Types

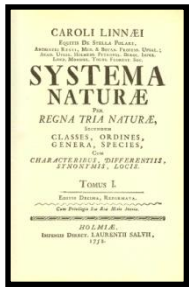
Royal Museum for Central Africa (RMCA Tervuren)

FishBase and Fish Taxonomy Training Session 2017

Introduction

Scientific names

Linnaeus (1758) has started with his system of binomial nomenclature (two-part names). This system was later adopted by other scientists.


CAROLI LINNÆI
SYSTEMA NATURÆ
REGNA TRIA NATURÆ,
CLASSES, ORDINES, GENERA, SPECIES,
CHARACTERIBUS, DIFFERENTIIS, SYNONYMIS, LOCIS.
TOMUS I.
HOLMIÆ.

Linnaeus (1758)

Callionymus	**[genus]**
lyra	**[species]**

Callionymus lyra **Linnaeus, 1758**

PISCES JUGULARES. Callionymus. 249

II. JUGULARES.

126. CALLIONYMUS. *Caput* labio ſuperiore duplicato; *Oculi* approximati. *Membr. branch.* radiis V. (Gron.) *Aperturæ* laterales (ſæpius clauſæ, nucha foraminibus reſpirante). *Corpus* nudum. *Pinnæ ventrales* remotiſſimæ.

Lyra. 1. C. dorſalis prioris radiis longitudine corporis.
Muſ. Ad. Fr. 1. *p.* 71. Uranoſcopus. D.4,10. P.18. V.6. A.10. C.10.
Fn. ſuec. 283. Trachinus maxilla ſuperiore longiore, pinna dorſi priore altiſſima.
Gron. muſ. 1. *n.* 64. Uranoſcopus officulo primo pinnæ dorſalis longitudine corporis. D.4,10. P.19. V.5. A.10. C.10.
Gron. Act. Upſ. 1740. *p.* 121. *t.* 8. Cottus officulis pinnæ dorſalis longitudine corporis D.4,10. P.19. V.5. A.10. C.10.
Act. angl. 293. *p.* 1749. Gurnardus luteus.
Habitat in Mari Atlantico.

Dracunculus. 2. C. dorſalis prioris radiis corpore brevioribus.
Gron. muſ. 1. *n.* 63. Uranoſcopus officulo primo pinnæ dorſalis primæ unciali. D.4,9. P.20. V.5. A.9. C.10.

Q 5 *Art.*

Introduction

‘International Code of Zoological Nomenclature’

The Zoological Code (ICZN) concerns the three principal groups of names: family, genus and species. The other ranks are not ruled by the Zoological Code.

[Order]		Perciformes
Family	superfamily	Percoidea
		Percidae
	subfamily	Percinae
	tribus	Percini
Genus		*Perca*
	subgenus	
Species		*fluviatilis*
	subspecies	

Example:
Microphis (Oostethus) brachyurus aculeatus

The family divisions have a fixed suffix:
- **oidea**
- **idae**
- **inae**
- **ini**

The subgenus is placed between brackets after the genus but before the species name. Its use is not obligated.

A subspecies consists of a group of individuals which are isolated and which are evolved outside the genetic flow of the reference species.

Types

Importance of types

Each family has a type genus.
Each genus has a type-species.
Each species has a type-specimen or a series of type-specimens.

The types are very important because they are the reference specimens for each taxon. By comparison of the types, it is possible to take a decision if two taxa are identical or not.

The primary types are the name-bearers of a species.

[holotype, syntype, lectotype, neotype]

The secondary types are not recognized as the name-bearers of a species.

[paratype, paralectotype]

Types

Importance of types

Type series: The type series of a nominal species (or sub-species) consists of all the specimens eligible to be name-bearing types included by the author in the new nominal taxon, except any that the author expressly excludes from the type series, or refers to as distinct variants, or doubtfully attributes to the taxon.

Type locality: The geographical (and, where relevant, stratigraphical) place of capture or collection of the name-bearing type of a nominal species (or subspecies) is the type locality.

