

PLANT SPECIES PROFILE — NEW SERIES

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JULY 2005 £3.25

# Today's FishKeeper

## Passionate About Fish



## World's Longest Red Oranda...



### PRICKLY TO TOUCH

Fishfish profile. **PAGE 22**

### LOOKING BACK

Breeding angelfish. **PAGE 24**

### ALGAE AND BLANKETWEED

Overcoming the problems. **PAGE 46**

### THE BLUE ACARA

Beautiful and interesting. **PAGE 50**

### Ryan Shackleton Realises His Dream

When he caught his first carp as a young lad, Ryan, now 16 years of age, knew that he wanted to work in an aquatic shop but never thought he would realise his dream. **SEE PAGE 71.**

SPECIAL REPORT ON THE WORLD'S LARGEST ORNAMENTAL FISH SHOW

TAKE OUT A SUBSCRIPTION NOW TO TODAY'S FISHKEEPER - MORE INFORMATION PAGE 39

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The magazine for hobbyists

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# Welcome



**W**elcome to the first issue of *Today's Fishkeeper* published by Valley Publishing Ltd. I apologise for the non-appearance of the June 2005 issue but there was insufficient time to go into production once the purchase of the magazine from PS Magazines Ltd. had been completed. The following is a press release published in *Aquatic Trader*.

#### "Valley Publishing buys *Today's Fishkeeper*"

*Today's Fishkeeper*, the UK's oldest magazine for the hobby, has been bought by Lancashire-based Valley Publishing.

The publication – founded in 1924 and formerly known as *Aquarist & Pondkeeper* – was previously owned by PS Magazines, sister company of *Aquatic Trader* and pbnews publisher Pickwick Swales.

Liz Donlan, director of Valley Publishing, told us: "I'm delighted at being able to take over such a well-known and long-established magazine as *Today's Fishkeeper*. It is our aim to build on what is probably the UK's oldest and most respected aquatic magazine.

Indeed, I can well remember having a letter published in the 'What Is Your Opinion' column by Billie Whiteside back in the 70s when I'd just made a 100-mile round trip to purchase two Silver sharks from Matlock Garden Centre at £9.95 each!

*Today's Fishkeeper* will initially retain a similar format to the existing magazine but, no doubt, over the coming months, there will be a few changes – after all, we all like to put our own stamp on things. There will, however, be a revamp of the front cover from the start just to show that the magazine has been revived.

I'm absolutely delighted that most of the regular contributors have come on board from the start – plus a few new ones. I hope to increase the coldwater section slightly as there seems to be very little on this side of the hobby at the present time.

I would like to take this opportunity to thank everyone at PS Magazines for all their help with the take-over of *Today's Fishkeeper* and wish them all the best for the future with pbnews and *Aquatic Trader*.

Valley Publishing also produces *Marine World*, the UK's leading magazine for the marine hobby, which is just entering its fifth year of publication."

I would also like to thank all the contributors who have so willingly submitted articles and have supported me one hundred percent to ensure the continuance of *Today's Fishkeeper*. Welcome back as well to all those lapsed subscribers who have renewed their subscriptions.

Needless to say, the production of this first issue hasn't gone smoothly but, hopefully, now that it has finally been published it will continue to go from strength to strength.

**Cheers for now,  
Liz Donlan**

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# Starting Point...



Just beginning in the hobby?  
**Pat Lambert** writes especially for you

In fishkeeping very little is set in stone, particularly when it comes to the maintenance of certain species. Let's look at one particular fish, *Micropoecilia picta*, which is a small guppy-like livebearer species. It is not widely available in the hobby but it illustrates how one can so easily go wrong. In general, this fish comes from brackish water – all the books tell you to keep it in brackish waters in which they will thrive in the aquarium. However, in the habitats of some populations the water is soft and acidic and, even after being captive bred for several generations, soft acidic water is their preference. This makes

To successfully keep and breed many species we have had to become water carers with some knowledge of water chemistry.

*Micropoecilia picta* a difficult species unless you know exactly where it comes from, and there are quite a few species like this.

Authors will frequently refer to old reference books, repeating information



Male and female *Micropoecilia picta* – great colour variations in wild males from the same habitat, some quite spectacular. All females are a rather dull grey.

that is outdated – and sometimes wrong in the light of present day experience. The problems we all face is that new non-

specialist books do not always give up-to-date information. For this it is best to refer to specialist publications for the more unusual species.

Today's fishkeepers deal with so many species of fish, including so many wild species that have become available to them, that their knowledge and understanding of natural habitats has become increasingly important since water is the environment in which fish live. Many species that were extremely difficult to keep in the past have now become comparatively



Marine keeping has successfully increased with the understanding of water chemistry

easy to keep and breed but in order to successfully keep and breed many species we have had to become water carers with some knowledge of water chemistry. Think how difficult it was to keep Discus but because we know that fish care and water quality go hand in hand we have had more success, but neglect the water chemistry and less adaptable species will perish. The understanding of water chemistry has led to an increase in successful marine keeping over the past 20 years.

### From the bottom up

I would like to stress the importance of the substrate (the material which covers the floor of the aquarium). It is important from the outset to get it right. The right substrate leads to the well being of your fish, the wrong one can create all sorts of problems for your fish and you, not least of which is having to empty the tank completely and start all over again. Yet often there is not enough care taken in the choice. The substrate chosen should be aesthetically pleasing as well as suitable for the fish and plants the aquarium will hold. Pea gravel from the aquarium shop is medium grade and the one that is widely used, this allows for some foraging by those fish that habitually grub around in the substrate. This standard gravel has few nutrients in it, these nutrients will be supplied by fish waste as the tank matures. Some substrates have nutrients already mixed in but nutrients can be added. Corydoras can damage their barbels unless the gravel is smooth and fairly small. River sand is a very good choice for these fish as unlike other sands it is non compacting and has rounded grains.

Black gravel is often used for many tetras who prefer subdued lighting as this, aided by the dark substrate, makes their colours shine out.

Don't just think of the substrate as a cover for the bottom of the tank, it's so

Substrates can change water chemistry. Peaty substrates soften the water and make it more acidic. Coarse sand and limey substrates harden it and make the water more alkaline.

much more than that.

### Fishes that sift and burrow

Corydoras skuttle around the bottom of the tank sifting for food buried in the substrate. They do this using their barbels which are designed especially for this function. An unsuitable substrate which is coarse and rough could permanently damage the barbels which play an important part in spawning, the damage may be so severe that they are unable to breed. River sand has been found to be a suitable substrate for these species but pea gravel has also been used.

### Corydoras Panda

Some years ago when a friend decided to get rid of her Corydoras panda youngsters to make way for other fish, she passed them on to us. Not being Corydoras specialists but inveterate breeders we set them up for breeding. Our friend said they bred well if you placed several mops on the base of the tank. True to form they bred. The eggs were very large and easy to pull off the mops and were spread out in a 12 x 8 aquarium where they hatched. They regularly bred for us and are a quite delightful species. Sexing them is quite easy (as you can see in the photo) The black mask which runs through the eyes to the top of the head gives this species its common name. Easy to keep and breed and growing to 50mm this is a very attractive bottom dweller and a peaceful addition to the community tank.

Someone once said that they couldn't breed in that way - my reply was, "Tell my fish because they're not listening to your instructions". That's fishkeeping for you!



Black gravel is often used for many tetras

### Spiny eels

These burrowers are named for the many spines located behind the dorsal fin. I bought one of these years ago (when I didn't know better) at a reasonably small size. Their nostrils are situated on the end of long stalks projecting from each side of the nose. These make them look cute when projecting above the substrate. These burrowing species will flee into the substrate at the first sign of trouble so the sandy substrate is needed for making it easy for them to retreat into. They are nocturnal creatures diving for cover at the least opportunity given, which means you rarely see them. Most grow to a very large size and, innocent that I was, I bought one of these. It died before it reached any great size which was just as well in my 60cm tank.

There is a small one which only reaches 9cm called the Short-finned spiny eel. This fish can be kept with fishes of a similar or larger size and the zebra patterning is quite attractive. This is, however, still a nocturnal predatory species like all the rest of them and you will need to be quick to see it. It needs a good supply of live food in its diet.

**Warning** - If you need to catch a spiny eel out you could think it might have been wiser not to put it in there in the first place.



Family of Corydoras panda - female left



Pair of Corydoras panda - female on left

## LOST FOR WORDS

### Acrylic tanks

These tanks are being used in public places replacing glass aquaria as a much safer alternative. Modern techniques and design have led to durable, stylish tanks with no sharp corners. If a youngster has his own aquarium in his room these are the safest to use in that situation. Old type plastic tanks are still useful though less stylish, subject to diminishing visual clarity, and cannot be made to the large sizes that acrylics can.

### Ambient temperature

When applied to the location of the fish tank it is the temperature of the air in the immediate environment surrounding the tank.

### Ambush predators

Species like the Pike top Minnow are ambush predators. They wait around, hidden among the dense planting and as prey comes along they dash out from their hiding place to snap up a meal. Some ambush predators dash out even when not hungry to attack any unsuspecting victim that swims by, scales, flesh and fins torn apart by these voracious predators.

### Aspredinidae

These are the Banjo catfishes – an interesting group but not particularly colourful. In the aquarium they lie on the substrate or even in it. The bumpy, noduled skin in mottled shades of brown make a perfect camouflage when they lie in the leaf litter of their native home. They are nocturnal and need to be kept with fishes of a size big enough not to fit in their capacious mouth.

### Chitin

The rigid outer shield or shell of crustacea and other invertebrates. The exoskeleton created with chitin has to be shed periodically as the creature grows as it cannot grow with it.

### Nest builder

Apart from the bubble-nesting labyrinth fishes there are many other fish that build nests. Our common stickleback builds an elaborate nest which the male guards very vigorously. Some species of Piranhas have been observed in the wild to prepare a nest in a pit where they have dug out the plants to make a bowl and guard the eggs.

### Papilla

In appearance it is like a small nipple. Genital papilla in some species is the only way in which females can be distinguished from males.

### Whitewaters

Amazonian white waters are the natural habitat of many of our aquarium fish. The water contains much sediment and suspended material carried down from the Andes mountains. Rich in nutrient but lacking clarity, underwater plants do not receive enough light to flourish but floating plants however are extensive and dense growing areas are found along the emergent banks. The water is soft with a neutral pH and contains a great abundance of fish, mosquitos abound being a rich food source for the fish and a constant menace to us humans.

## Top Tips

1. When using tap water for a water change, I always pour some water into a glass tumbler to see that the water is clear when it settles and I smell it. My water authority is very good and always informs us of major works to the supply, but pipes burst and supply is curtailed. When this happens chemicals are added which may affect the water. Never do a water change when the water is cloudy, always wait until it is clear. A water conditioner can be added at the same time as the water change or immediately afterwards.
2. Before setting up a new aquarium in your home always test it for leaks, a new tank shouldn't leak. It usually doesn't but it's better to be careful than sorry.





# Corydoras sterbai

**W**hen it was first described in 1962 by Dr Joachim Knaack *Corydoras sterbai* was a rare sight in the aquarium hobby, hailing from the Rio Guaporé a large river bordering Bolivia and Brazil. The species has, over the last six or seven years, become more readily available, and is now one of the most popular of all the *Corydoras* species. It has everything going for it, firstly it is a very peaceful and active species, which does not hide very much and gets on well with its tank mates. The second, and probably the species best feature, are its looks, with a light golden body covered with chocolate brown markings and the striking golden yellow pectoral and ventral fin spines. To complete the hat trick they are one of the easiest of the *Corydoras* species to breed. There is now an albino form, which also shows the golden yellow fin spines.

#### Requirements:

As with most members of this catfish group *Corydoras sterbai* are easy to keep and maintain – a well-furnished aquarium with a sandy substrate would be ideal. The water should be clean, the parameters are not critical with a range of between 6.5 and 7.5 pH and a general hardness of up to 6 dGH. They are very tolerant of conditions outside of these ranges, but would not be so sharp looking or so willing to breed. This is a species that does tend to like conditions a little warmer than most other *Corydoras* species and a temperature range between 24°C and 27°C would suit them well. When it comes to food this species is not a fussy eater and will consume almost anything offered, but will relish live foods such as *Daphnia*, Tubifex, Bloodworms or white worm. If live food is not available, there are a wide range of commercially prepared frozen varieties, which are equally accepted.

#### Profile

<b>Scientific name:</b>	<i>Corydoras sterbai</i>
<b>Common name:</b>	Sterba's Cory
<b>Size:</b>	60 mm sl. Males 65 mm sl. Females (sl. = Standard length, Body length)
<b>Aquarium type:</b>	Community
<b>Distribution:</b>	Rio Guaporé, Brazil, Bolivia
<b>Diet:</b>	Live foods, frozen foods, tablet, granulated and flake foods
<b>Temperature:</b>	24° - 27°C



# Today's news

All the latest news and products from the world of aquatics

## Laguna cleans up your pond!

No matter how big or small your garden, a pond or water feature will bring it to life and create a striking focal point. Once you've decided on the sort of pond you want, choosing an effective pump and filtration system is key to keeping the water flowing and crystal clear.



### Ultimate Power!

The Laguna PowerJet Max-Flo pump will deliver the power you need to circulate water and drive waterfall features in ponds up to 22000 litres. This revolutionary pump provides the ultimate in solids handling technology, able to pass solids up to 8mm directly through to your filter. High power specification and proven reliability makes the Max-Flo the ideal choice for any non-fountain system.

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The new range of Laguna Pressure-Flo pressurised filters offer the ultimate water filtration and clarifying technology. Thanks to the patented backwash system, you can carry out routine cleaning in seconds without opening the canister and the built in mechanical, biological and ultra violet filtration will keep your pond water beautifully clean and clear.

### The Ultimate Clear Water Solution!

Now these perfect partners can be bought as a complete clear water kit. The Clear Flo clear water kit comes in 4 sizes for ponds from 2500 – 12000 litres. Each kit contains a PowerJet Max-Flo pump and a Pressure-Flo pressurised UVC filter. The kits are all competitively priced below the combined RRP of the 2 individual items contained.

Make sure your pond receives the very best by installing Clear Flo, the ultimate clear water kit!

2500 Clear Flo Kit (for ponds up to 2500 litres)	£254.99
5000 Clear Flo Kit (for ponds up to 5000 litres)	£319.99
8000 Clear Flo Kit (for ponds up to 8000 litres)	£414.99
12000 Clear Flo Kit (for ponds up to 12000 litres)	£489.99

For more information contact Rolf C. Hagen (UK) Ltd on 01977 556622 or visit their website at [www.hagen.com](http://www.hagen.com).

## Addition to Arcadia pendant range

As larger, deeper marine aquariums are becoming more and more popular, Arcadia have added a new model to the 3-Series range of metal halide pendants.

At 160cm long, and fitted with three 400W 14,000K metal halide bulbs, supplemented with two 58W marine blue actinic fluorescent tubes, the new model is ideal for the larger reef aquarium (larger being the key word).

Rather than being mounted within the pendant, the ballasts for the lamps are contained in a remote box which is housed outside the aquarium, and so significantly reduces the weight being suspended from the ceiling – analogue timers are also housed in the same box.

Recommended retail price for the new model is £1199.99.



## Auto feeder

Interpet's new aquarium Auto feeder has a quantity regulator with an adjustable dispenser. This controls the amount of food and time it's released into the aquarium, providing your fish with an accurate and consistent flow of healthy, balanced food.

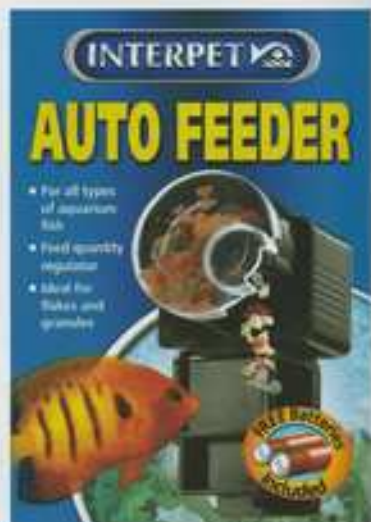
The Auto Feeder can be used for all or part of the time depending on your situation – whether you are going on holiday, have small children with a tendency to over feed or simply have a forgetful memory.

As one of the main causes of death in fish occurs when they are over fed, Interpet's autofeeder is an ideal way to ensure the correct amount of food is supplied each day.

Because the Auto feeder can be filled with flake or granule food it can be used for all species of fish and with its supporting frame and adjustable screw the feeder can be fixed to sit over most aquarium glass.

At an affordable price of £15.99 Interpet's Aquarium Auto feeder is easily installed and supplied with batteries.

Available at all good Aquatic retail outlets.



## Minipond feature pump

Blagdon 'The pond masters' are pleased to announce an extension to their comprehensive range of pumps. Designed specifically for indoor and outdoor water features the new Minipond feature pump 275i, 550i and 550 are high quality pumps that incorporate advanced technology. This enables them to run an array of water features.

Blagdon can boast a product that is highly accessible and useable with a compact and stylish design. Achieving excellence with a committed diligence to ensure these powerful pump motors are easy to maintain and are aesthetically pleasing with their distinct trade mark colours. Because these pumps have just a single moving part impeller system, only three simple steps and the pump can be disassembled and cleaned. Blagdon have now integrated a slide control valve into the design. This design feature allows you to adjust and control the flow of water to your preference. The Minipond feature pump 275i has a maximum flow rate of 275 litres per hour and a maximum head height of 50cm. The 550 and 550i models have a maximum pumping height of 130cm and a maximum flow rate of 550 litres per hour. The Minipond 550i comes complete with 3 metres of cable and a fitted plug whilst the 550 comes complete with a 10 metre cable. Each model comes with a comprehensive Pond Master Guide instructions leaflet.

Blagdon's new minipond feature pump range provides uncompromising quality with a one year guarantee at very competitive prices: Minipond feature pump 275i MRP £16.99, 550 MRP £28.99 and MRP £19.99 for the 550i.

**Tip:** to improve performance and pump life use Blagdon's pond pump cleaner to remove built up lime scale and waste.

Ask your aquatic retailer for a demonstration, or for more information on this or any other Blagdon products, please write to: **The Blagdon Information Centre, Interpet, Vincent Lane, Dorking, Surrey, RH4 3YX**



## Nishikoi Sinking Pellet ~ New pellet sizes and new bulk pack

Nishikoi Sinking Pellet has become established as the UK's best selling sinking pond food. It is ideal for pond keepers who want to offer their bottom feeding fish a single, sinking food, providing the same high performance of Nishikoi Growth for sterlets, tench and catfish.

**New Medium Pellet Size:** Since Nishikoi launched Sinking over 10 years ago, it has only been available in a small pellet. However, as pondkeepers' sterlets have thrived and grown each year, Nishikoi has been inundated with requests for a larger pellet. Consequently, Nishikoi has now launched a new medium sinking pellet.

**New Pack Sizes:** Pondkeepers now have a wide choice of 4 different pack sizes, including the new 4.5Kg Value pack – available in small and medium pellet sizes.

Pack Size	Pellet Size	RRP
550g	Small, Medium	£8.85
1350g	Small, Medium	£15.45
4.5Kg	Small, Medium	£49.99
10Kg	Small, Medium	£99.99



## Phototech lighting

Blagdon 'The pond masters' have a new, revolutionary low voltage light range. Designed for both ponds and gardens, these innovative lights bring a whole new perspective and create a magnificent sculptured drama in the garden. Phototech lighting can be used to enjoy your pond and its surroundings at night to under light fountains, illuminate pond plants and rocks, highlight waterfalls, illuminate patios and lawns, emphasize pots and plants, light up paths and walkways, under light small trees and shrubs.

