

CatChat

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CATCHAT

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Worm line Peckoltia

Scleromystax barbatus

Corydoras sp. C65

Spawning Tatia Intermedia

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Diary Dates – 2011

Date	Meeting	Details
Jan 16th	AGM	
Feb 20th	Filtration	
March 13th	Spring Auction	Pre booking David Barton 01942 248130
March 18th- 20th	Annual Convention	Kilhey Court Hotel, Chorley Road, Standish, Wigan, Lanc's. WN1 2XN
April 17th	Spawning triggers	
May 15th	Spring Lecture	
Jun 19th	Catfish Companions	
July 17th	Natural Catfish Habitats	
Aug 21st	Summer Lecture & Mini Auction	Doors Open 12. noon
Sep 18th	Annual Open Show & Auction	35 Catfish classes
Oct 16th	My Favourite Catfish	
Nov 20th	Autumn Auction	Pre booking David Barton 01942 248130
Dec 11th	Christmas meeting	not to be missed

Meetings are normally held at the Highfields Working Men's Club, 1 Ratcliffe Street, Darwen, Lancashire, BB3 2BZ on the third Sunday of each Month from 1pm

Contents

Editorial and Notices.....	3
Catfish Bites – Steve Wood.....	5
Breeding <i>Tatia intermedia</i> – Graham Ramsay.....	6
Wormline <i>Peckoltias</i> – Steven Grant.....	9
<i>Scleromystax barbatus</i> – Mark Walters.....	15
Breeding the Soda Pop Cory – Ian Fuller	22
What’s New? – Mark Walters	25

Front cover – *Peckoltia* sp. L135 – Image by Steven Grant

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Editorial



Happy New Year to all our Catfish Study Group members. I hope you are successful in keeping and breeding your fish and continue to increase your knowledge and understanding of this fascinating family of fish. This edition marks a complete year of editing for me, which I have thoroughly enjoyed despite the hard work involved. It is only possible through the articles written by our knowledgeable members so keep them coming.

Although we all still love to refer to specialist books and publications (like this Journal!) to learn more about our fish, the internet has no doubt provided the greatest source of information and debate over the last ten years (at least). The ability for so many people from across the globe to comment on new species, give advice on reproduction and share their own experiences in husbandry has furthered the hobby immensely. This is in no small measure thanks to the creators of numerous specialist websites dedicated to the furthering of our hobby. Ones which I have listed in my website 'favourites' include the CSG website, Planet Catfish, CorydorasWorld, Scotcat and PlecoPlanet. Other more general sites I check out include Practical Fishkeeping and Aquarist Classifieds (strictly a sales site). It was sad to hear recently that another favourite, Petfrd.com, has been closed for whatever reasons. Amongst the sites, there really is something for everyone and some sites are frequented by many eminent aquatic icons. My simple message is to support the sites and join in the learning by sharing your own experiences through the various forums available.

Recent threads that have interested me have included discussions on whether to adopt sub-genus names such as Panaqolus, to describe many of the smaller Panaque species common in the hobby. I keep 4 species of these dwarf 'Panaques' which are relatively easy to breed and will easily fit into most aquarium set-ups, unlike some of their tank-busting wood-munching monster cousins (I'm talking about the typical large Panaques). A number of popular books (Wels Atlas 2 and Back to Nature L-Catfishes) have used the subdivision of the genus to differentiate between the groups of Panaque species, which I think helps distinguish between groups with dissimilar habits and morphology. Of course there are overlaps in the distinctions and the debate will continue until the scientific community advise us formally on further division of the genus.

This New Year edition of the journal contains more great articles, including a study on the types of 'Wormline' Peckoltia which are often lumped under the tag 'braueri'. Steven Grant has unraveled the different species and included some stunning images of the fish. Peckoltia are another perfect catfish to keep and one of my favourite genres. Graham Ramsay recently bred his woodcats - *Tatia intermedia* and presents an account of his success, I know Graham is an accomplished breeder of many difficult species and I look forward to including more articles from him in the future. Ian Fuller presents a Breeders Award Programme report for a rarely encountered species of Corydoras named after a popular Brazilian fizzy drink, which he has successfully spawned and distributed within the hobby, thereby preserving its existence for the time being. I've followed my article on Scleromystax, with a more detailed look at the barbatus group including a less common species *S. kronei*. I've also taken the opportunity to include previously unpublished breeding accounts for the two species as part of the Breeders Award Programme.

The next edition will report on the outcome of the AGM and of course the CSG Convention - see you all there!

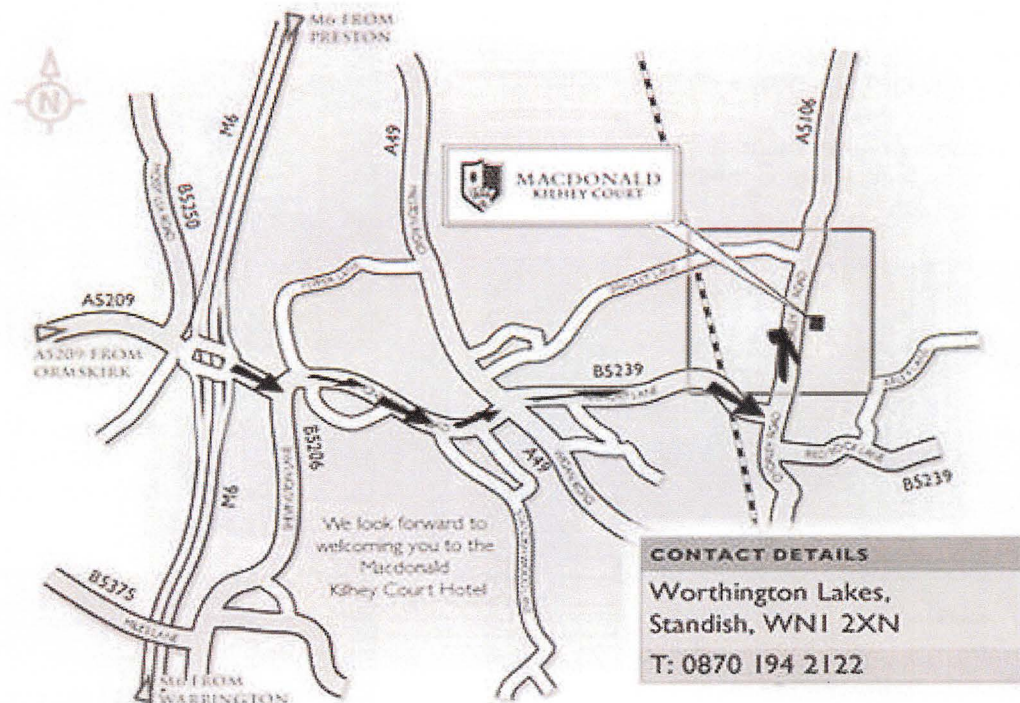
Mark

CSG Convention 2011

The date for the CSG's 2011 Convention has been set for: - 18th - 19th - 20th March

The venue is totally new and should meet with everyone's approval, it is **The Kilhey Court Hotel, Chorley Road, Standish, Wigan, Lanc's. WN1 2XN**. This is a superb four star hotel with enough room to cater for our every need. The conference room holds up to 300 people.

See map below and directions, or goto: http://www.catfishstudygroup.org/core/find_us.htm



Because this is a relatively small hotel with a total of 62 rooms, bookings will be on a first come first served basis and those that book their tickets early will get discount. Booking forms will be available as soon as everything has been settled and checked. Please check back to the CSG website for upcoming information. Or contact the Convention Manager – Ian Fuller.

Catfish Study Group 32nd Annual Convention

The Venue

The Kilhey Court Hotel
Charley Road,
Standish, Wigan,
Lanc's WN1 2XN.
United Kingdom

**CATFISH
STUDY GROUP**

The Speakers

Dr Michael Goulding
Dr Ralph Britz
Dr Devon Graham
Rupert Bridges
Hans-Georg Evers
Bob Barnes

18th-19th-20th March 2011

For full details contact ian@corycats.com or visit the CSG website www.catfishstudygroup.org

Stop-press! There is an additional speaker. Dr. Claudio Oliveira from the University of Sao Paulo. Also, Dave Hulse will be standing in for Rupert Bridges.

Catfish Bites Steve Wood

CSG member Steve Wood makes good use of some cheap CSG Auction purchases.

At the November CSG auction I bought two 30" x 15" x 15" tanks for £5 each. Obviously well used by the previous owner who I have no doubt had his/her money's worth out of them.

