

# Two new related oodine genera in the Oriental Region, with remarks on the systematic position of the genera *Hololeius* and *Holosoma* (Coleoptera, Carabidae)

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## Abstract

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Two new genera of Oodini LaFerté-Sénectère, 1851 are described: *Bamaroodes* **gen. n.** (type species: *Hololeius cyaneus* Facchini, 2011) for *Bamaroodes cyaneus* (Facchini, 2011), **comb. n.**, here placed in tribe Oodini and removed from Chlaeniini Brullé, 1834; and *Thaioodes* **gen. n.** (type species: *Thaioodes piceus* **sp. n.**) for *Thaioodes piceus* **sp. n.** (type locality: Khon Kaen, Thailand). The new genera are closely related and belong to the same lineage as evidenced by the following combination of characters: body shape semi-elongate; discal setiferous pore lacking in interval 3 of elytra; mesocoxa without lateral seta; tarsomere 5 setose ventrally; joints of the claws of tarsomere 5 parallel, situated closely to each other. The two genera are readily distinguished from one another by a number of distinct characters.

Further, the tribal position of two other genera is reconsidered. The monospecific *Hololeius* LaFerté-Sénectère, 1851 is redescribed and its current placement within Chlaeniini is confirmed, though it might be distantly related to the two new genera. Analysis of character states in species of *Holosoma* Semenov, 1889 leads me to transfer the genus from Oodini to Chlaeniini. Pictures of the taxa dealt with here are provided, including habitus, external characters, and genitalia. In addition, all the genera of the Oodini from the Oriental Region, including genera of Oriental Chlaeniini with oodine facies, are keyed for the first time.

## Introduction

The Oriental fauna of Oodini has not been examined by taxonomists for a long time. Its representatives were reviewed by LaFerté-Sénectère in 1851, who assigned six Indian and one Javanese species to *Oodes* Bonelli, 1810. Today the same species are arranged in six different genera of the tribe (Lorenz 2005). A second work of importance regarding the discussed fauna is the posthumous revision of Chaudoir (1882, 1883) that, even though old and out of date, is still the only worldwide review of the tribe. Subsequently other works appeared on this topic, among the more important being those of Bates (1892), Andrewes (1923, 1940), and Louwerens (1951). The only study entirely devoted to the Oriental Oodini is that of

Andrewes (1940). This author described seven new species and keyed most of the known species from the Indian subcontinent and Southeast Asia. Andrewes treated all the species as belonging to *Oodes*. Today the same taxa are classified into the genera *Brachyodes* Jeannel, *Nanodiodes* Bousquet, *Oodes*, and *Pseudosphaerodes* Jeannel (Lorenz 2005).

Some works devoted to other biogeographic areas are of use for recognition of the Oriental fauna. Habu (1956, 1958) published two careful studies on the Japanese Oodini, which include a few taxa shared between the Palaearctic and Oriental Region. The same applies to the work of Darlington (1968) in regard to taxa from the Australasian and Oriental Region. Last, but not least, is the revision of the Nearctic Oodini by Bousquet (1996).

**Table 1.** List of the Oriental genera of Oodini, their species number and distribution.

Genera	Species	Distribution (incl. unpublished data)
<i>Anatrichis</i> LeConte, 1853	3	Indian subcontinent, Myanmar, Philippines
<i>Bamaroodes</i> B. Guéorguiev, gen. n.	1	Myanmar, Thailand
<i>Brachyodes</i> Jeannel, 1949	4	whole region
<i>Holcocoleus</i> Chaudoir in Oberthur, 1883	2	India (Tamil Nadu), Ceylon
" <i>Holosoma boettcheri</i> Jedlička, 1936"	1	Philippines
<i>Megaloodes</i> Lesne, 1896	1	SE Thailand, E Cambodia
<i>Miltodes</i> Andrewes, 1922	1	India, Thailand, Sumatra
<i>Nanodiodes</i> Bousquet, 1996	3	Ceylon, SE Asia, Indonesia, Philippines
<i>Oodes</i> Bonelli, 1810	16	whole region
<i>Oodinus</i> Motschulsky, 1864	1	Vietnam, Sumatra, Moluccas, Philippines
<i>Pseudosphaerodes</i> Jeannel, 1949	2	Myanmar, Philippines
<i>Simous</i> Chaudoir, 1882	9	whole region east of Bengal
<i>Systolocranius</i> Chaudoir, 1857	1	"Bengal": MNHUB; "Ind. or.": NMW
<i>Thaioodes</i> B. Guéorguiev, gen. n.	1	Thailand

This work is useful for the making of a modern classification of the group in any other region.

Currently 44 oodine species from the Oriental Region are classified in 11 genera (*Holosoma* Semenov excluded). I add two more genera and two more species that will be discussed in detail in this work (Table 1). Undoubtedly, the status of some taxa needs verification, so this study should be considered a preliminary attempt to contribute to a better recognition of the taxa of Oodini in the region.

The main reason for doing this work is the finding of two unusual oodine-like specimens in MNHUB from Thailand, one of them found to be conspecific with *Hololeius cyaneus* Facchini, 2011. The samples had been collected with light traps by Dr Sastri Saowakontha and donated to MNHUB by Prof. Dr Hans-Jürgen Bremer, a specialist on Tenebrionidae. A careful study of the two specimens has revealed that each of them belongs to a separate genus, and that *H. cyaneus* is not congeneric with *H. ceylanicus* (Nietner, 1856), the type species of the genus. In addition, the study of specimens of *Holosoma* and a review of published descriptions revealed that this genus does not belong to the Oodini, and should be transferred to Chlaeniini.

## Material and methods

This study is based upon the examination of type and non-type material of species from the following genera of Oodini: *Brachyodes* Jeannel, 1949; *Holcocoleus* Chaudoir in Oberthur, 1883; *Holosoma* Semenov, 1889; *Lonchosternus* LaFerté-Sénectère, 1851; *Miltodes* Andrewes, 1922; *Nanodiodes* Bousquet, 1996; *Oodes* Bonelli, 1810; *Oodinus* Motschulsky, 1864; *Protopidius* Basilewsky, 1949; *Simous* Chaudoir, 1882; *Systolocranius* Chaudoir, 1857; and two the new genera described below. The holotypes of the type species of genera *Brachyodes*, *Holcocoleus*, *Miltodes*, *Protopidius*, *Simous* and *Systolocranius* were studied. In addition, I have studied many taxa of Chlaeniini, representing samples of the Palearctic, Ori-

ental, and Afrotropical regions. The examined material was provided by EU natural history museums (BMNH, MNHN, MRAC, NBC, NMNHS, and NMW) and it was investigated in 2007-2013. Many references, among them Chaudoir (1882, 1883), Sloane (1910), Andrewes (1940), Jeannel (1949a), Basilewsky (1953), Darlington (1968), Erwin (1974), Spence (1983), Kirschenhofer (1995), and Bousquet (1996), were carefully studied.

The measurements and drawings of the dorsal view of the aedeagus were made using an Olympus SZ 60 stereoscopic microscope. The rest of the drawings were taken with a Carl Zeiss Jena Technival 2 stereoscopic microscope. The photographs were made with a Zeiss Stemi 2000 microscope equipped an AxioCam ERc 5s camera.

The measurements are made as previously described by the author (Guéorguiev 2013).

Abbreviations of the repositories of the specimens herein studied are:

BMNH	Natural History Museum, London, United Kingdom (Max Barclay, Beulah Garner)
IZAS	Institute of Zoology, Chinese Academy of Science, Beijing, China (Hongbin Liang)
MNHN	Muséum National d'Histoire Naturelle, Paris, France (Thierry Deuve, Azadeh Taghavian)
MNHUB	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (Manfred Uhlig, Bernd Jaeger)
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium (Marc De Meyer)
NBC	Naturalis Biodiversity Center, Leiden, The Netherlands (Ben Bruggé)
NMNHS	National Museum of Natural History, Sofia, Bulgaria (Borislav Guéorguiev)
NMW	Naturhistorisches Museum Wien, Vienna, Austria (Harald Schillhammer)
CFa	Coll. Sergio Facchini, Piacenza, Italy

The distribution map was made using the online mapping software SimpleMappr (©David P. Shorthouse).

## Taxonomy

### CHLAENIINI Brullé, 1834

**Tribal diagnosis.** Mandibular scrobe without seta near anterior margin of excavation, mesocoxal cavities conjunct (mesepimeron does not reach middle coxal cavity), metepisternum separated from metepimeron by distinct suture, and parameres without setae, with left paramere “conchoid”, therefore a member taxon of Conchifera Jeannel, 1941 (Jeannel 1949b: 1047); head with one pair of supraorbital setae, its capsule “normal”, i.e. without annular constriction behind eyes and with ultimate maxillary palpomere elongate and well-centered with respect to penultimate palpomere, pronotum usually without anterolateral setae, anterior coxal cavities biperforate, elytron with internal plica, metepisternum laterally coadunate with elytral epipleuron, middle femur posterior margin without longer setae, metacoxa lacking posterior seta, and median lobe of aedeagus in lateral view long and considerably bent, with basal bulb decreased, indicate a member taxon of Callistidae Jeannel, 1941 (Jeannel 1949b: 1051); tegument largely punctate and pubescent, antennomere 3 densely pubescent or at least with a few short, scattered setae (in addition to apical setae), elytron with intervals 7 and 8 not fused and not forming ridge posteriorly, stria 7 distinct to apex, stria 8 not deeper than other striae, and interval 9 normal (not transformed), wider or narrower, are other features peculiar to tribe.

### *Hololeius* LaFerté-Sénéctère, 1851

**Type species.** *Chlaenius nitidulus* Dejean, 1826

**Diagnosis.** Small to medium-sized specimens (11–13 mm) for Oriental chlaeniines, with the following characters: habitus semi-elongate; color mostly olivaceous; integument punctate and pubescent, pubescence denser on sides of elytra and on sides of abdomen, less developed, scattered or lacking on rest of body; head with conspicuously large eyes and minute tempora; penultimate segment of labial palpomere without setae; antennomeres 1–3 lighter than other antennomeres, scape and pedicel glabrous, antennomere 3 with a few fine and scattered setae; pronotum subquadrate, without protruded angles, with basal margin laterally oblique towards posterior angle; elytra more densely pubescent and punctate laterally and apically, with only a few hairs basally and on disc; striae 1–7 of elytra punctiform; striae 5–7 obliterated anteriorly; stria 8 linear, somewhat more impressed than other striae; mesocoxa with two long setae, one lateral seta and one posteromedial seta; sterna 4–5 with pair of long ambulatory setae, sternum 3 without such setae; last abdominal sternum with two pores in male, four pores in female; male protarsomeres 1–3 longer than wide and with protarsomere 1 longer than each of following two protarsomeres separately; tarsomere 5 of all legs setose ventrally.