The Phototech Amphibious Pond and Garden lighting offers a simple approach to installation with a wealth of choice. The options are quick and easy to use: a garden fitting bracket with spike can simply be inserted to soil or gravel in any chosen part of the garden. The garden mounting bracket allows you to choose the exact direction of the light and the in-pond tray support base can be filled with gravel or stones for added stability and disguise. Each fixture and fitting is provided with every light as well as an array of coloured lenses, spare bulbs for each light, five metres of low voltage cable per light, cable connector and weatherproof transformer plus a comprehensive guide to installation and maintenance.

The Phototech range comprises of a single 35 watt spotlight pack, and a three or five 20 watt spotlight pack. With each light achieving a range of 13m, Phototech lighting perfectly enhances a garden's beauty and provides a welcome extension to everyone's evenings. Transforming darkened rockeries and capturing the tranquility of fountains and pools against the night sky.

Blagdon's new Phototech lighting range provides uncompromising quality with a two year guarantee at very competitive prices. Single spot pack mrrp £46.99, three spot multi pack mrrp £89.99, five spot multi pack £129.99. All are ideally run from a Blagdon powersafe switchbox.

Ask your aquatic retailer for a demonstration. For more information on this or any other Blagdon products, write to: **The Blagdon Information Centre, Interpet, Vincent Lane, Dorking, Surrey, RH4 3YX**



# Ever-tempting Tetras

**W**hat has the Neon Tetra (*Paracheirodon innesi*) and the Red-Bellied Piranha (*Serrasalminus nattereri*) got in common? On the face of it very little! Few natural parallels would appear to exist between these two widely differing and seemingly totally unconnected species.

On the one hand we have the much loved Neon, undoubtedly one of the all-time most popular inhabitants of the tropical community aquarium. Its diminutive dimensions, brilliant colouration and inoffensive nature have long delighted and inspired aquarists at every level of the hobby. On the other hand, we have the Piranha, possessing apparently almost opposing characteristics and qualities.

So what is the link? Certainly both originate from the soft slightly acid water conditions of the South American rainforests. Both exhibit a small adipose fin, of questionable purpose, located dorsally between the dorsal and caudal fins as well as a number of other positional and skeletal fin similarities.

The connection to which I refer, however, is in some respects a more basic and obvious one. At least it is in the case of the Piranha! The presence of

teeth! Yes – a feature common to both fishes are jaws equipped with well developed teeth.

True, in the case of the Neon a fairly close examination is required to detect them, whereas, with the Piranha they are highly conspicuous. Triangular, razor sharp teeth being of such size and pattern that the creature often experiences difficulty in fully closing its mouth; the characteristic that, of course, is fundamentally responsible for the fish's fearsome reputation.

Although, in many ways, perhaps hard to believe, both species are, in fact closely related, each belonging to one of the world's largest families of fishes – the Characidae. All members of this group possess well-developed jaw teeth and those collectively known as tetras include some of the smallest, most beautiful and compatible aquarium fishes.

## Bite-Size

Compatibility should, of course, not necessarily be interpreted to mean an inability to inflict injury. On the contrary, teeth are designed for biting and when they have a mind to do so many tetras are not averse to using them on other members of their company!

This must, however, be put in proper context. Unquestionably, tetras make ideal, if not essential, members of the general community aquarium. Few serious problems should be experienced with the majority of the numerous lovely forms offered to the aquarist.

Most are small, reaching on average 3-4cm in length. Injuries, when inflicted, are consequently also small and in the main seem to constitute cosmetic damage rather than any major threat to health. Though, of course, there can be individual exceptions to this!

A close look at the occupants of a community aquarium will sometimes reveal evidence of tetra damage. This is normally seen as bite-size chunks missing from the fins, typically the caudal and dorsal, of other inmates. Those affected may be tetras or completely different forms.

It is certainly true to say that some tetra varieties are more disposed towards fin nipping than others. Circumstances and conditions within the aquarium itself can also, in my view, have significant influence on the likelihood of it happening. But more about this later!



Red-Bellied Piranha



Neon Tetra

## Primitive

Tetras, in common with all members of the family Characidae, have, when considered in the context of overall evolutionary progression relatively primitive status. Evidence of this can be found in the fish's dorsal and anal fins where there is a complete absence of real spines. Also, in the position of the ventral fin pairing which is set well back on the body.

Compare these features with those of more modern fishes such as Cichlids. Here, the ventral pairing is located much further forward and proper spiny rays are found in the dorsal and anal fins. These are particularly well developed in the anterior section becoming softer towards the rear.

## Shoaling

In their natural habitat almost all tetras shoal by instinct. Not only is this the basis of a complex social structure but also represents a form of protection.

As an integral part of the shoal each member is likely to become part of a disciplined pecking order. A sort of hierarchical system where individuals find contentment and apparent security in feeding and knowing their place and position within the group's overall structure.

There is also safety in numbers, or at least a perception of it! In the event of a predator endeavouring to pick off a particular member of the shoal, or if the group is startled for some other reason, the panic movement of one fish will immediately trigger a similar response throughout the whole pack.

The result of this being that the complete shoal suddenly accelerates together as a single unit, though not necessarily all in the same direction. This combination of pattern and movement can, in some cases, momentarily confuse an attacker causing it to take its eye from

the prey fish.

One of the clearest recollections from my early fishkeeping days is of a large beautifully furnished and planted display aquarium in a dealers shop containing a huge shoal of Cardinal Tetras (*Paracheirodon axelrodi*). The

veritable kaleidoscope of dazzling colours and symmetrical patterns created by the fishes as they suddenly unthinkingly changed course was truly breathtaking.

I have always been convinced that this wonderful aquarium that made such a lasting impression upon me must have been responsible for generating the initial spark of inspiration for many a would-be fishkeeper.

Who knows? I certainly hope so! It is important that the natural shoaling instinct is not denied to tetras in the average aquarium. Although, of course in most cases this is likely to be on a relatively limited scale. All too often the community aquarist will

purchase a wide variety of fishes in pairs so as to maximize the number of forms represented. This may be fine with some species, but not tetras!

A pair of Glowlights (*Hemigrammus erythrozonus*), for example, will never be as secure and contented as would be the case with a small shoal of say eight or ten. Only when they are able to feel part of a collective unit will they really sparkle and be seen at their best.



Glowlight Tetra

Photo: T. Koster

The presence or otherwise of a shoal can also, I believe, significantly influence certain behavioural characteristics. In particular those associated with the previously mentioned tendency of some tetra species towards fin nipping.

Take, for instance, the Serpae Tetra (*Hyphessobrycon serpae*). This fish,



Serpae Tetra

Photo: T. Koster

probably more than almost any other tetra variety, has gained something of a reputation as a nipper. A reputation that in many instances is not undeserved!

Nevertheless, I have found that specimens kept in ones and twos and thus denied the opportunity to shoal are far more likely to vent their frustrations on the fins of their neighbours than are those that are allowed to fulfil the natural grouping instinct.

This is, of course, not to suggest that all molestation will necessarily be eliminated. As with almost any species some individuals may be more inclined towards violence than others and occasionally definite 'rogue fish' can develop. But broadly speaking, provide the security and contentment that comes from the shoal and friendly fins are more likely to remain intact!



Shoal of Cardinal Tetras



Congo Tetra

Mark Thomas

### Distribution

With few exceptions, most notable of these being the magnificent Congo Tetra (*Micralestes interruptus*) originating in the Republic of the Congo (formally Zaire), the majority of aquarium tetras have a natural distribution in South America concentrated on those regions covered by the mighty Amazon and its tributaries.

The River Amazon, as a matter of general interest, is regarded as the greatest river in the world. Greatest, in this context, meaning the largest overall volume of water, with an outflow at its mouth so immense that even 64 kilometres (40 miles) out into the Atlantic Ocean fresh water remains at the surface.

In terms of length, however, the Amazon at 6,570 kilometres (4,080 miles) is only the second longest river on Earth. The distinction of the longest going to the Nile, which at 6,695 kilometres (4,160 miles) exceeds it by a clear 125 kilometres (80 miles).

But as they say "size is not everything" and from the point of view of the average aquarist the Amazon region is the natural home to many of the most beautiful and fascinating fishes found anywhere in the world. The many varieties of tetra undoubtedly being among the most prominent.

### Water composition and quality

Beneath the rainforest's dense canopy of trees and overhanging vegetation the rivers, creeks and streams of Amazonia, where the majority of tetras naturally inhabit, are mostly soft and acid in composition. The huge quantities of decaying plant matter that contribute to these conditions often turning the water an attractive deep amber-like colour.

Ideally, of course, these are the conditions that tetras will appreciate in the aquarium. But they are by no means

essential, except perhaps for breeding! Most species are pretty tolerant and will live long and healthy lives in a variety of water conditions, all other things being equal! A high standard of water quality is, however, vital – this being achieved through efficient filtration and, more particularly, regular partial water changes.

Obviously, if you are establishing an aquarium specifically for South American tetras then it is well worth the effort to try as far as possible to artificially re-create these natural conditions. If, however, they are to form part of a general community set-up then clearly compromise is called for. Here, average conditions are likely to be the answer with water chemistry and composition generally suitable for all occupants, though perhaps not perfect for any!

### Aquascene

A tank containing tetras should ideally be heavily planted whilst at the same time offering good areas of free-swimming space. This is best achieved by concentrating plants towards the back and sides of the aquarium leaving the central section relatively free. A nice piece of bogwood is also very suitable for this aquascene and in many ways helps to show the beauty of the fishes off to

maximum advantage, as well as often helping to give the water a natural amber-like hue!

Lighting is not critical so far as the fishes are concerned, but if natural plants are used it must obviously be of sufficient intensity and duration to promote healthy growth. If artificial plants are the choice, aquarium illumination can be geared to the aquarist's own requirements.

### Breeding

Some varieties of tetras are without doubt easier to spawn than others. In many instances it often seems that the most beautiful and desirable forms frequently prove the most demanding when it comes to reproduction. But not always! Species that just a relatively few years ago would have been considered difficult or impossible by all but the most experienced, are today often successfully spawned by comparative newcomers to the hobby. Such is the advancement of knowledge and technical expertise!

The best chance of spawning success undoubtedly lies in soft acid water conditions and of course a sexually opposite pair. I realize that with this latter point I may well be accused of being facetious or of stating the blatantly obvious. But the fact remains that many tetras are extremely difficult to accurately sex and it certainly would not be for the first time that two males or two females had been mistakenly brought together with the hope of a spawning.

As the fishes get older sex identification does become easier. Probably the most reliable method is to observe from directly above when the profile of the female's body can be seen to bulge a little when compared to that of the male.



Shoal of Seara Tetra

Mark Thomas

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Barry Cranwell from London, who is passionate about discus, has created beautiful aquatic gardens for his discus to live in. Barry started keeping tropical fish seven years ago, but five years ago was drawn to discus by their grandeur and demeanour and their beautiful colours. Barry, a fashion photographer, is not interested in breeding discus but was looking to create beautiful moving pictures in his room, which he has achieved splendidly.

Barry has two beautiful discus aquariums. The first aquarium is a Rena aquarium (120 x 70 x 50cm) fitted with a black background outside the tank. The tank is fitted with Dennerle under-gravel heating. This is overlaid with silver sand and Dennerle fertilisation compost followed by a layer of black quartz gravel. With this base, the plants that include Vallneria gigantea, Vallneria spiralis, Nymphaea lobs (green and red varieties), Hydrocotyle (Giant and Sunset), Echinodorus tenellus, Echinodorus ozelot and Java Fern are doing amazingly well. Ceratopteris



Flame Red Discus

# Sheer Beauty

cornuta, the beautiful Indian waterfern, also known as water sprite, floats at the water surface softening the light and helps to keep the nitrates down at the same time. Another important factor that keeps the plants growing so well is that CO<sub>2</sub> is

bubbled at a very low rate into the tank each evening between 5.00 and 11.00pm supplied from a small CO<sub>2</sub> cylinder. Carefully selected pieces of bogwood and coloured rock among the plants add sculpture to this aquarium. The aquarium lights, supplied by Dennerle with four tubes are turned on from 9.00am until noon and then again from 5.00pm to 11.00pm. The reason Barry turns the lights off in the afternoon is because he has heard that algae hate siesta in the afternoon which leads to algae dying off.

The water in the tank is London tap water that is filtered through three MM80



Barry Cranwell's beautifully planted Discus tank





System cartridges supplied by Purity On Tap. The water is stored in a large barrel where it is heated and aerated overnight prior to the daily partial water change in the morning. Weekly water tests confirm that the water conditions are near perfect with nitrite and ammonia showing as nil and nitrate at just 5mg/L. Since the temperature is kept at a steady 30°C, oxygen levels are between 5 and 8 mg/L. Water hardness parameters are KH 6 and GH 10 with pH at a steady 7.2, which is fine as Barry does not intend to breed discus. Apart from the daily partial water

change (5-10 gallons), water is kept in tip top condition and circulated by an Eheim 2026 external filter as

well as a Dennerle internal filter station and a UV steriliser.

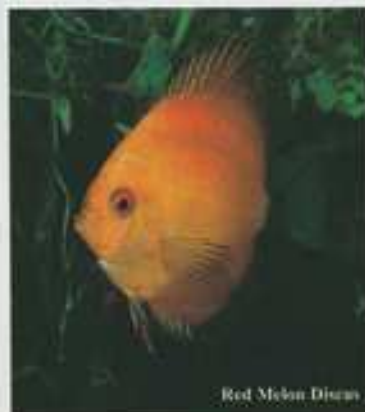
Eight discus enjoy the luxurious conditions that this planted aquarium provides. There are two sub-adults, a Royal blue discus and a Pigeon blood discus. Six smaller discus include Red Melon and Blue diamond discus all of which look very healthy and have a voracious appetite. A huge shoal of about thirty Cardinal tetras and smaller shoal of pencil fish slip in and out of the greenery and are a wonderful sight to behold. The clean-up crew consists of a large tribe of Ammanno shrimps and Bumblebee shrimps which do a wonderful job of keeping the aquarium algae free and removing any food that hits the bottom. The discus are fed twice a day on a variety of foods from the Discus Delights selection, The Gourmet Discus Diet Hamper supplied by Plymouth Discus



Pigeon Blood Discus



Royal Blue Discus



Red Melon Discus



([www.plymouthdiscus.com](http://www.plymouthdiscus.com)). Gamma rated frozen blood worm is also fed but no live food is ever used to avoid introducing any disease. A discus wormer is used once a month to prevent the discus getting infested with worms.

Barry's second aquarium consists of a Juwel 300l black combo aquarium (120 x 50 x 50cm) fitted with a Back to Nature background inside the tank. This background incorporates filter sponges behind it. This aquarium is set-up similarly to the first one with silver sand and black quartz gravel holding lots of plants that are doing well even though it lacks the CO<sub>2</sub> bubbler. The lighting system is supplied by Arcadia with an Original and a Tropical tube which lights up this shallower tank very well. This tank also has a Dennerle internal filter station, an Eheim 2026 external filter and a UV steriliser. Currently this tank has two sub-adult Flame red discus plus twelve Rummy nose tetras. The group of



Ammano shrimp in this tank have all taken up residence behind the **Back to Nature** background and are rarely seen in the main tank.

Barry has bought his discus from a number of suppliers including Chris Ingham of **Plymouth Discus**, Barry Howland of **South Eastern Discus**, Glyn Whalley of **Atlantis Discus** and Mark Evenden of **Devoutly Discus**. All these suppliers have been knowledgeable and very professional, all providing a reliable overnight delivery service. The Neon and Rummy nose tetras have been purchased

from **Tropical and Marine** of Lower Richmond Road SW14, which is Barry's favourite fish shop, even though they do not stock discus.

Barry's advice for anyone wishing to start with Discus for the first time is to get the biggest tank they can afford that will fit comfortably into their home. This should be a minimum of 100cm long and 40cm tall. The hobbyist should read up about discus and also look at various discus websites and forums, absorbing as much information as possible before making any purchases. Barry suggests buying the best equipment and having two of everything (a backup in case of emergency, for example on a cold winter night). Barry goes on to say that discus are magnificent fish that will give one years and years of pleasure displaying beautiful colours and ballet-like movements. If Barry had his way, he would knock down a wall in his home to make room for a bigger discus tank!



Flame Red Discus

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# The secretive *Synodontis* *contractus*

*Synodontis contractus* (Vinciguerra, 1928) comes from the Congo region of Africa, (Stanley Pool) near Kinshasa. It is a relatively small species growing no larger than eight centimetres. It has a very mild temperament, which means it would be a suitable tank mate for almost any community aquarium, although would be best kept with one or two more of its own kind. It is very similar in looks to the more common encountered *Synodontis nigriventris* (David, 1936) except that it has a bigger head, broader mouth and far larger eyes. It would not be the first time that this fish has been described as ugly, but that's all in the eye of the beholder. This is pretty much a nocturnal species spending most of the daylight hours in hiding tucked away in shady areas, quite often in an inverted position amongst the vegetation, under fallen branches or pieces of driftwood.

## Requirements

This is a fish that takes a little time acclimatising, but once settled are relatively easily maintained. Providing an environment close to their natural habitat will help speed up the setting process. Using a sandy substrate their aquarium should be furnished with pieces of bogwood, some largish stones and have densely planted areas; plants like *Anubias* and *Echinodorus* that possess large overhanging leaves are especially good at creating hiding places, floating plants will also add cover and subdue the light.

The natural diet of *Synodontis contractus* consists mainly of insect larvae, which they search for under overhanging leaves and in the bio film that forms on rocks, fallen branches and tree roots. They also spend a lot of time upsidedown grazing on the surface

## Profile

Scientific name:	<i>Synodontis contractus</i> (davioli)
Common name:	Bug-eyed catfish
Size:	70 mm sl. Males 80 mm sl. Females (sl. = Standard length, Body length)
Aquarium type:	Well planted peaceful community
Distribution:	Congo region of Africa, (Stanley Pool) near Kinshasa
Diet:	Live foods, frozen foods, tablet, granulated and flake foods
Temperature:	24° - 27°C

plankton. In aquaria they will readily accept frozen foods such as *Daphnia* and bloodworm, as well as commercially prepared tablet, granular or flake foods.

Although considered nocturnal, given the right conditions this fascinating little fish can be observed quietly moving around in the shady areas of a well-decorated aquarium. Given the right conditions it is possible to induce this species to breed. My own group of three have produced one batch of thirty, large (3.0 mm diameter) bright orange eggs – these were hidden away high in a back corner of the aquarium and were accidentally moved while cleaning a side glass, which resulted in their failure to hatch.



# Bruce and friends

**G**iant, record-breaking goldfish, never-before-seen varieties, millions of fancy goldfish of every hue – plus a boundlessly enthusiastic fish breeder, all add up to an unforgettable experience for any fish lover. That's precisely what awaited me during my recent visit to China – more specifically, to the province of Guangdong in the south of this vast subcontinent.

Guangdong is one of the three top ornamental fish-producing regions in the whole of China, along with Beijing and Shanghai. It is estimated that there are around 100,000 people – out of a total population of 50 million – involved in the ornamental aquatic industry in the city of Guangzhou (formerly Canton) and the surrounding Pearl River Delta alone. Most are involved in fish breeding and selling, but there is also a sizable percentage employed in the various accessory industries.

## Long-awaited Visit

The flatlands, bordered by mountains that extend between Guangzhou and Hong Kong, are particularly rich in fish farms, especially as they enjoy an excellent climate, have abundant natural water



Jackie Chan, co-proprietor of Tung Hoi Aquarium Co., standing in front of the sterilising shoe baths located at each entry point to the breeding and rearing area.

resources derived from the Pearl River and its tributaries and are within easy and rapid access of the two cities' international airports. Not surprisingly, it is here that some fish farms which I had been waiting to visit for many years are located.