I decided to give them a bit of a refresher seeing as they will be in the house. This is what I started with:



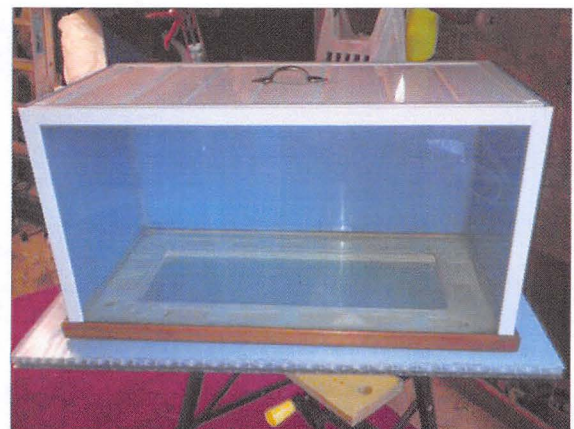
I took a while scraping off the old paint and giving the seals a bit of a trim. I checked for water-tightness by filling the tanks and leaving them for about 4 hours. I quite like the Fluval idea of incorporating a structural base into the design so I made my own using 3/4" thick uPVC fascia board offcuts I had in the garage. This is siliconed in place on the base.



Then I made a lid using offcuts of uPVC hollow cladding board.



A few coats of blue emulsion and a picture frame of 1" plastic trim later and I have a stunning looking breeding tank for the wife. She's well chuffed!



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Spawning *Tatia intermedia* Graham Ramsay



Tatia intermedia – adult male, pic courtesy of Steven Grant

Tatia intermedia is a species of driftwood catfish found in various river systems across a large area of northern South America.

There are over 70 species of driftwood catfish (family Auchenipteridae) which get their name from their habit of hiding in the crevices of sunken branches and logs during the daytime – venturing out to feed during the hours of darkness.

Evolution has furnished this species with some superb adaptations for its habitat including a torpedo shape, barbels that fold flat, chocolate colour scheme and a protective layer of skin over its eyes.

Driftwood catfish are not as popular as the more common *Corydoras* spp. and plecos and you may have to search for them. Larger and specialist outlets should stock one or two species fairly regularly.

Tatia intermedia is one of the more common species although it is sometimes sold under the confusing name of galaxy driftwood catfish, bringing to mind its close relative – *Tatia galaxias*.

In December 2008 I received three unsexed fish from a friend who had some surplus

youngsters and brought them along to my fish club's end of year meeting. Local fish clubs and societies are great places for getting your hands on hard to find fish as members will either already have them or know someone who has.

My fish were 4-5cm long and I put them in a 100cm long tank with some *Corydoras* and peaceful barbs and danios. They took a few weeks to settle in before they would appear at feeding time to zoom around the tank, their barbels extended, hunting down their dinner.

I fed them twice a day, dry food in the morning and frozen or live food in the evening. Frozen bloodworm was a firm favourite which is rather inconvenient as I happen to be allergic to it!

My water is very soft (only 1 or 2 degrees hardness) and the pH is around 6-7. They were in the bottom tank and the temperature hovered around 25°C (76°F) during what was a pretty warm summer in Scotland. Substrate was river sand (collected from the river Tay) and filtration was a large air-powered sponge.

They grow fast and soon sexed out as two males and a female. These fish are unusual in that the males have a modified anal fin rather like that of the live bearing goodeid fish from Mexico. Presumably he uses this to fertilise the eggs whilst they are still inside the female.

I left them all together to grow on and by the middle of the summer the female had reached a size of about 10cm with the males being smaller and much thinner.



Female depositing fertilised eggs

I provided them with clay pipes and several pieces of wood as my friend told me they had spawned in a pipe. However they surprised me by laying a mass of eggs in a fairly open spot albeit amongst some moss and fern.

The 300 or so whitish eggs are laid inside a jelly-like substance rather similar to frog spawn. It is about the size of a golf ball and the female will stand guard over it for a few hours before abandoning it to its fate. My fish spawned more or less monthly until I separated them.

Within a couple of days the eggs had developed into ghostly white, eyeless wrigglers that thrashed their tails around within their jelly cocoons. Over the next few days their eyes developed into little black beads and they gradually absorbed their large yolk sack. From about a week or so they began to break free although it was ten days or more before they were all out.

Almost all the eggs developed and the covering of jelly may well have an anti-fungal effect as the few unfertile eggs did not fungus. It also seems to make them unpalatable – the large population of *Corydoras* in the tank as well as the three

adult woodcats had no interest in eating them.



Wrigglers in egg mass

I had moved most of the egg mass into a smaller tank with a piece of wood and lots of Java moss and after leaving the egg mass the young catfish immediately did what woodcats do best – disappeared.

For the next week or so I saw the little white fry during the day only if I disturbed the moss or lifted the sponge filter. At night they came out and patrolled the tank, often just under the water surface.



Fry at Ten days

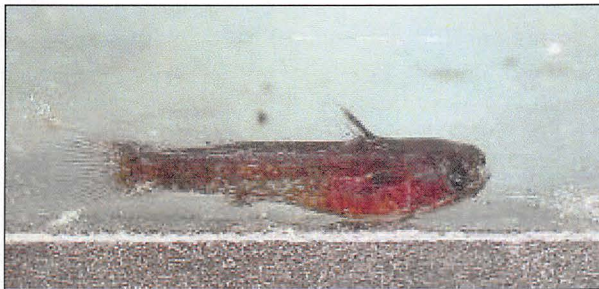
I fed them initially on microworm and ZM100 granular food sprinkled over the surface. After a week the fry were turning brown and I switched to ZM200 and started feeding newly hatched brine shrimp.



Fry at Three weeks

Tetra Tabimin seemed to be especially favoured and the pellets would soon be covered by a swarm of baby woodcats comically pushing it around the tank until it crumbled.

After about 6 weeks the fish are about 2cm or so and are eating more or less the same as the adults.



Fry at Four weeks

I had quite a high mortality rate during the first week, especially with the first couple of broods. I'm not sure of the reason but as I had so many fry I wasn't too concerned. It resulted in more space for the remainder.



Fry at Six weeks

Weekly 50% water changes ensured their growth rate wasn't compromised and I found them to be very easy to keep, even in relatively crowded tanks, once the initial mortality ceased.



Two month old juvenile

In all I raised over 300 fish for sale at fish club auctions or swap. I gave away dozens and at one point I had three 60cm tanks full of young woodcats!

Tatia intermedia is a beautiful and interesting fish that deserves to be more popular. It isn't too difficult to find, remains a manageable size, is peaceful and eats whatever is put in front of it. It would also seem to be fairly easy to breed. It should be high on every catfish enthusiast's list when they're looking for something a little different.

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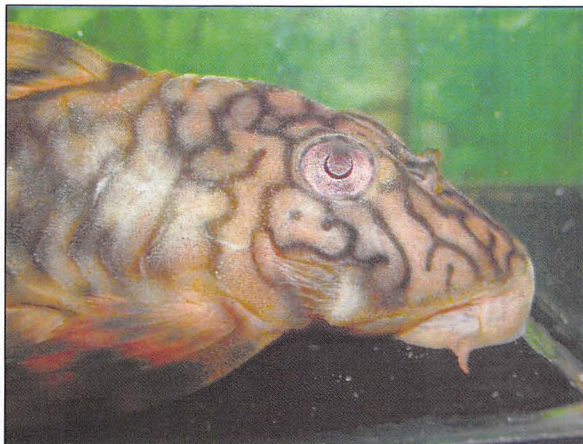
This article was first published at PlanetCattfish.com in January 2010.

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Worm Line Peckoltias (Siluriformes: Loricariidae) Steven Grant

Peckoltia (Miranda Ribeiro 1912) is one of the most popular genera of loricariids with aquarists. Most *Peckoltias* stay a small size (around 10 to 15 cm SL) and tend to have colourful and attractive markings. This article is not a discussion on what a *Peckoltia* is and how it relates to other genera, but is about two species that have been given the common name Worm Line Peckoltias: *Peckoltia braueri* (Eigenmann, 1912) and *Peckoltia cavatica* (Armbruster & Werneke, 2005). They are called Worm Line Peckoltias because of the wavy lines that they exhibit on the head, as seen in the images below. There is an ongoing debate in the aquatic hobby about the identity of these fish and hopefully this will go some way to resolve the issue.



Head shot of L135 – Image by Steven Grant

Peckoltia braueri (Eigenmann, 1912)

The two type specimens were collected in 1844 by Schomburgk supposedly in the Takutu River, Guyana (as per Eigenmann, 1912). Muller & Troschel (1849) listed the specimens as *Hypostomus itacua* (Valenciennes, 1836) and gave no information about their colour or pattern. *H. itacua* was described on the basis of a drawing initially, but a little more information can be gleaned from Valenciennes (1847) and much more from Cuvier & Valenciennes (1840).

