

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/264744398>

Two records of *Macrophthalmus* Desmarest, 1823 (Decapoda: Brachyura: Thoracotremata) from the NW of the Arabian Gulf

Article in *ARTHROPODS* · January 2013

CITATIONS

0

READS

29

5 authors, including:



Khaled al Khafaji

University of Basrah

39 PUBLICATIONS 21 CITATIONS

[SEE PROFILE](#)



Haider Shaker

University of Basrah

5 PUBLICATIONS 1 CITATION

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



feeding habitat [View project](#)



New record of the snapping shrimp *Alpheus edwardsii* (Audouin, 1826) (Crustacea: Alpheoidea) in Basrah, Iraq [View project](#)

Article

Two records of *Macrophthalmus* Desmarest, 1823 (Decapoda: Brachyura: Thoracotremata) from the NW of the Arabian Gulf

Amaal Gh. Yasser, Ibtisam M. AbdulSahib, Murtada D. Naser, Khalid Kh. S. Al-Khafaji, Haider Sh. Darweesh

Department of Marine Biology, Marine Science Centre, University of Basrah, Basrah, Iraq

E-mail: amaalyasser@yahoo.com

Received 1 March 2013; Accepted 5 April 2013; Published online 1 September 2013



Abstract

Specimens of two crabs *Macrophthalmus dentipes* Lucas, 1836 and *Macrophthalmus laevis* A. Milne-Edwards, 1867 were collected from the intertidal zone of the lower reaches of Shatt Al-Arab at Fao region, Basrah, Iraq, 2012. A note on the morphological features of these two species and a photograph is provided to confirm the identification of the crabs.

Keywords *Macrophthalmus dentipes*; *Macrophthalmus laevis*; Brachyura; Shatt Al-Arab; Arabian Gulf.

Arthropods
ISSN 2224-4255
URL: <http://www.iaees.org/publications/journals/arthropods/online-version.asp>
RSS: <http://www.iaees.org/publications/journals/arthropods/rss.xml>
E-mail: arthropods@iaees.org
Editor-in-Chief: Wenjun Zhang
Publisher: International Academy of Ecology and Environmental Sciences

1 Introduction

The family Macrophthalmidae Dana, 1851, is represented by two subfamilies Ilyograpsinae Števcic, 2005 and Macrophthalminae Dana, 1851 in the Arabian Gulf. The first one subfamily Ilyograpsinae Števcic, 2005 is represented by one species *Ilyograpsus rhizophorae*, While the second subfamily Macrophthalminae Dana, 1851 is represented by eight species, have been recorded from the area, all belonging to *Macrophthalmus* Desmarest, 1823, represented of these: *M. sinuspersici* Naderloo & Türkay, 2010, *Macrophthalmus graeffei* A. Milne-Edwards, 1873, *M. dentipes* Lucas, 1836, *M. depressus* Rüppell, 1830, *M. grandidieri* A. Milne-Edwards, 1867, *M. laevis* A. Milne-Edwards, 1867, *M. serenei* Takeda & Komai, 1991, and *M. sulcatus* H. Milne-Edwards, 1852, are important elements of the intertidal soft bottom communities (Naderloo et al., 2011).

Barnes (1970) was so far recorded *M. dentipes* from the Arabian Gulf at Al-Faw referred to it as *M. pectinipes* Guerin-Méneville 1838. Pretzmann (1971) and Jones (1986) recorded the species from Bandar-Abbas at the Iranian coast and from Kuwait respectively, both following Barnes (1970) using the name *M. pectinipes*. Holthuis (1995) revised *M. dentipes* as the valid name by showing that *M. pectinipes* is an objective synonym of *M. dentipes*, and therefore must be replaced by the latter. Apel and Türkay (1999) and Apel (2001) listed *M. dentipes* from the Arabian Gulf with reference to the records by Barnes (1971) and Jones (1986).

Pretzmann (1971) described *M. ressl* as a new species from Bandar-Abbas, on the Iranian coast near the Straits of Hormuz. Barnes (1976) synonymised *M. ressl* with *M. laevis* and was the first to provide a detailed description for *M. laevis*.

