

# BULLETIN

AUTUMN 2016



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*Nymphaea* var. 'Charlene Strawn'

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# QUARTERLY BULLETIN

**SUMMER 2016**

## CONTENTS

<i>EDITORIAL</i>		Page 4
<i>FISHY FUN RETURNS TO THE FARM -</i>	<i>Festival News</i>	Page 5
<i>WHAT IS WRONG WITH MY FISH?</i>	Dr David Pool	Page 12
<i>AMPHIBIAN KLEPTONS</i>	David López Bosch	Page 17
<i>THE AQUARIUM IN THE DESERT</i>	Dick Mills	Page 23
<i>KNOW YOUR FISH (Pseudomugil gertrudae)</i>	Joe Kaznica	Page 28
<i>THE GREEN CORNER (Nymphaea var.)</i>		Page 30
<i>HOW TO FEED THE MOST POPULAR PET IN THE WORLD</i>	Dr David Ford	Page 32
<i>WHERE IS ALL THE WATER GOING (Pond Problems)</i>		Page 37
<i>MALCOLM GOSS - A TRIBUTE</i>	Hounslow & DAS	Page 33

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**Edited, published and produced for the FBAS website by Les Pearce**

# EDITORIAL

A warm welcome to the Autumn 2016 edition of the Bulletin. It is good that, just for once, we have four extra pages to the normal 36. Most of this is due to information about the forthcoming Festival of Fishkeeping - plenty of details can be found inside.

As a change from the normal fishy articles, there is a fascinating article by David López Bosch on amphibian hybrids and kleptons. Want to know what a klepton is? Read the article. Dr David Pool begins a fascinating and informative series of three articles on fish health while Dr David Ford goes back to basics with some interesting views and tips for feeding goldfish. Dick Mills takes us on an exploration of a public aquarium in the middle of the Sonoran Desert.

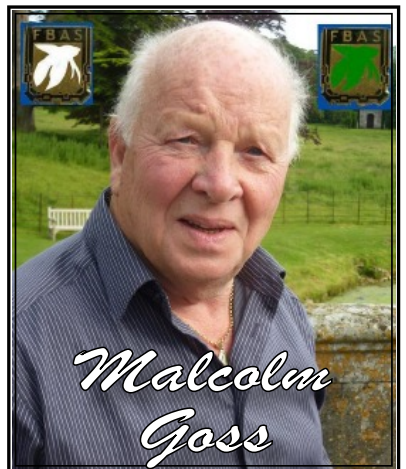
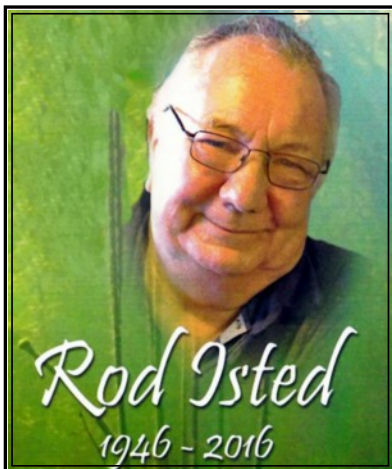
As most of you will know by now, our hobby has very sadly lost two of its long term stalwarts recently. Rod Isted from Portsmouth AS who for many years successfully bridged the gap between koi keeping and fish keeping and had a massive input to both. Rod was, for many years, the Federation's expert advisor on koi health. There was also Malcolm Goss from Hounslow & DAS, the former editor and long-time contributor to the Bulletin. Even after he retired from the Editor's job, Malcolm's contribution to every single issue was enormous and the Bulletin will be very much the worse without him. My one overriding personal memory of him was whenever I saw him at shows and meetings, he always had a ready smile, a warm, friendly and sincere greeting and was always ready with a laugh and a joke. The Bulletin will miss him and I will miss him personally. Hounslow Club offer some further words on Malcolm later in this issue.

Rest in Peace, Rod and Malcolm.

LES PEARCE (FBAS Bulletin Editor).

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Post to: 44 Weeks Road, RYDE, Isle of Wight, PO33 2TL



# FISHY FUN RETURNS TO THE FARM

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And a meet and greet with non  
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Feltham,  
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TW14 0LZ

**Come along and see some of the Best Fish Exhibits and Displays in The Country**  
There will be many British Bred Fish for Sale along with ex display tanks and equipment  
There will be Club Members, Traders and Experts all willing to help and give advice

**See You There it will be a Great Show**

Hounslow Urban Farm in Feltham will host the 30th Festival of Fishkeeping for the fourth time on the weekend of 1 and 2 October.

Hounslow Urban Farm, one of the UK's largest community farms, is expert at giving local children a real life experience of a working farm and hosting really fantastic events. So, during the weekend of 1 and 4 October, families will be able to enjoy both the interactive contact with domestic farm animals that the Farm offers, including rare and unusual breeds, as well as the Festival of Fishkeeping – all for the cost of standard entry to the Farm!

The Festival of Fishkeeping is the UK's biggest display and competition of rare breed, tropical fish and reptiles. It's a unique and fantastic opportunity to get up close to exotic, weird and wonderful fish and reptiles that can't be seen elsewhere, all in one place at one time. You certainly don't have to be nuts about fish to appreciate the splendour of the fish on display, which include Japanese Koi Carp, Discus, Killfish, Jinchu Kai and many more. If the weather is inclement, the undercover, heated environment will ensure comfortable viewing of the very best quality of fish and reptiles in full adult size and prime condition, brought together by fish breeders and hobbyists from around the country.

Activities and events will include the best in family entertainment including children's animal encounters, bouncy castle, bird of prey displays, pig and ferret racing, animal feeding, children's play zones, face painting, art and craft, animal games competitions, activities and demonstrations.

This year they will host the return of a competitive Discus Show, they also have the return of the international Siamese Fighters Display put on by LJB Aquatics. New to the line up is children's Nerf Dog Target Practice with the world famous Nerf Dog Tennis Ball Blaster.



There's plenty to keep families occupied for a whole day at a cost of £7.50 for adults, £6 for kids over 2 and £24 for a family of two adults and two children. Children under 2 go FREE!

