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History

Robert John Lechmere Guppy (born August 15, 1836 in London; died August 5, 1916 in San Fernando, Trinidad and Tobago) discovered this tiny fish in Trinidad in 1866.

The fish was named *Girardinus guppii* in his honour by Albert C. L. G. Gunther later that year.

Taxonomy

 The fish had previously been described by Wilhelm Peters in 1859 on material collected from South America as

Poecilia reticulata

- Although Girardinus guppii is now considered a junior synonym of, the common name "guppy" still remains.
- Over time guppies have been given a variety of taxonomic names, although *Poecilia reticulata* is the name currently considered to be valid

Distribution

 Guppies are native to Trinidad and parts of South America, specifically Antigua and Barbuda, Barbados, Brazil, Guyana, Netherlands Antilles, Trinidad and Tobago, the US Virgin Islands, and Venezuela.

However, guppies have been introduced to many different countries on all continents, except Antarctica. Sometimes this has occurred accidentally, but most often as a means of mosquito control, the hope being that the guppies would eat the mosquito larvae slowing down the spread of malaria. In many cases, these guppies have had a negative impact on native fish faunas



Live bearers

- Along with the related Swordtail (Xiphophorus helleri), platy (Xiphophorus maculatus) and molly (Poecilia sphenops), the guppy belongs to the family Poeciliidae — a group commonly known as the livebearers.
- Poeciliidae consists of 37 genera and about 330 species, and distributed from the eastern United States to South America and Africa, including Madagascar. Despite their common name, not all poeciliiids are livebearers. All 80 African species in 12 genera lay eggs, as do the six species in two American genera of Tomeurus and Fluviphylax
- Livebearing poeciliids, with few exceptions, are generally found in moderately hard to hard water of about 10–30 GH). A few species are also found in brackish water

Black platy Xiphophorus maculatus







Xiphophorus maculatus -Platy

Xiphophorus helleri – Sword tail

Black molly *Poecilia sphenops*



Blood red sword tail Xiphophorus helleri







Sailfin molly (*Poecilia latipinna*)

Guppy (Poecilia reticulata)

Classification of guppies

- The type of breed or name of guppy is not consistent around the world.
- Unlike dogs or other pets that have international exchanges guppy has different classifications in different countries.
- Also due to its various gene types a new type of breed is made every day which is not kept within a consistent standard.
 For example what we call Cobra in Korea is called Snake skin in the U.S. and Dragon in East Asia.
- We call Grass or Mosaic due to the classification of the pattern of the tail but in the States they classify them as 'any other color' or 'multi'. Gusamo(Korean Fancy Guppy association)



Type of tail

- 1) Wild: most common tail fin
- 2) Pin: the middle of the tail fin made longer
- 3) Spade: a tail fin shaped like a spade
- 4) Top Sword: the upper end of the tail fin made longer
- 5) Bottom Sword: the lower end of the tail fin made longer
- 6) Double Sword: both ends of the tail fin made longer
- 7) Lyre Tail:shaped tail with the middle part shorter
- 8) Delta: a triangular shaped tail fin
- 9) Fan: a tail fin shaped like a fan
- 10)Long Fin Type



Greens and Blues







Blue Cobra Guppy

Green Cobra Guppy









Oranges and Yellows







Neon Blue

Lyre tail



Purples, Grays and Blacks













Red Cobra

Red Fire



Guppy feed



- Guppies of any age relish baby brine shrimp
- Baby brine shrimp are extremely high in protein and very little else. Over feeding them can result in stunted growth of guppy fry.
- If fed as the first meal of the day they have a tendency to gorge themselves which can result in intestinal binding.
- a well rounded diet containing the proper amounts of animal and vegetable ingredients needed to assure the health of your guppies, and the sandwiching of the brine shrimp with flake food keeps the intestinal track moving without binding up your fish.











Breeding Guppies

Breeding guppies takes no special skills, simply leaving a male and female guppy in a tank together will produce results.

But breeding superior fish with very fixed qualities of colour, finnage and vigour is a different matter.

Quality requires great dedication, detailed record keeping, the ability to make sound judgments based on your results and a degree of luck for the random nature of genetics. What tank set-up would you use for the project? Breeding cannot be carried out in one single aquarium. All setups should be based on the bare tank method, being plant free and have no gravel substrate. I do, however, have Java moss and Java fern on the base of the bare stock tanks and growing on tanks.