**Taxonomic position.** LaFerté-Sénéctère (1851: 274) proposed *Hololeius* for *Chlaenius nitidulus* Dejean, 1826,

due to: 1, pronotum at the base narrower than the base of elytra; 2, lack of pubescence; 3, antennomere 3 not longer than subsequent antennomeres. He placed the genus in tribe Oodini LaFerté-Sénéctère, 1851, concluding: “C’est-à-dire qu’à l’exception de la largeur du corselet, cet insecte réunit tout les caractères à l’aide desquels nous avons séparé les Oodites des Chlaenides.” In terms of the present knowledge, I can state that the first and third characters are true, but not the second one. When examined it was found that *H. ceylanicus* has the integument partially and diffusely punctate and pubescent, both dorsally and ventrally. This state is opposed to one of the basic features of the Oodini, namely the lack of pubescence and lack of extensive punctuation of the integument (Bousquet 1996: 448). Hence, the three characters LaFerté-Sénéctère mentioned are typical of Chlaeniini. The length and ratio of antennomere 3 to the following antennomeres is not of tribal significance.

*Hololeius* is usually placed in the beginning of the genera of Chlaeniini (Lorenz 1998, 2005), presumably because of some odd features that it possesses. Actually, the genus combines characters distinctive for either one or the other tribe and the importance of each is discussed below (see ‘Affinities’ under *Bamaroodes* gen. n., ‘Discussion’).

### *Hololeius ceylanicus* (Nietner, 1856)

Figs 1–11

*Chlaenius nitidulus* Dejean, 1826: 341 [nec Schrank, 1781]

*Chlaenius ceylanicus* Nietner, 1856: 385

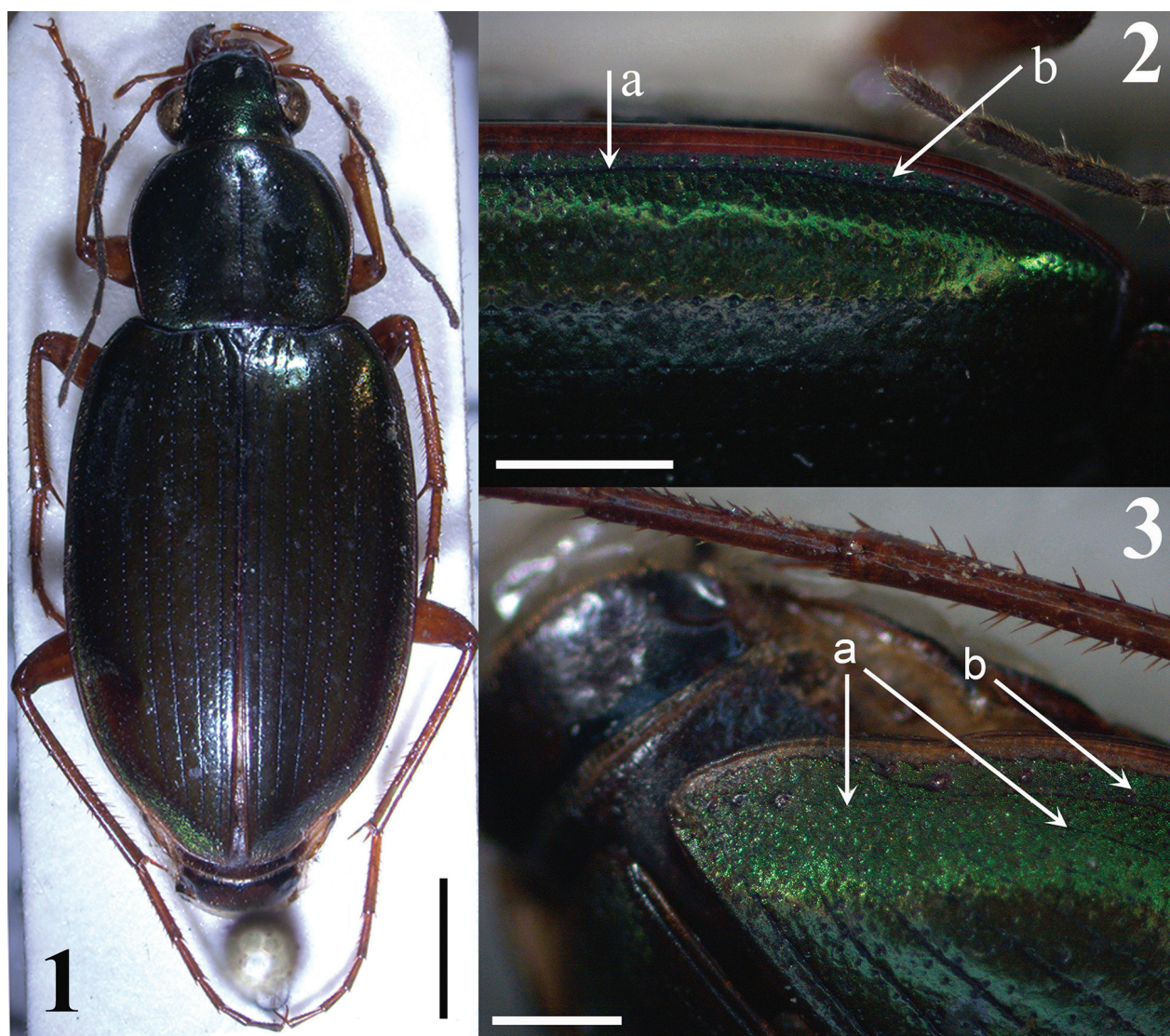
*Hololius* (sic!) *punctulatus* Chaudoir, 1857: 10

*Poecilus ornatus* Tryon, 1890: 109.

**Material examined.** 1♂, 1♀, Indonesia, Bali, south shore of Danau Buyan Lake, 1250 m, 11.VII.1991, Balke & Hendrich leg. (NMNHS).

**Diagnosis.** Same as the generic diagnosis.

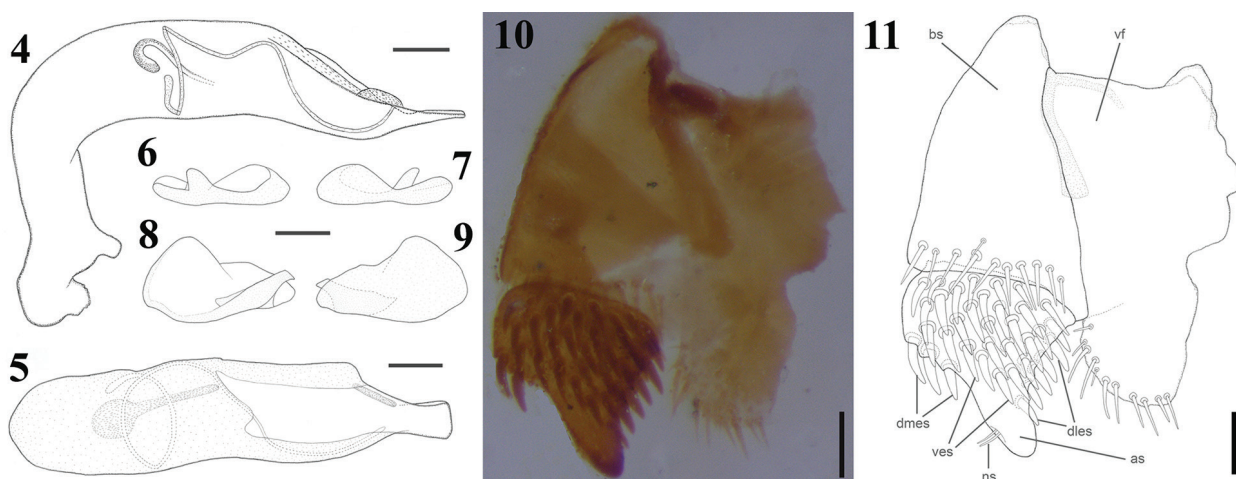
**Redescription.** *Habitus.* Semi-elongate (Fig. 1). *Color.* Uniformly olive-green on most of dorsal surface, elytra light green to coppery at apex; venter black; elytral epipleura reddish; palpi, legs, antennomeres 1–3 and base of 4 red-yellow. *Microsculpture.* Reduced on most of surface, isodiametric on interval 9 and on medial intervals posteriorly, transverse on proepisternum. *Punctuation and pubescence.* Head finely and densely punctate dorsally, slightly rugose at sides and posteriorly; pronotum and elytra with punctures coarser and more scattered than punctures on head; pronotum more densely punctate laterally and basally, less densely punctate apically, with a few hairs on disc; elytra more densely pubescent and punctate laterally and apically, with only a few hairs basally and on disc; prosternum, mesepisternum, metasternum, and metepisternum glabrous medially, sparsely to moderately punctate and pubescent laterally; abdominal sterna 1–2 sparsely punctate and pubescent, sterna 3–6 sparsely punctate and pubescent medially, more densely punctate and pubescent laterally.



**Figures 1–3.** *Hololeius ceylanicus* (Niether, 1856) from Danau Buyan Lake, Bali, Indonesia, female. **1.** Habitus; **2–3.** Elytra (**2.** left anterolateral view; a – stria 8; b – interval 9; **3.** left posterolateral view; a – stria 7; b – interval 9). Scale bars = 2 mm (Fig. 1); = 1 mm (Figs 2–3).