For more information visit [www.hounslowurbanfarm.co.uk](http://www.hounslowurbanfarm.co.uk) or [www.fbas.co.uk](http://www.fbas.co.uk)

## FESTIVAL FISH COMPETITION DETAILS

The last chance for exhibitors to show off their fishes and plants in the FBAS Show season and for the public to be attracted into the hobby by viewing the very best in the aquatic world.

# SATURDAY 1ST OCTOBER

## FESTIVAL A.S. OPEN SHOW

Schedule online at [www.fbas.co.uk](http://www.fbas.co.uk)

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### **FBAS Championship Classes:** **(winners qualify for 2016 Supreme)**

C (Characins), La (Botia sp),  
S (Mollies/Limias),  
U (Single Tailed Goldfish)

### **Diamond Class:** **(qualifies for 2017 Final)**

G (Catfish)



**2015 Best In Show**



**2015 British Open Winner**

## BRITISH OPEN

(Fishes gaining 'Best in Shows' from any Open Show in 2016 qualify for this end-of-the-year 'Head-to-Head' Final shootout)

## DIAMOND CLASS FINAL

(Relying on the 'Home Game advantage' theory, winners of the Society nominated class have to do it all again in this popular completion Final Round)



**2015 Diamond Winner**

# SUNDAY 2ND OCTOBER

## SUPREME CHAMPIONSHIP FINAL

(This is the BIG ONE!  
Whichever fish wins, it's  
'Simply the Best.'

Qualifiers come from  
successful 2016  
Championship Trophy  
Classes  
Winners)



*2015 Supreme Champion*



*2015 Champion Pair*

## SUPREME PAIRS FINAL

(Favourite twosomes.  
2016 Pairs Classes winners  
qualify)

## SUPREME BREEDERS FINAL

(Four of a kind, or, Familiarity  
breeds! - 2016 Breeders'  
Classes winners qualify)



*2015 Champion Breeders' Team*



## OTHER ATTRACTIONS THROUGHOUT THE WEEKEND INCLUDE:

**DISCUS COMPETITION** - Supported by Devotedly Discus



Some see these magnificent fish as the 'Rolls Royces' of the aquatic world. Would you like to be the Judge to decide the winner from this collection?

**KOI COMPETITION** - Supported by



'Big is Beautiful' so they say.

Apart from admiring their beauty, spare a thought on the effort required to get fish into this condition and get them to the Show as well!



**SIAMESE FIGHTER DISPLAY** - Supported by LJB (see Page 11)

We keep these Piscine Pugilists apart for a very good reason. Gold Medal winners they could be given half a chance but many would lose their good looks in the process!



## FURNISHED & BREEDERS' AQUARIA DISPLAY



Presented by Hounslow & D.A.S. and supported by Aqua One.

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## SURPLUS HOME-BRED FISH SALES

It's surprising what you can pick up (at bargain prices too!) in this hobbyists-supported feature. To reserve tank-space for your sales (which you must supervise personally), contact Paul Corbett at:

Kimbles,  
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Newport,  
Isle of Wight PO30 3DP

Tel: 07926 354669



**FOR FULL INFORMATION ABOUT THE FESTIVAL OF FISHKEEPING,  
PLEASE CONTACT THE FESTIVAL ORGANISER:**

8 ACACIA AVENUE, BRENTFORD, MIDDLESEX TW8 8NR  
Tel: 020 88473586 or email [joenethersell@gmail.com](mailto:joenethersell@gmail.com)

## LJB AQUATICS

is pleased to announce we will be attending this year's Festival of Fishkeeping, October 2016.

We will be putting on a big display of some awesome fish that just can't be missed, Oddballs to make your eyes boggle, from **Gulper Catfish**, to large **Gars**, 30" specimen **Fire Eels**, **Stingrays** and much more, including a big display of **Asian Arowana**.

Also on display for the first time in the UK will be a large variety of high grade Thai-imported **Flowerhorn**. Come and see these awesome fish and ask any questions and seek advice regarding their care and history.

Of course, it would not be an LJB Aquatics display without the stunning and vibrant **Betta splendens**. Every tail type and colour you can imagine, all of a very high standard. We will be able to offer information and advice on this amazing species of fish.

Finally, there will be fish sales as well. We look forward to seeing you all there.

[Lisa Bradshaw](#)

**OCTOBER 1ST AND 2ND 2016**  
**Location: Hounslow Urban Farm.**  
Faggs Road, Feltham, Middlesex, London. TW14 0LZ  
Tel. 0208 8319658


**LJB Aquatics Presents:**  
World class Flowerhorn display  
Specimen fish and monster fish  
Oddball and predator fish  
The UK's finest Betta display  
And a meet and greet with none other than LJB's Lisa Bradshaw !

**Festival of FISH Keeping**

LJB AQUATICS

Facebook

# WHAT IS WRONG WITH MY FISH?

Dr DAVID POOL 

*Dr David Pool begins a fascinating and informative series of three articles on fish health - part 2, 'What is Wrong With My Water' in the next issue.*

The majority of fish and pond keepers will experience problems with unhealthy fish at some stage. Sometimes the cause of the poor health is obvious and it is relatively easy to treat the fish. However it can also be more difficult to get a good diagnosis despite looking at books, magazines and relevant web sites. In this, the first of a short series of articles on fish health, we will look at some clues that can be used to diagnose what is wrong with your fish.

## Recognising Unhealthy Fish.

The first stage in treating a fish is to recognize when it is unhealthy. Early recognition of an unhealthy fish is important if that fish is to be successfully treated.

The first signs of poor health are often a change of appearance or behaviour, which might include:

- Gasping at the water surface
- Sulking at the surface, bottom or behind structures in the aquarium
- Not feeding
- Clamped fins
- Rapid gill movements
- Change in colour
- Emaciation

Care has to be taken when interpreting these signs, as they are not always a

sign that the fish is not well. A change in colouration, for example, may indicate that the fish is in breeding condition, or has adjusted its colour to match the surroundings. Sulking behind structures may be the natural behaviour of shy or timid fish species. As a general rule however, if the fish are looking or behaving differently to normal it is advisable to have a closer look at the fish concerned.

