

Short note/Kurze Mitteilung

First records of *Gobiopterus brachypterus* and *Mugilogobius tigrinus* from Sri Lanka (Teleostei, Perciformes, Gobiidae: Gobionellinae)

Erstfunde von *Gobiopterus brachypterus* und *Mugilogobius tigrinus* auf Sri Lanka (Teleostei, Perciformes, Gobiidae: Gobionellinae)

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Zusammenfassung: Die Fischfauna der Süß- und Küstengewässer der Insel Sri Lanka (früher Ceylon) ist bei Weitem nicht so gut dokumentiert wie oft angenommen wird. Hier wird über Erstfunde der zwei Grundelarten *Gobiopterus brachypterus* und *Mugilogobius tigrinus* aus der Familie Gobiidae von der Insel Sri Lanka berichtet. Beide Gattungen und Arten waren bisher von Sri Lanka nicht bekannt. *G. brachypterus* wurde 1998 erstmalig in küstennahen Lagunengewässern der Provinz Matara entdeckt; das bisherige Verbreitungsgebiet erstreckte sich von Sumatra, Java, den Philippinen bis Nordaustralien. *M. tigrinus* wurde bisher nur in Südthailand, Malaysia und Singapur gefunden. Durch die neuen Funde erhöht sich die Anzahl der von Sri Lanka bekannten Gattungen der Familie Gobiidae, Unterfamilie Gobiinae, von zehn auf zwölf. Die beiden Grundelarten *G. brachypterus* und *M. tigrinus* leben in küstennahen Süßgewässern, Ästuarien und Lagunen. Die Fortpflanzungsbiologie beider Arten ist unzureichend erforscht.

First surveys on the fish fauna of Sri Lanka were made by DUNCKER (1912), followed by DERANIYAGALA (1952), MENDIS (1954), MUNRO (1955) and MENDIS & FERNANDO (1962). PETHIYAGODA (1991) recorded 88 freshwater fish species for Sri Lanka. KOTTELAT & WHITTEN (1996) estimate that their 90 known freshwater fish species represent about 95 % of the total autochthon ichthyofauna.

In fact the fish fauna of Sri Lanka is not as wellknown as believed. New species are discovered, described or differentiated from indian-subcontinental taxa since the 1990's; recently new species of *Rasbora* (Cyprinidae) were described by SILVA et al. (2010); others have been added to the Srilankan fauna (PETHIYAGODA 1994) or new locality records of rare species have been made (OTT & ENDE 2004).

Ten species of the family Gobiidae in ten genera (*Awaous*, *Glossogobius*, *Oligolepis*, *Pseudogobius*, *Redigobius*, *Schismatogobius*, *Sicyopterus*, *Sicyopus*, *Stenogobius*, *Stiphodon*) are known from Srilankan freshwaters (WATSON 1998, LARSON 2001). Two genera and two species of gobies (Gobiidae, Gobionellinae) are recorded here from Sri Lanka for the first

time. In 1998 *Gobiopterus brachypterus* and in 2002 *Mugilogobius tigrinus* were found in Srilankan waters.

Mugilogobius tigrinus Larson, 2001 originally was described from a mangrove creek (Sungai Pandan) in Singapore. The species is known until now from the western central Pacific Ocean, especially peninsular Thailand, Malaysia and Singapore (LARSON 2001, LARSON & LIM 2005, LARSON, JAAFAR & LIM 2008). The first specimens of *M. tigrinus* on Sri Lanka were collected on February, 8th, 2002 in the Ranweli Lagoon at the mouth of the Kondapola Oya, a northern tributary of the Maha Oya near Waikkal, Northwestern Province, Puttalam District (fig. 1a), geographical position: 7°16'46.5" N/79° 50'28.7"E.

Ecological data collected: water temperature 31.2 °C, air temperature 32 °C at 11.00 a.m., in the early evening between 18.00 and 19.00 p.m. the air temperature was 26 °C and no change in the water temperature was recorded. Measured pH 7.4 to 7.7 The electric conductivity of the water was between 1000 (after a day of heavy rainfall) and 2000 µS/cm (after a high tide, when water from the Indian Ocean flowed into