**Head.** Frons with punctiform impressions and one pair of setiferous punctures. Labrum with six setae along anterior margin. Clypeus with a pair of setae. Labial palpomere glabrous. Mentum tooth truncate apically, bordered posteriorly. **Pronotum.** Subrectangular, without protruded angles, with anterior margin slightly shorter than posterior margin, posterior margin laterally oblique towards posterior angle; margins finely bordered laterally and lateroapically, border obliterated on anterior margin medially, basal margin not bordered; anterolateral setae lacking, posterolateral setae present; two laterobasal impressions faint, sublinear. **Elytra.** Striae 1–7 fine, punctiform (Figs 1–3); striae 5–7 obliterated basally (Fig. 2); stria 7 perceptible to apex (Fig. 3); stria 8 linear, not or hardly deeper than other striae, well-impressed along most of its length, depressed only apically (Figs 2–3); parascutellar striola fine, punctiform like striae 1–7, located between suture and stria 1. Intervals 7 and 8 separate to apex (Fig. 3); interval 9 distinct nearly to apex (Figs 2–3). Parascutellar pore present; dis-

cal setiferous pores lacking. **Ventral surface (thorax and abdomen).** Intercoxal process of prosternum unbordered, glabrous and impunctate. Mesosternum profoundly concave. Metepisternum laterally coadunate with elytral epipleuron. Sternum 3 without ambulatory setae, sterna 4–5 with pair of long ambulatory setae; apical sternum with two setae in male, four in female. **Legs.** Relatively long and slender. Mesocoxa with two setae, one lateral and one posteromedial. Metacoxa with anterior pore; metafemur with a few short setae on dorsal surface. Tarsomere 5 setose ventrally. **Male genitalia.** Median lobe of aedeagus large, strongly curved laterally, with complex internal structure (Figs 4–5); basal part small, narrow, with small bulb and concave orifice in lateral aspect, curved rectangularly towards massive and broadened medial part, from there toward apical lamella gradually narrowed, and then slightly raised distally (Fig. 4); median lobe long, straight, slightly asymmetrical in dorsal aspect, with left side obtusely angled and more concave before apex and right side



**Figures 4–11.** *Hololeius ceylanicus* (Niether, 1856) from Danau Buyan Lake, Bali, Indonesia. **4–9.** Male genitalia (**4.** median lobe of aedeagus, left lateral view; **5.** median lobe of aedeagus, dorsal view; **6–7.** right paramere, internal and external face; **8–9.** left paramere, internal and external face); **10–11.** Left ovipositor, ventral view (**10.** photograph; **11.** line drawing; as – apical stylomere; bs – basal stylomere; dles – dorsolateral ensiform setae; dmes – dorsomedial ensiform setae; ns – nematiform setae; ves – ventral ensiform setae; vf – valvifer). Scale bars = 0.3 mm (Figs 4–9); = 0.1 mm (Figs 10–11).

undulating, slightly concave in middle and before apex, apical lamella narrow proximally and widened distally (Fig. 5); inner sac with three well-chitinized, differently shaped structures: proximal paddle-like sclerite, long medial threadlike filament and small distal sclerite on the right side easily visible in dorsal aspect (Figs 4–5); parameres different in shape, right paramere elongate, thick, saddle-like, with short and oblique process internally (Figs 6–7), left paramere conchoid, with a thick, strongly chitinized and oblique process internally (Figs 8–9). *Female genitalia.* Ovipositor consists of valvifer and stylomere (Figs 10–11); distal margin of valvifer with 11–12 setae of varying lengths; basal stylomere conical, 1.5 times longer than apical stylomere, its ventral surface with 10 long and thin setae directed toward apical stylomere; apical stylomere subtriangular, with rounded blade, as wide as basal stylomere, provided with 36 long and well-chitinized ensiform setae (3 dorsomedial, 6 dorsolateral and 27 ventral) and with two thick nematiform setae, slightly shorter than ensiform setae.

**Distribution.** Palaearctic Region (Japan, East China), Oriental Region (Ceylon, India, South China, Taiwan, Philippines, Malaysia, Indonesia), Australian Region (New Guinea, northeast and southeast Australia).

### *Holosoma* Semenov, 1889

= *Parahololius* Heller, 1923: 66 (type species *Parahololius weigoldi* Heller, 1923)

= *Parololius* Semenov, 1927: 232 [unjustified emendation of *Parahololius*, not in prevailing usage]

**Type species.** *Holosoma opacum* Semenov, 1889

**Historical remarks.** Semenov (1889: 388) proposed the generic name *Holosoma* for *H. opacum* from South

Gansu, China. The author placed the genus in “subtribum Oodidarum, prope genera *Oodes* Bon. et *Simous* Chaud, collocandum” (ibid.: 389). This tribal placement has been subsequently accepted (Jakobson 1906: 310–311). In 1923, Heller (1923: 66) described the genus *Parahololius* Heller, 1923, for *P. weigoldi* Heller, 1923, from Sichuan, China. He placed this genus in Chlaeniini, near to *Hololeius*. Shortly afterwards, Semenov (1927: 232) proposed [not Basilevsky 1953, as Kirschenhofer 1995: 77 stated] the synonymy of *Parahololius* and *Holosoma* and emended the former name to *Parololius* [according to the Article 32.2.3 of ICZN 1999, the change of the original name to *Parololius* is an “unjustified emendation”]. Jedlička (1931: 21–22) described *H. rambouseki* Jedlička, 1931 from Sichuan, China. Andrewes (1935) described *Chlaenius hedini* Andrewes, 1935, from North Gansu and Southeast Sichuan, China. He noted, “It does not appear to be nearly allied to any other Asiatic species.” [of *Chlaenius* Bonelli, 1810]. Jedlička (1936: 51) described *Holosoma boettcheri* Jedlička, 1936, from the Philippines, which is the only known extra-Palaearctic record for the genus. Subsequent authors dealing with the genus, except for Lorenz (2005), have omitted this species. I have seen the holotype of *Holosoma boettcheri* in BMNH and found that it belongs to a different group of Oodini. Later, Basilevsky (1953: 153) included *Holosoma* to the tribe Simoini Basilevsky, 1953, of subfamily Oodinae (sensu Jeannel, 1949a). Kirschenhofer (1995) reviewed the known species (excl. *Chlaenius hedini* and *H. boettcheri*), adding three more species and retaining the tribal affiliation of the genus. Later, he synonymized one of his added taxa with *H. hedini* (Kirschenhofer 1998). Recently, Ito (2003, 2012) added five more species and one subspecies to the genus and keyed all species known at that time. He retained the position of the genus within the Oodini.

**Taxonomic position.** The discussion here is based on all the generic and species descriptions (Semenov 1889, Heller 1923, Jedlička 1931, Andrewes 1935, Kirschenhofer 1995, Ito 2003, 2012) and on the detailed examination of two specimens. It considers only the characters that are significant for the tribal position of *Holosoma*. Excluding *H. boettcheri*, I am aware that the group is homogeneous and the main structural features are uniform among the species.

- 1) *Pronotum posterior margin as wide as basal margin of elytra, thus habitus seems semi-oval rather than elongate.* Atypical of Chlaeniini (but occurs in a few species, such as the Nearctic *Chlaenius tomentosus* (Say, 1823); remark by R. Davidson). Typical of Oodini, except for the new genera. This condition is probably a derived trend within the genus because it occurs in most, but not all, species.
- 2) *Body dorsally with metallic lustre (greenish, turquoise, bluish, violet to black-blue) on dorsal surface.* Habitual to Chlaeniini, since many species from this tribe are metallic colored. In the Oodini, a metallic hue is present only in *Bamaroodes* gen. n., most species of *Simous* and a few taxa of *Stenocrepis* Chaudoir, 1857.
- 3) *Integument sparsely pubescent dorsally and ventrally.* The character is distinctive of Chlaeniini, but it is unknown in the Oodini. In the species of *Holosoma*, the dorsal surface of the head, antennomere 3 (excl. apical setae), pronotum, intervals 8–9 of elytra, prosternum, mesepisternum, mesocoxa, mesofemur, metasternum, metepisternum, and abdomen all have rather fine and scattered punctures (see also Kirschenhofer 1995, Ito 2003). Most of the punctures are provided with short, yellowish hairs, usually well visible under higher magnification. Sparse pubescence is also present on the medial elytral intervals posteriorly, though it is much more sporadic than on the intervals 8–9.
- 4) *Labrum with six setae along anterior margin.* This feature is typical of Chlaeniini. Although it is present in most Oodini, several groups have different setation of the labrum.
- 5) *Clypeus with a pair of setae.* The condition is usual for Chlaeniini. Although it occurs in most Oodini, several groups lack clypeal setae.
- 6) *Penultimate labial palpomere with 2–4 spines at front margin.* Indicative of Chlaeniini (occurs in the most of the species). This feature is unknown in the Oodini. Jedlička (1931: 22) has noted that the penultimate labial palpomere in *H. rambouseki* lack setae, but this fact needs verification.
- 7) *Terminal labial palpomere with a few fine and short setae on lateral margin* (see also Ito 2012: 303). Occurs in some Chlaeniini. Unknown in the Oodini.
- 8) *Elytral stria 8 shallower than, or as deep as striae 1–7.* Typical of Chlaeniini, except for *Hololeius*. All

taxa of Oodini I have studied have stria 8 more or less grooved along its extent and deeper than other striae.

- 9) *Discal setiferous punctures situated in elytral intervals 3 and 5, or in intervals 3, 5 and 7.* There is no data for this condition in Chlaeniini, but it is also atypical of Oodini. Like point 1, it can be an apotypic trend within the genus since it occurs in several, but not in all species of *Holosoma*. For example, *H. hedini*, *H. heros* Kirschenhofer, 1995, and the specimens from Wenxian possess setiferous punctures in intervals 3, 5 and 7. *H. namikoe* Ito, 2012, has such punctures only in intervals 3 and 5, and *H. rambouseki* solely in interval 3. Discal punctures are lacking in *H. opacum*, *H. nigratum* Ito, 2003, *H. imurai*, *H. speciosum* Ito, 2003, and *H. misaoae* Ito, 2012. This character has not been described for *H. weigoldi*.
- 10) *Elytral intervals 7 and 8 separate (e.g., not fused) posteriorly, thus stria 7 perceptible to apex.* Typical of Chlaeniini. Unusual for Oodini, except for *Bamaroodes* gen. n.
- 11) *Elytral interval 8 not forming ridge laterally.* Typical of Chlaeniini. Unusual for Oodini, except for *Bamaroodes* gen. n.
- 12) *Tarsomere 5 of all legs setose ventrally.* Typical of Chlaeniini. Unusual for Oodini, except for the two new genera and a few species of *Systolocranius*. Among the species of *Holosoma*, the number of the setae varies from two to six on each side of tarsomere 5.
- 13) *Quinone-like smell defensive secretion.* This is one of three groups of compounds used for defence in the Chlaeniini. It is not found in Oodini. Ito (2003: 95) noted that the defensive chemical in *Holosoma* is “also the same as that of the genus *Chlaenius*”. I noticed this pungent smell many times when was taking the specimens from Wenxian out of the test-tube and handling them. The odor is identical or similar to that existing in the European species of *Chlaeniellus* Reitter, 1908 (Bousquet 1987). Moore (1979: 198–199) regarded the quinones as one of the most elaborate defensive strategies in the ground beetles.

Thirteen character states are considered. Number 9 is not counted due to deficient data about its presence among other taxa. Six character states, i.e., 2, 3, 6, 7, 8, 13, are typical for Chlaeniini and are unknown to Oodini. Characters 10, 11 and 12 are also typical of the Chlaeniini and have a few exceptions in the Oodini. Similarly, characters 4 and 5 are always indicative of Chlaeniini. Most genera and species of Oodini also share these two conditions, but there are some important exceptions. Character 1 is the only one characteristic of Oodini and not typical of Chlaeniini.

In conclusion, *Holosoma* lacks oodine characters but does share important traits with the chlaeniines. It is therefore removed to a new tribal placement incertae sedis within Chlaeniini. The precise affinity of the genus within the tribe remains unresolved.

***Holosoma* sp.**

Fig. 12

**Material examined.** 1♂, 1♀, China, Gansu, Wenxian, Shangde Hendan, 848 m, 27.VI.2012, Liang Hongbin leg. (NMNHS).

**Notes.** The specimens seem closer to taxa from south Gansu with pores in intervals 3, 5 and 7 (i.e., *H. hedini* and *H. heros*), but further work is needed to clarify their precise position.