## Diagnosis

These first observations give a clue as to the possible cause of the poor health. The secret here is not to jump to conclusions. Decide firstly why the fish is behaving or appearing as it is, and then what would cause it to do so. The list of possibilities can then be examined to determine the actual cause of poor health.

Lets look at two examples to demonstrate this stepwise diagnosis:

### *Fish Gasping*

You notice that a fish in your aquarium or pond is gasping at the water surface (opening and closing its mouth right at the surface of the water). It is gasping because it cannot get enough oxygen and there is more oxygen at the water surface. This does not necessarily mean that there is insufficient oxygen in the water. It could be that the fish is unable to get sufficient oxygen from the water.

Possible causes of this include:

- Pollutants. A build up of ammonia, nitrite and chlorine can cause irritation and damage to the gill membranes. The fishes response to this is to produce additional mucous in order to protect the skin and gills from irritation, but with the side effect of making oxygen uptake less efficient.
- Physical damage. This can result from severe poor water conditions, bad handling or parasitic attack. This will reduce the surface area of gill tissue that can actually absorb oxygen resulting in the fish not getting the quantity they need.
- Gill parasites. Parasites such as gill flukes (*Gyrodactylus*), protozoans and bacterial infection can cause both physical damage to the gill tissue and irritation of the membranes, resulting in excessive mucous being

produced.

- Blood parasites. High levels of blood parasites such as *Sanguinicola* (a parasite of carp) will absorb oxygen before it reaches the vital organs within the body.
- Low oxygen levels in the water. This could result from



*Gyrodactylus*  
Adult

too many fish in the aquarium or pond, or insufficient water movement to allow oxygen to enter the water. High levels of plants or algae can also remove oxygen during the night (when they are not photosynthesising and actually producing oxygen).

### ***Fish Rubbing***

A second example could be that you have observed your fish rubbing against underwater objects. Taking the diagnosis stepwise we have:

***Symptom of poor health:***

**Fish Rubbing**

***Caused by:***

**Skin or gill irritation**

***Resulting from:***

**Poor water quality (eg raised levels of ammonia, nitrite, chlorine or chloramine. Sudden changes in pH or hardness).**

**Skin parasites.**

**Gill parasites.**

**Abrasive particles in the water.**

It is important that you don't jump to the wrong conclusions. As an example of this, you may have noticed the fish were rubbing and the actual cause was poor water conditions. If you decided that it was due to gill parasites and treated the water for a parasitic infection you would cause further distress to the fish. As already mentioned, early diagnosis of a problem gives the best chance of controlling it effectively – so a wrong diagnosis can be a big issue because it delays taking the right actions

## How to Decide What Is the Problem.

After creating a list of possible causes of poor health, it is necessary to decide which one is responsible. One very good guide comes from the time of onset of poor health and its rate of spread. There are three main possibilities:

1. Affects all of the fish, or all of the fish of a particular species or size, and occurs quickly (say overnight). This suggests a water quality problem.
2. A small number of fish are affected initially, but this number gradually increases. This suggests an infectious disease.
3. Only one or two fish are affected and the problem does not spread to any other fish. This suggests a non-infectious disease, physical injury or malformation

The next stage in our diagnosis is dependent on which of the above groups the fish can be placed in. If the problem is due to water quality, testing, partial water changes and the appropriate use of treatments will help. If due to parasites, some indication of which parasite is responsible is important of the correct remedy is to be selected. In future articles we will look in more detail at water quality issues and some of the more common parasites.

### New Insect Meal Formula



## The Future Of Aquarium Fish Foods

**Uses cultured insect meal to ensure the food:**

Recreates the natural diet fish would eat in the wild

Environmentally friendly and sustainable

Easily digested for low waste

**Plus**

Naturally enhances the colour of the fish using Spirulina algae, paprika and krill

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# FishScience Aquarium Foods with Insect Meal

FishScience are pleased to announce the launch of their new formula fish foods, which are rich in Insect Meal. 'Insect meal is a fantastic new ingredient that we are using in the FishScience range of foods to replace much of the fish based ingredients that are traditionally used' explained FishScience founder Dr David Pool. 'Most of the fish we keep in aquaria are not fish eaters and yet the foods we give them are based on fish meal.'

The use of insect meal that is cultured in Europe brings a number of benefits both to the fish and to the environment:

It is eagerly consumed by the fish – after all it is what they would naturally consume in the wild.

It is efficiently digested and processed, as it is what fish have evolved to eat over millions of years

It reduces the use of fish meal which is taken from the sea, so providing an environmentally friendly and sustainable source of proteins.

And most importantly, the fish really like the taste and smell. Even difficult feeders can be tempted with the Insect Meal based foods.

'The research we have undertaken has been outstanding' continued Dr Pool 'fishkeepers instantly recognise the importance of feeding their fish on the insect based diet they would eat in the wild as well as the environmental benefits'.

All of the FishScience foods still contain natural ingredients such as paprika, shrimp, and Spirulina algae to enhance the natural colour of the fish, together with Garlic, Beta Glucans and omega oils to support the immune system and ensure the fish remain as healthy as possible.



