

Journal of the Catfish Study Group



September 2022

Volume 23, Issue 3

In this edition: Breeding *Corydoras saramaccensis*; Breeding *Nannoptopoma* sp. 'Peru Orange'; Breeding *Ancistrus macrophthalmus*; Research Support Fund and Open Show updates.

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Cover image: *Nannoptopoma sp. 'Peru Orange'*. Photo: Mike Meuschke

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Chairman's Report - Mark Walters

It's been another rollercoaster for the hobby in the last few months with much anxiety in the UK at least due to the rising costs of electricity. We sometimes choose to ignore the costs of running multiple tanks and systems, until it starts to have a noticeable impact on our monthly bills. In the last year, prices have rocketed with the ever-increasing worldwide costs for natural gas which is primarily used to generate electricity. Households have seen a doubling in the last few months and were set for a much bigger rise this winter, which has at least been delayed following government intervention. Other countries have experienced the same impacts. Unfortunately, businesses have seen even greater rises in costs and are not as protected by domestic users with no cap on the tariffs charged.

Like many fishkeepers I have been thinking hard about ways to reduce my power consumption. Before taking any action, I calculated I was using 750 watts of power (summertime), rising to 1500 watts in the Winter. The main use is for sump pumps (4 x 60 watts each), air blower (60 watts) and 30+ wavemakers (10-24 watts depending on output). My lighting costs are negligible with only 2 x 60cm led striplights which are rarely turned on (one advantage of keeping nocturnal fishes). I don't have any heating, except the occasional use of a space heater, with all heat generated from tank equipment. The insulation in the fishhouse prevents much heat loss generally.

In the last few weeks, I have managed to reduce my consumption by over 40% by removing one sump pump and reducing the output of another. I have also replaced a bunch of 12000lph wavemakers with smaller units and removed some smaller ones and replaced with aeration. This has reduced flow and circulation in some tanks and I am keeping a careful eye on water quality. The recent CSG auction allowed me to reduce my stocks of fish a fair bit, so the bio-load has reduced. The downside to removing equipment is that few electrical components means less heat generated so I may see the fishhouse cooling more quickly in the winter. A third area I have looked at is ventilation within the fishhouse. I currently have an extractor fan

which is on constantly and keeps humidity to a minimum. Unfortunately, it also sucks warm air out of the fishhouse, potentially cooling it. I have switched off the extractor fan for a few days but the humidity builds quickly, leading to potential issues with the wooden stands. As a compromise, I've put the extractor on a timer to kick in every few hours, hopefully reducing its cooling effect. My efforts overall, reducing over 300 watts of power should see cost savings around £70 a month. I will be looking at additional steps I can take for the Winter.

We have been busy engaging with potential speakers and can announce the exciting line-up for the 2023 Convention. We include 6 first time CSG speakers and in the spirit of giving successful aquarists an opportunity to shine - 4 who are presenting for the very first time! More details will be shared through the CSG Facebook forum with registrations opening on November 1st. On the back of a very successful Open Show and Auction a week ago, I was pleased to win the Best in Show award for my *Liosomadoras morrowi* – False Jaguar catfish, the first time I have shown the fish and ten years since I last won the award! There is a report of results and images of show fish and winners later in the Journal.

Behind the scenes, Julian Dignall has rejoined the Committee to support our digital presence. In the last couple of months, Jools has refreshed the website including making available all Journals and increasing the number of free to view editions. The rest of the site has been tidied up with links back to our social media site where relevant.

I gave lots of details in the last Journal on the January AGM, including positions to be up for election. If you are interested in any positions listed please contact me by 15th November. Or if you have any amendments you wish to make to the CSG Constitution please let me know by 31st October at the latest.

Mark

Breeding of *Nannooptopoma* sp. 'Peru Orange' LDA110

Patrick Trabac



Nannooptopoma sp. 'Peru Orange'. Photo: Steve Grant. All other images by the author

Purchase

The specimens arrived at my home on Thursday, December 13, 2018. I had bought ten individuals from IKTUS AQUA. They are in a specific aquarium for them.

Sex

It was not possible to see how many males and females, as they were too young. The difference is not obvious, the females are slightly rounder than the males.



