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Cover photograph: Pupa of Craspedophorus mandarinus (Schaum, 1853), photo by Paul Aston.

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A new species of the genus *Oxyartes* Stål, 1875 from Vietnam (Phasmida: Diapheromeridae: Necrosciinae)

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ABSTRACT

A new species, *Oxyartes vietnamensis* **sp. nov.**, from Vietnam is described.

Key words: Stick insects, *Oxyartes*, new species, Vietnam

越南刺異䗛屬一新種(䗛目:笛䗛科:長角枝䗛亞科)

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摘要:本文記述越南刺異䗛屬1新種:越南刺異䗛 Oxyartes vietnamensis sp. nov.。

關鍵字: 竹節蟲, 刺異䗛屬, 新種, 越南

INTRODUCTION

The genus *Oxyartes* Stål, 1875 consists of nine species and is a small Necrosciinae genus in the Oriental region (Otte and Brock, 2005; Chen and He, 2008; Hennemann et al., 2008; Ho, 2017; Brock et al., 2018). This genus is characterized by a slender and elongate body, partially armed or unarmed thorax and abdomen, scale-like tegmina and rudiment-like alae. Chen and He (2008) provided the first taxonomic study for the Chinese species with the descriptions of three new species and one newly recorded species. Latter Ho (2017) revised the Chinese species with the descriptions of two new species.

In Vietnam, only two species are known including *O. lamellatus* Kirby, 1904 and *O. spinipennis* Carl, 1913, and both are restricted to the northern region closer to China. No *Oxyartes* species were found in central Vietnam until the present author examined several Vietnamese *Oxyartes* specimens from the phasmid collection of the Manchester Museum in the University of Manchester in U.K. and observed an undescribed *Oxyartes* species that was collected from central Vietnam. This new species is described as *Oxyartes vietnamensis* **sp. nov.** in this paper. A checklist of Vietnam are provided.

MATERIALS & METHODS

Both sexes of the type material are described. No egg material can be extracted from the abdomen of female adults. Measurements of adults are given in mm. Illustrations (Figures 1-5) are based on type material that is dried and pinned and deposited in the Manchester

RESULTS

Oxyartes Stål, 1875

Type-species: *Phasma (Acanthoderus) despectum* Westwood, 1848: 80, pl. 39, by subsequent designation of Kirby, 1904: 324.

Description: Body medium to large sized, slender and elongate, mainly brown, female robust than male. Head oval. Mesonotum usually granulated and wrinkled, unarmed or armed with tubercles and/or spines. Abdomen wrinkled. Female's seventh sternum rarely with praeopercular organ with a scoop-shaped subgenital plate tapering posteriorly and with a pointed posterior margin. Male poculum small and cup-shaped. Anal segment with emargination on posterior margin. Cerci short, cylindrical, and straight or weakly curved inwards. Legs lacking noticeable armature, usually with small spines or serrations near apices of anteroventral and posteroventral carinae of femora. Tegmina minute and scale-like. Alae short and rudiment-like. Egg capsule oval and tapering posteriorly. Micropylar plate oval.

Distributions: China, Bangladesh, India, Laos and Vietnam.

Notes: Currently ten species are recognized from this Oriental genus and three species are known from Vietnam.

Species included from Vietnam

1. Oxyartes lamellatus Kirby, 1904: 374
= Oxyartes honestus Redtenbacher, 1908: 475, synonymized by Dohrn, 1910: 410
= Oxyartes spinulosus Redtenbacher, 1908: 475, synonymized by Dohrn, 1910: 410
= Oxyartes spinosissimus Carl, 1913: 46, synonymized by Hennemann et al., 2008: 18 Distribution: China (Guangxi) and Vietnam

- 2. Oxyartes spinipennis Carl, 1913: 47 Distribution: Vietnam
- 3. Oxyartes vietnamensis sp. nov. Distribution: Vietnam

Key to the species of *Oxyartes* from Vietnam

Female:

- **1.** Body robust, mesonotum with spines.
- O. lamellatus
 Body slender, mesonotum granulated and lacking spines.
 2
- 2. Alae lanceolate, posterior margin of anal region emarginated. O. spinipennis
- Alae oval, posterior margin of anal region rounded. *O. vietnamensis* **sp. nov.**

Male:

- 1. Mesonotum with spines. . O. lamellatus
- Mesonotum granulated and lacking spines. 2
- 2. Alae lanceolate, posterior margin of anal region emarginated. O. spinipennis
- Alae oval, posterior margin of anal region rounded. *O. vietnamensis* **sp. nov.**

Oxyartes vietnamensis sp. nov. (Figs. 1-7)

Type: Holotype, \bigcirc , 1020 m asl, Kon Chu Rang Nature Reserve, c. 40 km N of K' Bang Town, Gia Lai Province, Vietnam, 14°30'19"N, 108°32'28"E, 24.V-2.VI.2016, A. V. Abramov, F3476.6 (MMUE); Paratypes, 2 \bigcirc & 2 \bigcirc , same data as holotype, F3476.7-8 & F3476.41-42 (MMUE & HKES).