Eigenmann (1912) recognised the specimens as not being *H. itacua* (although the true identity of that species is not fully understood as its type specimen is lost) and described them as *Hemiancistrus braueri*. The only pattern that was left at the time of the description (68 years after collection) was “Fins uniformly dusky; sides and back obscurely blotched or banded.” The drawings show some of the broad body bands but no pattern on the

head and snout. Eigenmann said that the type specimens have 8 soft dorsal fin rays. This is unusual (but not unique) for a hypostomine, as they tend to have 6-7 (usually 7), and 8 is otherwise unheard of in a *Peckoltia* – more on this later.

In early aquarium literature (e.g. Kobayagawa, 1991) Worm Line Peckoltias were called *Peckoltia platyrhyncha* although that species is actually now *Cordylancistrus platyrhynchus* (Fowler, 1943) – see image of holotype showing the characteristic flattened head and long snout.



Holotype of *C. platyrhynchus* - Photo is copyright of ANSP

Then in 1993 as part of DATZ L Numbers, photographs of L121 from Guyana were published, showing a juvenile and an adult, and then later in 1993 L135 from the Rio Demini, Rio Negro drainage, Brazil, captioned as *Peckoltia* sp. *platyrhyncha*. In 2002 L305 from the Takutu River, Guyana was published as potentially the same as L121. In 2001 *H. braueri* was moved into *Peckoltia* (Isbrücker, 2001).

Seidel (2005 & 2008) stated that L121 may be the same as L135, and that L305 is the true *P. braueri* as it sometimes has 8 soft dorsal fin rays and is from the Takutu River. Seidel states that L305 reaches a smaller adult size and males show the sexual dimorphism of the spiny

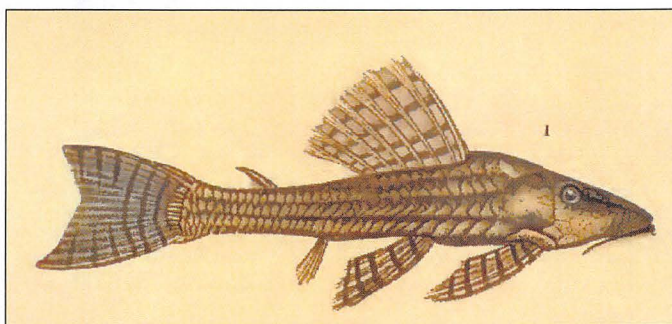
hind regions at 10-11 cm, whereas in L135 it is 12-14cm.

There is also discussion on the Internet that in describing *P. cavatica* Armbruster & Werneke (2005) may have inadvertently described *P. braueri* again as the two river systems they both occupy (Takutu River – *P. braueri* and Rupununi River – *P. cavatica*) are connected during flood season and Armbruster & Werneke have misidentified *P. braueri* as L121, whereas L305 is *P. braueri* and also *P. cavatica*, thus making *P. cavatica* a junior synonym of *P. braueri*.

Let us examine the issues here.

Head pattern

Muller & Troschel misidentified the two (future) type specimens of *P. braueri* (when their pattern was showing more) as *H. itacua*. Below is the original drawing of *H. itacua*:

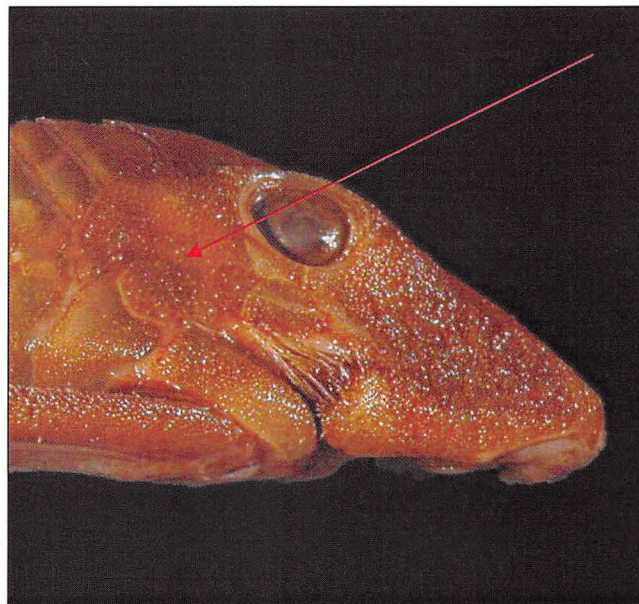


Looking at the drawing one can see faint worm line type marks on the head and snout. This is probably why Muller & Troschel thought the 2 specimens were *H. itacua*, so we can probably assume that the type specimens of *P. braueri* did have worm lines on the head and snout.

The description of *H. itacua* in life contained in Cuvier & Valenciennes (1840) makes it clear that it is a colourful fish with blue and yellow bands and stripes in the body and fins, which is somewhat reminiscent of *Peckoltia* L076/L099 (which has similarities with *P. braueri*) although L076/L099 is from the Rio Para, Amazon River, rather than the Rio de la Plata where *H. itacua* was described from.

L121, L135, and L305 all have the worm lines on the snout and head. Importantly they all also have them on the compound pterotic-supracleithrum. This is a large combined bone on the head, placed behind the eye – see image below of the holotype of *P. braueri*.

Head pattern, dermal plate, and bone differences to *P. cavatica* are discussed under that species.



P. braueri Holotype – arrow indicates position of pterotic-supracleithrum (copyright Mark Allen)

Fin pattern

H. itacua has bands in the dorsal and caudal fins, so it may be that the type specimens of *P. braueri* had these too, but is this important? In the description of *P. braueri* it says the fins are uniformly dusky, although that was after 68 years in preservative. Certainly the specimen in Seidel & Evers (2005) and the same one in Seidel (2008), which is from the type locality of *P. braueri*, doesn't seem to have bands in the dorsal and caudal fin. See specimen belonging to Dave Speed in my image, which matches Ingo Seidel's specimen (although in my image the fish appears much more colourful than in life, due to the lighting. In life it has the subtle colouration of Ingo's L305).



P. sp L305 – Image by Steven Grant

In Dave's specimen the dorsal and caudal fins are uniformly dusky (except for the orange fringe). The image in Schafer & Schraml (2003) shows the original L305 specimen and was also caught in the Takutu River, Guyana. The image clearly shows that the dorsal fin has no dark bands (but an orange fringe), but the caudal fin

isn't as easy to make out. It has some dark pigment on it but this could just be the dusky pigment which is present on Dave's specimen. However, in some larger specimens of all three L numbers the bands in the caudal fin break up to be one broad dark dusky band. So could the 'form' (L305) represented by Ingo's and Dave's specimens be the 'true' *P. braueri*, bearing in mind it is from the Takutu River and has uniformly dusky dorsal and caudal fins? It could well be.

But does this mean 'forms' with banded fins are not also *P. braueri*? There are two other 'forms' known to the hobby which are quite similar to L305. L135 is from the Rio Demini, which is part of the Rio Negro River. The Takutu River is also connected to the Rio Negro via the Rio Branco albeit is some distance away from the Rio Demini. The main visual difference between L305 and L135 is that L135 has distinct bands in the dorsal and caudal fins, the orange seam on the same fins is not always present or if it is, it is not as brightly coloured, and the body markings are darker and more distinct (see specimen belonging to Mark Walters).



P. sp. L135 – Image by Steven Grant

L121 is somewhat more problematic. It has markings very similar (if not nigh identical) to L135, and the original true L121s did have the orange band along the dorsal fringe, and a touch on the caudal fringe (see Seidel & Evers, 2005 p 648), albeit not as bright as in L305. L121 was caught in the Rupununi River near the village of Annai (Seidel & Evers, 2005). The Rupununi River is part of the Essequibo River drainage, BUT in times of flood it connects with the Takutu River basin (Armbruster & Werneke, 2005 p 11), making it possible that L121 and L305 share the same habitats.

To back up the point of L305 and L121 sharing habitat, fig. 2 in Armbruster & Werneke (2005) shows a Pirara River (part of the Takutu River basin) specimen of *P. braueri* with dorsal and caudal fin bands, and their Takutu basin specimen are said to have some with dorsal and caudal fin bands, and some without (p 5). So, as far as Armbruster and Werneke were concerned the two colour/pattern forms

(probably representing L305 and L121) were deemed to be the same species: *P. braueri*, and although different to each other in terms of pattern, still different enough to *P. cavatica*. The differences in fin pattern and colouration may be due to environmental factors. Fin differences to *P. cavatica* are discussed under that species.

