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Scientific Note

Confirmed occurrence of the longjaw snake eel, *Ophisurus serpens* (Osteichthyes: Ophichthidae) in Tunisian waters (Central Mediterranean)

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Abstract. The record of a juvenile female *Ophisurus serpens* in a Tunis Southern Lagoon confirms the occurrence of the species in Tunisian waters. This record constituted the southernmost extension range of *O. serpens* in the Mediterranean Sea, but also the first record of the species in a perimediterranean lagoon.

Key words: Description, morphometric data, meristic counts, brackish area.

Resumen. Confirmación de la ocurrencia de la anguila *Ophisurus serpens* (Osteichthyes: Ophichthidae) en aguas de Túnez (Mediterráneo Central). El registro de una hembra juvenil de *Ophisurus serpens* encontrada en una laguna al sur de Tunéz confirma la ocurrencia de la especie en aguas de la Túnez, constituyendo la extensión más al sur del rango de la especie en el Mar Mediterráneo y representando el primer registro de la especie en una laguna perimediterránea.

Palabras clave: descripción, datos morfométricos, conteo merístico, ambient estuarino

The longjaw snake eel, *Ophisurus serpens* (Linnaeus 1758) is widely distributed, reported off the eastern Atlantic coast, from the Bay of Biscay (Cappetta *et al.* 1985) to South Africa (McCosker & Castle 1986), including Madeira (Bauchot 1986). The species is also reported elsewhere, such as in western Indian Ocean (Southern Mozambique to South Africa) and western Pacific (Japan and Australasia).

Ophisurus serpens is known in western and central Mediterranean marine (Tortonese 1970; Bauchot 1986). Additionally, the species is considered as very rare in the Adriatic Sea where it lives in marine, brackish and estuarine waters between 30 and 400 m depth, on sandy and sandy-muddy bottom (Dulcic *et al*. 2005), buried with only the head exposed, looking for preys.

The longjaw snake eel was reported off the Tunisian coast by Lubet & Azzouz (1969) in the Gulf of Tunis (northern Tunisia). However, no specimen was available for confirmation according to Bradaï (2000). Additionally, the species was not reported elsewhere in Tunisian waters (Bradaï *et al.* 2004). Investigations regularly conducted in Tunis Southern Lagoon (Fig. 1 and 2) since 2003 allow the capture of one specimen of the longjaw snake eel. Description and the first main morphometric measurements made on a Tunisian specimen are presented in this note. Additionally, the distribution of *O. serpens* in both Tunisian and Mediterranean waters is commented in this paper.

The specimen was collected on 24 May

2006 by dragnet at 2.10 m of depth (Fig. 1 and 2), on sea grass beds concomitantly with ascidians, some juvenile gilthead sea breams *Sparus aurata* Linnaeus, 1758, and two invasive species, both lessepsian migrants, the mollusc *Fulvia fragilis* (Forsskål 1775) and the crab *Eucrate crenata* De Haan 1835. Measurements, counts and weights were carried out on the fresh specimen. Morphometric characteristics were determined following Dulcic et *al*. (2005): total length (TL), preanal length (LPA), predorsal length (LPD), prepectoral length (LPP), dorsal fin length (Ld), anal fin length (La), pectoral fin length (Lp), body depth (H), head length (C), eye-diameter (O), interorbital length (Io), preorbital length (PO), number of pores in *linea lateralis* and length of lower jaw are summarized in Table I. The specimen was preserved in 5% buffered formalin in the Ichthyological Collection of the Faculté des Sciences of Tunis with catalogue number FST-OPHI-serpens (Fig. 3).

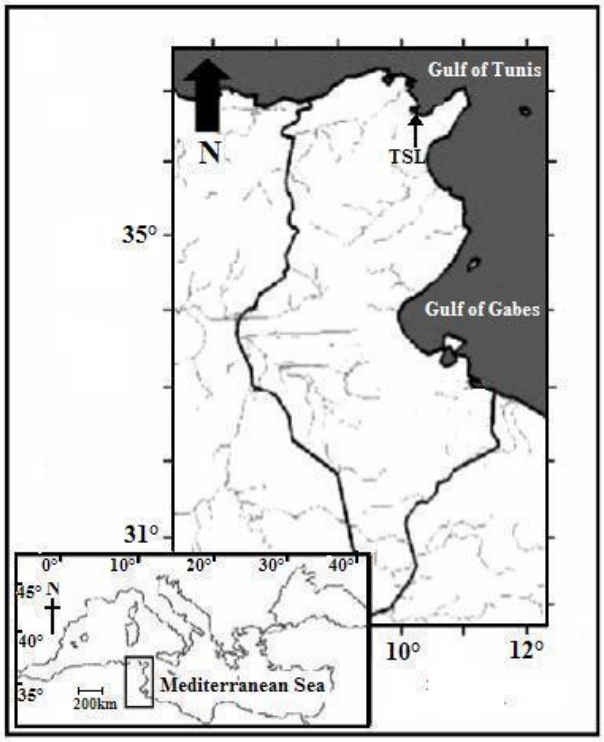

Figure 1. Map of the Tunisian coast showing the location of Tunis Southern Lagoon (TSL).

The snake eel has an extremely elongate and cylindrical body, anus in anterior half of the body, snout long and slender, jaws elongate and extending posteriorly beyond the eye. Dorsal, anal and pectoral fins well-developed. Teeth in one-two series in jaws, canines in front, teeth on one row on womer, enlarged anteriorly. Colour reddish-brown dorsally, belly yellowish, snout ochred, dorsal and anal find edged with grey, lateral pore brownish.