Differentiation: Oxyartes vietnamensis **sp. nov.** is related to O. spinipennis Carl, 1913, but can be easily separated by oval alae, a rounded posterior margin of the anal region of the alae in both sexes, absence of a praeopercular organ on the seventh abdominal sternum in females and an apically pointed vomer in males.

Etymology: The name of this new species is derived from the type locality, Vietnam.

Description of female (Figs. 1-2, 6): Body slender, distinctly thicker than male. General colouration of body brown.

Head: Oval, as long as pronotum and sparsely covered with small granules. Vertex flat and unarmed. Occiput flat, with distinct median and lateral longitudinal furrows. Posterior margin of occiput with six distinct posterior swellings. Compound eyes elliptical and small, their lengths about four times length in that of genae. Antennae long and filiform, with dense short bristles; apices surpassing apices of protarsi. Scapus longer than pedicellus, and longer than third segment.

Thorax: Wrinkled and sparsely covered with small granules. Pronotum rectangular, indistinctly emarginated medially, with anterior margin gently incurved, posterior margin rounded and transverse and longitudinal sulci just crossing at middle area. Mesonotum slender and

elongate, longer than combined length of pronotum, metanotum and median segment, with indistinct mediolongitudinal carina. Metanotum shorter than median segment.

Abdomen: Cylindrical, sparsely granulated, and wrinkled. Second or third to sixth tergites with a small posterior spine that gradually increase in size posteriorly. Seventh tergum with or without a crest on posterior area. Seventh sternum lacking praeopercular organ. Eighth tergum longer than ninth tergum and longer than anal segment. Anal segment longer than ninth tergum, medially constricted posteriorly, and with a small emargination on posterior margin. Supraanal plate indistinct. Subgenital plate scoop-shaped, mediolongitudinally carinate, tapering posteriorly and with a pointed apex reaching middle area of anal segment. Cerci cylindrical and straight, with rounded apices and not surpassing posterolateral angles of anal segment.

Legs: Slender, long, maculated and sparsely covered with short bristles. All femora shorter than mesonotum. Profemora curved basally and roughly as long as protibiae, with posterodorsal carina weakly waved. Mesofemora roughly as long as mesotibiae. Metafemora shorter than metatibiae. Posteroventral carina of mesofemora and metafemora with two small serrations near apices. Protibiae and mesotibiae shorter than metatibiae almost as long as mesonotum. Medioventral carina of all tibiae indistinctly raised basally.

Wings: Tegmina minute and scale-like. Alae short and small, rudiment-like, shorter than head, and with posterior margin of anal region rounded.

Male (Figs. 3-5, 7): Medium-sized. Body slender, slimmer and smaller than female. General colouration of body and legs brown.

Head: Oval, as long as pronotum, flattened, and with sparse small granulations. Compound eyes elliptical, their lengths about two times length in that of genae. Occiput with distinct median and lateral longitudinal furrows. Posterior margin of occiput with eight small swellings. Antennae long and filiform; apices surpassing apices of protarsi. Scapus longer than pedicellus and as long as third segment.

Thorax: Wrinkled and sparsely covered with small granules. Pronotum rectangular, weakly emarginated medially, with anterior margin weakly incurved, posterior margin rounded and transverse and longitudinal sulci crossing at middle area. Mesonotum slender and elongate, almost parallel-sided, with a faint median longitudinal line, and longer than combined length of pronotum, metanotum and median segment. Metanotum roughly as long as median segment.

Abdomen: Wrinkled and sparsely covered with small granules. Second or third to sixth tergites with a posterior

spine that gradually increase in size posteriorly. Seventh tergum with or without a crest on posterior area. Eighth tergum longer than ninth tergum. Anal segment as long as ninth tergum, with a broad V-shaped emargination on posterior margin. Poculum cup-shaped, tapering posteriorly and, reaching anterior area of anal segment, with pointed posterior margin. Cerci short, cylindrical and straight, with apices rounded and not surpassing posterior margin of anal segment. Vomer almost symmetrical, constricted apically, with pointed apex.

