

Livebearer News

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BRITISH LIVEBEARER ASSOCIATION



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Editorial by Paddy Davies

It is the time of year when we look forwards to the convention, this year we have a change of venue to the revamped Nasby hotel in Kettering. I am looking forward to this event as it is a great chance to catch up with old friends, meet new people and hear some great talks, there is also the bonus of taking home a few new fish from the auction.

Please do take the time to say hi, and let me know what you want from the magazine, do we cover enough of the fish that you want to see, or are we missing something?

In this issue we take a short break from wild livebearers to look at the world of the cultivated guppy with an introductory article on keeping guppies as a hobby, by Stephen Elliott. Of course much of this is applicable to other species. In these times of economic hardship and global belt tightening we bring you Gary Randall's article on culturing your own live foods, a good way to keep the costs down. Another way to make the hobby pay is to bring some fish to the convention – we have two ways to sell your fish, firstly the Auction on Sunday, but we also will have a sales table where you can sell fish including non livebearers and general fishkeeping equipment,

I hope you all enjoy reading this edition, please do email your comments, suggestions and offers of articles (?) to me.

Paddyd99@gmail.com

Chairman's Report by Chris Cheswright

Just a short message this time. Partly due to missing Paddy's email reminder but just back from a long summer break. Part of that was spent on a boat in the Maldives and a chance to relax and think about life underwater. Admittedly a little different to the freshwater habits of the Americas where most of our fish come from but still a fascinating place to see such diversity. As with all things aquatic the nearer to civilisation you get less diversity of corals and fish. likewise in travelling around Sri Lanka the streams in towns were not the places to fish but in more rural areas fish could be swimming around (I did not dip a net but some Barbs and killifish were seen). Despite this some fish seem to tenaciously hang on and I can remember finding Guppies (not native) in some atrocious water conditions in Mexico. As to freshwater fish in the Maldives there are no natives (the land is at it's highest 3 metres above sea level) but surprise surprise whilst we wandered around an island to see how the locals lived I spotted a large pool, saline, due to it's proximity to the sea, and it was full of fish! On closer inspection these turned out to be Sailfin mollies in a

variety of cultivated forms, presumably introduced to control mosquitos. Just shows what can be found in unexpected locations.

that was not the fish highlight of the snorkelling that came on the last day when we jumped into the open sea to swim with Manta rays. I say the highlight but the snorkelling everyday revealed hundreds of species of reef fish which was a magical experience.

Back to reality hope to see (or have seen) many of you at the Kettering convention and the committee will share details of the spring convention at a venue a bit further north as soon as this has been confirmed.

Please do not forget membership will be due for 2013 so get paid up as soon as you can.

E-member – UK or Overseas £12 To receive Magazines by Email only

Full Member - £16 to receive magazines by post

Chris

British Livebearer Association Convention

The next British Livebearer Association convention will take place during the weekend of 12th October. The meeting will be shared with the Fancy Guppies UK European Championship show and the format of the event will be the same as other previous Conventions. However the venue has been changed to Kettering, Northants.

The guppy show will be set up on the Thursday and the judging will take place on the Friday. There will be a show for wild Livebearers on the Saturday, details will be confirmed elsewhere but in essence these fish will be auctioned off for the benefit of the BLA. There will be a series of lectures by **Peter Burgess** (Trinidad Guppies), **David Price** (Genetics of Ornamental Fish), **Chris Cheswright** and **Steve Elliott**, that will fill the Saturday. The guppy show will be open to view, we shall have our normal table tops that will include **Aquarian (Mars Fishcare)**, **Tim Addis (TA Aquaculture)**, **Brian Chittenden**, **S.A.K. fish food**, and **JBL**. There will also be ‘members fish sales’ for both the guppy group and the wild livebearer group. Of course there will be a celebration meal on the Saturday night.

Sunday will see the auctioning of all the show fish and a wild livebearer auction. There will also be an opportunity to visit some local members fish rooms during the weekend.

The hotel is the Naseby Hotel, Sheep Street Kettering. This was recently refurbished and upgraded. Rooms are Single Room: £50 Room Only. Double Room: £65 Room Only. Full English Breakfast at £8 per person and can be reserved by contacting Carl Stewart

The alternative is that you book yourself in which case we would ask that you inform Carl so that we can properly plan for the numbers in attendance.

