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HAS A VIABLE POPULATION OF COMMON LIONFISH, *PTEROIS MILES* (SCORPAENIDAE), ESTABLISHED OFF THE SYRIAN COAST (EASTERN MEDITERRANEAN)?

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ABSTRACT

*A new record of a mature common lionfish *Pterois miles* (Bennet, 1828) from the Syrian coast and captures reported by fishermen in the context of local ecological knowledge suggest that a viable population of the species has successfully established in the area. Monitoring activities need to be implemented to contain the invasion of a species considered, for many reasons, a huge threat not only for this area, but for the entire Mediterranean marine environment.*

Key words: Scorpaenidae, *Pterois miles*, alien species, Eastern Mediterranean Sea

È POSSIBILE CHE UNA POPOLAZIONE VITALE DI PESCE SCORPIONE, *PTEROIS MILES* (SCORPAENIDAE), SI SIA STABILITA NELLE ACQUE AL LARGO DELLA COSTA SIRIANA (MEDITERRANEO ORIENTALE)?

SINTESI

*Un nuovo ritrovamento di un esemplare maturo di pesce scorpione *Pterois miles* (Bennet, 1828) lungo la costa siriana e le catture riportate dai pescatori suggeriscono, nel contesto delle conoscenze ecologiche locali, che una popolazione vitale della specie si sia stabilita con successo nella zona. Secondo gli autori, nuove attività di monitoraggio dovrebbero venir implementate al fine di contenere l'invasione di una specie considerata, per svariate ragioni, un'enorme minaccia non solo per quest'area, ma per l'intero ambiente marino mediterraneo.*

Parole chiave: Scorpaenidae, *Pterois miles*, specie aliena, mare Mediterraneo orientale

INTRODUCTION

The common lionfish *Pterois miles* (Bennet, 1828) is well-known in the eastern Mediterranean, where it entered the Red Sea through the Suez Canal. The first record was in the Levant Basin, off Herzliya (Golani & Sonin, 1992), since then, other records have been reported off the northern coast of Lebanon (Bariche *et al.*, 2013), in Turkish waters (Turan *et al.*, 2014), off the coast of Cyprus (Jimenez *et al.*, 2016), and throughout the Levant Basin (Jimenez *et al.*, 2017). The species has migrated westwards and is presently known in the Aegean Sea (Crocetta *et al.*, 2015), while recently also reaching the Tunisian coast and southern Italy (Azzurro *et al.*, 2017).

The first records of *P. miles* from the Syrian coast were presented by Ali *et al.* (2016), who noted that these findings did not represent sufficient data to state that a substantial population had successfully established in the area. Due to the fact that *P. miles* has drastic effects on native fish species, including the destruction of ecosystems and negative economic impacts on fisheries and tourism, investigations have been regularly conducted in the concerned area and the most recent results are presented in this paper.

MATERIAL AND METHODS

Our methodology was mainly based on the information provided by fishermen, referred to as Local Ecological Knowledge (LEK), which has been applied in the collection of data about natural systems and the monitoring of recent biodiversity changes in the marine environment (Anadón *et al.*, 2009; Azzurro *et al.*, 2011). The approach from Azzurro & Bariche (2017) was adopted to investigate the status and distribution of alien species, such as the *P. miles* lionfish, in the Mediterranean.

On 29 May 2017, a specimen of *P. miles* was captured together with 2 specimens of striped eel catfish *Plotosus lineatus* (Thunberg, 1787) 12 km north of Lattakia City, 2 km offshore (35° 46' E, 35° 39' N) (Fig. 1), on rocky bottom, at a depth of 25 m, using a bottom cage net made of metal wire. Prior to the dissection, the fresh specimen was measured to the nearest 0.1 millimetre using a digital caliper, and weighed to the nearest 0.1 gram. After the dissection, the ovaries and the digestive tract were reinserted into the abdominal cavity, and subsequently, the entire specimen was preserved in 10% buffered formalin and deposited in the Ichthyological Collection of the Marine Science Laboratory, Agriculture Faculty of the University of Tishreen, under the catalogue number 2290 M.S.L (Fig. 2 A).

