

## Cetoniinae beetles of Langkawi Island, Kedah State, Malaysia (Coleoptera: Scarabaeidae: Cetoniinae)

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**Taxonomy, new records, new species, Coleoptera, Scarabaeidae, Cetoniinae, Cetoniini, Gymnetini, Taenioderini, *Taeniodera*, Oriental region, Peninsular Malaysia, Kedah State, Langkawi island**

**Abstract.** Nine species of Cetoniinae have been collected in Langkawi Island, one of the offshore islands belonging to Kedah state in Peninsular Malaysia. All species represent first record of flower beetles occurring in this island. Excepting one species of unknown *Taeniodera* Burmeister, 1842, all other species are already known from continental Malaysia or from Thailand. Illustrations of all species with notes about their distribution (including genitalia of males) are given. One new species, *Taeniodera novakorum* sp. nov. is described, illustrated and compared with its closest congeners.

### INTRODUCTION

Although the fauna of flower beetles occurring in Peninsular Malaysia is currently rather well known, the fauna of its offshore islands stays nearly virtually unknown. Recently author got chance to examine Cetoniinae collected in Langkawi Island by Gottfried and Margot Novak during their repeated field trips to Langkawi. Administratively island belongs to Kedah State and is laying approximately 30 km west of Malaysian coast, in opposite of the border between Malaysia and Thailand. The type of fauna is typically Indo-Malayan.

All together nine species have been identified, 5 species from the tribe Cetoniini, two species from tribes Gymnetini and Taenioderini. Excepting one species of *Taeniodera* Burmeister, 1842, all other species are already known. All are pictured in taxonomical part of the present article and their distribution is discussed. One species of *Taeniodera* Burmeister, 1842 is described as new to science; it is named *Taeniodera novakorum* sp. nov. Description of this species and its diagnosis are also presented in taxonomical part of the present paper.

### MATERIAL AND METHODS

Specimens of newly described species are provided with red and yellow printed labels, red for HOLOTYPUS, yellow for PARATYPUS. Each holotype or paratype label is provided with sex symbol, number of paratype (in paratype label) and words. St. Jákł det. Label data are cited for the material examined, individual labels are indicated by a double slash (/), individual lines by a single slash (/).

All specimens with type material, collected in Langkawi Island are deposited in author's collection:

SJCP Stanislav Jákł private collection, Praha, Czech Republic.

## RESULTS

### Tribe Cetoniini Leach, 1815

#### Genus *Glycyphana* Burmeister, 1842

Type species *Cetonia horsfieldi* Hope, 1831.

#### Subgenus *Glycyphaniola* Mikšič, 1968

Type species *Cetonia modesta* Fabricius, 1792.

#### *Glycyphana (Glycyphaniola) festiva* (Fabricius, 1792)

(Figs. 1-5)

**Material examined:** 2 ♂♂, 1 ♀ labelled: MAL - Prov. Kedah / Langkawi Isld. / Dez. 1989 / leg G. u. M. Novak; 1 ♂, 1 ♀ labeled: MAL - Prov. Kedah / Langkawi Isld. / 23.3. - 14.4. 1992 / leg G. u. M. NOVAK; 1 ♀ labelled: MALAYSIA Prov. Kedah / Langkawi Isld. / 15. - 30. 5. 1990.

**Note.** All specimens from Langkawi Island large in size 13.5-14.5 mm and with rather dark orange elytral bands. In other characters, including structure of male parameres identical with mainland population.

**Distribution.** Indonesia: Java, Sumatra, Belitung, Banka and Kalimantan; Sultanate of Brunnei; Malaysia: Malacca, Langkawi Island (new island record), Borneo and Banggi Islands; south Thailand.

#### *Glycyphana (Glycyphaniola) illusa* Janson, 1881

(Figs. 6-10)

**Material examined:** 2 ♀♀ labelled: MAL. - Prov. Kedah / Langkawi Isld. / Dez. 1989 / leg G. u. M. Novak; 1 ♂ labelled: MAL. - Prov. Kedah / Langkawi Isld. / 23. 3. - 14. 4. 1992 / leg G. u. M. Novak.

