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THE PRESENCE OF *HIPPOCAMPUS FUSCUS* RÜPPELL, 1838, IN THE NORTHEASTERN MEDITERRANEAN SEA

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ABSTRACT

In the present study, five specimens of seahorse Hippocampus fuscus Rüppell, 1838 are reported from the northeastern Mediterranean waters. The visual records were obtained during an underwater scuba survey conducted from 27 to 30 March 2007 and on 5 April 2007, in a depth range of 2-3 m in Mersin port (Mersin Bay, Turkey). This is the first occurrence of H. fuscus in the northeastern Mediterranean coast of Turkey, specifically in Mersin Bay, and the second record in Turkish Mediterranean waters. Furthermore, the presence of many adults and juveniles (n>10) in the observations indicates that this species has established a population in the region that has adapted well to the environment. This study addresses a significant gap in the literature and will be helpful for scientists working on fisheries, as well as providing an important contribution to the forthcoming Red List assessment in the Mediterranean.

Keywords: seahorse, Syngnathidae, extension, Mersin Bay, Turkey

PRESENZA DI *HIPPOCAMPUS FUSCUS* RÜPPELL, 1838, NEL MAR MEDITERRANEO NORD-ORIENTALE

SINTESI

Nel presente studio vengono segnalati cinque esemplari di cavalluccio marino Hippocampus fuscus Rüppell, 1838 provenienti dalle acque del Mediterraneo nordorientale. Le registrazioni visive sono state ottenute durante un'indagine subacquea condotta dal 27 al 30 marzo 2007 e il 5 aprile 2007, ad una profondità di 2-3 m nel porto di Mersin (baia di Mersin, Turchia). Questo è il primo ritrovamento di H. fuscus lungo la costa mediterranea nord-orientale della Turchia, in particolare nella baia di Mersin, e la seconda segnalazione nelle acque turche del Mediterraneo. Inoltre, la presenza di numerosi adulti e giovani (n>10) indica che questa specie ha stabilito nella regione una popolazione che si è ben adattata all'ambiente. Questo studio affronta una lacuna significativa nella letteratura e sarà utile per i ricercatori che lavorano nel settore della pesca, oltre a fornire un importante contributo alla prossima valutazione della Lista Rossa nel Mediterraneo.

Parole chiave: cavalluccio marino, Syngnathidae, estensione, baia di Mersin, Turchia

INTRODUCTION

The genus *Hippocampus* Rafinesque, 1810, is represented by three species in Mediterranean waters: the short-snouted seahorse *Hippocampus hippocampus* (Linnaeus, 1758), the long-snouted seahorse *Hippocampus guttulatus* (Cuvier, 1829), and the seahorse *Hippocampus fuscus* Rüppell, 1838 (Golani et al., 2006).

The seahorse *Hippocampus fuscus* is a member of the Syngnathidae family and is found in shallow coastal waters of the western Indian Ocean, Red Sea, and Mediterranean Sea (Golani & Fine, 2002; Lourie et al., 2016; Froese & Pauly, 2023).

The occurrence of *H. fuscus* in the Mediterranean basin was first reported from the Israeli coast (Golani & Fine, 2002), and only later recorded in Turkish Mediterranean waters (Gokoglu et al., 2004). Recently, Mahapatro et al. (2017) reported the presence of this species in the Bay of Bengal in the northeastern part of the Indian Ocean.

In Turkey, *Hippocampus fuscus* was first reported in the Bay of Antalya by Gokoglu et al. (2004). Subsequently, it was included in the

annotated checklist of fish of Turkey (Fricke et al., 2007). However, up to now, no specimens of *H. fuscus* were reported from the northeastern Mediterranean coast of Turkey (Mersin Bay).

In the present study, we report the presence of confirmed *H. fuscus* specimens from the northeastern Mediterranean coast of Turkey, specifically Mersin Bay. This study not only fills an important gap in the literature, but also demonstrates the spread of this species towards the northeastern Mediterranean coasts of Turkey.

