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Annotated checklist and type catalog of fish genera and species described from Taiwan

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Abstract

An annotated checklist of fish genera and species described from Taiwanese waters through 2009 is presented. It includes 20 genera and 336 species/subspecies in 99 families. Of these, 225 species/subspecies are currently recognized as valid and 111 are invalid, including 7 questionable species. The current status of each taxon, if different from that of the original description, is provided. Thus far, 41 primary freshwater and estuarine species/subspecies are considered as endemic and 55 marine species are found only around Taiwan. The type series collected from Taiwan are also listed based on the information provided in the original descriptions and from our investigation. It includes approximately 2217 specimens in 779 lots, including 242 holotypes and lectotypes, 5 neotypes, 35 lots of syntypes and 497 lots of paratypes and paralectotypes. There are still 19 species lacking primary types and 11 lots with at least 31 unknown secondary type specimens.

Key words: Taxonomy, Pisces, type specimen, endemic species, fish database

Introduction

The history of fish study in Taiwan began with Robert Swinhoe who collected a large number of animal specimens while traveling in Formosa [Taiwan] in 1858–1866 (Carrington, 1978). Swinhoe was appointed the first British consular official in Formosa in 1864 and was well known for discovering many Taiwanese birds and mammals. During his visit to Taiwan, Swinhoe also collected about 200 fish specimens which were purchased by the British Museum (Natural History) (BMNH). Albert Günther (1868) described the first 7 fishes of Taiwan on the basis of Swinhoe's collection.

In 1896–1897, the Japanese specialist Tsunasuke Tada collected numerous animal specimens and deposited those specimens in Japan. Subsequently, his fish specimens were sent to Stanford University where Jordan and Evermann (1902) reported 186 species from Taiwan, including 2 new genera and 17 new species, mainly on the basis of Tada's collection and partially on another collection made by Shinnosuke Matsubara.

In 1902 and 1905, the German entomologist Hans Sauter visited Taiwan and collected not only insects but also different animal specimens. His Taiwanese insect collection was well known in the world. Our investigation showed that his fish collections were purchased by the naturalist Alen Owston, and were sent to several museums including CM (now in FMNH), SU (now in CAS), USNM, NRM and BMNH. Jordan and Richardson (1909) reported 100 species in addition to Jordan and Evermann's (1902) list based on Sauter's collection, hence brought the number of fish species in Taiwan to 286 species. Regan (1908a, b) also described 10 new species based on Sauter's collection.

During 1900–1910, the research vessel U.S. Albatross collected fish specimens from the South China Sea. A total of 10 new species from near Taiwan were described based on this collection (Fowler, 1931, 1934, 1938).

Masamitsu Oshima, a zoologist of the government during the Japanese occupation in Taiwan, was the pioneer of freshwater fish study in Taiwan. Most of his studies on fishes were made by the Japanese specialists Yoneraro Kikuchi, Takeo Aoki and Matsuda Eiji, and by himself.

Oshima (1919) first recorded 76 freshwater fishes from Taiwan, including 7 new genera and 15 new species. Later, Oshima (1920a, b) recorded 59 freshwater fishes, including 4 new genera and 10 new species. Up until 1927, he described a total of 44 new fish species. Of them, 13 species are still valid, including the endemic salmon, *Salmo formosanus* [= *Oncorhynchus formosanus* (Jordan and Oshima, 1919)] and many other endemic species.