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Author: Hsiung, Chia-chi

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Two new species of *Megacrania* Kaup (Cheleutoptera: Phasmatidea) from the Admiralty Islands

CHIA-CHI HSIUNG

Lyman Entomological Museum and Research Laboratory, Department of Natural Resource Sciences, McGill University, Macdonald Campus, 2111 Lakeshore Road, Ste Anne de Bellevue, Quebec, Canada H9X 3V9. Email: lyman@nrs.mcgill.ca

Abstract

Six specimens collected in the Admiralty Islands have been examined and are described as 2 new species. Four of these are named *Megacrania vickeri*. The other 2 specimens are described as *M. Artus*. They are compared with the most closely related species of *Megacrania*.

Introduction

The genus *Megacrania* Kaup 1871 has long presented a systematic problem because of the lack of recent literature and insufficient specimens. Hsiung (1991) presented a key for 6 known species. They are *Megacrania alpheus* (Westwood), *M. tsuda* (Shiraki), *M. batesii* Kirby, *M. wegneri* (Willems), *M. phelaus* (Westwood), and *M. nigrosulfurea* Redtenbacher. Two more (new) species, *M. brocki* Hsiung and *M. rentzi* Hsiung (Hsiung 2001), were added from the Indonesian region. Hsiung and Yany (2000) confirmed that the Australian *Megacrania* species is *M. batesii*. Species of *Megacrania* are distributed along the western Pacific Ocean from the northeast of Australia to New Guinea, the Solomon Islands, Indonesia, the Philippines, extending to Micronesia and the southern coast of Taiwan.

The author has studied most collections of the genus *Megacrania* from various museums and found that 3 specimens from Los Negros, Admiralty Islands, Bismarck Archipelago, in the collection of the Bishop Museum, are more like the lectotype of *M. alpheus* than other species. There are, however, many distinct morphological differences that distinguish these from *M. alpheus* and others of the genus. This taxon is here described as a new species (Table 1).

One female and 1 male specimen were collected on Pak Il. Admiralty IIs. The female has been compared with specimens from New Pommern of Bismarck IIs, Los Negros of Admiralty IIs, Borneo Kalau of NE New Guinea and the lectotype of *M. batesii* (Solomon IIs).

The author discovered that the specimen from Pak Il., Admiralty IIs is very different from the specimen collected in Los Negros of the same islands. It does not appear exactly like any from the above localities, but more closely resembles the species *M. batesii* of Sumuna, Bismarck Il. and Kiniganang, New Pommern (Tables 2-7).

Megacrania vickeri Hsiung, new species

Holotype.— ♀ (Fig. 1)

Description.— **Head**: oval, slightly porrect, longer than broad.
Thorax: pronotum slightly shorter than broad, slightly narrowed

at its anterolateral angles; dorsal surface uneven with strongly defined margins; mesonotum much longer than broad, about 2.2× length of pronotum, its surface with numerous distinct, nearly oval, granules and with 2 nearly parallel rows of weak spines near lateral margins which rows gradually run inward posteriorad, but without meeting.

Wing: tegmina elongate-ovate, slightly longer than mesonotum; hind wings about 1.9× as long as tegmina, reaching half of the 4th abdominal segment.

Legs: anterior femora about 1.57× as long as mesonotum; all femora ridged with a few spines visible in ventral view; 2 distinct spines on each front femur; 2 to 3 and 1 to 2 distinct spines on median and hind femora respectively; tibiae of all legs without spines; first tarsal article of front leg as long as the following 3 articles together; the first tarsal article of middle legs slightly longer than the following 3 articles and those 3 articles of equal length, the 5th elongate, its apex expanded; first 3 tarsal articles of hind legs of equal length, 4th smaller, 5th also elongate, its apex expanded.

Abdomen: elongate; about 2.6× as long as the mesonotum; segment II to IV slightly wider than the remaining ones, which are gradually narrowed toward the extremity of the abdomen; posterior margin of anal segment nearly round with tiny split in center; cerci broad, lamellate, apices rounded; subgenital plate slightly longer than mesonotum, margins gradually narrowing apically, just reaching to extremities of cerci; center of ventral surface with longitudinal ridge.

Coloration.— General color brownish-testaceous; the head, anterior part of pronotum and tegmina more dark brown.

