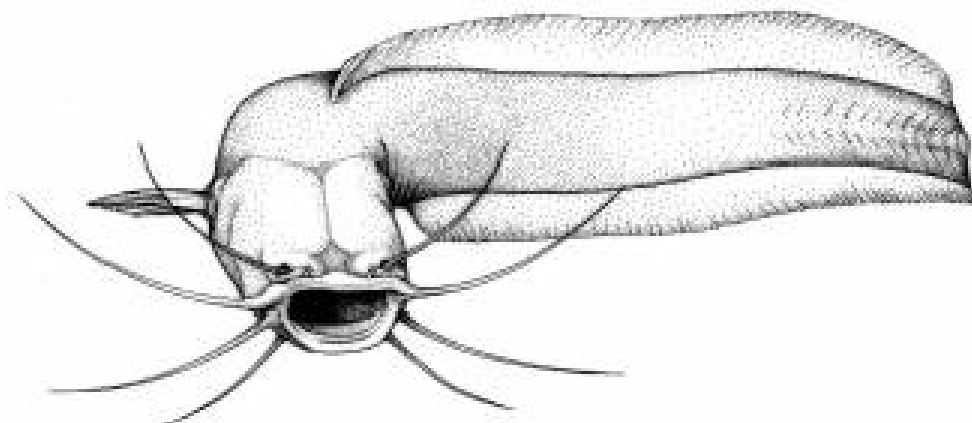


Graham S. Proudlove

Subterranean Fishes of the World

An account of the subterranean (hypogean) fishes described up to 2003 with a bibliography 1541-2004

Illustrated by Rhian Hicks



**International Society for Subterranean Biology
Moulls**

Announcing a major new book on the subterranean fishes of the world

Subterranean fishes are found on every continent, in many different environments from shallow caves to deep phreatic groundwater. Over 125 species of obligate subterranean fishes (stygobites or stygobionts) are now known, and the rate of discovery is so high that there could be 200 known species by 2050. This book is the first comprehensive account of all known species since 1969. It includes an extensive introduction, including a complete systematic checklist, a history of investigations, a consideration of non-stygobitic fishes in caves, and a detailed analysis of the conservation status of these very rare animals. The main part of the book consists of an account for each species. Each species account contains details of systematics and taxonomy, distribution, habitat, other biological details, and a listing of all known publications on that species (see example below). Details of these publications are given in the extensive bibliography which is the first attempt to list all publications ever written on subterranean fishes. There are currently over 2000 publications in the list (see example below). There are a number of appendices and the book is completed by an extensive “Note added in press” which contains information on species described, and references published, during the final editing and production phase of the book.

Details

Title: Subterranean fishes of the world. An account of the subterranean (hypogean) fishes described up to 2003 with a bibliography 1541 – 2004. With illustrations by Rhian Hicks.

Published in July 2006 by the International Society for Subterranean Biology, Moulis.

304 pages, 87 black and white Figures, 20 colour Plates.

ISBN [Not yet known]

Available from Graham Proudlove, Department of Zoology, The Manchester Museum, The University of Manchester, Manchester M13 9PL, UK. Email: g.proudlove@manchester.ac.uk

Also available from www.speleobooks.com and www.speleoprojects.com

Price: 50 Euro, 65 US Dollars, 35 GB Pounds, 83 Australian Dollars, 132 Brazilian Reais, 694 Mexican Pesos. Plus postage costs.

Extract from checklist

Order Siluriformes

Family Ictaluridae

53. *Trogloglanis pattersoni* Eigenmann, 1919 * USA
54. *Satan eurystomus* Hubbs and Bailey, 1947 * USA
55. *Prietella phreatophila* Carranza, 1954 # México
56. *Prietella lundbergi* Walsh and Gilbert, 1995 # México

Family Siluridae

57. *Pterocryptis cucphuongensis* (Mai, 1978) Ng and Kottelat, 1998 \$ Vietnam
Silurus cucphuongensis Mai, 1978
58. *Pterocryptis buccata* Ng and Kottelat, 1998 \$ Thailand
59. *Pterocryptis* undescribed species \$ China

Family Clariidae

60. *Clarias cavernicola* Trewavas, 1936 \$ Namibia
61. *Horaglanis krishnai* Menon, 1950 # India
62. *Horaglanis alikunhii* Babu and Nayar, 2004 India

