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Taxonomic notes on *Pylaemenes* Stål 1875 (Phasmida: Heteropterygidae: Dataminae), including the description of the male of *P. guangxiensis* (Bi & Li 1994)

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Abstract

The male of *Pylaemenes guangxiensis* (Bi & Li 1994) is described and its distribution range extended to Japan and Taiwan. Recent confusion regarding *Pylaemenes* species is discussed and a corrected list of species included.

Key words

Phasmida, Dataminae, *Pylaemenes*, *Pylaemenes guangxiensis*, Japan, Taiwan

Introduction

The stick insects of Japan and Taiwan feature in Shiraki's extensive paper of 1935. Okada's well-illustrated book in Japanese (1999) covers 18 Japanese species, only half identified to species level. Huang (2002) has also produced an equally beautifully illustrated book in Chinese on stick insects from Taiwan. However, despite these recent publications, there has been little taxonomic work on the fauna of this region since Shiraki (1935).

This paper clarifies the species included in *Pylaemenes* Stål 1875, correcting confusion created by the authors of recent publications; it includes the description of the male of *Pylaemenes guangxiensis* (Bi & Li 1994) found in Japan and Taiwan, a species misidentified by previous authors.

Recent studies on *Pylaemenes*

Hennemann (1998: 125) gave *Datames* Stål 1875 as a synonym of *Pylaemenes*. Bragg (2001: 162) retained these as distinct genera commenting as follows: "clearly Hennemann had not checked Günther's synonyms and Hennemann wrongly listed several species as synonyms of *Pylaemenes coronatus*. The basis for Hennemann's synonym is therefore unclear." Zompro (2004) provided a more simplified key to 6 genera in the Dataminae and transferred some species to other genera. Whilst accepting Hennemann's synonymy, Zompro repeated Hennemann's wrongly listed species, although these were corrected in Otte & Brock (2003).

The species discussed in this paper has in the past (Shiraki 1935, Okada 1999) been misidentified as *Orestes mouhotii* (Bates 1865). It is, however, *Pylaemenes guangxiensis* (Bi & Li 1994) stat. rev., a species which Zompro (2004) transferred from *Pylaemenes* to the closely related *Dares* Stål 1875. Examination of the illustrations in Bi & Li (1994) show that *guangxiensis* keys to *Pylaemenes* in Zompro's key to genera, i.e., the mesonotum is more than twice as long as pronotum (unlike *Dares*). Whilst this feature is relevant, other key

differences are mentioned in Bragg (2001), hence a combination of the 2 keys is appropriate, as follows:

Back of head conically elevated, spinose or tuberculate, usually with 4 converging carinae. Mesonotum with prominent median carina; segment more than twice as long as pronotum *Pylaemenes*
Back of head not conically elevated, but may be swollen or flat; either smooth or tuberculate or spinose, but without distinct converging carinae. Mesonotum not carinate medially; segment less than twice as long as pronotum. *Dares*

Zompro (pers. comm.) comments that he is considering changing his treatment of the Dataminae. Whilst he did not record data on Japanese specimens in the "material examined" section for *Orestes mouhotii* (Zompro 2004), he recalls seeing a male in a collection with Japanese data, which apparently matched his males from Thailand.

Heteropterygidae: Dataminae
Pylaemenes Stål

Pylaemenes Stål 1875: 51, 93. Type species: *Pasma (Pachymorpha) coronatum* de Haan 1842, by subsequent designation of Kirby 1904: 400.

Pylaemenes Stål; Kirby 1904: 400, Redtenbacher 1906: 47, Bradley & Galil 1977: 198, Bragg 1998: 84, Hennemann 1998: 125, Bragg 2001: 184, Otte & Brock 2003: 48; Zompro 2004: 225.

= *Datames* Stål 1875: 51, 93.

Type species: *Acanthoderus oileus* Westwood 1859, by subsequent designation of Rehn 1904: 89.

Datames Stål; Rehn 1904: 89, Kirby 1904: 400, Redtenbacher 1906: 49; Rehn & Rehn, 1939: 485, Bradley & Galil 1977: 198, Bragg 1998: 69, Hennemann 1998: 125 (synonym of *Pylaemenes*), Bragg 2001: 161, Otte & Brock 2003: 48 (confirmed as synonym of *Pylaemenes*).