FishScience foods with insect meal are available from aquatic stores throughout the UK and Ireland. For more details of this exciting new range of foods and to find your closest stockist please visit:

[www.fishscience.co.uk](http://www.fishscience.co.uk)





## **HYBRIDS AND SPERM THIEVES: AMPHIBIAN KLEPTONS**

**David López Bosch**

Reproduced from the website 'All You Need is Biology'  
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Original article may be found by clicking [HERE](#)  
'All You Need is Biology' home page click [HERE](#)

**IN BIOLOGY A HYBRID IS THE RESULT OF THE REPRODUCTION OF TWO GENETICALLY DIFFERENT PARENTS, ALTHOUGH IN MOST CASES HYBRIDS ARE EITHER UNVIABLE OR STERILE. YET IN SOME SPECIES OF AMPHIBIANS, SOMETIMES HYBRIDS ARE NOT ONLY VIABLE, BUT ALSO BECOME NEW SPECIES WITH SPECIAL CHARACTERISTICS. IN THIS ENTRY WE'LL SHOW YOU TWO CASES OF AMPHIBIAN HYBRIDS THAT FORM WHAT IS KNOWN AS A KLEPTON AND THAT MAKE THE DEFINITION OF SPECIES A LITTLE LESS CLEAR.**

### **WHAT IS A KLEPTON?**

A klepton (abbreviated kl.) is a species which requires another species to complete its reproductive cycle. The origin of the word klepton comes from the Greek word "kleptein" which means "to steal", as the klepton "steals" from the other species to reproduce. In the case of amphibians, kleptons have originated from hybridation phenomena. The amphibian's potent sexual pheromones and the multispecies choirs in the case of anurans, causes some males and females of different species to try to mate together. Yet hybrids are

only viable between closely related species.

Among the different klepton species we can encounter two different methods depending on the type of conception: zygokleptons, in which there's fusion between the egg and the sperm's genetic material, and gynokleptons, in which the egg needs the stimulation from the sperm but doesn't include its genetic material.

The different amphibian kleptons are usually constituted entirely by females (there are usually few or no males) that use the sperm of another species to perpetuate the klepton. As some kleptons depend on various related species, this can promote the creation of "species complexes" in which various similar species present hybridisation areas and very complicated relationships among them. Below you'll find two klepton examples, one in European anurans and the other in American urodeles.

## HYBRIDOGENESIS IN WATER FROGS

The European water frogs (Pelophylax genus) form what is known as a "hybridogenetic complex" in which the hybrids from different species form kleptons which can't reproduce among each other but, which must reproduce with a member of one of the parental species, "stealing" or "parasitizing" its sperm in order to survive.



*Photo by Bartosz Cuber of two edible frogs (Pelophylax kl. esculentus) in amplexus. This is the best known hybrid both because of its wide distribution, and for being considered a delicacy in France.*

In the hybridogenesis of water frogs the genetic material of both parents combines to form the resulting hybrid (zygoklepton). This hybrids (almost always females) will have half their genome from one species and half from the other. Yet, not being able to reproduce with a similar hybrid, during gametogenesis the hybrids eliminate the genetic material from one of

the parent species. This way, when reproducing with an individual from the

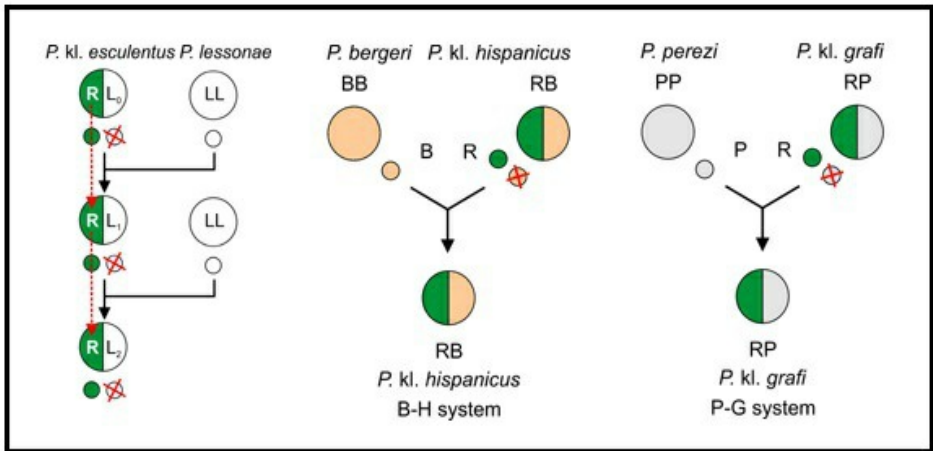
species whose genetic material has been deleted, they will form another hybrid.

<b>PELOPHYLAX</b>	<i>P. ridibundus</i> (R)
<i>P. ridibundus</i> (R)	<i>P. ridibundus</i> (R)
<i>P. lessonae</i> (L)	<i>Pelophylax kl. esculentus</i> (RL)
<i>P. perezi</i> (P)	<i>Pelophylax kl. grafi</i> (RP)
<i>P. bergeri</i> (B)	<i>Pelophylax kl. hispanicus</i> (RB)

*Scheme of the genetic composition of the different Pelophylax kleptons. In this hybridogenetic complex four "natural" species intervene: the marsh frog (Pelophylax ridibundus, RR genome), the pool frog (Pelophylax lessonae, LL genome), the Iberian waterfrog (Pelophylax perezi, PP genome) and the Italian pool frog (Pelophylax bergeri, BB genome).*

The edible frog (*Pelophylax kl. esculentus*, RL genome) comes from the hybridization between the marsh frog and the pool frog. The Italian edible frog (*Pelophylax kl. hispanicus*, RB genome) stems from a hybrid between the marsh frog and the Italian pool frog. Finally, the Graf's hybrid frog

(*Pelophylax kl. grafi*, RP genome) originated from the hybridisation between the edible frog (in which the DNA of the pool frog is eliminated from their gametes) and the Iberian waterfrog.



*Schemes by Darek2 of the hybridogenetic processes in the different European water frog's kleptons. The bigger circles represent the individual's genome and the smaller circles the gametes' genetic material.*

As we can see, the genetic information of the marsh frog is the only one present in all three kleptons. These kleptons delete the genetic material of the species with which they share their habitat from their gametes but keep the genetic material of the marsh frog (R). So for example, the edible frog (*P. kl. esculentus*) deletes from its eggs the DNA of the pool frog (L) with which it encounters and breeds in its natural range, resulting in more edible frogs (RL). The marsh frog seldom reproduces with some of its hybrids and if it does, they produce normal marsh frogs.