The farms in question are owned by Tung Hoi Aquarium Co., a world-renowned fancy goldfish breeder and exporter. I have known one of the owners, Jackie Chan, for many years, and have long enjoyed the constant stream of new varieties that he and his brother, Louis, produce. However, despite frequent trips to southeast Asia, I had never managed to visit their farms. This time, though, circumstances were perfect, since my presence in Guangzhou for China's first-ever all-aquatic show, *Aquaria China* (where I was judging dragon fish and speaking at the conference) meant that I was just 1½ hours away by road.

In total, Tung Hoi own three farms: the original small one established in 1986, a breeding/raising farm in the town of Bo Luo, and a holding/exporting/shipping farm at Shi Long. Owing to the limited time at our disposal, we opted for the Bo Luo and Shi Long installations.

## Some Basic Details

Tung Hoi specialises, not just in breeding and exporting high-quality fancy goldfish, but also in creating new varieties. A couple of these, a black and white Ryukin and a black, white and red one had been exhibited at *Aquaria China* a few days earlier. These rather unusually coloured deep-bodied Ryukins are still in the earlier stages of commercial production and could become available soon – or may even



General view of the concrete ponds (there are also several large earth ponds) at the Bo Luo breeding and rearing farm.

be so by the time this article appears in print.

The breeding section at the farm is constantly being expanded and currently extends over an area of 157,000 square metres (nearly 1,700,000 square feet!). Over 7,000,000 goldfish – in over 100 varieties – are produced annually from the numerous ponds spread out over the breeding area, from where they are eventually shipped to numerous countries, as well as to most parts of China itself. Besides China, the leading markets for Tung Hoi fish are Japan, Singapore, Taiwan and Indonesia.

They also sell some of their top fish to Europe, but in much smaller quantities. The demand for large, quality fish – at corresponding prices – is not present here, at least, not at the moment. As Jackie pointed out during my visit, Europeans do not appear to want to pay the sorts of prices that a high-grade 8-in

## The fish Tung Hoi don't sell



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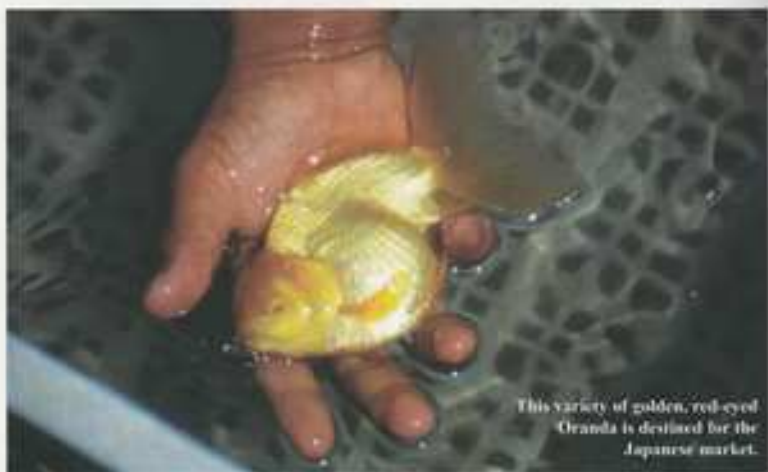


The top Ranchu is of the Japanese type; the lower one with the rounded nose is a typical Chinese-type specimen.

Ryukin, Ranchu and Moors. Then, there are those that are hardly, if ever, seen in Europe. I will therefore concentrate on just a few of these in the following paragraphs and accompanying photographs.

Pearlscales are usually found in orange or a combination of white and orange or red. Blue Pearlscales, however, are extremely rare and specimens measuring around 4-6in (10-15cm), even rarer still. I saw hundreds of these in one particular pond, the two specimens shown in the accompanying photograph being quite typical (in other words, I didn't ask for any particular specimens to be placed in the floating basket for me to have a close look at). Equally unusual were similarly-sized Panda Pearlscales with black and white bodies and fins.

The Ranchus were also exceptional, but what struck me most strongly about



This variety of golden, red-eyed Oranda is destined for the Japanese market.



A superb Tosakin showing the characteristically elegant folds in the tail.

them was that there were two main types being cultivated (each in a variety of colours). One is bred almost exclusively for the Japanese market, while the other is for the Chinese and other markets.

The photograph (left) shows one of each type. Can you spot the difference? Look at the head – it is completely blunt or straight-edged in the top fish and rounded or slightly pointed in the other one. The former is the Japanese Ranchu and the latter, the Chinese version. There are other subtle differences too, but this characteristic is the most easily observable.

Quite why Japanese enthusiasts want a blunt-nosed Ranchu and not a round-nosed one, or vice-versa, is something I have not been able to clarify, but it is a fact – and is one that reflects Tung Hoi's attention to detail – and to the likes and preferences of different markets.

The first time I saw a Tosakin was at the Yorkshire Aquarist Festival in Doncaster, some 15 years ago. It was a beautiful 3-in (7.5-cm) fish that was on show on a stand of Chinese fancy goldfish that a UK company had begun to import. I've never seen another one since then. Well, at Tung Hoi, I saw hundreds of them and some, like the specimen shown in the accompanying photograph, were at least 6in (15cm) long. A truly mouthwatering spectacle!

I lost count of the number of differently-coloured Orandas that I saw, but one that is very popular in Japan was perhaps the most unusual one of the lot. It has a golden body and fins and red eyes. There were also similarly-coloured Ryukins and Telescope Eyes which are in equally high demand in Japan and other parts of Asia, but which I have never seen in Europe.



One of the newest creations: a red, white and black Ryukin photographed at Aquaria China 2004. This specimen measures over 15cm in length.

And so the list goes on – from Purple Ranchu to Moors with or without telescope eyes, butterfly or normal tails, black, red, white, black and white, black and gold bodies and fins etc. And these are only the varieties that are already available, to say nothing of those that are currently being developed, including a double-tailed variety that is being created specifically for the Canadian market. I can't wait to see what this fish ends up looking like.

### Record-breaking Bruce

The final fish highlight of the visit was a meeting with Bruce at the Shi Long farm. No, Bruce is not a member of Tung Hoi's staff – or a friend that I hadn't seen for years. Bruce is a Red Oranda – but what an Oranda!

The last time he was measured he broke the world record for the longest goldfish and was duly entered in the Guinness Book of Records. At the time (I think it was in 2003), he measured a staggering 17.1in (43.5cm) from nose to tail. Today, he is in relaxed retirement, living a life of luxury in his own special pond. I got the impression that he has grown further since his record-breaking feat, but Jackie informed me that he has never been measured again – and that there are no plans to do so.

I asked if he ever shared his pond with other fish and was told that a few fish are introduced to keep him company from time to time, but that "after a shorter or longer period" Bruce takes exception to them and they are removed. Bruce may hold a world record (that he is, of course, totally unaware of) but this, apparently, doesn't make him either gracious or tolerant of his own kind.

### And Finally...

After a hot, lengthy and entraining trip round both farms, we retired to the coolness of the air-conditioned offices to recover and talk further about fish and related matters – followed by a quick look at one of the company's latest ventures: tropical fish. In preparation for the possibility of entering this sector of the industry, Tung Hoi has begun studying and

breeding several tropical species, with spectacular success. However, the decision whether to expand or not in this direction will only be taken once they have researched the whole matter thoroughly.

Meanwhile, the work on developing new varieties of goldfish continues at full pace. The future certainly looks promising for the enterprising, innovative, thoroughly professional and commercially astute Chan brothers. I heartily wish them continued success.



Jackie Chan (with the red shirt) and one of his staff, educating me on the finer points of Ranchu appreciation



Bruce - Tung Hoi's record-breaking Red Oranda

JOEY SWARES

# Looking Back



## Number two

I am lucky to have obtained beautiful bound volumes of very early editions of the *Aquarist* and *Pondkeeper* magazines. From these early issues I will choose a species of fish and compare how it was kept and bred then and now. In 1929 the magazine had an interesting title and sub heading of *The Aquarist and Pond-Keeper*; under this title read 'Embodying The Reptilian review'. And in a side box was 'Devoted to the study of Aquatic, Reptilian and Batrachian Life'.

This month's article was in fact the lead article in the 1929 Summer edition of the magazine called 'The Angel Fish' by W. S. Pitt and in the centre of the page was a black and white photograph by the author of a superb silver angel fish (*Pterophyllum scalare*). We must realise that at this time, 1929, there was not the choice of colour varieties that we have today. I must say that I still prefer to see the natural beauty of the silver angel fish.

The opening sentences of the old article are so true. It said, "From the aquarist's point of view the angel fish (*Pterophyllum scalare*) is in a class by its self. There is no other freshwater fish yet imported which can show so weird yet beautiful a shape.

I will now take quotes from the old article word for word and then answer with my thoughts:

**W. S. Pitt:** Many people in this country have got their first impression of Angelfish from those exhibited in public aquaria. Many aquarists do not attempt to keep scalare, being under the impression that they are delicate and very expensive to

purchase. Anyone, however, who is in the position to maintain a temperature of 70°F and over, and if he can be contacted to purchase young fish, he can get these, at certain times for a few shillings.

**John Rundle:** Remember this was 1929, not long after it was first introduced to the hobby. Here is a very brief history. When we consider the species had been scientifically named as long ago as 1823. The species was *scalare* and placed in the genus *Zeus*. Then in 1840 Heckel gave it its own genus *Pterophyllum*. Then

in 1909 a few fish were collected in the Amazon by a German called Bruno Sagratzi, and brought back to Germany.

We know the fish (*scalare*) are not what I would class as delicate; in fact they are quite hardy. So the fish that Mr. Pitt was talking about was still not far from the wild stock and it also looks like they kept them in cooler temperatures than angelfish prefer. I keep them at least 27°C (80°F).

Another point is that the methods of heating aquariums were not so sophisticated as today. We not only have the capability of holding constant temperature but also the control over a range of temperatures.

It is interesting when he talks about the fish being "very expensive to purchase"

On looking at the adverts in the 1929 magazine small angelfish were for sale at 3/6p (3 shillings and 6 pence) – at today's prices this would be about £10. This could be a month's income for people back then. Now we can buy small angelfish at fairly cheap prices.

**WSP:** It is not essential to have a separate tank, as unlike most Cichlids to which family angelfish belong, they are quite peaceful with other fish, nor do they disturb the weeds.

Full grown fish are about 5 1/2" long





and 17" from the tip of the dorsal to the end of the anal fin, so that a large and deep tank is desirable, particularly as the fish like to keep about mid-way in the water and hate to have their 'feelers' trailing on the sand floor.

**JR:** My living room tank contains six full grown angelfish who live with a group of *Corydoras atheralis* and two clown loaches who incidentally were in the tank before the angels. I have to admit I gave up trying to catch them, so they had to stay. I have to agree with Mr. Pitt they will live with other fish, but there can be some tension if a pair decide to spawn.

My angelfish are large and not far from the size he quotes. My tank is 38cm (15") deep ideal for these fish. Not so sure about the point on having their feelers trailing on the 'sand'.

**WSP:** Most scalars will eat only living food such as Daphniae, bloodworm, small water boatman, water-beetle larvae and young fish.

**JR:** This statement must seem incredible to aquarists now because we know that while scalars love to have live foods in their diet - though I am not so sure about water boatman, water beetle larvae and especially young fish; we can use live Daphnia, bloodworm, and whiteworm. We know that they will eat most modern dry foods.

**WSP:** I do not propose to describe the breeding habits of scalars as I have never been able to induce those I had at one time or another, even to spawn. It is,

I think generally agreed that to have any chance of success a large tank, adult fish and a temperature of 80°F and over are essential; also (a job as hard as any) a true pair. There are no generally accepted sexual characteristics.

If any reader has already bred these fish or succeeds in doing so this season, I am sure a full article on the subject would be welcomed by the editor. (*A greed - Eef!*)

**JR:** It is interesting to read how these fish at this time were considered not easy to breed. I again must point out that it must have been possible that in many cases the fish may have been wild stock.

However while the author had not been able to breed them he was correct in a few of his assumptions of what was required to breed them.

- Adult fish (not necessarily full grown)
- High temperatures
- True pairs he was correct in saying that they can be difficult to sex.

### Conclusion

The way he ends his article with the request for an article and tailpiece by the editor proves somethings do not change. I have now found what could be one of the first articles on breeding the angelfish and I will cover this in the next article.





# Mad adventures

Imagine catching *Gambusia* from South America in the same habitat as *Microteropoma anomali* from Central Africa and all in the earshot of the haunting calls of the teddy-bear-like *Indris amurs* while *Mantella* frogs tick in chorus like high-pitched clockwork in the background and painted day gekkos chase each other around nearby trees. Mad? Exactly right. There's only one place where you could find all these zoogeographical contradictions – the unique island of Madagascar off the south eastern coast of Africa.

Long before I became immersed in the world of tropical fish, I read David Attenborough's 'Zoo Quest to Madagascar' at the age of eleven when I became fascinated by this island with its unique traditions and culture half way



Mantella frog at Nosamanafana

between Asia and Africa. So it was that I succumbed to 'Naturetrek's' two week lemur holiday in November 2004. Our itinerary was to take us via Tana, to Berenty, the famous reserve of the De Haume family near Port Dauphin. From there we were to take the newly scheduled flight to Mananjary and then drive to Ranomafana National Park, a two day drive north via Antsirabe and Tana



Gambusia from Andasibe

and then east would take us to our final destination.

Perinet (Andisabe). For me, fishing opportunities would be limited, partly because of ecotourism's commitment to non-environmental interference, partly because of the fierce policing of biological exports from Madagascar and partly because the fish I specialise in, the air-breathing labyrinthfish or anabantoids do not occur in Madagascar. Or so I thought.

We flew into Tana (Anatanarivo) at one in the morning and were bussed to our hotel for 3 hours sleep before our early morning flight to Port Dauphin. The air 'hop' gave me the opportunity of seeing the variety of landscapes, from the arid, red mountainous centre, through patches of rain forest, to the lush riverine woodlands lining the muddy rivers which at this time of year were at their lowest ebb, awaiting the start of the rainy season. Soon we were heading west to our first destination, Berenty, along a severely pot-holed road, stopping briefly at a small market to collect water and stock up on fresh lychees which seemed in abundance at this time of year.

We turned off the main road to take the track to Berenty where we arrived just in time for lunch. In the 40°C heat, I was more interested in the Three Horses beer and then, while the rest of the group took an afternoon siesta, I struggled through the heat of the day and came across mixed groups of ring-tailed and the



Pair of Microteropoma anomali

introduced red-fronted brown lemurs as they bickered in the shade of the woodland, followed by a pair of Malagasy biology students, studiously noting their behaviour on clipboards. On a late afternoon

circuit of the woodlands, we had our first view of the Vevreux Sifaka clinging anxiously to trees by the path, eying the safe route across to the other side before bouncing balletically across. After just two nights, it was time to return to Fort Dauphin. I was unsure whether I would regard with regret or relief, being deprived of my 4am alarm comprising the ear-splitting song of Vasa parrots and ring-tailed lemur calls.

Our extra day at Port Dauphin was enabled by the new air route to Mananjary on the east coast which would save us a day in our trek to Ranomafana NP. This gave us a chance to visit the Mandena conservation zone, a short distance north of Fort Dauphin but a trying journey by Renault 4 taxi along the bumpy pot-holed track that masqueraded as Route Nationale 12 A. This marshy habitat gave me my first fishing opportunity so while the first of our party were ferried along the river by silent battery-powered canoes, I trawled my dip-net in the bankside vegetation and to my surprise found three small fish in the net after half a dozen attempts. Peering short-sightedly into the net through misted up spectacles, I was delighted to find that I'd found some Bedote, Madagascar rainbows which were duly liberated once I'd committed them to film. This reserve also introduced us to the large but cryptic Mad stick insects before we returned in taxi convoy to Fort Dauphin past the aptly-named 'coast of wrecks'.

By the time we were ready to catch the plane to Mananjary, various Mad gastric upsets had struck the party so it was a more subdued gathering that staggered off the plane after its three hop trip. It was a great relief to find a new and improving tarmac road and we made our hotel – the eco lodge just down the road

from the National Park – just before nightfall.

We had three nights and two full days at Ranomafana. The dense forest was a much greater challenge to bird watching than Berenty and the hilly terrain was an even greater challenge to the stamens, nevertheless, I enjoyed the rigorous exercise. The first morning provided us with good views of lesser bamboo lemur and a group of the slightly smaller Mine-Edwards Sifaka, very fortunately feeding with a female black and white ruffed lemur and her young. In the distance, we heard the raucous contact calls of the rest of her family. The following day we were privileged to good views of a group of greater bamboo lemur feeding but the golden bamboo lemur evaded us. In the afternoon of our first day we drove a little past the park to a lodge overlooking the Namorona river and our guides found us some spectacularly coloured *Mantella* frogs and the extraordinary bright red giraffe-necked weevil. The evenings gave us the opportunity to watch mouse lemurs licking unpeeled banana from conveniently-placed branches and the Mad, civets or *Ranaka* snatching scraps of meat from the guides.

After two days in the park, it was time to retrace our steps by road to Tana via an overnight stop at Antsirabe and thence to Perinet. Once we had bounced our way past a few rural settlements in the bush where crayfish were offered in water cages, we were back on the main road north where the travel was straightforward on the good tarmac and we could appreciate the scenery, views of the rice fields full of industry.

Our time at Perinet was mainly devoted between Mantadia NP and the Andamazaotra special reserve where we visited the families of Indris and heard their morning territorial singing contests. These large piebald teddy bear-like lemurs seemed pretty indifferent to the presence of the tourists below and



*Andalibe habitat*

consequently allowed us very good views of them. We had to work a lot harder in the Mantadia national park however to catch a distant but clear view of a small family of *Diademed Sifaka* and, after a mad, off-piste scramble, a ruffed black and white lemur with her two offspring.

While some of the others took the advantage of a post-lunch pause to lounge indolently round the pool, I walked off to investigate the river at the hotel entrance past a small island reserve which had been set up to house rescued pet lemurs. It looked a promising and familiar habitat: clear water of pH 6.5 winding out of the mid-altitude montane rainforest between the reserves of Perinet and Mantadia. Pushing my net into the overhanging grasses I soon had a fish lying passively in my net which close examination showed was a gravid female *Gambusia*. A few more digs with the net into the bankside and I had something different. A long, thin, dark and strangely familiar fish wriggled at the bottom of my net. Removing my steamed glasses for a closer look I was at the same time pleased that I had located one of my favourite fish and disappointed that I had not caught a native Malagasy species.

The species that I had caught was the orange and black striped, *Microctenopoma ansongli*, the ornate bushfish. It highlighted the problem that faces the freshwater fish of Madagascar which are being quickly displaced by non-native introductions. Native

cichlids are becoming increasingly hard to find as they are displaced by *Tilapia* introduced as food fish. (We even watched pairs of *Tilapia* in the Lac Vert in Perinet, the males taking all the fry back into their mouths at the hint of a threat.) One expedition reported finding only one native cichlid for every 100 *Tilapines* caught. To tell the truth, it wasn't a complete surprise to find *M. ansongli* because Patrick de Rham had described its occurrence throughout the highlands of Madagascar near Tana, which was reported first in 1990. One can only speculate about how a central African rainforest specialist, only found in pockets in Cameroon, Congo and probably Gabon, could become established in Madagascar. Perhaps it was imported from the Congo as a contaminant with *Tilapia* food fish. Our guides, Maurice and Desi, who recognised it, both seemed genuinely dismayed that it wasn't a native fish. I'm afraid I could not prevent my room mate from describing these anabantid fish as anabaptists henceforth.

Although exhausted after our two week rush through the south eastern quadrant of this 3,000 km long island I was somehow not quite satisfied that we'd seen quite enough of the surprising and enchanting Malagasy countryside with its endemic fauna and its charming people.