***Knodus shinahota*, new species**
Fig. 1

Holotype. LIRP 5722 (33.7 mm SL, male), río Shinahota, approximately 150 m upriver from under bridge of new Cochabamba-Santa Cruz road, río Chapare basin (rio Mamoré system), town of Shinahota, Província de Tiraque, Cochabamba, Bolivia, 16º59'34"S 65º15'4"W, F. M. Carvajal, L. Córdova & C. Flores, 6 Sep 2002.

Paratypes. LIRP 5723, 7, 29.6-36.9 mm SL (4, 31.9-36.9 mm SL, c&s), MZUSP 91630, 3, 33.1-34.0 mm SL, and UMSS 935, 12, 29.4-35.0 mm SL, collected with holotype.

Fig. 1. *Knodus shinahota*, holotype, LIRP 5722, 33.7 mm SL (male): Bolivia, río Shinahota, río Chapare basin, río Mamoré system. Photo by Alexandre C. Ribeiro.

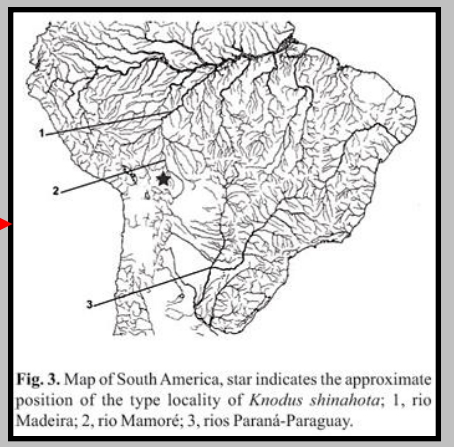


Fig. 3. Map of South America, star indicates the approximate position of the type locality of *Knodus shinahota*; 1, rio Madeira; 2, rio Mamoré; 3, rios Paraná-Paraguay.

Types

Primary types

1. Holotype

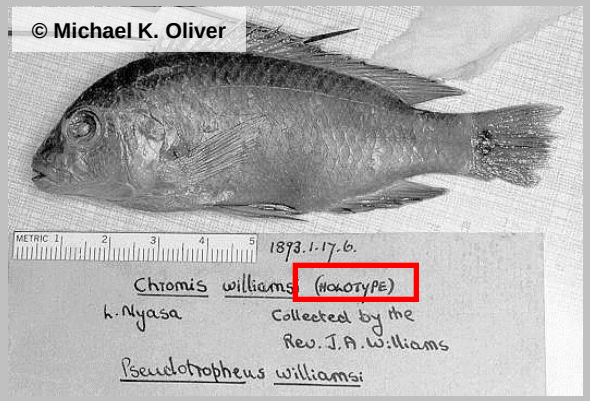
The holotype is a unique specimen designated by the author of the original description of a species as the name-bearing type of that certain species (or subspecies).

CHROMIS WILLIAMSI, sp. n. (Plate LVI. fig. C.)

D. $\frac{17}{8}$. A. $\frac{3}{7}$. L. lat. 28. L. transv. $\frac{7}{12}$.

Teeth deeply bicuspid, brown at the tip, the inner cusps being much larger than the outer; twenty-six or twenty-seven on each side of the outer series of the upper jaw. Scales below the eye in four series; the scales on the neck between the anterior dorsal spines and the beginning of the lateral line are remarkably small. In a specimen $4\frac{1}{3}$ inches long the diameter of the eye exceeds the width of the præorbital, is equal to the depth of the scaly portion of the cheek and less than the width of the interorbital space, which is rather convex. The angle formed by the præopercular limbs is a right one. The height of the body is a little more than the length of the head, which is one third of the total (without caudal). The length of the last dorsal spine is less than one half of that of the head. Pectoral fin not quite reaching the vent; caudal fin covered with scales. Scales rough, without spines on the margin. Body nearly uniform dark-coloured, with a black spot on the end of the operculum, and another at the root of the caudal fin; vertical fins blackish, the dorsal with a broad black margin and the anal with a small milky-white spot between the fifth and sixth rays.

A single specimen, $4\frac{1}{3}$ inches long, obtained by the Rev. J. A. Williams.