Male and female

Maintenance

I put them in an aquarium bank of tanks which includes six tanks, 43 cm wide 50 cm deep and 22 cm high, with an approximate volume of 47 litres. This bank includes a lower filtration with foam and pozzolan, with a carpet of bio balls of 26 mm in diameter. The total volume of the bank of tanks

is 450 litres. Conductivity 380, pH 7.5 and temperature 27 C°

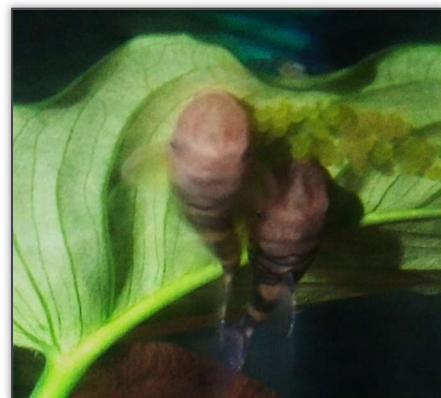
I feed them with small pieces of zucchini (changed every night), raw carrots, and basic pellets for herbivores morning and evening plus a few bloodworms in the evening.

Stimulation for egg laying

To stimulate spawning, I do water changes, and I lower the conductivity to 150, my temperature dropped slightly to 26.5°C and the pH was 7.1.

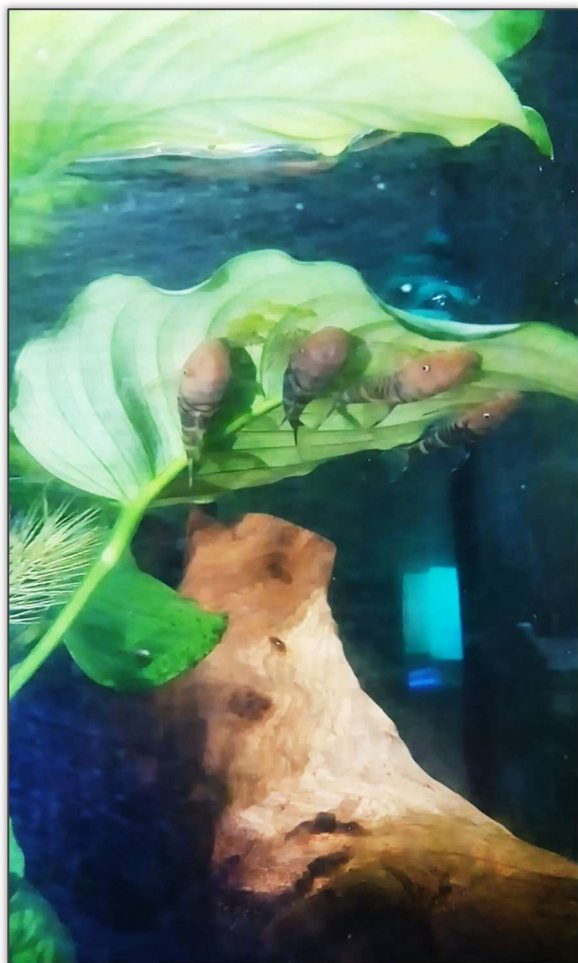
Breeding

Early in the morning eggs were laid under an *Anubias* leaf previously cleaned by the male. The laying can last several hours. The first laying took place on Sunday May 12, 2019 with two individuals, a male and a female, who laid about fourteen eggs under the *Anubias* leaf.



First spawn

Once the laying is finished the male guards the eggs. (The incubation of the eggs plus 3 days) the fry remain firmly attached to the leaf during the first week. At that moment, something unexpected happened. 3 days after the first spawning another female is presented on the leaf to spawn again with the male. They are not predators for the fry, they did not eat them. 2 days after the second egg-laying, there was a new egg-laying on the same leaf, this time with several females.



Third spawn

Raising fry

After a week as soon as the fry start to leave the leaf, I collect them to put them in a small 10-litre tank. I made myself a small battery of 9 small 10-litre tanks, with a lower aquarium for the filtration of 60 litres. This allows me to always have good quality water. The total volume of the battery is 115 litres.