Diagnosis.— Medium to large Dataminae. Body roughly tuberculate, not spiny. Antennae distinctly longer than fore femora. Rear of head with 4 large robust raised carinae. An often prominent mid-dorsal carina on a flattened thorax highly characteristic. Pronotum distinctly shorter than halfway of mesonotum; often with paired tubercles at ends of carinae which may be spine-like in males. Abdomen of male slender, cylindrical, the front-half of female raised and swollen, hind part narrowing and flattened. End of abdomen dilated.

Distribution.— China, East & West Malaysia, Japan, Indonesia and Taiwan.

Species included.— *Datames borneensis borneensis* Bragg 1998; *Datames borneensis sepilokensis* Bragg 1998; *Datames borneensis waterstradti* Bragg 1998; *Phasma (Pachymorpha) coronatum* de Haan 1842 (= *Acanthoderus occipitalis* Kaup 1871, = *Acanthoderus spiniventris* Bates 1865, both synonymised by Hennemann 1998: 125); *Datames guangxiensis* Bi & Li 1994 (= *Pylaemenes hongkongensis* Brock & Seow-Choen 2000, synonymised by Zompro 2004: 219, who transferred *guangxiensis* to *Dares*, in error); *Datames mitratius* Redtenbacher 1906 (= *Datames arietinus* Redtenbacher 1906, synonymised with *oileus* by Günther 1934: 76, clarified in Otte & Brock, 2003: 49); *Datames moluccanus* Redtenbacher 1906, *Dares multispinosus* Bragg 1998; *Datames mu-luensis* Bragg 1998; *Acanthoderus oileus* Westwood, 1859 (= *Datames aequalis* Rehn 1904, = *Datames cylindripes* Redtenbacher 1906, = *Acanthoderus gravidus* Bates 1865, all synonymised by Günther 1934: 76); *Acanthoderus otys* Westwood, 1859 (= *Pylaemenes infans* Redtenbacher 1906, synonymised by Bragg 1998: 75).

Abbreviations for Depositories

BMNH The Natural History Museum, London, United Kingdom
IEAS Institute of Entomology, Academia Sinica, Shanghai, China

Pylaemenes guangxiensis (Bi & Li) stat. rev. (Figs 1-5)

Datames guangxiensis Bi & Li 1994: 254. Holotype ♀, China, Longan (Longhushan), Guangxi Province, 7 x 1991 (Li Tianshan) (IEAS). *Pylaemenes guangxiensis* (Bi & Li); Otte & Brock 2003: 49. *Dares guangxiensis* (Bi & Li); Zompro 2004: 219. [Not *Dares zieglerei* Zompro & Fritzsche 1999: 10. Holotype ♀, Thailand, Nakhon Ratchasima, S. Khao Mai Pok, 900-1000 m., long 101° 19'E, lat 14° 31'N, 19-25.x.1997 (I. Fritzsche) and eggs (O. Zompro coll.), synonymised by Zompro 2004: 219, but misidentified, and after discussion with Zompro, is here reinstated as a valid species i.e., *Dares zieglerei* Zompro & Fritzsche].

Pylaemenes hongkongensis Brock & Seow-Choen 2000: 143. Holotype female, Hong Kong, Peel Drive, Victoria Peak, v.1995 (F. Seow-Choen) (BMNH), synonymised by Zompro 2004: 219.

Pylaemenes hongkongensis Brock & Seow-Choen; Brock 2002: 56 (likely synonymy mentioned).

Datames sp. Huang 2002: 82.

Also misidentified as *Orestes mouhotii* (Bates 1865) from Japan and Taiwan: Okada 1999: 46, Shiraki 1935: 25 (as *Datames mouhoti*).