Dorsal fin soft ray count

As discussed above the original description states that *P. braueri* has 8 soft dorsal fin rays. Based on an image of the holotype it looks to have 7, however the image of the original L305 does at first glance look like it has 8 soft dorsal fin rays. Usually when this happens it is actually the last branched ray being split to the base and it is not supported by a pterygiophore (a basal bone inside the body that supports the rays), and in these circumstances most authors do not count it as another ray.

Some of Armbruster & Werneke's specimens had 6 soft rays, and Seidel (2005) states his L305 has 7. Bearing all this in mind I do not think the ray count is significant. The holotype of *P. cavatica* also at first glance appears to have 8 soft dorsal fin rays (Fig. 2 in Armbruster & Werneke, 2005), but again, it is the last ray being split to the base, but I don't think that makes *P. cavatica* the same as L305, as some L305 have 7, some with the 7th split to the base (looking like 8), so why can't another similar species?

Age/body size of display of sexual dimorphism in males

Seidel states that L305 do not grow as large as L121, and get more of the dermal odontodes that are associated with male *Peckoltia* species (see image of male *P. lineola* Armbruster, 2008).



Odontodes of *P. lineola* – Image by Steven Grant

I do not dispute this as I have no evidence to the contrary. However, even if L305 and L121 are actually different species, this does not automatically mean that either of them are the same species as *P. cavatica*, regardless of

which of those two L Numbers *P. braueri* is. Again, see under *P. cavatica* for an explanation of this.

To summarise, in terms of *P. braueri* I think it is likely that L305 does represent *P. braueri* as originally described. Armbruster & Werneke (2005) appear to view the two forms (L305 and L121) as the same species (= *P. braueri*). It may be that they are not but this does not in my opinion invalidate *P. cavatica*. L135 appears very similar to L121. I have been told that L305 has been found further south down the Rio Branco (near Boa Vista) thus making it more likely that L121 and L135 are the same. Ideally numerous specimens of each L Number should be compared morphologically to see if any differences can be found in addition to the colour and pattern differences.

***Peckoltia cavatica* Armbruster & Werneke, 2005**

As discussed above this species was described from the Rupununi River. Despite all the issues above I consider it a valid species, and not the same as *P. braueri* (including all the suspects for *P. braueri* - L305, L121, or L135). I have already shown why I don't think the so called 'eighth' dorsal fin ray is significant. Some specimens will have the last ray split to the base, some may not. L305 does have the plain fins similar to *P. cavatica* but L135, L121, and L135 all have worm lines on the pterotic-supracleithrum and *P. cavatica* does not – see image of holotype of *P. cavatica*.

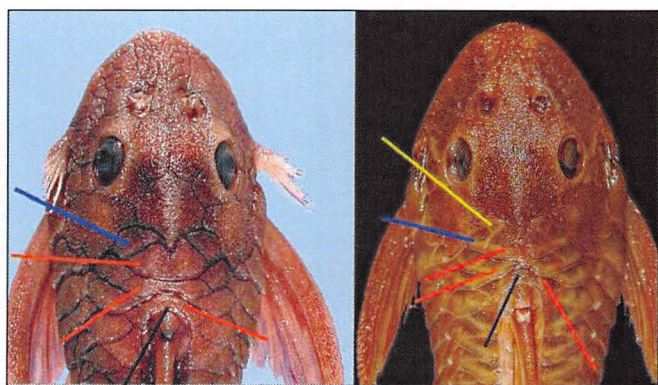


Above: Live Takutu River drainage *P. braueri* Below: Holotype of *P. cavatica* – copyright of Mark Sabaj.

Also, in *P. cavatica* the plates and bones on the head and upper body are outlined distinctly in black, whereas in *P. braueri* they are not as distinctly so. The worm lines in the snout and head of *P. cavatica* are actually the plates and bones outlined in black whereas in all *P. braueri* L Numbers the lines are thicker and can actually be over the top of the bones and plates rather than just their outlines. One could ask then, what if neither L305, L121 nor L135 are actually true *P. braueri*, and if instead the type specimens described as *P. cavatica* are true *P. braueri*, thus making them the same species? One could point to the possible lack of or the indistinct worm lines on the snout of *P. braueri* type specimens, and the similar fin pattern to *P. cavatica*.

However, there are osteological differences between the type specimens of both species, although a range of specimens would need to be compared to see any true differences. In the holotypes there are differences in the plates around the head and dorsal fin spine insertion (see image below). In *P. cavatica* holotype (specimen on the left) there is one 'mid-dorsal plate' (blue line) either side of the 'paired dorsal trunk plate'¹ (uppermost orange line), whereas in *P. braueri* holotype (specimen on the right) in addition to the 'mid-dorsal plates' (blue line) there is what appears to be an 'additional dorsal plate' (yellow line) on either side.

There are also some differences in some of the 'paired dorsal plates' (the ones marked by the bottom orange line) and their placement with the nuchal plate (black line): in *P. cavatica* holotype the aforementioned plates meet in the midline, just above the nuchal plate, whereas in the holotype of *P. braueri* they are separated by the nuchal plate.



Holotypes of *P. cavatica* (left), copyright of David Werneke and *P. braueri* (right), copyright of Mark Allen

¹ This looks like one plate but is likely to be two fused plates, and therefore paired (Geerinckx, personal communication).

These differences may not be consistent using other specimens but are worthy of further investigation.

See image from www.segrestfarms.com of what I consider to be a true *P. cavatica*, and compare it with the holotype of *P. cavatica*.



P. cavatica – copyright of Segrest Farms

Also, the image in Burgess (1989, p 731) is probably *P. cavatica* (captioned as “*Peckoltia platyrhynca*”).

So, are there any L Numbers that are *P. cavatica*? The closest I can find are L76/L099 and L265. Apparently L099 is just a darkened form of L076 (Seidel, 2008), which both come from the Rio Para, Amazon River.

On Planet Catfish there is one completely light specimen with distinct dark lines on the snout labelled as L076 that seems very close to *P. cavatica*. L265 is from the Rio Tapajos, Amazon basin. And some darker marked specimens are very similar to *P. cavatica*.

L076 and L265 may represent different coloured populations of *P. cavatica*.



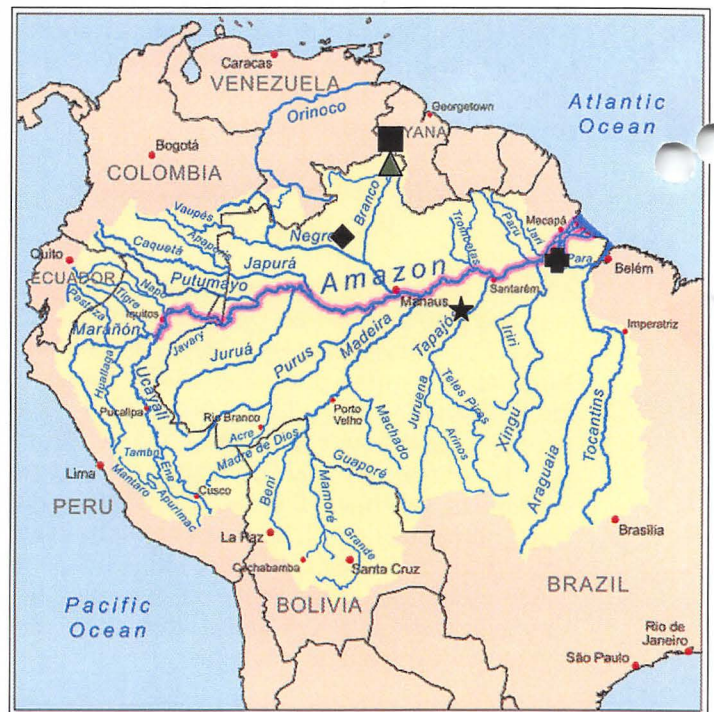
P. sp. L265 – Image by Steven Grant

Distribution of species

The map below indicates the distribution of species.