Measurements.— (Holotype) lengths (mm). Body: 113.0; median length of pronotum: 8.5; median length of mesonotum: 19.0; length of tegmen: 42.5; length of femora: anterior 30.0, middle 17.5 and posterior 20.0; length of tibiae: anterior 27.0, middle 16.0 and posterior 19.0.

Type material.— Holotype ♀, bearing 3 labels: 1. Los Negros, Admiralty IIs, XI -45; 2. W. Wagner, D. Greether collectors; 3. Bishop Museum Collection #113. Allotype ♂, also bearing 3 labels, 1 and 2 same as in holotype; 3. Bishop Museum Collection #112. Paratype 3, ♂, ♀, labels 1 And 2 same as in holotype; 3. Bishop Museum Collection #144. Paratype ♀, labels 1 and 2 same as holotypes; 3. Bishop Museum collection #60; 4. 45 (black ink hand-writing). The types are deposited in the Bishop Museum, Honolulu.

Allotype.— ♂ (Fig. 2). Agrees generally with the holotype, but smaller, differing as follows: about 60 very distinct granules on surface of mesonotum; hind wings reach to anterior margin of 5th abdominal segment; coloration brown; all femora with a few more spines visible in ventral view; anterior with 5 on the left and right; middle with 4 on left, 2 on right; posterior 5 on left, 4 on right.

Measurements.— (mm) Length of body: 82.0, median length of pronotum: 6.5; median length of mesonotum: 8.0; length of tegmen: 38.0; length of femora: anterior 22.0, middle 13.0, posterior 16.0; length of tibiae: anterior 23.5, middle 12.5, hind 15.0.

The paratype ♀ agrees with the description of the holotype, but is slightly smaller; hind femora with more spines, 6 on left and 4 on right. The paratype ♂ agrees with the description of the allotype.

Measurements.— (mm) paratype ♀: Length of body: 103.5; median length of pronotum: 8.5; median length of mesonotum: 18.5; length of tegmen: 20.0; length of femora: front and middle femora missing, hind 18.5; length of tibiae: front and middle tibiae missing, hind 18.0. Paratype ♂: Length of body: 83.0; median length of pronotum: 6.1; median length of mesonotum: 12.1; length of tegmen: 45.8; length of femora: anterior 22.2, middle 14.2, posterior 16.0; length of tibia: anterior 20.0, middle 12.5, posterior 15.5.

Distribution.— Known only from the Admiralty Is.

Etymology.— This new species is named after V.R. Vickery for his long-term support of this project and his contribution to orthopteroid study.

Megacrania artus Hsiung, new species

Holotype.— ♀ (Fig. 3)

Description.— **Head**: Oval, slightly porrect, longer than broad.

Thorax: Pronotum as long as broad, slightly narrowed at its antero-lateral angles; dorsal surface uneven with defined smooth margins. Mesonotum much longer than broad, 2.8× length of pronotum, its surface with numerous, very narrow and elongate granules which are quite evenly distributed, and with 2 nearly parallel rows of triangular spines which are very dull near the lateral margins; the first spine sharper and larger.

Wing: Hind wings quite long, 1.7× as long as tegmina, nearly reaching posterior margin of 3rd abdominal tergum.

Abdomen: Elongate; segments II-IV slightly wider than remaining ones, which are gradually narrowed towards the extremity of abdomen. Posterior margin of anal segment nearly round, central margin slightly sharp without split. Cerci quite broad at base, apices narrow, nearly triangular. Subgenital plate surpassing extremities of cerci; center of ventral surface with longitudinal ridge.

Coloration: General color brownish-testaceous.

Legs: Anterior femora about 1.46× longer than mesonotum; all femora with ridge having a few spines visible in ventral view. Tibia of all legs without spines; first tarsal article of anterior leg as long as the following 3 articles together; the first 3 tarsal articles of middle and hind legs of equal length, the 4th smaller, 4th elongate, its apex expanded.

Measurements.— Length (mm). Body: 117.0; pronotum: 8.0; mesonotum: 22.5; tegmina: 22.5; hind wing: 38.0; front femur: 33.0;

median femur: 21.0; hind femur: 24.0; anterior tibia: 30.5, median tibia: 16.0, hind tibia: 19.0.