The event is free, there is no charge for entry. We also hope that those attending will be given a goody bag containing fish food etc. So this is promising to be a very good weekend this year! The only fly in the ointment is that we have had to move about an hour south of the previous venue in Nottingham and whilst it is thought that this venue ticks all the boxes and is much cheaper to hire, some members from way up north and beyond may not be able to attend because of the distance.

To them we have two things to say:

Firstly, efforts are indeed being made that will take the convention slightly northwards next year, and likely to be in March of 2013.

Secondly, for this year, if someone is not able to attend and wants to send fish for the sales table or auction they can do. The fish should be sent to Steve Elliott, Spencers Yard, 198 Havelock Street Kettering, Northants NN16 9QB and should be received no later than 3pm Wednesday 10th October. For large consignments arrangements can be made for collection from you and delivery to Steve. The cost would be approx £20 per 'box' and this would be taken from the sales price. For further information contact: **stephen.elliott1@virgin.net.**

Saturday Sales Table

At this years October Convention there will be a sales table on Saturday only for any of your unwanted items. This can include any equipment, tanks or non Livebearing fish that you want to rehome.

The BLA will charge a 15% commission on all sales.

Volunteers may be needed to man/woman the table for short periods. Don't be shy we only want a little bit of work out of you.

Plea to Members

The Committee is very aware that we are mostly based in the south of the country, we would like to address this and hope to have events more evenly spread accross the UK, particularly further north. However we do need help to suggest venues and to help organise this, so if you feel you would like to help with this, please contact Nigel Hunter. nigel_w98@yahoo.co.uk

How to keep Guppies 'by Stephen Elliott'

Guppies are very easy to keep and breed, after all they are called the millions fish'.



Copyright Paddy Davies

Guppies are very difficult to keep and breed well. Everyone looks after their guppies differently to everyone else but in general the following would be a good regime to follow.

The tank size all depends upon the amount of guppies that you have in the tanks and also the quality and effectiveness of the filtration. However the larger the tank the easier it is to maintain the water quality. Smaller tanks may be appropriate for some people, but then a regular regime of water changing is necessary.

The water conditions can vary considerably because the guppy can tolerate most conditions. However the ideal conditions would be with a Ph of 7 and a temperature of 72 to 78 degrees F. More extremes will be tolerated but can have affect on the growth of the stock. Lower temperatures have affect on colour and growth, higher temperatures considerably help but may result in lower life expectancy. Lower night temperatures gives strength and well being to guppies, as with all fish and so I have a timer on the heating and it is turned off at night.



Copyright Alan Dunne

The best lighting is daylight. This has a positive affect, especially on colour. A full spectrum light bulb should be used as an alternative. 12 hours of light is sufficient and should be co-ordinated with the temperature to simulate the day night cycle.

20% of the water is changed twice per week. Each tank has a Hamburger filter, no gravel (which helps with keeping the tanks clean) and at least one plant.

For breeding I usually use 1 male with two females or a set of 2 males with three females. The tank would be about 30cm x 30cm x 450cm (approx. 40 ltr). There are many different ways of harvesting the fry:

- net traps
- dense plants
- dense scourer fibre
- vertical V traps
- horizontal V traps
- and of course some guppy strains do not eat their fry'



Copyright Alan Dunne

I would normally separate the fry from their parents as soon as possible and leave them in a smaller container. This helps with 'food envy' which is necessary to promote good and fast growth for at least the first month. There can be up to 150 fry, but if I have a very small brood I would start them off in

a tray that I keep as part of a set of drawers. The brood is then put into a larger 100ltr tank as the guppies increase in size.

In effect all stock are kept separate and therefore in permanent quarantine. All tanks are independent of each other thus greatly reducing any potential risk of infection or disease spreading. Should the tank occupants appear less happy than usual then it may be an indication of infection or disease. I would recommend that 90% of the water be changed with aged water and salt added at the rate of about a table spoon per gallon. If the symptoms persist then seek the help of a vet or advise from a competent aquarium shop manager who can advise which one of the many aquatic medicines would be best.