Key

- Square = *P. cavatica* & L121
- Triangle = *P. braueri* (L305) & L121
- Diamond = L135
- Star = L265
- Cross = L076/L099



Acknowledgements

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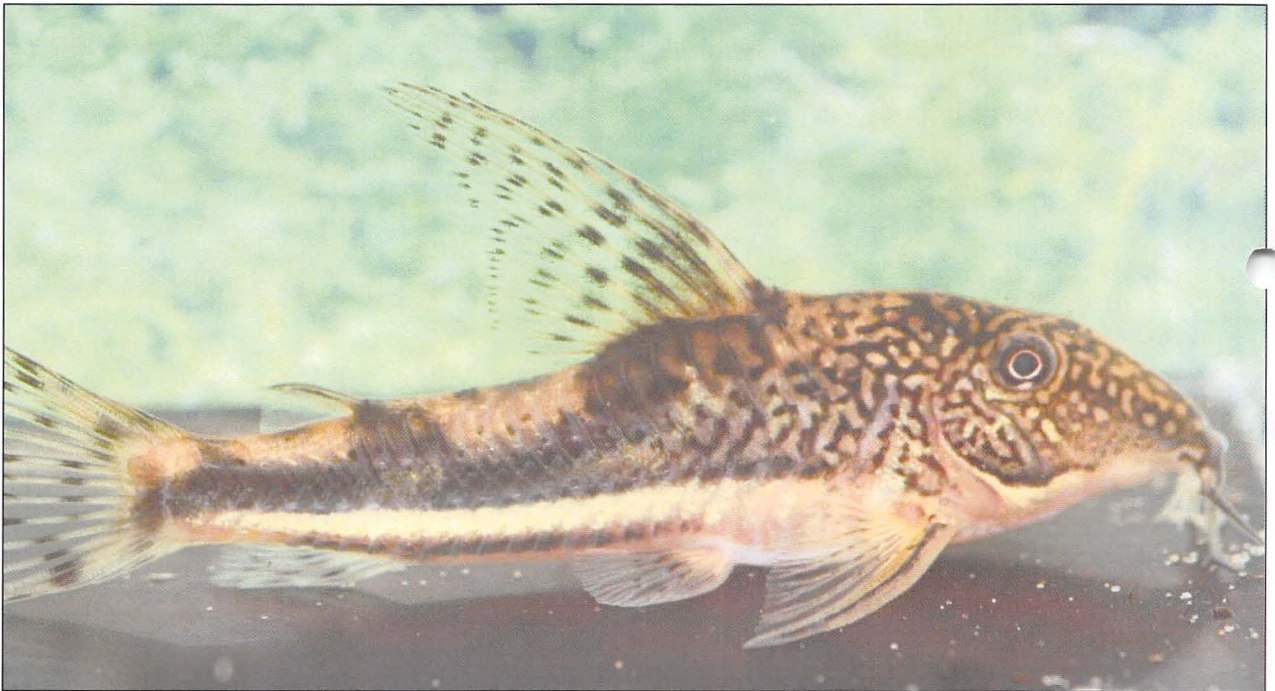
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Scleromystax - the barbatus group

Mark Walters

Following the introduction to Scleromystax in the July edition of the CSG Journal, this article provides more details on the most commonly known member *S. barbatus* and its close relative *S. kronei*. A third species, C112 is similar in appearance but will be featured in a future article presenting the 'Baianinho' Scleromystax types. The article presents unique comparative images of the two species.



S. kronei male – Image by Mark Walters

***Scleromystax barbatus* (Quoy and Gaimard, 1824)**

The 'bearded cory' is one of the most commonly known Corydoradinae. In my opinion it is also one of the most striking, with contrasting black and gold colouration, elongated fins and characteristic facial odontodes in mature males. Although well recognised, the barbatus group are not readily available in the trade, unless as rare wild imports or from specialist breeders.

S. barbatus was one of the first described members of the Corydoradinae subfamily, originally in the genus *Callichthys* and later *Corydoras*. As such it is the type species for the genus *Scleromystax* (Gunther, 1864), see the July article for further details on the genus *Scleromystax*.

It is also one of the largest (if not the largest, excepting some *Brochis* species) members of the subfamily with males reportedly growing to 100mm SL and females up to 95mm (Fuller, 2005). The species is one of the few Corydoradinae where the male exceeds the

female in body length (the males of CW038 also grow larger than the females).



Headshot of male *S. barbatus*

The species hails from coastal streams of the Mata Atlantica rain forests in SE Brazil. This threatened region comprises a relatively thin ribbon of densely forested habitat, with many unconnected streams. The region stretches from Recife in the tropical North to close to the Uruguayan border in the more temperate South. The remaining forest regions are only 2 to 5% of their original extent as a consequence of

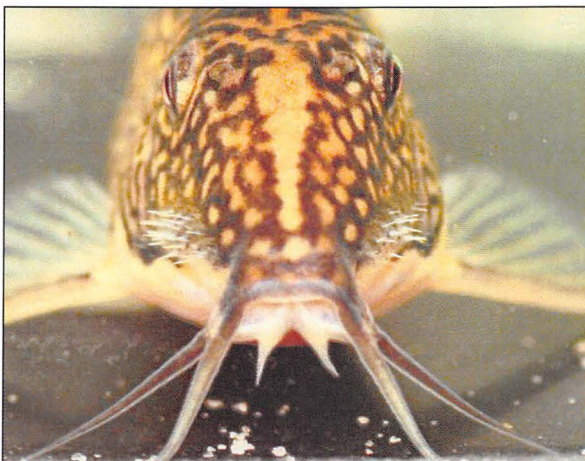
deforestation, mining, farming and urban development (Menezes et al, 2007). It is easy to realise that remaining populations of all fish species endemic to this region are highly endangered. The type locality for *S. barbatus* is Fazenda de Japuiba near Angra do Reis, approximately 22°59'S 44°17'W, close to Rio de Janeiro. Typically, the species inhabits fast flowing clearwater (whitewater) streams. With increased pollution in lowland streams, the species appears to have been restricted to more upland reaches.

Although the Mata Atlantica exhibits many different habitats, temperatures are generally cooler than more Northern Brazilian systems. In captivity, *S. barbatus* can be kept in a typical aquarium set up at a temperature between 16 – 22C, somewhat lower than most tropical species would enjoy.

***Scleromystax kronei* (A. de Miranda Ribeiro, 1907)**

Although originally described in 1907, *Corydoras kronei* was later synonymised with *barbatus* (Nijssen and Isbrucker, 1980). Isbrucker later identified *S. kronei* as a distinct species in Fuller (2001).

In his phylogenetic study of Corydoradinae, in which he resurrected the genus *Scleromystax*, Britto (2003) also identified two groups of *S. barbatus*. Study showed that they divided in two separate mostly monomorphic terminals: *Scleromystax barbatus* I (populations from north of Bai'a da Guanabara, Rio de Janeiro, Brazil) and *Scleromystax barbatus* II (populations from south of Bai'a da Guanabara). More recent genetic analyses (Alexandrou, 2009) have also determined the more Southerly populations to be a distinct species, now known in the hobby as *S. kronei*.

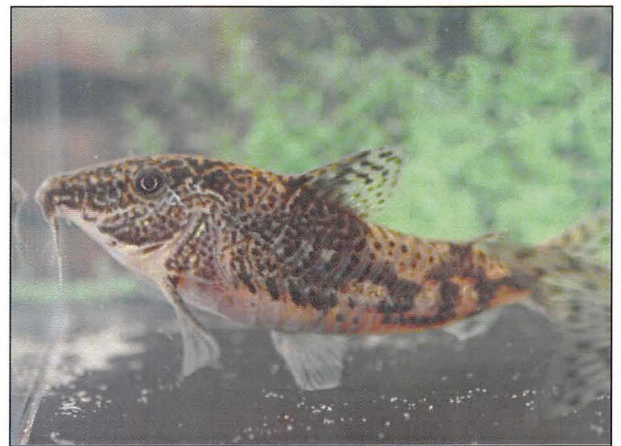


Headshot of male *S. kronei*

The type locality for *S. kronei* is recognised as the Rio Betari near Iporanga in Sao Paulo state. This is some way South of the normal distribution of *S. barbatus*. The drainages for each population are not linked, although they undoubtedly were in the past. Unlike its cousin, the habitat of *S. kronei* is more blackwater, which should be reflected in captive populations. It would also be natural to assume that the more Southerly populations enjoy even cooler temperatures, typically 14 – 20C.

Close Cousins

The two *Scleromystax* species are superficially similar and unless you were sure of their provenance, it would be difficult to tell them apart. Indeed, females would be impossible to distinguish and share typical female *Scleromystax* patterns of light and dark brown patches.



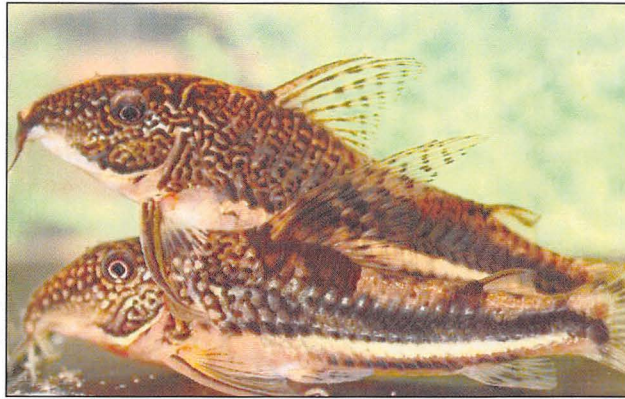
Female *S. kronei*

Younger males of both species also exhibit the light and dark brown patches and can be difficult to distinguish from females. One sure way to sex them is the presence of an uninterrupted gold band along the flank ventrally in males. In females the patches extend into the ventral sides.