Type material.— Holotype ♀, bearing 5 labels: 1. Admiralitäts-Inseln; Pak Insel 1909, Kpt. Martens leg; ded 17. 12. 1908; 2. K. Günther determ, Versand nr. 21, 1930; Pub.: Mttlg. Zoolog. Muss. Berlin Bd. 17H.6; 3. *Megacrania batesi* Kirby (hand written label); 4. Z.M. H. Hamburg; 5. *M. batesi*.

Allotype ♂, bearing 5 labels: same as in holotype.

Measurements.— (mm) Length of body: 82.0; median length of pronotum: 9.0; median length of mesonotum: 14.0; length of tegmen: 19.0; length of femora: anterior 24.0, middle 15.0, posterior 18.0; length of tibia: anterior 24.0, middle 13.0, posterior 16.0.

Etymology.— This new species is named, based on its unique morphological character: the granules of the mesonotum are narrow, small and elongate.

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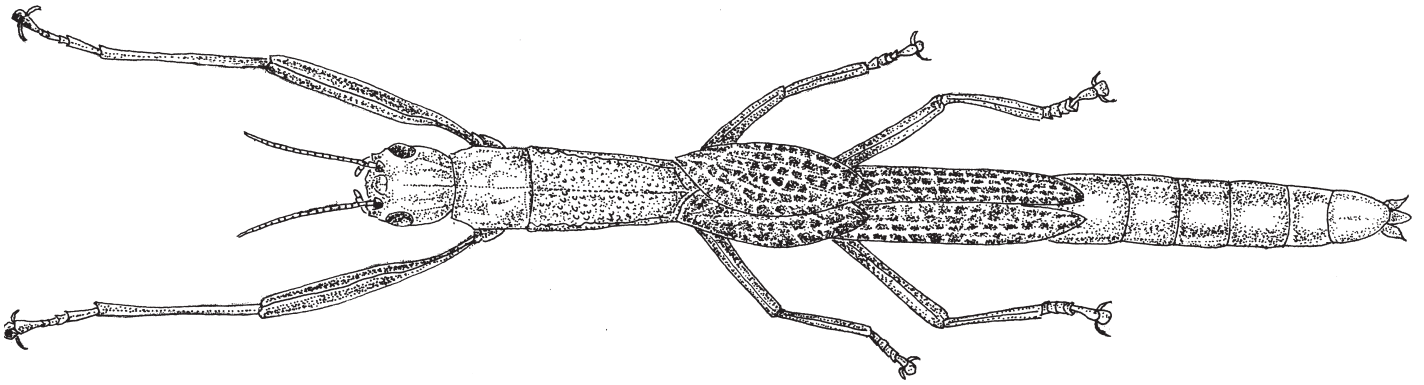


Fig. 1. *Megacrania vickeri* (Holotype ♀).

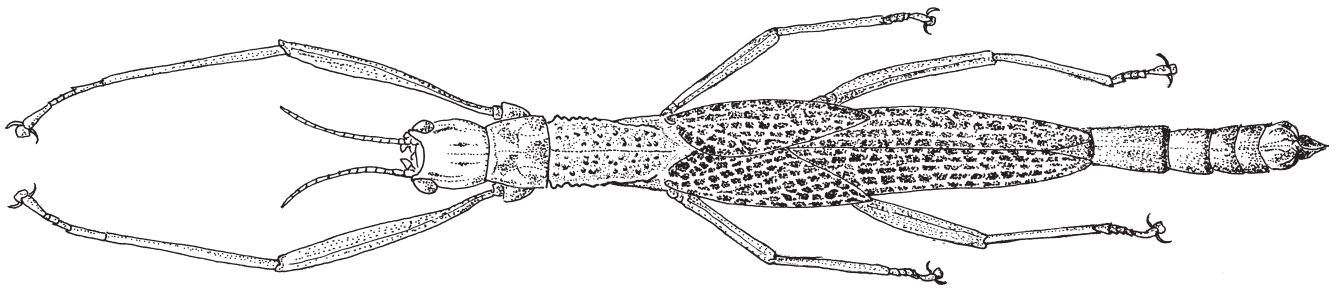


Fig. 2. *Megacrania vickeri* (Allotype ♂).