### Acknowledgements

Thanks to my fellow Naturetrekkers but particularly for his tolerance to grumpy old men to my room mate, James Horsefall and to Colin Fell for his birdwatching insights but most of all to our guides Maurice Ratsisakanana and Desire Rajory.



# In search of cichlids part 4

Pad D3700 goes from Ruacana to shortly before the Epupa falls again and again along the Cunene and also within sight of the river. On the drive to the "Cunene River Camp", and not far away from it, we could see, from the road, places at the river, which looked very promising for our intended fishing catches. After the check-in at the camp and the pitching of the tent we visited one of these places. The GPS gave us the following co-ordinates: S 17°21'36.8"; E 13°53'19.5"; 742 m altitude.

Not even 100 metres away from the track Cunene forms a system of main river, side-branch and smaller, shallow branches with dead ends; ideal for collecting fish. While one of us collected in the main arm with the cast-net, the other fished with a scoop the branches and the remaining waterholes. The tributary/side-branch was separated by a tongue of land, covered with trees and bushes, from the main river, being only few centimetres deep of running water. The relatively small meshed scoop could



The lampeye *Aplochelichthys johnstoni*, and the tetra *Micralestes acutidens* could be collected also here in good numbers



not be used without proper drag against the current. In such cases it might be best to hit it from the top into the water and pull it against the bank. At the impact of the scoop, fish that stand close to the bank try to flee instinctively into the deeper water, but swim then right into the scoop. At least that's the theory. If the fish have reached a certain size with some muscle strength, they are mostly faster than the scoop and can also avoid it through the air. Smaller individuals, lets

say up to a size of about five centimetres, can frequently be caught this way.

Although we were at the beginning of June, the water was still not completely back to its summer margins. Still places covered with grass were washed over. Here we caught again *Thoracochromis buyai* and some very pretty lampeyes, which as before, belonged to the species *Aplochelichthys johnstoni*. The tetras *Micralestes acutidens* could also be caught here.

Suddenly, in a more flowing section of shallow water a "new" cichlid was in the net. Well recognizable by its thick lips, was *Thoracochromis albolabris*.

## *Thoracochromis albolabris* (Trewavas & Thys van den Audenaerde, 1969)

The "Dikbek-happie" should reach a size of 15 cm. It occurs only in the Cunene, and there in the first level above the rocky substrate. Juveniles of this species are not easily distinguishable from *T. buyai*. Not until at a length of about five centimetres, the lips of the fish visibly thicken. Somewhat earlier, an interrupted pattern of bars on the flanks appears which distinguishes them best from *T. buyai*, which has a continuous lateral stripe.

*T. albolabris* can develop very distinctive hooks at the lips; and like the species from lakes Malawi, Tanganyika, Victoria and Edward, with the same form



The Cunene, a short distance upstream of the "Cunene River Camp" forms a system of main river, side-branch and smaller, shallow branches with dead ends



*Simulochromis aulolabris*, young male

as lips, it is rightly referred to as thick-lipped cichlid. I know of preserved specimens in the British Natural History Museum which display such distinctive lips. It is not completely sure whether these lips have the same function in all species. From species which live in the rocky area of Lake Malawi it was assumed, that the lips form a kind of suction cup, which enables the animals to suck in food animals that hide in rock crevices (Korings, 1995). In *Haplochromis* species from Lake Victoria, I ascertained through the microscope, that the lips are furnished with many small tiny hairs, which probably enable the fish to trace more easily food which is hiding in the sand.



The well-developed lips of a preserved specimen from the British Natural History Museum (specimen 1984.2.6.90), it is originated from Inyanga Falls

Unfortunately I was unable to house the *T. aulolabris*, which I brought along for the aquarium, for long, because they all fell to prey to an exceedingly aggressive other cichlid from Namibia, which was housed in the same (400 litres) basin.

We caught very frequently, especially in the somewhat quieter areas of the river, small tilapines. Because larger animals could not be caught their identification remained unresolved. The striped pattern though was very striking but not attributable without further examination to an already known species. It was striking that these animals, as well as many others, frequently had fin pieces missing. First in line of suspicion were some small tetras which could have snacked there. But later on other species came into consideration.



Juvenile of a not exactly identified tilapia cichlid. The many striking fish in this habitat lacked pieces of fins, like in this specimen



View into the shallow but streaming side-branch of the Cunene (a small part of the much deeper main river can be seen on the right hand side behind the island with the trees). In this area we finally found *G. aulolabris*

### *Orthochromis machadoi* (Poll, 1967)

After a long search we finally found in a branch, running parallel to the main arm of the Cunene, the holy longed for *Orthochromis machadoi*. Usually when one of them was in the scoop, an almost fist-sized gravel rock was "by-caught". An educated guess is that the fish had looked for refuge under these stones. To our surprise the animals were clearly more slender, as one could have supposed from the known drawings. The second surprise was, that both, the glittering colour pattern (type "multicolor"), especially the colour patterns on the anal fin, placed this species very closely to *Pseudocrenilabrus*.

In the third part of my travelogue through Namibia I have already touched upon the current taxonomic position of this species. The now evidently visible diversity of this fish compared to other, typical *Orthochromis*, makes it clear, that they will probably not remain very long in this genus. Molecular genetical investigations have been accomplished already and will be published soon. It will be seen, whether immediate taxonomic changes will result from that.

Of course *O. machadoi* could also be taken along as specimens for the aquarium hobby. Unfortunately they proved to be mutually incompatible with the onset of sexual maturity. The largest male eliminated quickly one after another two rivals and also the females were damaged again and again. But still, the two remaining pairs both spawned repeatedly. While one of the females devoured notoriously again and again the larvae, partly after it had brooded them for

ten days, could the fry from the other be raised. This female was brooding for the first time some months later, and spat out the fry when it was caught.

Because this female had, after about 10 days, a clearly smaller enlargement of the buccal cavity than before, I assume that she had devoured quite a lot of larvae. In this way only about 10 juveniles remained. Because of the smallness of these fish after the consuming of the yoke-sack, I assume, that the female originally had taken in eggs of a multiple of that number. Also in *Pseudocrenilabrus* the relatively small females can easily hatch 40 or 50 eggs.

A further surprise emerged as the already somewhat grown up juveniles were socialised with baby fishes of another cichlid species. After a short time almost all specimens of this other species had nibbled fins. Therefore *O. machadoi* is probably the fin biter and responsible for (all?) the fin damages in the Cunene.

The cast-net catches in the main arm of the river were relatively unyielding. Beside the already formerly found *Labeos*, negligibly larger *T. albolabris* and again and again the same tetra species, unfortunately we found no further, previously not caught species.

The night which we spent on the camp will remain long in my memory because of its peaceful atmosphere. With intrusion of the twilight, large flocking birds swept into the trees and turned on for some time a considerable spectacle. From the Angolan side of the bank cheerful songs were in the air and then an absolutely clear nightfall with a breathtaking panorama of stars could be observed. Millions of stars, a clearly visible galaxy and naturally on the

southern hemisphere, in a completely different constellation from what we are used to seeing. This spectacle, a child of a large city, like I am, will never forget. Oh, how lovely and only the first half of our week in Namibia had passed.



Much more slender as suspected and with a coloration in body and anal fin that reminds one of a *Pseudocrenilabrus*, that is *Orthochromis machadoi*

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# Crystalwort

## *Riccia fluitans*



object and into the water. An added bonus of this growth is that the plant will act as a sponge and will take a trickle of water and carry it along over any surface it grows upon. For above water planting, this situation is ideal as it provides an attractive looking, and moist, base for other plants to root into.

**Growing**  
Crystalwort beneath the water is a little more difficult and best done on porous medias such as lava rock where it can easily fix to the

rough surface. A good trick is to grow the plant on top of other fine leaved mosses such as java moss, which will provide a structure that traps the Crystalwort leaves in place. Lighting conditions are unimportant if the plant is grown just beneath or above the surface but for planting in the lower regions very bright lighting will be required for best growth. Crystalwort is otherwise very adaptable and will grow in a wide range of water conditions and temperatures, including unheated indoor aquariums. Interestingly, the plant produces a wide variation of leaf thicknesses and forms depending on the various conditions it is grown in. Floating specimens tend to produce long needle thin leaves whilst above the water the leaves are compact, short and stumpy, and beneath the surface the leaves will easily separate and re-distribute themselves.

Crystalwort is a plant that has been around for a long time in the hobby, and can be put to excellent use in the right conditions. The plant is a floating or surface anchoring species and spreads by progressive forking of the fine leaves, producing a dense clump of individual tiny stems.

Many plant keepers will buy this plant either loose as a floating plant or attached to wood as a specimen feature, in the majority of cases it does not take long before the plant has broken away and floated off into the distance. The problem with Crystalwort is that it can only be grown at its best when it is fixed in position or contained by some method. The best use for this plant is in the above water or paludarium environment.

Position a small clump of Crystalwort on a piece of wood or even better, lava rock, which has a continual trickle of water, and it will quickly spread over the



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# Filefishes



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**T**he filefishes in family Monacanthidae resemble Triggerfishes a lot. They have the same general body form, being deep and flattened sidewise; small mouths, projecting incisor teeth, eyes high on the head and small gill openings. The filefishes do, however, differ from Triggers in the way that they have one dorsal spine instead of three. The family name "Monacanthidae" does in fact point to this fact. "Fact" is, however, a bit strongly expressed as some filefishes have a very small second dorsal spine, but in most species this spine is absent. Their bodies are prickly to touch, and have small scales arranged in regular series. The sandpaper-like body surface is the cause for the popular family name "Filefishes".

There are about 95 different species in 31 genera, most found in tropical waters but a few distributed also in sub-tropical areas. Australia, as an example, has 54 species in 28 genera, and calls these fishes "Leatherjackets" – a popular name that is also used in some aquarium books. Most Filefishes grow to a total length of less than 30 cm, but one species – Scribbled Filefish, *Aluterus scriptus* – grows as long as 110 cm and is the family's giant!

Filefishes are omnivorous and feed on a variety of benthic invertebrates and plants. Among these are noxious or poisonous sponges and coral that are avoided by other fishes. From a general point of view Filefishes must be regarded as moderately difficult to keep in aquariums. Few species are suited for a coral – or community aquarium. Like Triggerfishes Filefishes need a lot of food and should be fed several times a day. Suitable food for many species includes chopped shrimps, squid, clams and fish. There are, however, a few species that have specialized on specific types of food, such as zooplankton and coral polyps. There are other species that prefer to live in certain habitats, such as in seagrass beds. All of these Filefishes

need to be given specific consideration when planning to bring them into your home marine aquarium. Let us continue

by dealing with a few specific species of Filefishes....



Orangespotted Filefish, *Oxymonacanthus longirostris*, in close up at Waikiki Aquarium, Hawaii.



Leafy Filefish, *Chaetoderma pencilligera*

### *Oxymonacanthus longirostris* – Longnose Filefish

Longnose Filefish is probably the most attractive of all Filefishes. The body is brown green with numerous orange spots (another popular name for this species is Orange-spotted Filefish). The snout, head and the long dorsal spine are orange, while the caudal fin has a dark spot. The species grows to a maximum of 10cm and is a true beauty! The species is widely distributed in the Indo-Pacific, occurring from East Africa to Samoa and north to Ryukyu Island. A similar looking species, *Oxymonacanthus halli*, occurs in the Red Sea.

Although the Longnose Filefish is relatively common in the trade it is still the most difficult one to keep alive in captivity. It is an obligatory coral feeder that lives amongst the branches of *Acropora* colonies and feed from their small polyps. Its small, curved mouth is designed to pick the live coral polyps out of their cavities (the calcareous housings in which the individual polyps live). I have observed this small and most beautiful species several times – especially in the Red Sea – and seen how it glides peacefully in between the branches feeding constantly on the corals. Unless you are able to feed it almost constantly with live coral polyps, avoid the Longnose Filefish. The best option is to add one (or two) specimens in a large coral tank where the small polyped stony

corals grow prolifically. Here the Longnose Filefish will have a good chance to thrive and live, and although it will nip at the coral and pick polyps for food, it will probably not decimate the growth much. And "yes", I have observed the Longnose Filefish to accept substitute food in captivity, but only very rarely! I have even once seen the species eating fake food! The species can, in rare cases, be coaxed into eating live brine shrimps. If you succeed with this be sure

to enrich the brine shrimps to make them rich in nutrient, but even enriched *Artemia* might not fill the Longnose Filefish's needs for nutrient.

### *Chaetoderma pencilligera* – Leafy Filefish

"Leafy Filefish" or "Tasseled Filefish" is a large species that grows to 30 cm or more. It is distributed in the central Indo-Pacific to Australia and north to southern Japan, and frequently offered for sale in pet shops. The body is deep and rhomboidal with numerous branched and fringed tentacles. The species is yellowish brown with irregular longitudinal dark brown lines. In the wild the "Leafy Filefish" lives in seaweed areas and its body shape and colours provide a perfect camouflage to such a habitat.

*Chaetoderma pencilligera* is a species for the peaceful fish tank, and is not suited for a community tank with invertebrates. It feeds from a variety of invertebrates and must be fed several times a day with a mixed diet of meaty food, such as chopped shrimps, fish, squid and clams. In principle the best set-up for the "Leafy Filefish" would be a seaweed tank where it was the only (or dominant) fish, but unfortunately such an aquarium is hard to create and maintain and not often seen amongst hobbyist.



Green Filefish, *Acanthaluteres lineatus*, in a seagrass bed at Cabilao, the Philippines.

### *Paraluteres prionurus* – Saddled Filefish

What an interesting fish! Not because of its colours and shape, but because here we have a mimic of another fish. The "Saddled Filefish" mimics the "Saddled Toby" (*Canthigaster valentini*) a well known pufferfish (family Tetraodontidae). "Mimic Filefish" is another popular name for this species. Why does it mimic the "Saddled Toby"? "Protection" is the answer. Protection against being eaten! Pufferfishes are in general known for their powerful toxins (tetraodontoxin) especially found in the liver and the ovaries, but also in other tissues. Tetraodontoxins can cause serious illness and not infrequently deaths among humans. The "Saddled Toby" has a poisonous skin, which protects it from being eaten by other fishes. The "Saddled Filefish" benefits from this by being a fake "Saddled Toby" – a clever fish, indeed!

*Paraluteres prionurus* is widely distributed in the Indo-Pacific, from East Africa to New Caledonia and Marshall Islands, and relatively frequently seen in the trade. It is a hardy filefish, but needs to be fed several times a day with a variety of meaty food. The species, which reaches a maximum length of about 10 cm, is not as aggressive towards invertebrates as some of the larger Filefishes, but it is a bit risky to trust it in a community tank. If kept with its puffer model, it may be picked on (Michael, 1999).

### *Pervagor spilosoma* – Hawaiian Filefish

The genus *Pervagor* contains a number of most beautiful filefishes. They are elegant in shape, and most colourful, but unfortunately most species are difficult to feed and care for in captivity. An exception is the "Hawaiian Filefish", which will accept meaty substitute food such as chopped squid, shrimps, clams or fish. In the wild the species feeds mainly from stony coral polyps, but also on benthic invertebrates and is therefore not well suited for the community tanks containing corals. It should be an excellent fish for the dedicated Hawaiian aquarium where one could keep "Yellow Tangs" (*Zebrafish flavescens*), "Chevron Tangs" (*Ctenochaetus hawaiiensis*) and other fishes found in this part of the Pacific. Geographical tanks are unfortunately rarely seen among hobbyists, but are definitely an interesting option when one plans a marine aquarium.



Fan-bellied Filefish, *Monacanthus chinensis*

### Filefishes in the Seagrass Habitat

Personally I like to explore special habitats found in reef areas, such as muddy bottoms or seagrass beds. Here we do not normally find such dense growth of corals as so typically encountered on the reef flats or reef slopes, but nevertheless we can find a variety of interesting organisms – including filefishes! When I dived the beautiful island of Cabilao in the

Philippines last summer, I got the opportunity to explore huge seagrass beds growing in shallow waters (3-10 metres) between the beach and the reef slope. During night dives several species of bottom dwelling sea pens exposed themselves, huge tube anemones rose from their burrows and a number of shrimps, crabs, squids and nocturnal fishes became visible in this most interesting habitat. Among the fishes was a green species of Filefish perfectly camouflaged to live in between the

White Spotted Filefish,  
*Cantabianus maculatus*



seagrass leaves. I believe the species was the Japanese Filefish, *Paromonacanthus japonicus*, which is distributed from the Red Sea to Japan, Papua New Guinea, the Great Barrier Reef and Marshall Islands. *P. japonicus* shows extreme sexual dimorphism in its overall body shape. The male is much more slender than the female. This species is also monogamous where both parents guard the juveniles. The green filefish could be approached closely and obviously trusted in its camouflage. Like many other filefishes it feeds from a variety of invertebrates.

Other "green" filefishes include *Paromonacanthus nematopterus*, only known from the Red Sea; *Acreichthys semitorquatus*, widely distributed in the Indo-Pacific and showing a variety of color morphs as well as the minute (maximum three long) *Rudarius excoelus* distributed from the Philippines to the coast of Queensland, Australia, but very rarely seen as it occupies algae- and seagrass beds only. On both sides of the Atlantic we can find *Monacanthus hispidus*, which grows as long as 25 cm and typically

associated with seagrass and algae beds. Although the mouth of this species is small, it is very strong and can easily crush the shells of small molluscs, shrimp and crabs. The species is able to move very quickly in short bursts enabling it to catch small fish as well. *Monacanthus hispidus* cannot be kept with small fish and invertebrates, but does nevertheless very well in captivity. It will quickly learn to accept a variety of dry and frozen foods.

Seagrass are flowering plants that grow in the sea. About 55 species are known world wide, many found in connection with coral reefs. Two or more species often form dense beds on muddy or sandy bottoms and have its own animal community associated with them. This biotope has the potential to be cultivated and studied in the marine aquarium. If we can learn how to grow the seagrass – plants that need a lot of nutrient and deep substratum – then we have another opportunity to learn more about yet another interesting habitat associated with the tropical coral reefs.

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# Plant substrates

**W**henever a fish keeper first attempts to keep aquarium plants, the first question I always ask is what type of substrate they have. Of course plants have other equally important needs such as light, nutrients, and carbon dioxide but all of these are provided for at a basic level in every aquarium. Providing an incorrect substrate, above all other factors of plant care, is the easiest way to significantly reduce the number of plants you will be able to keep.

## The basics

Before looking into what a substrate should provide, it is worth dismissing some types outright to avoid long-term problems. Both for the majority of freshwater fish, although there are exceptions, and the dynamics of plant care, any substrate used in a planted tank should be inert. An inert substrate is one that will not directly affect the water chemistry. Some substrates, particularly those designed for marine aquariums such as coral sand, can release hardness raising compounds, which will adversely affect water chemistry and may inhibit or overload uptake of some key nutrients.



Very fine sands will need disturbing on a regular basis to avoid compaction, and only some plants such as *Fallisneria* and *Cryptocorynes* will thrive in finer substrates.

Coloured gravels should also be avoided, although few serious plant or fish keepers would choose such an unnatural

appearance. Coloured gravels are invariably coated and have a smooth surface, which does not allow for a large amount of useful microbial growth, affecting nutrient storage. Large grade gravel can also be ruled out for reasons mentioned later on, and finally, try to avoid sharp gravels for the sake of the sensitive barbels on scavenging fish species which can be very useful in the planted tank.

## Grade size

The size of the individual grains of substrate has a large bearing on the amount of water and oxygen movement through the gaps. Large grade substrate will allow lots of water and oxygen movement, which will literally wash away nutrients and oxidise a good proportion of the remaining nutrients so that plants cannot assimilate them. If the substrate is too fine, such as sand, it will compact and completely remove oxygen and water movement, creating stagnant conditions that can rot plant roots. As we will see later on, there are situations where very fine substrates can be used effectively but only in those specific circumstances. For a basic main body substrate the grade or grain size should be around 1-3mm.