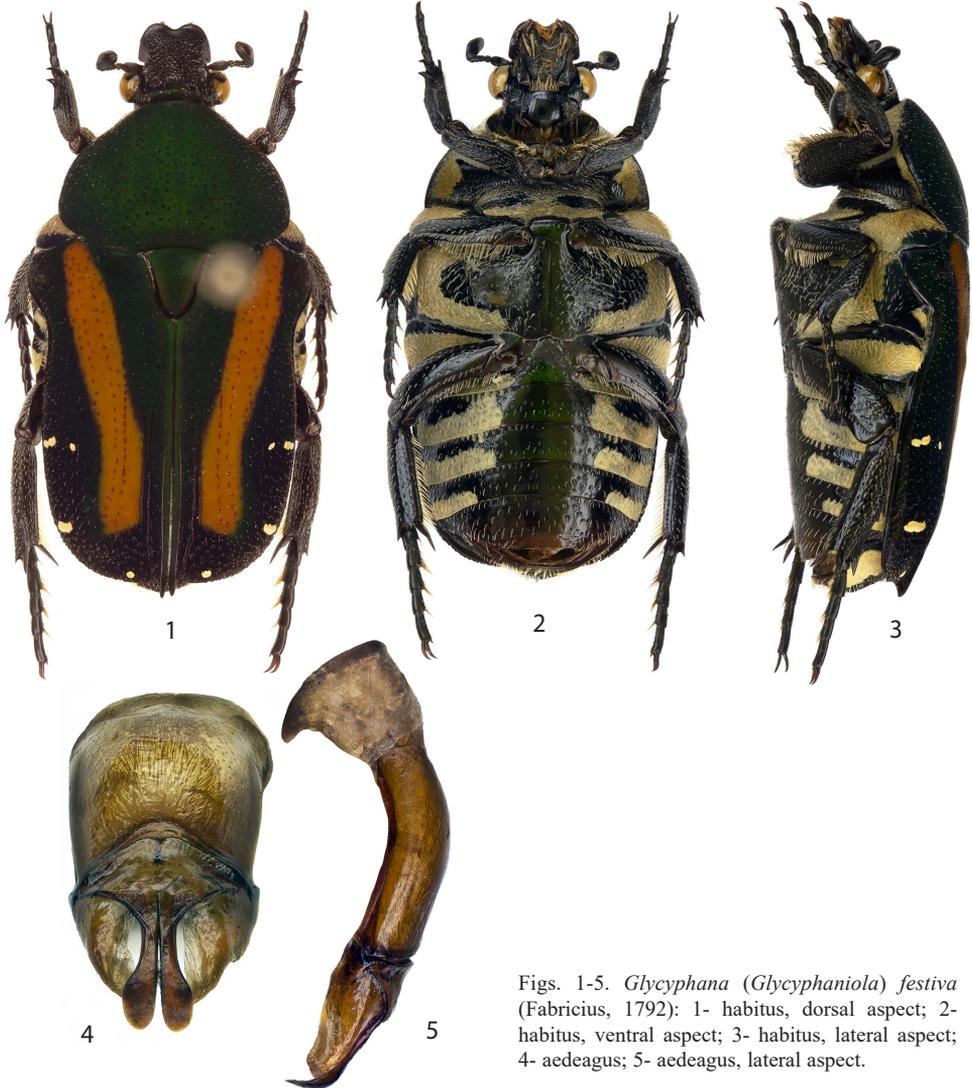
**Note.** All three specimens with red parts of pronotum, which is rather rare in other populations.

**Distribution.** Indonesia: Kalimantan and Sumatra; Malaysia: Borneo and Malacca, Langkawi Island (new island record); south Thailand; Tenasserim ? (Mikšič, 1982).

