

Journal of the Catfish Study Group



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Cover image: *Batrachoglanis* sp. Photo: G. Savage





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Journal subscriptions and CSG support

At the moment, subscribers to the CSG journal pay for a paper or a digital version. All subscribers are also CSG members for the term of their subscription. The digital issue does not have a production cost as all content is contributed freely and the journal itself is formatted by our current Editor (Michael Hardman) who, like all of us, gives his time for free. Currently, most of the £6 annual subscription for the digital journal has been used to offset CSG expenses and help establish the CSG Research Support Fund (see page 34 this issue). In contrast, annual subscriptions to the printed journal (£16–38 depending on location), basically cover **production costs only** so provide little or no financial input to the Research Support Fund, or any other CSG activities for that matter. The committee has recognised this issue for several years and recently decided to raise new printed journal subscriptions by £6 per year so that members are supporting the CSG and its activities more equally, and we get the best return on the work that our contributors, editor and distribution team does.



Existing subscriptions to the printed journal **provide no support** to the Research Support Fund or help to offset other CSG expenses. Recurring PayPal payments, such as annual subscriptions, do not allow the seller (i.e., the CSG) to alter the amount charged and the committee does not want to impose a higher fee on our existing subscribers that do not wish to support us in this way. However, we suspect that many of those subscribers would be willing to support our new initiative (see page 34 of this issue) but PayPal restrictions prevent them from increasing their subscription easily. Fortunately, this issue can be easily solved by printed journal subscribers signing-up for a subscription to the digital journal via our [website](#). Alternatively, when it comes to renew, printed journal subscribers can cancel their existing subscriptions and purchasing a new one which will include the extra £6.

Subscribing to the digital journal is the simpler thing to do, but if you prefer a single payment per year, then the cancel-and-renew option is for you. Drop me an [email](#) if you're not sure when your subscription renews or if you have any other questions or comments in regard to this matter.

Cheers, [Jools](#)

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Chairman's report

It's been quite a busy summer, with some great CSG-supported events to attend including the Catfish and Loach annual show and auction, and 'Coryvention'.



I've been particularly busy with 2018 CSG Convention planning and was pleased to announce the speaker line up for next year's event. The Convention will be 100% about catfish, with speakers from Europe and America, representing both the science and the hobby in equal measure. There is a strong theme which has developed with the selected speakers, leading to the issue of our 2018 logo – the chameleon whiptail, *Pseudohemiodon apithanos* (facing page) We are very privileged to be able to use the artwork of a renowned Japanese hobbyist Mitsuhiro Iwamoto. I think most catfish enthusiasts will have kept a few species of Loricariinae in their time, so the opportunity to hear from some of the world's leading authorities on whiptail catfish is an exciting proposition.

Promoting the Convention is a carefully planned exercise, aiming to release information in a coordinated way to maximise advertising and attract delegates, mainly through the use of social media. As is often the case in such a public forum, the process can be hampered by occasional unconstructive comments and micro analysis of the quality of our outputs. As the main contributor and generator of content to the CSG Facebook forum I have received my fair share of negative feedback over the years and will, as an administrator of the site, take a hard line if unacceptable activity persists or contravenes our code of conduct. I am pretty thick skinned, but recent online threads identifying bullying in aquatic forums indicates the issue is real and all of our members need to be protected from such behaviour.

Trying to keep everybody happy all of the time is always going to be extremely difficult, especially when some members expect a 'service' from the small and extremely hardworking

committee of voluntary members. I can only ask that members entrust the running of the club to those who have been elected into the position of responsibility. Of course, we are always keen to have feedback on our activities and strive to constantly improve the club for the good of all of our members - if you have any feedback or wish to volunteer your services to the committee please contact our secretary through the usual channels.

Readers of the journal will be aware that the content is often derived from a small number of regular contributors. Whilst we would prefer to include more content from members (subject to editorial decisions), material is historically thin on the ground. The Editor works extremely hard to compile the publication, despite his day job(s) and family responsibilities, made more difficult if he is needing to chase contributors or write articles himself. I would encourage all of our members to put pen to paper, or fingers to keyboards, and submit some useful content. Remember, it needs to 'further the study of catfish' (not just idle ramblings) – so don't be upset if the Editor recommends changes (he's not called Editor for nothing!) or even rejects the article. A few errors do creep through the process and I am not immune to typos or misinterpretation. In my article on laser *Corydoras* in the last issue (Volume 18, Issue 2) I omitted some details from the reference to Fuller & Evers Identification of Corydoradinae book which should read: Fuller, I.A.M, Evers, H-G 2005. Identifying Corydoradinae Catfish. Ian Fuller Enterprises; Verlag A.C.S GmbH, 1-373.

As we approach the end of the year, the committee starts thinking about the CSG Annual General Meeting in January. As members will know, the group is coordinated by a relatively small number of very hard working individuals who share the various responsibilities between them. For the right people there may be suitable opportunities as future committee members. Please contact us if you would like to be more involved and the events and products we serve our membership and aquarists everywhere: secretary@catfishstudygroup.org.

Cheers, [Mark](#)

Corydoradinae: their future in science, aquaria and nature.

By David D. Sands PhD and Michael Hardman, PhD



Corydoras duplicareus. Photo: M. Hardman.

Whenever interest is stirred by new research, we are struck by how much remains to discover and how little time we have left to do it. Science, especially taxonomy, genetics, morphology, ethology (behaviour) and ecology, has been alerted to the amazing diversity that *Corydoras* and their close cousins *Aspidoras* and *Scleromystax* surely represent. A new generation of ichthyologists and aquarists are finding this group of small catfishes to be an ideal subject to study evolution. Studies that seek to establish which character traits are modern (i.e., the most-recently evolved) and which are ancestral (i.e., the most primitive) and how the species are related to each other are as fascinating as Darwin's classic study of Galapagos finches.

Who do you think they are?

Genetic research into corydoradine phylogeny (Shimabukuro-Dias *et al.*, 2004; Alexandrou *et al.*, 2011) confirmed earlier results based on morphology (Britto, 2003) in that the fish we

know as *Brochis* (*B. britskii*, *B. multiradiatus* and *B. splendens*) form an exclusive group (or *clade*) that nests well within *Corydoras*, and that *Brochis* is more closely related to another clade of *Corydoras* than either is to other corys. Put another way, some *Corydoras* are closer cousins to *Brochis* than they are to other corys. Thus, by ignoring science (or not being aware of) and continuing to refer to *Brochis* as an equivalent and separate genus to *Corydoras*, a choice is being made to organise knowledge according to an artificial taxon (i.e., *Corydoras* excluding *Brochis*). *Brochis* has been considered a generic synonym of *Corydoras* by the scientific community (e.g., [Catalog of Fishes](#)) but not by popular aquarist websites (e.g., [PlanetCatfish](#) and [CorydorasWorld](#)).

While *Brochis* has been synonymised, other genera have been resurrected. *Scleromystax* was recently 'raised-from-the-dead' and accepted as a valid genus for the bearded corydoradines; *S. barbatus*, *S. macropterus*, *S. lacerdai*, *S. prionotus*, *S. reisi* and *S. salmacis*. This is a

satisfying result from a behavioural viewpoint as at least some members of this genus are reported to spawn in pairs rather than a group. Sexual dimorphism is more pronounced in some species (e.g., *S. barbatus*) and is matched by more competition among males. While these features are not so different from typical corydoradine breeding behaviour, *together* with the placement of eggs into a tight, flame-shaped plaque or cluster similar to many cichlids, they are distinctive traits for this exclusive clade. Referring to that clade as a separate genus informs biologists that one might expect them to differ in other ways yet to be discovered; an important feature of a natural classification.

In addition to resolving the family tree (or *phylogeny*) cytogenetics and DNA sequencing will help clarify the taxonomy of corydoradines, synonymise several species and expose hidden diversity in those polymorphic 'species' with large natural distributions.

One fish, two fish...

Since the start of this millennium, 40 new species of corydoradines have been described; two *Scleromystax*, seven *Aspidoras*, and; 31 *Corydoras*. Much of this work was completed by the late Dr. Joachim Knaack (1933–2012) and by Brazilian ichthyologists Drs. Marcelo Britto, Luiz Tencatt and their colleagues. During his retirement, Dr. Knaack returned to South America and his love of *Corydoras* catfishes. Over a seven-year period he described *C. albolineatus*, *C. areio*, *C. bilineatus*, *C. cruziensis*, *C. isbrueckeri*, *C. longipinnis*, *C. mamore*, *C. negro*, *C. noelkempffi*, *C. pantanalensis*, *C. paragua* and *C. paucerna*.