The only significant difference I have been able to discern between mature males, is in the contrasting between dark brown and gold pepping.

Male *S. barbatus* appear to have a much darker brown – even black, network overlying very well defined gold flecks or spots. The male *S. kronei* have a similar pattern, although the overlying network is a lighter brown colour and the gold is somewhat paler.

The difference is somewhat subjective and is only really apparent when comparing two fish together, which are in similar states of condition and dominance – not easy to achieve. The image below was taken of two dominant male specimens, moved from their species tanks for the purpose of the image.

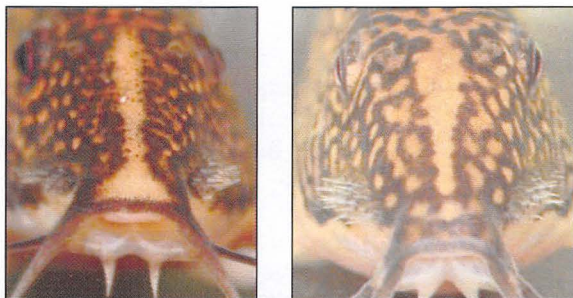


Top fish is a male *S. barbatus*; Lower fish is a male *S. kronei*

My observations are contrary to some (Lambourne, 1995) who state that the Rio de Janeiro *S. barbatus* is much paler than the more intensely coloured Sao Paulo *S. kronei*.

In dominant breeding male *S. barbatus*, the dark pigments take on an even greater prominence leading to an almost black fish. *S. kronei* although also developing more intense colouration, maintain more of the light and dark brown pattern during spawning activity.

Another feature is in the prominence of the nose stripe. This is a typical feature in *S. barbatus* and in mature males is solid gold running from the upper lip to a point parallel with the eye sockets. Contrary to other reports, *S. kronei* also have the nose stripe (as confirmed by Britto, 2003), although it is less defined, starting to merge into the reticulated pattern of the head.



Nose stripes – Left: *S. barbatus*; Right: *S. kronei*

The only certain determining factor is the origin of the fish in question. I currently keep a population of what I assume to be *S. kronei* due to their origin being in the vicinity of Sao Paulo.

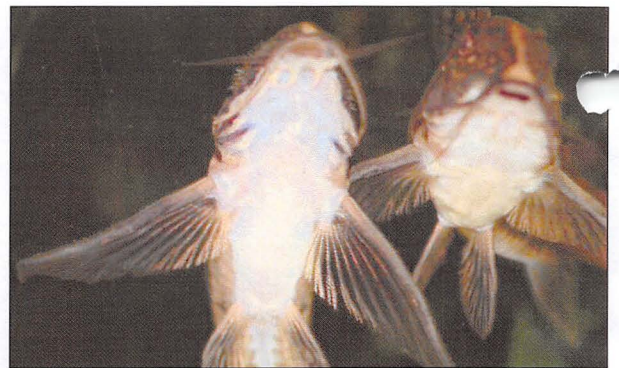
The population of *S. barbatus* I keep is derived from specimens I purchased in 2001, originating from typical *S. barbatus* regions. Obviously it is important not to mix the species in the aquarium, and to try to trace the wild ancestry of specimens before purchasing to be sure of their type.

It is highly likely that there are other Regional variants of *S. barbatus* which could prove to be distinct species. The broad range of the species, and probable historical overlaps may have led to adaptation to specific habitats, variation in morphology and ultimately speciation.

Conspecific Behaviour

In terms of behaviour, and from my personal observations, *S. kronei* appear to be more gregarious in nature with reduced aggression between males during spawning when compared to *S. barbatus*. I say during spawning because this is the time when any aggressive behaviour is most evident.

Despite the poor reputation that *S. barbatus* males have earned, serious aggression is confined to spawning when males will actively compete for the attentions of a female and use their extended pectoral fins, flared operculae and cheek odontodes (which are quite tough) to assert their dominance. I have experienced the occasional death amongst male barbatus but sparring usually only results in split fins or broken leading fin spines.



Two male *S. barbatus* sparring. Note the flared gill openings of the left-hand fish

The level of aggression is very dependant on the population dynamics and any number of male:female combinations will result in varying degrees of aggression ranging from regular sparring (e.g. for a small group with more males) to very little sparring (e.g. for a large mixed group with numerous females). Similarly, the size of tank, water parameters (e.g. elevated temperatures) and available refuges will influence the interaction of conspecifics.

Husbandry

There has been plenty of discussion and debate over the temperatures that *S. barbatus* should be maintained at.

My barbatus are generally kept at between 14 – 18C over winter (from around November to March), but up to 25C (or even higher for short spells) in the summer. I find the optimum breeding temperatures are when the range is 20 - 23C. I've had close-to-death experiences if the temperature exceeds 26C for a few days, when drastic water changing is required.

They definitely need highly oxygenated water - which of course is facilitated by cooler temperatures, or conversely reduced by higher temperatures. I don't necessarily choose to maintain the fish at these temperatures, but my fish house dictates that the lower racks are much cooler in the winter. It suits the *Scleromystax* and other more southerly *Corydoradinae*.

Spawning activity increase as the temp increases up to the optimum range. Below 16C, *S. barbatus* don't appear to show much interest in spawning but will feed quite readily and exhibit other normal behaviour.

Male aggression appears diluted at lower temperatures also. At higher temperatures, males appear to be always in spawning colours and regularly spar with each other - which will reduce their vigour in the long term. Spawning is usually witnessed as the temperature increases following a cold water change. However, in the optimum range, spawning will usually happen regardless. I would suggest that the initial trigger is the rise in temperature (not the lowering by the cold water), but then that single trigger can lead to multiple spawning events. The same effect is witnessed if the fish are moved from cooler tanks to warmer tanks.

All of my *Scleromystax* species enjoy flowing water and with the usual proprietary foods, supplemented by regular feedings of bloodworm and chopped earthworms, they will soon reach adult size and be ready for breeding.

I don't tend to follow specific routines for triggering them to spawn, although most events follow the usual fortnightly 40% cold water changes I carry out in the fish house. I have experimented by adding water from tanks where groups of fish are spawning, to more problematic species – in the assumption that the water will contain hormones which could

stimulate other species to spawn. This has led to a certain amount of success, although the results are difficult to prove – certainly worth trying.

Spawning *S. barbatus*

For the purpose of the CSG BAP, I submitted details for a spawning which took place on the 8th March 2007. At this time, I housed a single pair in a 15 gallon tank with air driven sponge filtration and additional strong aeration. The pair comprised a wild caught female I had owned since 2001 and a male purchased from a CSG auction in 2005. The female measured 80mm SL and the male 70mm. They were housed with a few juvenile barbatus from previous spawnings.

Considering the time of year (and the fluctuating ambient temperature of my fish house) the temperature was recorded at 19C. Subsequent spawnings have taken place up to around 24C, but appear most frequent between 20 - 23C. Other parameters were a pH of 6 and low general hardness (3 dGH). The spawning was witnessed two days after a 40% water change using clean rain water. Typical for *Corydoradinae*, the male shimmies alongside the female, positioning his vent alongside the female's mouth in a classic T-position. As has been much documented, this facilitates a unique fertilisation strategy whereby the sperm is quickly passed through the females gut and expelled through the vent across the cluster of eggs held in the ventral fins.

Whilst the female is in the process of 'laying' eggs in her ventral fin pouch, she often rests on the tank bottom, motionless – even rolling over, until ready to deposit the eggs on the tank side. Usually between 4-6 eggs are laid in the ventral fin pouch at a time and after fertilisation the female presses them against the tank glass, high up in a position where tank flow is greatest.



Eggs carried in the ventral fins of a female *S. barbatus*

I have observed on numerous occasions, the attendant male swimming across the eggs in an apparent act of external fertilisation, although it would be difficult to prove if he is indeed using a belt-and-braces approach to ensure maximum fertilisation. Where I have kept mixed groups of *barbatus*, other males will also make these runs across eggs deposition sites – the likelihood here is that subordinate males are attempting to spread their genes in a cuckoo fashion.



Female *S. barbatus* (left) depositing eggs, pursued by male on right

Typically, 80 – 100 eggs are laid, although I have witnessed up to 150 eggs laid by a particularly large female. After laying, the adult fish play no further part in brood care, typical for *Corydoradinae* species. After deposition, the eggs were left on the tank side for 3 days, before being removed to a hatching tub. The parent fish do not molest the eggs, although snails and planaria are a threat if present in the tank.