MATERIAL AND METHODS

From 27 to 30 March 2007 and on 5 April 2007, two adult and three juvenile specimens of *H. fuscus* were observed at a depth of 2 to 3 m during a scuba dive in Mersin port (Mersin Bay) (36°47'11.2" N, 34°37'58.3" E) (Fig. 1). The specimens were photographed and recorded using a video camera (Canon PowerShot G12) (Fig. 2). The morphological descriptions and coloration of *H. fuscus* agree with those presented by Lourie et al. (2004) and Golani & Fine (2002).

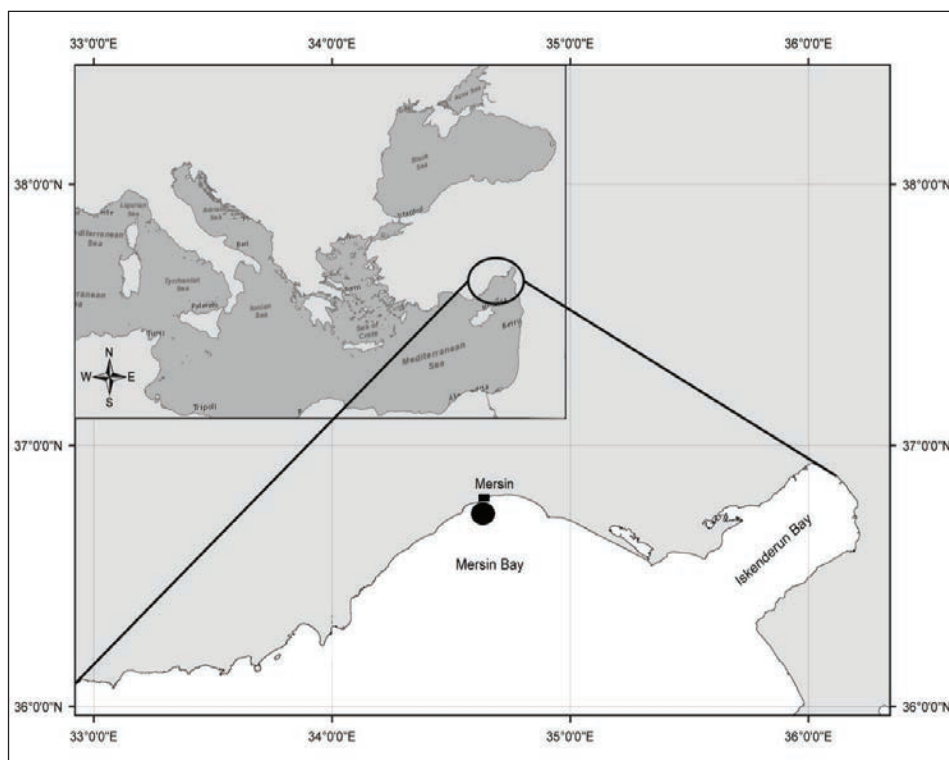


Fig. 1: Map indicating the capture site (•) of specimens of seahorse *Hippocampus fuscus* Rüppell, 1838 in Mersin Bay (northeastern Mediterranean).

Sl. 1: Zemljevid obravnavanega območja z označeno lokaliteto ulova primerkov morskega konjička vrste *Hippocampus fuscus* Rüppell, 1838 v zalivu Mersin (severovzhodno Sredozemsko morje).