It's understood that aquarists want a they can use consistently so that everyone understands which catfish is being referred to, located or spawned. This need has led to the creation of the C-, CW- and L-number systems. This temporary labelling system allows exporters, importers, aquarists and scientists to communicate and keep track of those that are awaiting formal description.

To explore the history of corydoradine taxonomy and gauge where the field of science is today, we looked at the number of valid species described during each decade since the first

Corydoras was described in 1794 (*Corydoras punctatus* [Bloch, 1794]). These numbers are plotted as a timeline of new species descriptions (Figure 1).

Figure 1 shows how early pioneers of South American ichthyology, such as Franz Steindachner (1834–1919), Carl H. Eigenmann (1863–1927) and Charles Tate Regan (1872–1943), among many others, began parsing corydoradine diversity according to the few specimens in museum collections in their respective periods.

As the tropics became more accessible and biological exploration increased, material assembled by the late Dr. Han Nijssen (1935–2013) from Suriname, French Guiana, Peru and Ecuador formed the basis of a taxonomic revising of *Corydoras* from the late 1960s and '70s. For the next 25 years, either alone or with colleagues (mainly Dr. Isaac J. H. Isbrücker), Dr. Nijssen was responsible for the description of 63 valid species of Corydoradinae; a third of those that are recognised today!

Although the majority of 20th century research in *Corydoras* relied on professional ichthyologists in European and US institutions, in the 1980s and 1990s, advanced aquarists and others began to participate in new species descriptions. The past twenty years of *Corydoras* taxonomy has become dominated by a new generation of Brazilian ichthyologists employing traditional and modern methods in Brazilian museums and universities.

Figure 1 suggests a fairly constant rate of species description on a 10-year basis, averaging a rate of 2.4 new species per year for the past 50–60 years. The continued description of new species indicates that, providing there are scientists employed to perform the taxonomic research, there is a growing queue of corys that require names.

Some aquarists consider that taxonomy is too slow. Although a thorough description of a new species takes time, it could be argued that this process *must* become faster. If the 50-year average rate of species description continues and at least 75% of the current 300 C/CW code numbers refer to undescribed species, it could take 100 years to describe those we are already aware of. Given the current loss of habitat and environmental degradation, the prospect of

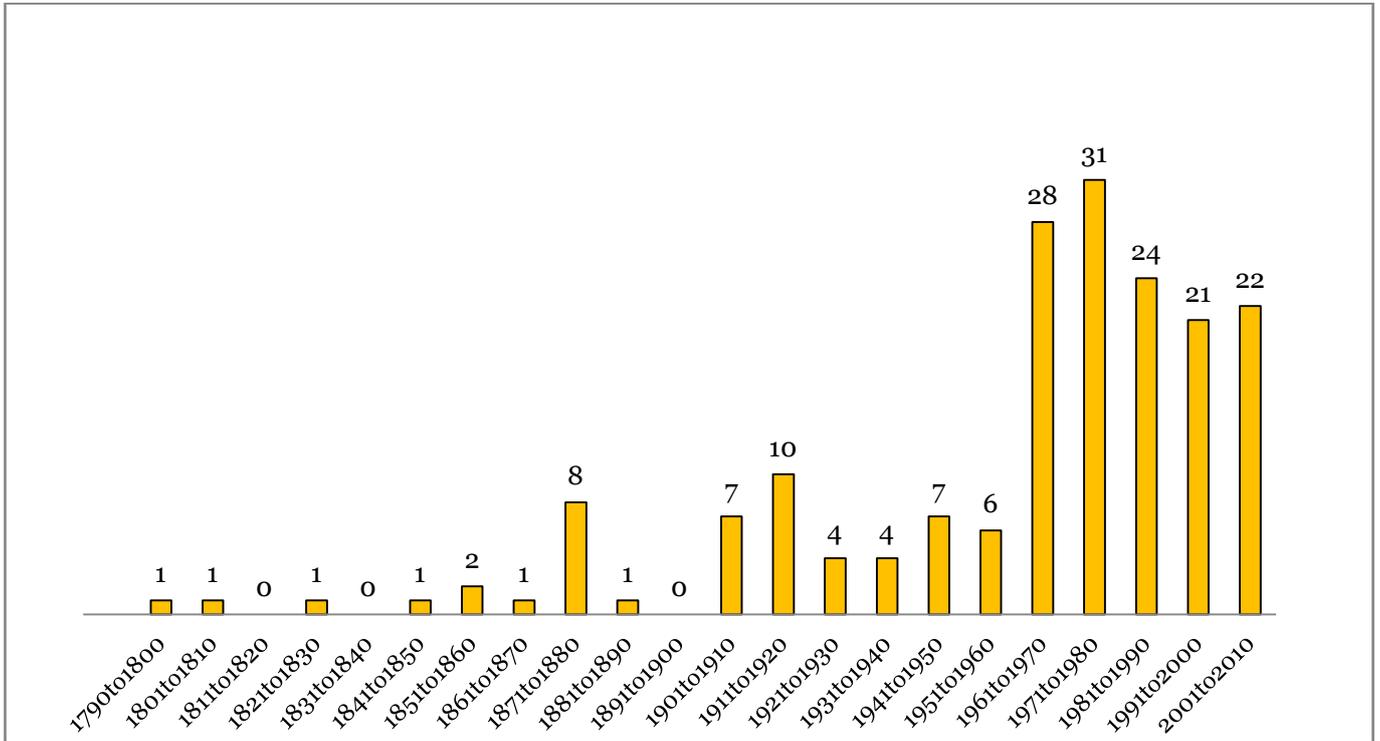


Fig. 1. Number of new species of Corydoradinae described per decade. Note that only species names currently considered valid are included.

species becoming extinct before they receive a name is a very real possibility.

Power to the people

Can the process of new species description be accelerated? Given the complex and nuanced nature of the task, it is unlikely species description can be automated and performed by a robot workforce. The only obvious way to increase the rate is by training and employing more taxonomists. In spite of several initiatives intended to do exactly that, taxonomy has been a discipline in decline for decades.

Although correct identification is of central importance to all of biology, taxonomists often find it difficult to secure research funding when competing against other life scientists. Financial support and career promotions can depend on the number of papers scientists publish per year combined with the prestige of the journals they are publishing them in. Taxonomists often work for years to publish a fantastic monograph in a specialist journal. Many administrators count this as one paper, although it may be several hundred pages long and form a cornerstone of research for many years to come.

Given these issues, the future of *Corydoras* systematics might well lie in the hands of a few

dedicated ichthyologists collaborating with an army of talented aquarists. Initiatives such as the All Catfish Species Inventory (ACSI) have built a database of type images and primary literature so the important first steps of establishing species identities and their validity can be completed without the need to visit museums and handle delicate and irreplaceable specimens. As wonderful as they are, it remains to be seen if the online resources the ACSI project has provided will facilitate an uptick in the species description rate for Corydoradinae.

“Photographs open doors into the past, but they also allow a look into the future.”

– Sally Mann

Dr. Knaack began describing *Corydoras* in the early 1960s when he introduced the classic Mato Grosso species pair of *C. sterbai* and *C. haraldschultzi*. It's not widely known that the bright orange pectoral fins, so iconic for these species, tend to fade in preservative, making the identification of museum specimens difficult and easily confused. Back when the senior author (DDS) imported live fish for the aquarium trade, a shipment of Brazilian *Corydoras* unfortunately did not make the



Taken at the 7th International Ichthyology Congress held in The Hague (The Netherlands), August 26-30, 1991. Left to right: David Sands, Amanda Jane Sands, Mario de Pinna, Lucia Rapp Py-Daniel, Han Nijssen.

journey but were preserved and taken to be studied at the Zoological Collections at the University of Amsterdam. At the time, these catfishes were tentatively identified as *C. haraldschultzi* by Han Nijssen based on their superficial similarity to preserved specimens of that species in the collection. After realising that the pectoral fins of *C. haraldschultzi* are orange in life, and that the new corys' fins were not, DDS took a closer look and found them to be morphologically distinct and described them as *Corydoras araguaiensis* in 1990.



Recent work by Steve Grant in the CSG journal concerning skunk corys is an excellent example of aquarists participating in taxonomy (JCSG 2014, 15:4). Photo: D. Sands

Since then, the development of digital photography and storage, today's field ichthyologists and aquarists can capture live colouration soon after collection and in the aquarium to provide high-quality images in descriptions, helping future taxonomists and aquarists correctly identify their species. This aspect highlights the important role that aquarists can play in observing the behaviours and colouration in live specimens. These data are often inaccessible to scientists that only have access to preserved specimens or tissue samples.