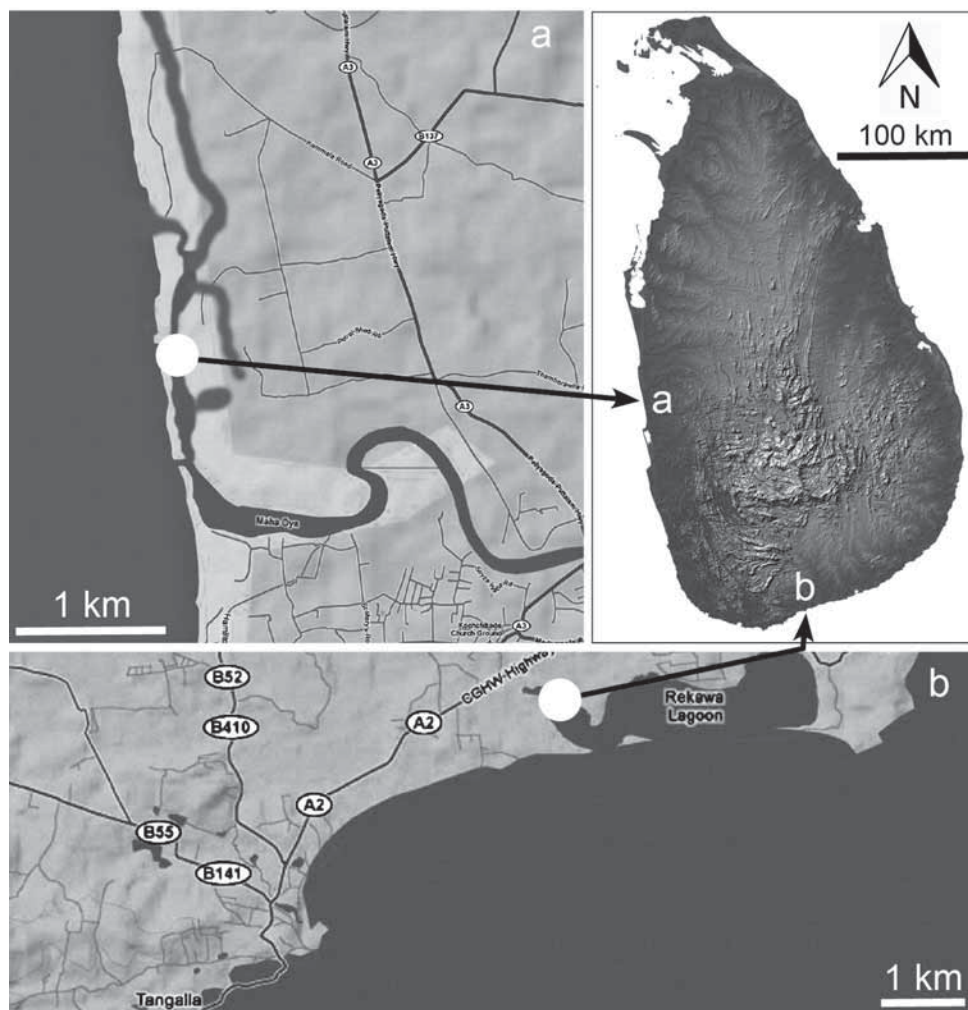
the lagoon). All measurements were made with an electronic multimeter (Hannah HI 98129).

Care of eleven specimens in a freshwater tank (360 $\mu\text{S}/\text{cm}$) for more than five years was possible without problems.

Mugilogobius tigrinus seems to have been overlooked as a member of the Srilankan ichthyofauna because this goby lives hidden between

the stems of mangrove palms, *Nypa fruticans* (fig. 2c), where it can be caught with small hand nets only. The gobies must be disturbed by hitting the stems of the palms with a stick; then they came out. Depending on the tides the gobies dive to the center of the nipapalms.

The mangrove forests on the island of Sri Lanka are endangered ecosystems. The area on



Figs. 1 a and b: Collecting sites on Sri Lanka. **a** Ranweli Lagoon with Kondapola Oya, a northern tributary of the Maha Oya (Northwestern Province, Puttalam District): $7^{\circ}16'46,5''\text{ N}/79^{\circ}50'28,7''\text{ E}$ (*Mugilogobius tigrinus*). **b** Rekawa Lagoon east of Tangalla (Matara District, Southern Province): $6^{\circ}3'4,8''\text{ N}/80^{\circ}49'20,9''\text{ E}$ (*Gobiopertus brachypterus*).

Abb. 1 a und b: Fundstellen auf Sri Lanka. **a** Ranweli Lagune mit Kondapola Oya, nördlicher Zufluss des Maha Oya (Nordwestprovinz, Puttalam Distrikt): $7^{\circ}16'46,5''\text{ N}/79^{\circ}50'28,7''\text{ E}$. (*Mugilogobius tigrinus*). **b** Rekawa Lagune östlich von Tangalla (Matara Distrikt, Südliche Provinz): $6^{\circ}3'4,8''\text{ N}/80^{\circ}49'20,9''\text{ E}$ (*Gobiopertus brachypterus*).

the whole island is less than 100 km² (LEGG & JEWELL 1995) and usually restricted to narrow strip at the shore, sometimes only a few trees deep (SILVA & SILVA 1998).

Other fish species observed at the collection site: *Ambassis commersoni*, *Aplocheilus parvus*, *Butis butis*, *Oryzias dancena*, *Pseudogobius javanicus*, *Puntius vittatus* and *Terapon jarbua* (juveniles).