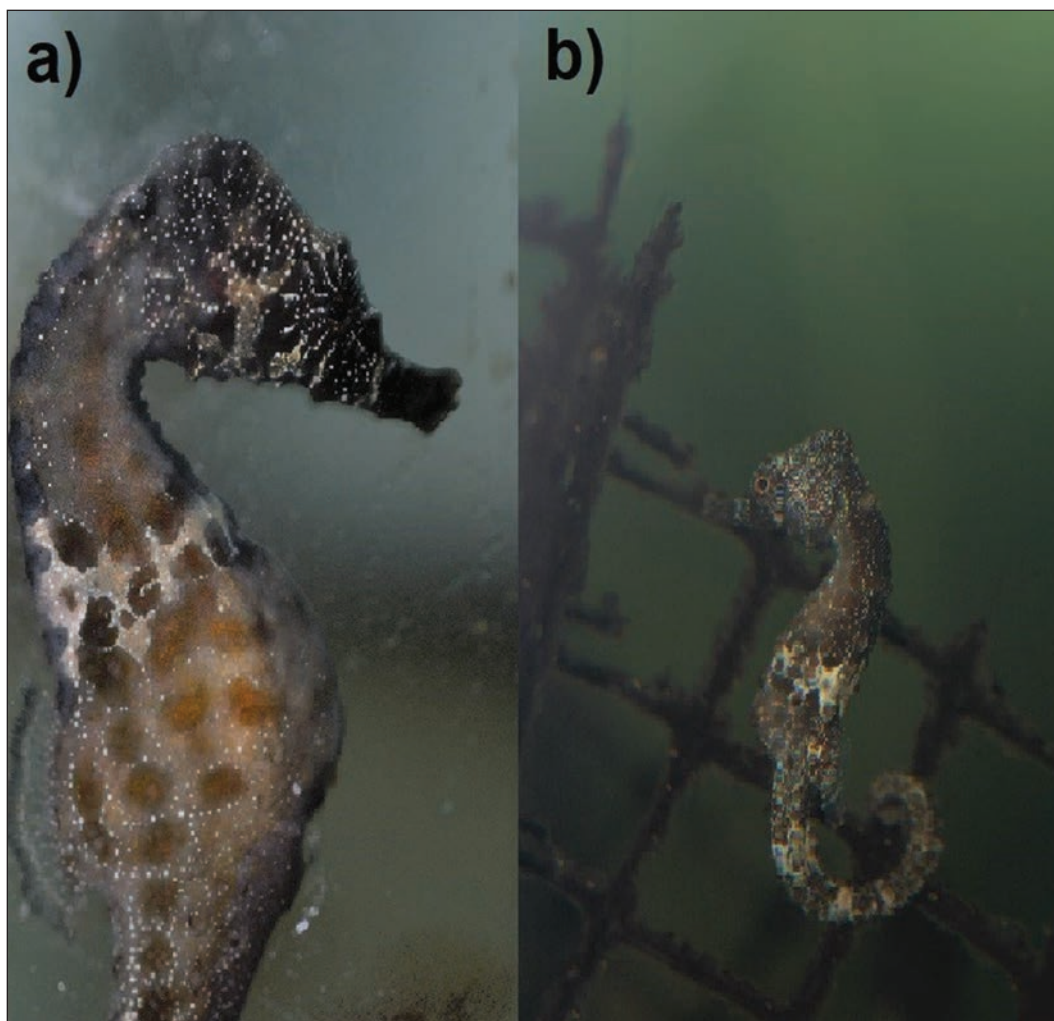


Fig. 2: Photographs of adult (a) and juvenile (b) specimens of *Hippocampus fuscus* from Mersin port, Turkey.

Sl. 2: Fotografiji odraslega (a) in juvenilnega primerka vrste *Hippocampus fuscus* iz zaliva Merein, Turčija.

RESULTS AND DISCUSSION

The following morphological features were observed in the two adult specimens: The bodies consisted of bony rings arranged in dermal plates and exhibited no spines. The total lengths of the specimens were 12.0 and 12.5 cm, respectively. The dorsal fin in each had 16/17 rays, the anal fin 4 rays, the pectoral fin 15/16 rays. The specimens had 11 trunk rings, 34/36 tail rings, their head lengths equalled 4.2 and 5.4 of their total lengths, respectively. The snouts were cylindrical in shape, and their lengths measured 2.4 and 2.5 times the head lengths, respectively. They each exhibited a prominent spine above the eyes. Their coronets were only slightly elevated and had tiny protrusions, and their heads were not larger than the bodies. There were no skin flaps on the heads.

Their body coloration varied from dark or pale brown to bright yellow and brown, featuring white spots on the trunk and head.

To date, three species of the genus *Hippocampus* have been known to inhabit the Mediterranean (Golani *et al.*, 2006). Among these, *H. fuscus* is typically found in seagrass beds, particularly among stones and gravel, and often in the calm waters of harbors and bays (Golani *et al.*, 2021). It feeds on zooplankton. In terms of physical appearance, male *H. fuscus* individuals have proportionally longer tails and shorter snouts compared to females (Vincent, 1990). The female lays eggs into the male's brood pouch located under its tail, where they remain for the entire gestation period (Breder & Rosen, 1966), which is approximately 14 days, but may vary depending on water temperature (Lourie *et al.*, 1999).