Will the discovery and naming of new corys ever end?

While some of the species described by Knaack were already familiar to aquarists (in some cases for many years), others were not because they originated from areas rarely visited by ornamental fishermen. Nowadays, a sophisticated network of collectors, consolidators and exporters supply an almost insatiable demand for new corys. This industry is making new species available faster than scientists can describe them and, in response to this boom, many novel *Corydoras* are given a C- or CW-code number by aquarists or importers before they are described. As mentioned above,

these systems are useful because they allow the community to buy, sell and discuss new species before they are formally named, but are vulnerable to confusion, duplication and inconsistent application.

At the time of writing (October, 2017), there are 157 C-numbers and 143 CW-numbers currently in use. There are undoubtedly more *Corydoras* species to be discovered in the poorly sampled or remote regions throughout South America. It is highly likely that many form mimetic rings where two or more species share a similar colour pattern. Some may find the diversity of corydoradines overwhelming, but the popularity of these charming little catfishes shows little sign of diminishing.

The end of the world as we know it?

Aquarists and environmentalists often ask if ornamental fishing pressure may eventually drive a species to extinction. Currently, we are not aware of any study that indicates this to be the case for corydoradines. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species released 2012 includes 38 species of *Corydoras* and all except one are categorised as “Least Concern”, although populations of *C. adolfoi* and *C. pastazensis* are considered to be “Declining”. Some species are considered “Stable”, but most are “Data

Deficient”, which means it is not known how their populations are changing, if at all. *Corydoras panda* is listed as “Near Threatened” which indicates that if current trends continue it will soon qualify as a “Threatened” species in nature and would subsequently require further action to conserve.

A much greater and permanent threat to corys in the wild comes from habitat loss resulting from deforestation for cattle grazing, human settlement, hydroelectric dam construction, mining, chemical pollution and eutrophication. These factors, in concert with the effects of climate change on seasonal rainfall cycles, could conspire to decimate Neotropical diversity and drive many of our beloved catfishes to extinction. Realistically, this is a political, social and economic problem that cannot be solved by restricting ornamental fishermen from trying to make a living. On the contrary, responsible development and management of ornamental fisheries may be the *only* way to preserve a habitat and the animals and plants that create it.

Whilst it is reasonable to think of *Corydoras* and other tropical freshwater fishes as a renewable resource to be harvested, a Sword of Damocles hangs over that ideal concept. If a widespread species like cod can be so drastically



Decomposing plant debris leach tannins to create the blackwater typical of the upper Rio Negro in Brazil. Slow-moving sandy streams such as this are home to *Corydoras adolfoi* among many other wonderful catfishes. Photo: D. Sands.

reduced by over-fishing the North Atlantic, then persistent and focused effort on a single species living in a small stream suggests that a catfish species could likely suffer the same fate in a much shorter time. There are known examples of local extirpation of small fish such as the torpedo barb (*Sahyadria denisoni*) in India and red-tailed black shark (*Epalzeorhynchus bicolor*) in Thailand. These two examples have been blamed on ornamental fish collectors, although habitat alteration likely played a role.

Ornamental fisheries based on small K-selected species such as most corys might also be somewhat self-regulating in that, as fishing pressure drives the population down, fishermen subsequently catch fewer fish per work hour and must switch to other targets, areas or activities in an effort to earn the same income. In doing so, the population enjoys some respite and is allowed to recover naturally. This scenario describes a population that experiences extreme fluctuations that were not present in the past and which might disturb an otherwise stable ecosystem, particularly if the target species performs a critical function within it.

Home schooled

Aquarists with a passion for breeding corys can play an important role in conservation, both of the fish and the hobby more generally. The CSG promotes the ethical treatment of all animals in captivity, and its members are some of the most knowledgeable and experienced aquarists on the planet. It hardly needs highlighting that, as responsible aquarists, we should aim to provide our fish with everything they need to reproduce and thrive. The work of CSG members helps to secure rare species in the hobby by distributing captive-bred stock to other aquarists at CSG auctions and sales events. An appealing feature of captive-bred fish is that they are easier to breed in aquaria and, in the case of fecund species, a handful of pairs can produce hundreds of youngsters. This is how *C. panda* became so widely available in the 1980s and 1990s and several pairs of *S. barbatus* DDS imported into the UK from Brazil in 1979 spawned almost continuously to provide a ready supply of this striking species when imports to the UK were incredibly scarce.

The successful spawning of a captive species depends on having a mature group of compatible individuals. In 1978, a small group of *C. acutus* spawned 20 eggs in an aquarium DDS used at the time for catfish photography. All the eggs hatched and the resulting fry developed quickly. If the few corys that had been spawned in aquaria at the time, this was the first from the hook-nosed *acutus* group (nowadays *Corydoras sensu stricto*). The paucity of spawning reports back then was probably because the general tendency was to buy individuals of many species rather than several individuals of the same species. For anything other than the everyday species, cory nuts had to spend hours staring at tanks of new imports to gradually assemble a spawning group for the rare species.

As we developed a better understanding about the diet and captive needs of corys, European and US aquarists made the shift from “stamp-collecting” to one of keeping species separately and in larger numbers with the intention of breeding them. With this change in attitude, the hobby generally took on a more sustainable and positive approach towards the fish in our care.

These days, there are very few widely available species that haven't been spawned. Ideally, we would like to install an artificial stream in a large conservatory that would house a huge mixed-species shoal of mimetic *Corydoras*. This would enable us to observe their behaviour in natural sized groups in a more natural habitat that is still controlled and comfortable enough to spend hours staring into the water. Perhaps it's enough to simply watch them glide across the sand and leaf litter in the aquarium, but one day...

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Catfish Study Group Response to Defra Fishkeeping Consultation Meeting 26/07/2017

The CSG was established in 1973, as the Catfish Association of Great Britain. Although primarily UK-based, it now represents the study of catfish at an international level through its publications, meetings and strong social media presence. The group prides itself on the strong links it has established with the scientific community, through its annual conventions which invite a worldwide audience of aquarists and ichthyologists to share in the latest discoveries, environmental work, genetic research and aquarium-based studies. Its quarterly journal provides a platform for new papers and articles to be presented to its members, edited by a professional ichthyologist.

The small committee which manages the CSG affairs on behalf of its members, comprises members with longstanding aquatic experience and professional qualifications in aquatic biology, including the founder of the largest worldwide catfish website.

The group has a strong ethos to further the study of catfish through its activities, and encourages its members to maintain species in the best possible environments. Its members comprise many accomplished breeders of many hundreds of catfish species, potentially reducing the demand for wild caught and imported fish.

Numerous species are maintained, bred and distributed by our members which are either feared extinct in the wild or have not been imported for many years. Species including members of the Loricariidae (suckermouth catfishes from South America) of genus *Hypancistrus* are noteworthy, including the popular aquarium fish *H. zebra* which has recently been given a CITES listing due to habitat destruction and potential for over exploitation. The species is now maintained, bred and distributed by hobbyists within the aquarium hobby, supplemented by professional fish farms in SE Asia.

Many other catfish species exist in hobbyist tanks which have not been described to science and are feared extinct or significantly

endangered in their native habitat. Undescribed species are not regarded as significant in ecological impact studies for forest clearance, agriculture, urban development, mining operations or hydroelectric schemes and can become extinct before even being recognised to science. Such species include corydoradine catfish of the genus *Scleromystax* (e.g. coded species C112, C113, CW038), which have been maintained in hobbyist tanks since imports were made over 10 years ago (but seldom since). Another *Hypancistrus* species, coded L174, represents an undescribed Loricariidae catfish likely to become extinct due to habitat destruction and is maintained and bred by catfish hobbyists. The expertise and livestock within the aquarist community and the CSG in particular serve as no-cost biological repositories of great value to future re-introduction or conservation programs.

CSG members have been instrumental in identifying new species which have been imported into the hobby, whether through assisting the science community with formal descriptions, or through assigning codes, pending formal description. Of note are species of the families Callichthyidae, Doradidae, Auchenipteridae and Loricariidae. The CSG has supported the identification of new species through its journal and social media platforms. The observation of specific behaviours and spawning details have helped expand the knowledge base concerning fish behaviour of many rare and secretive species poorly known to science. This support for the science community, and biodiversity generally, extends to numerous other web-based catfish groups across the world.

The CSG actively supports the restrictions placed on temperate and cold water species in the UK, and does not permit the sale of such during its events. The latest Defra policy on restricted species has been communicated to members through its journal and social media outlet. The committee is happy to engage with Defra to help formulate policy further, in

identifying species which could have a harmful effect on the aquatic environment in the UK.