In order to successfully keep and breed guppies the feeding regime requires special attention. The best food is always live food but best growth and colour result from a large variation in food whether live or not. Live food such as wingless fruit fly, grindal worms, white worms, Walter worms, daphnia, mosquito larvae and tubifex are eagerly received. These are all also very acceptable as frozen food. Then there are all types of dried general artificial food and other more specialist flake such as spirulina. Good quality food makes a stronger guppy that will be more resistant to infection or disease. The Guppy is an omnivore and will willingly accept any food offered.

For the new-born juveniles newly hatched brine shrimp are a must, but I supplement this with micro worm and also powdered shellless brine shrimp (I mix this with water and pour small amounts into the fry tanks). It is important to feed little and often. Continuous feeding with a large variation gives great results with the progressive development of the young guppies.

No matter how good your husbandry is you will only have as good a fish as the genetics that it has been bred from. It is therefore key to have good quality stock to work and breed from to get and improve the strain. This means careful selection of the breeding stock and even then it may be that the male and female are simply not compatible and produce fish of a poor quality. It is important to remember that no matter how good the stock, the offspring are not clones of their parents and it is only the top 10% or 5% that are good enough to be of show quality standard.



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Members sales and wanted:

Trevor Williams:

Available fish:

Limia tridens, *Limia nigrofasciata*, *Limia melonagaster*, *Limia zonata*, *Limia sp.tiger*, *Girardinus falcatus*, *Phalecerous caudomaculatus*, *Xiphophorus multilneatus*, *Xiphophorus milleri*, *Poecilia salvatori(liberty)* , and *Poecilia butteri*

Please note I currently have very limited numbers available.

I can bring fish to the BLA Convention at Kettering

Please email: trevsfish@fishthw.plus.com

Clive Hawkins, Bristol:

Available fish:

Poeciliopsis gracilis media luna,

Xiphophorus helleri 'Golden Stream, Belize'

Ameca splendens

Wild Guppies

Wanted:

Pair or Trio *Phallichthys amates amates*

male *Brachyrhaphis terrabensis* Pair or

Trio *Belesonox belizianus* Pair or Trio

Xiphophorus nezyhuacotyl pair or trio

Xiphophorus variatus pair or trio

Xiphophorus maculatus

I can bring fish to the BLA Convention at Kettering

Email: clivehawkins52@yahoo.co.uk or mobile 07900218170 home
01179638478

Clive Walker:

Available fish:

Ilyodon xantusi & *Chapalichthys pardalis* both at £4.00 a pair or less.

I can bring fish to the BLA Convention at Kettering

Email: clivewalker076@gmail.com or call 07780 996557.

Paddy Davies, Bristol:

Wanted:

Female *Ataeniobius toweri*

Xiphophorus kallmani

Please email: paddyd99@gmail.com

Alan Dunne

For Sale *Ilyodon xantusi* £5 per Sexed Pair

I can bring fish to the BLA convention on Sunday 14th of October

helterskelter@livingfish.co.uk

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Data Protection Act

In order to comply with the requirements of the Data Protection Act, we need to inform members that their name, address, e-mail address and telephone number are being maintained on a database, the purpose of which is for the distribution of the Association's magazine and to inform members of forthcoming events. This information will not be provided to any other organisation for any purpose whatsoever without prior consultation.

The Association agrees to remove any details at a member's request.

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All views expressed herein are the opinions of the contributor and do not necessarily reflect the views or opinions of the BLA.

The print date for the next issue is 10th December 2012, could all contributors please ensure that articles are provided to the Editor by the 30th of November 2012.

Wild Livebearer Show – Convention 2012

In recent years the entries in the wild livebearer classes at the convention have not been great and have been down to a few members. This was mainly due to a lack of understanding on whether the fish were part of the auction, donated or yours to take home again. This year we are bringing the wild classes more in line with the Fancy Guppies UK show and all fish entered will be donated to the BLA (in future conventions we may use the proceeds from these sales to support charitable bodies). You do not have to enter full grown fish just ensure they are pairs; size will not be taken into account when judging. All fish will need to be prebooked and can be benched from Thursday 11th October to 10am Saturday 13th October. If you are unable to attend fish can be sent/ couriered to me. There is no cost for entry and

tanks are provided for all entries.. It would be great if everyone attending was able to bring along one pair of fish.