Breeding tanks



Eggs



1- day old fry



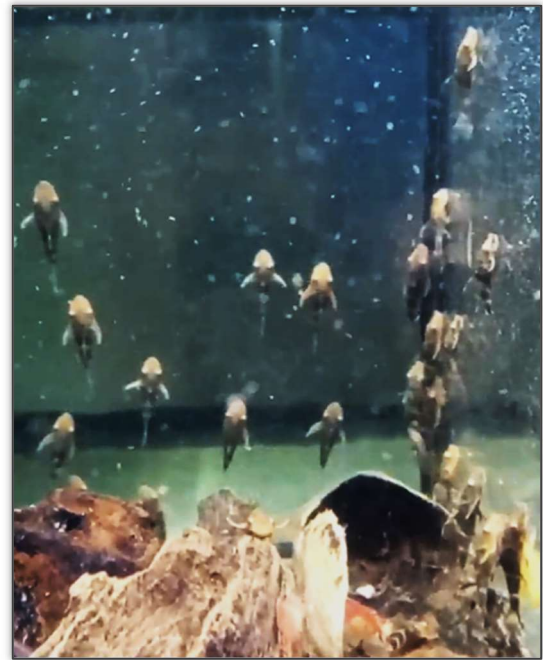
Eggs and fry from 3 spawns

I feed them with Artemio Fluid from JBL and spirulina powder, for 15 days. After a week I add microworms. From the third week I incorporate *Artemia nauplii* into the food and I start giving them small pieces of raw zucchini that I systematically change every day.

Growth is very slow ; care must be taken to maintain good water quality.



1-week old fry



1-month old fry

Conclusion

Small, very nice, gregarious fish, not at all aggressive. Having found no information on the reproduction of this fish, only my experience as a passionate aquarist allowed to obtain the expected result. Another successful challenge for me. Find all the videos made on this fish, on my Instagram account (patricktrabac).

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Breeding *Ancistrus macrophthalmus* (Pellegrin, 1912) LDA074

Craig Whitehead



Ancistrus macrophthalmus – immature male. All images by the author

Ancistrus macrophthalmus is a species I've wanted to keep for quite some time. I managed to pick up a group of wild caught specimens from Pier Aquatics (Wigan) a few years ago. The group consisted of three males and three females all around 6-7cm in size.

I have added to the group since, adding more pairs where they now reside in a 30x15x15 aquarium with around ten fish in total. The breeding setup for this species is what I call basic with a mixture of caves with different sizes and just some slate pieces and wood on top.

After keeping this species for some time, I have hardly seen any spawning activity from them until recently. As the filtration in the fishroom is all air driven I added a bit more flow to the tank by adding a third jet uplifter, from previously having just the two uplifters running.

With the energy crisis also happening I decided to take out all the heaters in the *Ancistrus* tanks, and doing so it dropped the temperature from 28c to 26c (room temp) so that could have also played a part in the *A. macrophthalmus* spawning.



Breeding set up



Male in the breeding cave



Immature male

The eggs weren't exactly easy to hatch. Out of a batch of ten I only had four eggs that hatched, as the others got fungus on them and they never survived. This is probably an error on my behalf as I usually take the eggs from males on day 4 or 5 after the female has laid them, as I find I have a better survival rate rearing them in a German breeder ring, rather than them hatching in the male's cave and then into the main tank.



14-day old fry



Developing eggs

I would check on the eggs daily as I kept them in a breeder ring with an almond leaf and a small hide ready for them hatching.

The four surviving fry are doing great and eating well. They are getting crushed Dr Bassleer pellet 'Green' and also 'Regular', as this is what I feed the adults with.



CSG Open Show and Auction 2022

Mark Walters



Liosomadoras morrowi – Best in Show owned by Mark Walters. Photo by Tommy Dunford

After significant planning, preparation and hard work, we held our Summer auction and Annual Open Show this year, and it proved a great success.

Although numbers were down on the usual attendance, with other aquatic events around the country, the auction attracted a healthy number of quality lots – mainly catfish, with plenty of rarely available species to be had at bargain prices. Highlights included tank bred *Spinipterus moijiri*, *Trachelyichthys exilis*, *Corydoras parallelus*, *Corydoras weitzmani*, *Corydoras guianensis*, *Peckoltia braueri*, *Hypostomus faveolus* and a tank busting *Synodontis angelicus*.

Some of the best catfish in the UK were exhibited on the show bench with a good number of breeders teams competing for the prestigious ‘Master Breeder’ award, which this year went to Ian Wallbridge who exhibited numerous woodcat species including the results of his amazing efforts with *Spinipterus moijiri*.