The CSG has established firm rules concerning the welfare of live animals transported, sold or exhibited during its events. No banned species, of any fish or plant, are permitted for exhibition or sale during events and the appropriate transport, handling and exhibit of catfish is rigorously managed. No genetically modified, tattooed, diseased, mutilated or otherwise unsuitable fish are permitted in its activities. CSG sales events provide members and other hobbyists to sell and exchange stock and their tank-bred fish, and all funds raised by the CSG in this activity are used to support our events calendar, serve the membership and support junior scientists and students studying catfishes, preferably in developing countries. The CSG supports the OATA guide to keeping fish. We believe it would be worthwhile highlighting the role played by aquatic societies such as the CSG as a source of specialist information on the captive care and culture of certain fish species.

The fishkeepers survey has been posted on the CSG social media platform and completed by over 40 aquarists in the last few weeks.

Concerns for the CSG include the following:

- Legality of the importation and sale of live fish by unregistered traders from residential properties.
- Issuing of pet-shop licences to unregistered traders, undermining legitimate businesses and legitimacy of the hobby.
- UK importation of species restricted by export bans at the country of origin.
- Sales of unsuitable aquarium fish, e.g. *Pangasius*, Red Tail Catfish.
- Feeding of live fish and other vertebrates to piscivorous catfish.
- Distribution of tropical species via courier and postal services.

Mark Walters MSc. BSc.
Catfish Study Group Chairman
29/08/2017



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A new *Corydoras* species of the *undulatus*-complex from the Rio Paraguay drainage

By Mark Walters



Male *Corydoras* cf. *undulatus*. Photo: M. Walters.

I recently pulled together a response to a UK Government consultation on the aquatic hobby and presented some of the great work the CSG does to support ichthyology and other branches of scientific research. This includes the recognition of new species, often 'discovered' in aquatic retailers, and subsequent collaboration with professional scientists to describe the species formally in technical papers. I am lucky to be close friends with Steven Grant, an aquarist who has an uncanny knack for spotting something different in a shoal of fish as well as the subtle departures from expected norms of well-known species.

I regularly visit shops with Steve who is known for having picked out some exceptionally rare species, for example *Acanthodoras depressus* (Doradidae) at Pier Aquatics for Mark Sabaj at our Convention a few years back (CSG Journal 14:2) and also through examining preserved and live specimens established the true identity of the fish we know as *Corydoras arcuatus* (CSG Journal 15:4) - thanks to Steve's work it is currently under formal re-description by Brazilian ichthyologist Luiz Tencatt. Steve

has helped me immensely in identifying and choosing fish in shops, in return for occasional free trips out, although we don't work on that basis!

It was during a visit to the excellent Aqualife in 2016 that we came across some corys which resembled something rarer than their label suggested. Identified as an '*undulatus*' type, it was clear they were something different. Looking carefully, they looked as close as they could to the rarely-seen CW022 – an *undulatus* type from rio Paraguay in southern South America.



Corydoras cf. *undulatus* at six months of age. Photo: S. Grant

CW022 were first imported (as far as I am aware) around 10 years ago by Pier Aquatics and subsequently coded under the Corydoras World (CW-) system. UK professional aquarist Paul Dixon (of Bolton Museum) acquired a group that soon produced good numbers and helped to secure them among European and US aquarists.



Corydoras sp. CW022 juveniles. Photo: P. Dixon.

The attraction of this species when it first appeared was the distinct pattern exhibited by the males, quite unlike that of ‘regular’ *C. undulatus*. Of course, there are a number of other ‘*undulatus*’ types which have been assigned C or CW codes, including Co88 and C132 – with localities extending beyond the reported “Paraguay-Argentina” into Brazilian river systems.



Corydoras undulatus (C132). Photo: S. Grant

Back at Aqualife, Steve had now bought two pairs. After maintaining them for a few months, they were sold on to another top aquarist – Colin Eveson – a very accomplished breeder of corys, plecos and other favourites. It didn’t take too long for youngsters to make their way out of Colin’s fish-house and into the hobby, and I received some youngsters with plans to study their development. I also ended up buying the adult pairs to repatriate them to West Yorkshire!

Colin’s breeding account is as follows:

“Pretty standard cory spawning (September 2016 – 6 months after originally purchased from Aqualife by Steve), 1 female and both males involved after a cool waterchange 48hrs beforehand. She laid in excess of 100 eggs which had a good fertility rate in various areas around the tank. Eggs hatched after 4days. As young fish they do resemble CW22’s but this does begin to change as they near maturity.’

Something new?

On displaying the young and adult fish at the 2017 CSG Convention, they caught the attention of other aquarists who also suggested they could be something new, although by this time the male fish had further developed and become a different fish to CW022. The younger fish in the same tank certainly caught the attention of cory experts who, like me and Steve 12 months prior, thought they looked like CW022.

Despite the initial excitement, and subsequent photos of the fish online, they weren’t regarded as distinct enough from other species to warrant a new code, and the lack of a concrete catch location was a further obstacle.

Without the skills and equipment to carefully examine bone structures, or comparative material of similar species I resorted to doing what I do best and proceeded to breed the fish for myself in order to compare fry development with other records of similar species.

Although seemingly an extreme ask to breed a fish to prove its status, I rarely keep fish without the intention of breeding them so it seemed perfectly logical to me. I was also aware of a European breeder of a closely-related species which my fish had been tentatively identified as, so the potential for a comparison of fry development was within reach.

Breeding account

I knew what to do to encourage my fish to breed. I had maintained them for four months in a tank with a group of *C. gracilis* and a simple air driven sponge filter – so little flow in the tank. A simple move to a new tank on their own, and the addition of an internal power filter, followed by copious feeding of grindle worms and a few cool water changes was all the fish needed to begin pre-spawning behaviour. The



Corydoras cf. undulatus female (left) and male (right). Photos: M. Walters

next day I was rewarded with literally hundreds of eggs placed high on the tank sides.

“Great!” I thought for a few moments, until the realisation of my annual 2 week holiday to Spain swung into view. Normally holiday time is a major gap in my breeding programme, any eggs laid are not usually collected up to a fortnight before holidays, and it usually takes another month for fish to get back into the swing of things, leaving at least a 10-week hole in my breeding calendar.



Corydoras cf. undulatus holding eggs. Photo: M. Walters.

I estimated I had about a week to get the eggs hatched and feeding leaving them to their own devices. Not ideal but I did it anyway, and the day before going abroad released hundreds of wrigglers into the parent tank, along with as much leaf litter, java moss, spawning mops and anything else from other tanks that would harbour micro-organisms to give the fry a fighting chance of survival.

Coincidentally, for this story anyway, I had asked the very same Steve Grant (it’s useful having aquatic icons on your doorstep!) to pop in and feed my fish while I was away. He did do on one occasion so at least there was a bit of a pause in the potential famine in the fish house.

On my return I didn’t expect too much, so after the usual check around the fish house and massive sigh of relief that all was OK in my complicated circulatory systems. I quickly checked the *cf. undulatus* and was pleased to spot a few fry flirting about the substrate. Over the next week or two I realised a few dozen fry had survived the ordeal and these have subsequently grown on, enabling me to document their development.

After posting fry development images on the CSG Facebook forum, I was given further prompts that my fish looked close to Co88, although the absence of many images online or in books made any comparison very difficult. At the same time, Joakim Schön (Sweden) had also been sharing his success breeding what he believed was Co88, providing a great opportunity to compare development over the coming weeks. Joakim kindly gave permission to use his images for the purpose of establishing if our fish were the same species.



Corydoras identified as sp. Co88. Photo: J. Schön.

I have tried to pair images of similar-aged fry to illustrate the development and divergence shown by the two groups of fish. Up to four weeks, both sets of fry shared characteristics



Fry development comparison for *Corydoras* Co88 (left column) and *C. cf. undulatus* (right column) at 4- (upper), 5- (middle) and 6 weeks post-hatching. Photos: J. Schön and M. Walters.

including caudal peduncle pigmentation and lateral markings. After 4 weeks, my fry started to develop the overall marbling pattern, with no distinct lateral or caudal peduncle blotches. Joakim's Co88 fry developed a strong lateral blotch pattern at 5-6 weeks, and less marbling after this time.

The marbling pattern of my fish persists for at least the first six months, as evident from the young fish bred by Colin Eveson and those purchased from Aqualife. The fish then develop more typical *C. undulatus* pattern as adults.

Other species, including Co88 exhibit marbling for a much shorter time during development. It appears that *Corydoras* 'Paraguay' - CW022 retains the marble pattern into adulthood.