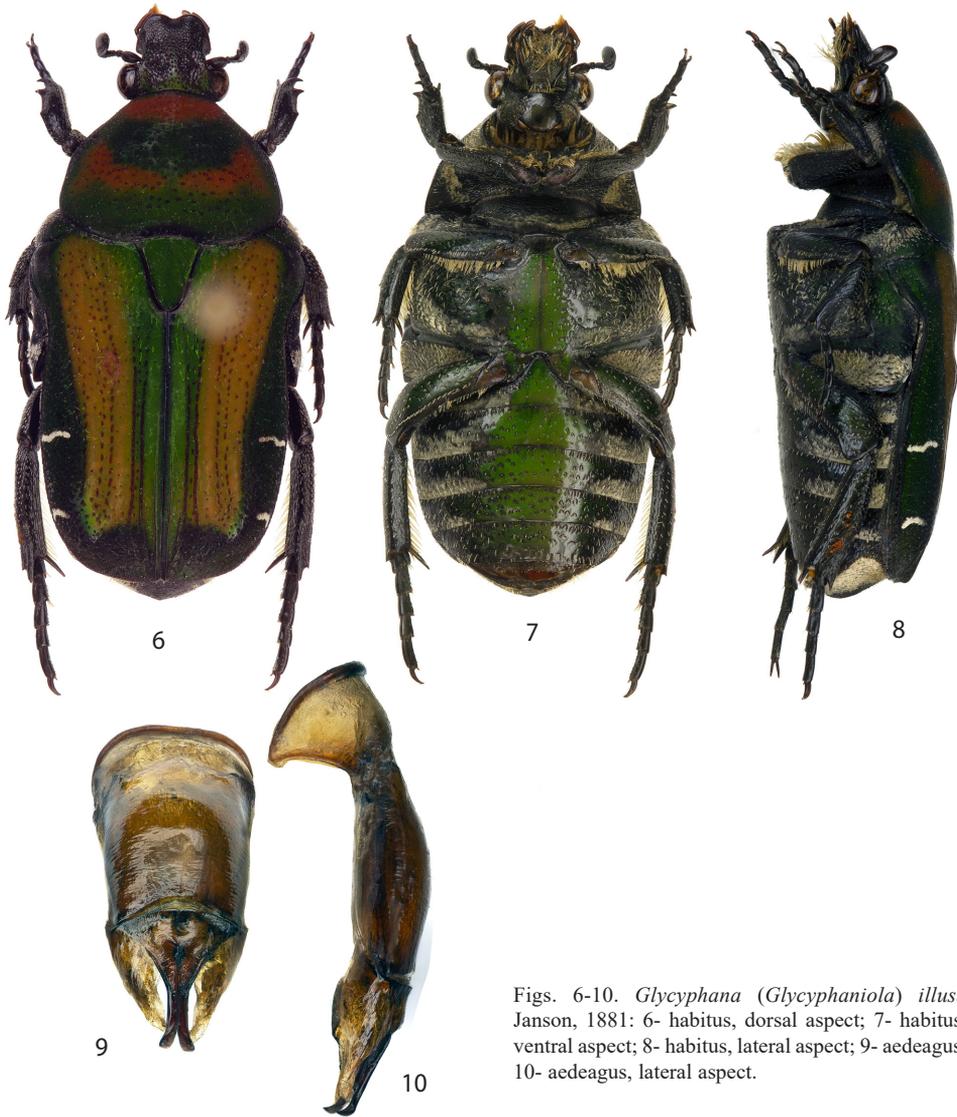
#### *Glycyphana (Glycyphaniola) pygmaea* Mohnike, 1871

(Figs. 11-15)

**Material examined:** 1 ♂, 1 ♀ labelled: MAL. - Prov. Kedah / Langkawi Isld. / 22.3. - 14.4. 1992 / leg G. u. M. Novak; 1 ♂ labelled: MAL. - Prov. Kedah / Langkawi Isld. / Dez. 1989 / leg G. u. M. Novak.



Figs. 1-5. *Glycyphana (Glycyphaniola) festiva* (Fabricius, 1792): 1- habitus, dorsal aspect; 2- habitus, ventral aspect; 3- habitus, lateral aspect; 4- aedeagus; 5- aedeagus, lateral aspect.



