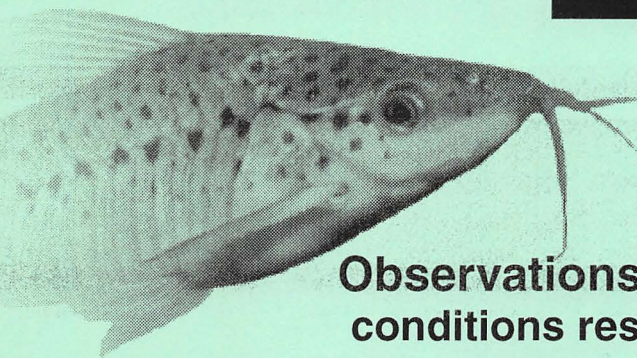


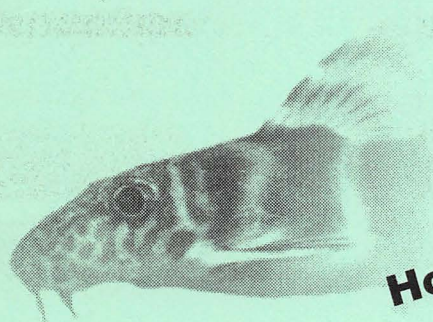
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The Journal of the Catfish Study Group (UK)

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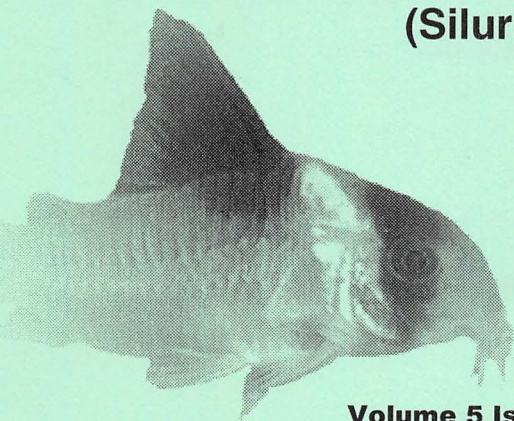


Observations on the behaviour of and conditions resulting in the spawning of *Centromochlus perugiae*



How Long Do Catfish Live ?

The striped catfishes of the genus *Mystus* Scopoli, 1777
(Siluriformes: Bagridae)



Project Report

Volume 5 Issue Number 2
June 2004

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ACKNOWLEDGEMENTS

Front Cover: Original Design by Kathy Jinkins.

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From the Chair



Welcome everyone to Cat Chat's second issue of Volume 5. This quarter started in March with our Annual Convention and this year's event was held at a new and improved venue with a complete change of speakers from our original schedule.

The Convention, as usual, drew a good crowd and all in all was a very successful day both in terms of enjoyment for those who attended and financially for the Group.

We did yet again suffer from a malfunctioning heating system but I have been assured that it was a one-off occurrence and that for next year's Convention everything will be in full working order. The next Convention, in 2005, will be held on the third Sunday in February, as it used to be. This decision was made because of the clashes with Mothering Sunday and the possibility of the Easter weekend which is ever changing.

Unfortunately I was unable to attend the April meeting but attending members enjoyed Part 2 of The Flooded Forest which is about the rainy and dry seasons of the Amazon basin and the effects it has on the surrounding areas.

In May we had a very interesting meeting where members brought along several catfish for our Showing/Judging symposium. Our Show Secretary and Chairman of the FNAS Judges & Standards Committee, Brian Walsh, explained the various areas that judges looked at when assessing the merits of a fish and explained how the pointing system worked. Many questions were asked and points discussed, some at great length and I am sure that the members there who enjoy the competitiveness of showing their fish gained some valuable knowledge that will help them at future shows.

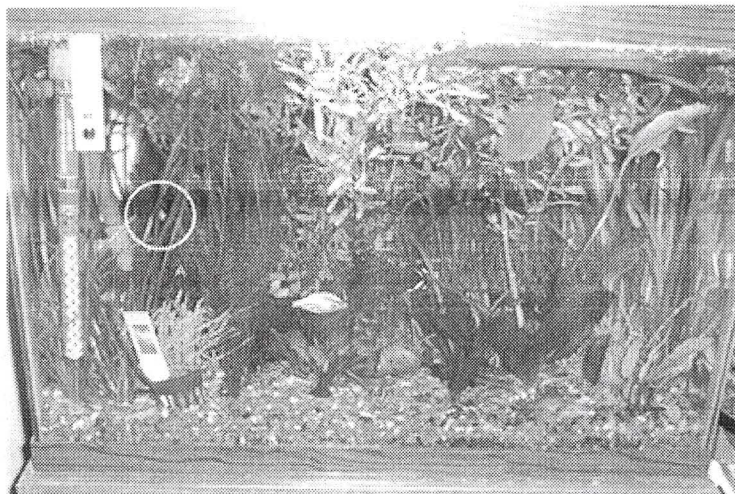
Ian Fuller

Observations on the behaviour of and conditions resulting in the spawning of *Centromochlus*

Centromochlus perugiae is a member of the family *Auchenipteridae*. Known as Perugiae's woodcat, it is perhaps one of the most aesthetically pleasing of the driftwood cats, having black honeycomb markings on a white body. *Centromochlus* are sexually dimorphic - males have a modified anal fin that serves as a copulatory organ, while females retain a normal, rounded anal fin. Fertilization is internal.

Their size, non-aggressive behavior and indiscriminate feeding habits make *C. perugiae* an excellent, though mostly invisible, addition to smaller sized community tanks. Because of their striking appearance, I sought to obtain a male and female for an established 20g (24"x12"x16") freshwater planted aquarium already stocked with 2 *Hypancistrus zebra*, 6 *Corydoras robineae*, 2 *Otocinclus vitattus*, a pair of *Apistogramma cacatuoides*, 3 *Melanotaenia praecox* (2 males, 1 female), 1 *Trichogaster leeri* (male) and 1 Atyid shrimp (thought to be *Atyopsis gabunensis*).

A male *perugiae* (assumed to be approximately 4-6 months of age) was acquired from a retail store in Columbus, OH, USA in December 2001. Upon placement in the tank, he attempted to take refuge in a crack in a piece of Malaysian bogwood (circled section of above photo). Appearing to use his pectoral fins as a type of saw, he worked continuously for about a month to enlarge the crack until his entire body fit in the crevice. This behavior was observed multiple times daily, almost exclusively during daylight hours. At the beginning of March 2002, a female *perugiae* (also thought to be around 4-6 months of age) was obtained from the same retail establishment. Almost immediately upon her introduction to the tank, she "forcibly" removed the male from his hard-earned home by pushing at his head and body with her head. He, in turn, took up residency beneath the bogwood, where he was never observed prior to the female's arrival (site "A" in above picture).



Both *perugiaes* were maintained on a diet of Sera viformo catfish tablets (2 daily), Sera GVG mix flake food (once daily), frozen bloodworms and live blackworms (occasionally). Temperature was consistently between 24 and 26 degrees Celsius. Water chemistry was: pH 6 to 6.5, dKH 0-3, nitrate between 2 and 5 mg/L. Thirty percent water changes were carried out weekly with source water of pH 7.5 to 7.8, dKH 2-4.

The tank was filtered by an Eheim 2215 canister and a Tetra sponge filter. It was outfitted with 2 pieces of Malaysian bogwood and densely planted with *Rotala wallichii*, *Hygrophila polysperma*, *Sagittaria subulata*, *Ludwigia repens*, *Valisneria americana*, *Microsorium pteropus*, *Echinodorus sp.* and *Ceratopteris thalictroides*. Light was provided by a 55 watt power compact unit, a 20 watt Triton bulb (Intrepit) and natural daylight.

Around August-September of 2001, the male *perugiae* made numerous attempts to enter the crevice of the bogwood with the female. This usually occurred at the conclusion of feeding, which was conducted just prior to the lights being turned off in the evening. The male and female would both emerge from their separate living quarters to feed, then the male would try to retire with the female. He was unsuccessful until late September, at which time, both *perugiaes* could be seen facing outward from the crevice, one on top of the other.

In November 2001, approximately 60-80 fry sized 3-4mm were spotted congregating in the *Ceratopteris* at

the surface. They appeared to be exact replicas of the parents minus the complete pigmentation, but exhibiting the same swimming patterns. It is interesting to note that the fry always oriented towards the light, though that may be explained by the presence of potential predators lower in the water column or by the shelter provided by the *Ceratopteris*, or perhaps a preference to feed at the surface.

Sera Micropan fry food was fed 2-3 times daily and appeared to be eaten, however, attempts to rear the fry were unsuccessful, and by January of 2002, none remained. The fry were never found to be emaciated, though it is possible that larger quantities or different types of foods should have been provided, as it seems likely that the species has a high metabolism.

For future attempts at rearing *Centromochlus perugiae*, moving fry to a smaller rearing tank and feeding a variety of foods as many times a day as possible would likely result in a (higher) yield. As for inducing spawning, others have mentioned that slightly hard water is more conducive, though it seems the most important factor is probably the maintenance of good water quality, regardless of pH and hardness, presence of a secluded area for eggs to be deposited and conditioning healthy fish with nutritious foods.



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How Long Do Catfish Live ?

Dr Peter Burgess asked the audience at the CSG (UK) Convention this year for help with the answer to a question 'How long do catfish live?'

While any answers to the question would not likely to be based on any scientific research nor give an indication to the life expectancy of catfish in the wild it would give anecdotal evidence to life expectancy in the aquaria

There are of course a number of external factors that affect the fishes life expectancy the majority are within the control of the owner. The life expectancy of a cool water catfish e.g. *C. kronei* in water temperatures that are favourable to discus is going to be a lot less than that in the wild

Equally a two to three inch *Phractocephalus hemiliopterus* kept in a 36 inch tank would not be expected to 'live long and prosper' Just because some catfish can take in oxygen from the air it does not mean water conditions can be left unchecked and water unchanged without impact on life expectancy.

