

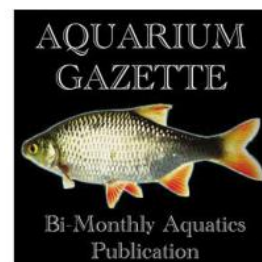
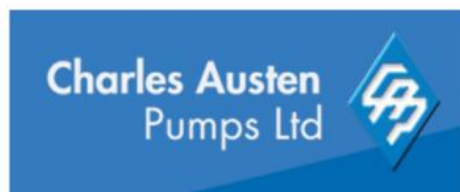
Journal of the Catfish Study Group



December 2021

Volume 22, Issue 4

In this edition: Breeding *Corydoras rijkbaktsa* & CW151; CSG Show and auction report; *Pseudoplatystoma*.



Contents

Chairman's Report	5
CSG Show and Auction report	6
Breeding <i>Corydoras rikkaktsa</i>	10
Breeding CW151	15
CSG Convention	19
Lure-type behaviour in <i>Clarias</i>	23
Spotted Surubim	27

Cover image: *Pseudoplatystoma corruscans*. Photo: Darren Palfreyman

Convention 2022 logo – *Corydoras fulleri* original artwork by Ian Fuller, courtesy of Corydoras World





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Chairman's Report - Mark Walters

Despite all of the obvious distractions, it's remained an active year on the CSG-front. We enjoyed getting together for the Annual Open Show and Auction in September and again for Ian Fuller's Corydoras World 'CoryFest' in November which was a very enjoyable event. It was great to hear Mel Rushmore presenting at the CoryFest, and after speaking with Ian and Committee members we invited Mel to be added to the itinerary for the CSG Convention in March, you can view all of the speakers included on the Convention flyer later in the Journal.

There was a real flurry of activity after we opened bookings for the Convention in November and over 50 delegates have booked in, meaning we have needed to go back to the venue to secure more rooms. There are still a few rooms remaining and the clock is ticking to secure your tickets before the early bird discount expires in January. We are still under the cloud of Covid, with possible restrictions which may affect our events. If we are forced to cancel the convention, full refunds will of course be given. If any delegates decide to cancel due to their own circumstances, they can do so with a full refund if cancelled before February 20th. After this date we can only refund the Convention ticket price, but not the hotel room price. Any question please contact:

conventionmanager@catfishstudygroup.org.

You can also find a flyer for the next CSG auction in February – bookings for lots should be open by the time you are reading this and can be made by contacting: chairman@catfishstudygroup.org.

Our usual annual general meeting (AGM) is due to be held on the 16th January. This will be a virtual meeting (for obvious reasons) and if you wish to 'dial-in' please contact chairman@catfishstudygroup.org for joining instructions. There are no significant matters to be raised, no amendments or new committee

members to be voted on and it will follow the usual format:

1. Welcome
2. Confirm minutes of last meeting
3. Committee reports
4. Any other business

Current Committee is as follows, with an indication of when roles will be open for re-election (usually after a 4 year term): **Chairman** - Mark Walters until January 2023; **Treasurer** - Danny Blundell until January 2023; **Show Secretary** - Brian Walsh until January 2023; **Editor** - Steven Grant until January 2024; **Press Secretary** - Michael Hardman until January 2023; **Secretary** - Mark Walters until January 2024; **Convention Manager** - Mark Walters until January 2023; **Assistant Convention Manager** - Jamie Horne until January 2024; **IT Secretary** - Mark Walters until January 2024; **Assistant IT Secretary** - Ben Nicholls until January 2024; **Catering Manager** - Brian Walsh until January 2023; **Auction Manager** - Mark Walters until January 2023. It's not too soon to consider a role on the Committee, even starting in a year's time, please feel free to chat to any of our Committee to express your interest.

All that remains is for me to wish all of our members a Happy Christmas and peaceful New Year.

Mark

Editor's note

Thank you to those that sent me articles. It is not always easy to have articles in hand, so please send me your submissions and if they are suitable, they will be published. Some members asked for more breeding reports or general how they set up their breeding tanks, and even though we have published many in the last few years and some in this issue, please send any in that you have. **Steve**

Catfish Study Group Annual Open Show and Auction 2021

Mark Walters



Show and auction hall. Image by Mark Walters. All others by Stuart Brown unless indicated.

The CSG tries as best it can to promote, plan and host meetings to bring its members together to provide an opportunity to meet, talk and share our combined knowledge, contributing to the clubs' ethos of furthering the study of catfish. The last couple of years have challenged our ability to meet physically and we have relied on more remote means to interact, through our excellent Journal and social media presence.

The opportunity to come back together for our 'usual' September needed plenty of thought, planning and preparation – with a fair degree of risk and uncertainty. Our committee pondered how much could be delivered at the event, in light of the need to continue to consider Covid protocols including reducing necessary personnel, ongoing social distancing and other safety concerns. With all of this in mind, a decision was made to reduce the usual 30+ show classes down to 9, including breeders classes which the CSG is keen to promote.

From an organisational perspective, the running of a show and auction is a big undertaking requiring lots of preparation and planning. A few months prior to the event, after agreeing to go ahead (at risk), we produced necessary promotional materials and invitations to the event, arranged the venue and started taking bookings for auction. An important task was securing sponsorship (in the form of awards) for the show and we were extremely grateful for the continued support from Fish Science who provided enough of their specialist fish foods to cover all classes.