Family Uegitglanididae

64. *Uegitglanis zammaranoi* Gianferrari, 1923 * Somalia

Family Heptapteridae

65. *Phreatobius cisternarum* Goeldi, 1905 Brazil
66. *Pimelodella kronei* (Miranda Ribeiro, 1907) Pavan, 1946 Brazil
Typhlobagrus kronei Miranda Ribeiro, 1907
Pimelodella lateristriga var. *kroni* Haseman, 1911
Caecorhamdella brasiliensis Borodin, 1927
67. *Pimelodella spelaea* Trajano, Reis and Bichuette, 2004 Brazil
68. *Rhamdia quelen urichi* (Norman, 1926) Mees, 1974 \$ Trinidad
Caecorhamdia urichi Norman, 1926
Caecorhamdella urichi (Norman, 1926) Hubbs, 1938
69. *Rhamdia laticauda typhla* Greenfield, Greenfield, and Woods 1982 \$ Belize
70. *Rhamdia reddelli* Miller, 1984 México

Extract from species accounts

ORDER CYPRINIFORMES

FAMILY CYPRINIDAE

Caecobarbus geertsii Boulenger, 1921

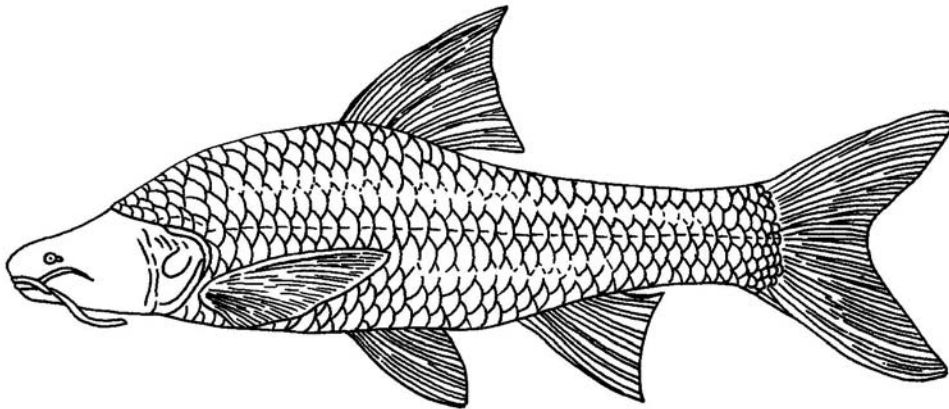


Figure 8

FAMILY
Cyprinidae

SYNONYMS

None. Boulenger (1921) spelt the specific name *geertsii* but it has often been spelt without the final i (*geertsi*) as a result of a recommendation (International Commission on Zoological Nomenclature, 1961:107) made by the second edition of the International Code of Zoological Nomenclature. However, under the rules of the third and fourth editions (International Commission on Zoological Nomenclature, 1985: Article 33c,d; International Commission on Zoological Nomenclature, 1999: Article 33.4) this is an incorrect subsequent spelling and should not be used.

TYPES

The description was based on a syntype series: MRAC 14.610 - 14.612 (3 specimens), BMNH (unknown number of specimens) (Details from Eschmeyer, 1998) . This species is the type species by monotypy of the cave restricted genus *Caecobarbus*.

DISTRIBUTION

Type locality: Grotte de Thysville, a tributary of the Kwilu River, itself a tributary of the lower Zaire River, Democratic Republic of Congo, western Africa (05°15'S, 14°52'E).

Recorded also from a further six sites in the same area: Grotte de Gaz, Grotte de Nenga, Grotte de Kiasi, and three unnamed sites, B6c, B15, B20 (Heuts, 1951; Heuts and Leleup, 1954). Banister and Bailey (1979:210) recorded the species from "caves at Kanka near Mbanza-Ngungu (formerly Thysville), 05°18'S 14°50'E". Details of geology and other caves in the area are given by Quinif (1985).

HABITAT

The area of distribution is a continuous karst area but there do not appear to be connections between the seven known sites. All are vadose stream caves which carry small streams in summer but flood in winter.

SYSTEMATICS

Vervoort (1980) found a chromosome complement of $2n=50$ with more than 80 chromosome arms. This arrangement is common among cyprinid fishes. This, together with the absence of karyotypes for other African cyprinid species, does not allow any conclusions about relationships to be made with this method. Howes (1991) placed this species (together with *Barbopsis deveccchii* (p.000) and *Phreatichthys andruzzii* (p.000)) in the barbin lineage of the subfamily Cyprininae.