**OODINI LaFerté-Sénéctère, 1851**

**Tribal diagnosis.** Mandibular scrobe without seta near anterior margin of excavation, mesocoxal cavities conjunct (mesepimeron does not reach middle coxal cavity), metepisternum separated from metepimeron by distinct suture, and parameres without setae, with left paramere “conchoid”, therefore a member taxon of Conchifera Jeannel, 1941 (Jeannel 1949b: 1047); head with one pair of supraorbital setae, its capsule “normal”, i.e. without annular constriction behind eyes and with ultimate maxillary palpomere elongate and well-centered with respect to penultimate palpomere, pronotum usually without anterolateral setae, anterior coxal cavities biperforate, elytron with internal plica, metepisternum laterally coadunate with elytral epipleuron, middle femur posterior margin without longer setae, metacoxa lacking posterior seta, and median lobe of aedeagus in lateral view long and considerably bent, with basal bulb decreased, indicate a member taxon of Callistidae Jeannel, 1941 (Jeannel 1949b: 1051); tegument glabrous, largely impunctate, antennomere 3 glabrous (excluding apical setae), posterior margin of pronotum not fringed, elytron with stria 7 ended before apex, stria 8 deeper than other striae, and interval 9 transformed into marginal gutter partly or



**Figure 12.** *Holosoma* sp., habitus of male from Wenxian, Gansu, China. Scale bar = 2 mm.

throughout, add traits peculiar to tribe (all genera, except for *Bamaroodes* gen. n., have also elytron with intervals 7 and 8 fused and forming a ridge posteriorly).

**A key to the genera for adults of Oriental Oodini, including Oriental Chlaeniini with oodine facies**

- 1 Interval 9 of elytra distinct, not transformed into marginal gutter. Stria 8 neither deeper than other striae (modestly deeper only in *Hololeius*) nor grooved. Integument more or less extensively punctate and pubescent. Antennomere 3 with a few short, scattered setae (in addition to apical setae)..... [Chlaeniini]...2
- Interval 9 of elytra transformed into marginal gutter throughout or at least along its anterior two-fifths. Stria 8 deeper than other striae, distinctly grooved posteriorly. Integument glabrous, impunctate or restrictedly punctate. Antennomere 3 glabrous (but with apical setae)..... [Oodini]...3
- 2 Penultimate segment of labial palpomere with 2–4 spines at front margin. All striae of elytra linear, stria 8 shallower than or as deep as other striae. Basal margin of pronotum nearly straight, only briefly rounded at posterior angle. Sterna 3–5 with pair of long ambulatory setae..... *Holosoma* Semenov, 1889
- Penultimate segment of labial palpomere without seta. Striae 1–7 punctiform, stria 8 linear, somewhat deeper than other striae (Figs 2–3). Basal margin of pronotum laterally oblique towards posterior angle. Sterna 4–5 with pair of long ambulatory setae, sternum 3 without such setae ..... *Hololeius* LaFerté-Sénéctère, 1851
- 3 Tarsomere 5 setose ventrally. Mesocoxa lateral margin without seta. Body semi-elongate. Anterior and posterior margins of pronotum with similar widths. Claws nearly parallel (Figs 15–16, 21–22)..... 4
- Tarsomere 5 glabrous ventrally. Mesocoxa lateral margin with one or a few setae. Body elliptic or broadly oval. Anterior and posterior margins of pronotum with dissimilar widths. Claws widely separated..... 5

- 4 Elytra two-colored, mostly black with bluish hue, with yellow apical band (Fig. 13). Striae 2–7 obliterated apically; intervals 7 and 8 not fused posteriorly (Figs 15–16). Intervals uniformly flat throughout; interval 8 not forming a ridge posteriorly; interval 9 transformed into marginal gutter only anteriorly, distinct on posterior three fifths of elytra; marginal gutter ended before apex of elytron (Figs 14–16). Pronotum distinctly wider than long (PW/PL: 1.24–1.37), with sides finely bordered throughout; posterolateral setae present. Prosternal process unbordered ..... *Bamaroodes* gen. n.
- Elytra unicolored, blackish (Fig. 19). Striae distinct toward apex; intervals 7 and 8 fused posteriorly (Figs 21–22). Intervals convex posteriorly; interval 8 forming a ridge posteriorly; interval 9 transformed into marginal gutter throughout; marginal gutter distinct to apex of elytron (Figs 20–22). Pronotum slightly wider than long (PW/PL: 1.18), with sides not bordered basally; posterolateral setae lacking. Prosternal process bordered. .... *Thaioodes* gen. n.
- 5 Labrum with three pores on anterior margin, central pore bearing two or four connate setae ..... 6
- Labrum with six pores on anterior margin, each pore bearing a separate seta ..... 10
- 6 Clypeus without setae. Mesepisternum without apodemal pit. Length of body 5–16 mm ..... 7
- Clypeus with two setae. Mesepisternum with apodemal pit (in *Miltodes* pit very small). Length of body 3–5 mm ..... 9
- 7 Smaller species, length of body less than 10 mm ..... *Nanodiodes* Bousquet, 1996
- Larger species, length of body more than 13 mm ..... 8
- 8 Elytra with striae 1–7 distinctly grooved, crenulated and complete; interval 3 with two discal punctures ..... *Systolocranius* Chaudoir, 1857
- Elytra with striae extremely fine and smooth, stria 6 shortened, stria 7 obliterated; interval 3 without discal punctures ..... *Megaloodes* Lesne, 1896
- 9 Head around 2.5 times narrower than width of base of pronotum. Apodemal pits very small, indistinct, with minute apertures. Interval 3 of elytra without discal setiferous punctures ..... *Miltodes* Andrewes, 1922
- Head around two times narrower than width of base of pronotum. Apodemal pits deep, with wide apertures. Interval 3 of elytra with two small setiferous discal punctures ..... *Oodinus* Motschulsky, 1864
- 10 Clypeus without setae ..... *Anatrichis* LeConte, 1853
- Clypeus with two setae ..... 11
- 11 Parascutellar striola of elytra vestigial or absent ..... *Pseudosphaerodes* Jeannel, 1949
- Parascutellar striola of elytra complete ..... 12
- 12 Protibia with lateral groove on external side. Interval 8 of elytra distinctly narrower than interval 7 (half as much behind shoulder to much narrower toward apex) ..... 13
- Protibia without lateral groove on external side. Interval 8 of elytra as wide as or only slightly narrower than interval 7 ..... 14
- 13 Interval 8 of elytra carinate behind shoulder ..... *Holcocoleus* Chaudoir, 1883
- Interval 8 of elytra as flat as internal intervals ..... *Brachyodes* Jeannel, 1949
- 14 Mentum tooth subtriangular or triangular, rounded or pointed anteriorly. Non-metallic coloration ..... *Oodes* Bonelli, 1810
- Mentum tooth sub-trapezoidal, truncate or emarginate anteriorly. Mostly metallic coloration (excl. *Simous nubilis* Andrewes, 1933) ..... *Simous* Chaudoir, 1882

### ***Bamaroodes* gen. n.**

<http://zoobank.org/0209BE0A-64A2-46B9-BAFB-92BC758D1189>

**Type species.** *Hololeius cyaneus* Facchini, 2011

**Diagnosis.** Medium-sized species (8.0–8.5 mm) for Oriental oodines; habitus semi-elongate; color cyaneus on head and pronotum, piceocyaneus on elytra, with yellowish apical band, piceous to rufopiceous on ventral surface, scape, palpi, tibiae, and tarsomeres red-yellow to yellow; microsculpture isodiametric; integument of body glabrous and impunctate dorsally and ventrally, (only disc of head moderately punctate and striate laterally); head with conspicuously large eyes and minute tempora; frons with punctiform impressions and one pair of punctures; labrum with six setae along anterior margin; clypeus with two setae; labial palpomere glabrous; mentum tooth rounded anteriorly, bordered posteriorly; pronotum moderately transverse, without protruded angles, with anterior and posterior margins of similar width; sides of pronotum finely bordered throughout; anterolateral setae lacking, posterolateral setae present; laterobasal im-

pressions of pronotum faint, sublinear; elytra with fine striae, 1–7 obliterated apically, 5–7 obliterated basally; stria 7 separate to apex (not joined to stria 8), scarcely noticeable apically; stria 8 deeper than other striae, moderately grooved along posterior half; parascutellar striola well-developed, long, located between suture and stria 1; intervals uniformly flat and smooth throughout; intervals 7 and 8 not fused posteriorly, interval 8 not forming ridge externally; interval 9 transformed into marginal gutter at anterior two fifths of elytra, distinct on posterior three fifths; parascutellar pore present; discal pores in interval 3 lacking; interval 7 with two subapical pores; prosternal process unbordered; marginal gutter ended before apex of elytron; mesosternum concave; metepisternum laterally coadunate with elytral epipleuron; sterna 4–5 with pair of minute ambulatory setae; apical sternum with two marginal pores in female; mesocoxa without lateral seta, with posteromedial one; metacoxa with anterior pore; mesofemur without posterior setae; metafemur glabrous or with single pore on dorsal surface; tarsomere 5 of all legs setose ventrally.

**Etymology.** A compound word, based on the ethnic name of the people in the region where the type species was first found, Bamar, and *Oodes* (for its etymology see Bousquet 2012: 955). It is treated as a Latin masculine.

**Affinities.** In 2011, Facchini described eight new species of Chlaeniini from the Afrotropical and Oriental region, among them *Hololeius cyaneus* from Myanmar (Facchini 2011: 350–351). The author noted also that the holotype of the species has sympatrically been collected with specimens of *H. ceylanicus*, the type species of the genus. Facchini differentiated the latter from the former by: 1, size of the body; 2, coloration of the integument, including the color of femora and epipleura; 3, shape of the pronotum; 4, shape and striation of the elytra; 5, punctuation of the elytral intervals; 6, chaetotaxy of the last abdominal sternum in the females; 7, distance between the joints of the claws of tarsomere 5. Examination of the paratype and another specimen of *H. cyaneus* from Thailand confirms that these distinguishing features are valid (except for the color of epipleura, which is not markedly different) and well-chosen for ready differentiation of these taxa. However, they are inadequate to give an idea of a more precise systematic position of the species, though some of the differences noted by Facchini are of generic value.

Careful study ascertained significant structural differences between *H. cyaneus* and *H. ceylanicus* (Table 2).