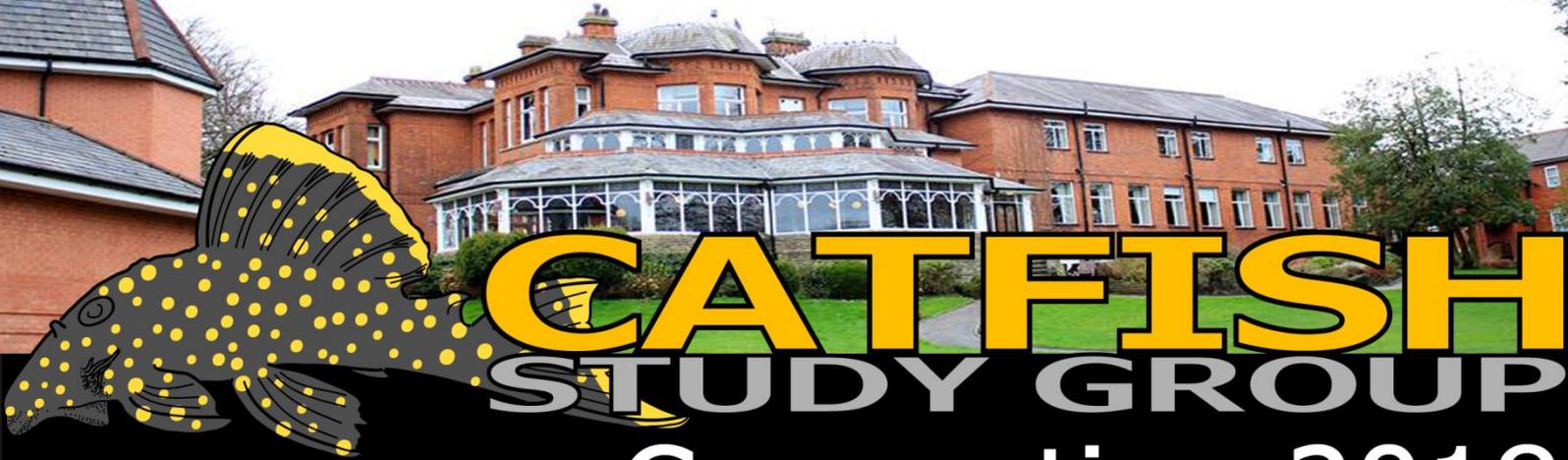
Conclusion

It is accepted that the '*undulatus*' group includes a number of described and undescribed species, or possibly populations of a single species. In my view, the fish described in this article represents a distinct species due to the distinctive patterns shown by fry, juveniles and adults during development.



Corydoras C132 at 6 weeks, for comparison. Photo: M. Walters.





CATFISH STUDY GROUP

Kilhey Court, Wigan
WN1 2XN

Convention 2018

23-25 March

Rupert
Collins

Raphael
Covain

John
Lundberg

Norman
Behr

Michael
Hardman



Joint CSG member talk by Steve Grant, Jamie Horne, Allan James and Richard Smith

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Convention 2018 Speakers



John Lundberg, Ph.D.

Emeritus Curator, Academy of Natural Sciences at Drexel University, USA

John is a systematist and ichthyologist with an active research program on tropical fish diversity and evolution. He received his PhD in 1970 at the University of Michigan, and has 41 years of postgraduate research, teaching and curatorial experience. He has published more than 90 papers in peer reviewed professional journals. He held tenured, full professorships at Duke (1970-1992) and the University of Arizona (1992-2000). He moved in early 2000 to the Academy of Natural Sciences in Philadelphia (ANSP) as Chaplin Chair and Curator of Ichthyology. He holds an adjunct faculty appointment at the University of Pennsylvania (Biology) and a research associate appointment at the Los Angeles County Natural History Museum. He has had US National Science Foundation (NSF) awards that supported exploration and documentation of the deep river channel biotas of the Orinoco and Amazon rivers, the evolutionary history of South American catfishes, and a 5-year global inventory of all species of catfishes. He has been major advisor to 13 PhD students and five postdoctoral scientists. He was President of the American Society of Ichthyologists and Herpetologists (ASIH) in 2009 and continues as a governor in that society. At the Academy he oversees, builds and promotes one of the world's largest and most active research collections of fishes.

As well as exploring the deep history of catfishes across the globe, John has studied

fossil and extant families in North America (e.g., Ictaluridae), Asia (e.g., Siluridae), and South America (e.g., Pimelodidae). John is widely-regarded as one of the foremost researchers working with Siluriformes and in 2010 John received the ASIH Robert H. Gibbs Jr. Memorial Award for Excellence in Systematic Ichthyology. In recognition of his work, other ichthyologists have named six catfish species in his honour (i.e., *Loricaria lundbergi* Thomas & Rapp Py-Daniel 2008, *Microglanis lundbergi* Jardulli & Shibatta 2013, *Prietella lundbergi* Walsh & Gilbert 1995, *Pseudobunocephalus lundbergi* Friel 2008, *Typhlobelus lundbergi* Schaefer, Provenzano, de Pinna & Baskin, 2005) and one species of gymnotiform knife-fish (*Rhabdolichops lundbergi* Correa, Crampton & Albert, 2006).

We are delighted and honoured to welcome John to the 39th Annual Convention of the Catfish Study Group, and look forward to hearing about his latest research.



Norman Behr

Founder of www.loricariinae.com

Norman Behr has kept fish since his childhood. Early on, he focused his interests on catfishes, especially the elongated ones of the subfamily Loricariinae. Over the years he learned a lot of the versatile biology and reproduction of several genera, so he wondered

why this subfamily is so unpopular.

Soon after, he launched the webpage www.loricariinae.com and started giving talks and writing articles about this topic to draw attention to this overlooked group and increase their popularity in the hobby.

Norman has collected loricariines in South America and has focused his work on the lip-brooding species of the *Pseudohemiodon* group.

This will be Norman's first talk at the CSG convention, so please join us in giving him a warm welcome.



mainly concerning the molecular phylogenetics of loricariid catfishes and freshwater fish faunistics of the Guianas. He serves as invited editor of *Cybium* published by the Société Française d'Ichtyologie, and invited reviewer for over 15 international journals.

Raphaël has described *Peckoltia capitulata*, *P. otali*, *P. simulata*, *Harttia fluminensis*, *H. tuna*, *Harttiella intermedia*, *Ha. janmoli*, *Ha. longicauda*, *Ha. lucifer*, *Ha. parva*, *Ha. pilosa*, *Panaqolus koko* and *Ctenoloricaria napova* with his colleague Sonia Fisch-Muller, and *Fonchiiloricaria nanodon* with Mónica Rodriguez and Hernán Ortega.

Please join us in welcoming Raphaël to the CSG podium and we look forward to learning more about his research with catfishes in South America.



Raphaël Covain, Ph.D.

Adjoint Scientifique, Muséum d'Histoire Naturelle, Genève

Raphaël's research employs molecular tools to study the evolution of morphology in catfishes, in particular the Loricariidae. He is also interested in distribution patterns and dispersal processes of freshwater fish more generally. Raphaël has conducted several expeditions to Guyana, French Guiana, Suriname and Peru that have discovered new species and established an important reference collection for the Guianas (20,700 specimens and 12,000 tissues). In 2006, Raphaël was awarded the Ardit Prize in Biology for the best Master's research at the University of Geneva.

Raphaël obtained his MSc in Biology in 2005 specializing in systematic and molecular biology from the University of Geneva. Six years later, he graduated with a Doctorate in Biology and focused on the phylogeny and evolution of a highly diversified catfish subfamily: the Loricariinae. So far, Raphaël has published 16 articles in the academic press (two in review),



Rupert Collins, Ph.D.

Postdoctoral Researcher, University of Bristol

I've been keeping fishes as a hobbyist for close on thirty years, but it wasn't until dabbling online in the early 2000s that after I discovered PlanetCatfish, and it was here that I found a group of like-minded and absurdly well-informed catfish enthusiasts. Inspired by this hive of all things catfish-related, I soon after quit my job as an ecological consultant and started an MSc in taxonomy at the Natural History Museum in London. There I studied the phylogenetic relationships of leaf-fishes and their relatives.

After that I moved to New Zealand---a country with a unique fauna sensitive to introduced species---to complete a PhD on how to use DNA methods to monitor the ornamental fish trade. Next I moved to Manaus in the middle of the Brazilian Amazon for three years

as part of a project to survey major tributaries of the Amazon and investigate the overall biogeography of the region, and in particular how major rivers are a barrier to many organisms, including fishes. During this time I finally got to study some catfishes and helped discover lots of new species including a new *Pseudolithoxus* that I'm in the process of describing (the first one from the Amazon basin). I am also working on the species diversity of piranhas and pacus, as well as the loricariid catfishes of the Xingu and Tapajós rivers (which will be the subject of my CSG talk).