It was clear people were excited about the prospect of a get-together and the chance to exchange the output of their breeding efforts over 18 months of lockdown. For individuals involved in showing and selling fish through the auction, there is an equal amount of planning necessary including preparing necessary equipment (show tanks) and of course getting the fish ready.



Show tank preparation. Mark Walters



Corydoras bethanae



Mochokiella paynei



Show bench. Mark Walters



Peckoltia braueri

The day before an auction is almost as busy as the auction itself, preparing bags and moving suitable fish to holding quarters, to make the Sunday-morning job as 'easy' as possible. However, the morning of the event is always a particularly fraught affair, for me at least requiring a 0530hrs start to get auction fish bagged-up and show fish caught and into their tanks. The process usually takes around 4 hours and plenty of coffee! Once the car is packed, its fingers crossed that the motorways are clear to get to the event with plenty of time to spare.



Corydoras eversi



Corydoras concolor



Microglanis – Best in Show



Duringlanis perugiae



Brian Walsh, Mark Walters, Bernard O'Neil

This years' event was especially well attended and both the auction and show were a great success. Fish on offer at the auction included the following: *Panaqolus tankei* L398 (adult fish), *Panaqolus albivermis* L204 (massive female),

Hypancistrus zebra, *Hypancistrus* L174, *Hypancistrus debiliterra*, *Hypancistrus* 'zombie' L070, *Peckoltia braueri* L121, *Peckoltia* L076, *Peckoltia* L494, *Hypostomus faveolus*, *Leporacanthicus heterodon*, *Ancistrus* 'cheese creek' (breeding pair), *Ancistrus temmincki* (adult pairs, true - Suriname), *Ancistrus* sp 'super red', *Ancistrus* sp 'lemon blue-eye', *Ancistrus* sp 'longfin lemon blue eye', *Ancistrus* sp 3 albino, *Ancistrus* sp 3, *Ancistrus* sp 'snow white', *Ancistrus* L181, *Ancistrus* L183, *Ancistrus* 'wabenmuster', *Chaetostoma chimu*, *Rineloricaria lanceolata*, *Otocinclus* sp, *Otothyris* sp, *Tatia dunni* sp white (sexed pairs), *Tatia intermedia*, *Duringlanis perugiae*, *Centromochlus musaica*, *Corydoras oiapoquensis*, *Corydoras* CW009, *Corydoras* CW010, *Corydoras burgessi*, *Corydoras sterbai*, *Corydoras caudimaculatus*, *Corydoras similis*, *Corydoras pygmaeus*, *Corydoras habrosus*, *Corydoras* cf. *stenocephalus*, *Corydoras parallelus*, *Aspidoras* CW052, *Brochis splendens*, *Megalechis thoracatum* (albino), *Synodontis eupterus*, *Synodontis nigriventris*.



Hypancistrus L070



Dave Speed



Ian Wallbridge



Stuart Brown



The judges - Chris Ralph, Ian Fuller, Allan James. With Stuart brown

Thanks to all those who were involved in organising and delivering the event and to all those who attended, we hope to see you at the next auction in February!

Best Fish in Show			
Class	Exhibitor	Species	Points
1	Bernard O'Neil	<i>Microglanis iheringhi</i>	89.5
2	S&S Brown	<i>Corydoras bethanae</i>	88.5
3	D&L Speed	<i>Microglanis iheringhi</i>	88
4	D&L Speed	<i>Mochokiella paynei</i>	87.5
5	D&L Speed	<i>Akysis prashadi</i>	87
Breeders Loricariidae			
Class	Exhibitor	Species	Points
1	Mark Walters	<i>Peckoltia braueri</i>	76
2	D&L Speed	<i>Hypancistrus contradens</i>	75
3	Mark Walters	<i>Peckoltia L076</i>	74
Breeders Corydoradinae			
Class	Exhibitor	Species	Points
1	Mark Walters	<i>Corydoras CW009</i>	78
Breeders AOV Catfish			
Class	Exhibitor	Species	Points
1	Ian Wallbridge	<i>Centromochlus perugiae</i>	77
2	Ian Wallbridge	<i>Tatia intermedia</i>	72
3	Mike Kirkham	<i>Megalechis thoracatum</i>	71
AOV Pairs Catfish			
Class	Exhibitor	Species	Points
1	D&L Speed	<i>Corydoras napoensis</i>	85
2	D&L Speed	<i>Mochokiella paynei</i>	84
3	Ian Wallbridge	<i>Auchenipterichthys coracoides</i>	83
Master Breeders - Combined points, 3 x breeders teams			
Class	Exhibitor	Species	Points
1	Mark Walters	<i>Hypancistrus L070. Peckoltia braueri, Peckoltia L076</i>	223.5
2	Mark Walters	<i>Corydoras CW009, Ancistrus sp. 3, Hypostomus faveolus</i>	223
Family Class - Combined points, pair and breeders team of same species			
Class	Exhibitor	Species	Points
1	Mark Walters	<i>Corydoras CW009</i>	156
2	Mark Walters	<i>Hypancistrus L070</i>	155.5
3	Mark Walters	<i>Peckoltia braueri</i>	155

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Breeding *Corydoras rikbaktsa* Lima & Britto, 2020

Janosch Schütz



Corydoras rikbaktsa female holding an egg in her pelvic fins. All images by Janosch Schütz



Breeding female



Breeding male

Setup

I keep my group of 30 individuals in a 110L Juwel Primo tank with the dimensions 80 cm x 35 cm x 40 cm, I don't want to advertise here, but these tanks are so far my absolute favourites for breeding all the *Corydoras* that swim in my fish cellar.