I could go on but I'm sure you understand your responsibilities.

This said it is hard for me to answer the question Dr Burgess asked as I have not kept a detailed record of purchases, expect for some specimens that I will keep a record of and report on through the magazine.

Catfish #1

In July 1998 I caught a single specimen of what looks like L 95 *Pseudorinelepis pellegrini* (DAS Grosse buch der Welse C Schaefer 1996 page 236), although it has not grown as big, in a 'cocha' in Peru it was less than an inch long at the time so was defiantly that years spawning. This fish then spent 15 months growing in a 48 by 12 by 15 inch tank before being moved into new accommodation in a 76 by 24 by 24 in my then new fish house where it has lived ever since making it nearly six years old and is 8 inches total length at the time of writing not long enough to put it in any fishy book of records but it is a fish I know the history of.

July/August 2000 saw another trip to Peru and two different catfish species are still with me now

Catfish #2

Hypotopoma sp, this nice little fish has been in various tanks since it arrived and is currently spending it's time cleaning up the glass in a 36 by 15 by 15 tank with some Angels *P. leopoldi* and catfish #3 if like catfish #1 it was hatched in 2000, I have no doubt of this because of it's size when brought home and the growth it put on in it's first year, it is now coming up to 4 years of age.

Catfish #3

When it comes to store/auction brought fish I have not kept any records as I usually buy groups of fish for breeding projects and move them on before they are too old and aquarium space is required

I have asked the question of the members through the CSG (UK) forum page and to date had one reply, thank you Allan. Looking at the Planetcatfish speakeasy forum someone there has had better response with a reply stating the he has *Mochokiella paynei* which were brought in 1986.

This year I'm going back to Peru again so maybe I'll get some more to keep a record of.

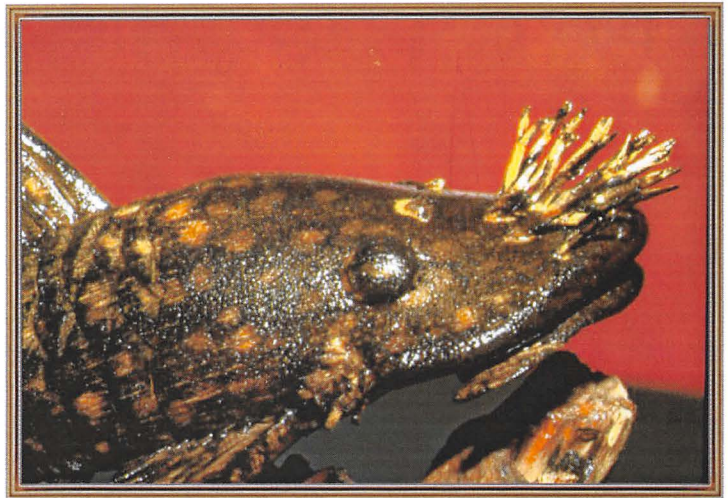
So come on let us know what is oldest catfish you have, even if it's just a few lines, I'm sure the editor will appreciate the input.

Steve Pritchard

Ed: We're talking about the longevity of any catfish, not a specific family. If you know of one that has lived a long time from when it was purchased or caught, please tell me and your tale will be told in this journal.

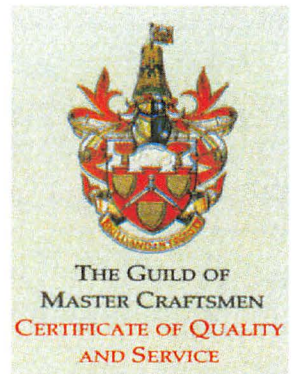


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The striped catfishes of the genus *Mystus* Scopoli, 1777 (Siluriformes: Bagridae)

By Steven Grant

This article has been written for aquarists and, to a degree, ichthyologists, to contribute towards resolving the identity and validity of the **striped** bagrid catfishes of the genus *Mystus* Scopoli, 1777. I say contribute towards as to attempt to finally resolve generic placements and give defining characters for all species is something only an ichthyologist could do as it is a huge task. Jayaram & Sanyal (2003) have attempted this but still finally elected to lump them all under *Mystus* pending further study (although they accepted in their Addenda that many of the species they covered should be included in *Hemibagrus* Bleeker, 1862).

Having disregard to the species that belong in *Hemibagrus*, *Mystus* is currently a genus containing at least two, possibly more, groups of species that will probably be split into separate genera at some point. Roberts (1994) split the genus into two groups based on several features. The ones that can be used for living fishes were the relative height and length of the adipose fin, length of the maxillary barbels, the shape of the caudal fin, and whether or not the fontanel (a gap/space in the structure of the top of the skull) is split by an epiphyseal bar (basically making it look like one, or two elongated grooves on the top of the head – see Plat X Fig. 33). The split can be a complete split or the bar can appear as an indent which does not fully split the groove.

He restricted *Mystus* to the species with long and high adipose fins, long maxillary barbels, deeply forked caudal fins (with upper lobe being longer) and with the split fontanel. He did not propose any generic name(s) for the remaining species. Jayaram & Sanyal (2003) felt that more of the species could be included in the *sensu stricto* group to the ones included by Roberts, and felt that some of his characteristics were unreliable.

There is a generic name that already exists which could be resurrected in the future for some of the remaining species: *Aspidobagrus* Bleeker, 1862. Recent authors have mentioned *Hypselobagrus* Bleeker, 1862, but if one follows Roberts (1992) work on the synonymy of its type species, this genus would be a synonym of *Mystus*. Looking at the morphology of what is currently considered to be the type species of *Mystus*, I personally doubt how it can be included as

belonging to the same morphological group as the species Roberts (1992) lists in *sensu stricto*. Basically its still a bit of a mess and I think that for the time being they will have to be referred to as *Mystus*, but I wouldn't bet against *Hypselobagrus* and/or *Aspidobagrus* being resurrected.

With all the species I have tried to get images of the preserved type specimens and/or reproduced the original drawing if one was provided. The reason I have done this is that I have found that unless one refers to the type specimens or drawings of them, one cannot be 100% sure that you are talking about the species in question. I appreciate that for some people images or drawings of dead, sometimes now colourless, fish may not be the best way to assist in identification but misidentifications have been made previously and I feel this is the safest way. However, even with type material to refer to, some of the multi-striped species are still difficult to tell apart when looking at live fish, and sometimes one has to use the morphology of the fontanel (which is not easy in live fish) and supra-occipital process (a bony extension of the skull which extends towards the 'basal bones' of the dorsal fin). Sometimes the length, placement and height of the adipose fin in combination with maxillary barbell length and body pattern are a good defining character.

Roberts (1992) separates the 'shoulder spot' into two types. In some species it is a spot or a dark area, whereas in some species it is a semi-ocellus as it has a dark or black spot with a pale or bright imperfect ring around it:

Humeral semi-ocellus / spot

Placed immediately above the humeral process, which is a bone on the body immediately after the shoulder girdle in which the pectoral fin spine is inserted. The humeral process projects backwards and sometimes is angled upwards.

Tympanic semi-ocellus / spot

The spot overlays the tympanum, which is a membranous covering of the swim bladder. The tympanic semi-ocellus / spot is usually posteriorly further along the body in comparison with the humeral semi-ocellus/spot, and is usually bigger.

But for some species the only definite differences are that of measurements and proportions (morphometrics) and also counts of gill rakers, vertebrae etc (meristics). Obviously I have not mentioned these differences as they are useless for most users of this article.

I hope this article will go some short way in assisting anyone interested in the identification of this 'group' of catfish.

Mystus albolineatus Roberts, 1994

See Plate I Fig. 1 of holotype CAS 79030 which originated from Prachinburi Market, Bangpakong basin, Thailand, but the species is also present in the lower Mekong basin, Cambodia. Largest type specimen is 13.5 cm SL. See also Fig. 2 of a paratype ANSP 16453.

This species has a white or pale stripe running along the lateral line. The stripe is bordered above and below by dark patterning. Some specimens have a dark spot at the dorsal fin base; some a small dark triangular spot at the middle of the body near the base of the caudal fin (midpeduncular spot); some with a humeral semi-ocellus.

Can be visually distinguished from other species by combination of a very long adipose fin which originates more or less directly after the dorsal fin, very long maxillary barbells which extend at least to the posterior point of the body, the white lateral streak, and the caudal fin lobes curling inwards.

Mystus armatus (Day, 1865)

Day described this species as new in 1865a from rivers and backwaters of Cochin, India, but did not include any details regarding its colour or pattern, but did thankfully say (amongst other morphological details) that the base of the adipose fin equalled that of the anal fin, the supra-occipital reached the basal bones of the dorsal fin, and the fontanel almost reached the origin of the supra-occipital process.

In 1865b he used the same morphological information but went on to say that the colour and pattern was "Bright leaden silvery, lightest along the sides and with a purplish gloss over the cheeks. A black spot just **anterior to the root of the dorsal spine**. Fins finely dotted with minute black points." He then stated that the adipose fin commenced a short distance anterior to that of the anal fin.

Unfortunately no figure was published of the whole fish and as yet the type specimens have not been correctly located although BMNH 1865.7.17.21 may constitute one of the syntypes (one of a number of type specimens originally used by Day), on the other hand it may be the specimen used by Day in 1865b.

There is no mention of stripes, but the reason I have included this species is that in Day (1877, Plate CI fig. 3.) a drawing is shown of a fish (which in my opinion is probably AMS B.7573, which Ferraris *et al.* 2000 have correctly stated is not a type specimen of *M. armatus*) with a mid-lateral stripe terminating in a blotch on the body near the base of the caudal fin, and the adipose fin being much longer than the anal fin base. In my opinion this is a misidentification by Day and this has led to Jayaram (1954) and subsequently (Ng 2002) and Jayaram & Sanyal (2003) incorrectly considering *M. armatus* as having a stripe along the body. The colour and pattern information from Day (1865b) means that *M. armatus* looks similar to *Mystus cavasius* (Hamilton, 1822), but with a smaller adipose fin than Hamilton's species.