H. fuscus usually occurs in the size range of 3 to 14 cm (Golani et al., 2021). The maximum recorded adult length for this species in the Mediterranean Sea is 14.4 cm (Golani & Fine, 2002). Individuals are commonly found at depths of 0–10 m (Foster & Vincent, 2004). In this study, seahorse specimens were discovered at a depth of 2–3 m, clinging to a rope. This depth range is in full agreement with the existing literature. Subsequent Scuba observations revealed an even greater abundance of seahorses.

The seahorse *H. fuscus* closely resembles the short-snouted seahorse *Hippocampus hippocampus* (Linnaeus, 1758), which also inhabits the Mediterranean Sea. However, in comparison, *H. fuscus* has a smaller body with a smoother surface, fewer tail rings, and a coronet that is not significantly raised above the arch of the neck. In contrast, *H. hippocampus* has more dorsal fin rays and fewer pectoral fins. Additionally, the snout length in the studied specimens of *H. fuscus* was approximately 2.5 times the head length, while for *H. hippocampus* it typically measures 2.8 times the head length. Compared to the third species of the genus *Hippocampus* present in the Mediterranean, *Hippocampus guttulatus*, *H. fuscus* lacks dorsal spines and dermal flaps on the head and neck (Golani et al., 2021).

H. fuscus is listed under Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Froese & Pauly, 2023). According to CITES, all seahorse specimens in trade should have a minimum height of 10 cm (CITES II,

since 5.15.04). The main threats to this species are incidental capture in trawl fisheries, habitat degradation, and pollution. However, *H. fuscus* has not yet been considered for inclusion in the IUCN Red List category (IUCN, 2023).

Although Zenetos et al. (2008) mentioned in their study that *H. fuscus* is likely established in the Bay of Antalya, there was no information on its range expansion since it was first recorded and reported from this region in 2003. This current record is, therefore, the first suggestion of an eastward migration for *H. fuscus* in the Mediterranean coast of Turkey, and the first confirmation of the presence of *H. fuscus* in the northeastern Mediterranean coast of Turkey, specifically in Mersin Bay. Moreover, the presence of numerous adults and juveniles ($n > 10$) in the observations indicates that this species has established a population in this region and has successfully adapted to the environment.

CONCLUSIONS

There is limited information regarding changes in numbers and habitat status of seahorse species along Turkey's Mediterranean coast. Therefore, this study is very important for monitoring seahorse populations in the Mediterranean and determining and assessing their conservation status. Moreover, the findings of this study can provide valuable insight for decision-makers and fisheries managers. However, it is essential to emphasize the need for further monitoring and additional studies in this area.

POJAVLJANJE MORSKEGA KONJIČKA VRSTE *HIPPOCAMPUS FUSCUS* RÜPPELL, 1838, V SEVEROVZHODNEM SREDOZEMSKEM MORJU

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POVZETEK

Avtorji poročajo o pojavljanju petih primerkov morskega konjička vrste *Hippocampus fuscus* Rüppell, 1838 v severovzhodnih sredozemskih vodah. Opazili so jih potapljači z avtonomno potapljaško opremo na podvodnih vzorčenjih med 27. in 30. marcem 2007 in 5. aprila 2007, opravljenih v globinskem pasu 2-3 m v pristanišču Mersin (zaliv Mersin, Turčija). To je prvi zapis o pojavljanju vrste *H. fuscus* v severovzhodnem Sredozemskem morju v Turčiji, natančneje v zalivu Mersin, in drugi zapis o pojavljanju v turških sredozemskih vodah. Poleg tega kaže pojavljanje velikega števila odraslih in mladostnih primerkov ($n > 10$), da se je vrsta v tem okolju že ustalila in na njega dobro prilagodila. Ta raziskava odpravlja veliko vrzel v strokovni literaturi in bo v pomoč strokovnjakom, ki se ukvarjajo z ribištvom, obenem pa bo pomembno prispevala k oceni v prihajajočem Rdečem seznamu v Sredozemlju.

Ključne besede: morski konjički, Syngnathidae, širjenje areala, zaliv Mersin, Turčija

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