There are few plants that would survive well in these conditions. Large gravel will cause nutrients to disappear, whilst the rock will encourage production of algae raising toxins.



There are many specially designed planted substrates available such as this laterite based medium which can be combined with small grade inert substrates for the perfect mix.

### Depth

Plant roots are designed to do two main things: to find and assimilate nutrients and toxic compounds, and to hold the plant firmly in position. A deeper substrate will obviously aid in anchoring plants firmly in place, but it will also affect the amount and quality of nutrients available to the roots. Substrates which are more than 1cm (3/8") deep will have a greater ability to store useful nutrients than a thin layer. This is because beneath the top layer, water movement and oxygen levels drop significantly, whilst at the same time organic waste debris steadily builds up. These conditions are ideal for nutrients to bind to organic matter and stay in place without being washed away or oxidised. Over time, a deep substrate will continuously build up a store of useful nutrients, which can be used at will by the plants roots. Substrate should not be too deep without specialised undergravel heating or methods of gentle movement as a mean for between 6-10cm should be sufficient.

### Layout

For practical purposes it is generally better to have a relatively even substrate throughout the aquarium. Although 'battered' raised areas can be incorporated as aquascape features – any really deep areas should either be heated or contain plenty of spaces for water movement in order to avoid dead zero oxygen areas. Many older books recommend a sloped substrate piled up towards the rear of the aquarium,

supposedly allowing debris to fall to the front of the tank for easy removal. In reality, a well-planted aquarium provides plenty of places for debris to build up, at any point on a slope, and it is better managed by proper maintenance and/or the use of scavenging fish to disturb the top layers. Avoid placing any very large objects on the surface of the substrate, such as large horizontally positioned slate. These will prevent the natural movement of water, and cause a waste build up beneath the object causing toxins

to be released. If you do use objects with large bases, position them buried deep under the substrate so there is little space between the aquarium base and the bottom of the object.

### Maturity

As mentioned before, a deep substrate with the right grade size will act as a nutrient storage area. This process takes time however, and a new tank will not have this capacity. To kick start the process and ensure plants have all they need, it is a wise choice to use a nutrient rich substrate additive or a specially designed planted media in a new substrate. The key to avoiding problems regarding providing nutrients for plants and not algae is to keep the nutrients in the substrate and not in the open water. Because a deep substrate will only act as a sink once matured it is best to avoid the use of liquid fertilisers during the first few months. During this time the plants will get all they need from the leftover minerals in the water (which will be high if tap water is used) and the nutrients from the substrate additive. Only once the substrate is around 3-4 months old and has built up enough organic matter to act as a nutrient sink, should liquid fertilisers be used. The liquid nutrients will then be caught and trapped in the substrate, rather than remaining in the main water body where they can be easily utilised by algae.

### Cable heating

There are several brands of cable heating now designed specifically for the planted aquarium and they can have a significant



Sloping a substrate does not help maintenance and can create an uneven substrate-nutrient dynamic.



There is a wide choice of substrates now available in most aquarium shops, and picking the right combination can be tricky

effect in a properly created substrate. The idea behind substrate heating is that the slightly warmer substrate set against the cooler open water creates a gentle convection current which slowly distributes nutrients and keeps the substrate gently oxygenated. Getting oxygen levels in substrate correct is very difficult because there are so many variables. Too much and your plants will have difficulty taking up nutrients and too little will cause dead areas which can rot roots and produce algae causing toxins. A heating cable situated beneath the substrate will, if anything, give you piece of mind over this subject. In contrast to avoiding very fine substrates as

mentioned before, when a heating cable is used it is vital to surround the cable in as fine a substrate as possible. A fine substrate such as silver sand placed around the cable will compact and keep the cable in place; at the same time the heat will distribute evenly through the fine sand and correctly warm the substrate above. Fine substrates are only required to just cover the cable, so no more than a couple of centimetres should be used.

### Maintenance

The amount of maintenance required on substrate depends on its overall makeup. Following the subjects I have mentioned above you should end up with a typically



Plants that spread by runners produced at the base, like this Vallneria, will thrive in fine substrates, and unlike many plants, do not need a deep substrate bed

ideal substrate made up bottom to top from a heating cable, 2-3cm of sand, a nutrient rich layer and 6-10cm of inert or specially designed for plants 1-3mm grade substrate. This combination will sustain itself for many years and requires just an occasional prodding to loosen things up. If you do not have a heating cable, it is very important that you regularly gently disturb the substrate on a weekly or fortnightly basis to ensure that no 'dead spots' are being created. In the planted aquarium it is better to just loosen substrate using your fingers than to use a gravel cleaner, which will cause too much disturbance and remove useful debris. Finally, as ever, nature has a solution to every problem, which we should use above all other artificial options. In the case of substrates, small scavenging fish such as loaches and Corydoras can be used to continually disturb the top layers. These useful fish will shift larger debris into the water where they can be removed by the filter, whilst the finer debris can be encouraged further down the substrate to be broken down by microbial organisms, releasing nutrients to be stored for use by your plants.



Gently disturbing the substrate using your fingers on occasion is a better method of maintenance than using a gravel cleaner for well-planted aquariums



If organising your substrate properly seems to much of a chore, simply opt for some object-rooting plants such as this Java Moss or Java Fern

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# Koi World



## Fish Welfare Issues

Most people define animals to include mammals and possibly birds but nothing else and I can recall a look of surprise on a koi keeper's face, when I referred to insects as animals. After the initial surprise, this person immediately pointed out my mistake that insects were not animals and I couldn't resist the reply of 'Well, they're not plants either'. As a consequence I was very pleased when fish were included as 'animals' some years ago in the Animal Welfare Act, which means that any institute which houses fish are subject to inspection by a Home Office Animal Welfare Inspector. In March, I attended a meeting on fish welfare issues, albeit in the laboratory environment but for me there were a number of interesting issues raised.

As koi keepers, we pride ourselves on perhaps testing the water regularly, which probably means weekly. The staff responsible for looking after these institutionalised fish, which are maintained in a vast array of aquaria, must, under Home Office guidelines check the environment for ammonia, nitrite and dissolved oxygen at least once a day and record the results. Just think about this a minute – we pride ourselves on the way we keep our koi but at best we test the water once a week and we think that is adequate. As the summer approaches and oxygen becomes less soluble in water, many of us will assume the dissolved oxygen concentration in the pond is enough for our koi – few of us will actually test or measure this vital gas. Our koi will do their utmost to

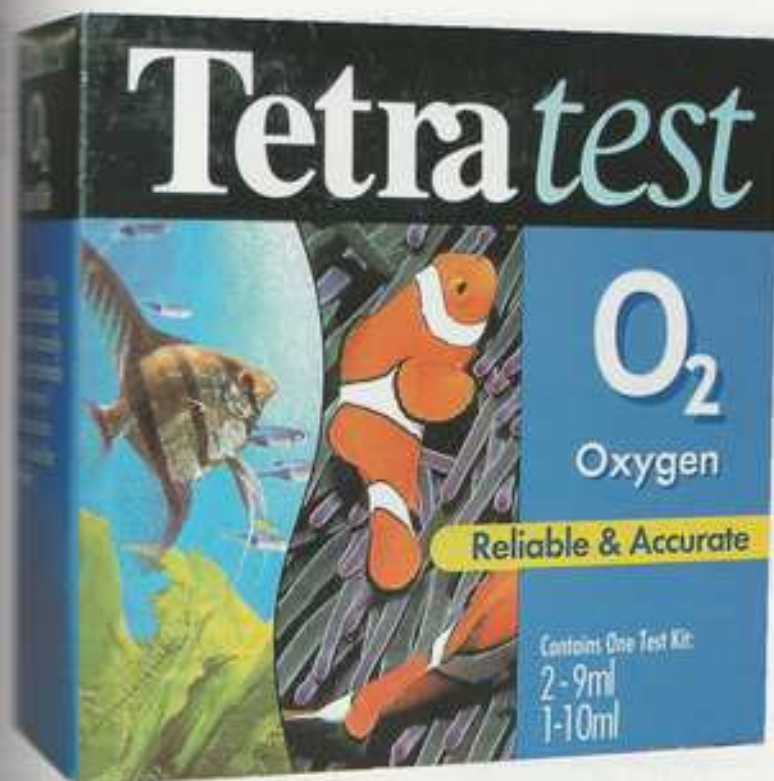
survive ammonia or nitrite pollution but like us, they can't live without oxygen. Indeed many of us forget that the biological filter places an enormous demand for oxygen on the pond system and is the greatest consumer of this vital gas, over and above aquatic plants and nuisance algae such as blanket weed. Actually our koi get whatever oxygen is left over, after the filter and plants have had the greatest share. We also forget that since we bought those koi as 15cm (6 in) tiddlers ten years ago, they are now 75cm (30in) and weigh getting on for 9kg (20lbs) and their requirement for oxygen has probably increased a hundredfold and yet we still use the same amount of aeration that was satisfactory for juvenile koi.

If I ask most koi keepers what would you consider the first sign of low dissolved oxygen in the pond would be, invariably the answer is when the koi can be seen gasping at the water surface. By the time the koi are gasping at the water surface,

they are within minutes of dying! The alarm signals should be when the koi cease feeding and become very lethargic in the summer months, when they should be feeding voraciously and actively buzzing around the pond. The simple message here is don't assume the dissolved oxygen concentration in the pond is alright and wait for the behaviour of your koi to change – get out there and test it!

In the laboratory environment, the Animal Welfare Act insists that suspended solids in the water should be within an acceptable range, which should be maintained by appropriate filters. Once again, I wonder how many of us would pass this criterion. Parasites such as Trichodina and flukes, thrive in an environment where there is a considerable amount of suspended solids and dissolved organic carbon. Our solution is usually to add an anti-parasite medication which deals with the immediate problem but not the suspended





material in the pond water. A few weeks later, the Trichodina and flukes reoccur and we will probably blame the failure of the medication, instead of a filter which needs some urgent maintenance.

Apart from the nitty gritty of filter maintenance and water testing, the Animal Care Welfare Officers are expected to keep spares of essential equipment, notably pumps and aeration systems and parts, which can be used to replace equipment which breaks or is damaged. As caring members of the public, concerned with fish welfare, we would not expect anything less and would be the first to be outraged if large numbers of fish died at an institution because a pump failed and there was no replacement. Perhaps I'd better not mention the telephone calls from anxious zoo keepers who find themselves in the unenviable situation of a broken pump, no spares and no immediate possibility of getting another until the shops open the following day.

Current concepts of keeping laboratory mammals include something which has been termed 'environmental enrichment', which is providing these captive animals with some quality of life. In the case of mammals, this includes structures similar to tunnels or cubes with holes in and which allows them to follow

behaviour patterns which their wild counterparts enjoy. This environmental enrichment is now being promoted with regard to keeping captive fish. Bare tanks are not acceptable – there must be structures to allow shy fish to hide, territories to defend. Whilst the Home Office Inspector has a set amount of algae which is acceptable on the aquarium glass, I am of the school which believes this should be allowed to grow and enable the fish to graze it naturally (well you have only to look at my home aquarium – the algae is grazed by minnows). Now I shall really play devil's advocate and question the conventional koi pond. A natural

lake is a complex environment, providing a wealth of objects to investigate and with a mix of both pleasurable and unpleasant stimuli such as the presence of predators. In the wild, carp ferret around in the substrate of a lake, using their protrusible jaws to disturb the sediment, a process known as 'mumbling'. The consequence of mumbling is the water column becomes laden with sediment, reducing the visibility. Wild carp also love the shallow water. In the spring, they can often be seen basking in the sun in these areas of a lake. They also spawn amongst the submergent plants in the shallows and this is where they will feed on a variety of aquatic plants, insect and other wildlife. Let me now consider the typical koi pond with its crystal clear water, a steep sided pit, with a minimum depth of 1.2m (4ft), devoid of any plant life and if possible bare sides free of any blanket weed. Environmental enrichment? Actually I think our koi get a raw deal, is it any wonder that the neighbours pond, which is the antithesis of a koi pond and is home to numerous koi in perfect health.

I can't help thinking that if the Home Office Animal Welfare Inspector paid us a visit, we might all find ourselves being marked down for a re-inspection being the next month to ensure we had improved some very basic areas of fish management!



# The Survival Game

## The 'Cannonball' Rasbora

**T**he dark shady forest streams of Sri Lanka are home to a wide variety of beautiful and interesting fish species. Among these is the delightful fire rasbora (*Rasbora vaterifloris*) which many aquarists know about, but relatively few keep.

Also known as the vateria flower, pearly or golden rasbora, this 4cm (but often smaller) shoaler was originally named after a flower...but the wrong flower, or so it seems. The Sinhalese name for the vateria flower rasbora translates as the "hal flower rasbora". Hal is a tree, known scientifically as *Vateria acuminata* (hence the vateria common

name and the *vaterifloris* scientific name). *Vateria acuminata* bears white or cream-coloured blooms. According to Rohan Pethiyagoda, a leading authority on Sri Lankan fish, it is quite conceivable that P.E.P. Deraniyagala, who officially described the vateria flower rasbora in 1930, confused the Sinhalese word hal with the similar-sounding sal, which is the Sinhalese name for the cannonball tree, *Couroupia guianensis*, a South American species that was introduced into Sri Lanka in 1681. The cannonball tree bears blooms that are a similar shade to the dorsal fin of the vateria flower rasbora.

### Varieties or Subspecies?

The fire rasbora is found in the Kalu, Bentota, Gin and Nilwala river basins of southwestern Sri Lanka. Despite its relatively restricted distribution (in global terms), at least four different colour forms of the species are known to occur naturally. From north to south, these varieties (which are regarded as subspecies by some authorities) are: *Rasbora vaterifloris vaterifloris* from the Kalu River Basin, *Rasbora vaterifloris ruber* from the Bentota River Basin, *Rasbora vaterifloris pallida* from the Gin

River Basin and *Rasbora vaterifloris rubricula* from the Nilwala River Basin.

Colour by itself, though, is not usually regarded as a sufficiently valid criterion for a fish or any other animal or plant to be classed as a separate species or even subspecies. Other factors, for example, skeletal differences, are also necessary. However, in the four above-mentioned instances, there are no preserved or recorded specimens that can be used as "type" material.



This dark forest stream - which I visited during my last visit to Sri Lanka - yielded numerous fire rasboras, as well as several *Milpelinea breveri*.

Such reference material – if it did exist – could help validate (or otherwise) the subspecies status of the fish. In the absence of type material, Rohan Rathnayagoda maintains – and it is generally agreed – that the vaena flower rasbora is a single, variable species with no subspecies.

### Threats Faced in the Wild

There are three main threats to the survival of *Rasbora vaenaensis* in the wild: deforestation, pollution and collection. Deforestation removes the forest cover and, thus, the shady conditions that the fire rasbora seems to need for long-term survival (probably because such vegetation is the main source of insects and other invertebrates on which this fish feeds). Deforestation also results in increased levels of light and higher water temperatures, which this particular species of rasbora dislikes. Then, since the removal of forest cover eliminates leaf fall, this deprives the rasbora of two other essential ingredients: soft, acidic water and leaf debris at the bottom of its home streams.

A further detrimental effect of deforestation is that it is almost invariably accompanied by increased runoff into the surrounding watercourses. This, in turn, results in higher levels of pesticides and fertilisers in the water, as well as increased siltation, deterioration in water quality... and so on.

In the past, collection of the fish for aquaria was deemed a potentially serious factor, since the species, while breeding profusely in the wild, could not be bred in captivity, at least, not on a commercial basis. However, as our knowledge of the species improves, so do the chances of breeding success and several programmes are currently under way in Sri Lanka with the aim of breeding the species on a regular basis and in commercial quantities.

The instigation of these breeding programmes, together with controls over the levels of capture and export of the species, plus the fact that it is relatively

abundant in its native waters, means that the future of the vaena flower rasbora looks a little more promising than it once did.

### Confusing IUCN Listing

According to the IUCN 2004 Red List, the fire rasbora is officially listed as LR/cd, i.e. Lower Risk/Conservation Dependent. A species that is listed as LR is one that "does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable."

The LR category is divided into three subcategories:

1. Conservation Dependent (cd). Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.
2. Near Threatened (nt). Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.
3. Least Concern (lc). Taxa which do not qualify for Conservation Dependent or Near Threatened.

However, if you check the above with the categories I featured in the February 2005 edition of *The Survival Game*, you will not find the LR category included there. Instead, the fire rasbora is a

species that, if we apply the above criteria, would fall within the Least Concern category under the current listings.

This apparent anomaly (obviously) has its logical explanation. The thing is that, converting every single species from the old list of categories – some of which were different to the latest ones – takes time... a long time. The current version of the categories (Version 3.1) is the one agreed in 2001 (there are no new categories for 2004). However, *Rasbora vaenaensis* is one of the species whose assignment has not, as yet, been fully revised. Therefore, its 'labelling' remains as it was when the earlier version of the categories was agreed in 1994, where it was listed as LR/cd.

### Footnote

As eagle-eyed readers will have noticed, I referred to a Near Threatened category in the above-mentioned February 2005 instalment of *The Survival Game*. However, I did not include its definition. Mea culpa! Here, to complete the listings as I should have done, is the official description:

"A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future."



A freshly-collected *Rasbora vaenaensis*. Even under these conditions, the subtle beauty of the species can be appreciated.



This is only half of the Betta competition!

modifications. There seems no let up in the craze – there were Rift Valley Cichlids of all shades, Danios and Parrotfishes in every colour imaginable.

With China but a relatively short distance away, it was to be expected that the standard of Goldfish would be high. Chinese breeders had been very productive too, with many colour varieties to attract buyers. The omnipresent Dragon Fishes crowded around their tanks, almost reliving the Judges to down-point them! Almost most Dragon Fish were micro-striated, captive-bred species of the genus *Scleropages*, there was one special exhibit – a Silver Arowana of the species *Osteoglossum bimaculatum*. Its colouration could only be likened to the tarnished silver of the Moonlight Gourami, *Trichogaster microlepis*. It is, uniquely amongst the growing array of gene-modified fishes on display, a rare naturally-occurring species. It has been bred in captivity and, according to the description, the silver iridescences will increase to such a degree that the fish will appear to 'glow silver' under even low light levels.

For someone about to decide which branch of the hobby to take up, the theme Furnished Aquariums display could well sway one's decision. Who could not be tempted to take the salty plunge when faced with such a fantastic



The Silver Arowana

presentation? Needless to say, in Singapore's high temperatures, each display had its own associated chiller alongside (most were reading around 23-24°C).

To hobbyists, the sight of a completely furnished aquarium can often be thought of as artistic. As if to

emphasise this, there was a marvellous display of aquariums designed to be hung on the wall as living pictures. Both freshwater and marine collections were featured and in one very cunning, cabinet-mounted design, the pipework to and from the necessary filtration equipment was expertly hidden in the chrome supporting columns.

Practical items were not neglected either: one ubiquitous magnetic algae scraper featured a built-in digital thermometer and, from the same company, a three-in-one 'dip in' digital device that read Temperature (strangely in Fahrenheit), Salinity and Specific Gravity.

The Water Garden display featured a connected two-pool design with a bridge covering the intersection. Although not up to Chelsea or Hampton Court standards – a rather obvious filter and no disguised liner edges – it showed that water gardening may be getting a foothold in countries where garden space is traditionally limited.