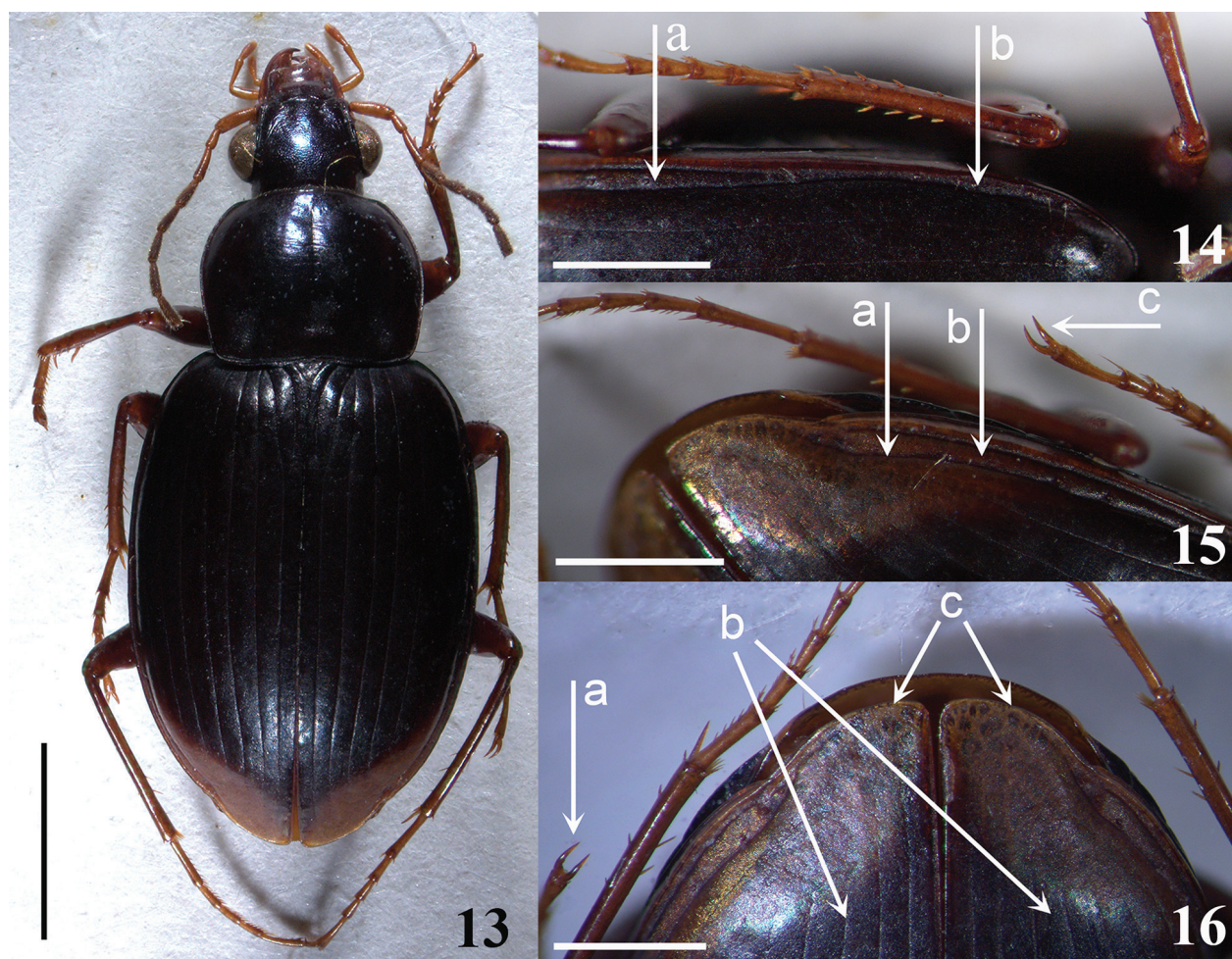
Five of the listed character states (1, 2, 3, 9, and 11) are of tribal magnitude, though one of them (i.e., attribute 9) shows transitional conditions in the two species. All the states are characteristic of Oodini and atypical for Chlaeni-

ini (Jeannel 1949a, Bousquet 1996). Point 11 exhibits a unique condition in *H. cyaneus* that is hitherto unknown in the two tribes. However, a complete character state transformation of this feature occurs in the Oodini. Except for *Bamaroodes* gen. n., all other examined oodines possess a ninth interval of elytra completely transformed into a marginal gutter throughout. In my view, this special feature may be morphological evidence for transition between the two tribes, but this needs further examination. The losses of the mesocoxa lateral seta (point 13) and parallel position of the joints of the tarsal claws (attribute 14) are conditions hitherto not found together in the aforementioned tribes. Among the Oodini, the three character states occur together only in *H. cyaneus* and *Thaioodes* gen. n. *piceus* sp. n. I believe that they have arisen as a consequence of a specific adaptation and survival strategy for an aquatic manner of living. The remaining character states (i.e., 4, 5, 6, 7, 8, 10, 12, 15, and 16) demonstrate marked differences of a grade higher than the grade usual for species from one and the same genus. I treat each of these nine differences as of generic significance.

In conclusion, there are quite a number of considerable morphological differences between *Hololeius ceylanicus* and *H. cyaneus*, which taken together are cause for the separation of the latter in a separate genus. That is why *Bamaroodes* gen. n. is proposed to accommodate this species. The new taxon does not share main tribal characters of chlaeniines but shows important similarities with oodines. *Bamaroodes cyaneus* is therefore removed to a new tribal placement within Oodini. The relationships of the new genus are discussed below (see ‘Discussion’).

**Table 2.** Diagnostic character state combinations shown by exemplars of *Hololeius ceylanicus* and *H. cyaneus*.

No.	Characters	<i>Hololeius ceylanicus</i>	<i>Hololeius cyaneus</i>
01	Pubescence of integument	partly pubescent	glabrous
02	Punctuation of integument	punctate (Figs 1–3)	impunctate (Figs 13–16)
03	Antennomere 3	with a few short and scattered setae	glabrous
04	Mentum tooth form anteriorly	truncate	rounded
05	PW/PL	1.14–1.15 (Fig. 1)	1.24–1.37 (Fig. 13)
06	Basal margin of pronotum at posterior angles	oblique (Fig. 1)	gradually rounded (Fig. 13)
07	Pronotum	bordered laterally and lateroapically, not bordered medioapically and basally (Fig. 1)	bordered throughout (Fig. 13)
08	Elytral striae 1–8	1–7 punctate, 8 impunctate (Fig. 2)	impunctate (Fig. 14)
09	Stria 8	not or hardly deeper than other striae (Figs 2–3)	evidently deeper than other striae (Figs 14–16)
10	Elytral intervals	punctate (Figs 2–3)	impunctate (Figs 14–16)
11	Interval 9	distinct throughout	transformed into marginal gutter along anterior 2/5 of elytra, distinct in posterior 3/5
12	Number of umbilicate pores	23–25	15–16
13	Mesocoxa lateral margin	with one long seta	without seta
14	Joins of claws	opposite, distantly situated from each other	nearly parallel, closely situated to each other (Figs 14–15)
15	Number of pores on last sternum in female	four pores	two pores
16	Apical stylomere of ovipositor	subtriangular, as wide as basal stylomere, with 36 long ensiform setae at dorsomedial, dorsolateral and ventral position, and with nematiform setae, shorter than ensiform setae (Figs 10–11)	subelongate, nearly twice as narrow as basal stylomere, with 11 short ensiform setae at dorsomedial and dorsolateral position, and with nematiform setae, nearly twice as long as ensiform setae (Figs 17–18)



**Figures 13–16.** *Bamaroodes* gen. n. *cyaneus* (Facchini, 2011) from Khon Kaen, Thailand, female. **13.** Habitus; **14–16.** Elytra (**14.** left anterolateral view; a – distinct interval 9; b – transformed interval 9 into marginal gutter; **15.** left posterolateral view; a – deepened stria 8; b – distinct interval 9; c – parallel joints of tarsal claw of left middle leg; **16.** posterodorsal view; a – parallel joints of tarsal claw of right middle leg; b – obliterated striae 1–7 and flat intervals; c – lack of marginal gutter at apex). Scale bars = 2 mm (Fig. 13); = 1 mm (Figs 14–16).

***Bamaroodes cyaneus* (Facchini, 2011), comb. n.**

Fig. 8 (Facchini 2011: 337); Figs 13–18, 29 (present work)

*Hololeius cyaneus* Facchini, 2011: 350 (type locality: “Myanmar, Rangoon”)

**Type material.** Paratype ♀, “XII.1996 Burma Rangoon Klícha M. Lgt.” [printed, white], “*Mesosterno solcato* sulle linea mediana cavita coxali ... biperforate.” [handwritten, white], “Paratype *Hololeius cyaneus* n. sp. Det. Facchini 2011” [printed, red], “*Bamaroodes cyaneus* (Facchini) det. B.Guéorguiev 2014” [printed, white] (CFa).

**Other material examined.** 1♀, “NO-Thailand Khon Kaen 26.1.1981 lux leg. S.Saowakontha” [printed, white], “*Bamaroodes cyaneus* (Facchini, 2011) det. B.Guéorguiev 2014” [printed, white] (MNHUB).

**Diagnosis.** Same as the generic diagnosis.

**Redescription** (based on female sex). *Habitus.* Body semi-elongate, moderately convex (Fig. 13); tegument

wholly glabrous (excl. antennomeres 4–11), smooth, only disc of head moderately punctate and wrinkled. *Measurements* (data for paratype in parentheses brackets). BL: 8.5 (8.2) mm; BW: 3.65 (3.6) mm. *Ratios.* PW/HW: 1.39 (1.5); PW/PL: 1.24 (1.37); PbW/PaW: 1.34 (1.31); EW/PW: 1.59 (1.54); EL/EW: 1.38 (1.28). *Color.* Head and pronotum dark with strong bluish reflection, elytra mostly blackish with slight bluish color, with oblique yellow apical band (starting externally at apical fourth of elytron and directed obliquely to apical ninth of suture), mouthparts and femora dark reddish, tibia and tarsi red-yellow, palpi, antennomeres 1–3 and base of antennomere 4 yellowish, antennomeres 4–11 blackish. *Microsculpture.* Isodiametric on whole dorsal and most of ventral surface of body, transverse on prosternum medially and prosternal process, meso- and metacoxa, and metatrochanter. *Lustre.* Dorsal and ventral surfaces shiny. *Head.* Slightly narrower with respect to pronotum; disc moderately punctate and slightly wrinkled laterally, with a pair of supraorbital setae, frontal furrows indistinct; eyes fairly large, very prominent,