Figs. 6-10. *Glycyphana (Glycyphaniola) illusa* Janson, 1881: 6- habitus, dorsal aspect; 7- habitus, ventral aspect; 8- habitus, lateral aspect; 9- aedeagus; 10- aedeagus, lateral aspect.



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Figs. 11-15. *Glycyphana (Glycyphaniola) pygmaea* Mohnike, 1871: 11- habitus, dorsal aspect; 12- habitus, ventral aspect; 13- habitus, lateral aspect; 14- aedeagus; 15- aedeagus, lateral aspect.



Figs. 16-18. *Glycyphana (Glycyphaniola) quadricolor sinuata* (Wallace, 1867): 16- habitus, dorsal aspect; 17- habitus, ventral aspect; 18- habitus, lateral aspect.

**Note.** All three specimens with black front legs, other two pairs of legs reddish as in other populations.

**Distribution.** Indonesia: Sumatra, Kalimantan, Banka; Malaysia: Malacca, Borneo, Langkawi Island (new island record); Thailand; Laos; Vietnam (unpublished data).

***Glycyphana (Glycyphaniola) quadricolor sinuata* (Wallace, 1867)**  
(Figs. 16-18)

**Material examined.** 1 ♀ labelled: MAL. - Prov. Kedah / Dez. 1989 / leg G. u. M. Novak.

**Note.** Single specimen with nearly completely red pronotum, rather uncommon in other populations.

**Distribution.** Indonesia: Sumatra, Belitung, Kalimantan; Malaysia: Malacca, Borneo, Langkawi Island (new island record); south Thailand.

## Genus *Protaetia* Burmeister, 1842

Type species *Cetonia mandarina* Weber, 1801 (= *Cetonia fusca* Herbst, 1790).

### Subgenus *Protaetia* Burmeister, 1842

Type species *Cetonia mandarina* Weber, 1801 (= *Cetonia fusca* Herbst, 1790).

#### *Protaetia (Protaetia) fusca* (Herbst, 1790) (Figs. 19-23)

**Material examined:** 1 ♂ labelled: MAL. - Prov. Kedah / Langkawi Isl. / 22.3. - 14.4. 1992 / leg G. u. M. Novak.

**Distribution.** From India to Nepal across whole southeast Asia, including China, Taiwan and south of Japan. Present also across whole Indonesia, Philippines, Papua New Guinea, Solomon Islands and parts of Australia. Also recorded from Diego Garcia, Chagos Islands and Mauritius. During this and last century, this invasive species was also imported to Guam, northern Mariana Islands, New Caledonia, Tonga, Fiji, French Polynesia and Hawaiian Archipelago. Newest record is from Wake Atoll (Krell, 2016), more than 3000 km east of Hawaii. There are also records from Old World, respectively from Florida in USA, Bahamas and Barbados.

## Tribe Gymnetini Kirby, 1827

### Genus *Clinteria* Burmeister, 1842

Type species *Cetonia guttifera* Burmeister, 1842 (= *Gymnetis auronotata* C. E. Blanchard, 1842).