In my opinion the specimen figured in Day (1877) represents *Mystus dibrugarensis* (Chaudhuri, 1913), a species revalidated by me in 1999 (see under species heading for more details).

Mystus atrifasciatus Fowler, 1937

See Plate II Figs. 3 & 4 of holotype ANSP 67907 (which originates from Pitsanulok, Thailand) and Fig. 5 of paratype ANSP 67908. Largest type specimen is 8.62 cm SL but is believed to grow to at least 11 cm SL.

Colouration as per original description: "Back and upper surface of head brown. Dark to blackish grey median lateral band, wide as vertical eye diameter and including lateral line, bounded above by whitish parallel longitudinal narrower band its whole extent, and below by whitish colour of under surfaces of body. Pale brownish streak, narrowing behind, back from pectoral axil until over front of anal. Iris grey. Lips pale or whitish. All barbels pale, with brown margins and nasal and maxillary pairs darker. Fins all more or less dull brownish."

Mystus bleekeri (Day, 1877)

See Plate III Figs. 6 & 7 of paralectotype AMS B.7999 which supposedly originates from Seharunpore/

Seeharapore/ Sethrampoor, West Bengal State which now appears to be a suburb of Calcutta, India. And also Fig. 8 of specimen CAS 93966.

Colour from original description: "Brownish grey, with two longitudinal bands, one above the other below the lateral line, some specimens have a dark shoulder spot and a dark band along the middle of the anal fin. The fins are mostly darkest at their edges." The "dark shoulder spot" is a tympanic spot.

Said to attain 12.5 to 13.5 cm SL.

Similar to *Mystus atrifasciatus* but *M. bleekeri* has shorter maxillary barbells (in *M. atrifasciatus* they extend to or past the caudal peduncle), the posterior edge of the adipose fin is angled off (versus rounded in *M. atrifasciatus*), and has the fontanel indented (versus not). Also similar to *M. vittatus* (Bloch, 1794), see under that species for information.

Mystus bocourti (Bleeker, 1864)

Junior synonym: *Prajadhipokia rex* Fowler, 1934

M. bocourti was originally described from the Mé-Nam River at Bangkok, Thailand; it is also present in Laos and Cambodia. It reaches up to 24 cm (SL). See Plate IV Figs. 9 & 10 of holotype (MNHN 1553).

It is sometimes still listed in the genus *Heterobagrus* Bleeker, 1864, although this is currently considered to be a synonym of *Mystus*.

This species is usually uniform silver, bronze or platinum in colour but I have seen at least one specimen which has two light bands above and below the dark lateral line (Burgess, 1989, Plate 4).

As per Roberts (1994) it also sometimes has a humeral semi-ocellus and / or a dark spot on the body near the base of the dorsal fin spine.

It is easily differentiated from the other species by the extraordinary long dorsal fin.

Mystus canarensis Grant, 1999

This name was described by myself as a replacement name for *Hara malabarica* Day, 1865(b) as that species belongs in *Mystus* and contrary to Jayaram (1954) and other authors is not a junior synonym of *Mystus malabaricus* (Jerdon, 1849). There are no known preserved type specimens of *M. malabaricus* (Jerdon, 1849) therefore the original description of the colour and pattern are important: "blueish leaden above, silvery beneath; fins yellowish." No semi-ocellus, or stripe(s) on the body are mentioned.

The type specimen of *M. canarensis* (AMS B.7624, Plate IV-Figs. 11 & 12) measures 11.1 cm SL and originates from Canara, Karnataka State, India. It was also the specimen figured by Day (1877, Plate CI fig. 2) as "Macrones Malabaricus", showing a fish with a tympanic semi-ocellus, a dark stripe along the lateral line, and spots on the fins making the upper portion of the dorsal fin and lower third of the anal fin appear blackish. It is similar at first glance to *Mystus dibrugarensis* and *Mystus rufescens* (Vinciguerra, 1890) - see under species headings for differences.

Mystus carcio (Hamilton, 1822)

There are no known preserved type specimens of this species which was described from the ponds of northern Bengal.

In Hamilton (1822) there is no reference to any drawing but as per Hora & Law (1941), Plate 23, Figs. 60 of Hamilton (1822) are erroneously captioned as *Pimelodus batasio* (which is now *Batasio batasio*), and should have been captioned as *Pimelodus carcio*. It is quite obvious when one reads the description of *batasio* and *carcio* that Hamilton made a mistake with designating which fish figs 60 represented. Thus we can quite clearly see what *M. carcio* looks like. The specimen in my image (Plate V Fig. 13) matches exactly the written description and figures in Hamilton (1822).

This species is a dwarf one, only reaching approx. 3-4cm SL.

It can be differentiated from all others by its small adult size, very small adipose fin, a dark horizontal mark across the tympanum, greenish yellow colouration, large laterally placed eyes, and relatively long and wide fontanel which is distinctly split by a thick epiphyseal bar. Sometimes confused as representing *M. vittatus*.

? *Mystus colvillii* (Günther, 1874)

See Plate V Fig. 4 of a type specimen and see discussion under *Mystus pelusius* (Solander, 1794).

Mystus dibrugarensis (Chaudhuri, 1913)

See Plate V Fig. 15 of the holotype, which came from Dibrugarh, Assam, India and measures 6.8 cm total length. Colour and pattern described as: "Head grey, dorsal side dark brown, body brownish. The membranous covering of the air bladder behind the gill openings is black, and a black line from above this membrane extends through the middle of the side to the middle of the root of the caudal fin, ending in a

black circular blotch. The barbells are black, except the inner mandibular, which, with the fins, is dull white."

This species was originally described as *Macrones montanus* var. *dibrugarensis*. Contrary to Jayaram (1954) and subsequent authors it is not a junior synonym of *Mystus montanus* (Jerdon, 1849). There are no known type specimens for *M. montanus* so again therefore the original description is important: "greenish above and on the fins; yellow on the cheeks and beneath." There is no mention of any stripe(s) on the body, or semi-ocellus. The fish pictured in Day (1877, Plate CI, fig. 4) captioned as "Macrones Montanus", is not the true *M. montanus* of Jerdon but appears to represent *Mystus pulcher* (Chaudhuri, 1911). Day's incorrect identification has (as in *armatus* and *malabaricus*) caused later ichthyologists to misidentify the true *M. montanus*.

M. dibrugarensis differs from *M. canarensis* by having the supraoccipital process raised, long, and touching the proximal radials (versus not raised, very short, and not touching); body not elongated; caudal fin lobes being equal (versus upper lobe being longer than lower lobe). Also see notes on *M. pulcher* and *M. rufescens*.

Mystus gulio (Hamilton, 1822)

This is the type species of *Aspidobagrus*. See Plate VI Fig. 16

Originally described from "Higher parts of Gangetic estuaries", this species lives in fresh and brackish waters. Sometimes when young it can exhibit pale stripes along the body.

It is easily differentiated from the other species by the combination of its greyish silver colour and small adipose fin.

Can reach approx. 40cm SL.

Mystus horai Jayaram, 1954

See Plate VI Fig. 17.

It has been included here as it was originally described as a sub species of *Mystus vittatus* (Bloch, 1794), although according to the original description there are no stripes on the body of *M. horai*, just a faint black 'shoulder' mark. Preserved colouration said to be brownish yellow above, dull grey underneath. Type specimens originate from the Indus River, Kalabagh, Pakistan; the largest specimen being 8.4 cm SL.

Mystus keletius (Valenciennes, 1840)

Originally described from Java, and Pondicherry. Ng (2002) has examined the type specimens and concluded that the one from Java represents *Mystus nigriceps* (Valenciennes, 1840); therefore restricting the type locality for *keletius* to Pondicherry, India.

See Plate VI Figs. 18 & 19 of the lectotype (MNHN A.9011) from Pondicherry, India; the specimen measures approx. 9cm SL.

Valenciennes states that it was very similar to *Mystus tengara* (Hamilton, 1822) in its colouration and pattern, but differed due to the supraoccipital and humeral processes being more granulated, the supraoccipital process being longer, the dorsal fin appearing rounder and the maxillary barbells being shorter.

Baensch & Evers (2002) show a picture and state that it has a yellow/silvery colouring, with a "dark shoulder mark", two silvery to golden strips bordering the lateral line, and black marks near the dorsal and caudal fin. Jayaram & Sanyal (2003) state it is "Brownish turning dull white beneath. A dark shoulder spot and a light band along lateral line present. Dorsal and caudal fin tips tinged black, anterior portions of anal fin black".

Ng (2002) feels it is probably a synonym of *Mystus armatus*, or *Mystus vittatus* (Bloch, 1794). But as one can see from the image of the lectotype, this species is much more slender and elongated than *M. vittatus* and as mentioned earlier the pattern of *M. armatus* is being misunderstood anyway, so I feel that *M. keletius* is a valid species.

Mystus multiradiatus Roberts, 1992

See Plate VII Fig. 20 of holotype (CAS 76119) which originates from Prachinburi market, Thailand. Largest type specimen is 12.8 cm SL.

The small gap between supraoccipital process and basal bones of dorsal fin spine help visually differentiate this species from the similar *M. atrifasciatus*. It is also distinguished from the similar *M. bleekeri* by the much less conspicuous and non-indented fontanel, and the lack of dark tympanic spot.

Mystus mysticetus Roberts, 1992

See Plate VII Fig. 21 of holotype (CAS 76121) which originates from Nakorn Phanom market, Thailand. Largest type specimen is 12.9 cm SL.

