IN SITU OBSERVATIONS ON NEW AND RARE GOBIES FROM THE EASTERN MEDITERRANEAN SEA

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Abstract

Two goby species, *Didogobius splechtnai* and *Thorogobius macrolepis*, are being recorded for the first time from the eastern Mediterranean Sea, based on underwater observations carried ouilet at Turkish coasts. Updated information on the distribution of *Gobius auratus* is also presented.

Keywords : Aegean Sea, Eastern Mediterranean, Levantine Basin, Fishes.

Gobiidae is the most species rich family among fishes, represented roughly by 212 genera and 1875 species worldwide [1]. A diverse gobiid fauna with close to 60 species is encountered in the Mediterranean Sea, where almost half of the recorded species are endemic [2]. Data on the ecology and distribution of several small sized gobiids, which generally inhabit caves and crevices, are remarkably scarce. Such species are difficult to detect and generally overlooked due to their cryptic habits [3].

Until now, 25 gobiid species were known from the eastern Mediterranean Sea [4]. Scuba diving observations conducted along the Aegean Sea and Levant coasts of Turkey revealed the presence of two previously unrecorded species - *Didogobius splechtnai* and *Thorogobius macrolepis*. The data obtained also proved that, *Gobius auratus*, is a common species along Turkish coasts (from eastern Levant shores to northern Aegean Sea), which was previously believed to be rare. Due to the conspicuous and distinctive colour pattern of these species, they were identifiable *in situ* immediately upon discovery. Species accounts are presented below.

Didogobius splechtnai Ahnelt & Patzner, 1995

This species was observed during 2005 along the southern Aegean Sea coast of Turkey (Bodrum Peninsula / Gokova Bay: 36°56'N, 27°15'E, from 8 m to 45 m depth). More than 10 individuals have been observed in Bodrum, indicating an established local population. All the specimens were found in the innermost parts of caves and were only detectable using artificial light. The size range of the caves inhabited by *D. splechtnai* varied from small cavities (0.7 m width x 0.5 m height x 1 m depth) to large caves (3 m x 3 m x 5 m) where the fishes were always observed in small cavities (0.2 x 0.2 x 0.3 m) in the innermost part of the cave. The fish usually (80% of the observations) rested on the sandy bottom close to an entrance of a nearby hole. In all cases, the bottom of the hole/cave was sand without mud. Habitat preferences of *D. splechtnai* from the southern Aegean Sea is well in accordance with those recorded from Ibiza (Balearic islands) coasts [3,5]. The species is included to the eastern Mediterranean ichthyofauna for the first time, where previous records were all confined to the western Mediterranean Sea [3,5,6]

Gobius auratus Risso, 1810

The golden goby, *Gobius auratus* (= *G. luteus* Kolombatovic, 1891), was observed in 2003 at Oludeniz (near Fethiye; 36°33'N, 29°05'E; 26 m depth), in 2004 at Candarli Bay (northern Aegean Sea; 38°55'N, 27°01'E; 16 m depth) and in Kas (eastern Levant; 36°06'N, 29°38'E; 28 m depth), and finally in 2005-2006 along the peninsula of Bodrum (36°56'N, 27°15'E; 20-40 m depth). These fishes all presented a distinct canary yellow body colouration corresponding to the classical pattern described for the northwestern Mediterranean populations, but not the pattern (red dots forming longitudinal lines on head, trunk and median fins) reported from the Adriatic Sea [7]. For most instances, *G. auratus* specimens were observed hovering at steep fields of large rocky and coralligenous substrates, but specimens hiding in small cavities (mostly less than 10 cm width x 10 cm height) were also determined. The species has probably a larger distribution range along Turkish coasts. Until now, the northernmost verified record of *G. auratus* in Turkey was given from Saros Bay, northern Aegean Sea [8], but previous records from the Sea of Marmara and Iskenderun Bay are still yet to be substantiated.

Thorogobius macrolepis (Kolombatovic, 1891)

This species has been first observed in 2003 at Oludeniz (36°33'N, 29°05'E; 30 m depth), later in 2005 at Bodrum (36°56'N, 27°15'E; 20-45 m depth) and at Bozyazi (eastern Levant; 36°04'N, 33°05'E; 45 m depth). Most recently, a single specimen was observed at Fethiye Bay during July 2006, at a depth of 26 m. All scuba observations indicate that the species occurs on sandy bottom, at the foot of vertical or at least distinctly sloping rock walls, in accordance with previous habitat descriptions [5]. The species is endemic to the Mediterranean, which was previously known as far as to northern Adriatic coasts [9]. Our findings reveal that, *T. macrolepis* has a wide distribution range - extending from the southern Aegean Sea to eastern Levantine coasts.

The aforementioned records expand the known distribution of small sized Mediterranean Gobiidae species, with new species for the eastern Mediterranean basin. The previous discontinuous distribution of those cryptobenthic or shy species may be interpreted as an artefact due to the difficulty of the sampling and *in situ* observation, rather than a true numerical rarity.The accumulation of such data provides further raw material to discuss the biogeography of Gobiidae in the Mediterranean Sea.

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References

1 - Nelson, J.S., 1994. Fishes of the world. 3rd edition, John Wiley & Sons, Inc., New York, 600 p.

2 - Quignard, J.P. and Tomasini, J.A., 2000. Mediterranean fish biodiversity. *Biol. Mar. Medit.*, 7 (3): 1-66.

3 - Herler, J., Patzner, R.A., Ahnelt, H. and Hilgers, H., 1999. Habitat selection and ecology of two speleophilic gobiid fishes (Pisces: Gobiidae) from the western Mediterranean Sea. *Mar. Ecol.*, 20 (1): 49-62.

4 - Golani, D., Ozturk, B. and Basusta, N., 2006. Fishes of the eastern Mediterranean. Turkish Marine Research Foundation, Publication No. 24, Istanbul, 259 p.

5 - Patzner, R.A., 1999. Habitat utilization and depth distribution of small cryptobenthic fishes (Blenniidae, Gobiesocidae, Gobiidae, Tripterygiidae) in Ibiza (western Mediterranean Sea). *Environ. Biol. Fish.*, 55: 207-214.

6 - Herler, J. and Patzner, R.A., 2002. New records of *Didogobius splechtnai* (Gobiidae) from the Tyrrhenian and northern Adriatic Sea. *Cybium*, 26(2):153-155.

7 - Herler, J., Patzner, R.A. and Sturmbauer, C., 2005. A preliminary revision of the *Gobius auratus* species complex with redescription of *Gobius auratus* Risso, 1810. *J. Nat. Hist.*, 39 (14): 1043-1075.

8 - Can, A. and Bilecenoglu, M., 2005. Turkiye denizlerinin dip baliklari atlasi. Arkadas yayinevi, Ankara, 224 p.

9 - Ahnelt, H. and Kovacic, M., 1997. A northern Adriatic population of *Thorogobius macrolepis* (Teleostei; Gobiidae). *Cybium*, 21 (2): 149-162.