Breeding tank

The tanks have a glued-in internal filter in which the heater is also integrated, but the best thing about these internal filters is that Juwel's tank series has different powerful pumps that can be installed in almost all filters. That's why I don't use extra flow pumps for triggering and simply replace the pump currently installed in the tank with the next stronger version if necessary. This way I can always try out which flow strength the respective species prefer for spawning. In addition, I always use the separately available diffuser to concentrate the flow and position it better. The diffuser also enriches the water with oxygen, which also has a positive effect on the spawning readiness. For the *C. rikbaktsa* tank I chose some roots planted with normal Java Fern and Windelov Java Fern, a spawning mop, as well as quite a lot of oak leaves, some river stones,

Nymphoides hydrophilla, *Cryptocoryne wendtii* and some *Limnobium laevigatum*. The *C. rikbaktsa* are relatively quiet during the day, but from time to time there can be territorial disputes, which is why a good structure of the tank is necessary. The animals like to dig small hollows under roots and leaves and stay there most of the time, if they are not looking for something to eat. If I lift the mopani wood they try and bury into the sand rather than swim away.



Hiding under leaves



Hiding in plants



Nutrition

I try to feed my animals exclusively with live food, and I have several live food cultures in my cellar in which I breed all kinds of worms, such as whiteworms, grindalworms and microworms. In the warmer months I can also regularly collect *Daphnia*, blackworms, mosquito larvae and all sorts of small aquatic creatures from several rainwater tanks in my garden. In addition, my juveniles and my active breeding groups get fresh baby brine shrimp every day. If I don't have time to serve a live food menu, my *Corydoras* also get normal food like tablets and granules from time to time.

Water parameters

My water comes out of the tap very soft, but with a relatively high pH value. With a carbonate hardness of 3, a pH value of 7.8 (that is a little too high for my taste), a conductivity value of 88 ppm TDS and a temperature of 25/26°C. All my species actually feel very comfortable and many species spawn on their own at these values.

Mating and egg laying

The *C. rikbaktsa* actually spawn on their own without needing any special triggers, but react the day after their 60% weekly cold-water changes. They have been spawning every few days for a few weeks now, but they are a very unproductive species and lay an estimated 5-10 eggs per day. Most of the time I don't notice it at all, but only notice that they have spawned again when I check the spawning mop and find eggs. However, I have also been able to observe them during spawning, only one fixed pair ever spawns, all other animals stay out of it and other males are put to flight by the dominant male. Unlike many *Corydoras* species, the females are not pursued by the males and forced to spawn, the animals meet in a more open area of the tank, the female swims into the male's side and the typical *Corydoras* mating, the T-position, takes place.



T-position



T-position with female with egg in pelvic fins

During mating the female always releases only one egg, which is quite large (2.2/2.3 mm), into her pouch-shaped pelvic fins. Afterwards both animals remain motionless next to each other for 2-3 minutes, then they separate and the female rubs her pelvic fins several times through the sandy bottom and partially covers the egg with sand.



Resting after spawning embrace

After that, the female starts searching for a suitable place to lay the egg, which can take up to 45 minutes. They have a special preference for the dense root system of my large Java Fern and always manage to stick the eggs in the last corners of the root system.

Fortunately for me, they also prefer a spawning mop as a place to lay the eggs, but now and then leaves or the roots of floating plants are also used as spawning substrate. I have now got into the habit of only checking the spawning mop every few days, and if I find eggs there, I search the rest of the tank more closely. Unfortunately, they are real masters at hiding their eggs and since I never

do without plants, wood and stones in my breeding tanks, the search for eggs can take quite a lot of time.

The texture and incubation of the eggs

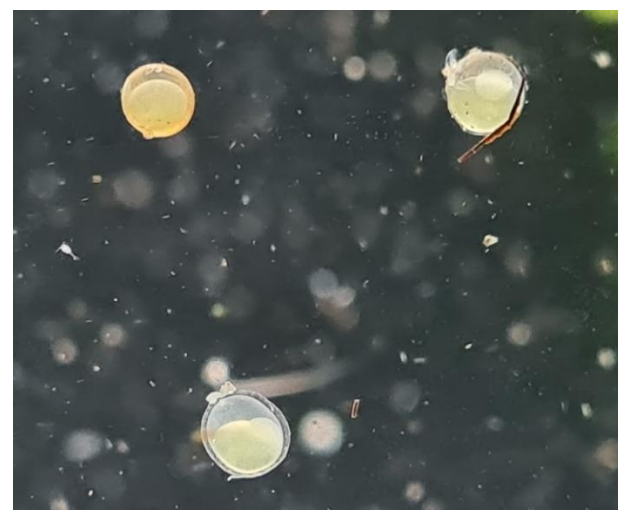
The first time I picked up a freshly laid egg, I initially thought I had accidentally crushed it between my fingers as it felt very slippery. To my astonishment, however, the egg was intact and on closer inspection I noticed that the egg was coated with a kind of jelly similar to frogspawn.



Freshly laid egg with jelly coating, in mop



Freshly laid egg with jelly coating, in Java Fern roots



Top left – day old egg turning brown; top right and bottom – freshly laid with jelly coating

However, I also found older eggs that were already darker in colour and no longer had this jelly. As I went on, I realised that this jelly is probably only present on the day the egg is laid and then either slowly dissolves, is absorbed by the egg or bonds with the egg skin and makes it harder.