Surprisingly, there were no cichlids there at all, except in some Trade stand displays; even more surprising was the complete absence of the previous Aquarama's favourites the Flowerhorns – evidently that particular craze has ended. However, this willingness to adapt to changes in popular demand emphasises even more Singapore's determination to stay ahead of the game which is hotting up considerably with fierce competition from China and neighbouring Indonesia vying for customers; a number of first time participants from Peru, Indonesia and Sri Lanka were also seeking to introduce and promote their own ornamental fish industries.

In his address at the Opening Ceremony, Dr Vivian Balakrishnan, Minister for Community Development,

Youth and Sports and Second Minister for Trade & Industry, revealed that the ornamental fish industry in Singapore is growing well with annual export sales for 2004 standing at 86 million Singapore dollars, 16% more than the 2003 figure due to an increase in demand for the popular species like the Dragon Fish, Tetra and Guppy. Singapore has been the world's largest exporter of ornamental fish by value since the 1950's and the ornamental fishkeeping hobby is second only to photography worldwide.

The industry has a forward-looking strategy, and the Aquarama Conference Theme "Shaping Tomorrow's Industry Today" focused on the research on cichlids, one of the most important groups of fishes in world trade. Another key to success is the industry's agility in meeting customer demand and in providing new



Magnetic algae scraper with built-in digital thermometer

options by developing products that are appreciated over the long term.

More interest is now directed towards marine ornamental fish. As sustainability is a key issue with these marine species, this will open up many opportunities for R&D within the industry. This year however, CITES-certified hard corals from Indonesia made their debut at Aquarama, the first competition among marine hobbyists for hard corals in 20 years.

You can see that fishkeeping might have nothing to fear with such dynamic driving forces behind it; with almost lightning reaction to fickle shifts in public tastes, breeders and equipment manufacturers alike seemed well poised to pull off another great exhibition in 2007. We await with eager anticipation.

# Algae and Blanketweed

## Common Pond Problems and how to overcome them

Through this series, we have explored designing and building different types of pond. But whether you have built a low-tech self-sustaining wildlife pond or a high-tech recirculating koi pond, it is likely that you will have experienced the most common problem to pondkeepers. Surprisingly this does not relate to the fish, but to plants – and unwanted ones at that: green water and blanketweed. You can take little comfort in knowing that you are not alone if your pond becomes plagued with unwanted plant growth. Ponds are usually afflicted with either green water or blanket weed (and sometimes both) at sometime throughout the season. If you take early action, you can reduce the impact that unwanted algae, particularly green water, will have on your pond.



This man-made lake is plagued with green water



Unavoided to work by most manufacturers, the ultraviolet clarifier is an essential piece of equipment to control green water

## What is green water?

Green water offends the eye, creating a green blot on our aquatic landscape. It is regarded as the watergardening equivalent to leaving your garden to become over-run with nettles, dandelions and goose grass. It makes your wonderful creation look neglected and second-rate, reflecting badly on your abilities as a pond keeper. But take some solace in the fact that green water offers many benefits to your fish and pond life promoting improved health and colour. In fact,

commercial breeders and farmers of ornamental pond fish such as goldfish and koi positively encourage green water to flourish in their ponds, recognising that fish benefit from living in such conditions.

## How does Blanketweed differ from green water?

Blanketweed is a collective term given to a number of very similar algae that both look and behave identically. The most common genera are *Cladophora* and *Spirogyra*. *Cladophora* means 'branched plant' and when viewed under the microscope, it is possible to see the regular-branched filaments, each of which is divided by cross walls. Absorption of light and nutrients is very efficient in such small structures and so growth can be incredibly rapid. They reproduce both sexually (releasing gametes that unite and

develop into new plants), and asexually releasing small motile spores or simply smaller fragments that break off from the main body).

### Why is blanketweed such a problem?

We don't resent blanket weed's grip on our ponds because it poses a direct threat to the health of our pond fish, as in fact, it can actually lead to improved water conditions. When there is a thin, beardlike covering on areas of the pond, pond fish will browse and graze on the soft, lush growth. However, pond fish find it less appealing when the beard has grown into lengths of weed several feet in length (hence its other names such as hair or thread algae). Blanketweed will also provide an excellent nursery, both feeding and protecting developing pond fish fry.

Furthermore, blanketweed is beneficial to a pond in that it will very actively take up minerals and nutrients from the pond water (just like a vegetable filter). The only difference being that this one is in the pond! So vigorous is the growth and uptake of nutrients by blanketweed that should we find a way of confining it to a vegetable filter, it would be our number one plant choice. Unfortunately, like all other weeds, blanketweed does not know its right place and freely enters any garden pond, doing so at its own risk, as its presence is likely to be challenged.

### Don't be lulled into a false sense of security:

Most ponds enjoy an unprecedented degree of clarity over the cold winter



Chemicals such as Interpet's "Barley Straw" and "Green Away" can actively destroy algae and blanketweed.

months. Such clarity makes it possible to see down to the bottom of even the deepest ponds and is a factor of the cold water temperatures and very short day lengths. Under these conditions, algae growth is retarded, and any algae that survived through last year is no longer able to thrive. However, as soon as the day lengths start to increase and the sun's rays get hotter, pond water temperatures will also rise, creating ideal conditions for the primitive microscopic plant life that create green water.

### What causes nuisance algae to thrive in garden ponds?

The accumulation of nutrients in the water over winter (particularly nitrates and phosphates) fuels the growth of these remarkable, opportunistic plants. Because of their size and mode of reproduction, algae can soon multiply out of control, blooming from a few dormant cells or cysts into a pond of green soup, being the first plants to capitalise on these favourable conditions, dominating the pond's biology and appearance.

The transformation of smaller ponds is fastest, as these warm up a lot quicker than the larger, deeper ponds. The microscopic single celled algae become so dense that the clarity is soon lost, in a similar way to the density of water droplets can transform a fine mist into a dense fog.

Recognising that green water is an increasing probability at this time of year, and that we want to keep our ponds as clear as possible so we can see our fish (that's what we bought them for!), what can we do to prevent it from taking hold? Learning from tackling weed problems in the garden, if possible we need to find an equivalent to the methods of weed control, such as ground covering mulches, competitive planting or selective weed killers.



Two more successful products for ridding ponds of algae and blanketweed.

## What factors in particular will increase the likelihood of my pond experiencing nuisance algae?

The 3 key factors that stimulate such rampant growth are:

### 1) Sunlight

Ponds in full sunlight are most likely to be affected. Light is required to fuel the process of photosynthesis, which allows these algae to produce organic molecules for new tissue growth. Growth is also particularly rampant in shallow areas where the water is exposed to intense sunlight.

### 2) Nutrients

Algae will readily absorb nitrates and phosphates to satisfy their need for nitrogen and phosphorous as they grow. These are readily available in tap water or indirectly through fish metabolism. Wherever nutrients abound, so will this opportunistic algae, being the first to capitalise on ideal growth conditions.

### 3) Warmth

A high temperature will accelerate algae growth considerably and blanketweed growth will be greatest in the shallower areas such as cascades and waterfalls and along the pond perimeter.

## How can I best prevent Algae and Blanketweed from taking over my new pond?

Blanketweed and algae will find your pond. Many pond owners are fortunate in that, nuisance algae does not appear to proliferate in their ponds (and they cannot explain why). However, the vast majority of us will find that our ponds are very hospitable to algae or blanketweed, forcing us to look for ways of preventing it from causing problems.

There are a multitude of different approaches for solving green water problems, each with their own benefits (and costs) and with the added complication of whatever comes into contact with the algae, can also affect other pond life, including our desirable pond plants and fish. This is particularly true when considering chemical treatments.

## Methods available for the stillwater pond

### 1. Shading

A significant number of pond keepers who have tried many different methods of controlling green water (and blanket weed) have found that shading the pond is very effective. Erecting a pergola, and stretching green house shading across the top can cut out a great deal of direct sunlight that causes algae to thrive. As it does not involve treating the water, the fish and most aquatic plants will continue to thrive. Shading can also be achieved within the pond by adding natural vegetable dyes to the pond water, cutting out the sunlight. They change the appearance of the pond water to dark blue, but offer a long term, effective solution to algae problems.

### 2. Chemical treatments

These include algicides that actively kill algae and blanket weed. These chemicals must be used correctly and accurately because overdosing can lead to desirable pond plants being affected. If your pond is largely free of plants, this does not present a problem.

### 3. Competitive Planting

The first of 3 greener or 'natural' remedies involves using desirable pond plants to out-compete the algae for sunlight and nutrients. A pond can take several years to become fully 'balanced' with desirable pond plants eventually winning the battle. This is the reason why natural, mature water bodies are rarely plagued with algae.

### 4. Barley Straw

A second natural method of controlling green water is to add barley straw to the pond. The natural decomposition of barley straw causes the slow release of compounds that lead to the pond water becoming mildly toxic to primitive plants. This method can take several months to work as its effectiveness relies on the bacterial breakdown of the straw.

### 5. Bacteria

A more recent solution to the green water problem is to add a supply of beneficial bacteria that breakdown the nutrients on which the algae thrive. With regular, weekly dosing, these bacteria will continue to digest and utilise the nutrients that would otherwise have fuelled algae growth.

## For the recirculating pond

### 6. Uvc

The final solution to green water problems is guaranteed to work by most manufacturers and is the only method of those discussed that requires a pond pump for it to work. The unit is called a Uvc (Ultra-Violet clarifier), and uses ultra violet light to control green water. A pond pump is required to pump the green pond water through the Uvc (which is positioned outside the pond), where it clumps together and is removed by the pond's filter. The running costs are minute compared to other treatments and as long as the pond is fitted with the correct sized UV, it will be completely effective against green water. Its bulb will need changing every 12 months, with springtime being the best time to install a new one, with the subsequent 4-5 months presenting it with its hardest work.

Depending on your pond's circumstances, you have a range of alternative methods for controlling green water to choose from. Even if you get caught out this spring with green water, a guaranteed method of controlling green water is available in a Uvc. However, never succumb to the temptation of substituting your green pond water with tap water as this nutrient-rich water will take you back to square-one, turning green again in a matter of weeks.





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# The Blue Acara

**A**quarists are often encouraged to use the scientific names of fishes to avoid confusion, as often a species has a different common name depending on which country you live in, and sometimes more than one species has the same common name. But using the scientific name isn't always easy. The subject of this article is the blue acara, a cichlid that has been popular with aquarists everywhere for more than half a century. But, we do not actually know what species "our" blue acara is!

In most recent aquarium books you will find the blue acara equated with *Aequidens pulcher*; in the older literature you will usually find it called *Ae. latifrons*. For a long time it was thought that these were two different species – and even then we weren't sure which was our blue acara, as we didn't know where the

original aquarium stocks came from. Then scientists decided that *pulcher* and *latifrons* were just one species, and so *latifrons* became a synonym of *pulcher*. A bit later on some scientists suggested that a third species, *Ae. coeruleopunctatus*, which is found mainly in Panama and Costa Rica but may extend a little way into Colombia, might also be just another form of *pulcher*. But more recently opinion has swung back to there being several species, in fact more than the three previously thought! And it also seems pretty certain that this group will eventually be assigned to a new genus of their own.

For the time being, until this problem has been addressed and we (maybe) know which species our acaras belong to, it is probably best to continue using blue acara/*Ae. pulcher*, as although it seems to

have been first imported as *latifrons* this is not conclusive evidence that it is that form/species, and the scientists have yet to pronounce definitively. This article is about the blue acara that we all know, at least as far as its aquarium behaviour and requirements are concerned.

## Ecology and distribution

Because of the uncertainty about the identity and thus the distribution of the blue acara, any discussion of its distribution must of necessity look at the three species (mentioned above) that make up the "Blue Acara Group".

Blue Acaras are not, as is often mistakenly thought, Amazonian fishes. The group is found in the north-western corner of South America, the southernmost part of Central America, and on the Caribbean island of Trinidad. *Ae. pulcher* was described from Trinidad, *Ae. latifrons* from the Rio Magdalena in Colombia, and *Ae. coeruleopunctatus* from Panama and Costa Rica. Stawikowski & Werner (1996) recognise additional, undescribed, forms from the central Orinoco and from the Gulf of Maracaibo.

It is most unlikely that the aquarium blue acara came from Trinidad (not noted for aquarium fish exports), but that does not preclude its being *pulcher*, which is also found on the mainland, in the lower Orinoco drainage. A number of other fishes share this divided distribution; the



Blue Acara

best-known being the guppy (*Poecilia reticulata*). In all probability the species involved evolved on the mainland, but were carried to Trinidad on the floodwaters of the Orinoco, which, like the Amazon, each year pours a vast amount of fresh water out into the sea, creating a freshwater "overlay" in which freshwater fishes can survive. This is still happening, so it is possible that Trinidad populations are regularly augmented by new stocks from the mainland, so the species probably remains one and the same despite the apparent geographical barrier and consequent likelihood of speciation.

Members of the Blue Acara Group are fishes of mainly slow-moving or still waters, including pools and swamps as well as rivers. The water throughout their range is generally harder and more alkaline than in much of the Amazon drainage. Temperatures often rise to 30°C or more, but such high temperatures are not the norm and should not be copied in the aquarium.

### The Blue Acara aquarium

A pair of blue acaras can be housed in a 90 x 45 x 45cm aquarium, but a 120 cm long tank is better for a full-grown pair, in case target fishes are required (see below). A 120 cm aquarium is also better if a group of juveniles are to be grown on to obtain a pair. Blue acaras are relatively peaceful for their size (about 15 cm SL for an adult male), and can share a large aquarium with other species with a number of provisos: firstly, the other fishes should not be small enough to be eaten; secondly, they should be relatively peaceful themselves; they should also be fairly fast-swimming so they can avoid the sudden aggression of the acaras when they decide to produce a brood.

If the companion fish are to be other



Because of the digging, plants are unlikely to remain rooted unless precautions are taken. Various options are possible such as Java fern (*Microsorium pteropus*) grown on rocks or bogwood.

cichlids then great care is required. There must always be enough space for each cichlid, or pair, to hold the size of territory it requires, and this will generally mean only a small number of fishes in a very large tank. And if all the territory is occupied by cichlids, it is unfair to non-cichlids to subject them to aggression from all sides. The cichlids should all be fairly evenly matched in size and temperament – no dwarfs or Oscars, please!

Because of the Amazonian "myth", thousands of blue acaras have been kept in soft acid water and apparently thrived, but it is still preferable to provide natural conditions, ie water which is soft to moderately hard and has a slightly alkaline pH. Tankmates are best chosen

from the same general region, or at least similar water chemistry. If other cichlids are to be kept with them, these may well include *Geophagus steindachneri* (from the Rio Magdalena basin), whose totally different breeding habits make it quite a good choice, and/or *Cichlasoma*

*orinocense*. Some small, not too aggressive Central American species can also be considered.

Blue acaras are not particularly sensitive to poor water quality, but that is likewise not to say that poor water quality is a good idea! Efficient biological filtration and regular partial water changes are essential, so that ammonia and nitrite levels remain at effective zero (no measurable level), but at the same time it is important to avoid excessive water movement as these are fishes of slow-moving or still waters. They are not particularly streamlined ("hydrodynamic") and strong currents may make them uncomfortable and cause stress. A temperature of 25-27°C is ideal for general maintenance and breeding, as although much higher water temperatures are experienced in the wild these are not continuous. It is not normally necessary to raise the temperature to trigger breeding.

### Decor and diet

Blue acaras prefer to spawn on a flat-sided, smooth, stone in the open, so a selection of suitable stones is an essential part of the decor. A number of hiding-places – clay flowerpots, bogwood, rocky caves – is also desirable. All should be well bedded in the substrate as this species digs nursery pits and may undermine rocks just laid on the surface of the gravel. Remember to leave plenty of open substrate so this essential digging can take place! The substrate itself can be any sort of sand or gravel without sharp edges to lacerate cichlid mouths.

Because of the digging, plants are



*Geophagus steindachneri* are a possible suitable companion for the Blue Acara

unlikely to remain rooted unless precautions are taken. Various options are possible – plants in pots, plants between stones or surrounded by pebbles, Java fern (*Microsorium pteropus*) grown on rocks or bogwood. Or plants that nature intended to grow floating! Plastic plants can be used, or no plants at all. The lighting will depend on whether or not live plants are included – blue acaras, unlike many cichlid species, seem not to mind bright light, but they tend to show far better colour if the illumination is moderate or long-leaved (and/or floating) plants reduce the amount of light reaching the bottom.

Blue acaras are easy to feed, and will take most foods; they do not appear to suffer any ill-effects from a diet of dried foods alone. The obvious enjoyment they derive from earthworms suggests, however, that there are at least psychological benefits to be derived from a more interesting diet! Woodlice, whiteworm (*Enchytraeus*), pond foods (*Daphnia*, mosquito larvae, etc), mussel, shrimp, and prawn are all enjoyed.

### Stock selection

Most people who decide to keep blue acaras also want to breed blue acaras, and this is where the problems begin. There are no totally reliable sexual differences visible to the human eye, and even experts can be fooled. Some years ago, having acquired two specimens I thought were a pair but which both laid eggs (two females will "pair" if no male is present), I eventually located a magnificent individual in a London store

during a business trip to the capital. It was huge, with splendid finnage, and both the store-owner (an experienced aquarist) and I were convinced it was a male. Home I came with a large box as well as my briefcase.

The two females greeted their new husband with enthusiasm rather than the usual territorial aggression, confirming – I thought – its gender. Two weeks later "he" laid eggs.....

So, while it is true that males grow larger and may have slightly longer finnage, this is all relative, and unless you can find a guaranteed breeding pair it is better to buy 5-6 youngsters and grow them on together in the hope of getting a pair.

Stock selection is essential when purchasing juveniles. Until recently no wild blue acaras had been imported for decades (and even now only a few), and the stocks generally available have been produced almost entirely by hobbyist breeders, who typically buy a group of juveniles all from one brood and thus



Congo tetras (*Phenacogaster (Aequidens)*) are another possible suitable companion for the Blue acara

mate brother to sister. Countless generations of this repeated sibling mating have taken their toll, and many of the young fishes offered for sale are unhealthy. Avoid buying from groups where any are emaciated, runt, deformed, or showing signs of fungal attack, as in all probability even those apparently in good health will be disease-prone and maybe carrying genetic defects. And don't buy all of your group from one store – it is worth travelling some distance to another city to buy half your stock as this improves the likelihood of them not being too closely related to your "local strain".

### Turbulent courtship

With good maintenance – a varied diet and regular weekly partial water changes – within 6-12 months you should have a group of sub-adult acaras which will soon start to pair off. The first signs of this courtship are display (quivering, fin-spreading), and this is soon followed by jaw-locking. Even in this rather peaceful cichlid this can be quite a violent affair, and many adult blue acaras have twisted lips resulting from their love-life! The jaw-locking is a test of strength, as each fish needs to be sure that its potential partner is strong and resolute enough to defend the precious brood and won't run and hide the moment danger threatens.

The pair will also start to become territorial, and unless the tank is very large (length is the important parameter) it is best to remove the rest of the young adults at this stage, either rehoming them, or putting them in another tank to see if more pairs form. Otherwise they may be injured as the first pair become more and more territorial as a prelude to breeding. A useful tip: before welding the net, insert an opaque divider to separate the pair (in their territory) from the rest.



Firemouth cichlid



Green terror cichlid

This will avoid any likelihood of removing the wrong individuals – a group of acaras, all panicking when they see the net, all look the same! – and minimise the risk of the disturbance breaking the pair bond, which may still be fragile at this stage.

The pair will next choose a spawning site, which is then cleaned by the female, whose breeding tube generally starts to appear at this point, and nursery pits may be dug in the vicinity of the chosen stone by both partners. The female then usually makes several "practice runs" (ie without producing eggs) across the spawning surface before finally laying her row after row of eggs, in small batches of 8-12 at a time. After each spawning pass the male is seen swim over the stone, fertilising the eggs. The entire spawning takes about an hour and clutch size is 300-500 eggs, depending on the size and condition of the female. A young "first time" female will usually produce fewer eggs than a full-grown one.

