Select Aquatics of Erie, CO.

Breeding the Livebearers

Livebearers use internal fertilization, and many poeciliid livebearers are easily sexed by the presence of a gonopodium (Top). The female shows a gravid spot that becomes larger and enhanced before she is about to give birth. (Bottom) Both can be seen easily in these Brachyrhaphis roseni.

Goodeids are the only truly viviparous fishes, similar to mammals in that the young are nourished during gestation by the mother. The males are generally more strongly marked, and possess an andropodium.(Pictured below). These are Skiffia multipunctata.

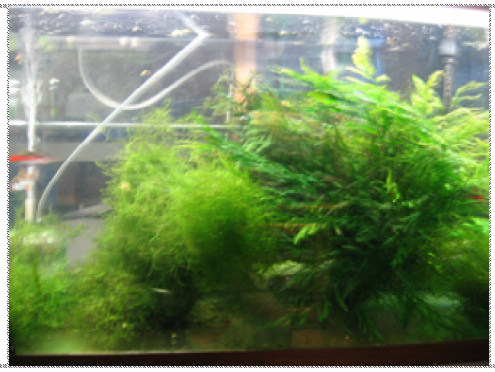
Water movement, aeration, water changes, not overcrowding and abundant quality food ensure your best chance of success. Feeding live and frozen foods, earthworms or a quality earthworm flake in particular, seems to increase both the size and health of the broods. Baby brine shrimp is good, but many adults cannot feed completely on it, so I do not depend on it for adult fish. Daphnia is excellent, adult Brine shrimp (frozen works well), white worms, etc. are all good. Feed at least twice per day, ensuring the tank stays reasonably clean. Mulm must be removed when it accumulates- heavy filtration or water changes do not eliminate its negative effect on the fish- it is not "inert". Inedible, decaying organic material is never good for the fish or the fry. Not only do these practices lead to healthier fry, but frequent feeding helps ensure that new fry are not immediately gobbled up if a female drops before you are able to remove her. A good diet before a drop helps guarantee robust, vigorous fry. A poor diet can lead to fry that are born dead, or that die shortly after birth, or that develop air bladder problems during their initial development. (“Belly sliders”)

Homemade breeder traps made by cutting out sides of shoebox style plastic containers, then covering with polyester mesh is less stressful for the mother and safe for the fry, who grow out

in the same water they were born in.

Breeding traps do not work for most swordtails. The traps are too small, and the female is often distressed by her lack of movement (particularly when Java moss is also added so that babies have a place to hide) that she may drop early, releasing her fry in an undeveloped condition, where only a few, if any survive. Or she will become unable to drop until she becomes huge, and then she dies- before releasing the young. A female that is gravid (she is large, and her black “gravid spot” just behind the belly has become dark) needs to be moved into a small tank of her own with some aeration, filled with fine leaved plants, but not so much that she cannot swim around. The tank must be at the temperature of her original tank, and filtration (possibly through heavy daily water changes) is essential. Dirty water compromises the survival of the new fry. Gestation for most swords, mollies, platies and guppies is about 25-40 days, depending on temperature. Goodeid gestation is about 60 days.

One solution that does work has been to create breeders from plastic "shoebox" style containers or larger plastic storage boxes that are small enough to sit within a larger aquarium. The sides and bottom are cut out, then covered with fine nylon mesh, glued in with a waterproof glue. When those are used, be sure to glue a couple marbles to the side of the breeder that will face against the aquarium glass, to prevent smaller fish in the tank from which can cause a loss of fish.



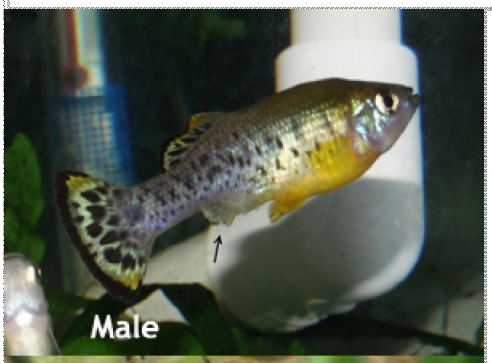
Java Moss- the best for fry to hide in.

An ideal tank setup for growing out fry.

New fry should be fed newly hatched baby brine shrimp, but can be raised on an artemia substitute or other fine dry foods. For swordtails, guppies, mollies and platies, fry can be raised slightly warmer (78-80 degrees) to assist their growth. Goodeid fry should be raised at cooler temps- 72-75 that the adults prefer. Fry also need to be fed 2-4 times per day at first with daily water changes of 50%, unless in a container with adequate filtration, or in a breeder that sits within a larger body of water. Leave some Java moss in with the fry to assist water quality, but not so much that you cannot see all of the fry easily to monitor their condition, or that cause decaying food to become trapped. Add aeration with at least a mild air flow from an airstone if possible. Baby brine shrimp and/or the high protein fry foods foul the water quickly, and go bad within just a few hours. A quick ammonia spike will kill new fry fairly quickly. A rule that I have discovered over many years, and that seemingly makes little sense, is that fish that cannot be seen and monitored inevitably suffer losses, whereas fish that can be watched and kept an eye on will do better. I know it doesn't make sense, but we all tend to neglect tanks, just enough, that we are not able to follow closely.