The best in show award went to another woodcat – *Liosomadoras morrowi*, sometimes known as the false jaguar woodcat. This was its first time on any show bench and presented itself particularly well, as reward it also received 1.8kg of Vitalis

catfish pellets, which it will make short work of over the winter months!



Chris Ralph, Allan James and Ian Fuller judging – Gerald Buswell

CSG Open Show 2022 Results

Class	Place	Entrant	Species	Points
Best in Show	1	Mark Walters	<i>Liosomadoras morrow</i>	
	2	David Speed	<i>Pseudacanthicus</i> sp. L097	
	3	Bernard O'Neil	<i>Microglanis iheringi</i>	
Corydoradinae	1	Stuart Brown	<i>Corydoras gryphus</i>	88.5
	2	Stuart Brown	<i>Corydoras bethanae</i>	86
	3	David Speed	<i>Corydoras concolor</i>	85.5
Loricariidae	1	David Speed	<i>Pseudacanthicus</i> sp. L097	86
	2	Mark Walters	<i>Peckoltia braueri</i>	85
AOV Catfish	1	Mark Walters	<i>Liosomadoras morrowi</i>	93
	2	Bernard O'Neil	<i>Microglanis iheringi</i>	90
	3	Ian Wallbridge	<i>Microglanis iheringi</i>	89.5
Pairs Corydoradinae	1	Stuart Brown	<i>Corydoras concolor</i>	86.5
	2	Stuart Brown	<i>Corydoras gryphus</i>	84
	3	David Speed	<i>Corydoras napoensis</i>	82.5
Pairs Loricariidae	1	Mark Walters	<i>Ancistrus</i> sp.3	78
Pairs AOV Catfish	1	Nigel Stock	<i>Trachelyopterus insignis</i>	90
	2	Ian Wallbridge	<i>Spinipiterus moijiri</i>	89
	3	Nigel Stock	<i>Pseudomystus leiacanthus</i>	88
Breeders Corydoradinae	1	Mark Walters	<i>Corydoras parallelus</i>	84
	2	Nigel Stock	<i>Scleromystax barbatus</i>	78
Breeders Loricariidae	1	David Speed	<i>Hypancistrus</i> sp. L201	79
	2	Mark Walters	<i>Peckoltia braueri</i>	79.5
	3	David Speed	<i>Panaqolus</i> sp. L169	78
Breeders AOV Catfish	1	Ian Wallbridge	<i>Trachelyichthys exilis</i>	89
	2	Ian Wallbridge	<i>Trachelyopterichthys taeniatus</i>	88
	3	Ian Wallbridge	<i>Spinipiterus moijiri</i>	83
Master Breeder (highest pointed 3 breeders teams)	1	Ian Wallbridge		256
	2	Mark Walters		237.5
	3	David Speed		233
Family Class (highest pointed pair + breeders team)	1	Ian Wallbridge	<i>Spinipiterus moijiri</i>	
	2	Mark Walters	<i>Corydoras parallelus</i>	
	3	Mark Walters	<i>Ancistrus</i> sp.3	



Mochokiella paynei – Photo by Mark Walters



Corydoras parallelus pair - Tommy Dunford



Corydoras sipaliwini – Mark Walters



Corydoras parallelus breeders- Mark Walters



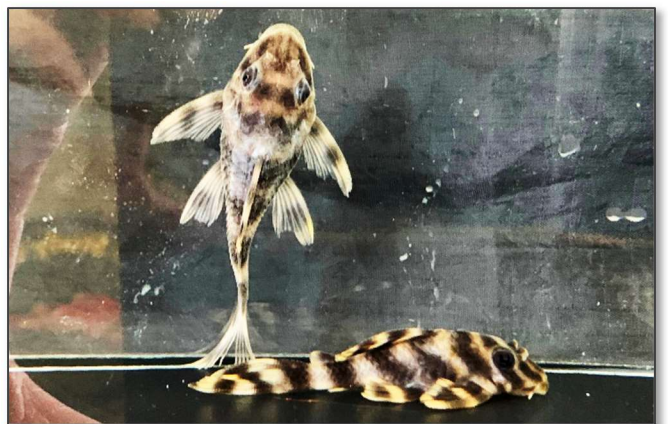
LO97 BIS runner up owned by David Speed – Stuart Brown