The aim of the present study is to re-describe *M. dentipes* from fresh specimens collected from NW of the Arabian Gulf at Faw region and to record *Macrophthalmus laevis* to add to the brachyura list of Iraq.

2 Materials and Methods

Specimens of *M. dentipes* and *M. laevis* were recently collected from the intertidal muddy flats of NW of the Arabian Gulf, Fao region (Fig. 1) on July 2012. Specimens are preserved in 70% alcohol and deposited in the marine science centre (MSC) (collection number: 33 and 34), and *M. dentipes* only deposited in the Zoological Reference Collection of the Raffles Museum of Biodiversity Research, National University of Singapore (ZRC).

The main abiotic parameters in the study area by the time of collection were as follows: salinity 35 ppt, water temperature 27 °C, pH 8.4.



Fig. 1 Sampling site Faw=Fao region (white dot).

3 Results and Remarks

Macrophthalmus dentipes Lucas, 1836

Systematics

Order Decapoda

Macrophthalmidae Dana, 1851

Subfamily Macrophthalminae Dana, 1851

Macrophthalmus dentipes Lucas, 1836

(Fig. 2A, B, C and D)

Macrophthalmus dentipes Lucas 1836: 551. — Holthuis 1995: 401.

Macrophthalmus pectinipes — Guerin-Méneville 1838: 1, pl. 23. — Alcock 1900: 377. — Chhapgar 1957b:

512. — Barnes

1970: 237, fig. 10. — Pretzmann, 1971: 31; 1974: 442. — Tirmizi 1981: 109. — Titgen 1982: 253 (in list). — Jones 1986:

159, pl. 45. — Tirmizi & Ghani 1996: 121, fig. 46.

Macrophthalmus (Venitus) dentipes — Apel & Türkay 1999: 135. — Apel 2001: 110. — Naderloo et al., 2011: figs. 4a–e, 5a–f, 10a–b.

Type locality

Bombay (= Mumbai), India

Material examined (msc, 33)

Carapace measurements are length \times breadth respectively.

Three (38.55×60.50), (36.55×60.00), (39.00×60.50) mm collected during July 2012 from the intertidal zones of the mudflats of lower reaches of Shatt Al-Arab at Fao.

Diagnosis

Carapace (Fig. 2 A) moderately wider than long (CB/CL = 1.6), slightly convex; large granules scattered on entire posterior surface except in narrow median, frontal regions. Lateral margin of carapace (Fig. 2 A) with 3 distinct teeth (including exorbital tooth); first nearly subquadrate, with posterior margin smooth, curved forward; second triangular, with smooth margin, higher than first, greatest width of carapace between second lateral teeth; third very small, directed forwards; posterolateral margin nearly straight, slightly converging posteriorly, with small granules, beset with long setae; posterior margin with very small granules.

Eyestalks narrow (Fig. 2A), long, but not reaching to exorbital angle.

Male abdomen (Fig. 2B) with segments 3, 4 of same length, slightly shorter than segment 5; segments 5, 6 nearly of same length, with lateral margins nearly straight; lateral margins of segment 6 with small depression at one third distal portion; telson very slightly longer than segment 6, lateral margins strongly converging distally, apically rounded.

Palm long (Fig. 2C), outer surface smooth without longitudinal ridge; inner surface smooth, patch of dense setae on upper portion. Fingers remarkably curved inward distally, movable finger with upper margin smooth, long setae densely along inner surface of upper margin, continuous on upper, outer surface, cutting edge with subproximal differentiated tooth, small teeth distally; immovable finger narrow, with relatively large teeth on cutting edge, long setae along inner surface.

Male G1 (Fig. 2D,E,F) moderately stout, slightly curved outward medially; distal half relatively narrowing, with apical chitinous process remarkably long, narrow, curved outward at about 45°; distal opening large, distinct, subdistal on dorsal portion of apical process; long feather-shaped setae densely set along lateral margin, long setae around apical process.