CONSERVATION STATUS

R (IUCN, 1990), E (IUCN, 1993), VU A1e, B1+2e, D2 (IUCN, 1996, 2000), VUA1c; B1ab(iv)+2ab(v); D2 (TW). This was the first African fish to receive some statutory protection when it was placed on a list of protected animals of the (then) Belgian Congo (together with the more prominent Gorilla and Chimpanzee) (Frechkop, 1941). Skelton, Tweddle and Jackson (1991:230) report that this species is collected for the aquarium trade because of its novelty. This species was listed in CITES Appendix II in 1981 (CITES, 1981) to protect it from this trade. This means that an export permit is required before animals can be removed from Democratic Republic of Congo. In 1993 1500 wild caught individuals were imported into the USA (John Caldwell, WCMC, pers. comm.). See also Proudlove and Romero (2001).

MUSEUM HOLDINGS

As above plus: MRAC 15.336 - 15.351 (Leveque and Daget, 1984), BMNH 1975.6.20:492-495, 1976.10.12:304 (Banister and Bailey, 1979:225).

KEY REFERENCES

Schouteden (1924), Pellegrin (1931b), Gerard (1936), David and Poll (1937), Petit and Besnard (1937), Petit (1938a), Frechkop (1941), Heuts (1951, 1953a), Thines (1953, 1954, 1958a), Heuts and Leleup (1954), Olivereau and Herlant (1954), Olivereau and Francotte-Henry (1956), Quaghebeur (1955, 1957a,b), Leleup (1956a,b, 1957), Luling (1957), Stolk (1959), Van den Nieuwenhuizen (1961), Thines and Wissocq (1972), Thines and LeGrain (1973), Vervoort (1980), Berti and Thines (1980), CITES (1981), Leveque and Daget (1984a), Thys van den Audenaerde (1999), Romero and Benz (2000), Proudlove and Romero (2001)

Extract from Bibliography

Delfino, G., Bianchi, S. and Ercolini, A. 1981. On the olfactory epithelium in cyprinids: A comparison between hypogean and epigean species. *Monitore Zoologico Italiano (New Series) Supplement 14*: 153-180.

Della Croce, N. 1963. Ill spedizione del Prof. G. Scortecci in Somalia. Osservazioni su *Barbopsis devechii* Di Caporiacco (Cyprinidae). *Bollettino dei Musei e degli Istituti Biologici della Universita di Genova 32*: 15-28.

DeRoy, T.A. 1974. Discovering a new species. *Pacific Discovery 27*: 12-14.

Desor, E. 1864a. Le Sahara; ses differents types de Deserts et d'Oasis. *Bulletin de la Societe des Sciences Naturelles de Neuchatel 1864*: 23-33.

Desor, E. 1864b. The Sahara and its different types of deserts and oases. *Geological Magazine 1*: 27-34.

Desor, E. 1864c. Fishes of artesian wells. *Geological Magazine 1*: 35-36.

Dessen, E.M.B., Eston, V.R., Silva, M.S., Temperini-Beck, M.T. and Trajano, E. 1980. Levantamento preliminar da fauna de cavernas de algumas regioes do Brasil. *Revista Ciencia e Cultura 32*: 714-725.

Dessen, E.M.B., Eston, V.R., Silva, M.S., Temperini-Beck, M.T. and Trajano, E. 1981. Communication on a preliminary survey of the fauna of caves in some regions of Brazil. *Proceedings of the 8th International Congress of Speleology* 123-125.

Dexter, R.W. 1966. Sir Richard Owens's interpretation of optic lobes in blind fishes. *American Naturalist 100*: 271-272.

Dexter, R.W. 1984. F. W. Putnam's scientific studies at Mammoth Cave (1871-1881). *National Speleological Society Bulletin 46*: 10-13.

Di Caporiacco, L. 1926. Un nuovo genere di Ciprinide Somalo delle acque di pozzo. *Monitore Zoologico Italiano 37*: 23-25.

Di Caporiacco, L. 1927. Pesci raccolti in Somalia nel 1924, dalla spedizione Stefanini e Puccioni. *Monitore Zoologico Italiano 38*: 84-89.

Diaz Perez, P.A. 1988. *Lucifuga teresinarum* sp. n. nueva especie cubana de peces troglobios (Ophidiiformes, Bythitidae). *Revista Biologia 2*: 37-43.

Diaz Perez, P.A., Lima, A.M. and Machado, E.G. 1987. Morfologia externa de ejemplares machos de *Lucifuga simile* Nalbant, 1981 (Ophidiiformes, Bythitidae). *Revista Biologia 1*: 77-84.