Legs: Slender, long, maculated, unarmed, and sparsely covered with short bristles. All femora shorter than mesonotum. Profemora curved basally, roughly as long as protibiae, with posterodorsal carina weakly waved. Mesofemora roughly as long as mesotibiae. Metafemora shorter than metatibiae. Posteroventral carina of mesofemora and metafemora with two small serrations near apices. Protibiae and mesotibiae shorter than metatibiae almost as long as mesonotum.

Wings: Tegmina minute and scale-like. Alae oval, rudiment-like, and shorter than metanotum.

Measurements: See Table 1.

Distribution: Gia Lai, Vietnam.

DISCUSSION

In this study, a new species, Oxyartes vietnamensis sp. nov., from central Vietnam is described and illustrated. The discovery of O. vietnamensis sp. nov. further extends the genus' known range in Vietnam from the northern region to the central region. All three Vietnamese species can be well distinguished from each other by their unique traits. Oxyartes lamellatus Kirby, 1904 is widely distributed over northern Vietnam and southern China, but the other taxa are restricted to a few of localities in Vietnam. Although O. vietnamensis sp. nov. is morphologically similar to O. spinipennis Carl, 1913, the former can be easily diagnosed from the latter by oval alae and the rounded posterior margin of anal region of the alae in both sexes. O. vietnamensis sp. nov. is also similar to O. lamellatus, but can be separated by slender body and unarmed thorax in both sexes. Further collecting of specimens in different Vietnamese nature reserves may discover more new taxa for the genus in Vietnam.

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| | Holotype Female | Paratype Females | Paratype Males |
|----------------|-----------------|------------------|----------------|
| Body | 97.0 | 94.0-95.0 | 74.0-80.0 |
| Head | 6.0 | 5.5-6.0 | 3.5-4.0 |
| Antennae | 54.0 | 51.0-55.0 | 54.0-65.0 |
| Pronotum | 6.0 | 6.0 | 4.0-4.5 |
| Mesonotum | 25.0 | 24.0-25.0 | 20.0-22.0 |
| Metanotum | 5.0 | 5.0 | 4.5-5.0 |
| Median segment | 7.0 | 6.0 | 4.0 |
| Profemora | 18.0 | 20.0 | 18.0-19.0 |
| Mesofemora | 15.0 | 15.0-16.0 | 13.0-15.0 |
| Metafemora | 20.0 | 21.0-22.0 | 19.0-21.0 |
| Protibiae | 18.0 | 21.0 | 21.0 |
| Mesotibiae | 14.0 | 14.0-15.0 | 13.0-15.0 |
| Metatibiae | 24.0 | 24.0-26.0 | 22.0-24.0 |
| Tegmina | 1.0 | 1.0 | 0.5 |
| Alae | 4.0 | 4.0 | 2.5 |

TABLE & FIGURES

Table 1. Measurements of Oxyartes vietnamensis sp. nov. (mm)



Figures 1-5. *Oxyartes vietnamensis* **sp. nov.** [scale bars 5 mm] (Drawings by author). 1. Female, end of abdomen, lateral view. 2. Female, end of abdomen, dorsal view. 3. Male, end of abdomen, lateral view. 4. Male, end of abdomen, dorsal view. 5. Male, vomer, ventral view.



Figures 6-7. Habitus of Oxyartes vietnamensis sp. nov. [scale bar 5 mm] (Photo by author). 6. Female. 7. Male.

Identification and notes on Hong Kong Carabidae 1. The subfamily Panagaeinae Bonelli, 1810

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ABSTRACT

A key to all species of Panagaeinae recorded from Hong Kong is given. Where possible, the key includes all species recorded from or likely to occur in neighbouring Guangdong Province.

Key words: Ground Beetles, Carabidae, Panagaeinae, Hong Kong, China

INTRODUCTION

Since the publication of the Catalogue and Bibliography of the Hong Kong Carabidae (Aston, 2016), I have recieved several requests for identification guides. This is the first in a series of papers on the identification of Hong Kong Carabidae. Where possible, genera and species occurring in neigbouring Guangdong province will be included.

METHODS

For methodology see Aston (2016).

RESULTS & DISCUSSION

Species of this subfamily are quite distinctive in having the apical joint of the maxilliary palps attached excentrically to penultimate joint (Fig. 1); neck consticted; eyes prominent and upper surface punctate and pubescent.