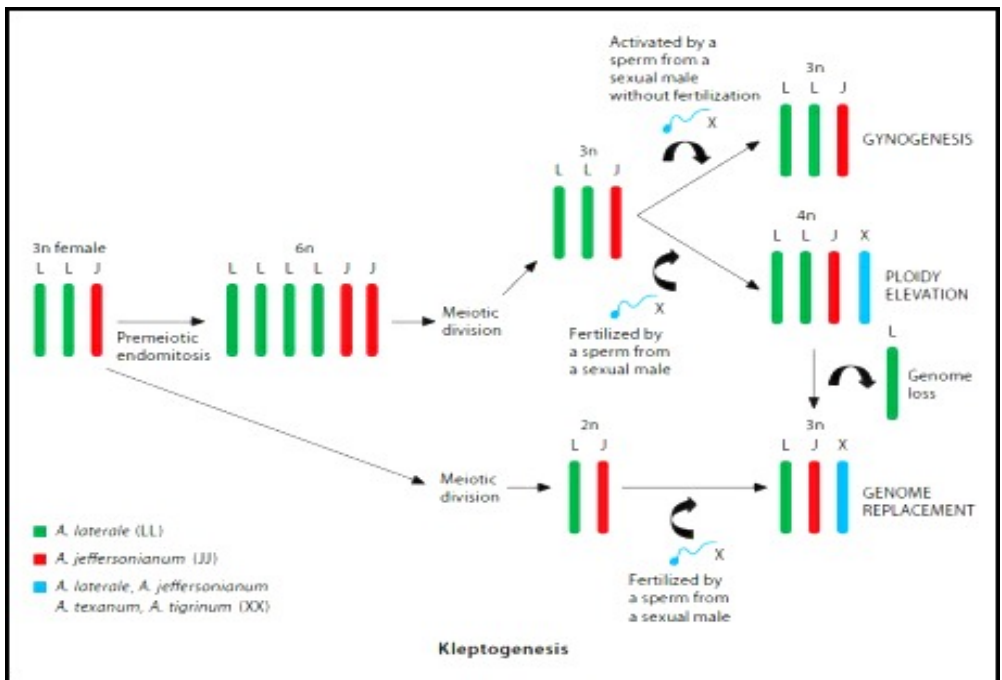
## SALAMANDERS WITH SEVERAL GENOMES

The salamanders of the *Ambystoma* genus, usually known as mole salamanders, are a genus endemic of North America and are the only living representatives of the Ambystomatidae family. Five of these species form what is known as the “*Ambystoma* complex”, in which these species contribute to the genetic composition of a unisexual lineage of salamanders which reproduce by gynogenesis (gynoklepton). Based on the mitochondrial DNA of the unisexual populations, it is thought that this complex originated from a hybridization event of about 2.4-3.9 million years ago.



*This complex consists of the five following species: the blue-spotted salamander (*Ambystoma laterale* LL genome, photo by Fyn Kynd Photography), the Jefferson salamander (*Ambystoma jeffersonianum* JJ genome, photo by Vermont Biology), the small-mouthed salamander (*Ambystoma texanum* TT genome, photo by Greg Schechter), the streamside salamander (*Ambystoma barbouri* BB genome, photo by Michael Anderson) and the tiger salamander (*Ambystoma tigrinum* TiTi genome, photo by Carla Isabel Ribeiro).*

In the gynogenesis of this all-female lineage, the egg needs activation by a sperm to start division and development but, it first has to duplicate its genetic material by endomitosis to avoid the formation of an unviable haploid (with half the genetic information) zygote. Yet, as in parthenogenetic reptiles, in the long term the lack of genetic recombination can take its toll on the individuals. That's why this lineage of unisexual salamanders has the capacity of occasionally incorporating the whole genome from the males of four of the species which constitute the complex (currently the reproduction of streamside salamanders with members of the unisexual lineage hasn't been documented).



*Scheme from Bi, Bogart & Fu (2009) in which we can see the different paths that the gynogenetic mole salamanders can take while reproducing.*

These individuals don't mix the newly acquired genome, they add it. Therefore, among the members of this lineage we can find diploid, triploid, tetraploid and even pentaploid individuals (even if as the ploidy increases the individuals are less apt to survive) depending on how many different genomes the previous generations had incorporated.



Among the klepton, the most common genome combination is that of triploids based on the blue-spotted salamander and the Jefferson salamander, with the genomes LLJ (left, image by David Misfud) and JJI (right, image by Nick Scobel), even though the number of combinations is incredibly large. For this reason why scientists haven't been able to decide a valid scientific name for this group of hybrid origins.

Unlike the water frogs, it is very difficult to define a scientific name for the klepton inside *Ambystoma*, as the genomes of the different species can be found in different combinations and proportions in different unisexual individuals.

## REFERENCES

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- Cover photo by Dave Huth.



# THE AQUARIUM IN THE DESERT

**DICK MILLS**

There's an obvious contradiction in displays at this mainly open air museum, and one that couldn't be more appropriate. In the middle of the arid Sonoran Desert, there's an abundance of water – both fresh and salt – to bring cool comfort to any overheated visitors who just happen to have an interest in aquatic life. The Warden Aquarium, opened in 2013, is situated inside the Arizona-Sonora Desert Museum just a few miles outside Tucson, reminds people of the possibility of life within the limited waters of the area. It does this in a very modest manner, exhibiting just a few native freshwater fishes before tantalising glimpses of the brilliantly coloured species that can be found westward in the Sea of Cortez, otherwise known as the Gulf of California, and other tropical seas.



The first area features native freshwater fish, particularly Chub, from the Colorado River. This famous river, responsible for carving out the Grand Canyon, also has the unusual distinction of never actually reaching the sea.



Humpback Chub – *Gila cypha*



Another species of Chub





The Apache Trout, *Oncorhynchus apache*, is a very popular sport fish amongst anglers.



Turning left in the 'L' shaped single display area brings a large marine aquarium into view.

Also in this immediate area is a touch tank containing small reef invertebrates, at an 'ideal for kids' height. Naturally the shapes, sizes and colours of the fish in the large aquarium attract the main interest, although the remaining separate marine aquaria all contain worthwhile exhibits. The following gallery shows some of them.