with vertical diameter longer than length of antennomere 1, tempora minute; clypeus punctate, subtrapezoid, with distinct clypeal suture, anterior margin slightly concave and two pores remote from anterior margin at distance as long as two diameters of pores; labrum subrectangular, with straight anterior margin and six setae removed back from margin, four medial setae closer to each other than to lateral setae; mandibles moderately large, pointed and hooked at apex; maxillae not exceeding mandibles, maxillary palpi considerably longer than labial palpi, with glabrous and elongate palpomeres, terminal palpomere slightly fusiform, palpomere 2 longer than 4; labium not fused, with distinct suture between mentum and submentum, mentum emarginate, with two setae, distinct labial pits, anterior margin bordered, median tooth large, simple, widely rounded at tip, and short epilobes, exceeding mentum tooth anteriorly; submentum with four long setae, two basal and two lateral, distance between two basal setae at least three times longer than distance between basal and lateral seta, basal setae longer than lateral ones and as long as transverse length of mentum; ligula broadened apically, its anterior margin with two long ventral setae, paraglossae slightly exceeding ligula in front, labial palpi elongate, glabrous, terminal palpomere slightly fusiform, penultimate palpomere slightly shorter than terminal one; antennae filiform, with antennomeres 1–3 and base of 4 glabrous, stipes 1.1 times longer than antennomere 3, with dorsal seta distally, pedicel with one ventral seta, antennomere 3 with six apical setae. *Pronotum*. Semi-round to semi-rectangular, moderately transverse, wider than long, widest before middle, margins with fine border throughout; disc slightly convex, smooth, midline finely impressed, longer than half pronotal length, not reaching anterior and posterior margins; sides more rounded anteriorly than posteriorly, without lateral setae, with laterobasal setae; anterior margin slightly concave, shorter than posterior margin, anterior angles round, not prominent; posterior margin convex laterally and concave medially, posterior angles briefly rounded; basal impressions faint, sublinear, parallel. *Elytra*. Oval, widest at middle, with convex disc; basal margin complete, touching parascutellar striola; sides regularly rounded from middle towards base and apex; shoulder broadly rounded, without denticle; striae linear, impunctate, and moderately impressed for most of length, 1–7 becoming punctiform and obliterated in apical fifth to fourth; striae 5–7 obliterated basally; stria 8 deeper than other striae throughout (Figs 14–15); parascutellar striola distinct, long, situated between suture and stria 1; intervals wide, flat and smooth throughout; intervals 7 and 8 separate (not fused) apically (Figs 15–16); interval 9 transformed into marginal gutter at anterior two fifths of elytra, distinct on posterior three fifths (Figs 14–15); marginal gutter ended at preapical situation, before apex of elytron (Fig. 16); parascutellar pore present, inside stria 1, close to meeting point of striae 1 and 2, discal punctures in interval 3 lacking, stria 7 with two punctures before apex, umbilicate series with 15–16 pores. *Hind wings*. Well-developed. *Ventral surface (thorax and abdomen)*. Sternal

part of thorax and abdomen smooth and shiny; intercoxal process of prosternum unbordered, prosternal keel moderately protruding posteriorly; mesosternum concave; metepisternum longer than wide, slightly narrowed behind, laterally coadunate with elytral epipleuron, with medial margin longer than anterior one, lateral margin longer than both anterior and medial margins. Abdomen with pair of ambulatory setae on sterna 4–5, sternum 6 with pair of marginal pores, each pore removed proximally from apical margin a distance about twice as long as diameter of pore. *Legs*. Long and fairly slender; procoxa without seta, mesocoxa with single posterior seta, metacoxa with anterior pore; pro- and mesotrochanter with one distal seta, metatrochanter without seta; profemur anterior, ventral and posterior faces glabrous, dorsal face with three-four short setae in distal half; mesofemur anterior face with five short and thick setae, ventral and posterior faces glabrous, dorsal face with 16–18 short, thick setae arranged in two rows; metafemur glabrous or with single pore on dorsal surface; protarsomere 1 longer than 2 and 3 combined, meso- and metatarsomere 1 as long as 2 and 3 combined, tarsomere 5 of all legs with two-four pairs of fine setae ventrally. *Male genitalia*. Unknown. *Female genitalia*. Ovipositor consists of valvifer and stylomere (Figs 17–18); distal margin of valvifer with some long setae; basal stylomere subconical, its ventral surface with 10–11 thin setae directed to apical stylomere, two medial setae rather short, others long (some of lateral setae longer than half length of apical stylomere); apical stylomere subelongate, nearly twice as narrow as basal stylomere, with 11 short, subtriangular, moderately chitinated ensiform setae (3 dorsomedial and 8 dorsolateral) and two thin nematiform setae, nearly twice as long as ensiform setae.

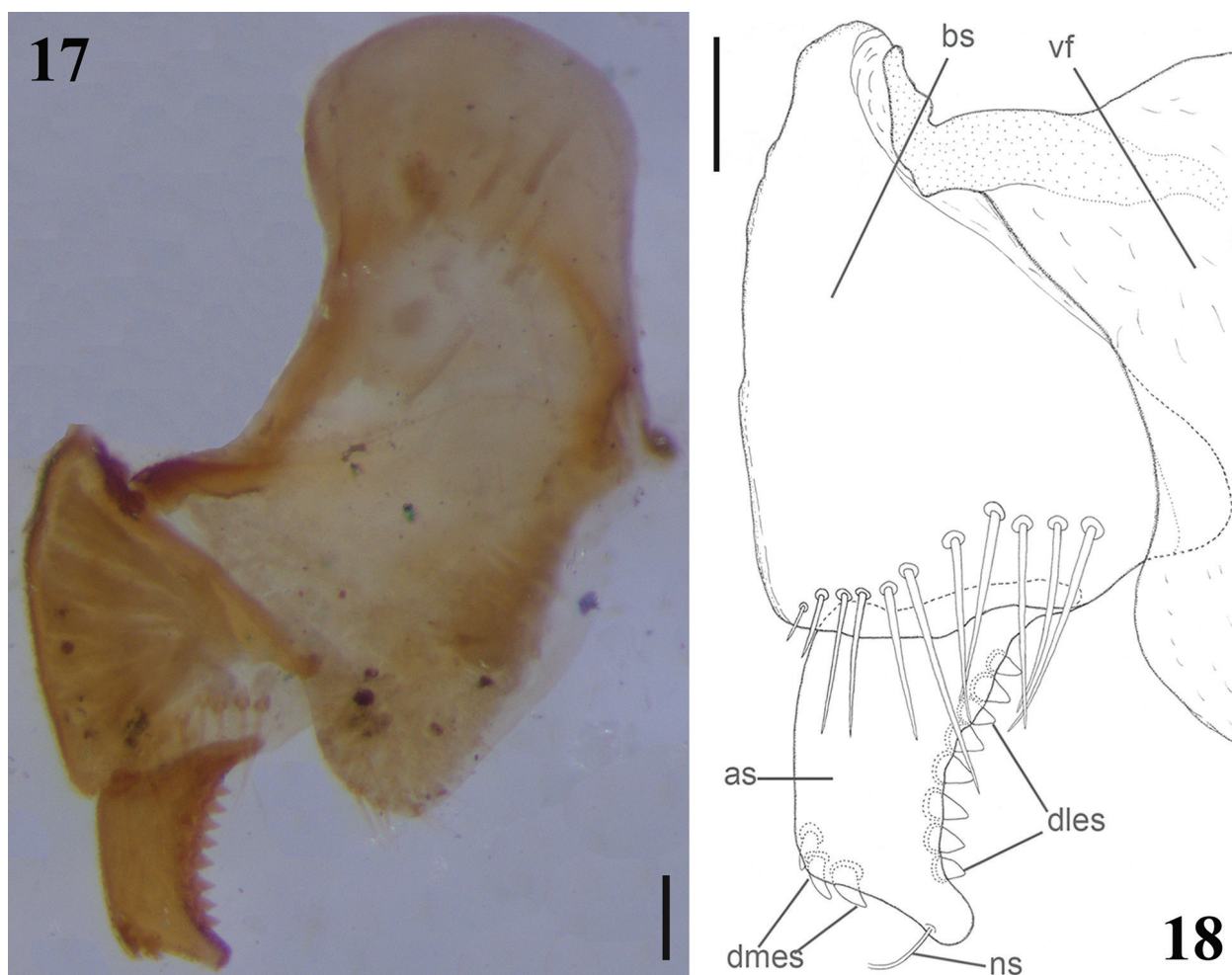
**Distribution.** Myanmar, Rangoon (Facchini 2011: 351); Thailand, Khon Kaen Province.

### *Thaioodes* gen. n.

<http://zoobank.org/605266A8-7B56-45DE-AD3F-B4B112FCD209>

**Type species.** *Thaioodes piceus* B. Guéorguiev sp. n.

**Diagnosis.** Small to medium-sized species (6.7–6.9 mm) for Oriental Oodini, habitus semi-elongate; color piceous on dorsal and ventral surface, with slight bluish color dorsally, antennomeres 1–3 of antennae, palpi, tibiae, tarsomeres red-yellow to yellow; microsculpture isodiametric; tegument completely glabrous and impunctate, only disc of head lightly punctate; head with conspicuously large eyes and minute tempora; frons with punctiform impressions and one pair of supraorbital punctures; labrum with six setae along anterior margin; clypeus with two setae; labial palpomere glabrous; mentum tooth rounded anteriorly, bordered posteriorly; pronotum subquadrate, rounded, without protruded angles, with anterior and posterior margins of nearly equal width; sides of pronotum bordered apically and laterally, not bordered basally; anterolateral and posterolateral setae lacking; laterobasal impressions faint, sublinear; elytra with well-im-



**Figures 17–18.** *Bamaroodes* gen. n. *cyaneus* (Facchini, 2011) from Khon Kaen, Thailand, left ovipositor, ventral view. **17.** Photograph; **18.** Line drawing (as – apical stylomere; bs – basal stylomere; dles – dorsolateral ensiform setae; dmes – dorsomedial ensiform setae; ns – nematiform setae; vf – valvifer). Scale bars = 0.1 mm.

pressed striae, distinct to apex; striae 5–7 obliterated basally; stria 8 grooved along most of its length, deeper than striae 1–7; parascutellar striola well-developed, long, situated between suture and stria 1; intervals impunctate, smooth, subconvex in anterior half, convex posteriorly; interval 3 at apex nearly twice as broad as intervals 1 and 2; intervals 7 and 8 fused posteriorly or not to apex; interval 8 (or its substitute interval 7) forming outward ridge, moderately elevated, more distinct along posterior half of elytra; interval 9 transformed into marginal gutter throughout; marginal gutter distinct to apex of elytron; prosternal process bordered; mesosternum concave; metepisternum laterally coadunate with elytral epipleuron; sterna 4–5 with pair of minute ambulatory setae; apical sternum without setae in male; mesocoxa without lateral seta, with posteromedial seta; metacoxa with anterior pore; mesofemur without posterior setae; metafemur glabrous; protarsomeres 1 and 3 in males longer than wide, tarsomere 2 subquadrate, each with variable number of small round adhesive setae with oval discs underneath; tarsomere 5 of all legs setose ventrally.

**Etymology.** A compound word, based on the ethnic name of the predominating people in the country where the type species was found, Thai, and *Oodes* (for the etymology of this name see Bousquet 2012: 955). It is treated as a Latin masculine.