RESULTS AND DISCUSSION

The captured specimen was 226.1 mm in total length, its total body weight was 194.2 g (Tab. 1). It was identified as a *Pterois miles* based on a combination of morpholo-

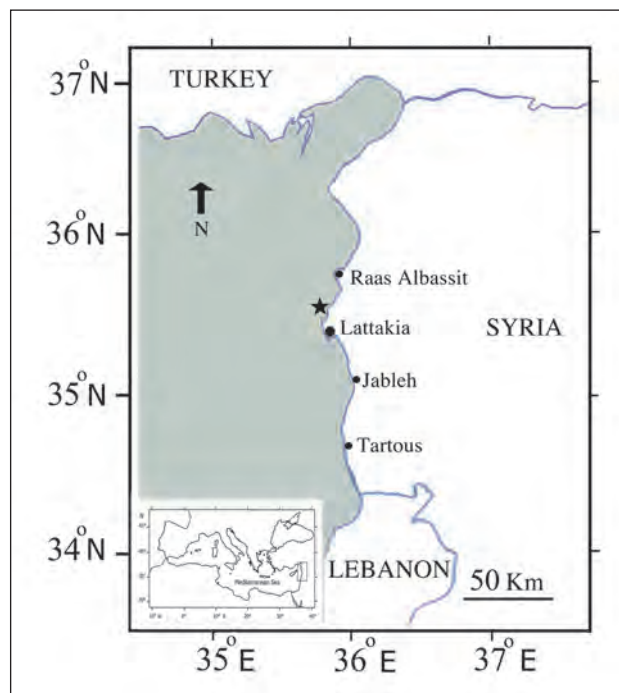


Fig. 1: Map of the Mediterranean showing Syria, and map of the coast of Syria indicating the capture site of *Pterois miles* (black star).

Sl. 1: Zemljevid Sirije in širšega Sredozemskega morja z označeno lokaliteto, kjer je bila ujeta plamenka (črna zvezdica).

gical characters, morphometric measurements, meristic counts and colour, which were in total agreement with previous descriptions of the species by Golani & Sonin (1992), Carpenter & Niem (1999), Golani *et al.* (2002), Turan *et al.* (2014) and Ali *et al.* (2016). The stomach content was removed and four small, undetermined fish weighing 0.6 g were found. The dissected specimen exhibited large and developed ovaries, allowing the conclusion it was mature and able to reproduce, thus corroborating the presence of a viable population in this or the neighbouring areas, most likely Turkish waters, where new records confirm that the species is successfully established there (Özbek *et al.*, 2017).

A single mature specimen does not constitute sufficient evidence of a definitive establishment, however, experienced local fishermen aware of the fishing grounds report that the species has lately been a common bycatch in their nets. They are worried about a progressive invasion of this species, about increased competitive pressure for food exerted on native species with a high commercial interest or endangered species, about the destruction of local ecosystems, but also about human envenomation during handling (Frazer *et al.*, 2012). According to Jimenez *et al.* (2016), some divers