This species has a humeral semi-ocellus, and the tympanum is darkly pigmented but is not a semi-ocellus. Tips of anal and caudal fin often black.

The laterally placed eyes (visible when viewed from above or below), and the combination of small adipose fin, humeral semi-ocellus, and dark tympanum differentiate this from all other species.

Mystus oculatus (Valenciennes, 1840)

Type locality is the coast of Malabar, India.

See Plate VIII Figs. 22 & 23 of holotype (MNHN 1195). According to Day (1877) there is no stripe(s) present on the body. The colour/pattern is said to be "silvery, lightest beneath, a dark spot at the commencement of the base of the dorsal fin, which is also black tipped, a darkish band likewise along the middle of the fin". The reason I have included it here is that Jayaram & Sanyal (2003) state it has a dark band along the lateral line. They may be taking this erroneously from the figure in Day (1877), which in my opinion is just trying to illustrate the lateral line itself, not any band of colour or pattern along it.

The difference (or lack of it) between this species and *M. armatus* warrants further investigation.

Mystus pelusius (Solander, 1794)

Junior synonyms: *Bagrus halepensis* Valenciennes, 1840

Macrones aleppensis Günther, 1864

? *Macrones colvillii* Günther, 1874

? *Mystus misrai* Anuradha, 1986

M. pelusius is currently considered to be the type species of *Mystus* but the earliest designation has not yet been fully resolved. Solander described the species in 1794, from Kowick River, Aleppo, Syria based on earlier invalid names proposed by Russell in 1756 and Gronow in 1763.

Roberts (1994) tentatively considered *colvillii* (from the Tigris River at Baghdad, Iraq) and *misrai* (from Lake Antioche, Syria and Tigris River, Baghdad) to be junior synonyms of *pelusius*, although he did note that in the future *colvillii* may prove to be distinct. I have been unable to see the original drawing of *pelusius* from Solander (1794), but I have seen the text of the description which is very basic in terms of colour and pattern information, just saying it was predominantly dark silver. The colour pattern of the alleged junior synonym *misrai* (plate VIII Fig. 24) is (in alcohol): pale yellowish brown with head slightly lighter. No spots or stripes present. If *misrai* is synonymous with *pelusius* then in my opinion *colvillii* is a valid species as it appears morphologically totally different.

M. colvillii is said to be olivaceous in colour, with three narrow, white, parallel, longitudinal stripes, one along, one above, and one below the lateral line. The type specimens are "9 inches long".

Mystus pulcher (Chaudhuri, 1911)

Described from four small specimens (6.7cm total length) from near the Yunnan border, upper Myanmar. See Plate VIII Fig. 25.

Described as "Dorsal and upper part of the body dark brown, with lighter or paler whitish brown stripes: one median, from the tip of the snout to the base of the dorsal spine, and two lateral longitudinal on each side, one above and the other below the middle line, which is distinguished by being dotted black for the openings of the lateral organs." "...nasal and maxillary barbells blackish brown, adipose fin dark brown, dorsal, anal and caudal fins are brownish with black spots on the membranes between the rays."

It has an intensely black tympanic spot (not semi-ocellus), and also one near the caudal peduncle, followed by a thin white band. Its supraoccipital process meets the basal bones of the dorsal fin.

The difference in length of the supraoccipital process differs it from *M. canarensis*. The light body stripes differentiate it from *M. dibrugarensis*. Differs from *M. rufescens* by the fact that its fontanel is not split by an epiphyseal bar, and it has a shorter adipose fin.

Mystus rhegma Fowler, 1935

See Plate IX Figs. 26 & 27 of holotype ANSP 61748 which originates from Bangkok, Thailand, and measures 4.96cm SL. Roberts (1994) lists specimens up to 10.6cm SL. Also see Fig. 28.

As per original description: "Very light or pale brown, lower or under surfaces more or less whitish. Upper surface of head and back sprinkled with dark grey dots. Band of dark dots along lateral line and broader one along lower side of trunk and tail parallel. Iris greyish, also maxillary barbell, other barbells whitish. Outer edge of adipose fin dusted with dark grey dots. Caudal dark grey. Other fins pale or whitish."

This is a small and graceful looking species, which reminds me of species of the South American pimelodid genus *Pimelodella* Eigenmann & Eigenmann, 1888.

The lack of any semi-ocellus, the thin dark band across the lateral line, and large gap between the small supraoccipital process and basal bone of the dorsal fin spine differentiate this species from all the others.

Mystus rufescens (Vinciguerra, 1890)

The type specimen measures 7.4cm (total length?), and originated from Meetan, Tenasserim Provinces, Myanmar. See Plate IX Fig. 29 and Plate X Figs. 30 & 31.

Vinciguerra described the colour and pattern as body tawny reddish, with one spot near the humeral region and one on the caudal peduncle. If one looks at the figure of the holotype there appears to be a thin black stripe along the lateral line. Roberts (1994) states that in live specimens that he identified as *rufescens*, there were two pale longitudinal stripes on the body, one above the lateral line, one below. He also states that the spot referred to as being near the humeral region by Vinciguerra, is actually a tympanic spot.

Differs from the similar *M. canarensis*, *M. dibrugarensis* and *M. pulcher* by having its fontanel split by an epiphyseal bar.

Mystus vittatus (Bloch, 1794)

Junior synonym: ? *Pimelodus tengara*
Hamilton, 1822.

Bloch described the colour and pattern as head, 'back' fins, and caudal chestnut brown. Other fins steel coloured. Stripes light blue, with yellow interspaces. The plate of the holotype shows the general shape of the body and fins but the accuracy of its pattern is doubtful. See Plate X Figs. 32 & 33 which are exclusive images of the holotype of *M. vittatus*: ZMB 2939 which originates from Tranquebar, Tamil Nadu, India.

Since its description in 1822 from "Ponds of India", *M. tengara* has been discussed as being very similar to or perhaps a junior synonym of *M. vittatus*. Jayaram & Sanyal (2003) have classed them both as valid but they did not have access to the holotype of *M. vittatus* and as such they may have been using non type specimens and information from years of wrongly identified specimens which has just added to the confusion. They may have used misidentified specimens of *M. carcio* as representing *M. vittatus*, and therefore incorrectly distinguishing *M. vittatus* as distinct from *M. tengara*.

If one looks at the original drawings of *M. tengara* (plate XI Figs. 34 & 35) and compares it with the images of the holotype of *M. vittatus*, you will see that the structure of the fontanel and supraoccipital process are very similar, the only difference being that in the

drawing of *tengara* the front portion of the fontanel is thin, the second is wider, whereas this is the opposite in the holotype of *vittatus*. This could be a mistake in the drawing. Everything else from the description of *tengara* appears to fit *vittatus*. If one looks at Plate XI Figs. 36 & 37 of the images of ANSP 85780 from Bombay, India (which definitely represent *vittatus* in view of the exact same fontanel and supraoccipital morphology when compared to the holotype) you will see that the pattern, and shape of the body, especially relating to the high back and adipose fin matches that of the drawing of *tengara*. The adipose fin on the holotype of *vittatus* has shrunk in size due to its age.

The only possible evidence I have seen so far for classing *M. tengara* as possibly valid is that of specimen CAS-SU 34858 from Calcutta, India (Plate XII Figs. 38 & 39). If you look at the lateral image of this specimen it appears visually very similar to that of ANSP 85780. But if you compare the fontanels of each specimen you will see that the fontanel of the CAS specimen is long and evenly portioned, unlike that of the holotype of *vittatus* and of the ANSP specimen. I feel that for the validity of *tengara* to be properly determined, future ichthyologists need to bear in mind that validity and identity of *carcio* when comparing lots of specimens from different localities. Until then, I feel that *tengara* should be classed as a questionable synonym of *vittatus*.

M. vittatus will reach at least 8 to 9cm SL.

M. vittatus differs from most species (except *carcio*) by the higher number of dark body bands, but can also be differentiated from the most similar species by:

- | | |
|-------------------------|---|
| <i>M. atrifasciatus</i> | differs due to <i>atrifasciatus</i> having less dark lines on the body and having a thinner, non indented fontanel |
| <i>M. bleekeri</i> | differs due to <i>bleekeri</i> 's more elongated body, adipose fin and fontanel. |
| <i>M. carcio</i> | differs due to <i>carcio</i> 's distinctly separated fontanel, much smaller adipose fin, and laterally placed eyes. |
| <i>M. multiradiatus</i> | differs due to <i>multiradiatus</i> having a humeral semi-ocellus and having the fontanel not as visible. |
| <i>M. mysticetus</i> | differs due to <i>mysticetus</i> 's large laterally placed eyes. |

Leiocassis argentivittatus (Regan, 1905)

See Plate XII fig. 40.

I have mentioned this fish here as in some aquarium publications it is placed in *Mystus*, due to Jayaram (1978). Jayaram & Sanyal (2003) place it in *Mystus*, however, Dai (1999) places it in *Leiocassis* Bleeker, 1858.

Gromov (1970) feels this species and the next one probably warrant their own new genus.

Described as being brownish with a silvery dark line across the middle and one along the ridge of the back, and a similar colour blotch on the upper portion of the dorsal fin, and two lines on the caudal fin.

Leiocassis mica (Gromov, 1970) new combination

See Plate XII Fig. 41.

Described from numerous small (approx. 3.5 cm) specimens from Lake Omni, middle Amur basin, Russia. It was originally described as a *Mystus* species but its placement in *Mystus* is doubtful due to the shape and placement of the mouth, and the overall pattern and especially that of the caudal fin, which refers it towards *Pelteobagrus* Bleeker, 1864 but it has too few anal fin rays for that genus. If one follows Dai's (1999) generic key it belongs in *Leiocassis*, and not *Pelteobagrus*, or *Pseudobagrus* Bleeker, 1859. It may well end up in a new genus along with *argentivittatus* and *Leiocassis virgatus* (Oshima, 1926).

