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Featured Article

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10 Livebearers for Your Wish List (FULL)

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With the 2015 American Livebearer Association (ALA) Convention upon us on May 1, I am looking forward to embracing old friends, meeting new ones, and of course, seeing and hopefully purchasing some great homegrown livebearers!

Livebearing fish have been the backbone of the tropical fish hobby since its beginnings at the turn of the 20th century. They are the No. 1 selling fish coming out of Florida fish farms, but most hobbyists are familiar only with the cultivated (domestic/fancy) forms of the “big four” livebearers: guppies, platies, mollies, and swordtails. And these fish are all hybrids of either various species (mollies, swordtails/platies) or geographic forms (guppies, including Endler’s). This just scratches the surface!

There are well over 300 species of livebearers across about 70 genera of freshwater fish. Indeed, there are actually many more livebearers if you account for all the geographic populations and cultivated varieties. I estimate about 1000 species and distinct populations currently available around the world in the tanks of specialists, public aquariums, and stock centers and more to be discovered and scientifically described!

Overlooked Fish

Most hobbyists start their breeding practices with livebearing fish and then move on to so-called “more challenging” charges, such as killies, cichlids, or catfish. This is a mistake, because many livebearers display a fascinating social structure and courtship that is appreciated only when maintained long-term over successive generations. In this article, we will focus on 10 livebearers whose behavior or visual appeal warrants a second look or offers a challenge to the breeder. All make for solid entries in a hobbyist’s “bucket list” of fish to keep sometime in their hobby life.

Most of our available livebearers come from the order Cyprinodontiformes, which include the killifish. Livebearers here include the families Poeciliidae, Anablepidae, and Goodeidae. Another order, the Beloniformes, contain the family Zenarchopteridae, also known as the halfbeaks. Let's find 10 fish from these four families for your wish list.

Family Poeciliidae

Poeciliids are one of the most successful families of freshwater fishes on the planet and the ones you will encounter at every pet shop. Years of selective breeding have made them colorful staples of the hobby and show circuit. Poeciliids are made up of about 350 species across 35 genera, distributed from Argentina to the Carolinas. While native to only the Western Hemisphere, they can now be found in waters the world over due to unintentional introductions (fish farms, hobbyists) or intentional ones (mosquito control). This is always to the detriment of native species and their ecosystems.

Livebearing poeciliids are evolutionary marvels that can quickly inhabit a new biotope (including saline waters). This is due primarily to an efficient and highly evolved reproductive system. The anal fin of males form a gonopodium modified with bony hooks, clasps, and/or suction flaps for securing to the female's vent. This allows sperm to be delivered directly into the female's egg cavity as "packets"—often without the female's participation. Protection of eggs from predators is thus secured.

Equally remarkable is the female poeciliid's uncanny ability to store these sperm packets for self-fertilization over many months. Many first-time hobbyists are surprised when they discover baby fish in their aquarium where only a single female fish has resided. Here are some must-try members of the family:

1) HETERANDRIA FORMOSA

Hailing from the Gulf Coast and stretching to North Carolina, this native American livebearer is one of the smallest fish in the world. Males are under an inch (2.5 cm) but with a spotted, reddish dorsal in its native form. Females reach a bit over an inch (2.5 cm).

These are perfect fish for an unheated nano tank or summer tub pond and are extremely hardy. They compensate for their tiny size by using a fascinating assembly-line form of reproduction called "superfoetation," with up to six fry born every one to four days. Enjoy a colony of these critters in a tank where you can easily get up close at eye level to fully appreciate their beauty and behavior.

2) BELONESOX BELIZANUS

On the other side of the spectrum is a fairly large poeciliid known as the pike livebearer. This 7-inch- (18-cm-) long fish is not only related to guppies but actually enjoys eating guppies. It is an ambush predator, hiding among plants, rocks, or tank ornaments waiting for prey to swim in its path. *Belonesox belizanus* require a single-species tank at a minimum of 30 inches (75 cm) long and with temperatures between 76° to 85°F (24° to 30°C).

For *B. belizanus* to thrive, feeder or baby fish need to be the staple of their diet, or cannibalization of the colony could ensue. Live blackworms can be supplemented. Males have a very long gonopodium and perform sneak matings to avoid becoming lunch. Fry (which should be removed from the tank) can be fed live baby brine shrimp followed a week or two later by fish fry. The pike livebearer is a challenging high-maintenance charge but is worth a try at least once.

3) THE FANCY GUPPY, POECILIA RETICULATA

While originally native to northern South America and surrounding islands, the fancy guppy of today is a truly domesticated fish resulting from nearly 100 years of selective breeding. Popular today are the population from Cumaná known collectively as Endler's guppy, named after the collector, Dr. John Endler, who introduced them to the hobby in the 1970s.