Eggs with sand covering



Egg after 3 or 4 days turned brown



Egg after 3 or 4 days in spawning mop



Egg size

In any case, I have not been able to find such a texture of the eggs in any of my *Corydoras* species so far and I am quite amazed about this rather strange and at the same time very interesting species. When they spawned for the first time, I found about 26 eggs at the age of 0-4 days, to my surprise a few animals already hatched directly after collecting them, which resulted in a required time of 4 days until hatching when the eggs were incubated further at my water values and a temperature of 25/26°C. As the eggs were very sensitive to fungus, I initially lost all but four larvae and began to experiment. Sometimes completely healthy-looking larvae hatched and died shortly afterwards for no apparent reason. I tried to hatch the first eggs in a breeding ring in the parent's tank, but after this failed several times, I decided to use glass dishes with a capacity of 2 litres, added 1-2 drops of the medicine Trichosal per litre of water and aerated the dishes with a bubbling stone at a temperature of 23°C. However, even after eight days, not a single larva hatched and after the first egg died, I decided to open the eggs with a cannula and a brush. To my astonishment, I was able to hatch seven well-developed larvae, but three more were not fully developed and died in the following two days. In the meantime, I have started to leave the eggs in the glass bowl with Trichosal for a day and then transfer them to a rearing ring in a UVC-filtered tank, which has proved to be the best solution so far. They are also reared in this tank, as the fry turned out to be quite sensitive to bacteria and I unfortunately lost some at first, which should be avoided as much as possible with this rare species and the small number of eggs.

Development of the fry



Just hatched



2-days old



5-days old



20-days old



1-month old



5-weeks old

The development of the fry goes quite well, after three days the yolk sac is used up and you can start feeding microworms and baby brine shrimp.

After 20-22 days the juveniles are already 1.5cm in size and have the typical dark spot on their gill cover as well as other small spots along the lateral line. From this size onwards they also get grindal worms to eat. At the age of 6 weeks, they are close to 2 cm and unfortunately, I can't say more about the development of the juveniles at this point, as these are my largest offspring at the moment.



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Breeding *Corydoras* CW151

Bärbel Dornieden



Corydoras CW151 female. All photos by the author

In January 2020 I received five unknown "*Corydoras* spec. Surinam" from the importer AKWAPASJA.PL, there were two females and three males. The body length of the males was approx. 7 cm, the females approx. 7.5-8 cm.

After some research it turned out that it was *Corydoras* CW151. This was confirmed to me by two experts who had already caught this *Corydoras* in the lower intake of the Coppename River in 2014.

All five specimens were in excellent shape and moved into an aquarium measuring 100 cm x 40 cm x 40 cm. Filter system is a 1000 L/h Powerhead with 'Hamburg Matten filter'.

Other tankmates were *Corydoras boesemani* and *Corydoras nijsseni*. These smaller species that are happy to show, took away the shyness of the *Corydoras* CW151 and after a short time they showed more and more in the front area of the aquarium.



The similar *C. saramaccensis*



Female CW151



Breeding tank

Water values:

Temperature: 26 degrees

Conductance: 300

pH: 6.5

Granulated peat in the filter system and oak leaves ensure a stable pH value.



Corydoras CW151 male



Corydoras CW151 female

In addition, caves and roots gave retreats. The aquarium had a dense floating plant cover with horned fern and *Anubias nana* served together with the spawning mop as a spawning base.

After a 25% water change, they already showed a stimulating swimming up and down. I could not observe a typical hustle and bustle. Mostly in the evening they became increasingly restless and "danced" up and down. In addition, they eagerly examined different spawning bases. They showed this behaviour for several months without me being able to discover clutches.

With a very good feeding with insect paste from 'Instinct', tablet feed 'Tabimin' and live food such as whiteworms and blackworms, the females clearly started to spawn.

After 8 months in September 2020, I discovered exceptionally small larvae on the bottom of the aquarium.

They were *Corydoras* CW 151 larvae with the often typical 'long-nose' colour. They hid under the oak leaves and only came out at lightning speed to eat during one feeding.

I took one larva from the group and documented the development of the small larva.



7-9 days old fry



8-10 weeks old



12-weeks old



14 weeks old



5-month old

Water values:

Temp: 27 degrees

pH: 6.8

LW: 250 Water change with osmosis / tap water mixture

After four months, the dorsal fin elongated and did not initially resemble the parent animals. Only at the age of 6-7 months did the dorsal fin slowly recede and the fine dot pattern on a golden background come to light. The growth was slow and in adolescence they are less shy and mostly looking for food in the front area. When they are 1 year old, they hide more and more like their parents.

The excited courtship swim could often be seen in the evenings in the following months, but it appears that these species spawn at dusk. So, I have not been able to observe spawning directly so far.

Only when tiny little larvae of the *Corydoras* CW151 can be seen in the parent tank, suggest the approximate time of the spawning process. The spawning season seems to be in the summer months of June-September.