At the moment I'm working at the University of Bristol on a project monitoring the distribution of UK marine fishes using only the traces of DNA they leave in the water. Even with such small amounts of this "forensic" DNA, it's possible to reconstruct the species of a given area, and also monitor their migration and changes in abundance over time.

I'm still keeping catfishes, and currently have a large African themed tank with *Synodontis soloni*, as well as a couple of small blackwater tanks with *Hyalobagrus*.

We are delighted to be welcoming Rupert and we hope you will join us in giving him a warm welcome.



Michael Hardman, Ph.D.

CSG Editor

Michael joined the CSG in the early 1990s and has spoken or written about his interests and experiences with catfishes ever since. Thanks to early advice from CSG convention speakers Drs. Darrell Siebert and Carl Ferraris Jr., Michael took a BSc in Zoology from the University of Manchester to a MSc from Imperial College in 1997 and then a PhD in Animal Biology from the University of Illinois in 2002. Since then, Michael has worked at natural history museum in Los Angeles, London and finally Helsinki, where he has lived for the past 12 years.

Michael has studied catfishes from North America (Ictaluridae), South America (Callichthyidae, Loricariidae, Pimelodidae), Africa (Claroteidae), and Southeast Asia (Siluridae, Sisoridae). Mainly, his research has concerned the phylogenetics and evolution of catfishes, and how climate change and body size have affected diversification through time. Michael is also interested in the evolution of reproductive behavior in catfishes and keeps live fish in aquaria to study this aspect of their biology.

Michael also edits and produces the CSG journal for the group, and is looking forward to attending another convention where he can catch up with old friends and make lots of new ones.



Delegate name (one form per person)	Address and email (address required for hotel residents, email for confirmation of receipt)				
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Convention tickets – please note bookings close after 19/02/18					
	Weekend resident	Saturday Only	Sunday Only	Weekend non-resident*	Enter amount
Early-bird booking (By 21/01/18)	£25	£20	£20	£35	
Later booking (22/01/18 – 19/02/18)	£35	£25	£25	£40	
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Night	Single, Double or Twin	Delegate per night		Enter amount	
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Evening Meal choices – See below for menu options					
Indicate below each course	Starter (1, 2 or 3)	Main (1, 2, or 3)	Sweet (1, 2 or 3)	£25 per meal IF NON RESIDENT – Enter amount	
Friday				£25	
Saturday				£25	
Summary - See below for additional sales					
Additional sales total (see below)					
Subtotal					
If paying by PayPal, add 4% (Subtotal x 0.04)					
Grand Total - ALL payments must be received by 19/02/2018					

Tickets are advance purchase only. 'Weekend' includes Friday's after dinner talk. *The CSG are charged a supplement for refreshments for non-residents. Please contact conventionmanager@catfishstudygroup.org for any special dietary/medical requirements. Dinner on Thursday and Sunday will be from hotel's a la carte menu. 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 treasurer@catfishstudygroup.org for details of the bank account you can pay into.

Dinner Menu Choices

No.	Friday	Choice
	Starter	
1	Cream of vegetable and herb soup with croutons	
2	Salad of goat's cheese, red onion and beetroot herb dressing	
3	Carpaccio of melon, berry compote and coulis	
	Main	
1	Grilled sea bream, new potatoes and chorizo, Mediterranean vegetable and lemon chive vinaigrette	
2	Roast breast of chicken, roast potatoes, seasonal vegetables, bordelaise sauce	
3	Pumpkin tortellini, pesto and spinach cream topped with parmesan	
	Dessert	
1	Classic French lemon tart with clotted cream and raspberry	
2	Sticky toffee pudding, butterscotch sauce, vanilla ice cream	
3	Strawberry cheesecake, mango coulis, and Chantilly cream	
	Saturday	
	Starter	
1	Chicken and vegetable broth with crisp croutons	
2	Smoked salmon, dill and crab tart, dressed leaves and lemon butter sauce	
3	Salad of avocado, pink grapefruit and cherry tomatoes, rocket and watercress	
	Main	
1	Plaice and prawn paupiette with shrimp sauce, fondant potato and buttered cream	
2	Roast loin of pork, apple sauce, sage jus with seasonal vegetables and potatoes	
3	Caramelized red onion and goat's cheese tart vegetables and potatoes	
	Dessert	
1	Warm chocolate brownie, vanilla pod ice cream	
2	Seasonal berry pavlova, fruit coulis and flaked almonds	
3	Cheese selection with fruit chutney and biscuits	

Additional Sales

Description	Price	No.	Clothing size: S, M, L, XL, XXL	Clothing colour choice: black or grey	Total £
<p>Merchandise based on <i>P. apithanos</i> 'Convention logo' and <i>B. xanthellus</i> 'CSG logo' (images below). No clothing orders after 21st January 2018</p>  					
Speaker sponsor and sales table – includes 1 weekend convention ticket plus optional sales table. Limited to 8	£100 - or agreed merchandise equivalent				
Sales table – includes 1 weekend convention ticket. Limited to 8.	£50 - or agreed merchandise equivalent				
Sales tank – Limited to 18	£10				
Polo shirt - Convention logo	£13				
Polo shirt - CSG logo	£13				
Hoodie - Convention logo	£22				
Hoodie - CSG logo	£22				
2018 Convention logo enamel badge	£2.50				
Additional sales Total					

Contact conventionmanager@catfishstudygroup.org for further sponsorship details – all sponsorships include promotion in programme, Journal and one-year-use of CSG Facebook site for business promotions. **Venue:** [Macdonald Kilhey Court Hotel](#), Chorley Road, Standish, Wigan, WN1 2XN, Tel: 0344 879 904

Report on the 2017 CSG Open Show

By Mark Walters and Ann Blundell



Microglanis cottoides Photo: G. Savage.

After a last minute change-of-venue for our show secretary to solve, our hard working committee pulled out all the stops to deliver the 2017 Open Show and Auction. The stats speak for themselves; over 60 attendees, 14 auction lots, 12 exhibitors over 120 entries of top quality catfishes and a record revenue to help fund our 2018 Convention! Best-in-Show went to Gareth Savage of Castleford AS with the most impressive *Microglanis* I have ever seen on the

show bench. The pride of all exhibitors with their success was obvious and each went home with an impressive haul of prizes from our generous sponsors, including Fish Science and Barlow's Aquatic Trading, who each attended with trade stands. Already looking forward to 2018!

Special thanks to our Show Secretary Brian Walsh and all who exhibited, judged and helped run another successful CSG event.

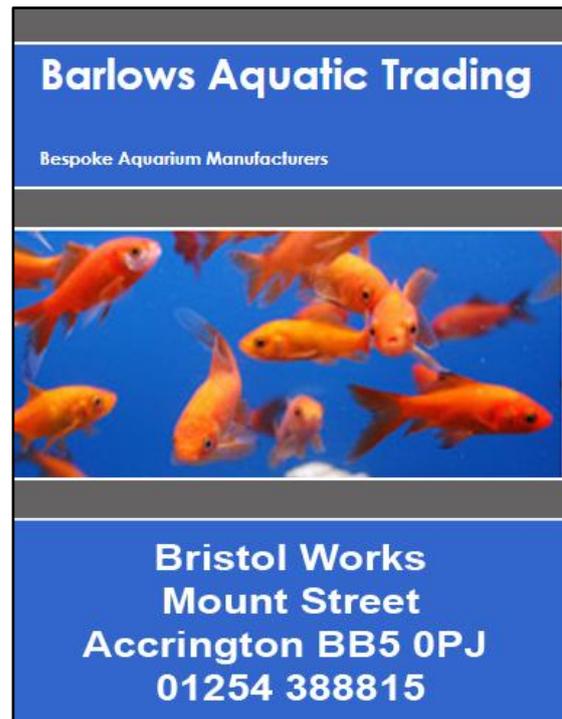


Scenes from the 2017 CSG Open Show. Photos: G. Savage.



Selected entries from the 2017 CSG Open Show. Photos: G. Savage.