During the incubation period (about 72 hours at a temperature of about 26°C) the female fans the eggs and mouths away any debris that may settle on them, while the male drives any intruders away from the spawning site and may also dig additional nursery pits. As often happens with neotropical substrate-spawning cichlids, if the acaras have a tank to themselves and there is nothing for the male to drive away, he may instead turn against the female, or possibly drive her away and eat the eggs.

Although this antisocial behaviour is quite rare in this species, if it does occur then the normal solution is the use of one

or more target fishes to keep him occupied. This could involve a clear divider with another cichlid (maybe one of the spare blue acaras) safely on the other side, or a small shoal of a reasonably large, fast-swimming, mid-water species – too large to be eaten but large enough to be perceived as threatening, unlikely to descend to the bottom and actually predate on the brood, and fast enough to avoid actual harm! Possibilities include giant danios (*Danio malabaricus*), Congo tetras (*Phenacogaster interruptus*), or deep-bodied barbs such as *Barbus pentazona*. Avoid catfishes, even armoured ones able to survive attack, as they are likely to eat the brood at night when the cichlids are inactive and unable to defend their young effectively.

### Brood care

When the larvae hatch they are transferred to a nursery pit. A further 5-6 days are required before they are free-swimming, and during this period the parents normally move them from pit to pit. Any potential enemy is violently attacked throughout the brood-care period. This includes the aquarist's hand, so be wary when feeding both adults and fry.

The latter should be fed on newly-hatched *Artemia* nauplii and/or microworm, and will also forage for microorganisms among algae or detritus, and eat small particles of their parents' food. So, while it is important to maintain perfect water quality, do not be too rigorous in clearing away muck, as this extra food will benefit the fry during the

intervals between "official" feeds. To make sure the food arrives where the fry are without your hand being bitten by the parents, use a large syringe, with airline instead of a needle attached, to squirt the food into the shoal. Initially several small feeds per day should be given, but as the fry progress to larger foods the number of feeds can be reduced.

Brood care in blue acaras lasts for only about 3-4 weeks, after which the parents will commonly eat their offspring in captivity. In nature the fry would, by now, have dispersed, but in the aquarium they cannot move far enough away from the adults' territory and are probably regarded as a potential threat to the next clutch of eggs, which generally appears soon afterwards, after a short period of renewed courtship and rock-cleaning.

If the fry are to be reared for sale then they should be removed after about 18 days to avoid this cannibalism. Bearing in mind the quality problems with tank-bred stock, it is important to cull rigorously and rear only the very best youngsters. In any case, demand, while steady, is limited even for this popular species and there is no point in rearing more than can be sold or given away. If there is no ready market then allowing the parents to "recycle the protein" is the best solution.

The blue acara has been popular with aquarists since its first arrival in our hobby, and hopefully will continue to grace our aquaria despite the influx of new and exciting species from both sides of the Atlantic. But breeding for quality rather than quantity is essential if future generations of aquarists are to share in our enjoyment of this beautiful and interesting cichlid.

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# Frogs & Friends

Continuing the theme of caring for more challenging herptiles, Val Davies, introduces two species of tree frogs

## Chacoan monkey frog (*Phyllomedusa sauvagii*)

A few years ago this creature was described by one herpetologist as the 'next pet shop amphibian' and whilst it is being bred in reasonable numbers in the US, availability in the UK is spasmodic and consequently prices are high. *P. sauvagii* is an arid-adapted tree frog from the Chaco region of South America including parts of Bolivia, Argentina and Paraguay. Features for an arboreal lifestyle includes fingers and toes that are free rather than webbed, opposable first finger and toe for gripping branches and the ability to walk rather than jump. However it is its adaptation for conserving water which helps to make this species so interesting.

Waxy esters, produced by lipid secreting glands, are distributed over the skin to reduce water loss by evaporation. This waxy appearance gives it its alternative name of waxy monkey frog. In addition, by excreting uric acid in semi-solid form (as in desert lizards) and reabsorbing water through the bladder, in the monkey frog evaporative water loss is

Female Monkey frog - larger and plumper, this specimen is full of eggs



only 10% of that of other anurans. The creature also has a unique method of coping with the seasonally high daytime temperatures of the Chaco. It thermoregulates using a process similar in some respects to sweating so that when temperatures exceed 40°C (104°F) water droplets form on the skin which has a

cooling effect. It is also thought that *P. sauvagii* is the only frog known to drink. It has been observed tilting the head upwards during rainfall and using a pumping motion of the throat to take in water in the mouth. The monkey frog grows to about 8cm in females with males slightly smaller. Outside the breeding season this is the only guide to sexing. Once the males begin calling (at night) they can be further identified by dark brown nuptial pads on the outer surfaces of the thumbs.

## Red-eyed tree frog (*Agalychnis callidryas*)

Growing to 6.5cm these stunning amphibians from Central American rainforests are occasionally available, usually as captive bred froglets and command fairly high prices. They are superbly adapted to an arboreal existence with a slender body, long limbs and adhesive discs on toes to enable them to grasp wet foliage. Strictly nocturnal they spend the day huddled on a leaf where their camouflage colouration makes them difficult to detect.

Male Monkey frog





Red-Eyed Tree frog  
note adhesive  
discs on toes

### Captive Care

Front opening glass vivarium with a mesh top is the most suitable form of housing for these two species. 90 x 60 x 76cm will house 4 or 5 monkey frogs whilst 76 x 60 x 76cm can contain up to 6 red-eyed tree frogs without overcrowding. A moisture-retentive substrate such as peat compost with sphagnum moss is desirable although in the US monkey frogs are frequently kept with newspaper or paper towel substrate. A large water bowl or container, with means of egress, should be sunk into the substrate. Water must always be clean and dechlorinated. Branches and pieces of cork bark are needed to provide climbing facilities. Climbing plants such as devil's ivy and sweetheart vine can be grown around the branches. Other suitable plants for inclusion are peace lily, gosefoot and spineless bromeliads. Humidity levels should be 70-75% for monkey frogs and 80-85% for red-eyes. By evening this will reduce to about 60-65% and 70-75% respectively. A daily spray combined with the water bowl will help facilitate this. Additionally the provision of a waterfall will

help to achieve the correct humidity level. In our monkey frog set-up half the floor area is a pool 15cm deep with a power head connected to a tube and spray bar which is switched on periodically to create greater humidity and is useful when inducing breeding. Although a mesh top may seem a contradiction when trying to obtain these humidity levels it is necessary to avoid stagnant air.

Heat and light are as important as humidity with basking lights needed to raise the hot spot to 33°C for monkey frogs and 28°C for red-eyes. This can be

beamed through the mesh top so fittings do not come into contact with moisture. Night time temperatures should be around 23°C. Although nocturnal, since these creatures are exposed to daylight when resting, provision of 2% UVB fluorescent light is necessary with a 14 hour photoperiod.

Both species feed readily on crickets, the size of which should be roughly equal to the length of the head of the frog. Insects should be sprinkled with multivitamin/mineral/calcium supplement three times a week. As with all nocturnal creatures the frogs should be fed late evening to avoid live foods losing too much supplement before being consumed. Experiments have found that lack of supplements and failure to provide UVB have resulted in metabolic bone disease with deformities in hind legs, hips and spine.

From the above it can be seen that these species are a little more demanding than many commonly kept amphibians. They are prone to what has been termed crash syndrome. This develops when kept under wrong conditions i.e. too cool, too wet, inadequate ventilations or dirty water. Specimens lying in the water bowl and either dark green or yellowish green need urgent attention. Correct conditions will avoid this occurrence.

### TOP TIP

When using natural materials such as branches and plants care must be taken not to introduce organisms which may reproduce within the warm, humid conditions of the vivarium. Branches should be thoroughly scrubbed and loose bark removed – preferably all bark should be removed since this is a suitable hiding place for many pests. Plants from nurseries and garden centres will probably have been sprayed with insecticide. Foliage should be sprayed with tepid water and wiped and the top centimetre of compost removed and the plant repotted.

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# All the latest news from aquarist clubs around the country

## Catfish Convention 2006

The 2006 Catfish Convention will be held from Friday, 17th February to Sunday, 19th February at The Britannia Hotel, Wigan.

The event will start on Friday afternoon with registration and in the evening with an informal dinner and open Catfish Forum. Talks will take place through Saturday and Sunday. A convention Dinner will be held on Saturday evening.

Confirmed speakers are:

- Dr Stanley Weitzman Curator of Fishes at the Smithsonian Museum Washington USA
- Lee Finley (USA)
- Ingo Seidel (Germany)
- Hans-Georg Evers (Germany)
- Stefan Hetz (Germany)

A UK-based speaker is yet to be confirmed and will be announced later.

Further details can be obtained from Ian Fuller (Chairman) [ian@coorycats.com](mailto:ian@coorycats.com) Catfish Study Group (UK) or [www.CatfishStudyGroup.org](http://www.CatfishStudyGroup.org)

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## The British Cichlid Association

What do cichlids eat? What cichlids are compatible? What is wrong with my cichlid? These are some of the many questions faced by fishkeepers who own many of the cichlid species. The book doesn't have the answer, the local aquarium shop owners don't keep cichlids so they can't help, what do you do?

The answer is to come to the BCA. The British Cichlid Association, formed in 1971, is a non-profit-making organisation whose aims are to promote conservation and aquarium study of this fascinating and extremely diverse group of fishes.

The BCA is a community of cichlid lovers, it doesn't matter if you keep Mesoamericans, South Americans, Rift Lake, or West African. There are members who keep one if not all of these groups. So why not become a member of this active community of fish lovers.

As a member you will receive our bi-monthly newsletter and colour-illustrated magazine *Cichlidae* containing articles and information about cichlid species. In addition you will gain access to a great range of books relating to cichlids, with regular special discounts.

We hold two conventions a year, where members meet to discuss all things cichlid. These meetings include talks by celebrity speakers and auctions where you can pick up that missing fish you need, as well as some rare species that don't appear at the local aquarium shop. Our next convention will be in October 2005. Details will be published nearer the time.

So if you are interested in joining the BCA, why not request a sample pack? Just send a cheque/PO for £3.00 to: BCA Publicity (Dept.) 20 Ash Grove, Shotton, North Wales, CH5 1AG. Or visit our website at [www.britishcichlid.com](http://www.britishcichlid.com)

## Port Talbot Triumph Again

Those people from over the Severn Bridge certainly take their fish exhibiting seriously!

Following on from their victories at last year's Supreme Festival of Fishkeeping, at the recent Southend, Leigh & D.A.S Open Show members of Port Talbot A.S. literally swept the board in the Today's Fishkeeper and Aquarian sponsored Champion of Champions competition.

Faced with competition from other 'Best in Shows' the Welsh Warriors came away with all top five Places.

1st	John Egan	-	<i>Etheostoma caeruleum</i>
2nd	Hayden O'Grady	-	<i>Scobiancistrus aureatus</i>
3rd	John Egan	-	<i>Botia histrionica</i>
4th	John Egan	-	<i>Etheostoma gracile</i>
5th	Claire Davies	-	<i>Mastacembelus oryziatensis</i>

### 2004 National Show League

The country's top prize-winning fish exhibitors of 2004 were, in order:

1st	Roy Chapman
2nd	"KPG" - including Paul Brown
3rd	Gavin Cowan
4th	Brian and Steven Chrich and Ian Wright
5th	John Egan



## Supreme Festival of Fishkeeping moves venue – 14th-16th October, 2005

**D**ue to the increase in demand, both for residential accommodation, trade and competitive exhibitor space, the organisers of the **Supreme Festival of Fishkeeping** weekend event, held annually by the **Federation of British Aquatic Societies** have taken the bold step to move the event to a larger venue.

Joe Nethersell, the Festival's Organiser, explained "With the new attractions we had built into this year's Festival, such as the **International Discus Show** and an increased emphasis on **Marine** fish, we simply had run out of room at Bracklesham Bay. We were beginning to become victims of our own success, as more people wanted to come and join in what has to be the largest aquatic event of its kind in the UK."

The new venue will be at the Mill Rythe Holiday Village on nearby Hayling Island, not far from the previous Festival venue. "We've been to see the new venue," says Joe "and we believe it is more than capable of delivering the facilities we need for the Festival. Because the Village is far larger, we can retain much of its existing attractions for the whole family, in addition to all the fishkeeping ones we know our visitors will want to see."

Letters have already gone out to previous residents and Trade exhibitors advising of the move, and people on the 'standby list' can now be confident of getting the space they require.

"All the favourites will be back, including the several Koi Sections, and we feel that this year we will not be in the regrettable position of having to refuse applications due to limited space," Joe added "however, we do need people to get in touch with us as soon as possible to tell us what space they need, so we can plan the layouts accordingly. We appreciate it is fairly late on in the year to suddenly change venues but we do want to make the very best of the facilities offered to us at Mill Rythe."



The Festival will include many competitive aquatic Shows including the British Open, the Catfish Show, the Goldfish Show, the Laguna Koi Festival, the Hagen Masters Open Show and the FBAS Supreme Championship. In addition, there will be presentations by eminent Guest Speakers and plenty to see on both Trade and Specialist Societies' displays.

For full details of the Festival of Fishkeeping, please contact Grace Nethersell for Residential Bookings, or Joe Nethersell for Trade Exhibition space, on 020 8847 3586 as soon as possible. You can also find details on the FBAS website at [www.fbas.co.uk/Events.html](http://www.fbas.co.uk/Events.html)



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# Ponderings

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## Snapper Turtle

In the early 1990s some Snapper turtles (*Chelydra serpentina*) were imported as pets. A few of these found their way into the countryside and with a life span of 30 to 50 years some of them are still out there.

These are big turtles reaching a size of 50 cms and weighing upto 25 kg. They are armed with a massive head and powerful jaws capable of delivering a very nasty bite.

They spend most of their time in the warm shallows but if undisturbed will sunbathe on the bank. Snappers hibernate during the winter but during the spring and summer will eat practically anything they can catch including fish, crustaceans, birds and mammals and are capable of seriously reducing fish stocks in large ponds and small lakes.



## Dipping Deeper

The grass snake is the largest of our native snakes and may reach nearly 5ft in length. It is equally at home on land or in the water where it hunts for both frogs and small fish.

They often turn up in garden ponds, particularly in spring, attracted by the influx of spawning frogs and the promise of a few easy meals.

Apart from their larger size they can be identified by the yellow collar round the neck. Grass snakes are non poisonous and are more attracted to frogs than fish, usually moving on to pastures new when the frogs disperse after spawning.

However if you have a really wildlife friendly garden and pond then it may choose to stay in the area and if you can find the spot where it comes out to bask on warm days then you will be rewarded with some fine views of this shy creature. Grass snakes have also been known to lay their eggs in compost heaps in late summer.



Fascinating  
Fact

## Backswimmer bites

Backswimmers are fairly common pond residents often seen floating on the surface. Handle with care as they can deliver a very painful bite.



Their mouth consists of a hollow rostrum which terminates in a needle sharp point. When the backswimmer stings it also injects a concoction of enzymes designed to render its prey helpless whilst breaking down the body into a soup. Fortunately for us it only results in a painful sting.

## RUDD FACTFILE

Species:	Rudd ( <i>Scardinius erythrophthalmus</i> )
Other forms:	Golden Rudd
Size:	Up to 12 inches (30cms)
Weight:	Nearly two pounds (800 grams)
Availability:	The Rudd is a common native fish and the popular golden variant is widely available from aquatic outlets
Habitat:	Rivers and ponds, often heavily vegetated
Identification:	A shiny fish whose fins have a reddish tinge. Golden Rudd are a bronze colour whilst retaining the reddish fins



**Habits:** Shoaling fish which swim close to the surface, preferring well-oxygenated water. They eat insect larvae and also take flies and midges from above the water. In small numbers they will find natural food but this will have to be supplemented at normal pond stocking levels

**Pond fish value:** The Golden Rudd will be best for the ornamental fishpond as it is easier to see them from above. They start laying eggs after two years, spawning in April or May on submerged plants. Hardy little fish, they are peaceful and will happily co-exist with other fish, making them ideal candidates for the garden pond.



## Pond Fish Problem

The fish leech (*Piscicola geometra*) is a common parasite of freshwater fish and can grow to 80mm in length. It can be found on any part of the fishes body including the gills and inside the mouth where it hangs on, sucking the fishes blood. When not attached to a fish it lives freely amongst the plants where it can hang onto a plant stem looking like an extension to the stem as it waits for a passing fish to come within range.

Single leeches are unlikely to do much harm to a large goldfish but they are very difficult to eliminate from the pond because they produce leather like cocoons around their eggs which are resistant to chemical treatment.



### The China Mark Moth

I recently noticed that some of the new water lily leaves had large bite sized semicircular chunks missing from the edge. Looking more closely I spotted a semi circular piece of lily leaf floating amongst the emergent fronds of the Canadian pondweed. In actual fact it was not floating but being carried over the plants.

Reaching over I picked it up and found it was not one piece of lily leaf, but two, neatly fixed together back to back. Placing it back on the pondweed I watched closely and soon a small black head appeared from one end and started to eat the pondweed. It was a China mark moth caterpillar.



The Brown china mark moth always makes its protective home from water lily leaves and starts by neatly cutting out a semi circular piece of leaf about one inch long from the underneath. When it is severed it drags it under the water and positions it under the lily leaf. It then sticks the two pieces together as it severs the second piece, eventually floating free in its new case from which it can graze in relative safety.

Together with the smaller China mark moth caterpillar they can disfigure the water lily leaves; numbers of these caterpillars are rarely high, and you can usually leave nature to maintain the balance.

### Oxygenating Plants

Oxygenating plants put oxygen into the water when they photosynthesise in the presence of sunlight. Fish need oxygen so in theory we have a win-win situation – plants which grow quickly and produce cover and oxygen. The trouble is there is a snag. At night these plants continue to respire but they do not photosynthesise so that they actually take oxygen from the water, competing with the fish, and on warm thundery nights can leave the fish literally gasping for air. The more plants you have then the greater the problem.

Nevertheless they do have a place in the pond provided they are controlled. They remove nitrates from the water and their often-tangled growth provides spawning sites and shelter from predators for both fish and amphibians.

There are many to choose from including starwort, hornwort, Canadian pondweed and willow moss, all of which will produce lots of underwater foliage.

Water violet is a good choice for its delicate finely divided, bright green, underwater foliage and pretty lilac flowers. A good stand of *Lagarosiphon major*, also known as fish weed, is great for the fish and in situations where there is running water, water crowfoot will perform well.

Avoid the very invasive aliens like *Crassula helmsii* also known as *Tilia recurva*, swamp stonecrop, Australian stonecrop and New Zealand pygmy weed. Plants like this will take over your pond and the marginal areas.



Above: Canadian pondweed  
Below: Hornwort  
Below middle: Water Violet  
Below left: Fishweed



## Adding Barley Straw

Barley straw and some other types of straw, including lavender, produce inhibitors when they break down in water under aerobic conditions. These inhibitors will stop the development of green water and blanketweed but they are not a magic cure all for this common pond problem.

1. It does not work overnight and depending upon the water temperature (it works more quickly in warmer water) it can take from 2 to 6 months to see a result.
2. It does not kill algae, only inhibit their growth, so once the inhibitory effect starts to wear off after about 9 months the algae will grow again.
3. Addition of a new pack of straw about every three months may keep the algae under control but elimination depends upon removal of the cause – a build up of nutrients in the pond water.



You can make your own packs for a few pence:

- Step 1** – loosely pack some barley straw into a polypropylene net bag  
**Step 2** – anchor the bag to the bank with string.  
**Step 3** – hold the bag under water until it stops floating.