Acknowledgements

Thanks to Jon Fong of the California Academy of Sciences, California, USA; Mark Sabaj of the Academy of Natural Sciences, Philadelphia, USA; Mark McGrouther & Sally Reader of the Australian Museum, Sydney, Australia; Rémi Ksas of the Muséum National d'Histoire Naturelle, Paris, France; Dr Peter Bartsch of the Institut fuer Systematische Zoologie, Museum fuer Naturkunde der Humboldt-Universitaet zu Berlin for the provision of the images of preserved specimens.



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References

Eschmeyer, W. et al., 2003. Catalog of Fishes – online version. <http://www.calacademy.org/research/ichthyology>

Day, F., 1865a. On the fishes of Cochin, on the Malabar Coast of India. Part II. Anacanthini. *Proc. Zool. Soc. Lond. 1865* (pt 1): 286-318.

Day, F., 1865b. The fishes of Malabar. London. Fishes Malabar: i-xxxii + 1-293, 20 pls.

Day, F., 1877. The fishes of India; being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon. Fishes India Part 3: 369-552, Pls. 79-138.

Grant, S., 1999. A replacement name (nomen novum) and neotype designation for *Hara malabarica* Day, 1865, with notes on related species (Siluriformes). *Aqua, J. Ichthy. Aquat. Biol.* v. 3 (no. 4): 169-174.

Ferraris, C. J., M. A. McGrouther & K. L. Parkinson., 2000. A critical review of the types and putative types of southern Asian marine and freshwater fish species in the Australian Museum named by Francis Day. *Records of the Australian Museum* 52(3): 289-306.

Jerdon, T. C., 1849. On the fresh-water fishes of southern India. (Continued from p. 149.). *Madras J. Lit. Sci.* v. 15 (pt 2): 302-346.

Ng, H. H., S. Wirjoatmodjo and R. K. Hadiaty, 2001. *Mystus punctifer*, a new species of bagrid catfish (Teleostei: Siluriformes) from northern Sumatra. *Raffles Bull. Zool.* v. 49 (no. 2): 355-358.

Ng, H. H., 2002. The identity of *Mystus nigriceps* (Valenciennes in Cuvier & Valenciennes, 1840), with the description of a new bagrid catfish (Teleostei: Siluriformes) from Southeast Asia. *Raffles Bull. Zool.* v. 50 (no. 1): 161-168.

Roberts, T. R., 1992. Revision of the striped catfishes of Thailand misidentified as *Mystus vittatus*, with descriptions of two new species (Pisces: Bagridae). *Ichthyol. Explor. Freshwaters* v. 3 (no. 1): 77-88.

Roberts, T. R., 1994. Systematic revision of Asian bagrid catfishes of the genus *Mystus* sensu stricto, with a new species from Thailand and Cambodia. *Ichthyol. Explor. Freshwaters* v. 5 (no. 3): 241-256.

Fowler, H. W., 1935. Zoological results of the third De Schauensee Siamese Expedition, Part VI.--Fishes obtained in 1934. *Proc. Acad. Nat. Sci. Phila.* v. 87: 89-163.

- Fowler, H. W.**, 1937. Zoological results of the third De Schauensee Siamese Expedition. Part VIII.--Fishes obtained in 1936. *Proc. Acad. Nat. Sci. Phila.* v. 89: 125-264.
- Hamilton, F.**, 1822. An account of the fishes found in the river Ganges and its branches. Edinburgh & London. *Fishes Ganges*: i-vii + 1-405, Pls. 1-39.
- Jayaram, K. C.**, 1954. Siluroid fishes of India, Burma and Ceylon. XIV.--Fishes of the genus *Mystus* Scopoli. *Rec. Indian Mus. (Calcutta)* v. 51 (pt 4): 527-558, Pl. 19.
- Cuvier, G. and A. Valenciennes**, 1840. Histoire naturelle des poissons. Tome quatorzième. Suite du livre seizième. Labroïdes. Livre dix-septième. Des Malacoptérygiens. *Hist. Nat. Poiss.* v. 14: i-xxii + 2 pp. + 1-464 + 4 pp., Pls. 389-420.
- Russell, A.**, 1794. Natural History of Aleppo. Second Edition, revised by P. Russell. *Aleppo Nat. Hist.*, ed. 2 v. 2: i-vii + 1-430 + i-xxxiv + 26 p. index, Pls. 1-16.
- Chaudhuri, B. L.**, 1911. Contributions to the fauna of Yunnan based on collections made by J. Coggin Brown, B.Sc., 1909-1910. Part II.--Fishes. *Rec. Indian Mus. (Calcutta)* v. 6 (pt 1): 13-24, Pl. 1.
- Chaudhuri, B. L.**, 1913. Zoological results of the Abor Expedition, 1911-12. XVIII. Fish. *Rec. Indian Mus. (Calcutta)* v. 8 (pt 3): 243-257, Pls. 7-9.
- Vinciguerra, D.**, 1890. Viaggio di Leonardo Fea in Birmania e regioni vicine. XXIV. *Pisci. Ann. Mus. Civ. Stor. Nat. Genova* (Ser. 2a) v. 9: 129-362, Pls. 7-11.
- Bloch, M. E.**, 1794. Naturgeschichte der ausländischen Fische. Berlin. *Naturg. Ausl. Fische* v. 8: i-iv + 1-174, Pls. 361-396.
- Chu, X.-L., B.-S. Cheng and D.-Y. Dai**, 1999. Fauna Sinica. Osteichthyes. Siluriformes. Science Press, Beijing: i-vii + 1-230.
- Jayaram, K. C.**, 1978. Contributions to the study of bagrid fishes 14. The systematic position of the species of *Mystus* Scopoli known from China. *Proc. Indian Acad. Sci. Sect. B* v. 87 (no. 9): 221-228.
- Gromov, I. A.**, 1970. A new species of bagrid catfish [*Mystus mica* Gromov, sp. n. (Pisces, Bagridae)] in the Amur Basin. *Voprosy Ikhtiol.* v. 10: 400-405. [In Russian. English translation in *J. Ichthyol.* v. 10 (no. 3): 277-281.]
- Smith, H. M.**, 1945 (1965 reprint). The Freshwater Fishes of Siam, or Thailand. Smithsonian Institution - United States National Museum, Bulletin 188.
- Ng, H. H.**, 2003. *Mystus impluviatus*: A New Species of Bagrid Catfish (Teleostei: Bagridae) from Eastern Borneo. *Copeia*, 2003 (2), pp 373-378.
- Jayaram, K. C. & A. Sanyal**, 2003. A Taxonomic Revision of the Genus *Mystus* Scopoli (Family Bagridae). *Rec. Zool. Surv. India: Occas. Pap.* No 207. 136p, Pls 1-5.
- Hora, S. L. & N. C. Law**, 1941. Siluroid fishes of India, Burma and Ceylon. IX. Fishes of the genera *Gagata* Bleeker and *Nangra* Day. X. Fishes of the genus *Batasio* Blyth. *Rec. Indian Mus. (Calcutta)* v. 43 (pt 1): 9-42, 2 pls.
- Günther, A.**, 1874. A contribution to the fauna of the river Tigris. *Ann. Mag. Nat. Hist.* (Ser. 4) v. 14 (no. 79): 36-38, Pls. 8-9.
- Anuradha, S.**, 1986. Contributions to the study of bagrid fishes. 19. Systematic position of *Macrones halepensis colvillii* Hora & Misra, 1943, with description of a new species (Siluriformes, Bagridae). *Rev. Suisse Zool.* v. 93 (no. 2): 291-296.
- Regan, C. T.**, 1905. Description de six poissons nouveaux faisant partie de la collection du Musée d'Histoire Naturelle de Genève. *Rev. Suisse Zool.* v. 13: 389-393, Pls. 5-6.
- Baensch, H A. & H-G. Evers**, 2002. *Aquarien Atlas – Band 6*. Pages 1-1232.
- Burgess, W. E.**, 1989. An Atlas of Freshwater and Marine CATFISHES – A preliminary survey of the Siluriformes. TFH Publications, pages 1-784.



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PLATE I

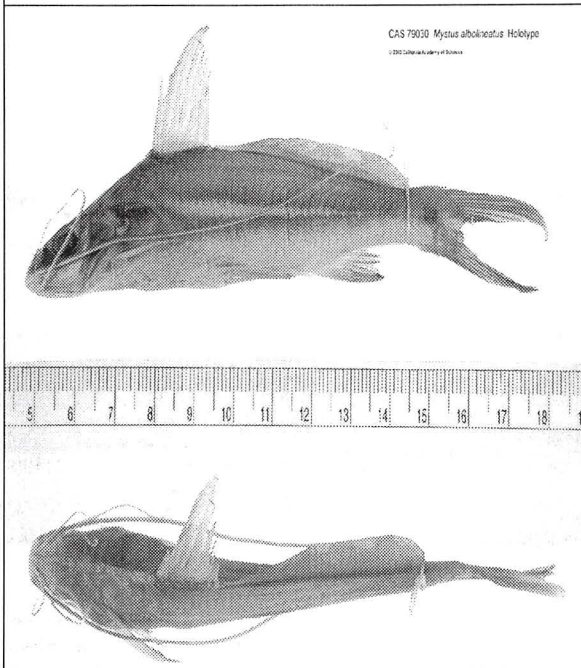


Fig. 1 *Mystus albolineatus* holotype CAS 79030
(Image by Jon Fong, Copyright of CAS)

