

Specimens of the order Gonorynchiformes (Actinopterygii: Teleostei) deposited in the Department of Zoology, The University Museum, The University of Tokyo

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Abstract

A list of specimens of the order Gonorynchiformes deposited in the Department of Zoology, The University Museum, The University of Tokyo is provided. Although 25 and 37 specimens of Chanidae and Gonorynchidae, respectively, were confirmed, no examples of the freshwater family Kneriidae were found.

Introduction

The order Gonorynchiformes, including three families, Chanidae (Indo-Pan Pacific marine/brackish/freshwater), Gonorynchidae (Indo-Pan Pacific marine/brackish) and Kneriidae (African freshwater), is characterized by having the first three vertebrae specialized and associated with one or more cephalic ribs. Because this character is similar to the Weberian Apparatus, a unique character of the series Otophysi (including Cypriniformes, Characiformes, Siluriformes, and Gymnotiformes), Gonorynchiformes is considered to be related to that series (Nelson et al. 2016). The family Chanidae includes a single extant species, *Chanos chanos* (Fabricius, 1775), and seven fossil genera (Nelson et al. 2016). The former, commonly called milkfish due to its whitish muscle color, is the most important commercial fisheries fish species in Southeast Asia, tolerating low salinity and undergoing rapid growth. Accordingly, it is extensively aquacultured in tropical Indo-Pacific regions, although mainly in Southeast Asia, where it is widely farmed in freshwater or brackish water ponds (sometimes together with prawns) and processed for food (Tanaka et al. 1990; Koeda 2019), although not highly popular as such. It is also used as baitfish for tuna-fishing (Tateishi 2000; Nibe 2003a, b; Hata 2017, 2022). Gonorynchidae includes five recent species, inhabiting the sea floor up to hundreds of meters in depth (Grande 1999). They are caught by trawls, but the catch is small and of no significant commercial importance (Yamada 1986; Ferraris 1999; Koeda 2020). Kneriidae includes 31 recent freshwater species, found in tropical Africa. All are less than 16 cm in length (Nelson et al. 2016), some species, such as *Phractolaemus ansorgii* Boulenger, 1901 (called Tobacco Fish or African Mudfish), are included in the aquarium trade (Matsuzaka 1997; Pisces Publishers 2001, 2004).

During a survey of the fish collection deposited in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT), a number of specimens of the order Gonorynchiformes, collected from Japan and elsewhere, were found. They are detailed in the following list.

Materials and Methods

Specimens of Gonorynchiformes in the Department of Zoology, The University Museum, The University of Tokyo (abbreviated as ZUMT) were identified during the present study following Bagarinao (1999), Ferraris (1999), Grande (1999), Nakabo and Kai (2013a, b), and Nelson et al. (2016). Parentheses following registration numbers include standard length, collection locality, collection date, and collector. The collection year and collector for some specimens were estimated following Koeda et al. (2022).

The ZUMT specimens listed herein were stored in shelved containers in Room 406 (specimen storage room) in the museum building (as of July 2022). Although some of the ZUMT specimens, collected by Dr. Tokiharu Abe, had not been registered into the ZUMT collection, with the collection data of most missing, they are listed herein together with their ZUMT ABE number (number with underbar written on the specimen label), in the hope that Dr Abe's catalog books with collection data will be rediscovered in the future. Additionally, specimens with catalogue numbers ZUMT ABE 2700 to 6000 were collected from Palau by Dr. Abe between 1936 and 1937 (Koeda et al. 2022).

Results

A total of 25 and 37 specimens, respectively, of Chanidae and Gonorynchidae from the Pacific region were confirmed in the ZUMT collection. ZUMT 10982, an example of *Chanos chanos* from Yonaguni-jima Island, Japan is now deposited in the Field Museum, Chicago (FMNH 59151).

However, no ZUMT specimens or ZUMT ledger registrations of examples of the family Kneriidae were found. Additionally, no type specimens for the order were found in the collection.

Species accounts

Order Gonorynchiformes ネズミギス目
Family Chanidae サバヒー科
***Chanos chanos* (Fabricius, 1775)** サバヒー

JAPAN

ZUMT 8812 (99.0 mm; Yaeyama Islands, Ryukyu Archipelago; coll. by H. Kuroiwa)
ZUMT 9315 (72.0 mm; Miyako-jima Island, Miyako Islands, Ryukyu Archipelago; coll. by H. Kuroiwa)
ZUMT 10425 (59.0 mm), ZUMT 10434 (105.0 mm), ZUMT 10435 (77.0 mm), ZUMT 64214 (98.0 mm),
ZUMT 64215 (64.0 mm; Yonaguni-jima Island, Yaeyama Islands, Ryukyu Archipelago; coll. by N. Kuroda)
ZUMT 10982 [body unmeasurable due to bending; Yonaguni-jima Island, Yaeyama Islands, Ryukyu Archipelago; Feb. 1923; coll. H. Kuroiwa; currently registered as FMNH 59151 (see Results)]
ZUMT 14020 (113.0 mm), ZUMT 14021 (111.0 mm), ZUMT 15339 [109.0 mm; probably from Okinawa Pref.; coll. by S. Sakaguchi (Okinawa Prefectural Daiichi Junior High School)]

TAIWAN

ZUMT 5680 (168.0 mm), ZUMT 64216 (60.0 mm), ZUMT 64217 (191.0 mm; Yilan; Oct. 1896; coll. by K. Tada)
ZUMT 18008 (167.0 mm; rice field along coast of Naha Bay, Okinawa-jima Island, Okinawa Islands, Ryukyu Archipelago; 11 Oct. 1927; coll. by K. Tashiro)
ZUMT 64200 (205.0 mm; Ximending Market, Taipei City; 3 Oct. 1929)