Habitat

Macrophthalmus dentipes is the largest ocypodid crab, inhabiting the mid and low intertidal zones in muddy sand/sandy mud substrates at the lower reaches of Shatt Al-Arab at Fao, it may be occur coexisting with the grapsoid crab *Metaplex indica*. *Macrophthalmus dentipes* digs large burrows with an opening of approximately 10 cm in diameter.

Distribution

Northern Indian Ocean: northern and eastern Arabian Gulf, Oman (Gulf of Masirah), Pakistan, west coast of India, Iraq.

***Macrophthalmus laevis* A. Milne-Edwards, 1867**

Systematics

Order Decapoda

Macrophthalmidae Dana, 1851

Subfamily Macrophthalminae Dana, 1851

Macrophthalmus laevis A. Milne-Edwards, 1867

(Fig3. A,B,C and D)

Macrophthalmus laevis A. Milne-Edwards 1867: 287. — Barnes 1976: 143, fig. 6a–c. — Titgen 1982: 150.

Macrophthalmus (Macrophthalmus) resseli Pretzmann 1971: 382, pl. 9 figs. 23.

Macrophthalmus resseli [sic!] — Pretzmann, 1974: 441.

Macrophthalmus (Macrophthalmus) laevis — Barnes 1977: 277 (in key), 280 (in list); 2010: 35 (in key), 40. — Tirmizi & Ghani 1988: 253, figs. 1–11. — Tirmizi & Ghani 1996: 109, fig. 41. — Apel & Türkay 1999: 135. — Apel 2001: 109— Naderloo et al., 2011: figs. 13a–f, 14a–e, 10e–f.

Type locality

Indian Seas.

Material examined (msc,34)

Carapace measurements are length \times breadth respectively.

Two males (12.50 \times 24.50) and (12 \times 23.50) mm collected during July 2012 from the intertidal zones of the mudflats of lower reaches of Shatt Al-Arab at Fao.

Carapace

Macrophthalmus laevis is a medium-size species (Fig. 3A) wider than long; posterior surface is convex, small granules distributed on posterior surface, extensive patch of setae near posterolateral margin, long setae on lateral margin. Regions well defined; defining gastric, epibranchial regions are remarkably deep. Lateral margin with three teeth including exorbital angle.

Chelipeds nearly equal; merus with upper surface smooth, inner, upper margins sparsely beset with long setae, row of long setae near inner margin. Carpus smooth with large spine-shaped tooth medially on upper inner margin, small one behind it, two spine-shaped teeth on inner proximal margin. Movable finger long (Fig. 3C) curved inward distally; upper margin smooth; cutting edge with differentiated subproximal tooth, large, subquadrate, low, small denticles distal to large one along cutting edge. Immobile finger short, with median tooth, large, extending proximally, small denticles on cutting edge, even on large tooth.

Walking legs narrow, long, anterior margin of segments bearing long setae. Merus with small subdistal tooth on anterior margin, that of second, third legs large, last leg usually lacking this subdistal tooth (Fig.3.A).

Male abdomen (Fig. 3B) triangular; segments 3, 4 of same length, segment 5 slightly longer; segment 6 longest with lateral margins swollen proximally, gently converging distally; telson slightly shorter than segment 6, with margins clearly converging distally, rounded distally.

Male G1 (Fig. 3D) curved outward medially; apical chitinous process short, nearly subdistal, directed laterally at 45°; distal opening prominent, located apically; long setae around apical part, long plumose setae sparsely set along lateral, ventral surfaces.

Habitat

M. laevis mainly in the upper mid littoral zone on muddy silty substrata.

Distribution

North-western Indian Ocean: Persian Gulf, Gulf of Oman, Pakistan, Iraq.



Fig. 2 *Macrophthalmus dentipes* Lucas, 1836, male (39.00×60.50): A, posterior view of whole crab, male; B, male ventral view. C, cheliped of male, outer surface; D- F, first gonopod, Photos taken by Murtada.D.Naser, Marine Science Centre.