An advantage of leaving the eggs in situ, is that they are not affected by fungal growth as is often the case if moved too early. Often this cannot be avoided for species which predate their eggs and other measures need to be taken.

I added a few alder cones (to reduce bacterial and fungal growth) to the hatching tub and provided vigorous aeration. Some authors (e.g. Lambourne, 1995), have experienced problems with hatching, resulting from the water not being acidic enough. I have also experienced this if the pH rises much above 6. It is assumed that the emerging fry has difficulty in breaking through the tough egg shell. The acidity would



Above: *S. barbatus* at 4 weeks and 14mm. Below: Family group of *S. barbatus*, including 3 month juveniles at 25mm



appear to weaken the shell. Alder cones may help to increase the acidity of the hatching tub. Once hatched the fry have proven to be straightforward to raise and after exhausting their large egg sac, readily consume microworm and ZM100.

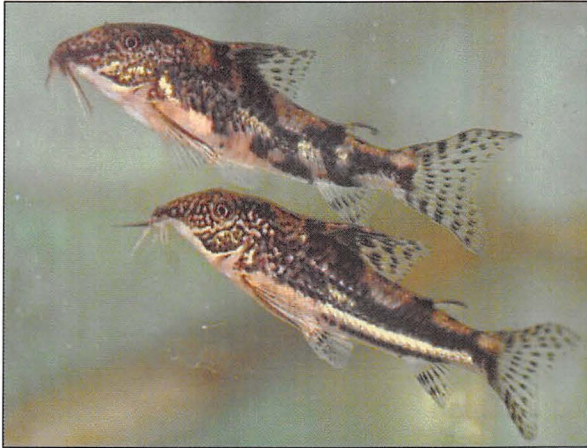
The youngsters are quite fast growing and will resemble miniature females after around 3 months. The male colouration starts to become apparent after 6-9 months.

Spawning *S. kronei*

My group of *S. kronei* were sourced from Pier Aquatics in Wigan, UK. The origin of the fish was confirmed as collected in Sao Paulo, Brazil. I purchased two pairs in September 2008 and they were spawned for the first time on the 10th November 2008. The fish were housed in a four foot aquarium with strong aeration and cool water (around 18C). In addition, oak leaves were added with plenty of

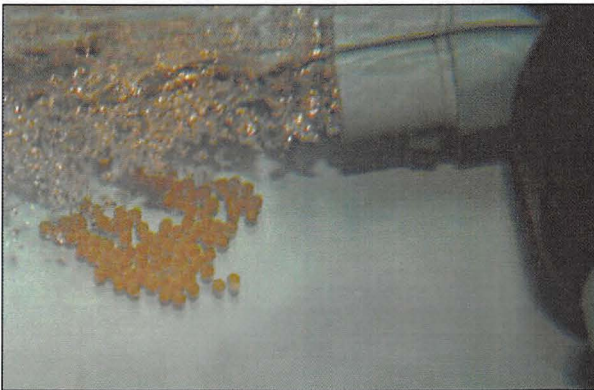
bogwood to produce tannin stained waters, reminiscent of a blackwater habitat.

They soon settled and were seen to be relishing frozen bloodworm and prepared aquarium foods. As is often the case, newly imported *Scleromystax* can be quite emaciated and ragged, however a few weeks of good feeding will bring them back into shape.



A breeding pair of *S. kronei*

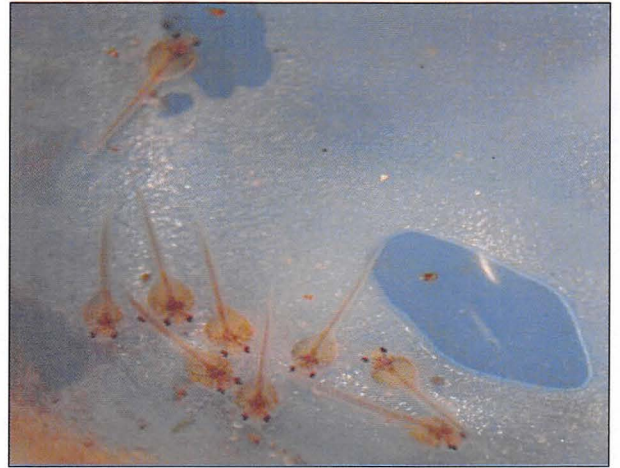
The actual spawning wasn't witnessed and subsequent events have indicated the species spawns during the late evening. Water temperature was 18C and pH 5.5. The mass of eggs were similar in size (approx 1.8mm) to *barbatus* eggs and were deposited in the stream of flow from an internal filter.



S. kronei eggs in the flow of an internal filter

The eggs were left in the tank for 4 days before treating in the same way as described for *S. barbatus*. The fry on hatching had large yolk sacs and were indistinguishable from *barbatus* fry.

Growth of the fry was, if anything, quicker than that for *barbatus* and youngsters were ready to be passed onto other aquarists after 4 months.



Day old *S. kronei* at 8mm



7 day old *S. kronei* at 10mm



6 week old *S. kronei* at 18mm

The next article in the *Scleromystax* series will look at the 'Baininho' group, including *lacerdai*, C112, C113 and others.

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BAP Report
Breeding *Corydoras* sp. C065 – The ‘Soda Pop’ Cory
Ian Fuller

This is a species that came from a tributary system of the middle Rio Araguaia, State of Goias, in central Brazil and when it was discovered in the middle of 1998. Because of its golden body colour resembling that of a Brazilian soda drink called “Guarana”, it was given the same trade name *Corydoras* sp. Guarana and a little later on in the German magazine DATZ it was issued with the C-number C65.



Male *Corydoras* sp. C065 – Image courtesy of Ian Fuller

Only thirty of these delightful little Corys were collected and it is very doubtful that they will ever be found again. Only six of these came to the UK and were offered to me on arrival, then after a four hour and 190 mile round trip the little group of Corys were safely swimming around in a tank in my fish house.

After letting them settle in for a couple of days I found that I had four females averaging 32.0 mm SL (Standard Length) and two males at 26.0 mm SL. Not the odds I would have preferred, which would have been the other way around, but when there are only six available I was actually thankful that I had both sexes. The tank they were put in was 45cm long x 20cm wide x 20 cm high and was furnished with a thin layer of coarse; smooth grained sand, an air driven box filter and a

largish clump of Java moss.

Their diet consisted of sinking tablet food alternated with pre-soaked flake or granulated foods, when available they were fed a variety of live foods such as daphnia, tubifex, bloodworm, white worm or finely chopped earthworm. In fact this is standard fair for all of the *Corydoras* species that I keep.

After a few weeks all was going well and the group were all looking really good, showing the bright golden colour that first gave them their common name. Not only were they looking bright and lively, but two of the female had started to look quite plump and looking like they were filling up with roe. The other thought that had crossed my mind was that it might have been parasitic worms that had made them fill

out so much, so to be sure that was not the case they were treated with a worming solution made by the Dutch company Colombo, usually used for ridding livebearers of camalanus worms. The little group of Corys did not seem the worse for the treatment and the two plump females actually seemed to be getting fatter.

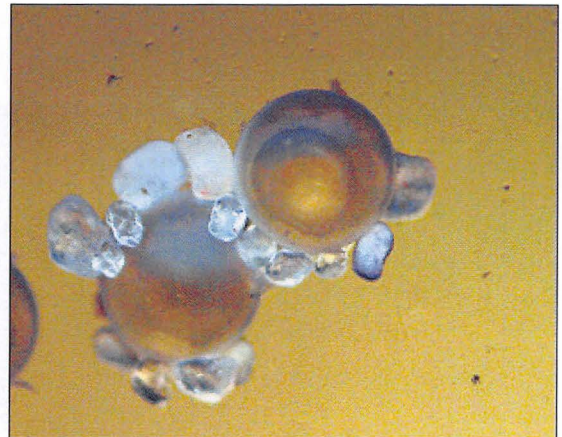


Female C. sp. C065

At this time I was giving the group regular weekly fifty percent water changes, the replacement water for their tank was from a storage vat at floor level in the fish house, this water was slightly cooler at 20°C, than the 23.3°C of the water in their tank. The group always seemed to enjoy the new water flowing into their tank at water changes and would dive head long into the new flow. On this particular occasion the whole group seemed even more excited than usual. After the completion of the water change, as with all my tanks, the fish were fed and on this occasion dinner was a generous helping of Daphnia. It was the following day after returning home from work that I discovered they had been spawning, in fact were still at it.