- tanks sized 46 x 23 x 30cm/18 x 9 x 12" for breeding and 60 x 30 x 30 cm/24 x 12 x 12" for stock and growing on.
- The breeding tanks are where pairs are placed to mate and females are left to release their broods. The growing on tanks hold young waiting to be sexed and then hold the separated sexes.

How do I sex them?

Mature males are easily distinguished from females by the presence of a gonopodium — an inseminating organ modified from anal fin rays sticking out of the anal fin. Males are also slimmer and tend to be the more colourful fish







- Pregnant females have a prominent gravid spot which is a dark area behind the anal fin.
- Although less noticeable, pregnant females also have a larger belly and a more squarish appearance, particularly when viewed from the front

Space required?

- Not large space is required.
- From 500-1000 sq.m 1 lakh guppies can be producd/month.
- From a single female average 10/fish/month
- From 200 females >2000 babies
- It takes three months to reach market size.

Growth rate

- 1cm/month
- One male can fertilize 4 females
- In 500 liter water you can put 200 females and 50 males only.
- If more males are there they will feed on babies.
- Collect babies during morning & evening.
- Initially 5-10 larvae /liter of water
- After one month 1-2 larvae/liter.
- After one month separate male & female.

Diseases

- Observe every fish before sale
- In one year three generations can be produced.
- Male sex testosterone stops growth.
- Broken tail is lack of Vitamin C
- Formation of large belly or round fish-Genetic problem.
- Male Guppies have long fins that may be nipped by other fish, particularly by some barbs and tetras. Check the compatibility of any fish before buying them.
- While fin-nipping is common, shredded fins are sometimes a sign of Guppy disease, which is thought to be caused by the ciliate parasite Tetrahymena.
- Treatment is often difficult, but anti-parasite treatments, especially those containing some copper, can be effective.
- Adding aquarium salt at a dose of 2-3 g/litre can help reduce salt loss through the open wounds. Good water quality is vital.

□Your prime objectives should be producing fish in good health and vigor.

- There is sure to be a compromise between health and your desired characteristics but never allow that to happen unless there are no other options you can make.
- In which case make health the priority once you've acheived your characteristic objective.

What do I do if my female livebearer gives birth?

What do I feed livebearer fry?

- The first course of action is to separate the fry from females, as they are known to be cannibalistic and will eat their own young
- Livebearer fry can be fed a variety of fry foods, although newly hatched brineshrimp are considered best.
- Commercial fry foods and crushed egg yolk can also be given

To breed livebearers, what should be the sex ratio of the fish in my tank?

How soon can I expect fry?

- A ratio of one male to three or four females is ideal. Male livebearers are known to aggressively harass females to breed, so having more than one female to split the male's attention is a good idea.
- Livebearers typically take about four to seven weeks to produce a brood



MALE AND FEMALE GUPPIES

(Drawn from Life)

- Veiltail 1.
- 2.
- Betta Tail Scissor Tail 3.
- 4.
- Gold, Double Swordtail Leopard, Bottom Sword 5.
- 8.
- 7.
- S.
- 9.
- Albino, Scarf Tail Common Wild Type Gold (Female) Pointed Tail (Female) Common Wild, Sword Tail 10.

Limit Your Objectives

- Try to limit your to a few at first. You may want to improve fins and coloration, You may want to have different varieties.
- But the more varied your goals the less success you may have with colour, fins, vigour or conformation.
- Keep it simple at first.
- It is important if you keep a number of varieties in the same display tank to concentrate your breeding program on a small number of objectives.
- Remember if you do keep a mixed variety display tank that you shouldn't use the females from that tank for breeding.
- A number one rule that is important to remember is that a female guppy is able to store sperm that can be used to fertilize numerous broods
- You'll never be able to be sure of the father unless you use a virgin female with a specific male.
- This fact makes guppy breeding more complicated than breeding any other animals.

Achieving Objectives

- There are two ways in which you can go about improving your guppies.
- By assessing a number of feature together, then selecting from those fish that meet your overall standard.
- The other is to concentrate on one or two features at a time, then concentrate on other features only when the desired result in the former is acheived.
- Progress is slower when you are developing a number of features than if you limit your results to one or two.
- But either option achieves your objectives. Its your choice, but its always best to start simply.
- When tandem breeding (one feature at a time) is your method, be careful that, in moving to the next stage of your priorities, undue deterioration in the standard of the feature has been improved upon and is not a consequence.
- To limit the possibilities of this happening a "*line*" breeding program is encouraged but there are other methods you can use.