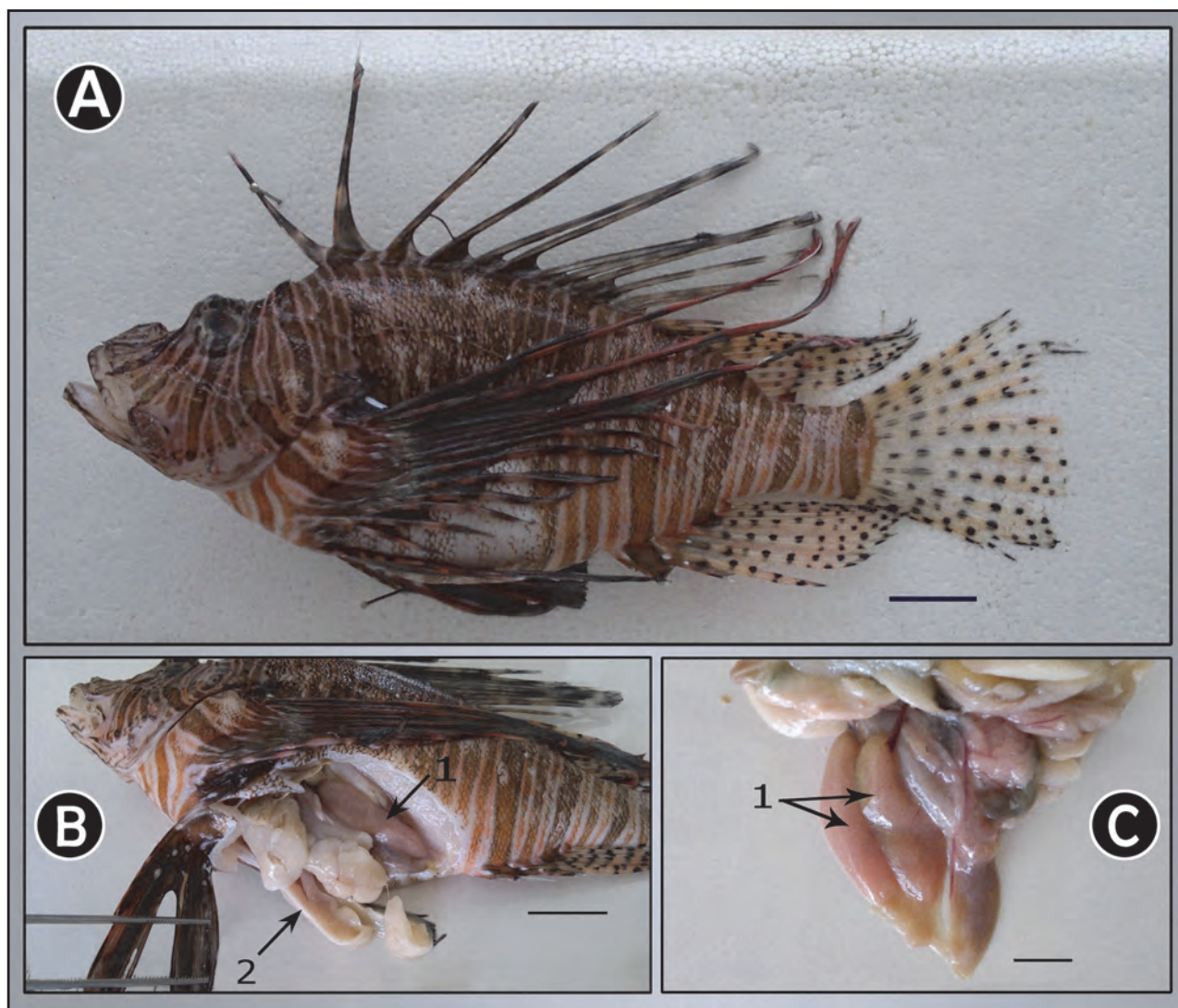


Fig. 2: A. *Pterois miles* captured off the Syrian coast (Ref. 2290 M.S.L.), scale bar = 20 mm. B. 1. Sexual gland. 2. Fat surrounding the stomach, scale bar = 20 mm. C. Sexual glands, scale bar = 10 mm.

Sl. 2: A. *Primerek plamenke* (katalogska številka 2290 M.S.L.), ujet ob sirski obali, merilo = 20 mm. B. 1. Spolna žleza. 2. Plast maščobe, ki obdaja želodec, merilo = 20 mm. C. spolne žleze, merilo = 10 mm.

consider *P. miles* a beautiful fish and are reluctant to cull this species, although it impoverishes local biodiversity and thus profoundly affects the seascape. Still, a specific monitoring of this fish is required, and the capture of

this mature specimen off the Syrian coast is a signal of a huge threat, which should not be dismissed, but rather taken into consideration, as the observations made by local fishermen also confirm.

Tab. 1: Morphometric measurements in mm and in percentages of total length (% TL), and meristic counts recorded in the specimen of *Pterois miles* (ref. 2290 M.S.L.).

Tab. 1: Morfometrične meritve v mm in delež glede na celotno dolžino (% TL) ter meristična štetja, ki se nanašajo na primerek plamenke (katalogska številka 2290 M.S.L.).

Reference of specimen	M.S.L. 2290	
	mm	%TL
Total length	226.1	100.0
Standard length	177.1	78.3
Head length	69.4	30.7
Body depth	68.4	30.3
Inter-orbital space	8.6	3.8
Eye diameter	8.7	3.8
Pre-orbital length	28.1	12.4
Dorsal fin length	139.0	61.5
Pectoral fin length	129.3	57.2
Ventral fin length	83.2	36.8
Anal fin length	69.4	30.7
Dorsal fin base	104.5	46.2
Pectoral fin base	25.3	11.2
Ventral fin base	11.5	5.1
Anal fin base	30.4	13.4
Dorsal fin height	64.8	28.7
Pre-dorsal length	55.2	24.4
Pre-pectoral length	56.0	24.8
Pre-ventral length	61.7	27.3
Pre-anal length	125.5	55.5
Counts		
First dorsal fin rays	XIII +11	
Pelvic fin rays	I + 6	
Anal fin rays	III +7	
Pectoral fin rays	XIV	
Total weight (g)	194.2	
body Weight without viscera (g)	173.3	
Sexual glands weight (g)	1.9	
Preys weight (g)	0.6	

SE JE VIABILNA POPULACIJA PLAMENKE, *PTEROIS MILES* (SCORPAENIDAE), ŽE UVELJAVILA V VODAH OB SIRSKI OBALI (VZHODNO SREDOZEMSKO MORJE)?

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POVZETEK

Na podlagi novega ulova plamenke *Pterois miles* (Bennet, 1828) in ulovov, o katerih poročajo ribiči vzdolž sirske obale v okviru lokalnega ekološkega znanja avtorji domnevajo, da se je viabilna populacija te vrste uspešno uveljavila v tem okolju. Obenem priporočajo vzpostavitev rednega monitoringa, ki bi nadzoroval invazijo te vrste, saj ta predstavlja veliko nevarnost ne samo za ožje območje, ampak tudi za celotno Sredozemsko morje.

Ključne besede: Scorpaenidae, *Pterois miles*, tujerodna vrsta, vzhodno Sredozemsko morje

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