Nothing much was done in the fish house for the next hour or so while I stood there pretty well motionless watching these gorgeous little fish going about the business of perpetuating the species. Both males were really fired up, chasing and generally pestering one particular female and every time one of them made a frontal approach he would arch his body and offer himself to her in a sideways on position, all the time quivering, a little like a small bird shaking its feathers. As and when the female was ready she would accept one of these approaches and nuzzle into the side of the male, at which point he clamped her by the

barbels to the side of his body using his pectoral fin spine. It was at this point when the female released a single egg into the pouch made by clamping her ventral fins together, shortly after, may be two seconds at the most, she sort of shook herself free of the male and swam of to look for a suitable site to deposit her egg, which in this case was in amongst the fronds of the Java moss.



C. sp C065 newly laid egg

After watching this activity for a little over an hour it became obvious that the female was disinterested in the males approaches and would dash off every time one of them came near. It was also then when I realised that two of the other non-breeding females were actively seeking out eggs that had been deposited on the silicone sealer in the front corners of the tank and trying to remove them with their mouths. It was interesting to see that if the egg that was being attacked became unstuck it was eaten, but those that did not come away were left alone.

Because of the predation I decided that it would be wise to remove the group altogether and place them in another tank, which is what I did. After removing the adult group I then checked the parameters of the water, which were as follows; Temperature = 23.3°C; pH = 6.8; dGH = 8°; KH = 2. The total number of eggs laid was 21, but because of the obvious predation it is difficult to say exactly how many eggs were actually laid. About half of the eggs had been deposited in the clump of Java moss, the rest were placed on the silicone sealer in the corners of the tank. Egg size = 1.6 mm diameter; Egg adhesion 6 out of 10. The

stickiness or adhesion of the egg is something I do by feel so is not something that has been scientifically measured.

After all the measurements were recorded I then treated the water in the spawning tank with a three quarter dose of Methylene blue, this was to help protect the eggs from fungal attack. After twenty-four hours I started to dilute the concentration of the Methylene blue by making a twenty-five percent water change, this was made using clean aged water set at the same temperature as the water in the spawning tank, this was repeated on each of the following two days by which time the Methylene blue had been diluted considerably.

On the following day, the fourth after the spawning took place, fry started to emerge from the eggs and by the end of the day there were seventeen tiny fry wriggling on the bottom. There were four eggs that failed to hatch, this I put down to being damaged when the non-spawning females were trying to eat them. It was a further two days before the fry, which measured just over 5 millimeters long, were actively swimming around the bottom, at this point I decided it was time to introduce a little food; this was done in the form of micro worm.

The following morning the fry were again fed a little more micro worm and in the evening a thirty percent water change was made and the fry were then given a little powdered tablet food. This feeding program continued for the first month with the addition of newly hatched brine shrimp.



C. sp. C065 Fry at 3-4 weeks old

By the end of the first month the fry had grown to twelve millimeters in body length and as they increased in size the food offering also increased with Cyclops, sifted Daphnia and grindal worm being added to their diet. At two months the fry were miniature versions of their parents and were growing well, at three months they had reached a standard length of almost twenty-one millimeters and at six months were as big as their parents and just as colourful.



C. sp. C065 at 8-9 weeks

After a chemical poisoning incident I was left with just one of the original males, but had a good stock of F1 youngsters and it was a group of seven, five females and two males, these were kept in a 45cm x 25cm x 25 tank over a fine sand substrate, a large air driven sponge filter, two potted Anubias plants and a large clump of Java moss.

This group were pretty much left to their own devices and would regularly spawn after a large water change, occasionally I would harvest eggs and raise a few fry to give to other Corydoradinae enthusiasts, otherwise the eggs would be left to hatch or be eaten by the adults. However because of the density of the Java moss some eggs would hatch and fry survive and grow large enough to venture out from their hiding places and not be in danger of being eaten.

Note:

It is from a controlled spawning on the 13th September 2009 that formed the basis of my BAP entry not the original spawning.

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What's New? - Mark Walters

Along with a few fellow Castleford Aquarist and Catfish Study Group members I took a trip recently to a South Yorkshire Aquatic store – Viscum Water Gardens, situated near Doncaster. This was on the back of a previous 'reconnaissance' mission which yielded some unusual loricariids.

There were many rarely seen *Peckoltia* and *Panaqolus* types including the following: *Peckoltia bachi*, P. sp. 'L038', P.sp.'L211', *Panaqolus albomaculatus*, P. sp. 'L206'. Other fish seen included *Ancistrus ranunculus*, some monster Panaques and a good range of more common catfish species. Another trip to Wharfe Aquatics at Pinxton, Derbyshire yielded *Peckoltia* sp. L135, as featured in this edition of the Journal.



The very unusual *Peckoltia bachi*, at 120mm appearing like a giant *Hypoptopoma* – Image courtesy of Mark Walters

New Paper - Competition, Phylogeny and Community structure in *Corydoras*

Following their extensive investigation of South American *Corydoras* catfish, Markos Alexandrou and his co-workers have revealed that catfish communities- although containing almost identically coloured and patterned fish, could actually contain three or more different species.

This much anticipated paper establishes for the first time that many species are mimetic; that is, they evolve to share the same colour patterns for mutual benefit- the research also established that each individual community of similar looking fish comprised species belonging to different genetic lineages, but still adopting similar colour patterns.

This discovery suggests that in many cases the number of *Corydoras* catfish species may be higher than previously recognised. This has consequent implications for environmentalists charged with protecting environmental diversity and safeguarding the species. For the full details refer to the detailed paper:

Alexandrou, MA, C Oliveira, M Maillard, RAR McGill, J Newton, S Creer & MI Taylor, 2011.

Competition and phylogeny determine community structure in Müllerian co-mimics. *Nature* 469: 84–88.

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HOME: Next Meeting - A.G.M. - Jan. 16th.

Welcome to the website of the Catfish Study Group. We are based in the U.K. in the northwest of England but have members worldwide since our inception in 2000.



Please feel free to browse the pages and if you are new or an old hand in the catfish hobby and would like to be involved, you can join online or by regular post, and receive our quarterly magazine "Cat Chat" which is full of articles from the leading catfish experts around the world.



We hold an open show each September and our yearly convention in March is a three day affair with speakers from the leading lights of the aquatic world, and of course a chance to meet and catch up with friends afar.

Our monthly meetings, open show and auctions are held in Darwen and you can find route details in "Find Us" and the dates and subject matter in the "Diary Dates" page.

A very popular event is our auctions and there are three held, March, September, incorporated into the open show, and the last of the year in November. These auctions are always very well attended and you can pick up some very good bargains and also catfish not seen anywhere else in the U.K.

If you would like to read a bit about our history go to the "About Us" page and find out how we got here.

Catfish Study Group 32nd Annual Convention

 The Venue The Kilney Court Hotel Chorley Road, Standish, Wigan, Lanc's WN1 2XN, United Kingdom	 The Speakers Dr Michael Goulding Dr Ralph Britz Dr Devon Graham Dr Claudio Oliveira Hans-Georg Evers Bob Barnes Dave Hulse
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18th-19th-20th March 2011

For full details contact info@catfishstudygroup.org or visit the CSG website www.catfishstudygroup.org

- [2010 Open Show Results](#) **NEW**
- [2010 Open Show Photo Gallery](#) now online **NEW**
- [2011 Convention forms](#) are now online to download
- [2011 Convention Page](#)

Shows & Events

March 18th 2011.
[Highfields Working Men's Club, Ratcliff Street, Darwen, Lanc's, England.](#)

Catfish Study Group
 Convention: weekend.
 More info [here](#): March 18th-19th - 20th 2011.

If you would like your Show or event here please e-mail webmaster@catfishstudygroup.org
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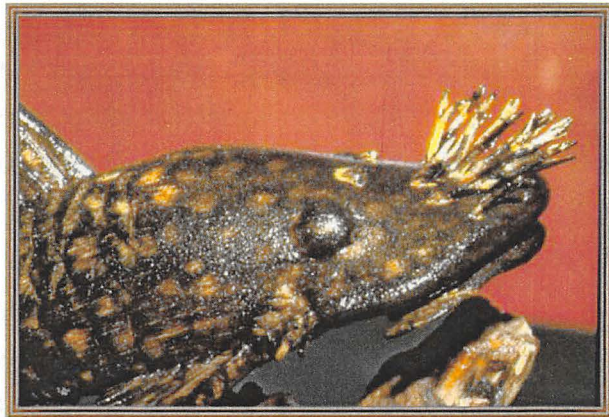


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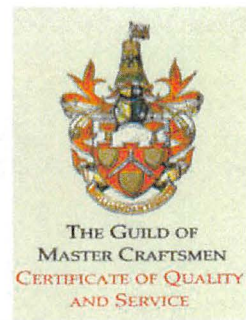
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