Photo: Courtesy of the Museum



Look-down *Selene vomer*



Convict Surgeon *Acanthurus triostega*



Angelfish



Cortez Rainbow Wrasse



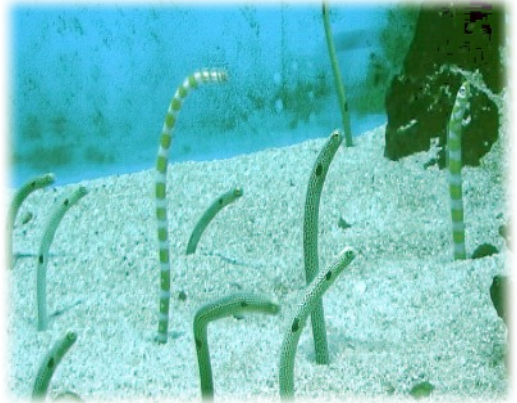
Obviously a favourite resting place!



Barred Flagtail *Kuhlia mugil*



No aquarium is complete without a Seahorse or two



Garden Eels



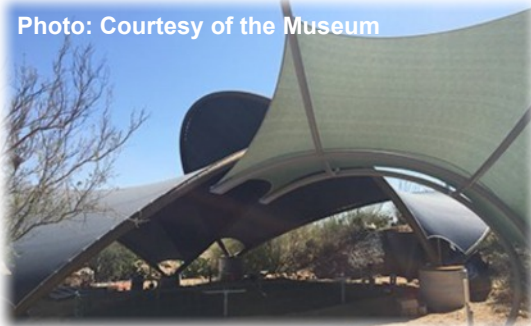
Spotted Toby



Hawkfish

### LATEST UPDATE:

Photo: Courtesy of the Museum



At the time of going to press, plans for the installation of a Stingray exhibit is nearing completion and is due to open later this year. It is understood to take the form of a large pool where visitors can actually touch the Rays, who will be regularly be de-barbed.

**Further Information: Warden Aquarium, 2021 N Kinney Rd, Tucson, AZ 85743, USA**  
[www.desertmuseum.org](http://www.desertmuseum.org)

# KNOW YOUR FISH

## Gertrude's Rainbow Fish *Pseudomugil gertrudae*

**BY JOE KAZNICA**

Reproduced from [www.aquarticles.com](http://www.aquarticles.com)

First published in Gravel Gossip, Diamond State Aquarium Society

Gertrude's Rainbow is a very small rainbow fish that is found in northern Australia and New Guinea. It comes from streams in five very localised areas and is not wide spread. It is part of fifteen species that make up the "blue-eye" family. When you see the fish, you will instantly know why it is a "blue-eye." Even as small fry, this fish has bright fluorescent blue eyes. The males are an overall green yellow in colour with bright yellow wing like pectoral fins. The dorsal and pelvic fins are very feather like. The female has shorter fins, but is very attractive by having an overall blush of orange, which is deeper at the tail. Both males and female are covered with spots. This species is also known as the Spotted Blue-eye. The adult fish is only a little more than an inch in length and is perfect for a small 2.5-gallon or 5.5-gallon aquarium. It can be kept in a community set up, but the inhabitants must all be very peaceful. It likes to be warm, about 80 degrees at neutral pH. It was first described by Weber in 1911, but was only introduced to the international aquarium hobby in the 1982 to 1985 time frame.

*P. gertrudae* is a very easy and interesting fish to spawn. It is what I call a "continuous spawner." I set up three males and six females in a ten-gallon tank at 80 degrees, pH of 7. I place gravel in the tank, just enough to cover the bottom. I add two green spawning mops. My spawning mops are made of nylon yarn. Each mop is made of about 25 strands of yarn, which are about thirty inches long. The mop is then folded in the middle so that you achieve a fifty-strand mop that is about fifteen inches long. I have seen



spawning mops of many different colours, but green seems to work the best for me. An important point with *P. gertrudae* is not to suspend the mops in the tank, but let them sink to the bottom. This species is a bottom spawner, and greatly prefers the spawning mops on the bottom. The males will display for the females as day light increases. Most spawning takes place about mid morning and is very gentle. The females lay one to three eggs per day onto the mops. After about a week, I take the mops from the tank and remove the eggs by hand into a one-gallon tank. The three females will give me about thirty eggs per week. I place some plants into the fry tank to get some microorganisms growing to be available as food once the eggs hatch. This is where you have to be patient as it takes about twenty days for the eggs to hatch at 78 degrees. Once I see fry free swimming, I add 'Liquid-Fry' food and baby brine shrimp about twice a day into the fry tank. Growth is quite rapid, and you will have an adult fish in about three months. If you keep this species by itself, you will find babies in the tank, as the adults do not appear to prey on their eggs or fry. However, you will only get a few fish this way. My own experience is that this species is not a very long lived and they should be considered annuals.

# Nymphaea var. 'Charlene Strawn'

THE  
GREEN  
CORNER



Water-Lilies have reinforced the visual attraction for many a pond whose conditions – water, nutrition and ample supply of sunshine – encourage strong (even too rampant sometimes!) Growth.

Like so many things, developments in availability and range of strains of the genus *Nymphaea* really took off once the Americans took an interest.

Lily 'pioneers' such as Perry Slocum, George Pring and Kirk Strawn were modern day seekers in hybridisation all yearning to learn the secrets of Latour-

Marliac the original Water-lily cultivator who cracked the production of the hardy water lily we know today. Only after Latour-Marliac's death in 1911 was it realised that he has successfully controlled the market (and his own business interests) by only releasing sterile hybrids.

In 1969 Kirk Strawn had a breakthrough when insect pollination resulted in one particular strain that was to prove significant.

He promptly named it Charlene Strawn, in honour of his wife. Apart from the obvious romantic allusion, the naming was fully justified as it was Charlene's idea in the first place to grow water-lilies.

Perhaps the moral of this story is always listen to your wife!

'Charlene Strawn' is suitable for medium-sized ponds upwards. The flowers are quite large, as are the leaves which turn yellow with age.