Description, measurements and percent in total length recorded in the Tunisian *O. serpens* are in agreement with Tortonese (1970), Böhlke (1981), Bauchot (1986), McCosker & Castle (1986), and Dulcic *et al*. (2005). Regarding the maximum size of *Ophisurus serpens*, Bauchot (1986) reported 2.40 m for the Mediterranean specimens and McCosker & Castle (1986), 2.50 m for the south African ones as maximum total length. Jardas (1996, *in* Dulcic et *al*. 2005) noted that usual length in catch is between 500 and 1500 mm with 2400 mm maximum in the Adriatic Sea, while in the same area, Dulcic *et al*. (2005) reported specimens having 2000 mm, 2100 mm and 2130 mm TL, respectively. The Tunisian longjaw snake eel, 333 mm TL, was a juvenile specimen, exhibiting inconspicuous genital duct and gonads.

The number of pores in *linea lateralis* counted in the Tunisian specimen was 149, while Dulcic *et al*. (2005) reported 202 pores in a specimen having 2130 mm TL. Jardas (1996, *in* Dulcic *et al*. 2005) noted 173 pores, but no information was provided about the size of the specimen. No sufficient data are available to state, if there is a relationship between number of pores in *linea lateralis* and total length in *O. serpens*; however, such hypothesis could not be totally excluded.

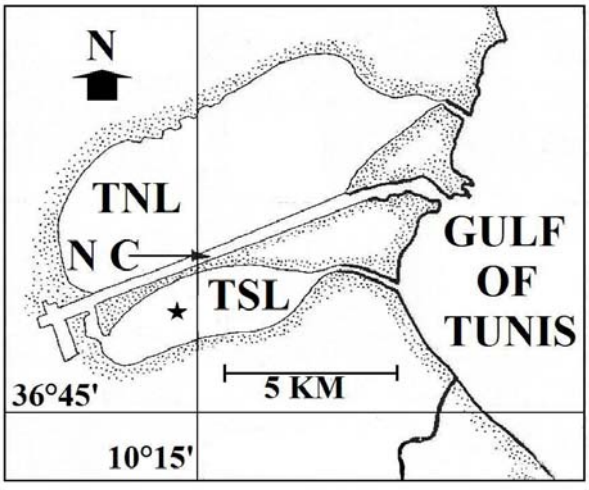

Figure 2. Map of Tunis showing the capture site of *Ophisurus serpens* (black star) in Tunis Southern Lagoon (TSL), Tunis Northern Lagoon (TNL), and navigation channel (NC).

The record of *Ophisurus serpens* in Tunis Southern Lagoon confirmed the species occurrence in Tunisian waters. Additionally, according to information recently provided by fishermen, the species was captured in the navigation channel which separates Tunis Northern Lagoon from Tunis Southern Lagoon (see Fig. 2), without mention

related to number of recorded specimens. So the species *O. serpens* could be considered as very rare in Tunisian waters. Similar patterns were reported from other Mediterranean areas where *O. serpens* was considered as a rare species (Louisy 2002). For instance, recent observations carried out off the Languedocian coast (northern Mediterranean) from Michelat *et al.* (2004) to date did not record the species in the area.

Table I. Morphometric (in mm and as % TL) data and meristic counts of the specimen of *Ophisurus serpens* captured in Tunis Southern Lagoon.

Reference	FST-OPHI-serpens	
Morphometric characters (mm)	mm	%TL
Total length (TL)	333	100.0
Preanal length (LPA)	143	42.9
Predorsal length (LPD)	48	14.4
Prepectoral length (LPP)	31	9.3
Dorsal fin length (LD)	225	67.6
Anal fin length (La)	177	53.2
Pectoral fin length (Lp)	5	1.5
Body depth (H)	8	2.4
Head length (C)	42	12.6
Eye diameter (O)	2	4.8
Preorbital length (PO)	4	1.2
Interorbital length (Io)	3	0.9
Length of lower jaw	20	6
Counts		
Number of pores in *linea lateralis*	149	
Pectoral fin soft rays	13	
Weights (g)		
Total weight	11.79	
Eviscerated weight	10.36	
Liver weight	0.20	

Off Algeria, *Ophisurus serpens* was formerly reported as common by Dieuzeide *et al.* (1954), however, although investigations were regularly conducted since 1996 to date in the area, no record was reported by Hemida (2009 pers. comm.). *O. serpens* is unknown off the coast of Libya (Al Hassan & El Silini 1999, Shakman & Kinzelbach 2007), off the Mediterranean coast of Egypt (El Sayed 1994) and in the eastern Levant Basin (Golani 2005). The present record constituted the southernmost extension range of *O. serpens* not only in the Tunisian waters, but also in the Mediterranean Sea. It was also the first record of the species in a perimediterranean lagoon (*sensu* Quignard & Zaouali 1980).

Tunis Southern Lagoon was the focus of a recent environmental restoration that allowed a colonization of fish species previously unknown in the area, before restoration to date (Ben Souissi *et al.* 2004, 2005; Mejri *et al.* 2004), and 62 teleost species including *O. serpens* were recorded in the area. This shows that the environmental restoration was successful and that the area provided sufficient resources for fishes not only to inhabit these waters, but probably to develop and reproduce.

Figure 3. *Ophisurus serpens* collected in the Tunis Southern Lagoon (FST-OPHI-serpens), scale bar = 30 mm.

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