Breeding Techniques

Line Breeding/Line Crossing: This method is also a form of inbreeding, however here you start by keeping the fry from two females (either from your new trio or chosen fry from a drop) separate, so that they form two distinct lines. Since you cannot mix batches, this takes more tanks. It is best to choose breeders differently for each line; for instance, in one line, you may pursue a large body mass, and with the other, you may concentrate on finnage. The purpose is to help maintain your established strain, since each line becomes distinct and more distantly related; also, you can have your own two lines to cross occasionally. When you want to increase the size in your fish, for instance, or make an outcross to avoid too much inbreeding, taking someone else's line to do this with is risky and you may loose the traits in your line that you have worked hard to achieve, as well as loosing the homozygous quality of your guppies.





genetic breeding strategy!

- Commercial breeders are bringing new types of guppies to market with distinctive colors, patterns and finnage shapes creating a geometric increase in possible breeding combinations.
- One reason for this new popularity is that transporting tropical fish can now be safely and economically done over long distances
- The other reason is the Internet. Web sites like Guppies.com give you, the small breeder with unusual fish, a chance to sell hobbyist-to-hobbyist and even, if you are very good, to the commercial market

- You need multiple tanks in various sizes.
- In fact, you will need about 13 tanks per type of guppy you seek to develop.
- You can do it with fewer tanks, but you will probably not be very successful. You need to separate males from females. So with a breeding tank and two separation tanks you are up to three tanks.
- Now repeat that number of tanks for at least three other promising candidates for the type you are seeking to breed and add at least one "grow-out" tank for the culls to be sold inexpensively to aquarium shops.
- Thirteen tanks in all and you may decide to add two hospital tanks (one for males and one for females)
- Guppy females are capable of holding sperm internally from approximately six mating.
- This means that you must be very alert to separate the immature males from females. You will be the guardian of the virginity of literally hundreds of guppy females.
- The guppy breeding cycle is short, approximately 26 to 28 days. This means you see results quickly. You can see results from the first trials in less than a year
- Getting guppies to breed is not a problem as anyone who has kept these interesting, colorful tropical fish can attest. Using genetics is committing yourself to developing a specific type of guppy and is a challenge that will test your determination

Inbreeding

- \succ This is basically keeping a strain pure.
- The fish are kept closely related and brother and sister, father and daughter are routinely bred.
- A breeder will do this sometimes to fix a trait, such as a particular colour or shape.
- Mostly, you take the best male and female from the drop and breed them.
- Doing this can provide beautiful fish for years, provided the fish that you start out with are quality
- you are lucky enough to choose not only the most attractive fish, but to pick fish as breeders that do not have an invisible weakness-for these will show up in the form of genetic defects, often looked upon as simply the result of "too much inbreeding".

Take great care in choosing breeders; many times a strong body is the most desirable trait to keep an inbred line strong.

Out Crossing

- This is the opposite of inbreeding the mating of fish that are unrelated to other.
- This creates what is called a "hybrid" guppy. "Hybrid" vigor may be seen in such fish-outstanding size, colour, and health. The genetic patterns of the parents are scrambled/mixed up, and such fish may be good for show but not for breeding.
- An outcross with a fish that itself is only a few generations ahead of an outcross may produce beautiful fish for a few generations, but the loose gene patterns will turn them eventually into a fish resembling the small, original wild guppy usually sold as feeders in pet stores.
- Although this is, of course, how new strains are produced, it takes much time and knowledge of genetics to create a pure strain.
- Thus, it is not advisable for the novice to attempt an out cross in order to fix a strain.





















Most breeders stick with line breeding and do their best to choose fish to breed with that have the characteristics which they think will improve their lines, while keeping their guppies breeding pure.

- It's important to remember that guppies react differently with various methods of care, water conditions, and breeding methods.
- What works for one person may not work for you when trying to breed the exact same line of fish.
- Every strain varies in it's own needs and rate of development, as well.
- It takes years of attentive care and analyzing breeding techniques to find out just what works for you and your guppies.

This is what makes guppy breeding the fascinating hobby it is!