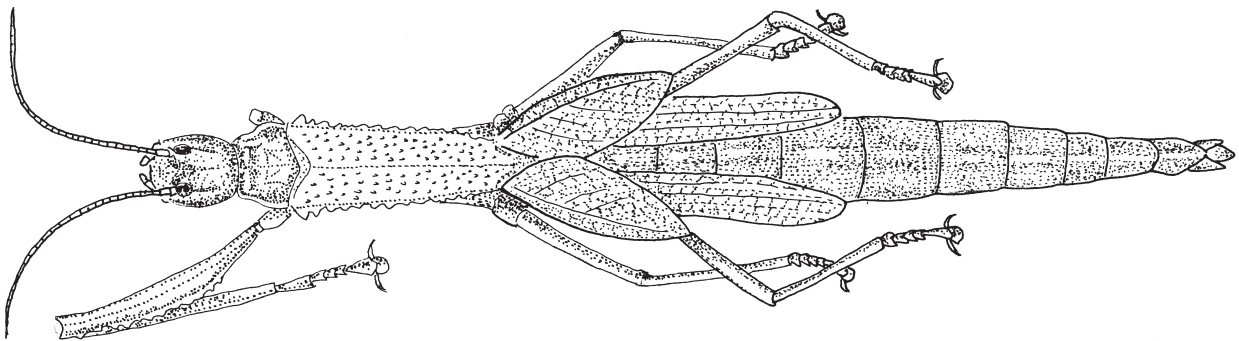


Fig. 3. *Megacrania artus* (Holotype ♀).

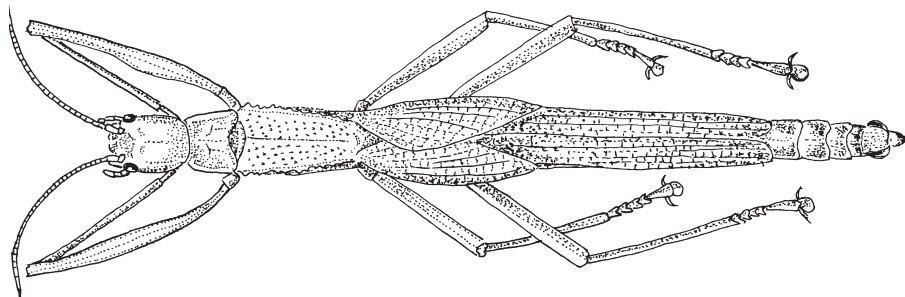


Fig. 4. *Megacrania artus* (Allotype ♂).

Table 1. Morphological differences between *M. alpheus* (lectotype — Ceylon [mislabelled]) and *M. vickeri* (holotype — Los Negros, Admiralty Il.)

Character	<i>M. alpheus</i>	<i>M. vickeri</i>
Mesonotum	surface with 40 to 45 large and rather indistinct granules sparsely distributed	surface with 88 distinct nearly oval granules
Tegmina	Ovate, shorter than mesonotum	elongate-oval, slightly longer than mesonotum
Hind wing	short, 1.6× as long as the tegmina, reaching center of 2 nd abdominal tergum	1.9× as long as tegmina, reaching to center of 4 th abdominal tergum
Abdomen	elongate, 4.6× as long as mesonotum	2.6× as long as mesonotum
Anal segment	posterior margin nearly round, slightly concave at center	posterior margin nearly round with a tiny split at center
Subgenital plate	very long, about 1.3× the length of mesonotum; surpassing extremities of cerci	slightly longer than mesonotum; just reaching extremities of cerci
Color	general color green and brown; head, thorax, legs and last 2 segments of abdomen green, tegmina and wings pale green	general color brownish-testaceous; the head, anterior part of pronotum and tegmina dark brown

Table 2. Morphological differences between *Megacrania batesii* (Sumuna, Bismarck Archipelago) and *Megacrania artus* (Pak Il., Admiralty IIs).