The classes are;

- Goodeids (Pairs)
- Wild Xiphophorus (Pairs)
- Other Wild livebearers (Pairs)
- Cultivated Livebearers (excluding Guppies) (Pairs)
- Breeders Class (4 fish to be under 1 year- no date of birth required)

Judging will take place on Saturday 13th October and awards will be made in the evening.

Email entries to chrischeswright@blueyonder.co.uk to arrive by Thursday 11th October 2012.

***Girardinus metallicus* Poey 1854** Text and Photos by Paddy Davies

Scientific Name: *Girardinus metallicus*

Habitat: This species is endemic to Cuba,

Common Names: Black Chin Livebearer, Metallic Topminnow

Size: Females to 70mm, Males to 35mm

Colouration: Males have black markings on the chest and gonopodium, this can be variable, sometimes the entire head may be black, sometimes fairly faint. Females are silvery shiny fish.

Introduction:

Girardinus metallicus was described in 1854 by Filipe Poey when he was 55. Poey was the first Professor of zoology at the University of Havana and also the founder of the Natural History Museum in Havana. The museum is still open to the public and still holds preserved specimens of fish that he collected.

Maintenance:

This species does not require a large tank, I often use 18"x10"x10" tanks to keep a small colony – I tend to start with 2 or three pairs in a tank this size. However in a tank this small often fry will be eaten. A larger tank of 24" would be fine for a larger colony and should reduce predation on fry if you wish to flock breed.

Male *Girardinus* will chase females a bit, but do not seem to bother them overly much as the females are much larger, providing some cover in the form of plants will reduce the risk of stress from this quarter, but in reality it is not usually a problem. I tend to use Java Moss and Water lettuce for cover and this is perfect for the job.

This species spend most of its time in the upper third of the aquarium, this reflect its behaviour in its natural habitat, where it will eat insects from the water surface, very occasionally *Girardinus sp.* Are referred to as Top Minnows because of this.

Because of this behaviour it is useful to have some sort of clean up crew in the tank, in order to eat food that otherwise would sit on the bottom, I have used Snails of various species for this as well as shrimps and *Corydoras sp.*

A weekly or fortnightly water change is plenty to keep them in tip top condition, they are certainly not particularly demanding of water quality. For filtration, an air powered sponge filter is perfect and will not suck up any fry, however a small internal power filter is ok and the fish will cope with the flow easily.



Male metallicus

Breeding:

They can be kept and bred in a wide range of conditions, pH can be either acidic or alkaline somewhere in the range of 6.5 – 7.5 would be suitable. Temperature

should be 72-78°F (22-26°C), although temperatures outside this range would be tolerated for a while.

Gestation period is about 28 days, the female will produce between 10-30 fry, although more than 60 have been reported. The fry are pretty tough and easy to raise on suitable live food or dried food, I use frozen cyclops, dried plankton and finely powdered flake food with good results.

There are several methods that can be used to breed this species:

- Flock Breeding AKA The Lazy method – just leave the parents in the tank to do what they normally do, if well fed and provided with top cover, you will get fry. Some may be eaten, but you should be able to keep a nice size colony this way. You can always remove any fry you see to raise separately for a few weeks until they are past the bite size stage.
- Commercial fish breeding traps – Generally I do not recommend these as they are too small for many livebearers and tend to stress out females too much in my opinion. However I have used them with *G.metallicus* with no problems, except that the fry go to the top rather than the bottom so remember that you will have to provide some cover to stop the female snacking on them.
- Separate tank, or tank with vertical V trap – My favourite method as you will save most fry, this means you can place the female in the tank several days before dropping, reducing stress on her, and then you have a small tank to raise the fry in for a few weeks.

Raising the fry is straightforward and usually the fry can be placed back with the adults with 2-3 weeks, or can be raised by themselves, they should sex out at about 8 weeks onwards



A Vertical V trap, viewed from above.

General Remarks and Myth Busting:

Black chins are wonderful fish that are a delight to keep, especially if their tank gets a little bit of sunlight occasionally as they really shimmer, they seem to be getting a bit more popular in the last few years.