**TIP** – it sometimes works more quickly if it is put in moving water like the waterfall outflow.

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# Torrents in your tank



**W**hen I rant on about the best equipment and the costs I can be accused of trying to sell the stuff because that is how I earn my food. However I also advise, and take pride in the advice we give, so let's look at one aspect here. Hobbyists who set up their marine aquarium utilising the best have an easy ride – the animals are more healthy because the water is of a high quality: simple fact. An aquarium utilising older technology will not perform as well – sadly this is a fact. You have saved up for a good skimmer, you saved up for halide lights, you hid the cost of that calcium reactor; now you will have to do the same for your water movement – sorry, but it's a fact of aquatic life.

I could be accused of doing a product review here but quite simply the best way to get flow in your tank is a Tunze Stream or stream kit.

Now this is a powerhead with a difference – if you stick your index finger out and then close the rest of your hand, you are now looking at the flow output from a conventional powerhead. If you close and open that index finger a few times, you are now looking at the output of that powerhead on a wave generator. Put a coral directly in front of a powerhead of say 1500 litres an hour – it is going to be hurt by a thin but powerful movement of a jet of water. They work – of course they do – but as technology, research and knowledge increases so our equipment changes and our aquariums get better and healthier.

Open up your hand and spread your fingers and you are now looking at the flow from a Tunze stream pump – a little bit different. Now move your arm slowly forward and then back, then faster, then more slowly, then faster again, I know I am being stupid here but you have just observed the flow created by the stream on its controller. Let's look at the difference, a wide diffused flow is created which is why the most powerful produce up to 20,000 litres per hour, the most popular up to 7 or 12,000 l/hr. The power ramps up and then falls back down in a

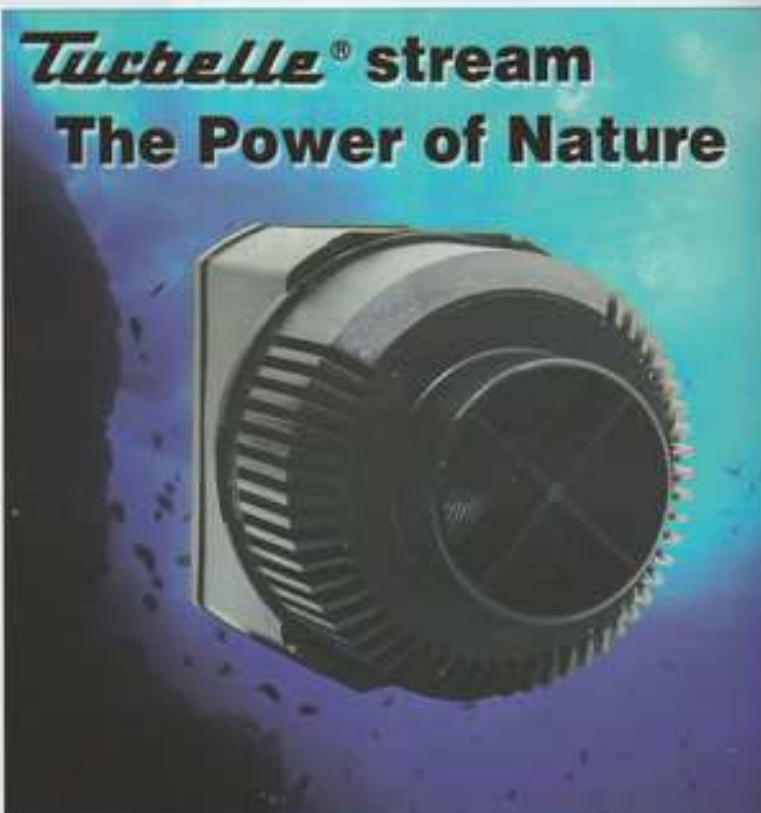
pulsing action controlled by the amount of electricity passed to the pump. More juice, more power in a very gentle way – not only can you control the speed of the pump but you can control the timing of the pulse and drop off. Do not be worried about the power as we have installed the 12,000 l pumps on a 24 x 30 x 24 reefs with no adverse effects – only good.

Now back to the wide spread it creates, this will push water deep into the live rock, the first time you install one the amount of sediment that has settled will amaze you, if fact you will wonder what has happened. Your corals will be battered for a couple of days then they

will respond better then ever. These pumps help with algal control, sediment removal, filtration via live rock, increase coral and fish health, dispersal of food and additives. However, they do cost so start to save.

The range, with a controller, can cost up to £200.00 with twin sets starting at £450.00 and going upwards – the sky's the limit.

Don't think about it, get it, you will be amazed at the result.



## Fish profile



### AMBLYELEOTRIS RANDALLI RANDALL'S GOBY

Well you can't get better than this can you? Just look at the beast, wonder at the displayed dorsal fin, melt at the blue tinge to the anal and pelvic fins, just dissolve at its beauty, then add a shrimp and bang you will explode in visual behavioural delight.

Well what is the downside to our beast? Is it a hard to keep species, requires only live food, poor survival record, high price tag. No, there's no downside to this baby – it's an easy to keep, inexpensive jewel in the aquarium world.

This beast easily adapts to aquarium life and soon starts to feed, but your dealer should have taken care of that. As with all fish feed many times a day with small injections of vitamin enriched meaty foods and you will soon see a vivid colouration – a fish screaming with health. Feed only twice a day and it will be ok! Growing to a maximum of 9cm we are not talking about a major biological load on the system as well.

Our beast will nip in and around the rock work but if you purchase a shrimp then you are in for the trip of a lifetime. If possible buy a true pair or

mated pair but if you have to purchase separately then they will find each other very quickly and start to work. Make sure you have a rubble bed or sand bed with plenty of different sized particles at least 4cm deep so the shrimp can build their home.

What a sight this makes, the goby swimming up and reversing back into the burrow – that alone will make you go weak at the knees. But with our little pistol shrimp behind constantly utilising the largest claw as a shovel moving sand, re-building, excavating never ceasing working, working and working more, makes this partnership a sight to behold.

So what more can anyone in this hobby want? Corals are great but let's be honest they look great. I love them to death but they only grow; fish are fantastic but all they do is swim. You can buy a coral for 50 quid easily; fish well up to 100 smackers is not uncommon. You will part with around 40 hard earned one's for this fish AND it's hardy, easy to keep, bringing unbound joy. There is no better – there really is no comparison in the aquarium world.

## PROFILE

**Family:**  
Gobiidae

**Name:**  
*Amblyeleotris randalli*

**Location:**  
Western, Pacific

**Feeding:**  
Vitamin-enriched small meaty foods

**Size:**  
9cm

**Tank Mates:**  
Peaceful fish

**Reef compatibility:**  
Fantastic

**Difficulty:**  
Great for the beginner

## Invertebrate profile



Very few aquariums have been set up with a particular theme in the mind of the aquarist and that theme kept to. I remember setting up a 125 gallon fish only system – must keep to fish I banged into my head, yet two months in saw the first coral!!!!

So we are now in the situation where we are experiencing an upsurge into a swing from the soft coral aquarium to introducing large polyp stoney corals. Now the aquarist has a problem here as the new additions thrive in different conditions to those you have given your softies. The fact remains that aquariums containing only hard corals or only soft corals produce more healthier corals for many many reasons. The second fact is 90% of aquarists ignore this fact simply because they don't want to strip out the corals they have cared for, or the good lady loves them. As we do not live in the ideal world we have to look for hard coral species that are indestructible, or nearly so – enter our little beast.

Now this baby is easy to distinguish from the other *Turbinaria* sp due to its relatively large polyps and growth form in a cup or columnar shape – not plating or scrolled. It is a cracking beast which will perform well under T5 lighting so halides are not required. They normally have quite a large base which lends itself to adhesion via epoxy resin to create a great feature in your living room wonder. One thing they do not like is incorrect water movement – the polyps

do not extend, yet after the flow over the animal and out they come to feed. Take the time to turkey-baste food around the colony – this little extra care will give you great results.

I mentioned above that this is an indestructible, or nearly so, coral and this fact has resulted in them being killed for profit with you, the aquarist, and the coral paying the price. We have had campaigns in the press about dyed fish, and GM fish but dyed corals just get pushed under the carpet. I cannot believe that these are for sale blatantly on the internet – the pictures are there for everyone to see, yet not one person on the forums comments on this but they go mad if you disagree with them. So dyed corals are fine you keep buying them, they keep dyeing – someone's walking to the bank laughing at you all while driving there.

It is easy for the inexperienced aquarist who trusts the predator who offers these for sale; there it is a nice bright vivid gob smacking coral. If you have never seen anything like it, then beware, ask questions to others not the shop owner who will only sell it you, then the coral either dies or reverts to its natural coloration. I would be the first to sign up to a petition like the dyed fish or GM fish campaigns that we see – will it ever happen?

Experience the beauty of our coral here, for a beauty it is, in its natural colouration care for it in the correct manner and experience the joy in watching it thrive.

## TURBINARIA PELTATA, CUP CORAL

### PROFILE

**Phylum:**  
Cnidarian

**Name:**  
*Turbinaria peltata*

**Location:**  
Indo Pacific

**Feeding:**  
Good range of coral foods

**Size:**  
8 - 14cm

**Water flow:**  
Moderate to high

**Lighting:**  
Medium to high

**Difficulty:**  
Easy hard coral



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# Common diseases of Characins

The characins are a varied group of group of fish that are found principally in South America and Africa, although one tetra – the American tetra (*Astyanax mexicanus*) extends its range northwards through central America and Mexico into the river drainages of Texas and New Mexico. In size characins vary from the diminutive like Espe's pencilfish (*Nannostomus espe*), to the enormous such as the red-bellied pacu (*Colossoma brachypomus*). Although most are egg scatterers, some such as the piranhas (*Serrasalminus spp*) do exercise parental (paternal) care of their young whilst the spraying characin *Copella arnoldi* also looks after its eggs; no mean feat considering it lays its eggs above the water surface and keeps them moist throughout the two to three day incubation period by repeatedly splashing them. And then there is the sword-tail characin *Corynopoma nisei* which fertilises its eggs internally and is therefore technically a live-bearer. Colouration ranges from the stunning fluorescent-like reflective markings of the Neon tetra *Parachanna innesi* (it caused a major sensation on its introduction into the hobby in 1936) through to the pale pink of the fascinating

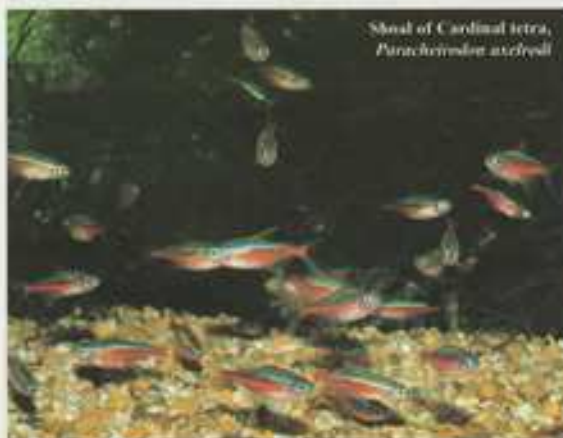
Pencilfish, *Nannostomus espe*

Cave Tetra *Astyanax mexicanus*, a sightless cave-living morph of the American tetra, and through into, well, the transparency of the X-ray tetra *Pristella riddlei*.

## Captive Conditions

Most characins are shoaling fish and for their mental well-being should be kept in groups of at least five individuals. In aquaria many will form mixed-species shoals with other characin species and even small cyprinids such as danios. The

rule does not apply to all however. There are definite out-and-out predators such as the Tiger tetra *Hoplias malabaricus* which is pike-like in shape and behaviour. The piranhas or pirambebas are large but nervous fish. In the wild they are a shoaling fish, but this behaviour can only be safely replicated in large aquaria. It is true that, despite their fearsome reputation, they are not overly aggressive to each other except when breeding, nevertheless a bite from one of these fish is likely to be a serious injury to the victim.

School of Cardinal tetra, *Parachanna axelrodi*School of Neon tetra, *Parachanna innesi*

healthy breeding males will attempt to establish territories and will defend them aggressively against other piranhas, often both dishing out and sustaining horrible injuries in the process. Piranhas are carnivores/scavengers in the wild and most will adapt to a diet of dead fish. There is no need to feed them on live fish such as goldfish, and in my opinion this also represents an unacceptable disease risk.

Most species of characins available in the hobby are found in the drainage systems of the major rivers of South America and western Africa so they generally prefer their water on the soft, acidic side. There are exceptions to this such as the Cave Tetra whose subterranean waters are naturally medium hard and alkaline. A temperature range of 22 - 28°C is usually fine. Two very popular and similar species – the Neon tetra *Paracheirodon innesi* and Cardinal tetra *P. axelrodi* do differ markedly in their water quality needs. They both originate from Amazonian waters but today Neon tetras are extensively bred on fish farms in south-east Asia and are available in several colour varieties. Most Cardinal tetras are, in contrast, wild caught. This means that modern, commercially produced Neon tetras are very forgiving of water quality providing ammonia and nitrite levels are zero. Cardinal tetras however should be kept in soft, acidic water and risk developing serious calcium deposits in their kidneys if the water is too hard. Hard water can also reduce the viability of eggs of soft water species.

For piranhas and other large and/or predatory characins an efficient biological filter is essential, for these fish produce a great deal of ammonia and faecal waste, and their normal feeding habits lead to numerous small fragments of food material that can go undetected. It is likely that most captive piranhas die from one of two things: either exposure to poor water quality (including high ammonia levels) because of overfeeding or poor husbandry, or secondary infection following a bite from another piranha. Otherwise these fish tend to be tough once established.

## Viral diseases

## Ectoparasites

### Crustaceans

Occasionally, the large crustacean parasite called *Livoneca* can infest wild caught characins. It is known as the South American fish louse and in appearance, this parasite resembles a woodlouse. Adult *Livoneca* grow up to one inch long; the adult parasites burrow into the gills and mouth cavity of the fish,



A good example of white spot, *Ichthyophthirius multifiliis* can be seen on this Neon Tetra

but they may also attach and burrow into the side of the fish. *Livoneca* develop first as males and then change sex to females. The large female is often found in the mouth, while the smaller male is attached to the gills.

### Monogenean trematodes (Skin and Gill Flukes)

*Gyrodactylus* (the skin fluke) may be irritant if present in large numbers. It will frequently attack characins that are otherwise already ill. Fish sitting on the bottom, fins clamped, will often have a high *Gyrodactylus* burden. This fluke is livebearing and so is relatively easy to control with one or two proprietary fluke treatments are usually sufficient to destroy the whole population. *Dactylogyrus*, the gill fluke, can become a serious source of disease, both directly by damaging the gill lamellae, and indirectly by allowing secondary infections to establish. Its lifecycle involves an egg stage that is relatively resistant to chemical attack and so repeated treatments are necessary for control. Also useful is praziquantel (available from your veterinary surgeon as Droncit

(Bayer)) given at a rate of 400mg/100g food daily for seven days.

White Spot (*Ichthyophthirius multifiliis*) is the most familiar of the protozoan parasites. Although the parasite is recognised by the typical white, pin-head 'spots' visible on the skin, it is the free swimming stages of this parasite that are the most susceptible to treatment. Higher temperatures speed up the life cycle thereby exposing this susceptible stage to treatments sooner. Most characins are tolerant of higher temperatures so this trick can be used to speed up treatment. Fortunately White Spot is very quickly eradicated with proprietary medications.

*Chilodonella*, as well as other ectoparasites such as *Ichthyobodo* (Costia) and *Trichodina* can all cause



Diseased Neon Tetra



Fish with gill hyperplasia (thickening of the gill filaments), such as seen with long term ammonia exposure, may subsequently suffer secondary bacterial or fungal infections. The gill filaments are often so inflamed and swollen that the operculi are unable to close. The respiratory rate will be high. Again judicious use of chloramine-T may be of use.

Fish mycobacteriosis (Fish TB) commonly due to *Mycobacterium marinum*, *M. fortuitum* or even *Nocardia*, can present itself with a wide variety of signs such as chronic weight loss, exophthalmia, skin ulceration and spinal deformities. These infections are potentially infectious to people and if suspected or confirmed, infected fish should be humanely euthanased.

### Fungal Infections

Saprolegnia infections appear as characteristic fluffy cotton-wool growths on the skin, usually secondarily infecting wounds. Treat with proprietary anti-fungal preparations, salt baths or maintain in a salt solution of between 1 and 3 g per litre. Internal fungal infections such as *Ichthyophonus* have all been recorded in cichlids. Such fish often show accentuated colouring shortly before death.



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# ...End Point

In order to think of something a little different for 'End Point' this issue, we decided to focus on the successful career of **RYAN SHACKLETON** a young teenager who knew what he wanted but wasn't sure whether he would achieve it.

**H**ow often, these days, do we hear of youngsters who put all their efforts into gaining qualifications but are then unable to secure a job at the end of it. There are also those who try extremely hard but just don't have what it takes.

Ryan Shackleton, a 16 year old, from Rawtenstall in Rossendale, Lancashire left school not really knowing where his future lay although he always felt he'd like to work in an aquatic shop. Ryan's passion for fish stems from his interest in fishing for carp and pike and, indeed, it was when he caught his first carp that he knew he wanted to work in an aquatic shop.

Training 2000, the largest independent training provider, in the North West helps youngsters obtain their dream job by providing training and/or work experience. In January 2005 Training 2000 approached Mike Donlan, Manager of Valley Aquatics in Haslingden, Rossendale, to see if he would be willing to provide Ryan with some work experience as he had an interest in fish.



And so, Ryan duly started work, 5 days a week, at Valley Aquatics. As a major revamp was happening in the shop, Ryan spent the first month assisting with the building of new tanks, ponds and vats. Then, as the shop was being moved to another part of the building he spent a lot of time just guarding the till and, as a consequence, became extremely bored and frustrated. To relieve the boredom he was allowed to take his fishing tackle into the shop to clean it up and do any running repairs. So, regular as clockwork, Ryan would turn up each day with baseball cap on, fishing tackle and fishing chair!

By Easter the shop had completely opened up in the new building but, by this time, complacency really had set in. Ryan wasn't happy and neither were the staff at Valley Aquatics happy with him. Following a talk with Mike, Ryan and Ryan's Mum, it was accepted that with all that had been going on with the new shop, the fault probably lay with the staff for not allowing Ryan to get more involved.

Over the next month there was a definite improvement in Ryan's attitude – the baseball cap went, the fishing tackle stayed at home and, finally, the fishing chair stayed at home. He started to do specific jobs such as topping up all the systems and feeding the fish. Next he was



shown how to catch coldwater fish and was then encouraged to start serving customers and use the till.

Ryan then developed a desire to own a tropical fish tank and where most of us have started with guppies and Neon tetras, Ryan decided he had to have an Oscar. After a couple of weeks an Oscar came into the shop and Ryan was absolutely mesmerised by it and, needless to say, he ensured that it got more attention than all the other fish in the shop. And, yes you can guess the rest, the Oscar is now in a tank in Ryan's house!

The change in Ryan was unbelievable. He became more talkative, he didn't pull a face when being asked to do a job and, more importantly, he began to look happy. Then, at the end of May, Mike had a meeting with the staff and it was agreed that Ryan should be offered a permanent full-time job with responsibility (under supervision) for the coldwater section.

Needless to say both Ryan and his parents were highly delighted. Ryan has taken his role extremely seriously – he's produced feeding regime charts, which he insists ALL the staff adhere to. Every day he spends time inspecting 'his' coldwater fish to ensure that they're in the peak of condition.

So, this success story, should be of encouragement to all youngsters – if they put their mind to it, they can achieve their goals.

Well done Ryan!

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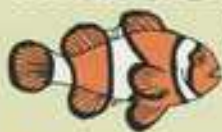
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