Character	<i>Megacrania batesii</i>	<i>Megacrania artus</i>
Mesonotum	with 90 median, oval granules; along lateral margin: first spine very sharp, next 2 spines just a little larger than rest	with 86 small, narrow granules; along lateral margin: first spine sharper and larger than rest
Hind wing	slightly surpassing posterior margin of 2 nd abdominal tergum	nearly reaching to posterior margin of 3 rd abdominal tergum
Subgenital plate	not surpassing extremities of cerci	slightly surpassing extremities of cerci

Table 3. Morphological differences between *M. batesii* (Kiniganang, Neu Pommern, New Britain Il.) and *M. artus* (Pak Il., Admiralty IIs).

Character	<i>M. batesii</i>	<i>M. artus</i>
Mesonotum	with 90 median, oval granules; mesonotum 2.2× length of pronotum; along lateral margin: first spine larger and sharper than rest, the next slightly larger than those following	with 86 small, narrow granules; mesonotum 2.8× length of pronotum; along lateral margin: first spine sharper than rest, those following equal, slightly dull
Hind wings	slightly surpassing posterior margin of 2 nd abdominal tergum	nearly reaching to posterior margin of 3 rd abdominal tergum
Subgenital plate	not surpassing extremities of cerci	slightly surpassing extremities of cerci

Table 4. Morphological differences between *M. vickeri* Hsiung (Los Negros, Admiralty IIs) and *M. artus* (Pak Il., Admiralty IIs).

Character	<i>M. vickeri</i>	<i>M. artus</i>
Mesonotum	with 88 distinct nearly oval granules; lateral margin with dull spines, except first spine sharp, larger	with 86 small, narrow granules; lateral margin with very dull spines, first spine sharper than rest
Tegmina	elongate-oval, slightly longer than mesonotum	tegmina as long as mesonotum
Hind wings	1.9× as long as tegmina, reaching to center of 4 th abdominal tergum	1.68× as long as tegmina, nearly reaching posterior margin of 3 rd abdominal tergum
Anal segment	posterior margin nearly round, with tiny split at center	posterior margin smooth without split
Subgenital plate	just reaching extremities of cerci	slightly surpassing extremities of cerci

Table 5. Morphological differences between *M. rentzi* Hsiung (Borneo) and specimen from *M. artus* (Pak Is., Admiralty Iss).

Character	<i>M. rentzi</i> Hsiung	<i>M. artus</i>
Mesonotum	surface with 60 elongate granules, lateral margin not spiny, with very dull teeth, first two combined together, large and very dull	surface with 86 small and narrow granules, lateral margin moderately spiny, first tooth sharper than rest
Anal segment	posterior margin nearly square	posterior margin round, smooth without split
Subgenital plate	short, not surpassing extremities of cerci	slightly surpassing extremities of cerci

Table 6. Morphological differences between *M. batesii* (Kalalu, N.E. New Guinea) and *M. artus* (Pak Il., Admiralty IIs).

Character	<i>M. batesii</i>	<i>M. artus</i>
Mesonotum	with 91 quite large, oval granules; lateral margin moderately spiny, first 4 teeth of equal size, first slightly sharper	with 86 small narrow granules; lateral margin moderately spiny, first tooth larger and sharper than rest
Hind wings	1.60× as long as tegmina, reaching posterior margin of 2 nd abdominal tergum	1.68× as long as tegmina, nearly reaching hind margin of 3 rd abdominal tergum
Subgenital plate	just reaching posterior central margin of cerci	slightly surpassing extremities of cerci
Coloration	head, pronotum, front legs, posterior parts of wings pale green, the rest reddish-brown	brownish-testaceous

Table 7. Morphological differences between lectotype of *M. batesii* and *M. artus* (Pak Il., Admiralty IIs).

Character	Lectotype of <i>M. batesii</i>	<i>M. artus</i>
Mesonotum	90 large, oval granules; lateral margin: first 3 spines much stronger than rest; 2.6× length of pronotum	86 small and narrow granules; lateral margin moderately spiny, first spine much sharper than rest. 2.8× length of pronotum
Wings	elongate-ovate, shorter than mesonotum; hind wings 1.89 × as long as tegmina, reaching a little beyond the hind margin of 2 nd abdominal tergum	tegmina as long as mesonotum; hind wings 1.68× as long as tegmina, nearly reaching hind margin of the 3 rd abdominal tergum
Femora	anterior femora about 1.4× as long as mesonotum	1.5× as long as mesonotum
Coloration	pale green: head, thorax, mesothorax and legs darker than tegmina	brownish-testaceous