When researching this article I noticed that several sources list Costa Rica as a country it occurs in, this is most likely a mistaken id as the whole genus is endemic to Cuba.

Another common thing mentioned in some articles is the need to add salt to the water, I personally do not feel this is necessary at all, and have never found this to be needed.

There is a form available known as the yellow belly, with as the name suggests a yellow, rather than black belly, this form should be kept separate and not interbred with the black bellied form, it could end up being classed as a different species in the future.

Seven other species are in the genus *Girardinus*; *creolus*, *cubensis*, *denticulatus*, *falcatus*, *microdactylus*, *reevsi*, *uninotatus*. Occasionally some of these crop up from time to time, the most commonly available probably being *falcatus* followed by *uninotatus*.

This species is endemic to Cuba and has a wide distribution covering most of central cuba, however when I visited the area in 2009 It was not easily found, in fact we only found 3 males despite looking in many places that should have held specimens, many of the areas we looked seemed to be suffering from the effects of pollution (drying up, smelly, high nitrates etc.) Although this species is established securely in the hobby, it may be in trouble in the wild.

Livefood - Fish Foods For Free

by Gary Randall

Livefood is fantastic to feed your livebearers on, not only is it free, it will also benefit the fish massively, colours, breeding results and general vitality are all improved by feeding live food.

Water Fleas – Daphnia:

Although water fleas can be collected all year round, the best times to collect is from April until September, all you need is a very fine mesh net and a bucket!

When catching them, slowly move the net through the water in a figure of 8 motion. Only do this 3-4 times each time you put the net back in the water because this helps by not collecting too many at once and stops them from getting over crowded and damaged or crushed, its best to put them in big buckets or containers if you want to keep them for any length of time before feeding them to the fish. Before feeding livefood to your fish they should be rinsed off in clean water.

Many occasions I have collected too many water fleas to feed to my fish so rather than waste them, I would freeze them. When freezing water fleas they should be fresh, then I rinse them through a net to drain them and put them into a fish bag, gently flattening them out into a slab then put them into the freezer so they can be fed to the fish during the winter months when its harder to collect them.

Mosquito Larvae:

Mosquito larvae is often collected with the water fleas or it can be cultured very easily during the summer months, all you need is a large bucket or container filled with water to be put along the side of a garden bush/hedge and leave for about two weeks, by this time you should start to see tiny mosquito larvae, over a period of time you can collect many thousands of larvae of all different sizes in the container.



This is a very good food for all fish as it can be sieved according to the size needed. If you sieve using the smallest of nets, the tiniest larvae can be fed to the small fry and the larger ones to juveniles and adults, the only problem with using this food is that the uneaten will soon turn into mosquitoes. This can give your fish house the authentic feel of a tropical swamp.

Culturing Microworm:

All you need is a small plastic container such as a butter or margarine tub. Mix some Readybrek with milk or water to create a paste, when mixing with water the microworms will smell really bad and go off quite quickly, with milk the microworms will stop smelling as bad and last a bit longer, once mixed add a teaspoon of microworms from an old culture and puncture air holes into the lid then put on the tub. The warmer the microworms are kept, the faster they will multiply and will soon start to climb up the walls of the tub, the best way to remove them is to use a mini artist brush and then feed to the fish. These worms can be fed to all fish but are more suitable for the small and newborn fry because it helps them to develop and grow better.



Grindall Worm:

Grindall worm is a suitable food for fish of all sizes. I find the best way to culture grindall worms is to use a large plastic container, the ones I use measure 13 inches long by 9 inches wide and 6 inches high, in this I put a layer of 2 inches of moist (not too wet) Irish moss peat. Worms are then fed with Readybrek, just sprinkle a small amount on the surface. To harvest the worms just place a clear piece of plastic on top of the readybrek, after about a day or 2 the worms will start to gather underneath and around it, the piece of plastic can be removed and placed slowly into the tank water and worms will slowly fall off.

