

## The Best Aquarium Conditions for Successful Swordtail Breeding

### Tips on breeding *Xiphophorus helleri*, also known as the swordtail fish.

By Al Castro

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One interesting feature of the swordtail is the apparent ability of the female to change sex and become a male. Photo credit: Al Castro

Q. I am 11 years old and have been maintaining a 10-gallon aquarium for about four to five months, and have become very interested in keeping fish. For awhile now I have been thinking about breeding fish and have chosen a fish called a swordtail. I am fascinated with this fish. I have two of them right now. Could you give me some tips on breeding these freshwater fish?

Q. I would like to learn more about the breeding of swordtails. I have a 10-gallon aquarium and have one male and two female swords. One morning I woke up and there were about 10 baby fish in my aquarium. Other fish were eating them, so I took them out and put them into another small aquarium. Five survived. The problem is that I don't know what to feed them. I've been feeding them very crunched up flakes, and they are okay, but I want to know what I should be feeding them and where I should keep them. When can I expect more babies? I'm only 12, so any information will be appreciated.

A. These two letters present an extremely common scenario. Young aquarists (and a few more mature aquarists) enter the hobby by purchasing an aquarium and the associated pieces of special equipment that are intended to make the aquarium a "perfect" home for their new charges, but never give a thought to acquiring instructional materials (books) on the basics of caring for and breeding the so-called beginner's fish they have purchased. This is generally the fault of the sales personnel, but the new hobbyist is also partly to blame. Unlike buying a VCR or a household appliance, which always come with instruction manuals, fish — which will die without proper care — are not automatically sold with written information about their care and feeding.

There are a number of inexpensive beginner's books, such as the Fishkeeper's Guide To . . . series published by Tetra Press and the series of books from Barron's, that will provide a solid background to help the new hobbyist with setting up the proper conditions to maintain a variety of fishes. The small investment in a book will repay the aquarist great dividends in the lessening of anxieties and the reduced costs of keeping a healthy and happy aquarium. Now, to the business at hand.

There are about a hundred different livebearing fish species available in the aquarium hobby, but only a handful of these are generally found in the typical aquarium store — although there are enough different color, fin and body shape varieties of these few fish that you may think there are dozens of different types for sale. These few fishes all belong to the family Poeciliidae.

Scientifically, the swordtail is known as *Xiphophorus helleri* — the genus name *Xiphophorus* means sword bearer, and it received this designation because of the long extension on the tail of the male. The specific name *helleri* was given to honor the discoverer of this species, Karl Heller.

There are several subspecies and many hybrids of this species, which accounts for the great variety of color and pattern seen in this fish. Behavior within any of the varieties can range from peaceful to aggressive, with the largest of the males usually being the most aggressive.

One interesting feature of this livebearer is the apparent ability of the female to change sex and become a male. This is, in fact, simply a late developing male — I have been unable to locate any accounts of females giving birth and then changing to a male.

It's easy to identify a male swordtail by the sword-shaped extension of the tail fin, and the modified anal fin known as a gonopodium. Males are generally smaller than females. Mature males may have a body length (excluding the tail) of about 5 inches, while the females may reach 6 inches in length. The male appears larger because the tail and sword can often be as long as the rest of the body.

Basic care of the swordtail is easy to provide if the aquarium is sufficiently large. Although the swordtail will live in a small

aquarium of 10 gallons, it is not particularly suited to the cramped quarters and will seldom breed in this confined space. Most births that take place in these small aquariums began several weeks earlier when the female was in a larger aquarium.

Once the eggs are fertilized it takes from four to six weeks for the first batch of babies to appear. However, because females can store sperm, there may be successive batches of babies within four- to six-week intervals for six to eight months. I have found that a 20-gallon aquarium is about the minimum size in which a pair will successfully mate. An even larger aquarium is definitely better for the fish.

I have collected swordtails in Southern Mexico, Guatemala and Belize, but have yet to try to find them in Honduras, the southern end of their range. I have found them in high mountain creeks, lower elevation streams and in lowland rivers, but in almost every case they have been in backwater or protected areas of well-oxygenated, rapidly moving waters. The water chemistry has varied from soft, acidic water (pH of 5.5 with a hardness of under 1 DH) to moderately hard, alkaline water (pH of 7.8 and a hardness of 24 DH). The only true constant appears to be the water temperature, which was always below 75 degrees Fahrenheit.

In the aquarium I have found that medium-hard water (10 to 15 DH) that is slightly alkaline (pH 7.2) suits the fish best. Captive-raised fish seem to do quite well at temperatures of 72 to 79 degrees Fahrenheit.

In their natural environments, swordtails are considered omnivorous feeders that consume insects and plant particles. In the aquarium they eat a variety of small live foods, as well as flake, freeze-dried and frozen commercial fish foods. It is important to remember that if you want to breed swordtails, you should include a large portion of live or frozen meaty foods in their diets.

Given enough room for the intricate courting ritual that takes place, swordtails are easy fish to breed, but the hobbyist must be prepared to deal with the up to 150 babies that can be produced in a single birthing. It's easy to determine when the female is ready to give birth — as the babies grow larger they stretch the belly of the female slightly and become visible through the walls of the stomach.

Carefully corral the female in a container (not a net) and move her to a smaller nursery aquarium where she will not be bothered by other fish. The nursery aquarium should have a heater, a filter and some decorations to make her feel comfortable. It is wise to add extra decorations that will allow the babies a chance to hide from the female, as she will be very hungry when she finishes giving birth and may be tempted to nibble on her offspring. An alternative is to put a large commercial "breeding basket" or suspend a mesh floor in the nursery aquarium that will allow the babies to drop to the bottom of the aquarium while preventing the female from swimming to the same level.

Once the birthing is done, the female should be carefully moved to an aquarium where she can recover from the strain. The babies can immediately eat newly hatched *Artemia nauplii* (baby brine shrimp), finely crumbled dry flake foods or commercially prepared fry food for livebearers. Growth is slow, and aquarium-raised swordtails seldom reach the size of pond-reared swordtails. Frequent partial water changes will allow the babies to reach sizes that closely approximate the desired length.