Spinipterus moijiri - Tommy Dunford



Young *Trachelyopterichthys* – Stuart Brown



Peckoltia vittata – Mark Walters



Young *Spinipterus moijiri* – Stuart Brown



L201 – Mark Walters



Corydoras bondi – Mark Walters



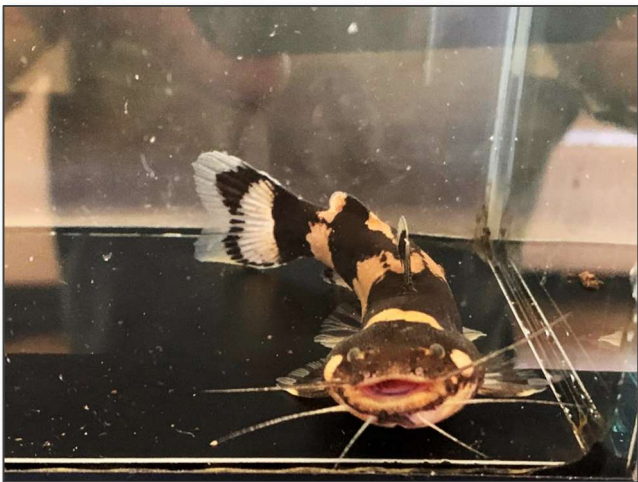
Microglanis aff. *iheringi* – Mark Walters



Corydoras bethanae – Mark Walters



Imparfinis stictonotus – Mark Walters



Microglanis aff. *iheringi* – Mark Walters



Auchenipterichthys coracoideus – Stuart Brown



Trachelyichthys exilis – Stuart Brown



Amblydoras monitor – Stuart Brown



Corydoras concolor – Stuart Brown



Mark Walters and Brian Walsh – Stuart Brown



Ian Wallbridge and Brian Walsh – Stuart Brown



Nigel Stock and Brian Walsh – Stuart Brown



Stuart Brown and Brian Walsh – Mark Walters



Dave Speed and Brian Walsh – Stuart Brown



Show prizes - Stuart Brown



Show prizes donated by G.B.W (Brian Walsh)

Photos - Steve Grant



Show prizes donated by G.B.W – Steve Grant



Ted Derrick Memorial Trophy – Steve Grant

Thank you to all who made the event such a great success, including our prize sponsor Vitalis Aquatic Nutrition, judges – Ian Fuller, Allan James and Chris Ralph and of course our Show Secretary Brian Walsh who pulls out all of the stops to deliver the show.

Catfish Study Group Research Support Fund – Accepted Proposal

Genomic Identification of Common Aquarium Plecos (Loricariidae: *Hypostomus* sp.) Invading Rivers in Colombia, Costa Rica, and the United States

Taegan Perez, MSc

Department of Biological Sciences, University of Toronto Scarborough, Canada

Invasive species are linked to biodiversity declines throughout the world, with freshwater ecosystems being most vulnerable (Moorhouse & Macdonald, 2015), and species-poor temperate ecosystems facing greater risk of invasion from species-rich tropical ecosystems (Fitzgerald et al., 2016). Urgent questions regarding any emergent invasive species include ‘what is the species?’, ‘where did it come from?’, and ‘how did it get there?’. Various popular home aquarium fishes in the Neotropical suckermouth armored catfish family Loricariidae, commonly known as ‘plecos’, have been widely introduced outside their native range and become noxious invasive species in parts of Costa Rica, India, Mexico, Hawaii, Malaysia, the Philippines, Puerto Rico, and the mainland United States (Gerstner et al., 2006; Orfinger & Goodding, 2018). The most widespread and problematic of these invasive species belong to the genera *Hypostomus* and *Pterygoplichthys*; however, precisely identifying these species is difficult due to the poorly resolved species-level taxonomies of these genera and the likelihood that some introduced populations have hybrid origins (Orfinger & Goodding, 2018).

My project focuses on a constellation of non-native armored catfish populations in the genus *Hypostomus*, which is naturally widely-distributed throughout tropical South America and southern Panama. To date, my research has determined that a single lineage of *Hypostomus* originating somewhere in northern South America, likely the Orinoco River drainage, has established invasive populations in the upper Cauca River of Colombia, the San Juan River and Caño Negro in Costa Rica, the San Marcos and

Val Verde rivers in Texas, and the Blue Lagoon and the C-51 Canal in Florida. This *Hypostomus* lineage may also be non-native in Trinidad, although my results are still too coarse to precisely resolve which populations in northern South America are likely native vs. non-native populations. A central hypothesis that I would like to test, but my existing dataset cannot answer, is whether all these non-native populations originated in a western tributary of the Orinoco near the Colombian town of Villavicencio, where many ornamental fish wholesalers are located that receive fishes from throughout the Orinoco Basin and export fishes around the world.