Every hobbyist should try his or her hand at fancy guppy development at least once. You can either try to perfect an existing strain or make your own cross and see what you get. One of my favorites is to cross a double sword guppy with a delta tail. The resulting offspring often display hybrid vigor with large-bodied and large-finned fish. Pet-shop strains are hardier, but you will have to wait until a female is "cleaned out" of sperm packets to ensure that your selected male will contribute his genes to your cross. An alternative to this, as well as a way to acquire some really great color and finnage strains, is to purchase fish from dedicated guppy breeders either online or through a local guppy club affiliate of the International Fancy Guppy Association or International Guppy Education and Exhibition Society. Who knows—you might develop the beginnings of a new strain or a show-winning fish!

4) **XIPHOPHORUS MONTEZUMAE**

Many veteran hobbyists bemoan the swordtails currently available in the hobby, with swords that are small and stubby compared with decades past. Not so with the Montezuma swordtail! This species in the Northern Mountain clade of swordtails and platies sports finnage that is the stuff of legend. In the 1990s when they entered the show circuit via St. Louis hobbyist Gary Lange and New York City's Joe Ferdenzi, they routinely won Best of Show, beating out larger cichlids, which was unheard of at the time. Full-grown alpha males in a colony can sport a sword three times their body length, for a total fish length of 10 inches! In addition, they have a large rounded dorsal characteristic of their species clade, which they display.

The drawback of Montezuma swordtails, and why they are not found in shops often, is that males can take one to two years just to develop swords, confusing hobbyists who think they have a tankful of females. This is due to a fascinating social-linked maturation trait called the "Leap Fish Phenomenon." Discovered by R. L. Borowsky in the early 1970s, the trait involves male livebearers literally "stealth" themselves as females to avoid being bullied or killed by the present alpha male or a similarly sized male.

I have observed young males even taking on the gravid spot and full abdomen of a female to survive. When the alpha male emerges, it generally cannot tolerate other males in its tank. The growth rate of the other fish now slows, until one gets large enough to challenge the alpha male. The transformation to a male occurs rapidly. I have found that separating the two largest fish in a colony, or using a larger tank (at least 55 gallons [208 liters]), can help accelerate this process. Patience is key with Montezuma swordtails, but the result is well worth it. A trio can be housed in a 20-gallon (75-liter) tank.

5) **THE SAILFIN MOLLY, POECILIA FANCY HYBRIDS OR SPECIES**

The sailfin molly is arguably the most stunning freshwater fish you've probably never seen. This is one of those "wow" fish that makes your jaw drop and heart race. Imagine a giant sailfin dorsal fin standing erect by a male fluttering and circling around a female, his colors intensifying as his scales protrude ever so slightly. And he does this continually throughout the day. The females flutter when they're interested, and cultivated females are almost as colorful as the males. Mating is a more cooperative effort.

Sadly, in pet shops, fancy mollies are nearly always lethargic, clamped, fungused, overcrowded, or displaying the "shimmy dance" of which they are infamous. The reason hobbyists and shops have problems with them is three-fold: osmotic shock due to the quick transition from salted farm water to municipal pet-shop water; ammonia buildup that has occurred during shipping, to which inbred mollies are very susceptible; and crowded suboptimal tank conditions.

It need not be this way. When kept in trios or double pairs in uncrowded tanks of at least 30 inches (76 cm) in length, with regular water changes, aeration, temps near 80°F (27°C), and live plants for extra filtration,

sailfin mollies do quite splendidly and put on a great show. In this respect, they are the discus of livebearers in terms of maintenance. Wild-type species are much more adaptable and hardy, however, and can take lower temperatures near 70°F (21°C).

Sailfin mollies need calcium-hard alkaline water. I like adding a few pieces of limestone or crushed coral in their tanks, instead of the traditional “salt” approach, which is not tolerated by live plants.

Family Goodeidae

The livebearing goodeids are an endangered group of about 40 species native to Mexico’s central highland plateau, in and around the Rio Lerma Basin. They are an old fish family, with fossil records going back about 25 million years. Goodeids probably evolved from a *Profundulus*-like killifish ancestor. They were generally unknown to the hobby and to science until the late 1960s, when ALA fellow James K. Langhammern of the Belle Isle Aquarium began distributing several species after obtaining transfers from the collection of Robert Rush Miller, who was describing the family for science and foresaw the environmental peril in Mexico.

Male goodeids do not sport a gonopodium like poeciliids do. Instead, the flexible part of their front anal fin, called an andropodium, is separated by a notch where sperm transfer occurs. Mating takes longer, and cooperation from the female is required. This single characteristic leads to an interesting mix of social behavior for us to observe in the home aquarium.

Female goodeids also cannot store sperm like poeciliids do. A new mating is needed for every pregnancy, which lasts about twice as long (60 days), with fry born in smaller numbers. They also do not acclimate to new water conditions as easily. This compounds the environmental degradation that led to most of the family becoming endangered or extinct in the past 40 years. In response, the Goodeid Working Group was formed to establish conservation sites and hobbyist networks in countries around the world. The group will meet and present at the 2015 ALA Convention.

Goodeids are ideal candidates for a long-term dedicated-species maintenance tank. They are truly viviparous in their reproduction, nourishing their young with umbilical cord-like structures called “trophotaniae,” leading to very large fry. Witnessing the live birth of a goodeid is something every hobbyist should make an effort to behold at least once in his or her life.