### Subgenus *Clinteria* Burmeister, 1842

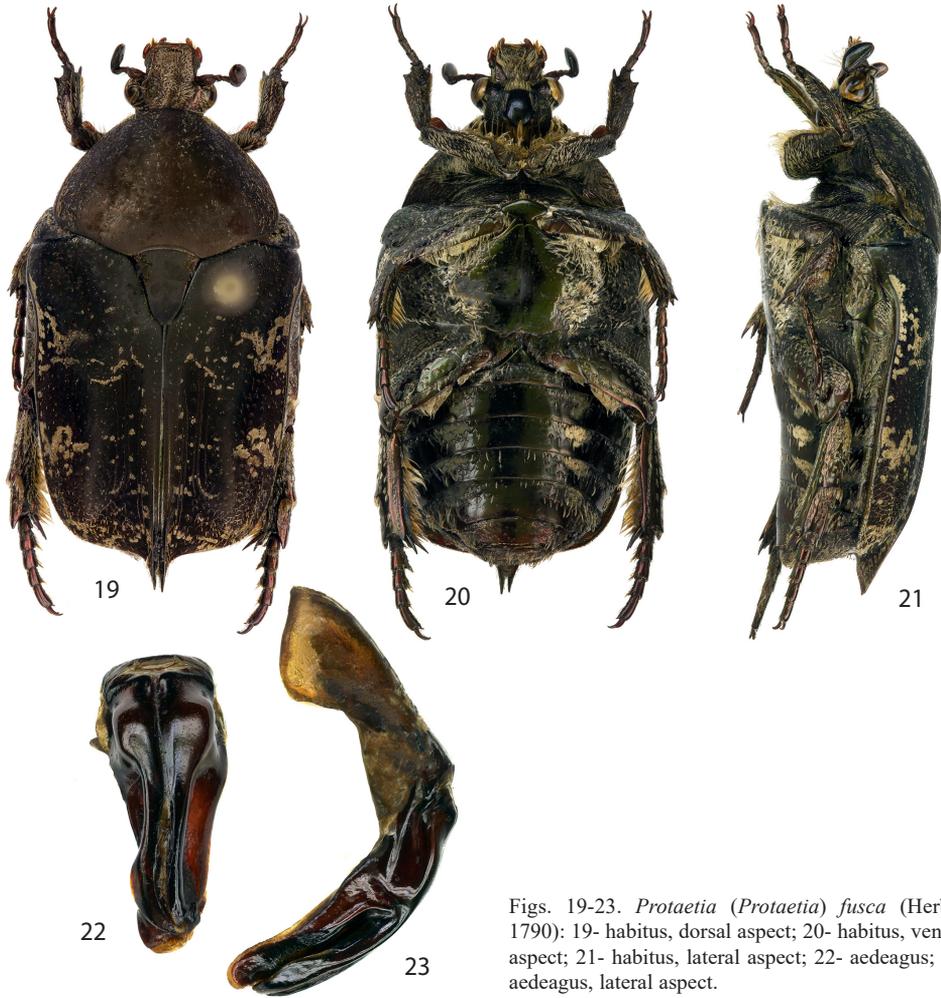
Type species *Cetonia guttifera* Burmeister, 1842 (= *Gymnetis auronotata* C. E. Blanchard, 1842).

#### *Clinteria (Clinteria) atra vidua* Snellen van Vollenhoven, 1864 (Figs. 24-28)

**Material examined:** 1 ♂ labelled: MAL. - Prov. Kedah / Langkawi Isl. / 22.3. - 14.4. 1992 / leg G. u. M. Novak.

**Note.** Single male available for study has rather different structure of aedeagus and its elytral ornament is orange, pronotum with pair of minute maculae. Due to insufficient material it is hard to say, whether this insect might represent island subspecies or not.