Flowers are generally held slightly above the water surface thus betraying their desire for hot sunshine and resultant warmer water than is usually found in temperate zones.



# HOW TO FEED THE MOST POPULAR PET IN THE WORLD

**BY DR DAVID FORD  
(Aquatic Services)**

...Which is a Goldfish, of course. Your editor suggested an article about feeding pet goldfish and he chose me for that advice. This is because I spent over 20 years feeding aquarium fish – including all the 14 varieties of goldfish – when working for the Mars Fishcare firm...



***Hard at Work...(I loved my job)***

He said it should be practical advice – which means that a long article on the nutritional requirements of goldfish is not needed! If you do want this information search Amazon or ebay for my book 'Practical Fishkeeper's Guide to Feeding Aquarium Fishes by David Ford'. It is available for little more than the cost of

postage...but you can read it online for free at [www.drdford.com](http://www.drdford.com) (choose 'Articles Page' and scroll down to 'Feeding Aquarium Fishes').

## **Underwater Cows**

Nutritionists call goldfish this because they browse all day, eating everything, especially vegetable matter. They digest what they need and pass the surplus via copious excreta. To prevent water fouling (they swim in their own loo) you need to ration them to just two meals a day.

Make those meals nutritious via a dedicated Goldfish Food. There are granules, sticks, tablets, freeze-dried, frozen and more, from literally dozens of



manufacturers, but the best choice is still the good, old-fashioned, flake.

As always, you get what you pay for. Quality Goldfish Flake is more expensive than caviar (by weight) but you are paying for all the ongoing research to make each flake nutritionally perfect. Cheaper copies are always available but the lower cost is from using cheap raw material in the manufacture.



***More like a Supermarket nowadays***

## Mealtimes



***A goldfish will suckle....  
it is like feeding a baby!***

Coincide your goldfish's meals with yours...best is breakfast and teatime or evening dinner. It (or they) will soon expect to be fed at those times and be ready to accept, and to digest, their food. Make it a special occasion by hand-feeding...that is the beauty of a flake diet, it can be offered from your fingers.

Hold the flakes between thumb and forefinger and just dip them slightly into the meniscus. Initially the fish will avoid you, so then just release the flakes. Repeat twice

daily and usually a goldfish will learn, within a few days, to take the flake as soon as you dip it into the water. The fish will be waiting for you – and your hand-of-God food – each morning, dashing up and down the glass front. And at teatime.

## How Much to Feed

The makers all recommend feeding continuously until the fish lose interest (about a minute) which is good advice. The goldfish does not really 'lose

interest', goldfish do not have teeth, they suck the food into their throats where plates grind it up for swallowing – chewing the cud. When the throat is full, the fish need to chew away, swallow, and then look for more. Sometimes, if too much is taken in, they spit it out and have another go later.



***Small Flakes or Platelets by Tetra  
and Aquarian's Larger Flake***

How many flakes depends on the flake and goldfish sizes. Aquarian Flake is large and for a 3 inch (7cm) goldfish 6 flakes (2 per inch – exclude tail) is sufficient nutrient twice a day. Other makers have smaller flakes – so double these quantities.

With the 1 minute rule, you can start by overfeeding, reducing the number of flakes to the desired amount next time and then just take a pinch based on experience.

If you overfeed and excess food lies on the bottom, it should be removed, because the goldfish are 'full'. Use a 'dip tube' to remove it. A siphon tube can be used if you know how to prefill it from the tap (do not suck on a siphon tube – a mouthful is possible and remember that comment: fish swim in their own loo). A fish net can be used, but make it a fry net (small mesh) because a standard fish net will allow particles to pass through. A small number of ignored flakes can be left to reward the fish when it starts browsing. Any excess after, say, half an hour is best removed before it starts to dissolve nutrients into the water, where bacteria will use it to 'bloom'.

## Treats

Just like their owners, goldfish enjoy a food treat. Once a week is enough - they need their daily nutrition for health from a complete food, not 'treats'. There are lots of Fish Treats on the market; many are in tablet form, which can be mounted on the front glass. Useful for bringing the fish into view.

You can even feed them on your food! When eating your meals, a (small!!) bolus of partly chewed food can be taken and dropped into the aquarium...but



always remember that food that is good for you is also good for goldfish. Never include dairy or sweet items. Fish, shellfish, non-fatty meats and any vegetables are best.

The makers of fish foods are always bringing out 'new, advanced formulae'

to capture the market. Any of these can be tried as a change for the goldfish – although sometimes the fish do not like to change, rejecting the new food at the first feed, but accepting it at the next feeding. Depends on the personality of the fish – they are all as different as their owners.



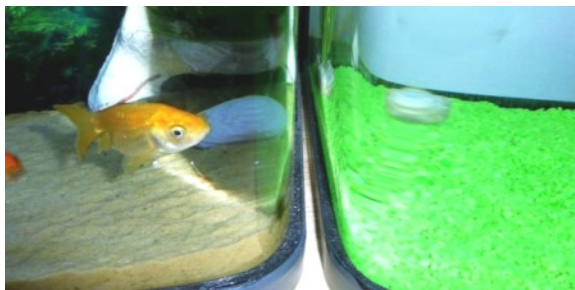
***FishScience have launched a new recipe Goldfish Flake with Insect Meal replacing Fish Meal.***

## Goldfish Need to Be Happy

A happy fish is a healthy one and that cow-like feeding behaviour means goldfish love to browse all day long looking for titbits in the tank bottom.

The latest trend in aquarium décor (often from Disney films) includes





**A Soft Sandy Base**

**A Hard Stony Base**

brightly coloured gravel. Goldfish need 'mud' not 'stones' to suck in and out. Ideal is the children's play sand because it is soft and has a tiny particle size. (When bought, it will be very dusty and needs thorough washing or it will cloud the water.)

In the above photograph, on the left, is soft sand, rippled by the constant attention of the goldfish – on the right are coloured stones that may trap food that goldfish (or you) cannot reach. Sometimes the small stones get trapped in the goldfish's mouth too. Stay with decorative ornaments (the goldfish tolerate these) not colourful gravel.