5-month-old juvenile with parents



7-month-old



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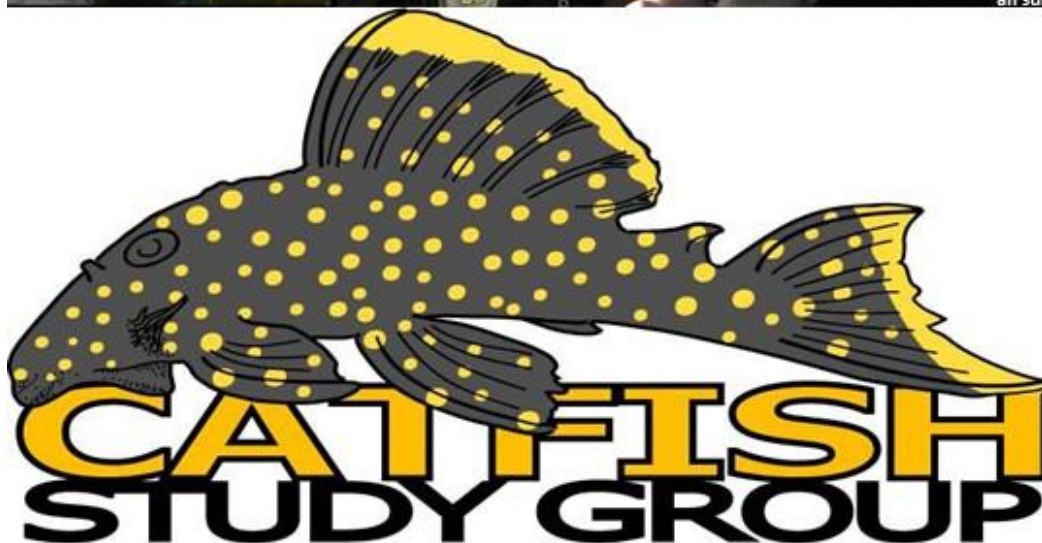
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Catfish Study Group 42nd Annual Convention 18-20th March 2022



Invited Speakers:
Top: Jacqueline Heijmen
Bennett-Leaver, Hans
Georg-Evers, Ian Fuller,
Mel Rushmore.
Bottom: Steven
Grant, Danny Blundell,
Ingo Seidel.
all subject to availability in 2022



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CSG Convention 2022 Itinerary

Friday 18 March

-----Friday dinner-----19:30
-----Introduction and announcements-----21:00

Talk 1 **Danny Blundell:** *Ancistrus of the Madre de Dios*..... 21:30

Saturday 19 March

-----Convention room open and marketplace-----09:00

Talk 2 **Steven Grant:** *Functions of pattern in Corydoradinae*.....10:00

-----11:30 – 16:00 Time made available for retail visits-----

Talk 3 **Ingo Seidel:** *The genus Peckoltia – Species, Ecology, Keeping and Breeding*....16:00

Talk 4 **Jacqueline Heijmen Bennett-Leaver:** *The Road to Success!*17:30

-----Saturday dinner-----20:00

-----After dinner auctions and announcements-----

Talk 5 **Mel Rushmore:** *The Accidental catfish breeder*.....22:00

Sunday 20 March

-----Doors open-----09:00

Talk 6 **Ian Fuller:** *Will the real Corydoras please stand up?*09:30

Talk 7 **Hans Evers:** *Catfish collecting in Brazil 2018*11:00

-----Closing Remarks-----12:30

-----Time available for Convention room marketplace and retail visits-----

Note: Itinerary details are subject to change





Delegate Booking form

Convention 2022 18 -20th March

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 6 lectures (1 on Friday, 3 on Saturday, 2 on Sunday)	Resident (at Kilhey Court)	Non-Resident <small>The CSG are charged a supplement for refreshments for non-residents (hence increased ticket cost)</small>	Enter amount	
Early-bird booking (By 23/01/22)	£25	£35		
Later booking (24/01/22 – 20/02/22)	£35	£45		
Hotel Accommodation (room, breakfast and evening meal)				
Night	Single, Double or Twin?	Delegate per night	Enter amount	
Thursday		£93 or £71.50		
Friday		£93 or £71.50		
Saturday		£93 or £71.50		
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 20/02/22. 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 20/02/2022				

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: The Studio, Clifford Road, Boston Spa, West Yorkshire, UK, LS23 6DB. OR email completed form and pay via PayPal to: conventionmanager@catfishstudygroup.org. Should you wish to pay by direct bank transfer, please email conventionmanager@catfishstudygroup.org for details of the bank account you can pay into.

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On a novel lure-type behaviour in a captive African sharptooth catfish, *Clarias gariepinus*

Timothy Smith



An example of an incomplete burying attempt, with only the head covered. All photos by the author.

Fishes housed in aquaria can provide rare opportunities to witness behaviours otherwise impossible to see in nature. Although not all observed behaviours may be compared directly to a species' natural repertoire, they can be the beginnings of our understanding of the lives these animals lead, and a doorway to future study.

The genus *Clarias* is not unfamiliar with the captive world. Several species are popular aquaculture choices, while a handful make forays into the aquarium world despite often being poor candidates for most home aquaria. Nonetheless, this has allowed for extensive studies on aspects of their biology, reproduction, nutrition, and behaviour.

Clarias gariepinus, known more commonly by the names African sharptooth catfish (or confusingly, the North African catfish), is a species with an enormous pan-African distribution - as well as an extralimital invaded distribution - and can be found in a diverse range of habitats. Although not often a common aquarium occupant, it is a well-studied species in aquaculture owing to its hardiness and rapid growth rate.

This short communication details and illustrates a behaviour not previously recorded in *Clarias gariepinus*: digging into the substrate and exposing a single maxillary barbel above the substrate, hypothesized here to act as a simple lure.

