Salt Myth

A final myth that I hope to dispel once and for all is that livebearers, for some reason, need salt in their tanks. I'm not sure where this started, but it has become ingrained (no pun intended) in hobby lore for decades. Many shops even keep little cups of rock salt in their livebearer tanks and say they "have to have it" to survive. This is nonsense. I've bred nearly 120 species of livebearers from all of the common families listed in this article, and none but the marine species required salt in their tank.

I even collected beautiful sailfin mollies in south Florida just a few weeks before writing this article. Mollies supposedly have to have salt in the water. Well, those beautiful mollies were in pure fresh water, and the ones I brought home are looking spectacular in pure fresh water. I have also collected them in southern Louisiana in both pure fresh water and pure marine environments. So it is important to know where your fish came from if you are keeping wild fish, but most of us will never keep wild fish. What many, but not all, livebearing species need is well-filtered, hard, alkaline water with a good amount of calcium in the water, but they do not need salt unless they were collected in salt water.

Livebearers are a fantastic group of fish that are just a bit out of the ordinary. They have interesting behaviors, and many sport fantastic colors. While some are easy to breed, others challenge even the most seasoned breeder. If you're looking for something totally different, look back to where the hobby began. You can't go wrong with livebearers.

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Photos: Mike Hellweg, Charley Grimes, Gary Lange & Chuck Bremer

Thursday & Friday Fish Room Tours

Transportation is provided. Tours begin and end at the Convention Venue.

Thursday Fish Room Tour:

Huge Corydoras Lab of Jerry Jost

A Pizza Party in this Fish Room is part of the tour.

This dedicated fish raising laboratory in an industrial setting is known for its large selection of Corys, over 100 tanks at the last count, most with their own species. Here you will see many types of Corydoras and their relatives, each in its own species habitat.

As a participant in the MASI BAP* program Jerry has 18 total families to his credit including 25 species of livebearers in 3 families. Recently he has specialized in Corydoras and of the species he spawned has submitted over 40 species to the BAP, over half of which are newly spawned species- many before they have received a valid species name.

This Cory Lab was visited by Ian Fuller on his most recent trip to the US.

Friday Fish Room Tours:

Master Breeder

See the fish room of a recent winner in the TFH Breeding Challenge, a major force in the aquarium hobby and one of the most species prolific breeders in the US. This fish room has produced spawns of over 400 species in the MASI BAP* program from 32 families totaling over 6500 BAP Points. Five of these families were Livebearers producing over 160 spawns from over 140 species, of which 82 were club 1st species spawns: Anablepid- 1 species, Goodeid- 32 species, Hemiramphid- 4 species, Poecilid- 98 species and 2 species of Sygnathid.

This fishroom is locally known for being always "under construction" with continual new improvements and housing both a hobby and a business element. It is always neat and clean and a portion sports white carpet floors!

Rainbow World Expert

This fishroom has been the source of over 125 species spawns totaling more than 1600 MASI BAP* points. Forty five of these have been species of Rainbows, including several new and undescribed species and one now bearing the fishroom owner's name. It has also been the source of 15 species of livebearers from 9 genera.

This fishroom has recently been redone to more efficiently house the many species of Rainbows and their relatives from the owner's very vigorous collecting schedule in South Asia. Nearly every tank is well planted and many now accommodate high efficiency LED lighting.

Large Scale Killi Enthusiast

This fishroom is known for its very high efficiency, including specially built racks with automatic water change system. It houses a maximum number of tanks in a minimum space with high energy and time efficiency incorporated. It specializes in a large Killifish collection from all over the world, including many show winners from recent regional killifish conventions.

Expect to pick up easily incorporated ideas of efficiency and maintaining well rounded food sources in a fish room that promotes breeding and maintenance of newly incorporated species. It has produced over 30 species from 10 families for the MASI BAP*.

Fancy Guppy Breeder

This Breeder and his fishroom is locally known for the award plaque lined walls of fish bred for the IFGA show circuit. The Breeder has been very active in the local Gateway Guppy Associates as well as MASI. Because he has specialized in selective breeding of one species at a time, the fish room is very efficiently laid out for breeding and individual selection and always has several strains under improvement. Species not currently being worked are relegated to multiple community tanks.

If you think you might want to pursue the exacting hobby of selectively breeding your own strains of a single livebearer species, such as the Guppy, Platy, Molly or Swordtail, this is a fish room has a lot to teach.

CARES Supporter

The MASI BAP* program gives extra points for the maintenance of species on the CARES list and conservation and preservation of fish species is the major emphasis of this fish room. The Breeder has bred over 180 species from 17 families and amassed over 4200 MASI BAP points. He has won CARES Breeder of the Year multiple times and specializes in both Cichlid and Livebearer CARES species. The livebearers are from two families totaling 23 species, ten of which are CARES species with annual spawns.

