



## ***Tritodynamia serratipes* sp. nov., a new marine crab from Singapore (Crustacea: Decapoda: Brachyura: Macrophthalmidae)**

ARTHUR ANKER<sup>1</sup> & PETER K. L. NG<sup>1,2</sup>

<sup>1</sup>Tropical Marine Science Institute, National University of Singapore, Singapore, Republic of Singapore.

E-mail: [arthuranker7@gmail.com](mailto:arthuranker7@gmail.com)

<sup>2</sup>Lee Kong Chian Natural History Museum, National University of Singapore, Singapore, Republic of Singapore.

E-mail: [peterng@nus.edu.sg](mailto:peterng@nus.edu.sg)

### **Abstract**

*Tritodynamia serratipes* sp. nov. is described based on a female specimen dredged on soft mud at a depth of 6.3–6.5 m, near Marina East, only a few kilometers from Singapore's city centre. The new species differs from all other species of *Tritodynamia* Ortmann, 1894 by a unique combination of morphological characters, including the posterior margin of the propodus of the second ambulatory leg armed with a row of particularly strong teeth, and the cutting edges of dactylus and pollex each proximally armed with two stout teeth. *Tritodynamia serratipes* sp. nov. is the second species of the genus described from tropical Asia.

**Key words:** *Tritodynamia*, new species, South-East Asia, Singapore

### **Introduction**

*Tritodynamia* Ortmann, 1894, previously classified as a pinnotherid crab genus, is currently regarded as a member of the family Macrophthalmidae Dana, 1851, in the monogeneric subfamily Tritodynamiinae Števcíć, 2005 (see Ng *et al.* 2008; Naruse & Ng 2010). According to the most recent assessments of *Tritodynamia* (Yang & Tang 2005; Ng *et al.* 2008; Naruse & Ng 2010), the genus presently contains 10 species: *T. japonica* Ortmann, 1894, *T. horvathi* Nobili, 1905 (synonym: *T. fani* Shen, 1932), *T. rathbuni* Shen, 1932, *T. intermedia* Shen, 1935, *T. fujianensis* Chen, 1979, *T. longipropodum* Dai, Feng, Song & Cheng, 1980, *T. hainanensis* Dai, Feng, Song & Cheng, 1980, *T. dilatatum* Yang & Sun, 1996, *T. bidentata* Yang & Tang, 2005, and *T. yeoi* Naruse & Ng, 2010. Sakai (1976) suggested that *T. intermedia*, treated as a valid species by Yang & Tang (2005), Ng *et al.* (2008) and Naruse & Ng (2010), may in fact be a junior synonym of *T. horvathi*. Otani & Takahashi (1996) ultimately confirmed that the distinguishing characters on the chelipeds used by Shen (1935) to separate *T. intermedia* from *T. horvathi* are indeed variable and age-dependent. Yang & Tang (2005) also followed Shen (1935) in using the presence or absence of dark spots on the body as an additional character separating *T. horvathi* from *T. intermedia*. The colour pattern of *T. intermedia*, however, was interpreted on the basis of a single specimen (the holotype), and therefore, this difference is clearly not reliable. We therefore tentatively follow Sakai (1976) and Otani & Takahashi (1996) and treat *T. intermedia* as a synonym of *T. horvathi*.

*Tritodynamia horvathi* appears to differ more substantially from all its congeners. A comparison between *T. horvathi* and *T. yeoi* revealed significant differences in the structure of the carapace, anterior thoracic sternum, vulva and ambulatory legs. Ng *et al.* (2008) pointed out that *T. horvathi* (with *T. intermedia* as a synonym) has more varunid than macrophthalimid affinities, and may need to be placed in *Tritodynamea* Balss, 1922, which currently is treated as a junior synonym of *Tritodynamia*. A revalidation of *Tritodynamea* and a transfer of the genus or the entire subfamily Tritodynamiinae to the Varunidae H. Milne Edwards, 1853, however, are beyond the scope of the present study.

unarmed posterodorsally (cf. Chen 1979: pl. 1, fig. 7) in contrast to the heavily serrated one in *T. serratipes* **sp. nov.** (Figs. 1J, 3A), and the third maxilliped has a longer and narrower dactylus (cf. Chen 1979: pl. 1, fig. 2) compared to the relatively shorter dactylus in *T. serratipes* **sp. nov.** (Fig. 1E).

In the remaining species of *Tritodynamia*, the cutting edge of the cheliped pollex is evenly (sometimes minutely) or irregularly serrated or has only 1 strong proximal tooth, sometimes followed by a distal serration (e.g., Nobili 1905; Sakai 1976; Dai *et al.* 1980; Dai & Yang 1991; Otani & Takahashi 1996; Yang & Sun 1996; Yang & Tang 2005; Naruse & Ng 2010). The armature of the cheliped fingers nevertheless has to be used with some caution for it was shown to be ontogenetically variable in *T. horvathi*, with 2 teeth on the dactylus in some younger crabs (form described as *T. intermedia*) and 1 tooth in the adults (Otani & Takahashi 1996).

*Tritodynamia serratipes* **sp. nov.** can be easily separated from the long-legged species *T. longipropodum*, *T. dilatatum* and *T. yeoi* by the much lower length-width ratio of the P3 propodus (cf. Dai *et al.* 1980; Yang & Sun 1996; Naruse & Ng 2010), and from *T. horvathi*, which has a more quadrate carapace, with CW / CL about 1.4 (cf. Nobili 1905: pl. X, fig. 1; Shen 1932: fig. 71) vs. 1.8 in *T. serratipes* **sp. nov.** (Figs. 1A, 3A).

*Tritodynamia serratipes* **sp. nov.** represents the second record of *Tritodynamia* in tropical Asia. It is also the second species, together with *T. yeoi*, currently known from only a single specimen collected in Singapore. Both *T. serratipes* **sp. nov.** and *T. yeoi* are likely to be found elsewhere in the Sunda Shelf and perhaps beyond after more thorough collecting in muddy intertidal and shallow subtidal habitats. The apparent rarity of *Tritodynamia* spp. is probably mainly due to their cryptic lifestyle, i.e. dwelling in burrows of other invertebrates.

Johnson (1963: table I) reported as "*Tritodynamea* sp." (under Pinnotheridae) a crab associated with sipunculans in Singapore. As Johnson's material could not be traced in the ZRC, this crab cannot be confirmed as a species of *Tritodynamia*. However, Johnson's record provides a possible, albeit unconfirmed link to burrowing sipunculans, which are known as hosts for several pinnotherid crabs (Manning & Morton 1987; Morton 1988; Rahayu & Ng 2010).

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