Catalog of Fishes:

williamsi, Chromis Günther 1894:624, Pl. 56 (fig. C) [Proc. Zool. Soc. Lond. 1893 (pt 4); ref. 2018]. Lake Malawi [Lake Nyasa], se. Africa. Holotype (unique): BMNH 1893.1.17.6. •Valid as *Pseudotropheus williamsi* (Günther 1894) -- (Maréchal 1991:413 [ref. 20944], Stauffer & Kellogg 2001:146 [ref. 25895]). *Pseudotropheus williamsi* (Günther 1894). Cichlidae. Distribution: Eastern Africa: Lake Malawi. Habitat: freshwater.

Types

Primary types

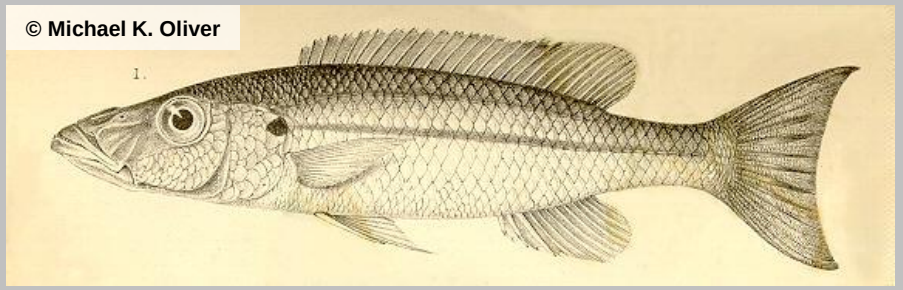
2. Syntype

The syntypes are all specimens of a type series when no holotype or lectotype was designated for that certain species.

3. Rhamphochromis macrophthalmus, sp. n. (Pl. VI. fig. 2.)

Depth of body 4 to 4⅓ in length, length of head 2⅝. Diameter of eye 2¼ in length of snout, 5 in length of head, equal to interorbital width. 3 or 4 series of scales on cheek. 38 to 40 scales in a longitudinal series, 5 to 7 from first dorsal spine to lateral line. Dorsal XVIII–XIX 11–12; last spine ¼ length of head. Anal III 10. Pectoral ⅔ length of head. Caudal peduncle twice as long as deep. Silvery; back darker; a blackish opercular spot; dorsal and caudal greyish, pelvics and anal orange.

Three examples, 200 to 230 mm. in total length (*Wood*).



Catalog of Fishes:

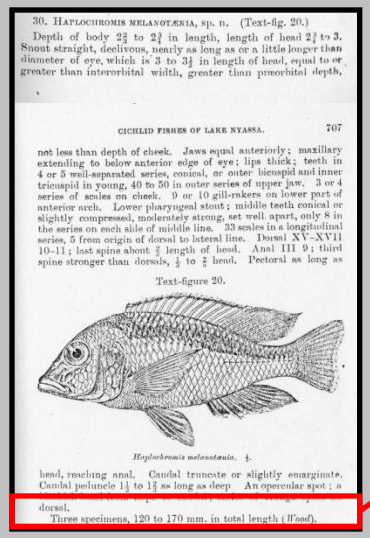
macrophthalmus*, *Rhamphochromis Regan 1922:725, Pl. 6 (fig. 2) [Proc. Zool. Soc. Lond. 1921 (pt 4) (no. 36); ref. 3673]. Lake Malawi [Lake Nyasa], se. Africa. Syntypes: BMNH 1921.9.6.217-219 (3). •Valid as *Rhamphochromis macrophthalmus* Regan 1922 -- (Eccles & Trewavas 1989:312 [ref. 13547], Maréchal 1991:424 [ref. 20944], Turner et al. 2004:206 [ref. 28114]). *Rhamphochromis macrophthalmus* Regan 1922. Cichlidae. Distribution: Eastern Africa: Lake Malawi. Habitat: freshwater.

Types

Primary types

3. Lectotype

The lectotype is one of the syntypes which is designated as the only name-bearing type after the establishment of a nominal species (or a nominal subspecies).