A visit to this fish room will be a new experience even for locals as it has also been recently moved, remodeled and updated.

A Barbecue ends this tour before evening activities.

*MASI BAP information
January 2016

ALA 2017

ALA Convention 2017 Featured Speakers

Les Wilson

I AM ONE OF the founding partners of Cobalt Aquatics , overseeing Marketing, Product Development, and Sourcing for Cobalt. Prior to founding Cobalt, I spent 17 years with United Pet Group aquatics then began my career with Marineland as an aquatic biologist, working in and then managing the aquatics lab. After eight years, I joined the marketing department as the product development manager and my final position there was the Director of Marketing for the Equipment and Consumables group, responsible for the Marineland, Tetra, Instant Ocean, and Jungle brands and private label projects in those categories. I personally spearheaded many of the projects you know today, including my favorites Marineland LED lighting, Bio-Spira Nitrifying bacteria, Corner flow tanks, and the Marineland Deep dimension aquariums. In May of 2011 I left UPG to start Cobalt International with the goal to get back to my roots as a fish geek and give back to the hobby the lessons I've learned.

Dr John Lyons

I HAVE BEEN INTERESTED in fish for over 50 years. As a child, I became an avid angler and fish keeper, avocations I continue to this day. I have been fortunate to be able to make a career of my passion for fishes. Originally from New York State, I received a B.S. in Biology from Union College in Schenectady, NY. In 1979, I moved to Wisconsin for graduate school and fell in love with the state and never left. I received my M.S. in 1981 and my Ph.D. in 1984, both in Zoology from the University of Wisconsin-Madison. Since 1985 I have been a Fisheries Research Scientist for the Wisconsin Department of Natural Resources, focusing on all aspects of fishes and their habitats in Wisconsin, and Adjunct Curator of Fishes for the University of Wisconsin Zoological Museum, focusing on conservation of the freshwater fishes of Mexico. My work in Mexico has encompassed nearly the entire country and most of the fish fauna, but has emphasized the family Goodeidae, a highly endangered group of livebearers found in the central highlands of the country. I am currently chair of the American Livebearers Association's North American Goodeid Working Group, which focuses on the conservation and captive maintenance of Goodeid fish.

Charley Grimes

I GOT MY FIRST fish tank when I was twelve or thirteen years old. It was a 12+ gallon tank that I made from an old gasoline pump cylinder. Shortly after 'cutting my teeth' on some Mollies and Zebra Danios, I added my first cichlids, two Angelfish, two Green Severums, and two Festivums. Within six months, my quarter sized Angelfish had body size a lot bigger than a silver dollar and erased any doubt that Angelfish are true cichlids——-they ate all of the Molly fry and then all of the Zebra Danios. I learned three things during my first year of fish keeping: 1) I really like keeping fish 2) By and large, it is cichlids nature to eat fish if given the opportunity By the way, I'm now 75 years old and I still like keeping fish. Except for my college years, I have always kept tropical fish, and, I have never been without cichlids, live bearers, and tetras. Our home has a 600 square foot fishroom that I added onto the existing house. I currently have over a hundred tanks operating in my fishroom(I've had more, a lot more(over 200) but that was just too much fish fun. For me, a hundred tanks is a good number; enough for both fun and projects, but not so many as to become burdensome. I have collected Native Fishes in all but five states east of the Mississippi, collected in Mexico and three different times in Brazil. I'm pretty sure this is bragging, but Sal asked for a biography—- I have had over 450 species and/or varieties of fish spawn in my fish rooms. Having fish spawn in my tanks is a big deal for me. Just about the only thing I like better than tropical fish is hanging around with aquarium fish people, which includes fish meetings, auctions, workshops, and conventions.

Rusty Wessel

I MAINTAIN OVER 8000 gallons of freshwater aquariums in a state of the art fish house constructed specifically for fish. The 90 plus aquariums predominantly contain cichlids and livebearers, which I successfully raise and breed. My specialty is Central American fishe and I have successfully collected fish from the countries of Africa, Belize, Costa Rica, Cuba, Guatemala, Honduras, Panama, Mexico and Uruguay, from 1983 to the present, for over 100 trips to this date. Considered by many to be the ultimate collector, I have introduced many new species of fish to the aquarium hobby. If it lives in the water, chances are that I have either caught it or been bit or stung by it. Dr. Robert Rush Miller, emeritus professor of the University of Michigan named a beautiful and elusive cichlid discovered during one of his expeditions to Honduras after me in the June 1996 edition of Tropical Fish Hobbyist magazine, *Theraps wesseli*. I am a prolific author and photographer, my writings or photographs have appeared in a