Flightless Fruit Flies – Drosophila:

A easy way to culture fruit flies, is to use a jar, a piece of mesh and an elastic band. Mix some banana and Readybrek or similar together into a paste and put in the jar. Fold up a piece of paper into a fan (so the flies can have plenty of places to climb) push into Readybrek then add 10-20 fruit flies into the jar then cover the top with mesh and put the elastic band around the jar to keep the mesh in place, after about 2 weeks they will have bred and multiplied many times over and be ready to feed. Before feeding to fish, tap the side of the jar so all the flies fall to the bottom, then remove the mesh and shake the flies into the fish tank.



Although the flies are flightless, they are very good climbers and will easily escape from the fish! A good way to feed the fish is by shaking some off into a jar of water and then put the lid back on, shaking the water and flies in the jar a few times, this will stun them which will make it easier for the fish to get them

Vinegar Eels:

A good first food for newborn fry, although many people culture them in wine vinegar, it can also be cultured with golden syrup. The way I culture them is to put one teaspoon of golden syrup into a boiled cup of water and stir, leave to cool down, pour into a jar and leave for 24 hours, then add some vinegar eels.

They will multiply very fast and should be ready to use in a few weeks, when held up to a light you can see many thousands swimming near the surface of the jar. The best

way to catch them is to hold a piece of filter wool just below the surface of water for about 20 seconds, the vinegar eels will swim and get trapped, simply lift out to drain off

18 for a

few seconds, then its ready to feed to the fish.

They Come from the Cold - Splitfins from the highlands of Mexico

by Harro Hieronymus

Ordinarily we consider livebearing freshwater fish to be tropical species, however, many popular species live outside the tropics in subtropical areas. The platy, molly and swordtails are from subtropical areas, whilst the ever popular guppy has been introduced to both tropical and subtropical areas. All these species belong to a family of fishes called Livebearing Toothcarps, Poeciliidae (sometimes also referred to as subfamily Poeciliinae). Besides these most popular aquarium fishes (except freshwater stingrays) there are other livebearers suitable for the home aquarium. From Southeast Asia comes the slender and pike-like halfbeaks (family Hemirhamphidae) and from Middle and South America comes the four-eyed and one-sided livebearers (family Anablepidae). All these species are known and in varying degrees are popular to aquarists, however, there is another group of livebearing fishes which is largely unknown to most aquarists but which has some exciting and critically threatened fish amongst its ranks: the goodeids (family Goodeidae).

The home

The native ranges of the goodeids are the highlands of Mexico, a small part of its Atlantic slope and a large part of its Pacific slope. They occur from about 200 m altitude to more than 2000 m. The northernmost limit where goodeids are found is the area around Durango, whilst their southernmost limit is Mexico City. The area goodeids inhabit is characterized by two seasons; the rainy season in summer and early autumn and the dry season in winter and early spring. Temperatures depend on altitude and may be anywhere up to 30 °C in the lower reaches. However, at high altitude, temperatures may drop down to as low as 5 °C during the nights in January and even in the warmest months do not exceed 27 °C (while nights still are cold). Therefore, to keep many of these fishes healthy, you don't need to heat the water but to keep it cool

Goodeids natural habitats are in standing to fast flowing waters, of medium hardness and a pH around 7. In the highland itself you find small to large lakes and slow flowing creeks and rivers. Chiefly on the pacific slope you will also find fast flowing waters.

Systematics

There are currently 44 recognised species belonging to the goodeids, but there are a few more species yet to be classified and surely more species to be discovered. Modern collecting and classification methods along with intense research at the Mexican University of Morelia results in the recognition of additional species and it is anticipated that we may finally end up with 55 to 60 species. The family Goodeidae consists of two subfamilies, the Empetrichthyinae (egg layers) and the Goodeinae (livebearers), although whether the livebearing goodeids are a family in their own right or a subfamily depends on your point of view. The last reviser, Lynne R. Parenti, considered that livebearing and the development of the anal fin into a copulatory organ is not important for the relationship. Others disagree. Presently both classifications are correct, depending on preference. Let's speak of Goodeidae for the livebearers herein. One of the most characteristic features to distinguish between the species and genera is the transformed male anal fin. In contrast to the Poeciliidae, the male anal fin is modified just in its front part which can be folded to build a kind of tube. With a muscle they eject the sperms and inseminate through this tube into the female's genital opening from where it is transferred to the ovary.