With few exceptions, goodeids are best considered cool-water tropicals. Most are healthier when kept at temperatures that fluctuate seasonally from 60° to 70°F (15° to 21°C) in the winter and 70° to 80°F (21° to 27°C) in the summer. Unheated aquariums, tanks at the lower rack in a fishroom, and summer water gardens are good vessels. Calcium hard, alkaline water is preferred by most.

6) XENOTOCA EISENI

The red-tailed goodeid is a good member to start with, as it is domesticated and hardy and exhibits scrappy behavior in a small package (2 to 3 inches [5 to 7.5 cm]). A young pair and fry can even be maintained in a 5-gallon (19-liter) tank, as they breed at a small size, but larger is better for watching the social structure emerge. Different color-morph populations (and possibly species) exist, but most male specimens have a unique bluish band in the back half of the body, adjacent to their red tail. Different color morphs exist, both in nature (e.g., “San Marcos”) and through years of selective breeding. It is important to keep these unique morphs separate, especially with natural forms.

7) Characodon lateralis “Los Berros”

This fish is known as the rainbow goodeid for good reason. Males display sparkles of blue, yellow, green, and brown against a swatch of red. The mating ritual is interesting, and the parents rarely touch their fry,

which are particularly large by goodeid standards. Provide plenty of cover, as males can be aggressive toward each other (and outnumber females in a brood), and be sure to acclimate them slowly. The rainbow goodeid makes a great show fish for a wild livebearer class. Only about 2 inches (5 cm) in size, they can be maintained in a standard 10-gallon (38-liter) tank and up.

8) *SKIFFIA MULTIPUNCTATA*

This endangered goodeid is variable across its geography. My favorite is the spotted population on a gold body. A piebald population is also popular. The male's flanks can form large black/brown blotches when in breeding condition.

Skiffia multipunctata reach only about 2 inches (5 cm) in length but are stocky. They can form a large colony in even a 10-gallon (38-liter) tank, with mature males sporting a large split dorsal fin. Hardy and peaceful to other fish, the males may nip each other as they compete for females.

Family Anablepidae

These lovable but challenging oddballs contain two livebearer genera and are the smallest of the four families, spread out from Central to South America. What makes the family unique is that the male gonopodium and the female reproductive vent can be on either the left or the right side of the fish, so mating can be difficult if not well-paired. Purchasing a group is recommended.

9) *ANABLEPS DOWEI*

One of the famed four-eyed fish, these elongated surface swimmers have a split field of vision. The upper half of the eye is convex (like that of people) and is held above the water looking for insect prey. The lower half is rounded like that of other fish, scanning below the surface.

All Anableps are primarily brackish-water animals, and a specialized setup is advised. Create brackish conditions using a 50-50 mix of fresh and synthetic seawater, for a specific gravity of about 1.012. Floating plastic plants or ornaments, or better, platforms that reach just below the surface, will provide basking areas out of the water (necessary for developing fry). A well-covered tank is needed to keep the air moist, reduce heat dissipation (75° to 82°F [24° to 28°C]), and hold back these incredible jumpers. Depth is not as important.

Stillbirths are not uncommon in stressed females. Feeding krill appears to aid in their well-being, and flakes are accepted too. Full-grown females can reach a foot in length, but they will breed and are always available at much smaller sizes. Still, a 3- to 4-foot (91- to 122-cm) tank of 30 to 55 gallons (110 to 210 liters) would be preferred.

Like goodeids, *Anableps dowei* are truly viviparous, with amazingly large fry (there are some good YouTube videos out there showing the birthing). This species has been observed displaying group "midwife" behavior, with members of the colony helping to "push" the baby fish out of the birthing mother. Males have been known to spar by locking their gonopodiums.

The Halfbeaks

This varied family of at least 110 species includes both livebearing and egg-laying fish found in soft fresh, brackish, and marine waters. Their common name comes from their longer and elaborate lower jaw. Three livebearing genera have been kept by hobbyists: *Dermogenys*, *Hemirhamphodon*, and *Nomorhamphus*.

Male halfbeaks possess a well-formed andropodium, which means courtship and female cooperation is necessary for mating. Fry are born large after a one- to two-month gestation period, and a birth is worth witnessing. The aquarium can be shallow with a tight cover, as they are surface dwellers. Being carnivorous fish, the fry should be separated from their parents immediately.

10) DERMOGENYS PUSILLA

Known as the wrestling halfbeak, this small (3-inch [7.5-cm]) domesticated fish may be a blend of various species (like angelfish, swordtails, and mollies). In its native Southeast Asia, many populations or subspecies exist that vary by color and water requirements. The aquarium strain is very adaptable.

Males fight by “lip locking,” but the real danger comes from skittish fish running into the tank glass and damaging their “beaks.” A few pieces of floating hornwort or other live or plastic plant calms the fish, where it forms mini-territories, sometimes in pairs. They are peaceful to other fish, and bottom-dwellers like Corydoras catfish make good companions and cleanup crew. Use a tank at least 24 inches (61 cm) in length. The preferred diet is carnivorous, and fruit flies are relished. But it will eat a variety of floating foods.