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wide distribution of specialized publications, like Aquarium Fish Magazine, Aquarist and Pondkeeper, Buntbarsche Bulletin, Cichlid News, Ad Konings' Cichlids yearbooks, Freshwater and Marine Aquarium and Tropical Fish Hobbyist. I am currently "Back Issue Sales Person" for the American Cichlid Association and a speaker participant for the ACA/Zoo Med Speaker's Program and past chair of the ACA board of trustees (1990) and past convention chair (1992). I am an active solicitor for the "Guy Jordan Endowment Fund" (A fund set up under the ACA to grant endowments for cichlid research). On the local level,I am currently treasurer for the Louisville Tropical Fish Fanciers. I have been awarded with the greatest honor the American Cichlid Association gives to its distinguished members, the ACA fellowship in 1997. I have lectured and judged numerous fish shows throughout the United States, including the annual "Florida Tropical Fish Farmers" show and several ACA conventions.

Mike Hellweg

I HAVE BEEN A hobbyist since the early 1970's. Livebearers have been and still are my favorite group of fishes, and I've kept and bred more species of Livebearers than any other group of fishes. Several of my larger tanks are devoted to long-term colonies of Wild Livebearers. I've been a member of the ALA since I found out about it in the early 1990s. Fancy Livebearers were the first fishes I submitted to my club's BAP, and I still work with them. Since then, I've also worked with and successfully spawned over 125 Livebearing species, including dozens of Poeciliids, most of the known Goodeids, several Halfbeaks, a couple of Jenynsia, and a couple of Syngnanthiids. I recently earned the ALA Century Breeder Award. I'm interested in long-term maintenance of several species, and have had some Livebearer colonies going for more than a decade. I've been active in the organized hobby for nearly three decades, speaking at club meetings all over the USA and Canada, serving on various boards for local and national organizations and committees including the ALA, and writing for many publications. I'm currently a Contributing Editor for the ALA bulletin and have had two books published by TFH Publications

Shelby Bush

MY PASSION FOR fish starts before even being born. Fish are one of the things that brought my parents together so to say that my life revolved around the fish tank would be accurate. Growing up in a small farming community in Michigan, there were little to no outlets for being a hobbyist and in the early 80's google was not an option. Sundays were reserved for going through the fish books as a family and making the long trek to the fish store to make the final purchase. All of the family was in involved with the care of the aquarium and discussions of maintaining good bacteria and fish behavior were simply normal discussions in the household. Fish were not just a passion, but a foundation that led me to where I am today. From keeping nano tanks, to 220 gallons, there are many fish that I have cared for in the past 30 years. I started my career at Preuss Pets in Lansing Michigan in 2002 as part of their Freshwater team. I spent 8 years as the Freshwater purchaser and created multiple presentations to teach to hobbyist in the Preuss Pets classroom. No stranger to shows, auctions and events I have frequented many of them throughout the past 14 years. One of the things that I really enjoyed was spending time with Antonio who was the Vet and breeder for all of the livebearers at Preuss Pets. With over 300 tanks in the breeding room there was always something new he was working on and willing to share his knowledge with me. He also taught me to use a microscope to diagnose fish diseases and what medications would work best when needed. I went on to attend the Fish Disease Seminar at the University of Florida Lab and now after 14 years at Preuss, was asked to join the team at Segrest farms in October of 2015. I am a hands on advocate for the industry and will be able to give you some insight on the journey a livebearer goes through to get from the source, to you.

James C. Alderson, DVM

I BECAME INTERESTED IN show guppies when I was 14 years old. I saved my money and purchased my first trio of show fish at this early and competed in the bowl shows in the local aquarium society. College and veterinary school did not leave much time for fish, but after graduation and settling in, I set up my first fish room in 1982 and have been showing guppies for thirty-two years. I am the leading all-time point winner and winner of Grand Male Overall in the IFGA. I have won Grand Male Overall 10 times and a 2 time past president of the IFGA, and have been an IFGA judge for thirty years. I have also raised discus, angelfish and goldfish and currently serve as Chairperson of the IFGA Judging Board. In my work life, I am a professor in the department of Animal & Veterinary Sciences at California State University in Pomona, as well as the University Veterinarian.

Gene Anderson

I HAVE BEEN A hobbyist raising fish since 1971. Started out with many different kinds narrowing my choice to the Swordtail. Later on to specifically Swordtails-fancy finnage. I am known for my large fish. I belong to a few fish clubs, joining the ALA in 1991. I haven't missed a convention since, enjoy the camaraderie and showing fish [I've won a few awards]. My fish room is small with 60 tanks ranging from 5 1/2 gallons to 120 gallons. I enjoy talking about fish, sharing information and learning new information. I have submitted an article to the Livebearer Bulletin and gave my first talk earlier this year 2016.

Get Fish!

ALA 2017 will include many hard to get species and ample opportunity to acquire them.