At present, I have in-hand most of what I need to robustly answer questions about the identity and origin of these non-native *Hypostomus* populations. I have tissues and voucher specimens from each of the invasive populations and from various presumably native *Hypostomus* populations in remote portions of the Orinoco River watershed. I also have a preliminary molecular dataset based on the mitochondrial cytochrome oxidase I (COI) gene. This dataset has been valuable in determining which native and invasive populations should be included in further analyses, and in supporting the conclusion that these populations are part of a single evolutionary lineage. I also recently presented these results at the 2022 Joint Meeting of Ichthyologists and Herpetologists in Spokane, WA, USA. Unfortunately, mitochondrial data generally, and the COI gene specifically, carry too little information and are too susceptible to the influence of hybridization to provide a robust, high-resolution understanding of historical relationships between the populations in my study.

To complete my study, I propose to collect sequence data from throughout the nuclear genomes of fishes from each population using a restriction-associated DNA sequencing (RADseq) approach that is expected to yield genetic sequences from between 5,000 and 10,000 loci. These data will complement and significantly improve upon my existing COI dataset, and should provide a much high-resolution picture of the historical relationships between the populations in my study, finally

answering questions about where in South America these non-native *Hypostomus* populations originated, and the sequence in which invasive populations were established. I would like to conduct this RADseq analysis at the Centre for the Analysis of Genome Evolution and Function (CAGEF) at the University of Toronto.

This sequencing effort would complete the research that I have conducted for my MSc degree and allow me to move forward with publishing my results. Throughout my project, I have been in communication with local scientists and fisheries managers in each of the areas where this invasive *Hypostomus* lineage occurs, and each have expressed how interested they are in my results and how important such results are for managing existing invasions and preventing such invasions in the future.

References

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Corydorasworld

Presents

Cory-Fest V

20th November 2022.

**Derwent Hall,
George Street,
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Doors open at 10:00 am for setting up, Sales start at 10:30 am

Speakers

(Provisional and may change)

Hans-George Evers – Ian Fuller

Lectures

2 Lectures will take place at approximately 11:30 am - 2:30 pm

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A 45-minute Cory auction (donated lots).

Seller terms and conditions

1. Table rental = £15.00. Vendor receives 1 draw ticket for the seller draw.
2. Up to 2 people may rent a table, both must register at the point of booking.
3. Dry goods being offered must be aquarium related and if electrical must be in working order.
4. All transactions are between buyers and sellers only
5. Corydorasworld and its representatives will not be responsible for any sales disputes.
6. Presales to be completed inside the venue.

Attendee's

1. Door entry - £2.00 (Received two door prize tickets), Vendors may also purchase door prize tickets.
2. Main Raffle.
3. Special prize draw donated by Wood Art (Brian Walsh).
4. Full Canteen facilities.

The profit from this event will be added to the Corydorasworld Research Assistance Programme fund., which is currently on its fourth project.

The aim of the Research Assistance Program (RAP) is to add financial support to scientists and or students working with Corydoradinae Catfishes. All projects will be considered and if accepted will be added to the project list. Anyone wishing to make a donation directly to the fund can do directly from the website <https://www.corydorasworld.com/knowledgebase/research-assistance-programme>

Once a table has been booked a vendor is free to advertise their wares on the Corydorasworld Facebook page, but without stating prices or indication of sales.

Contact ian@corydorasworld.com for further details.



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Doors open at 1130am Auction starts at 1pm