The specimen in question was a wild-caught animal from north-eastern South Africa, acquired from a drying pool adjacent to the Phongolo River. It had been maintained in captivity for approximately two months before this behaviour was noticed, at which time it had grown to roughly 20cm and could still be considered juvenile. These observations took place while *C. gariepinus* was under care in a natural-type aquarium environment, utilizing a soft substrate alongside other structures indented for shelter, including live plants and rockwork. It shared the enclosure space with several *Enteromius* sp., collected from the same region. Various sinking, non-live foods were provided once or twice daily.



A section of the Phongolo River just before the dry season, where the specimen originated from

The *C. gariepinus* specimen would burrow head-first into the substrate with rapid side-to-side motions. If the substrate was deep enough, only the caudal fin and caudal peduncle, and perhaps the body immediately anterior to this section, remained exposed. In many instances the substrate was much shallower, such that only the head region could be covered; this appeared to be sufficient. Once settled in to position, a single maxillary barbel - almost always the right - would wiggle free above the substrate. This behaviour was observed several times, usually in areas with little flow present.

There was minimal movement of the exposed barbel, opposite to what might be expected for a lure-type structure and as seen in other fishes employing lures. While usually held still and erect, the barbel would be slowly waved

backward-and-forwards, before returning to a stationary position.



Close-up of the single exposed maxillary barbel

However, unlike some of the other lure-using fishes, *C. gariepinus* has its head buried in the substrate, and as such cannot see the lure, thereby unable to ensure that the lure remains close to the mouth.

It may be that *C. gariepinus* does not need to see its prey, given that they are not visual predators and have demonstrated electroreceptive and weakly electrogenic capabilities, suggested to be employed in prey detection (Baron *et al.* 1994, Hanika & Kramer 2000).

Digging behaviour associated with clariid catfishes is typically as a response to adverse environmental conditions, particularly from the onset of the dry season where water bodies may dramatically reduce in size (Bruton 1979a). Although *C. gariepinus* will not readily be seen by most prey in its natural environment given its inconspicuous colour and turbid surroundings, the self-burying behaviour adds an additional layer of camouflage and similar behaviour has been seen in other lure using fishes (Pietsche & Arnold 2020). This may also further solidify the

illusion of the “worm” emerging from a substrate, as opposed to being attached to a larger body.

Unfortunately, none of the cohabiting fish ever expressed sufficient interest in the exposed barbel for a successful ambush to take place, although a cohabiting *Enteromius* sp. did seem to notice the “lure”, swimming past several times but never venturing too close.

The behaviour would cease if the fish was disturbed (e.g.: during tank maintenance), or if there was sufficient activity near the exposed barbel (e.g.: during feeding times); in both instances the response was less of a “lunge” and more of an emergence from the substrate with wide, side-to-side sweeping motions.

The use of lure-type structures and associated behaviours is typically associated with the anglerfishes and allies (order Lophiiformes), although it is not unique to this group. Other fish groups are known to engage in such behaviours, even without dedicated illicial apparatus as in the Lophiiformes. Among other fish groups examples (or suspected examples) are found among the anguillid eels (Tweddle & Skelton 2016), ophichthyid worm eels (McCosker 1982), bothid flounders (Amaoka et al. 1994), scorpaenids (Shallenberger & Madden 1973), and uranoscopid stargazers (Norman 1963).

Among the Siluriformes, lure usage is so far known within Chacidae (Roberts 1982, Mistri et al. 2016) as well as, possibly, Auchenipteridae (Vari & Ferraris 2006).

The environments that *C. gariepinus* inhabit in nature are not usually conducive to behavioural observations, with only few behaviour studies having been conducted in situ (Bruton 1979b).

Although abundant in aquaculture facilities across the globe, very few of these environments provide the required environmental components to perform such behaviours. Those housed in pond-type environments perhaps might be able to exhibit this behaviour, but this may have been missed owing to the turbidity typically associated with these enclosures. The unnaturally high stocking densities seen in aquaculture also likely favour a more active, competitive feeding

behaviour as opposed to a sit-and-wait type of ambush.

Another reason for no previous accounts of this behaviour in captivity is that of circumstance. Lophiiform anglerfishes, when maintained in captivity, only properly position their illicium if suitable prey species are present; otherwise, they keep the structure tucked away (Pietsche & Arnold 2020). Likewise, *Clarias* might not exhibit this behaviour when there is no suitable prey, or perhaps there may be more efficient means of foraging available. This species, in particular, has a range of specialised behaviours to engage with different prey types (Bruton 1979b, Hecht et al. 1988). This also begs the question whether this type of behaviour is widespread in this species (or among other clariids), if it is an adaptive behaviour localised to a particular region, is expressed within particular environments, or at particular life stages.

Further observations may produce a better understanding of the behaviour, its function, the effectiveness of the technique, as well as addressing some of the previously mentioned questions.

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Two species of ‘Spotted Surubim’, or ‘Pintado’? (Pimelodidae: *Pseudoplatystoma*)

Steven Grant



Upper: *Platystoma pardalis*, lower: *Platystoma orbignianus*. Both from Valenciennes (1835)

According to Buitrago-Suárez & Burr (2007) there are two valid species of *Pseudoplatystoma* Bleeker, 1862 in the southern river basins of South America: *P. corruscans* (Spix & Agassiz, 1829) from the Paraná and São Francisco rivers, in Argentina, Paraguay, Uruguay and southeast Brazil; and *P. reticulatum* Eigenmann & Eigenmann, 1889 from Central Amazon and Paraná River in Argentina, Bolivia, Brazil, Paraguay, and Uruguay.