## Goldfish Are Not Vegans

Goldfish are descended from wild Carp, who are Vegans, but centuries of domestication and breeding into body-changing varieties have made them omnivorous. There is no stomach for digesting vegetable cellulose (just one long alimentary canal) but they still retain that need for 'green' food. All this is taken into account with the Aquarian Flake formula. That is why I recommend their brand as a basic diet...but use all the others as a change or novelty treat. Any Goldfish with a normal fish body shape (Common, Shubunkins, Comet) need the Aquarian Goldfish Flake with its added vegetable matter. The Fancy Goldfish (Veiltails, Orandas, Lionheads, etc.) with their rounded bodies have potential digestive problems – seen by floating or turning upside down (their equivalent of your 'gas' problem). Reduce this by using a higher protein flake (less carbohydrate – for why, see that book described above). Fancy Goldfish breeders use Aquarian Tropical Flake rather than the Goldfish one.

Why do I recommend Flake – it is stabilised for a long shelf life, sterile (unlike live foods), nutritionally complete (the best quality ones) and can be hand-fed (so you can interact with your pet). The only element missing compared with fresh foods is water – which (unlike you) fish do not need. It is also delicious....





It's rather disconcerting when, for no apparent reason, the water level in your pond drops. Faced with this scenario on arriving home after a holiday we were taken aback to say the least. The water level was down to the shelf level. Neighbours

who had been 'pond-sitting' for us in our absence confirmed that the loss occurred between the Friday and the Monday when we arrived back.

A quick external inspection of the pond's surrounds revealed no wet patches so a more measured approach was called for. The overall design of the pond featured an in-pond pump feeding a filter box located on top of the pondside rockery, with the returning water traversing down a three-stage cascade. The pond itself (around 700 gallons) was a preformed rigid fibreglass shell. Starting at the top, an inspection of the contents of the filter box revealed no clogged media and no overflows. All pipework was secure.



None of the stages of the cascade (see left) had become dislodged through settlement of the soil beneath and individual checks of each stage's 'levelness' and interlocking joints showed the same watertight integrity. However, I did discover a rogue

root from a small bush (top left in picture) had climbed over the lip of the cascade and was happily trailing in the water flow. Grabbing a pair of secateurs soon parted the root from parent plant and I thought we had found the cause of the leak – more of a suck really. But after a couple of days, the water level dropped again.

The next logical step would have been to turn off the filtration system and see whether under 'no flow' conditions water loss stilled occurred. This would have meant that the leak was somewhere in the pond's fiberglass shell. Before I took this step, fate took a hand. In order to inspect the filter box earlier necessitated the cutting back (drastically) of four Thuja bushes that hid the filter from view. Thuja is a wonderful evergreen upright bush that 'only grows a couple of feet or so in the first few years' – but they never tell you what the growth rate is likely to be after that! So, I found myself perched precariously above the pond with a hedge trimmer cutting it first down to size and secondly reducing its 'front to back' dimensions so I could lift the lid off the filter! You've guessed it! A whole lot of bush cuttings fell into the pond (thankfully not accompanied me!) and to retrieve them I had to don waders and do it by hand. Whilst I'm standing in the pond, the thought occurs to me that there is a flaw in getting into a pond to look for a leak: if the water level had dropped and stabilised, my body displacement would have pushed the water level back up again and searching the water-line for holes would have been futile. So there I am, up to my 'proverbials' in water (incidentally on a nice warm sunny day) when just at the end of the day my wife says 'Can you take out that basket of irises from the corner, they're always a nuisance to get at,' so I duly oblige, and thought no more about it. As usual the pond gets topped up again. Next morning, NO DROP in water level!



Looking back, I dimly remember (my default level nowadays) was that the basket containing the Irises had a thick mat of algae/duckweed on the top that had grown out sideways across the lip of the pond. Immediately behind this was a very vacant hole into the rockery (circled above). Presumably, capillary action had set up a natural siphon through the algae mat and time had done the rest.

As a footnote (pardon the pun) I did notice whilst in the mud the depth of silt on the bottom had increased a lot, so next time it's out with the pond-vac, but I'll wait until my Water-lilies have finished for the season first.



## *Malcolm Goss*

Hounslow & District AS

Malcolm Goss passed away on Saturday 20th August only a few days after he and Gloria had joined other Hounslow members for the annual HDAS BBQ. Malcolm had been in poor health for some time but remained his usual cheerful self and was looking forward to the coming Festival of Fishkeeping, where his prowess as a Furnished Aquarium expert would have been seen. Malcolm can only be described as a great servant and asset to the hobby; he had an 'eye' for aquatic design and his interest in Catfish and plants was legendary. He maintained a very close relationship with ichthyologists such as Gordon Howes and Oliver Crimmen at the

Natural History Museum. Malcolm's fishkeeping connection included Riverside A.S., the Thames Valley (TV) Catfish Group and to the Association of Aquarists for whom he Judged and was a Guest Speaker. Hounslow later not only relied on Malcolm for his Judging skills (at Table and Closed Shows), but also enjoyed many of his illustrated talks too.

For several years he was Editor of the FBAS Bulletin and could seemingly conjure up a news item from the flimsiest snippet of information. Full of creative ideas, he had only recently come up with the idea of videoing Hounslow members' home ponds for a club-night competition.

Some people also had the good fortune to experience his culinary skills, as Malcolm was a most accomplished cook. Away from fishkeeping, his voluntary 'day job' included pond maintenance and he also fulfilled many duties at Rickmansworth's Conservative Club where he acted as Treasurer, Social Secretary and Chef – usually all at the same time and very often on the same night!

Many fishkeepers will have met Malcolm as a Guest Speaker and/or Judge at Society meetings and Shows over the years and the hobby will be a great deal poorer in his absence.

We know fishkeepers everywhere will extend their condolences to Gloria and the rest of Malcolm's family at this sad time.

Hounslow & D.A.S.

# OCTOBER 1ST AND 2ND 2016

**Location: Hounslow Urban Farm.**

Faggs Road, Feltham, Middlesex, London. TW14 0LZ

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