**Affinities.** Specific characters of the new genus correspond with the basic features of Oodini as far as these have been outlined by Jeannel (1949a) and Bousquet (1996): 1, integument of body glabrous and largely impunctate; 2, antennomere 3 glabrous, excluding apical setae; 3, stria 8 deeper than other striae; 4, interval 8 forming outward ridge posteriorly; 5, interval 9 transformed into marginal gutter.

*Thaioodles* gen. n. is most closely allied to *Bamaroodes* gen. n. (see ‘Discussion’). The former genus differs from the latter genus by: 1, tegument unicolored dorsally (vs. tegument bicolored dorsally); 2, pronotum slightly wider than long (PW/PL: 1.18), with sides partly bordered (vs. pronotum distinctly wider than long, PW/PL: 1.24–1.37, with sides finely bordered throughout); 3, anterolateral and basolateral setae of pronotum lacking (vs. anterolateral seta lacking, basolateral setae present); 4, all striae

of elytra distinct to apex (vs. elytral striae 1–7 obliterated before apex); 5, stria 7 ending before apex or joining stria 8, thus intervals 7 and 8 fused posteriorly (vs. stria 7 separate before apex, thus intervals 7 and 8 not fused posteriorly); 6, intervals convex posteriorly (vs. intervals uniformly flat throughout); 7, interval 8 forms ridge posteriorly (vs. interval 8 not forming ridge posteriorly); 8, interval 9 transformed into marginal gutter throughout (vs. interval 9 transformed into marginal gutter only at anterior two fifths of elytron); 9, marginal gutter distinct to apex of elytron (vs. marginal gutter ended before apex of elytron); 10, umbilicate series of elytra with 19–20 pores (vs. umbilicate series with 15–16 pores); 11, prosternal process bordered (vs. prosternal process unbordered).

In my estimation, the presented series of differences and their opposed states are enough to differentiate *T. piceus* sp. n. from *B. cyaneus* at a generic level.

### *Thaioodes piceus* sp. n.

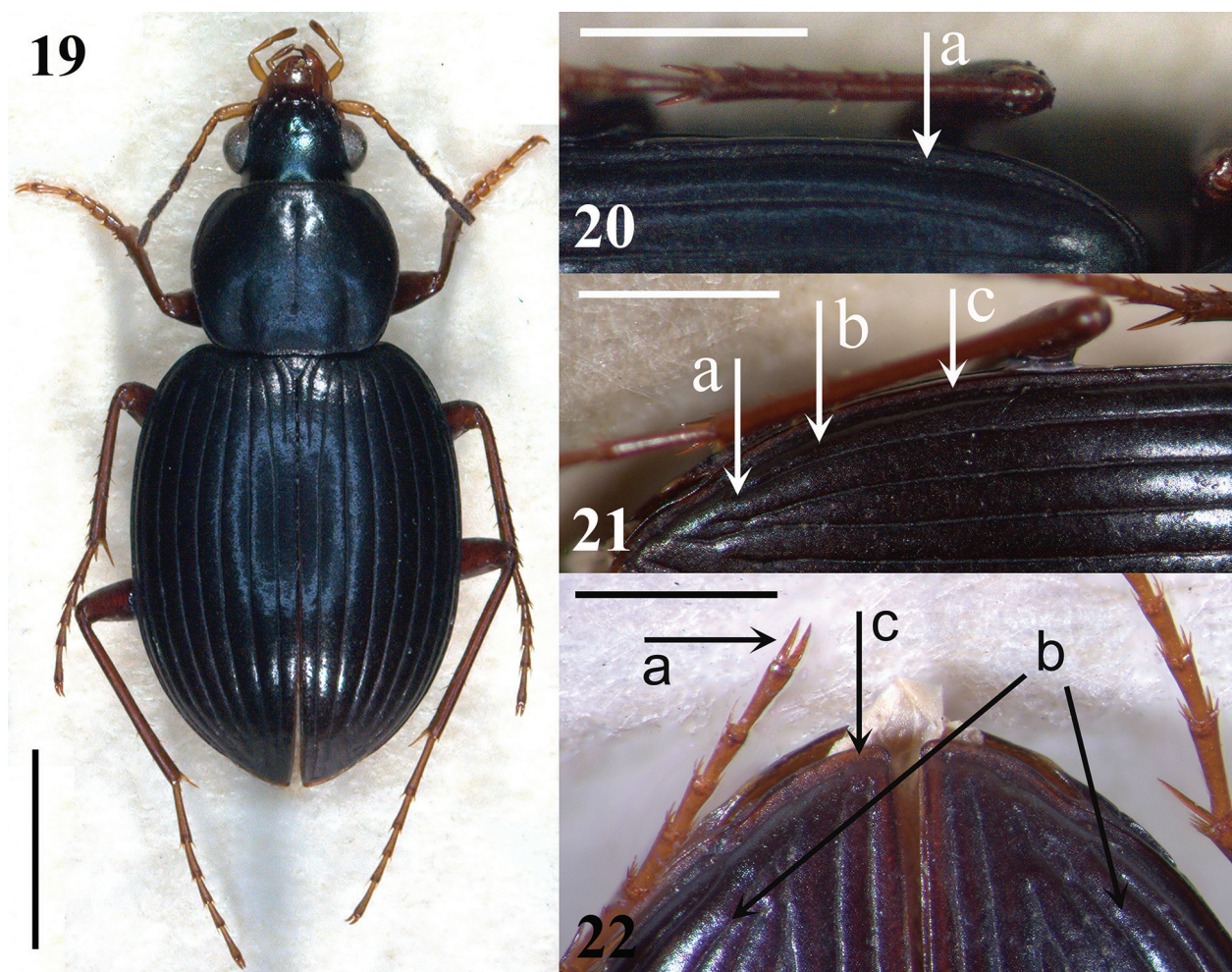
<http://zoobank.org/7DBEBADB-7668-4C93-80D4-12C9F0C60FE2>  
Figs 19–29

**Type material.** Holotype ♂, well-preserved (segments 7–11 of both antennae lacking), mounted on card, genitalia dissected and deposited in euparal on a plastic vial pinned under the card, “Nordost Thailand Khon Kaen, lux 23.11.1980 leg. S.Saowakontha” [printed, white], “HOLOTYPE *Thaioodes* gen. nov. *piceus* sp. nov. B.Guéorguiev des. 2014” [printed, red] (MNHUB).

**Diagnosis.** Same as the generic diagnosis.

**Description** (based on male sex). *Habitus.* Body semi-elongate, moderately convex; tegument wholly glabrous (excl. antennomeres 4–11), smooth, only disc of head finely punctate (Fig. 19). *Measurements.* BL: 6.8 mm; BW: 3.1 mm. *Ratios.* PW/HW: 1.44; PW/PL: 1.18; PbW/PaW: 1.25; EW/PW: 1.59; EL/EW: 1.34. *Color.* Body black dorsally and ventrally, mouthparts and femora reddish, palpi, antennomeres 1–3, base of antennomere 4, tibia and tarsi yellowish, antennomeres 4–11 blackish. *Microsculpture.* Isodiametric on whole dorsal and most of ventral surface (proepisternum, metepisternum, abdomen) of body, transverse on prosternum medially and prosternal process, meso- and metacoxa, and metatrochanter. *Lustre.* Dorsal and ventral surfaces shiny. *Head.* Somewhat narrower with respect to pronotum; disc finely punctate, with one pair of supraorbital setae, frontal furrows indistinct; eyes fairly large, very prominent, with vertical diameter longer than length of antennomere 1, tempora minute; clypeus subtrapezoidal, with perceptible clypeal suture, anterior margin slightly concave and two pores removed back from anterior margin at distance longer than diameter of pores; labrum subrectangular, with concave anterior margin and six setae removed back from margin, four medial setae closer to each other than to lateral setae; mandibles moderately large, pointed and hooked at apex; maxillae not exceeding mandibles, maxillary palpi considerably longer than labial palpi, with

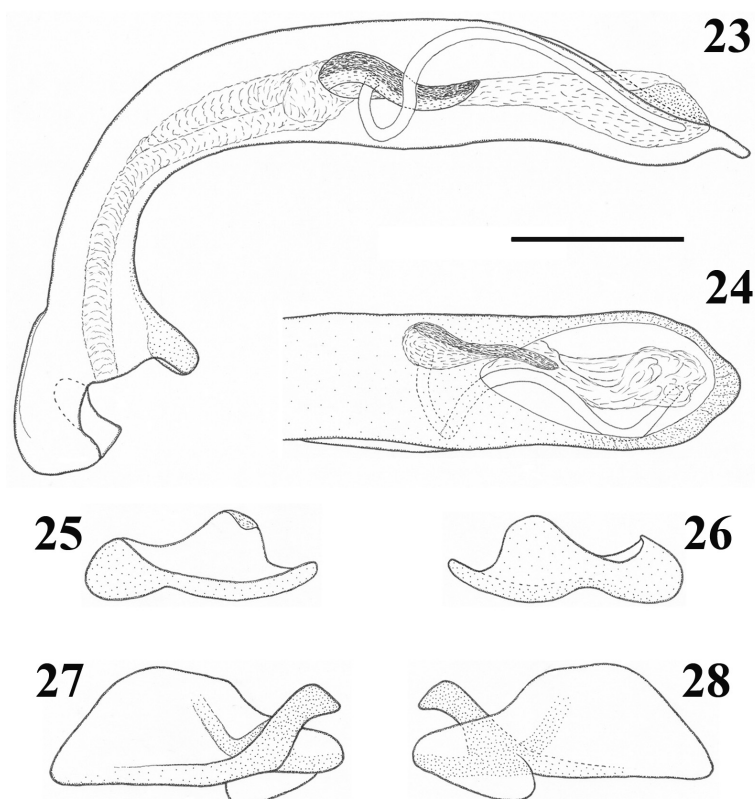
glabrous and elongate palpomeres, terminal palpomere slightly fusiform, palpomeres 2 and 4 nearly of equal length; labium not fused, with distinct suture between mentum and submentum, mentum emarginate, with two setae, indistinct labial pits, anterior margin bordered, median tooth large, simple, widely rounded at tip, epilobes short, slightly exceeding tooth anteriorly; submentum with four long setae, two basal setae and two lateral setae, distance between two basal setae at least two times longer than distance between basal and lateral seta, basal setae longer than lateral ones and as long as transverse length of mentum, ligula broadened apically, its anterior margin with two long ventral setae, paraglossae rounded, distinctly exceeding anterior margin of ligula, labial palpi elongate, glabrous, terminal palpomere slightly fusiform, penultimate palpomere slightly shorter than terminal palpomere; antennae filiform (antennomeres 7–11 in both antennae lacking), with antennomeres 1–3 and base of 4 glabrous, stipes 1.13 times longer than antennomere 3, with dorsal seta distally, pedicel with one ventral seta, antennomere 3 with six apical setae. *Pronotum.* Round, nearly as long as wide, widest just before middle, margins with fine border apically (border somewhat reduced medially), laterally and basally to posterior angles, not bordered basally between impressions; disc slightly convex, smooth, with midline finely impressed, longer than half pronotal length, not reaching anterior and posterior margins; sides evenly rounded anteriorly and posteriorly, without lateral and laterobasal setae; anterior margin slightly concave, somewhat shorter than posterior margin, anterior angles rounded, not prominent; posterior margin between basal impressions nearly straight, posterior angles completely rounded; basal impressions faint, sublinear, parallel, stretching at distance of one third of pronotum length. *Elytra.* Oval, widest about middle, with convex disc; basal margin complete, touching parascutellar striola; sides regularly rounded from middle towards base and apex; shoulder completely rounded, without denticle; striae impunctate, moderately impressed, striae 5–7 obliterated basally (Fig. 20); stria 7 ends before apex (left elytron) or joins stria 8 (right elytron) (Fig. 22); stria 8 deeper than other striae, more deepened apically than basally (Figs 20–21); parascutellar striola distinct, long, situated between suture and stria 1; intervals impunctate, smooth, subconvex in anterior half, convex posteriorly; interval 3 at apex about twice as wide as intervals 1 and 2; intervals 7 and 8 fused posteriorly (left elytron) or interval 7 (replacing interval 8) continues to apex (Fig. 22); interval 8 (or its substitute interval 7) elevated externally, more pronouncedly along posterior half of elytra (Figs 20–22); interval 9 transformed into marginal gutter throughout (Figs 20–21); marginal gutter distinct to apex of elytron (Fig. 22); parascutellar puncture present, inside stria 1, close to meeting point of striae 1 and 2; discal punctures in interval 3 lacking; junction of joined striae 7+8 and marginal gutter with two punctures before apex (situated behind last umbilicate pore); umbilicate series with 19–20 punctures.