Developmental Biology

After insemination the sperm are transferred to the ovary where the eggs are fertilized. Goodeids do not store sperm, so every female has to be inseminated again once after she dropped fry. The Livebearing Toothcarps (Poeciliidae) were formerly called egg layering (oviparous) livebearers, it was thought that the fertilised eggs were stored internally and they hatched the moment the egg leaves the mother's body. It was understood that the mother provided no nourishment to the eggs post-fertilisation. This theory has now been partly disproved. The degree of livebearing varies between the provision of no nourishment by the female (lecithotrophy) and the provision of nourishment by the female (matrotrophy), in recent years matrotrophy has also been found in some of the Poeciliidae species, however, beside the Anablepidae and the hemirhamphid genus *Nomorhamphus*. All goodeids are matrotroph livebearers. The much undeveloped fry hatch internally after about three days in the female's ovary and feed on their yolk sac for a few days whilst placenta like structures (trophotaeniae) develop around the anal fin (except in one species, *Ataeniobius toweri*). The trophotaeniae may become longer than the fish itself and the fry use them to ingest proteins from the ovarian liquid provided by the mother. Goodeid gestation periods are relatively long; although a record of only 17 days between two broods is recorded, the normal brood interval is about two months in most species, but may also be far longer (annually in some species) in some of the larger species. At birth the fry are rather large, up to 1.5-2 cm and most of them still have the trophotaeniae which drop off within a few hours of birth. In many species the fry are too large to be eaten by the parents, so it is possible to raise them even in a community tank.

Courtship

The mating of many goodeids is very impressive. The male folds its front anal fin into a tube shape and inserts it in the female's genital opening, therefore a high degree of synchronisation and cooperation is required for successful mating. After first contact the pair will swim side by side and start wiggling. Then they get into touch, still wiggling, and then the upper body will be bent slightly away from each other for an even more intense contact of the anal fin region. Sperms are transferred within a part of a second and the fish start swimming on their own again. The whole process is quite slow lasting for several minutes in some species.

Species

From all species of goodeids currently classified, some are more difficult to be kept in aquaria than others; generally there are two groups of problematic species. Firstly species from areas in the upper highlands are adapted to cold temperatures during a large part of the year and they need cooler temperatures in order to thrive.

A typical example is the Dark-edged Splitfin, *Girardinichthys multiradiatus*. I have caught them in April at 11 °C water temperature. Although also occurring at relatively high altitudes, the Chapultepec Splitfin, *Girardinichthys viviparus*, is more easily adapted to warmer temperatures. However, pairs continue to breed at temperatures as low as 14 °C and prolonged exposure to temperatures above 22 °C can prove fatal. Although these species are problematic, it is very important to keep and breed these species successfully in aquaria, as most are critically threatened. The last known place where they may be found in nature is a man made lake in the inner yard of the world renowned anthropological museum in the center of Chapultepec Park, Mexico City. Two further species, *Girardinichthys ireneae* and the Highland splitfin, *Hubbsina turneri*, closely related, have not been bred successfully for more than three generations.

Zoogoneticus quitzeoensis, the Picotee goodeid, continues to breed at temperatures of 16-18 °C but will tolerate temperatures of 24 °C or even above for a longer period. The Tequila splitfin, *Zoogoneticus tequila*, described in 1998 is nearly extinct in nature with only maybe 50 surviving adults. However, maintaining the species in aquaria is quite easy if you start with at least three pairs. Single pairs seem to drop less fry.

There is another species which is extinct in the wild, but which is maintained in aquaria, the Golden skiffia, *Skiffia francesae*. It is not more difficult to breed than its congeners, Twoline splitfin, *S. bilineata*, Olive skiffia, *S. lermiae*, and Spotted skiffia, *S. multipunctata* as long as they are kept cool. None of the members of the Skiffia family tolerate temperatures above 24 °C for a longer period.

Not extinct, but potentially threatened and with a very limited range are the members of the genus *Characodon*, the northernmost occurring goodeids which are found in small springs and ponds near Durango. This area is in a natural process of desertification and further human impacts increase the erosion of habitats. Science is only just starting to understand the specific variety within the genus. Today we know two existing species, the Bold Characodon (males may be aggressive among each other) or Black Prince, *C. audax*, and the Rainbow characodon, *C. lateralis*, as well as the extinct Parras goodeid, *C. garmani*. Recent research at the University of Morelia indicates that there may be eight species partially living in ponds of a few dozen square yards!