Special thanks to our Open Show sponsors [Fish Science](#) and [Barlows Aquatic Trading](#)



2017 CSG Open Show results

Class 1: *ASPIDORAS* (3)

- 1st J. Hetherington, CSG. *A. taurus* 75 pts
2nd J. Benbow, Preston AS. *A. sp.* 73 pts
3rd M. Walters, CSG. *A. sp.* Gold 70 pts

Class 2: *BROCHIS* (3)

- 1st G. Savage, Castleford AS. *B. multiradiatus* 82 pts
2nd M. Kirkham, CSG. *B. splendens* 78 pts
3rd J. Horne, Castleford AS. *A. sp.* Gold 76 pts

Class 3: *CORYDORAS* "A" up to 55mm SL (9)

- 1st M. Walters, CSG. *C. eversi* 80 pts
2nd J. Benbow, Preston AS. *C. sterbai* 78.5 pts
3rd J. Horne, Castleford AS. *C. habrosus* 78 pts

Class 4: *CORYDORAS* "B" over 55mm SL (6)

- 1st D. Speed, CSG. *C. concolor* 84 pts
2nd I. Wallbridge, Bradford AS. *C. concolor* 81.5 pts
3rd I. Wallbridge, Bradford AS. *C. gossei* 80.5 pts

Class 5: *CORYDORAS C & CW/Unid.* (5)

- 1st M. Kirkham, CSG. C123 83 pts
2nd D. Speed, CSG. C123 78.5 pts
3rd J. Hetherington, CSG. C035 78 pts

Class 6: *SCLEROMYSTAX* (3)

- 1st M. Walters, CSG. *S. CW038* 82 pts
2nd J. Horne, Castleford AS. *S. C113* 81 pts
3rd D. Johnson, Preston AS. *S. sp.* 71 pts

Class 7: *AOV CALLICHTHYIDAE* (3)

- 1st M. Kirkham, CSG. *Lepthoplo. pectorale* 80 pts
2nd M. Kirkham, CSG. *Hoplo. punctatum* 78 pts
3rd J. Horne, CAS. *Hoplo. punctatum* 72 pts

Class 8: *ASPREDINIDAE* (5)

- 1st G. Savage, Cas. AS. *Pterobun. depressus* 80 pts
2nd G. Savage, Cas. AS. *Pterobun. depressus* 79 pts
3rd J. Horne, Cas. AS. *Bunoceph. verrucosus* 78 pts

Class 9: *AUCHENIPTERIDAE* (4)

- 1st M. Kirkham, CSG. *Liosomadoras oncinus* **91 pts**
2nd M. Kirkham, CSG. *Trachelyop. taeniatus* 88.5 pts
3rd J. Horne, Cas. AS. *Centrom. macracanthus* 85 pts

Class 10: *BAGRIDAE* (3)

- 1st J. Horne, Cas. AS. *Pseudomystus funebris* 86 pts
2nd M. Walters, CSG. *Batasio fluviatilis* 83 pts
3rd J. Horne, Cas. AS. *Mystus tengara* 75 pts

Class 11: *DORADIDAE* (6)

- 1st G. Savage, Cas. AS. *Acantho. cataphractus* **90 pts**
2nd G. Savage, Cas. AS. *Rhinodoras dorbignyi* 89 pts
3rd M. Kirkham, CSG. *Anadoras grypus* 88.5 pts

Class 12: *LORICARIIDAE* up to 130mm (6)

- 1st J. Hetherington, CSG. *Hemiloricaria sp.* 82.5 pts
2nd J. Benbow, Preston AS. *Hemiloricaria sp.* 82 pts
3rd I. Wallbridge, Bradford AS. *Parotoc.* "Peru" 81.5 pts

Class 13: *LORICARIIDAE* over 130mm (1)

- 1st D. Speed, CSG. *Hemiancistrus sabaji* 89 pts

Class 14: *L&LDA-numbers* up to 130mm (6)

- 1st M. Walters, CSG. *Peckoltia braueri* 86 pts
2nd D. Speed, CSG. *Panaqolus Loo2* 85 pts
3rd D. Speed, CSG. *Spectracanthicus L038* 84 pts

Class 15: *L&LDA-numbers* over 130mm (2)

- 1st D. Speed, CSG. *Leporacanthicus L240* **90 pts**
2nd M. Walters, CSG. *Peckoltia L076* 85 pts

Class 16: *MOCHOKIDAE* up to 130mm (3)

- 1st D. Speed, CSG. *Mochokiella paynei* 87 pts
2nd B. O'Neill, CSG. *Microsynodontis sp.* 85 pts
3rd B. O'Neill, CSG. *Microsynodontis polli* 84 pts

Class 17: *MOCHOKIDAE* over 130mm (7)

- 1st J. Horne, Cas. AS. *Synodontis angelicus* 89 pts
2nd M. Kirkham, CSG. *S. lucipinnis* 88 pts
3rd D. Johnson, Preston AS. *S. flavitaeniatus* 80 pts

Class 18: *PIMELODIDAE* up to 100mm (6)

- 1st G. Savage, Cas. AS. *Microglanis cottoides* 88 pts
2nd D. Speed, CSG. *Microglanis iheringi* 87.5 pts
3rd G. Savage, Cas. AS. *Microglanis cottoides* 87 pts

Class 19: *PIMELODIDAE* over 100mm (1)

- 1 G. Savage, Cas. AS. *Batrachoglanis sp.* "Peru" 82 pts

Class 21: *AOV CATFISH – SOUTH AMERICAN* (3)

- 1st J. Horne, Cas. AS. *Cetopsis orinoco* 87.5 pts
2nd J. Horne, Cas. AS. *Phenacor. nigrolineatus* 85.5 pts
3rd J. Horne, Cas. AS. *Ituglanis laticeps* 85 pts

Class 22: *AOV CATFISH – AFRICAN* (9)

- 1st D. Speed, CSG. *Pareutropius buffei* 81 pts
2nd J. Horne, Cas. AS. *Phyllonemus typus* 80 pts
3rd J. Horne, Cas. AS. *Pareutropius buffei* 78 pts

Class 23: *AOV CATFISH – ASIAN* (3)

- 1st D. Speed, CSG. *Akysis longifilis* 84 pts
2nd G. Savage, Cas. AS. *Pseudolaguvia muricata* 83 pts
3rd G. Savage, CAS. *Hara filamentosa* 82 pts

Class 24: *PAIRS – CORYDORADINAE* (3)

- 1st M. Walters, CSG. *Scleromystax CW038* 87 pts
2nd D. Speed, CSG. *C. napoensis* 84 pts
3rd J. Hetherington, CSG. *Scleromystax lacerdai* 78 pts

Class 25: **PAIRS – LORICARIIDAE inc L&LDA-numbers (1)**

1st M. Walters, CSG. *Peckoltia lujani* 83 pts

Class 26: **PAIRS – AOV SOUTH AMERICAN (3)**

1st G. Savage, Cas.AS. *Bunocephalus verrucosus* 88 pts
2nd J. Horne, Cas. AS. *Bunocephalus larai* 84 pts
3rd J. Horne, Cas. AS. *Entomocorus gameroi* 78 pts

Class 27: **PAIRS – AOV AFRICAN (1)**

1st J. Horne, Cas. AS. *Synodontis schoutendeni* 75 pts

Class 28: **PAIRS – AOV ASIAN (1)**

1st M. Walters, CSG. *Batasio fluviatilis* 84 pts

Class 29: **BREEDERS–CORYDORADINAE (3)**

1st M. Walters, CSG. *Scleromystax* CW038 81 pts
2nd M. Walters, CSG. *Corydoras* CW010 75 pts
2nd D. Blundell, CSG. *Corydoras weitzmani* 73 pts

Class 30: **BREEDERS–LORICARIIDAE L&LDA (8)**

1st D. Blundell, CSG. *Panaqolus* L397 83 pts
2nd T. Gargan, CSG. *Hypancistrus* L201 82 pts
3rd T. Gargan, CSG. *Hypancistrus* L066 81.5 pts

Class 31: **BREEDERS – AOV S. AMERICAN (2)**

Sponsored by D. Blundell

1st I. Walbridge, Bradford AS. *Tatia intermedia* 86 pts
2nd J. Horne, Cas. AS. *Bunocephalus larai* 77 pts

Class 34: **FAMILY – Pair & Breeders Team (3)**

1st M. Walters, CSG. *Scleromystax* CW038 168 pts
2nd J. Horne, Cas. AS. *Bunocephalus larai* 162 pts
3rd M. Walters, CSG. *Peckoltia lujani* 161 pts

Class 35: **BREEDERS – MASTER CLASS (2)**

Ted Derrick Memorial Trophy

1st M. Walters, CSG. 238 pts
2nd D. Blundell, CSG. 237 pts

TROPHY WINNERS 2015

Best in Show

Sam Trophy

G. Savage, Cas.AS. *Microglanis cottoides* Class 18
M. Walters CSG. *Corydoras eversi* Class 3
D. Speed, CSG. *Akysis longifilis* Class 22