PHILIPPINES

ZUMT 42324 (230.0 mm), ZUMT 42673 (89.0 mm), ZUMT 48530 (236.0 mm; Basilan; 1926; coll. by U. Yamamura)
ZUMT 54602 (121.6 mm; Puerto Princesa, Palawan; 8 Feb. 1985; coll. by M. Aizawa)

PALAU

ZUMT ABE 5960 (98.0 mm), ZUMT ABE 5961 (104.0 mm), ZUMT ABE 6006 (86.0 mm; Palau)

HAWAIIAN ISLANDS

ZUMT 57257 (352.2 mm), ZUMT 57258 (380.8 mm; Hawaiian Islands; 3 Jan. 1988; coll. by H. Fujimoto)

Family Gonorynchidae ネズミギス科
***Gonorynchus abbreviatus* Temminck & Schlegel, 1846 ネズミギス**

JAPAN

- ZUMT ABE 94-1205 (275.0 mm; Manazuru Town, Kanagawa Pref.)
ZUMT 8710 [163.5 mm; probably collected from Saga Pref.; coll. by K. Kikuchi (Saga Prefectural Saga Junior High School)]
ZUMT 20271 (198.2 mm; Wakayama Pref.)
ZUMT 21703 (174.3 mm; Wakayama Pref.; 4 Feb. 1906)
ZUMT 23034 (178.7 mm; Sakaiura, Minabe Town, Wakayama Pref.; 24 Nov. 1929; coll. by T. Kinoshita)
ZUMT 23277 (65.4 mm; Susaki City, Kochi Pref.; 15 Aug. 1930; coll. by T. Kamohara)
ZUMT 23894 (288.6 mm; Naya, Kagoshima City, Kagoshima Pref.)
ZUMT 31598 (246.5 mm; Kagoshima Pref.)
ZUMT 34455 (226.5 mm; probably Japan)
ZUMT 42926 (181.8 mm; Sumoto City, Awaji-shima Island, Hyogo Pref.)
ZUMT 49050 (297.5 mm; obtained at Misaki Fish Market, Misaki, Miura City, Kanagawa Pref.; 23 July 1957; coll. by I. Tomiyama)
ZUMT 53921 [118.5 mm; continental slope in East China Sea, approx. 230–240 km north of Miyako-jima Island, Miyako Islands, Ryukyu Archipelago (26°55'N, 125°00.5'E–26°56.6'N, 125°02.5'E), 120 m depth; 24 May 1968; coll. by Y. Tominaga boarding on RV *Hakuyo-maru*]
ZUMT 57668 (215.4 mm), ZUMT 57669 [209.1 mm; East China Sea, approx. 140 km southwest off Goto Islands, Nagasaki Pref. (31°30'N, 128°03'E), 147 m depth; 14 May 1988; coll. by M. Aizawa]
ZUMT 64289 (266.2 mm), ZUMT 64290 (255.0 mm), ZUMT 64291 [270.3 mm; obtained at Misaki Fish Market (probably caught in Sagami Bay), Miura City, Kanagawa Pref.; 23 July 1957; coll. by I. Tomiyama]
ZUMT 64303 (264.4 mm; Misaki, Miura City, Kanagawa Pref.; around 1968)
ZUMT 64552 (312.0 mm), ZUMT 64553 (312.0 mm; Suzaki, Shimoda City, Shizuoka Pref.; Mar. 1939)

TAIWAN

- ZUMT 14813 (81.3 mm), ZUMT 14814 (75.2 mm; Tainan City; coll. by T. Aoki)
ZUMT 14825 (89.8 mm), ZUMT 14826 (75.7 mm), ZUMT 14827 (46.8 mm), ZUMT 14828 (74.9 mm), ZUMT 14829 (77.4 mm), ZUMT 14830 (93.7 mm; Taiwan; coll. by T. Aoki)

LOCALITY UNKNOWN

- ZUMT ABE 59-658 (72.5 mm; no data)

***Gonorynchus greyi* (Richardson, 1845)**

NEW ZEALAND

- ZUMT 64087 [439.1 mm; approx. 180 km east of Chatham Island, Chatham Islands (43°29'S, 173°57'W), 306–315 m depth, 6 Mar. 1983, coll. by M. Aizawa]
ZUMT 64316 (472.0 mm), ZUMT 64317 (408.0 mm), ZUMT 64319 (484.0 mm), ZUMT 64320 (456.0 mm), ZUMT 64321 (451.0 mm), ZUMT 64322 [525.0 mm; approx. 920 km southeast of Chatham Islands (50°22'S, 167°46'W), 340–350 m depth, 16 Mar. 1983, coll. by M. Aizawa]

Acknowledgements

We thank A. Hata, I. Abe, S. Fujiwara, A. Iinuma, M. Saito, A. Takahashi, M. Fukatani, S. Ito, H. Ogata and other volunteers of ZUMT for the opportunity to examine the present specimens, and providing curatorial assistance. We also thank C. McMahan, S. Mochel, and K. Swagel (FMNH) for opportunities to examine the FMNH collection, and G. Hardy (Ngunguru, New Zealand), who read the manuscript and provided help with

English. This study was supported in part by the Sasakawa Scientific Research Grant from the Japan Science Society (28-745, 2021-4064); a Grant-in-Aid from the Japan Society for the Promotion of Science for JSPS Fellows (DC2: 29-6652); JSPS KAKENHI Grant Numbers 19K23691 and 21K06313JP; JSPS Overseas Research Fellowships (202160519); the Fujiwara Natural History Foundation; Kurita Water and Environment Foundation (23B019); JST, CREST (JPMJCR23J2); Ocean Shot from The Sasakawa Peace Foundation.

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