Figs. 2 a-g: **a** Rekawa Lagoon, habitat of *Gobiopterus brachypterus*. **b** *Gobiopterus brachypterus* (male at the top, female at the bottom, 18 mm total length), photograph taken immediately after catch in situ. **c** *Gobiopterus brachypterus*, female in aquarium, 25 mm total length. **d** *Gobiopterus brachypterus*, preserved specimen, 20 mm total length, NTMS. 15570-001. **e** Mangrove palms (*Nypa fruticans*) in Ranweli Lagoon, habitat of *Mugilogobius tigrinus*. **f** *Mugilogobius tigrinus*, 25 mm total length, photograph taken immediately after catch in situ. **g** *Mugilogobius tigrinus*, 36 mm total length, male in aquarium. **Abb. 2 a-g:** **a** Rekawa Lagune, Habitat von *Gobiopterus brachypterus*. **b** *Gobiopterus brachypterus* (Männchen oben, Weibchen unten, 18 mm Gesamtlänge), direkt nach dem Fang in situ fotografiert. **c** *Gobiopterus brachypterus*, Weibchen im Aquarium, 25 mm Gesamtlänge. **d** *Gobiopterus brachypterus*, konserviertes Exemplar, 20 mm Gesamtlänge, NTMS. 15570-001. **e** Nipa-Palmen (*Nypa fruticans*) in Ranweli Lagune, Habitat von *Mugilogobius tigrinus*. **f** *Mugilogobius tigrinus*, direkt nach dem Fang in situ fotografiert. **g** *Mugilogobius tigrinus*, Männchen im Aquarium, 36 mm Gesamtlänge.

Mugilogobius tigrinus Larson, 2001 is similar to *M. fasciatus* Larson, 2001 from the western pacific areas in Thailand and Singapore. These species are the two members of the genus with the lowest lateral scale counts: with a mean of 26 versus all other *Mugilogobius* 29 or higher. *Mugilogobius tigrinus* can be easily distinguished from *M. fasciatus* by the number of bands encircling the body (4 versus 5) and by a black stripe from the eye to the mouth (versus a white one). Helen LARSON, Northern Territory Museum of Arts and Sciences, Darwin/Australia, determined the collected specimens as *M. tigrinus*. The Srilankan specimens of *M. tigrinus* are deposited under catalogue number NTM S. 16113-001 in the Northern Territory Museum of Arts and Sciences, Darwin/Australia. The first photographs of fully coloured adult males of *M. tigrinus* are presented here (figs. 2 f, g). The reproduction biology of this species is yet unknown.

Gobiopterus brachypterus (Bleeker, 1855) was described originally from Lake Grati, Pasuruan Province, Java, Indonesia. According to KOUMANS (1953) and KOTTELAT et al. (1993) the species is distributed from Sumatra, Java and the Philippines to Australia.

The specimens of *Gobiopterus brachypterus* on Sri Lanka were collected on March, 4th, 1998 in the Matara District between the villages Tangalla and Ranna in Rekawa Lagoon on the south east coast of Sri Lanka (figs. 1b, 2a). Geographical position: 6°3'4.8" N/80°49'20.9" E. This is the first record of a member of the genus *Gobiopterus* Bleeker, 1874 from Sri Lanka.

Ecological data collected: Water temperature 35.8 °C, air temperature 32 °C at 11.00 a.m.; in the early evening between 18.00 and 19.00 p.m. air temperature 25 °C with no change in the water temperature; pH 7.9. The electric conductivity of the water was 680 µS/cm. All measurements were made with an electronic multimeter (Hannah HI 98129).

Other fish species observed at the collection site: *Ambassis commersoni*, *Amblypharyngodon mellestinus*, *Aplocheilichthys parvus*, *Channa striata*, *Oryzias dancena*, and *Puntius vittatus*, undetermined glass prawns in masses.

There could be two reasons why *Gobiopterus brachypterus* has been overlooked in former surveys: The glassy gobies look like juveniles of larger species. The known maximal size of *G. brachypterus* is 29 mm total length. Only when adult females with eggs are caught, *G. brachypterus* is recognized (figs. 2 b, c). During daytime only few specimens can be found in the shallow part of the water. The number of specimens caught by seines with 1 mm-mesh opening increases in dusk. So it seems that these gobies come up from deeper parts of the water body in the night.

G. brachypterus differs from *G. chuno* from the Ganges estuaries below Calcutta (locus typicus) according to KOTTELAT et al. (1993) by the position of the eyes and the size of the eyes as the main characters to distinguish the two species. Helen LARSON from the Northern Territory Museum of Arts and Sciences, Darwin/Australia and Lynne PARENTI from the Smithsonian Institution National Museum of Natural History Washington, DC/U.S.A. identified the collected material from Sri Lanka as *G. brachypterus*.

The systematic position and nomenclature of the tiny, translucent gobies of the genus *Gobiopterus* Bleeker, 1874 still needs further studies. For these purpose the Srilankan specimens of *G. brachypterus* (fig. 2d) were deposited under catalogue number NTM S. 15570-001 (NTM = Northern Territory Museum of Arts and Sciences, Darwin/Australia) and catalogue numbers MTD F26759-26764 (MTD = Museum für Tierkunde Sammlung Fische, Dresden, now: Senckenberg Naturhistorische Sammlungen Dresden).

Cared in tanks this species can be bred in freshwater. The reproduction mode in natural waters needs further investigations.

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