Since the publication of Hong Kong Carabidae catalogue, Fedorenko (2015) has moved *Dischissus notulatus* Fabricius, 1801 to the genus *Adischissus* Fedorenko, 2015. In the same publication, the genitalia illistration clearly shows the local Hong Kong taxa belong to the subfamily *A. notulatus sumatranus* (Dohrn, 1891).

Other than the biological notes given in Aston (2016), not much is known of the life history of this group in Hong Kong, though a pupa (Fig. 2) was found by the author on 7 May 2017 under a stone, at the edge of a raised area of gravel and fresh water marsh with *Chlaenius hamifer* Chaudoir, 1856, in Pui O on Lantau. It emerged into adult by 6 pm following day.

Key to the species of Panagaeinae occurring in Hong Kong and Guangdong [modified from Häckel and Kirschenhofer, 2014a, 2014b)]

1. Elytra immaculate [black or blue]. . 2

7

- Elytra black with two yellow maculata on each elyton. 3
- Black species with yellow pubesence; appendages pale; antennae unicolorous red. Protarsomere 1 expanded in male only. . Peronomerus Schaum, 1854 ~ single species Peronomerus fumatus Schaum, 1854 (see figure 9)
- Blue species, basal antennomere glabrous, red. Legs red. Protarsomere 1 same in both sexes.
 Trichisia Motschulsky, 1865 ~ single species *Trichisia cyanea* (Schaum, 1854) (see figure 4)
- Small species. less than 8mm long. Protarsi of males slightly wider than in females, but all tarsomeres lack ventral brushes of setae.
 Microschemus Strand, 1936 [should occur in Guangdong, but not yet recorded in Hong Kong] ~ single species *Microchemus flavopilosus* (LaFerte-Senectere, 1851) (see figure 5)
 Size variable, but all tarsi with ventral brushes of
- **4.** Lateral border of pronotum black and evenly rounded [Hong Kong species]. Tarsomere 4 not split more than basal three or split less than one-half tarsomere length as in figure 3.
- 5 Craspedophorus Hope, 1838
 Lateral border of pronotum yellow or pronotum angulate at widest point and basal half sinuate [Hong Kong species]. Tarsomere 4 split more than basal three and split exceeds one-half tarsomere length.
- Large species, length > 16mm. Craspedophorus mandarinus (Schaum, 1853) (see figure 6)
 medium sized species length < 13mm
 - medium sized species, length < 13mm. . 6
- 6. Penultimate protarsomere cleft more than others (similarly to *Dischissus*, but cleft does not exceed half of tarsomere length). Pronotum oval, widest at or immediately behind midlength, with lateral margins bordered in crescent fashion and internally delimited by a furrow that is deepest at midlength, where lateral rim is most elevated.

Craspedophorus sapaensis guangdongensis Häckel & Kirschenhofer, 2014b (see figure 7) Penultimate protarsomere of shape identical with first and third protarsomeres.

. *Craspedophorus philippinus* Jedlicka, 1939 [I have included this species in the key as Baehr (2003) lists it as occurring in Guangdong, though Häckel and Kirschenhofer (2014b) question whether these records belong to this species]

- 7. Large species length 16-18mm.... Dischissus Bates, 1873 ~ single species Dischissus mirandus Bates, 1873 [Dischissus tsengjialiae Sustek, 1996 as occurring in Hong Kong, though Häckel and Kirschenhofer (2014a) synomized it with this species]
 - smaller species length 9mm. Adischissus
- Fedorenko, 2015 ~ single species *Adischissus notulatus sumatranus* (Dohrn, 1891) (see figure 8)

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FIGURES



Figure 1. Maxilliary palps of *Craspedophorus mandarinus* (Schaum, 1853) showing the apical joint attached excentrically to penultimate joint (Photo by author).



Figure 2. Pupa of *Craspedophorus mandarinus* (Schaum, 1853) (Photo by author).



Figure 3. Protarsi of *Craspedophorus sapaensis guangdongensis* Häckel & Kirschenhofer, 2014b (Photo by author).



Figure 4. Pronotum of *Trichisia cyanea* (Schaum, 1854) after Jedlička (1965).



Figure 5. *Microschemus flavopilosus* (LaFerte-Senectere, 1851) after Jedlička (1965).



Figure 6. Craspedophorus mandarinus (Schaum, 1853) (Photo by author).



Figure 7. Craspedophorus sapaensis guangdongensis Häckel & Kirschenhofer, 2014 (Photo by author).



Figure 8. Adischissus notulatus sumatranus (Dohrn, 1891) (Photo by author).



Figure 9. Peronomerus fumatus Schaum, 1854 (Photo by author).





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