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**Scientific note**

# First record of ectoparasitic isopods on the invasive lionfish *Pterois miles* (Bennett, 1828)

**(Crustacea, Cymothoidae and Teleostei, Scorpaenidae)**

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The lionfish *Pterois miles* (Bennett, 1828) is a benthic coastal ray-finned fish native to the western Indo-Pacific region, that recently invaded the Mediterranean basin (Kletou et al. 2016). We first document the occurrence of six *Nerocila* Leach, 1818 parasites collected from four adult lionfish host specimens from the southern coasts of Cyprus (Table 1). Five isopods were collected on the skin, while one was found attached in the inner branchial cavity, in the approximate location of the vestibular labyrinth (Table 2; Fig. 1). The isopods specimens consisted of four transitional individuals, possibly young females (Table 2: specimens 1–4), a juvenile male

**Fig. 1.** *Nerocila bivittata* found parasitizing *Pterois miles* in Cyprus. **A–B.** Larvigerous female. **C.** "Aster" form. **D.** Male.

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**Table 1.** Localities where parasitized lionfishes where found, with date, depth (in meters), and environmental features.

| Locality | Date | Coordinate | Depth | Substrate |
|---|---|---|---|---|
| Limassol major port | 12/07/2017 | 34°38.677' N 33°01.251' E | 3 | Port breakwaters |
| Moni | 18/07/2017 | 34°41.698' N 33°11.885' E | 26.5 | Hard substrate with sparse *Posidonia oceanica* meadows |
| Cavo Greco | 03/08/2017 | 34°59.038' N 34°04.667' E | 20 | Hard substrate |
| Cavo Greco | 03/08/2017 | 34°59.091' N 34°04.632' E | 22 | Hard substrate |

**Table 2.** Lionfish and isopod morphometric, and location of infestation. Abbreviations used: BL, body length (in mm); BW, body width (in mm); TL, total length (in cm); W, weight (in grams).

| *Nerocila bivittata* specimen | Figure | Location of infestation | *Pterois miles* | | *Nerocila bivittata* | |
|---|---|---|---|---|---|---|
| | | | TL | W | BL | BW |
| 1 | | Caudal peduncle | 22.5 | 178 | 14.5 | 7.8 |
| 2 | 1C | Anal fin | 22.5 | 178 | 10.5 | 4.5 |
| 3 | | Caudal peduncle | 19.8 | 108 | 12.9 | 6.9 |
| 4 | | Abdomen | 22.8 | 164 | 13.33 | 7.11 |
| 5 | 1D | Gill cavity | 30.3 | 528 | 8.43 | 3.75 |
| 6 | 1A, 1B | Between the pelvic fins | 30.3 | 528 | 26.22 | 13.82 |

(Table 2: specimen 5; Fig. 1D), and a large larvigerous female (Table 2: specimen 6; Fig. 1), belonging to *Nerocila bivittata* (Risso, 1816) (Crustacea, Isopoda, Cymothoida, Cymothoidae). The brooding female and the male were found co-occurring in different positions on the same fish, namely pelvic fins and gill cavity (Table 2; Figs 1A–B, D). One individual (Table 2: specimen 2; Fig. 1C) also featured a peculiar extension of pereonites and coxae reminiscent of the "aster" form of the Pacific-Atlantic *Nerocila acuminata* (Brusca, 1981). However, among the other features, the morphology of uropods in the present specimen (endopod lacking an acute point or a distinct distomedial tooth or sinuosity) looks different from that figured for *N. acuminata* (Brusca 1981, Bruce 1987), and therefore we assigned that specimen to *N. bivittata* as well.

Our findings constitute the first records of a *Pterois miles* – *Nerocila bivittata* association. In addition, the occurrence of different stages of *N. bivittata* on lionfish shows that the isopod has the potential of completing its life cycle on this introduced host, which points to a stability of the interactions between the two species.

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