A major reason for attending an ALA Annual Convention is acquisition of new fish for the home tank or Fishroom!

A **Friday Night Box Sale** will kick off the offerings. Many convention attendees will be bringing a box of special fish to sell- First-Come-First-Served to buyers present! Many offerings will be limited availability and the prize fish or breeding product of the seller. Because of the earliness of the offering and the often scarcity or newness of the fish, these fish are not likely to be found at other places in the Convention.

Convention registration includes Box Sale entry. Anyone not registered for the Convention must pay a cover charge. See the Convention website for details: WWW.ALA2017.com.

The **Species Maintenance Program (SMP)** sponsored by the ALA and the Goodeid Working Group offers many hard to get and often endangered species at special auctions of the GWG and ALA Silent Auctions that run at various times during the Convention. The SMP is one of the best places to acquire fish that need someone's help to survive extinction and have little, if any, presence in the current hobby. These fish are indeed rare and in need of help. By participating you are provided the species to maintain and your name is recorded as a maintainer on the ALA SMP roles.

See the ALA website for more information on the ALA SMP. www.livebearers.org/

Gonopodium Galleria: For the Convention many attendees turn a hotel room into their own Fish Shop where they offer additional fish in a hotel room setting. Room Numbers of Gonopodium Galleria sellers will be posted at the Box Sale and on a special bulletin board to facilitate personal one-to-one sales the rest of the weekend.

Watch the Convention website or the ALA website members' pages for more details on offerings as they become available.

The **Saturday One Hour Special Fish Sale** will bring together special acquisitions by the Convention organizers of fish known to be in scarce supply and in demand in the Hobby in the US. This fish hour will include Wild type, Fancy types, Rare types, Half-beaks, Pikes and anything else we can find. These have been collected from special sources in the trade or are special imports of seldom imported fish. Fish are not normally not available at the Local Fish Shop (LFS) and of particular interest to livebearer enthusiasts. They may be hard to get and not often collected or seen species or rare or new color forms not in general distribution in the hobby - species or color forms most hobby aquarists would find especially difficult to find, even online. Many may be particular challenges to maintain or house so do not often enter the hobby except at a venue such as the ALA Annual Convention.

Because of the nature of the fish in this special sale, entry into the room is determined by the order of Convention Registration. Register for the Convention early to have the best selection remaining when entering the room. WWW.ALA2017.com

A **Huge Sunday Auction** traditionally wraps up the weekend! Although some lots will be common items that may already fill some fishrooms or home tanks there is a huge variety and anything can appear. Expect to see many previously rare fish that were obtained at the 2015 Convention and have now been reproduced in sufficient quantities to be redistributed within the hobby. There will be a large offering from clubs and individuals within driving distance who have not attended the rest of the convention or may have items remaining not previously purchased at the venue. Many of the fish entered into the ALA Convention Show and the concurrent IFGA Show will be taken from the respective show directly to the Auction. If you are an active or an aspiring breeder there may be the opportunity to acquire some show winners with different or improved breeding material and to strengthen your current populations by adding new fin or color variations. There will also be any remaining fish from the Box Sale, Special Fish Sale or the Gonopodium Galleria. Anything can, and often does, show up at this auction.

This Sunday Auction, in keeping with the theme of the Convention, is dedicated to Livebearing fish species and plants. Fish of non-livebearing species will be auctioned after livebearing species sales are complete. See the Auction Rules on WWW.ALA2017.com for other clarifications.

AMAZONAS

Featured Article
January 2014 Issue

VIVIPAROUS HALFBEAKS
of the family Zenarchopteridae

by Jan Huylebrouck • Halfbeaks have been known to science for almost 200 years. At least three of the five genera of the family *Zenarchopteridae*, which was only established in 2004, are characterized by giving birth to live young—vivipary or viviparity—that have developed as embryos in the body of the mother. Many of the Southeast Asian halfbeak species bear striking fin colors and show interesting behaviors. Still, viviparous freshwater halfbeaks have never achieved the popularity of other livebearers. Perhaps the time has come for that to change.

Ambush predators

The eponymous and most conspicuous feature of the halfbeaks is their extended mandible (lower jaw), although in some *Nomorhamphus* species it is barely longer than the upper jaw. In juvenile animals, the lower and upper jaws are initially about the same length. Among *Nomorhamphus* and *Hemirhamphodon* species, the extended mandible often has a downward-bent tip that is intensely colored in dominant males, suggesting a signaling function.

However, the extended mandible has another important function: it aids in food intake. There is a thin cutaneous rim on both sides. The fish swims sideways toward its victim, the movable upper jaw breaks the water surface, and the prey is shoveled by the lower jaw and the rims into the mouth. Skin folds between the upper and lower jaws increase the mouth opening, which leads to additional suction. Stomach analyses have shown that many halfbeaks consume flying prey, mainly terres-

The halfbeaks often have peculiarly shaped beaks, and sometimes the skittish animals damage them on the aquarium glass. Injuries like this one on *Hemirhamphodon phaiosoma* can result.

trial insects that have fallen onto the surface of the water.