30. HAPLOCHROMIS MELANOTÆNIA, sp. n. (Text-fig. 20.)

Depth of body 2⅔ to 2¾ in length, length of head 2¼ to 3. Snout straight, declivous, nearly as long as or a little longer than diameter of eye, which is 3 to 3½ in length of head, equal to or greater than interorbital width, greater than preorbital depth,

CICHLID FISHES OF LAKE NYASSA. 707

not less than depth of cheek. Jaws equal anteriorly; maxillary extending to below anterior edge of eye; lips thick; teeth in 4 or 5 well-separated series, conical, or outer bicuspid and inner tricuspid in young, 40 to 50 in outer series of upper jaw. 3 or 4 series of scales on cheek. 9 or 10 gill-rakers on lower part of anterior arch. Lower pharyngeal stout; middle teeth conical or slightly compressed, moderately strong, set well apart, only 8 in the series on each side of middle line. 33 scales in a longitudinal series, 5 from origin of dorsal to lateral line. Dorsal XV–XVII 10–11; last spine about ⅔ length of head. Anal III 9; third spine stronger than dorsals, ½ to ⅔ head. Pectoral as long as

Text-figure 20.

Haplochromis melanotænia. ¼.

head, reaching anal. Caudal truncate or slightly emarginate. Caudal peduncle 1½ to 1⅔ as long as deep. An opercular spot; a [illegible] dorsal.

Three specimens, 120 to 170 mm. in total length (*Wood*).

5. ***Maravichromis melanotaenia*** (Regan)
(Fig. 118)

Haplochromis melanotaenia Regan, 1922: 706, text-fig. 20; Trewavas, 1935: 97; Jackson, 1961: 573.
Cyrtocara melanotaenia, Mayland, 1982: 156.

Derivation of name

Noun in apposition, referring to the dark oblique band (Greek: *melas* = black; *tainia* = band).

Material examined

Four specimens, 104-150 mm SL (122-175 mm FL, 128-180 mm TL).

Lectotype: BMNH.1921.9.6.151. Apparent ripe male, 143 mm SL; "Lake Nyassa", coll. R. C. Wood. (Fig. 118).

Paralectotypes: BMNH 1921.9.6.152-153. Unsexed, 107 mm; female, 104 mm SL; coll. R. C. Wood.

Other material: BMNH 1935.6.14.2425. Ripe male, 150 mm SL; Malembo, coll. Christy.

Revision of Eccles & Trewavas (1989)

Catalog of Fishes:

melanotaenia, Haplochromis Regan 1922:706, Fig. 20 [Proc. Zool. Soc. Lond. 1921 (pt 4) (no. 36); ref. 3673]. Lake Malawi [Lake Nyasa], se. Africa. Lectotype: BMNH 1921.9.6.151. Paralectotypes: BMNH 1921.9.6.152-153 (2). Lectotype designated by Eccles & Trewavas 1989:212 [ref. 13547]. •Valid as *Maravichromis melanotaenia* (Regan 1922) -- (Eccles & Trewavas 1989:211 [ref. 13547], Maréchal 1991:255 [ref. 20944]). •Valid as *Mylochromis melanotaenia* (Regan 1922). *Mylochromis melanotaenia* (Regan 1922). Cichlidae. Distribution: Eastern Africa: Lake Malawi. Habitat: freshwater.

Types

Primary types

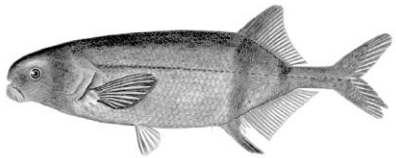
4. Neotype

The neotype is a unique specimen designated as the name-bearer of a certain nominal species (or subspecies) for which there is a reason to believe the holotype, lectotype, syntypes or previous neotype is lost.

Marcusenius moorii (Günther, 1867)
(Fig. 12e)

Mormyrus moorii Günther, 1867
Synonyms. Mormyrus lepturus Günther, 1871 (see Boulenger, 1898)
Mormyrus grandisquamis Peters, 1877 (see Boulenger, 1898)
Gnathonemus lambouri Pellegrin, 1904 (new synonymy)
Gnathonemus moorii longulus David and Poll, 1936 (new synonymy)
Marcusenius paucisquamatus Taverne, Thys van den Audenaerde and Heymer, 1976 (new synonymy)

Material. HOLOTYPE: presumed to be lost. Neotype: MRAC 87685. Talagouga, Ogowe (Gabon), Coll. Miss Kingsley; 135 mm SL; designated in this paper.