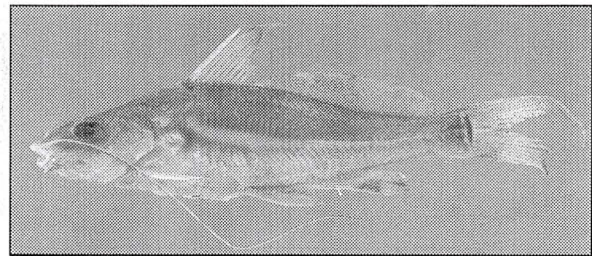
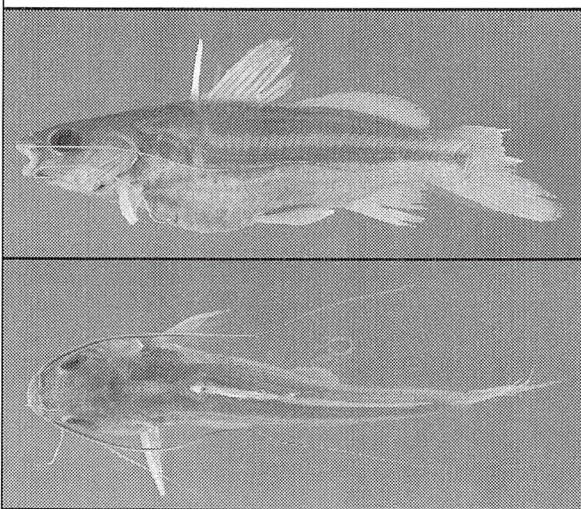


Fig. 2 *Mystus albolineatus* paratype ANSP 16453
(Image by Mark Sabaj, Copyright of ANSP)

PLATE II

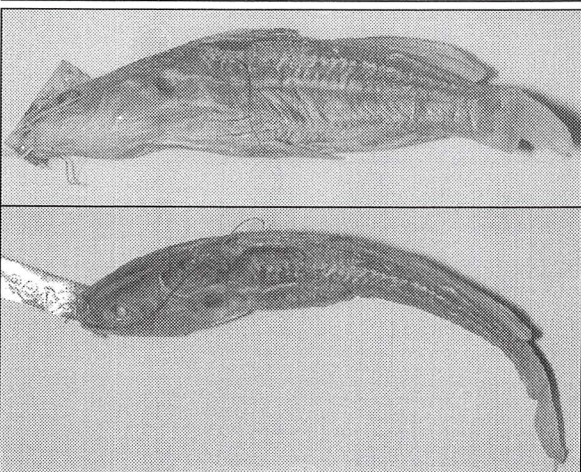


Figs. 3 & 4 *Mystus atrifasciatus* holotype ANSP 67907



Fig. 5 *Mystus atrifasciatus* paratype ANSP 67908
(All images by Mark Sabaj, Copyright of ANSP)

PLATE III



Figs. 6 & 7 *Mystus bleekeri* paralectotype AMS B.7999
(Images by Sally Reader, Copyright of AMS)

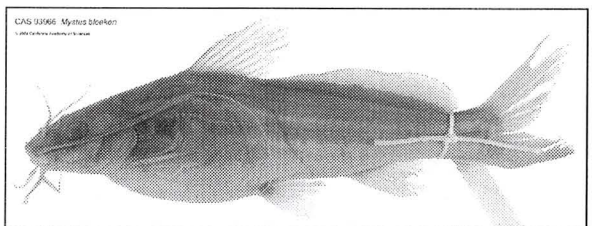
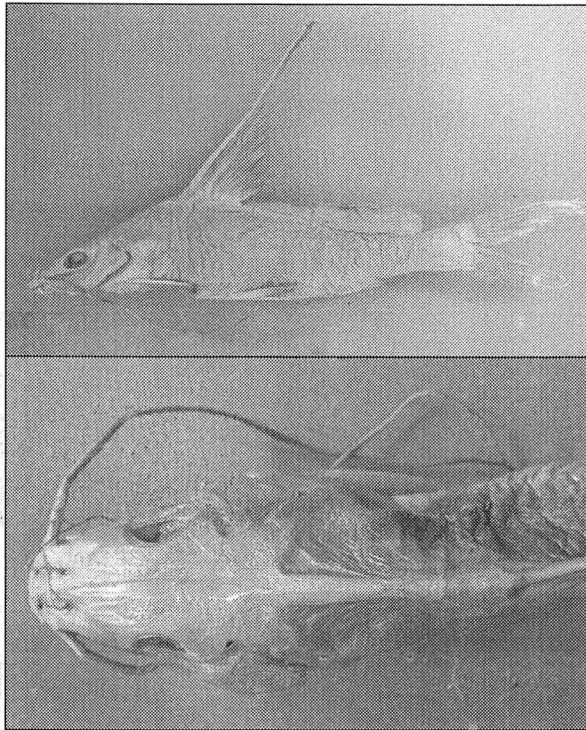
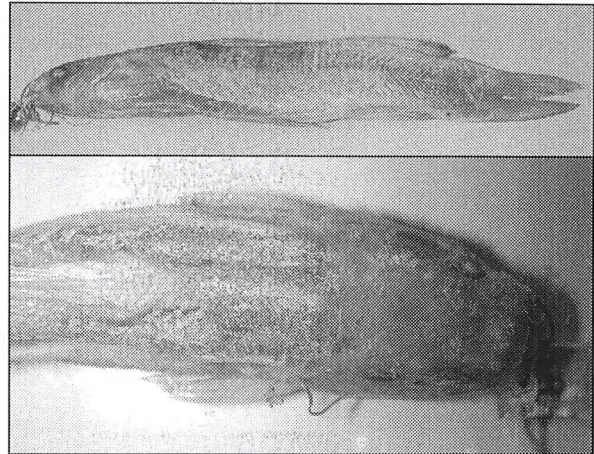


Fig. 8 *Mystus bleekeri* CAS 93966
(Image by Jon Fong, Copyright of CAS)

PLATE IV



← Figs. 9 & 10 *Mystus bocourti* holotype MNHN 1553
(Images by Rémi Ksas, Copyright of MNHN)



Figs. 11 & 12 *Mystus canarensis* neotype AMS B. 7624 (Images by Sally Reader, Copyright of AMS)

PLATE V

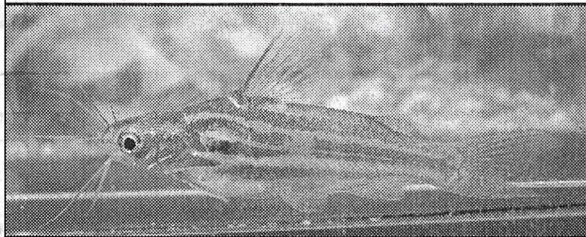


Fig. 13 *Mystus carcio* (Image by Steven Grant)

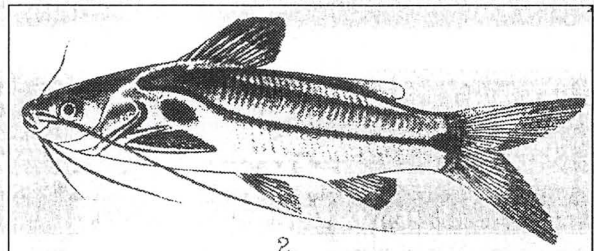
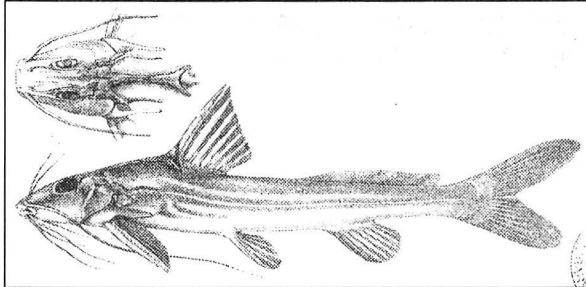


Fig. 14 *Mystus colvillii*
(Image from original description)

← Fig. 15 *Mystus dibrugarensis*
(Image from original description)

PLATE VI

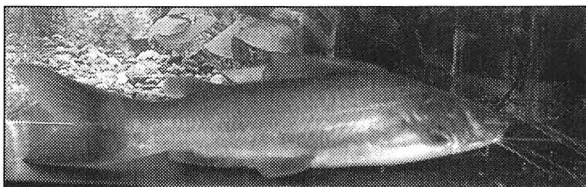


Fig. 16 *Mystus gulio* (with eye missing)
(Image by Steven Grant)

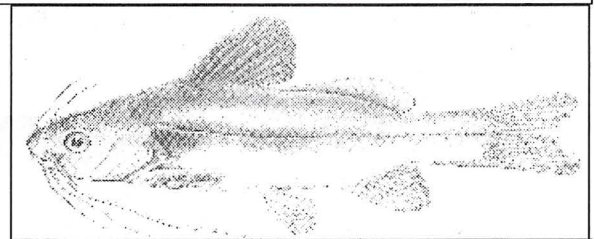
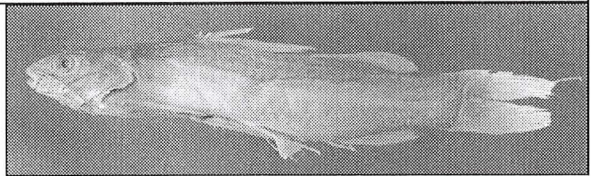
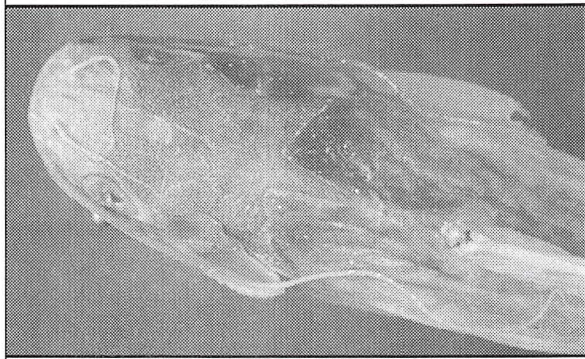


Fig. 17 *Mystus horai*
(Image from original description)