**Distribution.** Indonesia: Sumatra; Malaysia: Malacca, Langkawi Island (new island record).



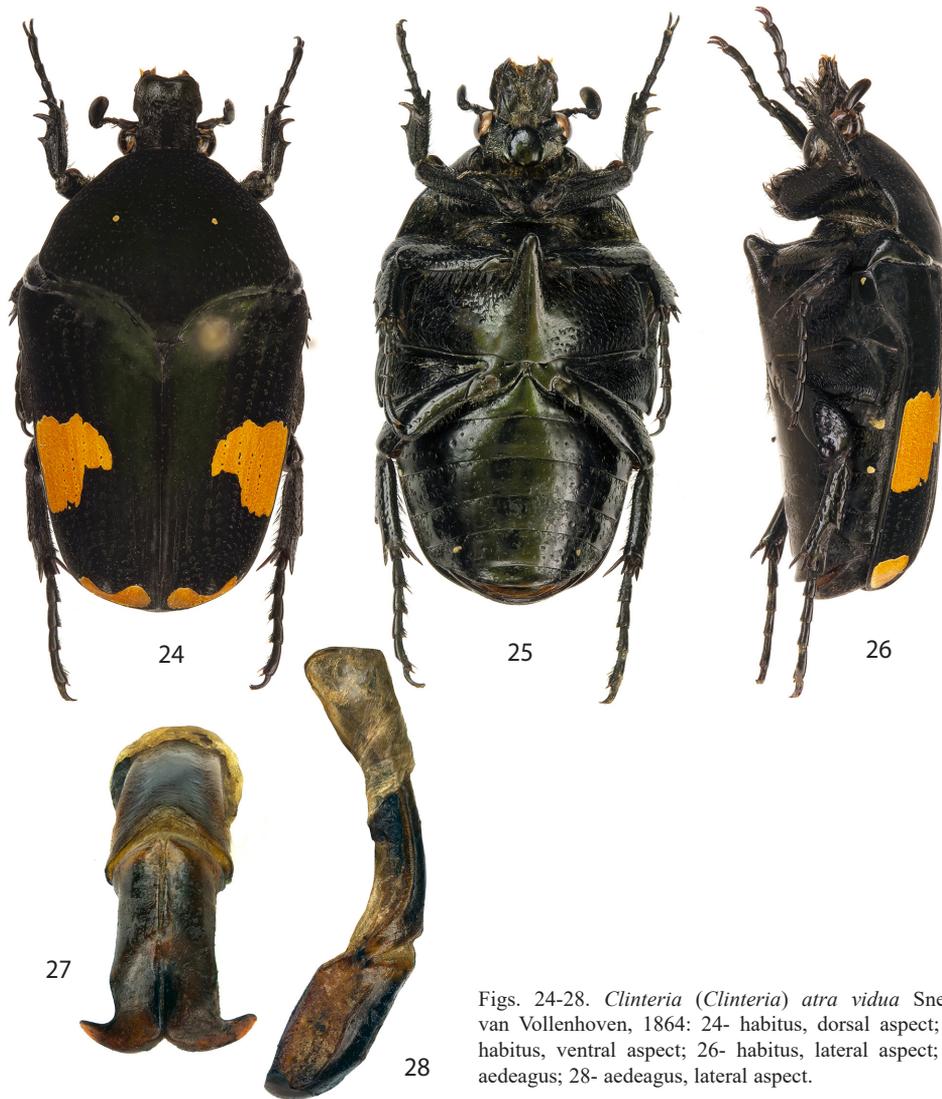
Figs. 19-23. *Protactia (Protactia) fusca* (Herbst, 1790): 19- habitus, dorsal aspect; 20- habitus, ventral aspect; 21- habitus, lateral aspect; 22- aedeagus; 23- aedeagus, lateral aspect.