Some scientists have posited that the long lower jaw is not really a jaw at all but a specialized chin. A 2009 online post from the Wainwright Lab at the University of California, Davis states, "One idea that has some support is that the long chin is part of a specialized sensory device. Montgomery & Saunders (1985) showed that there are a series of lateral line pores along the length of the lower jaw, with neuromasts in between these pores. They argued that this long structure, equipped with the lateral line pits, may function in prey detection." (See References, page 28.)

Halfbeaks are surface-oriented, with the exception of members of the genus *Nomorhamphus*, which are also found in other water regions. The sensory cells of the eyes are optimized for seeing upward and to the side. On the top of the head are the nasal barbels that represent the olfactory organ, atypically external for a bony fish. With their help, the olfactory cells are constantly exposed to water, even when the fish is standing still and waiting for prey. The hydrodynamic pike shape betrays that halfbeaks are mainly ambush predators that gain speed with the help of their tails and anal and dorsal fins.

Posthumous description

In 1823, *Dermogenys pusilla* was the first viviparous halfbeak species and genus described by the young researchers Heinrich Kuhl and Johan van Hasselt in a letter that was sent to C.J. Temminck, the director of the Dutch Natural History Museum in Leiden. In 1820, Kuhl and van Hasselt were commissioned by the Dutch government to explore the wildlife of Java, then part of the former colony of the Dutch East Indies. They started their collection activities in Bogor, Java, where they found *D. pusilla* in the ponds of the local botanical garden. Even today, you can catch this species there.

In September 1821, Kuhl died a few days before his 24th birthday as a result of liver inflammation. Van Hasselt continued the work but followed his friend to the grave only two years later. Nevertheless, these men are regarded as the first describers, as the species was discovered and described during their lifetime. Last year, as part of a project sponsored by the Society for Ichthyology, I had the opportunity to study the conserved specimens of the genus *Nomorhamphus* in the ichthyological collection of the Zoological Museum in Bogor. I also visited the Dutch cemetery where Kuhl and van Hasselt are buried, which is hidden in a bamboo grove in the botanical garden.

Males with a trident

Hemirhamphodon phaisoma

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At least three genera, namely *Hemirhamphodon*, *Dermogenys*, and *Nomorhamphus*, are viviparous. However, it must be mentioned that *Hemirhamphodon tengah* is the only representative of its genus that deposits internally fertilized eggs. The reproductive biology of the genus *Tondanichthys* is completely unknown. *Tondanichthys kottelati* is known only from museum material consisting of young and probably immature animals used for the description in 1995. The reproductive biology of the genus *Zenarchopterus* is somewhat unclear, but we do know that the eggs are fertilized internally.

The males of the *Hemirhamphodon* species are unique in that they are larger than the females. They have the same modified anal fin found in males of the other two viviparous genera. In *Nomorhamphus* and *Dermogenys*, the andropodium is formed from the first five to seven rays of the anal fin. In *Hemirhamphodon*, the andropodium usually consists of rays five through eight; the fifth and seventh or eighth rays are usually thickened and extended.

Dermogenys sumatrana Female

In *Dermogenys* and *Nomorhamphus*, the andropodium is modified further. The second ray is especially remarkable. At its end there is a structure called the tridens flexibilis (flexible trident), which is important for the taxonomy and species identification because it looks different in almost every species. Despite detailed knowledge of the morphology of the reproductive organs, we know next to nothing about their function. The mating of *Nomorhamphus* lasts only 1/25 of a second. It is assumed that the sperm packets are passed through a membranous groove between the second and fourth rays of the anal fin to the tridens flexibilis, and from there into the female genital opening.

Dermogenys sumatrana Male

It is not clear whether or not the andropodium is inserted into the female genital opening; it seems unlikely because an axial rotation of the andropodium would be necessary, and that has never been observed. However, it could be that lateral huddling of sexual partners that rotate around their own axis make this possible. Such observations have been made but poorly documented. It is

Zenarhopterus dispar

speculated by some that the andropodium is actually used as a clasping organ during mating. The courtship of *Dermogenys* and *Nomorhamphus* is striking in that the males "nip" with their mouths near the female's genital opening. Presumably, this is to sense female hormones and ascertain whether the female is ready to mate.

The anal fins of the male *Zenarchopterus* are modified, but the modified rays vary from species to species. In at least some members of this genus, the extended dorsal fin in combination with the anal fin serves as a kind of clip during mating to immobilize the female laterally.