PLATE VI (Continued)



Figs. 18 & 19 *Mystus keletius* lectotype MNHN A.9011
(Images by Rémi Ksas, Copyright of MNHN)

PLATE VII

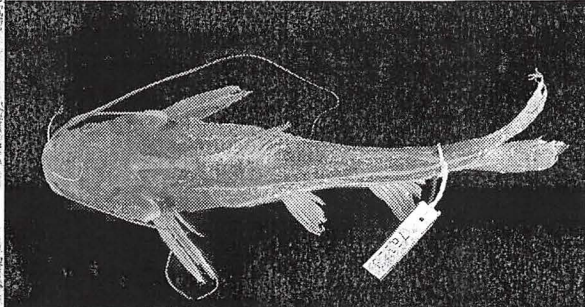
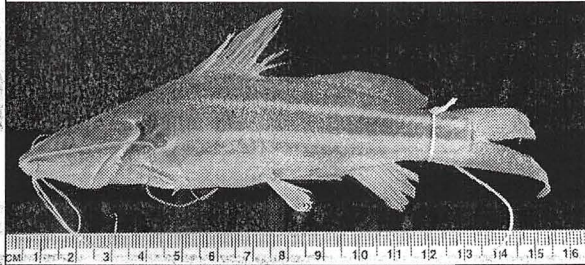


Fig. 20 *Mystus multiradiatus* holotype CAS 76119
(Image Copyright of CAS)

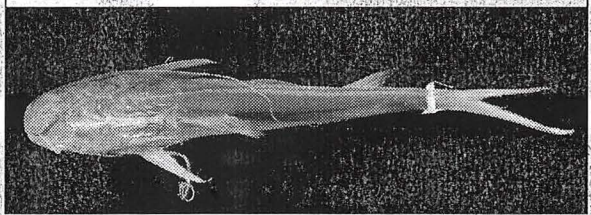
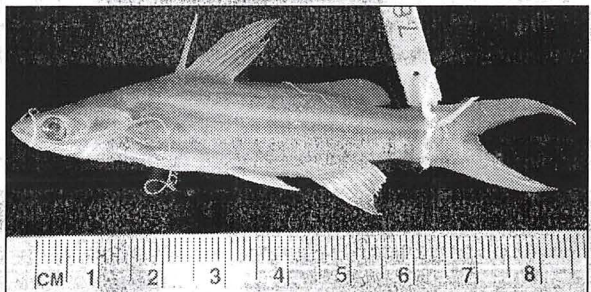
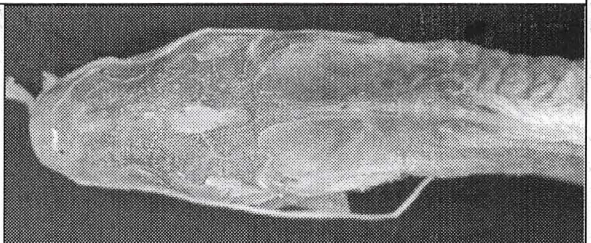
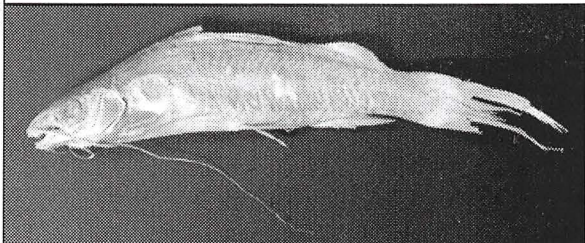


Fig. 21 *Mystus mysticetus* holotype CAS 76121
(Image Copyright of CAS)

PLATE VIII



Figs. 22 & 23 *Mystus oculatus* holotype MNHN 1195 (Images by Rémi Ksas, Copyright of MNHN)

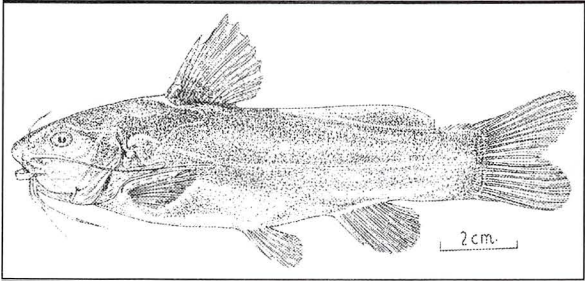


Fig. 24 *Mystus misrai*
(Image from original description)

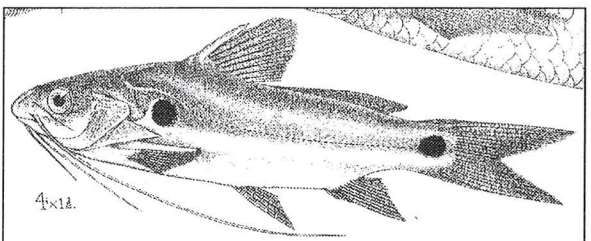


Fig. 25 *Mystus pulcher*
(Image from original description)

PLATE IX

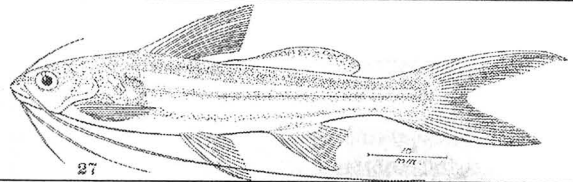


Fig. 28 *Mystus rhegma*
(Image from original description)

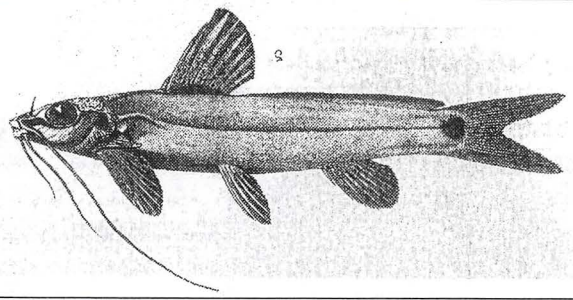
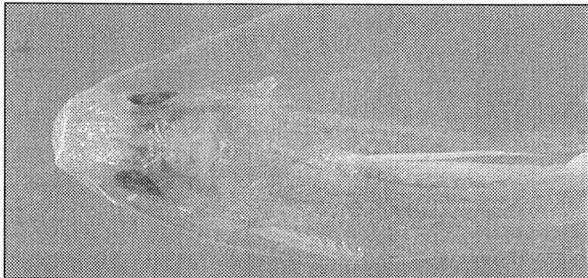
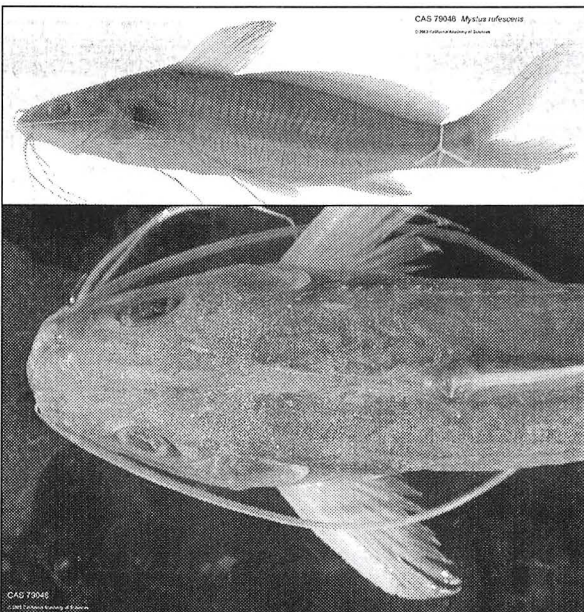


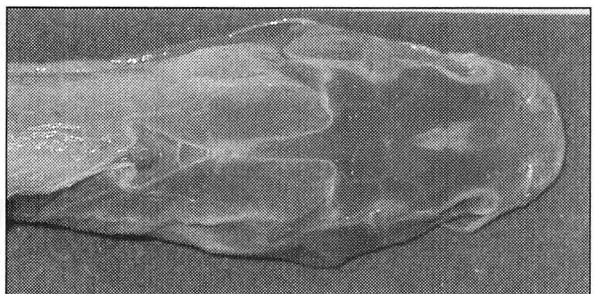
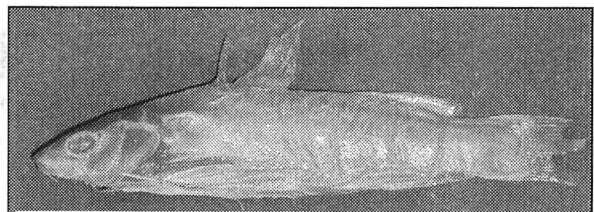
Fig. 29 *Mystus rufescens*
(Image from original description)

Figs. 26 & 27 *Mystus rhegma* holotype ANSP 61748
(Image by Mark Sabaj, Copyright of ANSP)

PLATE X

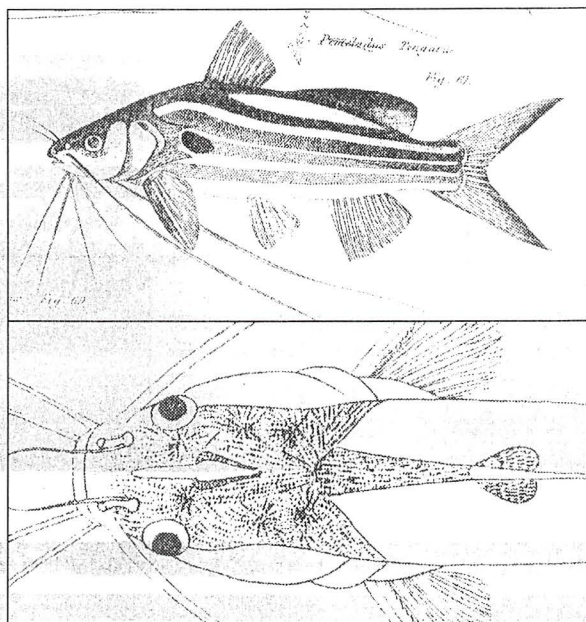


Figs. 30 & 31 *Mystus rufescens* CAS 79046
(Images by Jon Fong, Copyright of CAS)