Fig. 3 *Macrophthalmus laevis* A. Milne-Edwards 1867, male (12.5×24.5): A, posterior view of whole crab, male; B, male ventral view. C, cheliped of male, outer surface; D, first gonopod, Photos taken by Murtada.D.Naser, Marine Science Centre.

Acknowledgements

M.D.N. thanks Dr Peter K.L. Ng (Raffles Museum of Biodiversity Research, Department of Biological Sciences, National University of Singapore) for confirming the identity of *Macrophthalmus dentipes*.

References

- Alcock A. 1900. Material for a carcinological fauna of India. No. 6: The Brachyura Catometopa, or Grapsoidea. Journal of the Asiatic Society of Bengal, 69 (2): 279-456
- Apel M. 2001. Taxonomie und Zoogeographie der Brachyura, Paguridea und Porcellanidae (Crustacea: Decapoda) des Persisch Arabischen Golfes unpublished PhD. Thesis. Johann Wolfgang Goethe-Universität, Frankfurt am Main, Germany
- Apel M, Türkay M. 1999. Taxonomic composition, distribution and zoogeographic relationships of the grapsid and ocypodid crab fauna of intertidal soft bottoms in the Arabian Gulf. Estuarine, Coastal and Shelf Science, 49(Suppl. A): 131-142
- Al-Zaidan ASY, Kennedy H, Jones DA, et al. 2004. Role of microbial mats in Sulaibikhat Bay (Kuwait) mudflat food webs: evidence from $\delta^{13}\text{C}$ analysis. Marine Ecology Progress Series, 38: 27-36
- Barnes RSK 1970. The species of *Macrophthalmus* in the collections of the British Museum (Natural History). Bulletin of the British Museum of Natural History, 20: 203-251
- Barnes RSK 1976. Contributions towards a revision of *Macrophthalmus*, VIII: A re-examination of the *M. telescopicus* Owen complex; the status of *M. laevis* H. Milne-Edwards; and the affinities of *M. holthuisi* Sérene. Zoologische Mededelingen, 50(10): 133-151
- Barnes RSK 1977. Concluding contribution towards revision of, and a key to, the genus *Macrophthalmus* (Crustacea Brachyura). Journal of Zoology London, 182: 267-280
- Holthuis LB 1995. The identities of *Macrophthalmus rouxii* Lucas, 1836, and *M. dentipes* Lucas, 1836, and the substitution of the latter name for *M. pectinipes* Guérin, 1838 (Decapoda, Brachyura, Ocypodidae). Crustaceana, 68(3): 401-403
- Jones DA 1986. A Field Guide to the Sea Shores of Kuwait and the Arabian Gulf. University of Kuwait, Blandford Press, Poole, Kuwait
- Lucas H. 1836. Macrophthalme, *Macrophthalmus*. (Crust.) In: Guérin-Meneville, F.E.: Dictionnaire pittoresque d'Histoire naturelle Vol. 4, pp. 551, pl. 315, fig. 5.
- Naderloo R, Türkay M, Apel M. 2011. Brachyuran crabs of the family Macrophthalmidae Dana, 1851 (Decapoda: Brachyura: Macrophthalmidae) of the Persian Gulf. Zootaxa, 2911: 1-42
- Tirmizi NM, Ghani N. 1988. The rediscovery of *Macrophthalmus (Macrophthalmus) laevis* A. Milne-Edwardds, 1867, in the Arabian Sea (Decapoda Brachyura). Crustaceana, 55(3): 253-256
- Tirmizi NM, Ghani N. 1996. Marine Fauna of Pakistan: 5: Crustacea: Brachyura, Brachyrhyncha, Part 1: Xanthidae Goneplacidae, Pinnotheridae, Ocypodidae, Grapsidae. Center of Excellence, University of Karachi, Pakistan
- Titgen RH. 1982. The Systematics and Ecology of the Decapods of Dubai, and their Zoogeographic Relationships to the Arabian Gulf and the Western Indian Ocean. Unpublished D. Phil. Thesis, Texas A & M University, USA