Types of vivipary

The female reproductive biology of the sister genera *Dermogenys* and *Nomorhamphus* was studied in more detail by Meisner and Burns (1997). Five different types of vivipary were found. Types I and II are characterized by an intrafollicular gestation. The embryos thus develop mainly in the follicles and reside only a short time in the ovary, to be born with the next ovulation.

Embryos of type I lose mass during their development, suggesting that they are lecithotrophic (feeding only on existing yolk). In contrast, embryos of type II gain mass during development, due to the provision of nutrients by the mother (matrotrophy). In addition, type II differs from type I by viviparous superfetation, in which several broods can be fertilized in succession because the female stores sperm. As a result, up to three

Mating of *Hemirhamphodon tengah*. This species lays internally fertilized eggs instead of giving birth to live young, as other *Hemirhamphodon* species do.

broods can develop simultaneously in the ovary. The different stages of development can be easily recognized. Types I and II occur in *Nomorhamphus vivipara*, a species endemic to the Philippines, and among *Dermogenys*.

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Types III to V are characterized by intraluminal gestation. In this form of viviparity the embryos stay for only a short time in the ovarian follicles before migrating to the ovarian lumen, where they develop. Embryos of type III exhibit superfetation and matrotrophy and are typical for *Nomorhamphus* species endemic to the Philippines. Type IV, however, shows no superfetation. Here the embryo is supplied by the mother, but in a different way. While the embryos of type III are supplied with nutrients through highly modified structures in the ovary and embryo, these modifications are absent in type IV. Perhaps they absorb the nutrients from ovarian fluids.

It gets really exciting with the gestation of type V, demonstrated by *Nomorhamphus ebrardtii*. This halfbeak is quite widespread in the mountain streams of Sulawesi and is often the only species of this genus encountered in the German aquarium trade. In this species the embryos are also supplied with essential nutrients, but this happens in a more spectacular fashion. The embryos feed on eggs (oophagy) and smaller siblings (adelphophagy). Adelphophagy is not unique among halfbeaks; it is well documented in some species of sharks.

Few aquarium observations

It appears that superfetation in *Dermogenys* and *Nomorhamphus* occurs only in species in which the embryos are supplied with nutrients and gain weight. In addition, matrotrophic species produce more numerous but smaller offspring than lecithotrophic species. Unfortunately, it is currently not known exactly how long the females are pregnant, how many pups they carry, or how big the animals are at birth, because long-term observations are scarce at the moment.

The few observations on this subject mentioned in the aquarium literature were collected by Greven (2006). According to him, the number of fry produced by *Dermogenys pusilla* varies from 9 to 165, but numbers of over 100 are exceptional; most females drop a maximum of 40 babies at once. *Nomorhamphus* females bear far fewer; usually there are no more than 12 to 16.

Meisner and Burns (1997) have counted pups during their study on viviparity. They counted up to 20 embryos in females with type I vivipary, up to 36 in type II, and up to 10 animals in types III and IV (there was no data for type V). In *Hemirhamphodon*, the numbers are still largely unknown.

Generally, a swollen female genital region is a sign of impending birth in viviparous halfbeaks. The babies are born head or tail first, usually in the protection of aquatic plants or other cover.

Viviparous halfbeaks are very interesting and attractive aquarium inhabitants. As mentioned earlier, we are still in the dark about some reproductive details, which is why I would like to appeal to all aquarists and ask them to accurately observe their halfbeaks and publish their results for the benefit of all.

Taxonomy of the halfbeaks

The family *Zenarchopteridae* currently includes about 55 species from five genera: *Dermogenys*, *Hemirhamphodon*, *Nomorhamphus*, *Tondanichthys*, and *Zenarchopterus*. In contrast to the other genera, the representatives of the genus *Zenarchopterus* occur not only in brackish and fresh water but also in marine habitats. Their range extends from East Africa to Southeast Asia and Samoa to southern Japan; hence, they have the widest distribution among the zenarchopterids. The little-known genus *Tondanich-*

thys, with a single species, is known only from Lake Tondano on the Indonesian island of Sulawesi. The species of the genus *Hemirhamphodon* differ from the other species in that they also bear teeth on the extended part of the lower jaw. *Hemirhamphodon* colonize small and moderately fast-flowing, soft and humic freshwater streams and rivers in the forested lowlands of southern Thailand, Malaysia, Sumatra, Borneo, and Java, which are rich in rainfall. *Dermogenys* is common in fresh and brackish waters throughout Southeast Asia. The species of this genus occur in Myanmar, Bangladesh, Vietnam, Cambodia, Thailand, India, Malaysia, Sumatra, Borneo, Java, Brunei, the Philippines, and Sulawesi. *Dermogenys pusilla* in particular seems to have become a synanthrope (a species that lives near and benefits from an association with humans) and is found in ponds and rice fields, but also occurs in mountain streams and coastal regions. *Nomorhamphus* is dependent on fresh water and occurs mainly in the mountain streams of Sulawesi and the Philippines. At least two species are also found in the great lakes of Sulawesi.