**Figures 19–22.** *Thaioodes* gen. n. *piceus* sp. n. from Khon Kaen, Thailand, holotype. **19.** Habitus; **20–22.** Elytra (**20.** left anterolateral view; a – transformed interval 9 into marginal gutter; **21.** left posterolateral view; a – end of stria 7 and fusion of intervals 7 and 8; b – outward ridge formed by interval 8; c – transformed interval 9 into marginal gutter; **22.** posterodorsal view; a – parallel joints of tarsal claw of right hind leg; b – impressed striae 1–7 and convex intervals; c – presence of marginal gutter at apex). Scale bars = 2 mm (Fig. 19); = 1 mm (Figs 20–22).

*Hind wings.* Well-developed. *Ventral surface (thorax and abdomen).* Sternal part of thorax and abdomen smooth and shiny; intercoxal process of prosternum bordered, indistinctly at sides, distinctly posteriorly, prosternal keel moderately protruding posteriorly; mesosternum concave; metepisternum slightly longer than wide, narrowed behind, laterally coadunate with elytral epipleuron, with medial margin slightly longer than anterior one, lateral margin distinctly longer than anterior and medial margins. Abdomen with pair of minute pores on sterna 4–5, sternum 6 without apical setae. *Legs.* Long and fairly slender; procoxa without seta, mesocoxa with one posterior seta, metacoxa with anterior pore; pro- and mesotrochanter with one distal seta, metatrochanter without seta; profemur anterior, ventral and posterior faces glabrous, dorsal face with one-two, short, thick setae in distal half; mesofemur anterior face with five short and thick setae in one row, ventral and posterior faces glabrous, dorsal face with about 12 short, thick setae arranged in two rows, anterior row widely interrupted, consists of one proximal

and two distal setae, posterior row continuous, consists of 9–10 setae; metafemur glabrous; protarsomeres 1–3 of male slightly dilated, nearly symmetrical, protarsomere 1 longer than wide, subtriangular, longer than following two protarsomeres, distal half with 16 (on left leg) and 17 (on right leg) small, round adhesive discs ventrally; protarsomere 2 as long as wide, subquadrate, wider, and as long as protarsomere 3, with 17 (on left leg) and 13 (on right leg) round adhesive discs ventrally; protarsomere 3, longer than wide, sub-rectangular, with 7 (on left leg) and 8 (on right leg) round adhesive discs ventrally; meso- and metatarsi with tarsomere 1 as long as or longer than tarsomeres 2 and 3 combined; tarsomere 5 of all legs with two pairs of setae ventrally. *Male genitalia.* Median lobe of aedeagus long, slender, curved laterally, with complex internal structure (Figs 23–24); basal part short, narrow, with small bulb and orifice deeply concave in lateral aspect, regularly bent towards massive and broadened medial part, dorsal margin convex to straight, ventral margin undulating, apical lamella goes down at tip;



**Figures 23–28.** *Thaiodes* gen. n. *piceus* sp. n. from Khon Kaen, Thailand, holotype, male genitalia. **23.** Median lobe of aedeagus, left lateral view; **24.** Median lobe of aedeagus, dorsal view; **25–26.** Right paramere, internal and external face; **27–28.** Left paramere, internal and external face. Scale bar = 0.3 mm.



**Figure 29.** Map of Southeast Asia with localities (blue circle – Rangun, type locality of *Bamaroodes* gen. n. *cyaneus* (Facchini, 2011); red circle – Khon Kaen, type locality of *Thaiodes* gen. n. *piceus* sp. n. and second known locality of *Bamaroodes* gen. n. *cyaneus* (Facchini, 2011)).

median lobe long, straight, almost symmetrical in dorsal aspect, slightly widened distally, with apical orifice elliptic and lamella broadly rounded off; inner sac with two chitinized, differently shaped structures: proximal paddle-like sclerite and medial threadlike filament; parameres different in shape, right one elongate, thick, with dorsal margin contiguously widely elevated and broadly concave (Figs 25–26), left paramere conchoidal, with thick, strongly chitinized and oblique process internally (Figs 27–28). *Female genitalia*. Unknown.

**Distribution.** Thailand, Khon Kaen Province.

**Etymology.** The specific epithet *piceus* is Latin, draws attention to the predominant glossy black color of this beetle. An adjective in the nominative singular.

## Discussion

Representatives of Chlaeniini and Oodini share features, which also occur in the two new genera: 1, frontal impressions punctiform; 2, head with one pair of supraorbital setae; 3, penultimate segment of labial palpi glabrous; 4, pronotum without anterolateral setae; 5, metepisternum laterally coadunate with the elytral epipleuron; 6, mesofemur posterior margin without longer setae; 7, metacoxa lacking posterior seta; 8, median lobe of aedeagus with reduced basal bulb. Regardless of this characterization *Bamaroodes* gen. n. and *Thaioodes* gen. n. display common character states with the oodines, which are not present in the chlaeniines: 1, tegument of body glabrous (excl. antennomeres 4–11); 2, tegument of body largely impunctate; 3, posterior margin of pronotum not fringed; 4, stria 7 ended before apex; 5, stria 8 deeper than other striae; 6, interval 9 transformed into marginal gutter partially or throughout. In addition, *Thaioodes* gen. n. exhibits: intervals 7 and 8 fused posteriorly to form a ridge posteriorly that extends to, or very close to, the suture. This condition was noted as the most fundamental feature of Oodini (Jeannel 1942: 961, 979, 1949a: 775, 828, Bousquet 1996: 448). Also, it is considered as one of the two synapomorphies in the tribe (Bousquet *ibid.*).

Special traits shared by the two new genera imply that they form clade:

- 1) *Body shape semi-elongate*. This habitus is owing to *pronotum anterior and posterior margin with similar widths* and *pronotum posterior margin narrower than basal margin of elytra*. All other examined Oodini have elliptic or broadly oval (amariform) shape of body which is due to a subtrapezoidal pronotum having the anterior margin distinctly narrower than the posterior margin, as well pronotum posterior margin and basal margin of elytra of similar width.
- 2) *Discal punctures in interval 3 lacking*. The majority of oodines from the Old World have two small discal setiferous punctures in the interval 3 of elytra.
- 3) *Mesocoxa lateral margin without seta*. This state is not typical of any other Oodini that I know. The spe-

cies from this tribe usually have one, long and thick seta, and rarely two such setae on the lateral margin of the mesocoxa. It is also not typical of Chlaeniini, which commonly possess two or more such setae.

- 4) *Tarsomere 5 of all tarsi setose ventrally*. As far as I know, all representatives of Oodini (except for a few species of *Systolocranius*) have the last segment of the tarsi without setae. To the contrary, the species of Chlaeniini have tarsomere 5 always setose ventrally.
- 5) *Joints of the claws of tarsomere 5 parallel, situated closely to each other*. As a rule, all epigeous carabid beetles have opposite joining of claws, situated distantly from one another. Such a position is certainly convenient to their movement on the ground. However, the convergence of the joints of the claws is a modification to a different way of moving, perhaps to aid movement in an aquatic environment.

To my knowledge, these character states do not occur together in other taxa of the Oodini. Characters 3 and 5 exhibit derived characteristics shared by the two new genera. This fact reveals that most probably the taxa form a clade. Additionally, attributes 1, 3, and 5 are not present in any other group of oodines. Characters 1, 2 and 4 are typical for many Chlaeniini, so that they are considered symplesiomorphies in *Bamaroodes* gen. n. and *Thaioodes* gen. n. But this assumption should be cleared up by future study. Attributes 1 and 4 are also clearly plesiotypic in the Carabidae Conchifera. The reduction of the elytral discal pores is a homoplasy that has occurred many times in different lineages.

All of the above facts make me believe that the lineage of these genera may be an adelphotaxon of the rest of the Oriental Oodini.

In conclusion, the two genera appear remotely related to *Hololeius*, which, however, displays many primitive conditions, conforming to its current position in Chlaeniini. It is worth noting that each of the three genera possesses the following character states: 1, penultimate labial palpomere glabrous; 2, antennomeres 1–3 lighter colored than the other antennomeres; 3, pronotum posterior margin not fringed; 4, stria 8 deeper than the other striae; 5, discal punctures of elytra lacking; 6, intercoxal process of prosternum glabrous; 7, abdominal sternum 3 without ambulatory setae; 8, tarsomere 5 of all legs setose ventrally. Together *Bamaroodes* gen. n. and *Thaioodes* gen. n. differ from *Hololeius* (in parentheses) in: 1, mentum tooth rounded (vs. mentum tooth truncate); 2, antennomere 3 glabrous (vs. antennomere 3 with a few short and scattered setae); 3, all striae of elytra impunctate (vs. elytral striae 1–7 punctate); 4, elytral intervals impunctate (vs. elytral intervals punctate); 5, interval 9 transformed into marginal gutter partially or throughout (vs. interval 9 distinct throughout); 6, mesocoxa lateral margin without seta (vs. mesocoxa lateral margin with a long seta); 7, joints of the claws parallel, situated closely to each other (vs. joins of claws opposite, situated distantly from each other).

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