Best Corydoradinae [Classes 1-6]

Yvonne Cank Memorial Trophy

D. Speed, CSG. *Corydoras concolor* Class 4

Best of Classes 7-11

Masterstaff Cup

M. Kirkham, CSG. *Liosomadoras oncinus* Class 9

Best Loricariidae [12-15]

Masterstaff Trophy

D. Speed, CSG. *Leporacanthicus* L240 Class 15

Best Synodontis [16-17]

L.M.B. Aquatics Shield

J. Horne, Cas. AS. *Synodontis angelicus* Class 16

Best Pimelodidae [18-19]

S & P S Cup

G. Savage, Cas.AS. *Microglanis cottoides* Class 18

Best AOV Catfish [20-23]

AOV Catfish Cup

J. Horne, Cas. AS. *Cetopsis orinoco* Class 21

Best Pair [24-28]

Clint Cup

G. Savage, Cas.AS. *Bunocephalus verrucosus* Class 26

Best Breeders Team [29-33]

Kings Carpets Trophy

I. Wallbridge, Bradford AS. *Tatia intermedia* Class 31



CSG Autumn Auction

Sunday 19 November 2017

Derwent Hall, Darwen, Lancs. BB3 0DQ

Contact Mark Walters or check

catfishstudygroup.org and [Facebook](https://www.facebook.com/catfishstudygroup) for details



Hanover, 27th - 29th Oct. 2017

5. INTERNATIONAL L-NUMBER-DAYS

Unique schedule of talks with
lots of well-known speakers:

Hans-Georg Evers
Haakon Haagenzen
Daniel Konn-Vetterlein
Mark Henry Sabaj Pérez
Ingo Seidel
Leandro Sousa
Andreas Tanke
and many more ...



All talks are given in English and German



Aquarium
Münster



PANTARHEI
Aquaristik im Rhythmus der Natur



Registration and agenda: www.l-number-days.eu



Hanover, 27th - 29th Oct. 2017

5. INTERNATIONAL L-NUMBER-DAYS



Convention Packages

A) Convention Package "Complete":

Friday:	Dinner Buffet	(22,50 €)
Saturday:	Lunch Buffet	(22,50 €)
	Coffeebreak with Cake	(7,50 €)
	Barbecue Dinner Buffet (Meat & vegetarian)	(30,00 €)
Sunday:	Lunch Buffet	(22,50 €)
Misc.:	Participation Fee (all Days)	(45,00 €)
	Convention T-Shirt	(15,00 €)
	Convention Magazine	(12,00 €)

Purchased individually: 177,00 €

Packageprice: 150,- €

Early Bird Price: 125,- € (until 30/04/2017)

B) Convention Package "juveniles"¹⁾:

Same like **Convention Package "Complete"**

Purchased individually: 177,00 €

Packageprice: 95,- €

Early Bird Price: 75,- € (until 30/04/2017)

C) Convention Package "BSSW-Member"²⁾:

Friday:	Dinner Buffet	(22,50 €)
Saturday:	Lunch Buffet	(22,50 €)
	Coffeebreak with Cake	(7,50 €)
	Gala Dinner Buffet (Meat & vegetarian)	(30,00 €)
Sunday:	Lunch Buffet	(22,50 €)
Misc.:	Participation Fee (all Days)	(45,00 €)
	Convention T-Shirt	(15,00 €)

Purchased individually: 165,00 €

Packageprice: 125,- €

Early Bird Price: 105,- € (until 30/04/2017)

D) Convention Package "Friday":

Friday:	Dinner Buffet	(22,50 €)
Misc.:	Participation Fee (Friday)	(20,00 €)
	Convention T-Shirt	(15,00 €)
	Convention Magazine	(12,00 €)

Purchased individually: 69,50 €

Packageprice: 60,- €

E) Convention Package "Saturday":

Saturday:	Lunch Buffet	(22,50 €)
	Coffeebreak with Cake	(7,50 €)
	Gala Dinner Buffet (Meat & vegetarian)	(30,00 €)
Misc.:	Participation Fee (Saturday)	(30,00 €)
	Convention T-Shirt	(15,00 €)
	Convention Magazine	(12,00 €)

Purchased individually: 117,00 €

Packageprice: 95,- €

F) Convention Package "Sunday":

Sunday:	Lunch Buffet	(22,50 €)
Misc.:	Participation Fee (Sunday)	(20,00 €)
	Convention T-Shirt	(15,00 €)
	Convention Magazine	(12,00 €)

Purchased individually: 69,50 €

Packageprice: 60,- €

Venue and Accommodation:

Hotel Hennies
Altwarmbüchen

Single room: 60,- €,
Double room: 85,- €,
incl. Breakfast

Hotel Hennies, Hannoversche Str. 40, 30916 Isernhagen
Tel. +49 5 11/9 01 80, www.hotel-hennies.de

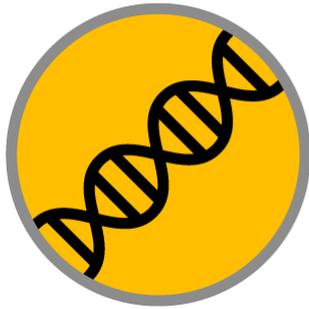
Duration of Convention:

Friday 6 p.m. until Sunday appr. 1 p.m.

¹⁾ just bookable for children and teenager up to 18 years old (reference date: 27.10.1999)

²⁾ membership in organizing IG BSSW e.V. is required
(annual subscription: 30,00 Euro) – www.ig-bssw.org

Registration and Program: www.1-number-days.eu



CATFISH STUDY GROUP

Research Support Fund

In an attempt to enhance the role that the CSG plays in supporting research into catfishes and to foster a closer relationship between scientists and aquarists, the committee is proposing a Research Support Fund (RSF) be established in 2018. The RSF will provide small sums (e.g., £500) to students and other researchers to support fieldwork, museum visits, laboratory work and page charges in peer-reviewed journals. Award recipients will agree to provide two articles for the CSG journal OR present their research at a CSG event via poster or talk. Like any new program, the RSF is a work in progress and we welcome the input of subscribing members. Email us at: secretary@catfishstudygroup.org

Where does the money come from?

RSF awards will be drawn from journal subscriptions, advertising revenue, member and corporate contributions, back issue purchases, donated auction lots and other fund-raising activities.

How often will we make awards?

We will invite applications on an annual basis in September, with the successful applicant(s) being announced via social media and at our annual convention the following March.

Who is eligible to apply?

Initially, we will open this to students and junior researchers. The committee discussed opening the competition to advanced aquarists, and we may try this in the future. But for now, we will invite applications from those enrolled or working with catfishes in a registered school, university, research institute or natural history museum. Applicants must be at least 18 years old at the time the award is made.

What items, services or expenses should the award be used for?

Awards will be used to offset travel costs for fieldwork (e.g., specimen collecting, museum visits or environmental measurements), equipment purchases (e.g., nets, meters, cameras, lenses, aquaria, lab consumables, software licenses, etc.), services (e.g., DNA sequencing and genome assembly, page charges in journals) and possibly the purchase of specimens (e.g., for observation, DNA samples, etc.).

What do we need in an application?

The application will involve completing an electronic form available from the CSG website. The form will include a brief description of the intended research project or trip, an itemized budget and a brief explanation for how the award will enable or enhance the work.

How will applications be judged?

The committee and invited reviewers will independently review applications and assign scores on the basis of their merit, feasibility and appeal to CSG members. Scores will be assigned and the highest ranked application(s) will be funded in full or to the maximum amount available. None, one, or more than one application may be funded during each cycle. In the event that no applications are received or less than the maximum amount is awarded, the RSF will transfer funds to the next cycle and increase the number or size of awards accordingly. Finally, in order to receive the award, the successful applicant must agree to provide two articles for the CSG journal describing their project, its results, and how the award helped them in their work, or a talk or poster to be presented at a future CSG event.

A close-up photograph of two snails on a green leaf. The snail in the foreground is larger and has a dark, textured shell with a prominent spiral. The snail in the background is smaller and has a lighter, smoother shell. Both snails have their heads and antennae extended. The background is a soft, out-of-focus blue and green, suggesting an outdoor setting.

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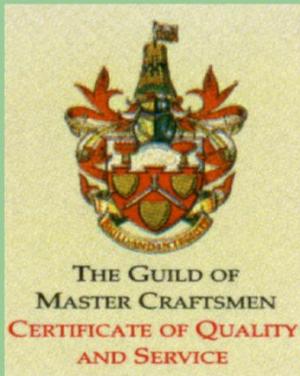
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