Using mitochondrial DNA markers Carvalho-Costa *et al.* (2011) found clear separations from the two populations of *P. corruscans* from the São Francisco and Paraná–Paraguay–Uruguay drainages, suggesting a substantial time of divergence. Such distinctness, however, was not observed in the nuclear DNA markers. Cytogenetic differences between these populations were also reported by Swarça *et al.* (2005), who suggested that more than one species could be hidden under the name *P. corruscans*.

To complicate the matter further, Marquez *et al.* (2018) found genetic evidence of F1 and post F1 hybrids between *P. corruscans* and *P. reticulatum* in the middle section of the Paraná River. Some theorise that the hybridisation is natural, some that it is due to accidental release of the artificially hybridised specimens from fish farms. The ‘cachapinta’ hybrid (derived from

crosses involving females of *P. reticulatum*) accounted for the F1 hybrids found. The name ‘pintachara’ is given to hybrids involving females of *P. corruscans*.

Female *P. reticulatum* have been artificially hybridised with male *Leiarius* Bleeker, 1862, to produce ‘cachandiá’, and female *P. reticulatum* or possibly ‘cachapinta’, with male *Phractocephalus hemiliopterus* (Bloch & Schneider, 1801) to produce ‘cachapira’ (Hashimoto *et al.*, 2016).

Historical context

One could think that the issue of different morphotypes, phenotypes or species of ‘Spotted Surubim’ / ‘Pintado’ is a recent point of discussion, but that is not the case.

Alcide d’Orbigny voyaged to South America between 1826 and 1833. He visited several countries in South America and brought or sent back thousands of specimens to France, some of which were deposited in the Muséum national d’Histoire naturelle (MNHN).

Coloured plates of some of the fishes were published between 1834-1839 with scientific names given by Achille Valenciennes, with no additional information until later publications in 1840 and 1847. Plate 4 was published in 1835

(Fricke *et al.* 2020). On this plate figure 2 was named as *Platystoma pardalis* and figure 3 as *Platystoma orbignianus*.

Lundberg & Littmann in Reis *et al.* (2003) place both species in *Pseudoplatystoma* Bleeker, 1862 as species inquirenda (species of doubtful identity requiring further investigation). Britski (2001) and Koerber *et al.* (2017) listed *Platystoma orbignianus* as a synonym of *P. corruscans* (the latter with question). It is clear from the original drawings of the holotypes, and photographs of the holotypes by Mélyne Hauteceur (MNHN) in Morris *et al.* (2006), that they are a *Pseudoplatystoma*.

However, much earlier than this, some authors, such as Lütken (1875), questioned whether they were the same as *P. corruscans*. It is important to note that in 1826-1835 there were no artificially hybridised species, so the two species described on that plate are either both junior synonyms of *P. corruscans*, or at least one is a valid species, or they are natural hybrids of *P. corruscans*.

Type specimens and type locality of Valenciennes' two species

As the plate (Valenciennes, 1835) gave no information other than the scientific names, it isn't until five and then twelve years later that information about the locality and number of specimens was provided (Valenciennes, 1840; 1847).

P. pardalis

It is clear from Valenciennes (1840) that there was one preserved specimen in his collection from d'Orbigny but he states that there was a specimen in the ZMB. Valenciennes (1847) also states that it was described on more than one specimen. However, the specimen in the plate is the holotype by monotypy as the name is available from the plate in 1835, and was therefore based on an illustration of one specimen with only a name provided (article 73.1.2 ICZN). MNHN A-8833 is the holotype and the ZMB specimen is a non-type.

Valenciennes (1840) states that the d'Orbigny specimen (holotype) was from "the vicinity of Buenos Aires" (Argentina). Although the type locality was not stated in the original description in 1835, as per the subsequent information on the origin of the holotype (the specimen in the plate) and article 76.1 of the ICZN, the type locality is the vicinity of Buenos Aires.

P. orbignianus

There is only one specimen mentioned in Valenciennes (1840; 1847) and for the same reasons as *P. pardalis*, the specimen drawn in the plate is the holotype. According to Meunier *et al.* (2002) and Fricke *et al.* (2020) the drawn specimen (holotype) is MNHN B-0160 (but see below).

Valenciennes (1840; 1847) states that the d'Orbigny specimen was from Buenos Aires (Argentina), so the type locality of 'Brazil' in Bertin & Estève (1950), Meunier *et al.* (2002), Ferraris (2007) and Fricke *et al.* (2020) is incorrect, unless Valenciennes was incorrect about the locality of the holotype, or the specimen Valenciennes used in 1840 is not the holotype. 'Brazil' appears to be from the label on the specimen that has been identified as the holotype (MNHN B-0160). From the image of the purported holotype in Morris *et al.* (2006) the specimen appears to measure approx. 21 inches. Valenciennes (1840) said the holotype measured "vingt pouces" which is approximately 20 inches. Valenciennes (1840) states that he could not examine the viscera of the specimen as it had been removed when it arrived, and MNHN B-0160 does appear to have had its viscera removed. It is also labelled as d'Orbigny specimen from 1829. Therefore, other than an issue with the location it does appear to be the holotype.

Correct usage

P. pardalis

Valenciennes (1840), possibly unaware of the availability of the name from the plate in 1835, described the species again as *Platystoma pardale*. The Latin word *pardale* is the neuter form of *pardalis*, both adjectives. *Platystoma* Agassiz, 1829 (which is now invalid) is a neuter genus, so Valenciennes probably chose *pardale* as the correct formation of the species name so as to agree with the gender of the genus *Platystoma*. So, *P. pardale* Valenciennes, 1840 is a mandatory change.