The family *Zenarchopteridae* (viviparous halfbeaks) belongs to the order *Beloniformes*, which is a sister order of the viviparous livebearers (*Cyprinodontiformes*) in the superorder *Atherinomorpha*. Until 2004, *Zenarchopteridae* only had the status of a subfamily (*Zenarchopterinae*) of the family *Hemiramphidae* (halfbeaks). However, detailed morphological and genetic analyses by Lovejoy et al. (2004) showed that the viviparous halfbeaks are more closely related to the sauries (*Scomberesocidae*) and needlefishes (*Belonidae*) than to the halfbeaks of the family *Hemiramphidae*. These, in turn, are closely related to the flying fishes (*Exocoetidae*).

A very recent study of Southeast Asian Zenarchopterids (de Bruyn et al., 2013) suggests that the species of the genus Dermogenys endemic to Sulawesi are more closely related to *Nomorhamphus* than to the other *Dermogenys* species. This suggests that the genus *Dermogenys* constitutes an artificial group of fishes that is not monophyletic and requires a revision. However, further studies are needed to solve this problem permanently.

Acknowledgments:

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Complete online references for this article: http://www.reef2rainforest. com/references-viviparous-halfbeaks-of-the-family-zenarchopteridae/

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Halfbeaks in the Aquarium

Most species of the genera Dermogenys, Nomorhamphus, and Hemirhamphodon are easily maintained the aquarium. Because they prefer to swim near the surface, they mix well with other peaceful fishes that have approximately the same demands in terms of water quality but populate other levels of the aquarium. A few floating plants, a good filtration system with current, and regular water changes are basic requirements to maintain these fishes under appropriate conditions. The recommended water temperature depends on the particular area of origin.

Tank size: The size of the aquarium depends on the adult size of the species. The larger Nomorhamphus need a 36-48-inch (90-120 cm) tank, larger if it is a territorial species. The smaller Dermogenys and Hemirhamphodon can be kept in 24-inch (60-cm) aquariums. Some species, especially if wild-caught, are initially quite shy and bolt immediately. Floating plants provide them with the appropriate cover. Without it, the animals can injure their sensitive beaks on the glass walls.

Feeding: Halfbeaks are ambush predators that swim all day just under the surface and try to swallow everything that falls on it. Flake food and small granules are readily accepted. If you want to feed your animals really well, offer them cultured fruit flies (Drosophila) or collect meadow insects in the summer. Halfbeaks that have been fed with insects have larger broods and look healthier. The size and texture of foods can be important: Nomorhamphus tends to grab large pieces of food, such as hard food tablets, and this often causes the upper jaw to break. It then stands straight up and stays that way. If feeding dry pellets, be sure they are small in size or pre-soaked to soften them.

Breeding: If you want to raise numerous juveniles, capture the pregnant females with a large net coming from below and place them into a small aquarium prepared with dense floating vegetation. There the females can carry the fry and drop the young fish in peace. The mothers have an inhibition threshold and do not initially harm the fry. These inhibitions soon disappear, so the females should be returned to the parental tank. If it is an aggressive species, they should be placed in another aquarium for recovery. A later return to the group is not a problem.

—Hans-Georg Evers

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Fancy Swordtails—not for beginners!

Koi Swordtails

by Tobias Bernsee • When AMAZONAS editor Hans-Georg Evers asked me to help him put together swordtail stories for this issue, I was a little reluctant at first. How to go about it? Basic portraits of the species are easy to find; another such piece would be superfluous and not especially useful. The "Platy Issue" of AMAZONAS (German edition no. 16, 2008) covered the basics of *Xiphophorus* genetics comprehensively, and going over that information for swordtails would be redundant. Maybe all this predictable, basic knowledge, repeated over and over again by numerous authors, is one of the reasons *Xiphophorus hellerii* is considered by many aquarists to be a simple beginner's fish.

IN ORDER NOT to beat the issue to death, I will not list husbandry requirements or regurgitate data on the history of these fishes. Instead, the reader is advised to study the literature and read the other stories in this issue.

In the trade and for commercial fish farmers, breeding forms of swordtails can be lucrative, and many aquarists assume that large-scale specialized hobby breeders are continually creating new breeding forms and showing them at exhibitions. That is not the case! This scene is, to put it mildly, very limited. In swordtail breeding, not much new has happened since the middle of the last century, apart from a few developments reported on by Rainer Schultz in this issue.

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Genetics

Basically, the inheritance and the abundance of color traits among the cultivated *Xiphophorus* forms, whether *X. maculatus, X. variatus*, or *X. hellerii*, differ only marginally.