Catalog of Fishes:

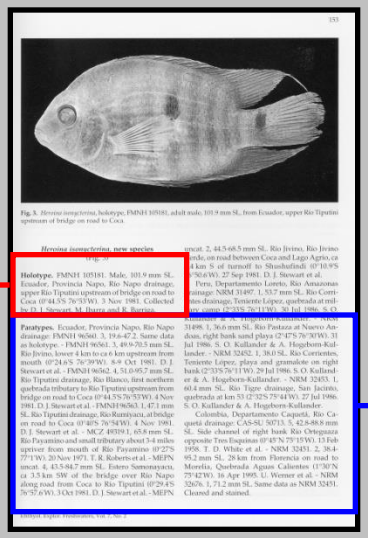
moorii, Mormyrus Günther 1867:116 [7] [Ann. Mag. Nat. Hist. (Ser. 3) v. 20 (no. 116); ref. 1989]. Talagouga, Ogowe, Gabon. Neotype: MRAC 87685. On p. 7 of separate. Original holotype in Liverpool Mus., apparently lost. Neotype designated by Boden et al. 1997:1672 [ref. 23218]. •Valid as *Marcusenius moorii* (Günther 1867) -- (Gosse 1984:87 [ref. 6169], Boden et al. 1997:1672 [ref. 23218]). *Marcusenius moorii* (Günther 1867). Mormyridae. Distribution: Africa. Habitat: freshwater.

Types

Secondary types

1. Paratype

The paratypes are each of the specimens of a type series other than the holotype. They are designated by the author who has written the original description of that certain species. Therefore, the paratype is a specimen, other than the holotype, on which the species description is based.



holotype

paratypes

Catalog of Fishes:

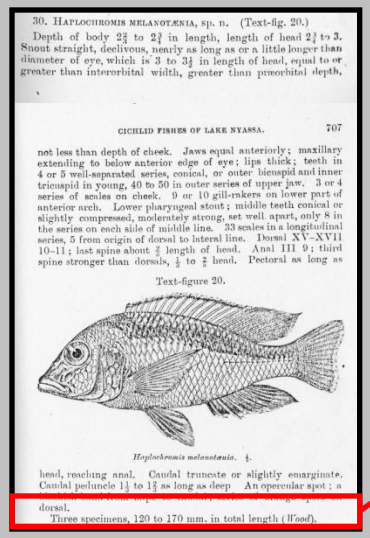
isonycterina, Heroina Kullander 1996:153, Figs. 3-6 [Ichthyol. Explor. Freshwaters v. 7 (no. 2); ref. 22574]. Río Napo drainage, upper Río Tiputini upstream of bridge on road to Coca, 0°44.5'S, 76°53'W, Napo Prov., Ecuador. Holotype: FMNH 105181. Paratypes: FMNH 96560-63 (3, 3, 4, 1); MCZ 49319 (1); MEPN uncat. (4, 2); NRM 31497-98 (1, 1), 32451-53 (2, 1, 1), 32676 (1, c&s); SU 50713 (5). •Valid as *Heroina isonycterina* Kullander 1996 -- (Kullander in Reis et al. 2003:636 [ref. 27061]). *Heroina isonycterina* Kullander 1996. Cichlidae. Distribution: Amazon R. basin: Colombia, Ecuador and Peru. Habitat: freshwater.

Types

Secondary types

2. Paralectotype

The paralectotypes are each of the specimens of a series of remaining syntypes after one of them has been designated as a lectotype.