Any legally permitted aquatic items

To book an auction lot (after December 18th) contact:

chairman@catfishstudygroup.org

See our Facebook site for more details

Catfish Study Group

43rd Annual Convention

31st March – 2nd April 2023

2023 logo *Ageneiosus magoi*
Image kindly provided by Mitsuhiro Iwamoto

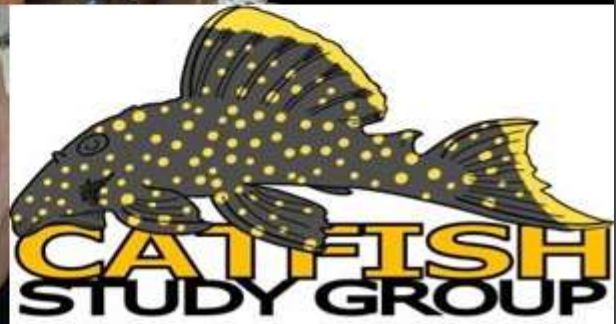


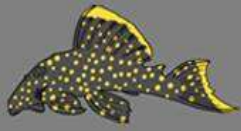
Invited Speakers:
Rebecca Bentley,
Chris Ralph, Max
Pedley, Ian
Wallbridge, Jeremy
Basch, Daniel Konn-
Vetterlein, Craig
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Hardy

all subject to availability in 2023



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Delegate Booking form

Convention 2023 31st March – 2nd April

Delegate Name and email				
Convention tickets. If you are not already a CSG member please add £6 at the end of the form				
Weekend ticket admits attendee to the convention hall, and attendance at 9 lectures (2 on Friday, 5 on Saturday, 2 on Sunday)	Resident (at Kilhey Court)	Non-Resident The CSG are charged a supplement for refreshments for non-residents (hence increased ticket cost)	Enter amount	
Early-bird booking (By 22/01/23)	£25	£35		
Later booking (23/01/23 – 19/02/23)	£35	£45		
Hotel Accommodation (room, breakfast and evening meal)				
Night	Single, Double or Twin?	Delegate per night		Enter amount
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Sunday		£93 or £71.50		
Please indicate name of room share hotel admin):				
All room rates are £93 per delegate if single occupancy or £71.50 per delegate in a shared room (Double or Twin). Maximum of two adults per room. No room bookings after 19/02/23. Delegates' responsibility to arrange room shares. Rates are per day per occupancy over the weekend.				
Evening Meal choices – See Page 2 for Options				
Indicate below each course	Starter (1, 2 or 3)	Main (1, 2, or 3)	Dessert (1, 2 or 3)	£25 per meal IF NOT RESIDENT – Enter amount
Friday				£25
Saturday				£25
Summary - See Page 2 for Additional sales				
Additional sales total (see page 2)				
Sub total				
If paying by PayPal, add 4% (Subtotal x 0.04)				
Grand Total - ALL payments by 19/02/2023				

Tickets are advance purchase only, subject to CSG membership and adherence to the CSG Constitution. 'Weekend' includes Fridays after dinner talk. Contact conventionmanager@catfishstudygroup.org for any special requirements. Dinner on Thursday and Sunday will be from hotel's a la carte menu, booked on the day.

Forms and cheques (payable to The Catfish Study Group) can be returned to any Committee Members at CSG meetings OR can be sent to: 52 Westfield Avenue, Thurlstone, Sheffield, S36 9RN; OR email completed form and pay via PayPal to conventionmanager@catfishstudygroup.org. Should you wish to pay by direct bank transfer, again, please email the convention manager for details of the bank account you can pay into.

Cancellations can be made up to 19/2/2023 for a full refund. Only Convention ticket prices can be refunded after this time, room costs will need to be honoured if cancelling after the 19th February 2023, unless the venue cancels the event. The CSG recommends overseas travellers have the necessary insurance to protect from cancellation.

Breeding *Corydoras saramaccensis* Nijssen, 1970

Bärbel Dornieden



Corydoras saramaccensis wild male specimen. Images by the author

Corydoras saramaccensis is a fairly nondescript species in coloration, but this species has some very interesting behaviour.

So far there have only been a few owners of this species worldwide. I didn't know anything about successful offspring, so I was pleased that Sven Roth gave me three *Corydoras saramaccensis* to breed.

These three animals were brought personally from Suriname by Karsten Schönherr (see *Corydoras* World species account).



Female

Despite numerous efforts, these three *C. saramaccensis* had not shown any signs of courtship or spawning behaviour.

In the later course, the sexes were clearly recognizable. The 7-8 cm large females quickly showed signs of spawning after targeted feeding with insect food, live food and vitamin-enriched paste.

The single male was 6.5 cm long and slimmer in build.

To get used to them, I initially kept these long-snouts in a 1mx40cmx40cm aquarium together with *Corydoras panda* and *Corydoras* CW124 juveniles. Gradually they lost their shyness.

It was interesting that the females usually stayed together in semi-darkness, with the male staying relatively hidden. When feeding, they came out eating with the other species.