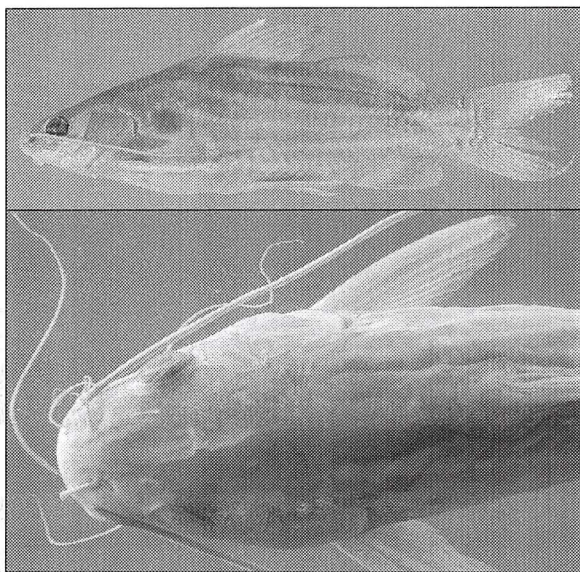


Figs. 32 & 33 *Mystus vittatus* holotype ZMB 2939
(Image by Dr Peter Bartsch, Copyright of ZMB)

PLATE XI

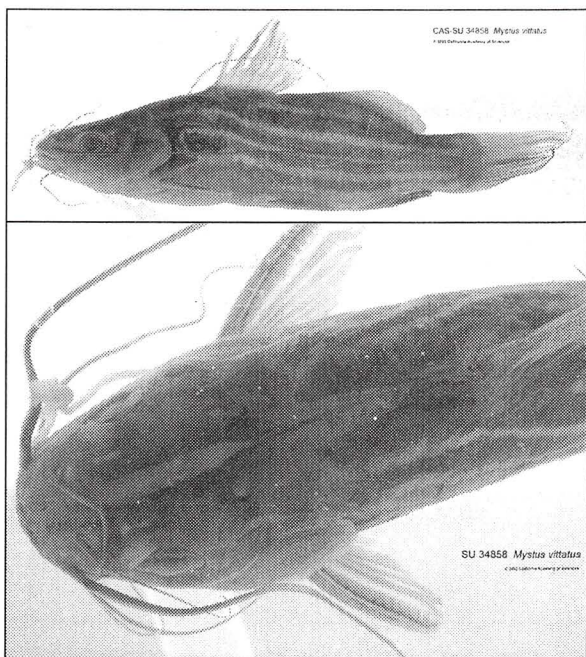


Figs. 34 & 35 *Mystus tengara*
(Images from original description)



Figs. 36 & 37 *Mystus vittatus* ANSP 85780
(Image by Mark Sabaj Copyright of ANSP)

PLATE XII



Figs. 38 & 39 *Mystus tengara*? CAS-SU 34858
(Image by Jon Fong Copyright of CAS)

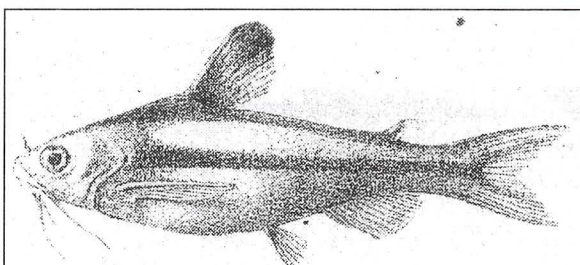


Fig. 40 *Leiocassis argentivittatus*
(Image from original description)

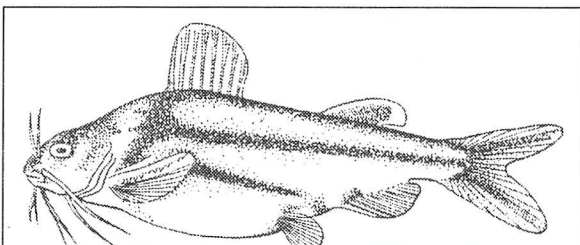


Fig. 41 *Leiocassis mica*
(Image from original description)

Project Report

By Steve Pritchard

Objective

Record the sounds of catfish to establish if there are species variations and behavioural differences in sounds produced.

Success criteria

- Successfully record the sounds of a number of different catfish species in the aquaria
- Successfully record the sounds of a single species over a period of time to establish any variation in recorded sound when exposed to different external stimuli

Methodology

This methodology will be developed as progress is made initially it is to

- Obtain under water microphone and digital recording equipment to record the sounds made by catfish species (Dr. Jonathan W. Armbruster advised the 2004 convention audience that a number of Loricariidae species produced sound)

Progress

Phase 1 - Research to find a suitable hydrophone and digital recording device

The internet is a wonderful research tool and within a few minutes the Dolphin-EAR personal Hydrophone system was ordered.

I had an analogue tape recorder ideal size for taking to aquaria and recording any sounds but the recorder had not been used before so tape inserted and I tried the internal microphone, what a noise, so much static and interference it was not worth pursuing. Back to the initial idea a digital recording device.

When the hydrophone arrived with no recording device available, and no lead to connect the tape recorder to the hydrophone

I plugged in the headphones and went to the garden pond!, a quick dip of the microphone into the water and the distinct sounds of the pond pump were heard, goldfish do not seem to be that vocal, or they were keeping mum at the time.

Mini disc or MP3? Evaluation and discussions with various people who had these devices ended up with the purchase of a mini disc recorder, discs and 'male to male' connecting lead.

Phase 2 – Recording the sounds of catfish

Putting the hydrophone into a tank just to find out what could be heard, air powered filter! Well there wasn't anything else in the tank so I did not expect a better result.

I'm now looking to find a suitable fish to start some recording; your assistance would be greatly appreciated

End

Forthcoming Events for 2004

July 18	Meeting Looking at: - Doradidae
Aug 15	Meeting Looking at: - Asian Catfish
Sep 19	Annual Open Show & Auction 27 Catfish classes
Oct 17	Meeting Looking at: - African Catfish
Nov 21	Autumn Auction
Dec 12	Annual "Hot Pot" Looking at: - Corydoradinae

BREEDING *CORYDORAS DUPLICAREUS*

By Mark Soberman

Sometimes, it takes a great effort to breed a new species of *Corydoras*. I would like to say that after years of effort I was able to breed *Corydoras duplicareus*, however, this is not the case. In the beginning of January of this year I made a stop into The Pet Bam, a good pet shop in Franklin Square Long Island. My friend Paul, the store manager, wanted me to see the *Corydoras adolfoi* that just came in. I immediately knew that they were not *C. adolfoi*, but *C. duplicareus* instead. The two species look almost identical except that the black horizontal bar that runs across the upper body on both fish is much wider on the *C. duplicareus*. The fish had just arrived in the shop and really looked fantastic. To the contrary, whenever I see *C. adolfoi* that have just arrived from the shipper they usually appear very rough. There were 12 *C. duplicareus* in the tank and I purchased eight, five of which were females.

The eight fish were placed in a ten gallon tank with about an inch of number three gravel and a box filter. The temperature was 74 degrees and the pH 7.0. Normally the pH in my tanks is about 6.5, but I had been having problems with the water out of the tap so I started using a product called Neutral Regulator which alleviated the problem. About a week later I fed my new charges live black worms and the rest is history. The next evening there were about 30 to 40 eggs scattered primarily across the water line, in fact some were out of the water all together. The eggs which were typical in size were cream in color. I scraped the eggs off the glass with a single edge blade and deposited them in another bare ten gallon tank which was half full of water from the spawning tank. The tank was filtered by a sponge filter. I added a few drops of methylene blue to the water to prevent the eggs from fungusing. After about five days the eggs hatched. Very few of them had fungused. When the yolk sacks were absorbed, I fed the fry live baby brine shrimp. This was the basis of their diet for the first few weeks. After that I fed them Tabimin pellets as well. About 25% of the water in the fry tank was changed weekly.

The fish from the initial spawning are now 5 inch in length and are back in the same tank as the adults. The

C. duplicareus have spawned three more times in pretty much the same fashion. Before the last spawning, I placed some Java fern in the tank and eggs were deposited there as well. However, most of the eggs were still deposited at the water line. I have given from the first two spawnings to friends who tell me the fish are doing very well. The reason I am writing this is because in my experience the *C. adolfoi*, although similar in appearance, are much more delicate fish. I find them far less tolerant of changes in water quality than the *C. duplicareus*. Maybe it's just me, but the *C. duplicareus* just seem more robust than the *C. adolfoi*. I would like to know if any other hobbyists agree with my observations.

According to the book, "Aqualog, all *Corydoras*", *Corydoras duplicareus* is found in Columbia in the Rio Inirida and Rio Orinoco systems. However, after I first spawned the *C. duplicareus* I contacted Lee Finley who informed me that this information was erroneous;

In fact, in the June, 1997 issue of Aquarium Fish Magazine, Lee gives examples of many errors in the locality information in the all *Corydoras* volume.[Ed: see page 17] According to Lee, *C. duplicareus* was originally described in 1995 from Brazil in the upper Rio Negro system near Sao Gabriel de Cachoeira.

In conclusion, *Corydoras duplicareus* is a beautiful fish that is easy to spawn and raise. In fact, I like it just as much as its more famous relative *Corydoras adolfoi*. To my knowledge this is the first documented spawning of *Corydoras duplicareus* in the United States. If anyone has any knowledge otherwise, please contact me via this magazine.

This is an extract from the North American Catfish Society magazine.



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