Male *Characodon audax* El Toboso

All the species mentioned above have a length range of 4 to 6 cm and need similar aquarium conditions. Temperature requirements were mentioned. As all goodeids, they like neutral to slightly acidic water (pH 7-8) with some hardness (410 °KH). Food should chiefly consist of live and frozen food. Flake food may be fed three times a week. A species aquarium should have at least 50 litres, the larger, the better.

The smaller species of *Allotoca* like Opal allotoca, *A. dugesii*, Banded allotoca, *A. goslinei*, Blackspot allotoca, *A. maculata*, and Zacapu allotoca, *A. zacapuensis*, have the same requirements. The larger members like Catarina allotoca, *A. catarinae*, Patzcuaro allotoca, *A. diazi*, and Zirahuen allotoca, *A. meeki*, grow much larger, to more than 10 cm, and need much more space, 100 litres plus. They also chase after their fry and gravid females may be separated. However, when you separate any gravid goodeid female you have to be very careful and need to use the same water and temperature like in the normal tank. Among the medium sized goodeids of 7-11 cm size we have several species which are very suitable for the aquarium, even for a community tank.

As plankton feeders, the Goodea species Blackfin goodea, *G. atripinnis*, Dusky goodea, *G. gracilis*, and Green goodea, *G. luitpoldii*, will be happy with flake food and algae suspension all the time. But in contrast to the next species they also don't like temperatures of more than 24 °C for more than a few weeks.

The aquarium favourites are those who are easy to keep, easy to breed, and easy to feed. First of all we have a species already nearly extinct in nature, the Butterfly goodeid, *Ameca splendens*. With its striking pattern of iridising scales on the males bodies and the male's yellow fin borders it is a very attractive fish, peaceful to nearly every other fish. There are three very similar species, in outer shape and aquarium requirements, Polka-dot splitfin, *Chapalichthys pardalis*, Alien splitfin, *C. peraticus*, and Jeweled splitfin, *Xenotoca variata*.

Even more peaceful are the members of the genus *Ilyodon*. There is much uncertainty about the number of species in this genus and one of the researchers called it a "taxonomic nightmare". Purists only accept two – variable – species, Goldbreast splitfin, *I. furcidents*, and Balsas splitfin, *I. whitei*. Another green bodied species is the Relict splitfin,

Xenophorus captivus, which will not grow to more than about 8-9 cm. Similar in maintaining, but somewhat smaller is the Redtail splitfin, *Xenotoca eiseni*. But if you ever run across the deepbodied form with no golden scales on the body sides be careful, this variety tends to nip fins of other aquarium inhabitants and is able to kill them, the Gold Saddle form from San Marcos or Etzatlan is more peaceful. All these will feed on most types of food including spinach and other vegetable matter.

A very special group is the genus *Allodontichthys* like Whitepatched splitfin, *A. hubbsi*, Finescale splitfin, *A. polylepis*, Tuxpan splitfin, *A. tamazulae*, and Banded splitfin, *A. zonistius*. They live in pairs below larger rocks in waters with more or less current. Males are quite aggressive among themselves, so if you want to keep these fish you have to provide certain current, hiding-places and lower temperatures with high oxygen levels.

All other goodeids not mentioned yet have two common characteristics: they are robust and their colouration varies between green and olive and combinations of these except for *Chapalichthys pardalis* which also may be yellow but is quite aggressive. The largest goodeid – except the peaceful *Goodea atripinnis* from Lake Patzcuaro which attains a length of more than 20 cm – is the Bulldog goodeid, *Allophorus robustus*, and if you have a closer look to its mouth you know why it's called like this. Résumé Splitfins are less known aquarium fish – unjustly. Several species make excellent community fish and others are worth setting up a species aquarium on their own. They are very interesting in their behaviour, not just whilst mating and the striking or unusual colours in some of the species and their reliance upon maintenance by aquarists should convince more aquarists to keep these fish.



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