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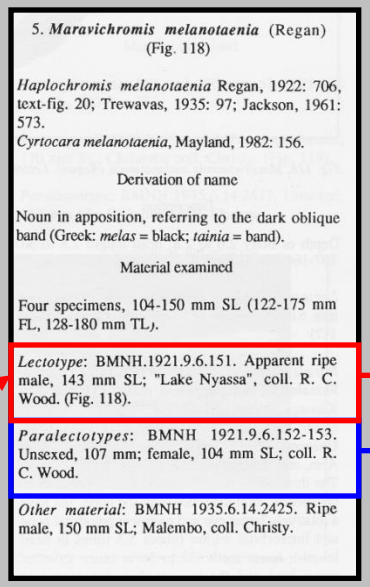

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Revision of Eccles & Trewavas (1989)

lectotype

paralectotypes

Catalog of Fishes:

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Types

Types not regulated by the Zoological Code

1. Allotype

The term ‘allotype’ may be used to designate among paratypes a specimen of the opposite sex to the holotype. It’s designation is not regulated by the Zoological Code (ICZN).

holotype (male specimen) ←

→ allotype (female specimen)

2. Cotype

The term ‘cotype’ was used in an earlier period of time, with the same meaning as syntype or paratype, but it should not be used anymore in the zoological nomenclature. It is a term not regulated by the Zoological Code (ICZN).

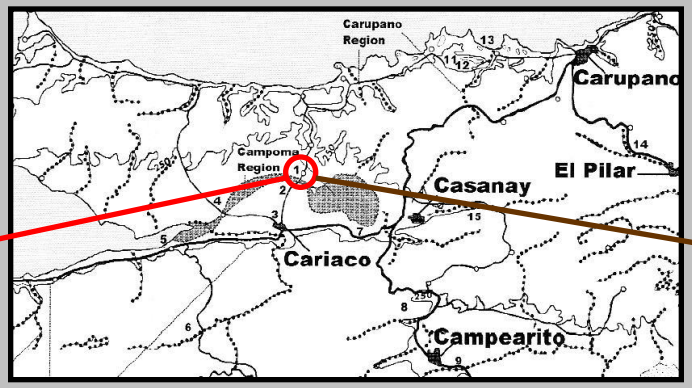
Types

Types not regulated by the Zoological Code

3. Topotype

The term ‘topotype’ is used for a specimen of the type-locality of a certain species (or subspecies), to which it should be belong, whether it belongs to the type series or not. It is a term not regulated by the Zoological Code (ICZN).

holotype



topotypes

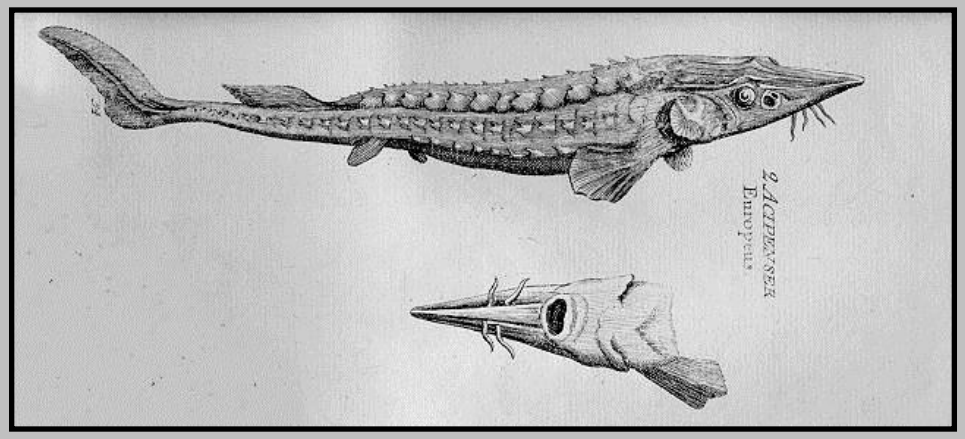
4. Chirotype

The term ‘chirotype’ is used for each of the specimens of a type series before the manuscript of the original description is published, If the manuscript is published, the specimens are not chirotypes anymore, but become holotype, paratypes, etc. This term is not regulated by the Zoological Code (ICZN).

Types not regulated by the Zoological Code

5. Plesiotype

The term ‘plesiotype’ is used for an illustrated specimen in a publication. It does not concern type specimens. This term is not regulated by the Zoological Code (ICZN).



Types

Summary