After 3-6 weeks (depending on species) the fry can be released in with the adults. Feed the adults well, then release just a couple new fry into the tank, watching to see if they get chased such that they could be eaten. All adults will chase a new fish to check it out, but when they determine the other fish is too large

to eat, they will back off. If the adults don't back off, rescue the released young and wait another week.



Goodeids do not have a gonopodium, the males instead possess an andropodium, seen as a notch in the anal fin of the male. (Arrow in top pic.) Females posses a normal anal fin. (Arrow in bottom pic.) Unlike other poeciliids, goodeids have a 60 day gestation period, and females do not store sperm, so each brood requires a new fertilization. Goodeid fry are fewer in number, but much larger than other livebearer fry.

These Ilyodon furcidens fry are only 1 day old.They are in front of 1/2 inch diameter PVC pipe. these are just about the largest livebearer fry there is.

The Goodeids- These fish can be the easiest to breed, but building up their numbers can be a long process interrupted by long periods of fish not becoming gravid. Some species will take a break from breeding from approximately mid September to April, their gestation is around 60 days, and a young female having her first batch of fry may only drop 4 or 5 babies. Though the fry are large, having been nourished by the mother in utero similar to mammals, they are still often eaten by the adults. The hiatus some species will take from breeding over the winter may be triggered by exposure to natural day-night seasonal light cycles, and friends with fishrooms without windows, where they can control the light periods, tell me they generally don't experience seasonal breeding fluctuations.

Many goodeids do not eat their young, but the gravid females of some species do not do well when moved to drop their fry. Occasionally after being moved a female will simply drop her brood stillborn. I have found that the home-made breeders mentioned earlier will work when hung in the tank where the female resides otherwise. Often I simply watch gravid females, then I will save as many new fry as I can when born to raise them separately until they are large enough to fare on their own.

The Goodeids are some of the most attractive aquarium fish, while also extremely rare in the wild. The pic on the left is a male Characodon audax (and the andropodium can be clearly seen), and on the right is a male Characodon lateralis.

With **Z. tequila** the females can be moved reasonably well, but definitely do best in their own 5 or 10 gallon to have their fry with lots of Java moss (or fern). Moving to an unfiltered (but with plants) 2 gallon container or a breeder can result in the death of the gravid female. Other adults will eat the fry, and when allowed to community breed (where young are simply not removed, with hope that the population will increase over time) my experience has been that their numbers will generally decline over time, rather than increase in numbers.

Skiffia multipunctata are not big fry eaters, and I both remove females on some tanks and leave them in others if the tank is well planted. Raising fry separately is critical as fry will continue to die out or not grow to their potential, as they do not have equal access to food and are constantly hiding to protect themselves.

Characodon lateralis will increase in numbers when kept simply as a community, but will be occasionally eaten. Their broods are often only 5-10 young, and the new fry generally do not fare well when left to grow out in an adult tank. However, the females tolerate being moved, and the young do well when raised up separately.

The Goodeids will grow out fairly evenly when well fed, but that is not the case with the Swordtails. Most swordtail species have an anomoly where occasional males are born that reach sexual maturity far earlier than their siblings, an evolutionary tactic that allows some males to gain access sexually to the females before the other males in the tank, producing other early maturing males in the process. The problem is that these males will be dramatically undersized, often with poor color and traits that are not positive for the line. The only solution, until the line is stabilized (in that the appearance of early maturing males is rare or nearly nonexistent), is to raise the sexes separately, then select for the largest, most robust fish, culling any early maturing males as soon as they appear.

With the **X. nezahualcoyotl**, I had achieved the point when intensively selectively breeding them (1997-2000) achieved where the majority grew out evenly. However, I had stopped working with them after releasing them into the hobby. I obtained them again about 3 years ago, and found that the process of culling the smaller males had to be begun again. Females do not seem to be as prone to this characteristic, requiring only that they be watched to choose the largest, healthiest fish as breeders, as would be done with any other line of fish.

The Gambusia and Brachrhaphis species- Though not carried by Select Aquatics, most Gambusia, Brachyrhaphis, and some wild Xiphophorus will eat their fry routinely- such that their cannabalism is a big obstacle to raising and breeding them. The Brachyrhaphis pictured above is this way- I have seen 3 week old fry gobbled up enthusiastically by the adults. The Gambusia are possibly the worst, and building their numbers requires that gravid females be be moved to a 10 gallon tank of their own with generous amounts of java fern and moss. She must then be watched closely, and removed as soon as the young are dropped. The young are then raised separately for at least a month before being introduced to the adult tank. Efforts to increase the protein content of their diet, a practice that can reduce fry eating in other species, seems to have no effect.

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