In a biological sense, the cultivated forms of the *Xiphophorus* group are not real species. Each is an interspecific hybrid that is similar in phenotype to one of the ancestral species due to backcrossing. The individual color characteristics and traits of certain wild types were "extracted" and then "collected" over time in these hybrids.


Pineapple


Green Swordtail


Blood Red Eye


Wagtail with Black tail

water pollution in a breeding tank for swordtails is significant.

Swordtails will not tolerate contaminated water. Like trout, these fishes prefer to inhabit fresh, unpolluted, flowing water with high oxygen content. Therefore, swordtail tanks require good filtration and regular water changes.

Xiphophorus forms with a high genetic share of "*hellerii*" also exceed the size of a platy. Most of the traded forms reach the trade as adolescents, but can reach 5–6 inches (13–15 cm), not counting the sword. A standard 15-gallon (54-L) tank is fine for a single large female and her babies, but for permanent care the aquarium should be at least 40 inches (100 cm) long. During courtship, swordtail males sway back and forth in front of the females, then chase them swiftly, cut them off, and try to direct them into a suitable position for mating. This impressive behavior can only be observed in a large display tank.

Furthermore, adult males tolerate no rivals in the immediate vicinity. In the aquarium, this often has fatal consequences. Like cichlids, swordtails will chase a subdued male into a corner, where he leads a wretched and short life. Keeping one male with multiple females, or keeping many males, as is common in so many cichlid tanks, helps to distribute the aggression and make life bearable for the individual animals. That is only possible in a tank bigger than the usual beginner aquarium. In my opinion, these are the main reasons why few serious aquarists are keeping swordtails. Aquarists who can provide the appropriate environment for swordtails discover the amazing beauty and complexity of these fishes.

In this regard, however, swordtails are of great interest to scientists. Various pigment cells lacking specific suppressor genes form cancer cells in these hybrids. For research on these cancer-suppressing factors, great numbers of swordtails are grown in scientific institutes in large breeding systems similar to high-tech commercial hatcheries, and their usefulness rivals that of Zebra Danios.

Easy to care for?

We can only surmise where the many swordtails that are sold every month by the retail trade end up, but the reason that the number of dedicated home breeders remains so small can be summed up as follows: swordtails need lots of food and 100 percent weekly water changes, require a lot of space due to their body size, and have a latent tendency toward aggressiveness.

Young swordtails target aquatic microorganisms in nature, but as they grow larger they feed more and more on aufwuchs (periphyton algal turfs) in their habitats. Thus, in addition to protein-rich microorganisms, they take up fiber-rich algae and detritus. Like most other grazers, they feed all day long and dispose of waste accordingly, so if they are being fed properly, the resulting


Simpson Hi-Fin Swordtails

Breeding standards

To start with swordtails, obtain males that are as large as possible, but not yet fully mature (juvenile late males), or contact breeders in specialty

groups, such as the American Livebearers Association. Choose late males; if you do not, the number of smaller primary males in the offspring increases. This is a disadvantage because in livebearer shows, size similarity of the sexes is preferred. That includes the body markings as well as the fin shape and body size. Larger animals get more points than smaller fishes, as do special fin forms and two or more color patterns.

Currently, swordtails are judged by various international livebearer organizations. These groups can certainly provide detailed information regarding exhibition and show standards, along with dates and locations of local and national competitions.

When I review what I have written here, I come to the following conclusion: it takes much more to deal with the breeding of swordtails than most people appreciate. Perhaps only fanatics are ready to devote a tank over 3 feet long (at least 1 m), as well as additional breeding tanks, to a strain of humble livebearers that are colorful but latently aggressive. Even if most of us would choose to breed cichlids or other, sexier fishes, serious swordtail enthusiasts deserve our admiration and respect.

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Female swordtail, color but no sword

AMERICAN LIVEBEARERS CONVENTION SHOW CLASSES

Featured Fish

1. Guppy – Male, Solid Color Tail, Delta Tail
2. Guppy – Male, Variegated Color Tail, Delta Tail
3. Guppy – Male, Other Tail Types
4. Guppy – Female
5. Mollies – Domestic Varieties and Hybrids
6. Mollies – Natural Species (Poecilia genus)
7. Swordtails – Domestic, Common Finnage
8. Swordtails – Domestic, Fancy Finnage
9. Swordtails – Wild type
10. Variatus & Platies – Domestic:Common Finnage
11. Variatus & Platies – Domestic: Fancy Finnage
12. Platies – Wild type
13. Limias
14. All other Poeciliid species
15. Goodeids – Torpedo Body Shape
16. Goodeids – Deep Body Shape
17. All Other Live-bearers
18. Pairs Class – male & female of the same species
19. Family Class: parents +10 or more fry under 3 months old
20. Livebearer photography

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