The species name should be emended to *Platystoma pardale* Valenciennes, 1835 as per 31.2 of the ICZN.

Platystoma panthale Valenciennes, 1847 – appears to be a new species name given to the same species as 1835 and 1840. A similar issue happened with other species described or covered in the same three Valenciennes

publications (see Grant, 2018). It may be the case that at the time of penning the 1840 and 1847 papers, that the publication dates were not certain. In any case, *P. panthale* is a junior synonym of *P. pardale*.



P. pardale holotype. Copyright MNHN

P. orbignianus

Valenciennes (1840) used the name *P. orbignianum*. Changing the ending of the name from ‘-anus’ to ‘-anum’ was likely a mandatory change to agree with the neutral gender of *Platystoma* (the species name is an adjective so 31.2 of the ICZN applies).



P. orbignianum holotype. Copyright MNHN

Valenciennes (1847) used the name *P. orbignyanum*. As well as changing the suffix to agree with the gender of *Platystoma*, ‘y’ rather than ‘i’ was used at the end of the patronym part of the name (named after d’Orbigny). This was possibly because ‘-anus’ or ‘-anum’ is frequently preceded by the noun stem followed by ‘i’, and ‘y’ is transliterated to ‘i’ in Latin. When the species was described in 1835 and ‘i’ was used with no ‘y’ this is likely to be an incorrect Latinization or transliteration, so as per ICZN article 32.5.1 Valenciennes’ (1847) usage of ‘y’ rather than ‘i’ is an incorrect subsequent spelling, but the change of the suffix to ‘-anum’ is a mandatory one as per article 31.2.

Günther (1864) and Lütken (1875) adopted the spelling *P. orbignianum*. On the basis of the above, the correct name should be *Platystoma orbignianum* Valenciennes, 1835.

Validity of the species

As set out earlier, there is DNA evidence that there may be at least two species of ‘Pintado’, even when hybrids are excluded. The DNA evidence seems to point towards the populations from Paraná and São Francisco rivers possibly representing the two species. Until some clear morphological or chromatic differences can be found it would be difficult to identify pictures or

specimens as potentially different species. Buitrago-Suárez & neotype (2007) could not find any. The author has not had access to the specimens they used, but has spotted some potential differences that need further explanation or investigation to determine whether they are useful.

When observing photographs of juvenile and adult (apparently non hybrid) specimens labelled as *P. corruscans*, the author has noticed that some specimens, juveniles and adults, have a proportionately short head (snout–posterior margin of the opercle) in SL (vertical from insertion of outermost caudal fin rays). Obviously, measurements and proportions using photographs are not the same as when using specimens, and errors based on angle or orientation of the body in a photo can skew results, but they can be informative. Using images, if one measures the head (as above) some specimens have Head in SL of approximately of 35.4%-37.7%, whereas some have it as 41.1%-53.1%. For those not willing to actually measure photographs or specimens, a quick way is to approximate the length of the head and then transposes that measurement from the anterior edge of the opercle along the body. In some specimens the measurement only reaches to the pelvic fin (at the most to the end of the pelvic fin when adpressed), whereas in some specimens the head length measurement reaches to the anal fin (sometimes to the insertion of the last anal fin ray). A similar finding of long heads in some species was made in the review of *Sorubim* Cuvier, 1829 (Littmann, 2007).

The short-headed specimens tend to have more spots in the anal fin than the long-headed specimens, and the supraoccipital process may have a different shape.

The author considered whether the short-headed specimens were hybrids, like ‘cachapira’, as these have short, deep heads, and he was looking at specimens caught by the angling community in South America and imported for aquarists. However, if one looks at the drawing of the holotype of *P. corruscans* (which was lost) it matches the short-headed definition. If one looks at the holotypes of *P. pardale* and *P. orbignianum* the former has a short head, the latter has a long head. Buitrago-Suárez & Burr (2007) designated a neotype for *P. corruscans*, which came from the São Francisco basin like the lost holotype did. The specimen they used (MCP 14071) is short-headed.



Lost holotype of *P. corruscans*

It is possible that rather than two species masquerading as *P. corruscans* and being separated by different rivers, that there are indeed some morphological and chromatic differences. However, without access to the specimens that Buitrago-Suárez & Burr (2007) had, and more, it could be that these are not consistent differences, or are due to inaccurate measurements. It could be explained by gender but it is likely that females are larger overall, rather than having different head proportions. If the possible physical differences were proven reliable and denote two different species of Pintado, *Platystoma pardale* Valenciennes, 1835 (and its other names *P. pardalis* and *P. panthale*) would be junior synonyms of *P. corruscans* (even though it isn't from the São Francisco basin); *P. corruscans* being the short-headed species. *Platystoma orbignianum* Valenciennes, 1835 would become *Pseudoplatystoma orbignianum* (Valenciennes, 1835) and would be the long-headed species; and a junior synonym of it would be *Silurus macrocephalus* Larrañaga, 1923.

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Booking in from 11am Auction starts at 1pm

Any legally permitted aquatic items

To book an auction lot contact:

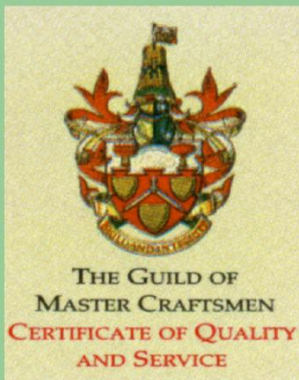
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