Other Material examined.— ♀, China, Foochow, 1937-38, M.S. Yang (BMNH); ♀, Japan: Miyako-Jima, Yoshino-kaigan, reared on *Rubus* sp. and other foodplants by M. Okada, died 29 xi 2003, also eggs (BMNH); ♂, same data, reared by M. Okada & K. Nishihara, died 20 ix 1989 (BMNH); ♀, Japan: Irabu-Jima, Makiyama, Okinawa-Ken, reared by M. Okada, died 10 i 1994, also eggs (P.D. Brock Coll.); ♂, Japan: Okinawa-Jima, Chinen, Okinawa-Ken, 23 v 1981 (P.D. Brock Coll.); ♀ nymph, Japan: Ishigaki-Jima, Omoto-dake, Okinawa-Ken, 23 iii 1982 (P. D. Brock Coll.); ♀, Hong Kong: Lamma Island, v 2001 (A. Maluche) (P.D. Brock Coll.); ♀, Hong Kong: Victoria Peak,

v 2001 (P.D. Brock) (P.D. Brock Coll.).

Females: (Figs 1,2) rather variable in color and markings. The egg is shown in Fig. 3.

Male (Figs 4,5): Robust, uniform mid to dark brown scabrous insect. Body length 38 to 39 mm.

Head: About as long as broad. Back of head elevated with large lobed crest, surrounded by paired spine-like protuberances behind and in front. Eyes small. Antennae with 23 segments; reaching or just exceeding end of fore tibiae. Basal segment broadened, with 2 spines at outer one, one at anterior and other centrally.

Thorax: Scabrous, with large tubercles. Pronotum longer than head, with bold central indentation. Mesonotum with broad carina, less than 3× longer than pronotum, with raised tubercles anteriorly and posteriorly. Lateral carina formed by a series of pits. Metanotum shorter.

Abdomen: Segments frequently pitted. Central longitudinal carina present, partly indistinct on segments 1 to 3. Segment 8 with large central lobe on hind margin; protuberances much shorter on segments 2 to 7. Anal segment with almost V-shaped notch at tip. Subgenital plate bulbous, with downturned rounded tip, not reaching end of 9th abdominal segment.

Legs: Short, typical of *Pylaemenes* species.

Measurements (mm.).— Body length 38 to 39, head 2.3, antennae 10 to 11, pronotum 2.5, mesonotum 7, metanotum 5 (including median segment of 1mm). Femora: fore 6, mid 6, hind 6.5 to 7. Tibiae: fore 5, mid 4, hind 5 to 6.

Comments: This species is readily distinguished from other species in the genus by the lack of spines on the meso- and metathorax and pitted mesonotum and abdomen.

Distribution.— China: Guangxi Province, Hong Kong. Japan: Irabu-Jima, Miyako-Jima, Okinawa-Jima. Taiwan: Horisha, Koshun, Taihoku (Taiwan records: Shiraki 1935). The distribution in Japan is shown in Fig. 6.

Notes: In captivity the following foodplants have been successfully used: *Celtis* sp., *Discorea* sp., *Rubus* sp., *Mallotus* sp., *Pasania* sp.



Fig. 1. *Pylaemenes guangxiensis* female.



Fig. 2. *Pylaemenes guangxiensis* female, mottled pattern.



Fig. 4. *Pylaemenes guangxiensis* male.

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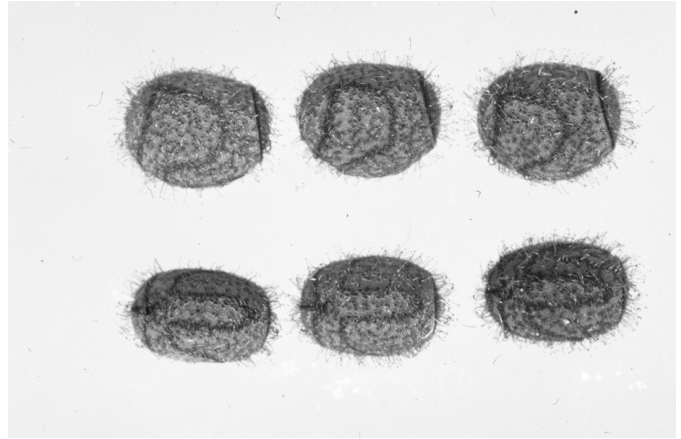


Fig. 3. *Pylaemenes guangxiensis* egg views a) dorsal b) lateral.



Fig. 5 *Pylaemenes guangxiensis* end of abdomen in male, lateral view.

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Fig. 6. Map showing distribution of *Pylaemenes quangxiensis* in Japan.