When it came to the water values, I basically only made sure that the pH value stayed at 6.5. Temperature 26 degrees and conductivity around 350.

After 3 months I could detect a clear approach to spawning in the females.

Now I set up a breeding tank and adjusted the water parameters.

Breeding tank

60x30x40cm. 26-27 degrees. LW 250. pH 6.5



Breeding tank

800l/h flow pump with sponge filter and plenty of oxygen intake. Wood, Java fern, moss, oak leaves and caves.

As *Corydoras saramaccensis* is a shy species and has its brownish camouflage color to match, I darkened the rear area of the aquarium.

I have also added 6 *Corydoras nijsseni* ready to spawn. This small species gives security with its willingness to show off and "triggers" many a long-snouted cat with its "courtship dance".

I additionally stimulated the animals by feeding them live food and tablet food 3 times a day.

After three days of acclimatisation in the breeding tank, I did a 30% water change with cooler osmosis water.

Water parameters during breeding:

25-26 degrees, 200 microsiemens, pH 6.0 (alder cones).

I darkened the aquarium even more so that only indirect light illuminated the breeding group and this stimulated the *C. saramaccensis* so much that they spawned that same evening.

The entire spawning process with one female took more than 4 hours.



Eggs laid in the aquarium

This stuck her eggs, like small "Christmas balls" on the java fern. Some eggs were on the wood or in the gravel. It had been 50-90 eggs.



Eggs on moss

In the next three months from September to January both females spawned with the single male every 3-4 weeks.

It is interesting that this species always spawned in semi-darkness and that the water was changed beforehand to lower the pH value with alder cones.

The larvae hatch at 25 degrees after 3-4 days. Feeding on the third day after hatching with *Artemia nauplii* and powdered food. I left the larvae in the parent tank and they grew into strong young fish.

Growth was rapid because they were already eating other fine food such as insect paste relatively early at three months.



1-day old



7-days old



14-days old



21-days old



2-months old



2.5-months old



3-months old



4-months old



6-months old



7-months old

The group of three adult animals has increased to a lot of young fish and this species has thus been passed on to friends for reproduction.

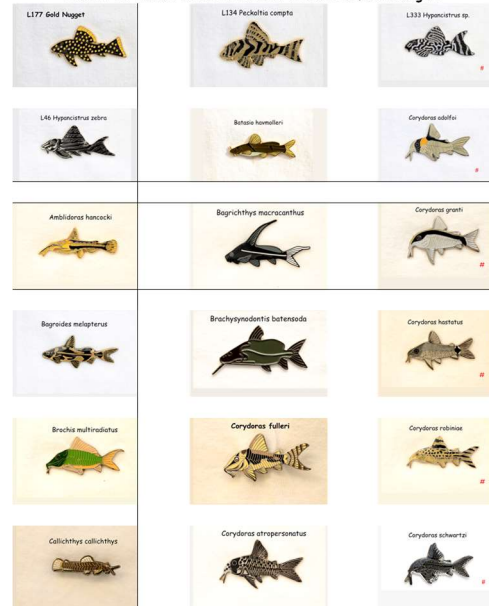
I am very happy to be able to propagate this rare species and to keep it in the hobby.

Thanks to Sven Roth and Karsten Schönherr for this very interesting species.



For Sale

35mm to 40mm limited edition metal catfish badges



Denotes badges purchased from Corydoras World

To order: E-mail Danny Blundell, using treasurer@catfishstudygroup.org, with your order. Payment may be made to the Treasurer as follows:
 By PayPal to the above email address, plus 9% or
 By Bank Transfer to: Sort Code 60-20-11 A/c No 16211901; BIC: NWBK GB 2L; IBAN: GB35 NWBK 6020 1116 211901

Purchase price: £3 per badge, plus postage and packing of:

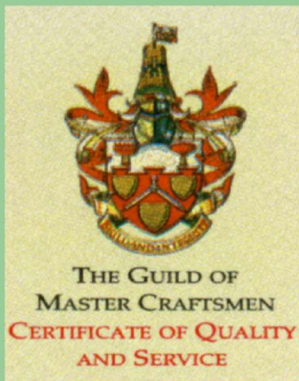
£3 for up to 10 badges UK
 £5 for up to 10 badges Europe
 £6 for up to 10 badges The rest of the world.





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