***Clinteria (Clinteria) flavonotata flavonotata* (Gory & Percheron, 1833)  
(Figs. 29-33)**

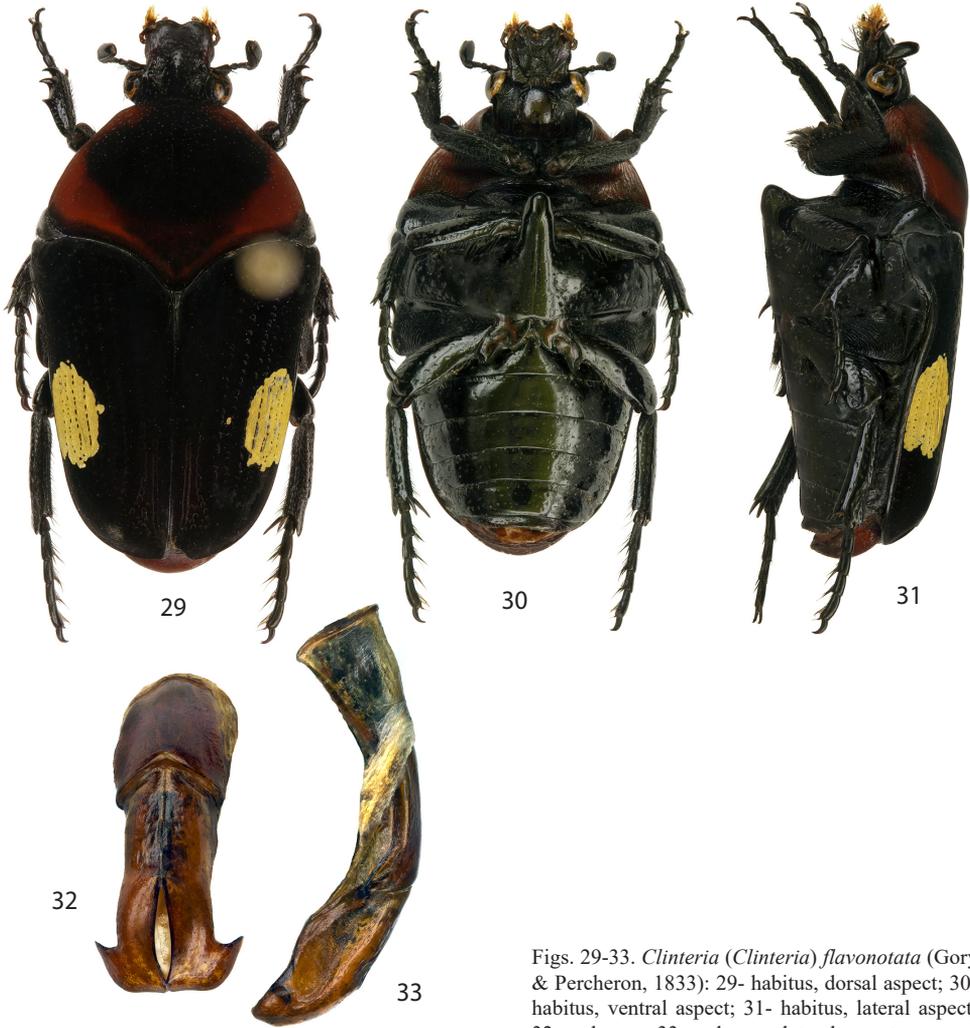
**Material examined:** 1 ♂ labelled: MAL. - Prov. Kedah / Langkawi Isld. / 22.3. - 14.4. 1992 / leg G. u. M. Novak.

**Note.** Single male has completely red pygidium, same as in nominotypical subspecies known from Thailand. Elytral yellow macula in each elytron small, nearly circularly shaped, but large and longitudinally elongated in specimens from Thailand. Therefore it could be different subspecies, but as in previous species, author did not see enough material for any conclusion.

**Distribution.** Thailand; Malaysia: Malacca, Langkawi Island (new country and new island records).



Figs. 24-28. *Clinteria (Clinteria) atra vidua* Snellen van Vollenhoven, 1864: 24- habitus, dorsal aspect; 25- habitus, ventral aspect; 26- habitus, lateral aspect; 27- aedeagus; 28- aedeagus, lateral aspect.



Figs. 29-33. *Clinteria (Clinteria) flavonotata* (Gory & Percheron, 1833): 29- habitus, dorsal aspect; 30- habitus, ventral aspect; 31- habitus, lateral aspect; 32- aedeagus; 33- aedeagus, lateral aspect.

**Tribe Taenioderini Mikšič, 1976**

**Genus *Ixorida* J. Thomson, 1880**

Type species *Macronota mouhoti* Wallace, 1867.

**Subgenus *Mecinsonota* Kraatz, 1892**

Type species *Cetonia regia* Fabricius, 1801.

***Ixorida (Mecinsonota) regia sumatrana* (Mikšič, 1972)  
(Figs. 34-38)**

**Material examined:** 1 ♂ labelled: MAL. - Prov. Kedah / Langkawi Isld. / 22.3. - 14.4. 1992 / leg G. u. M. Novak.

**Note.** Specimen from Langkawi Island seems to be completely same as continental specimens or specimens from Sumatra.

**Distribution.** Indonesia: Sumatra; Singapore; Malaysia: Malacca, Langkawi Island (new island record).

**Genus *Taeniodera* Burmeister, 1842**

Type species *Macronota monacha* Gory & Percheron, 1833.

***Taeniodera novakorum* sp. nov.  
(Figs. 39-46)**

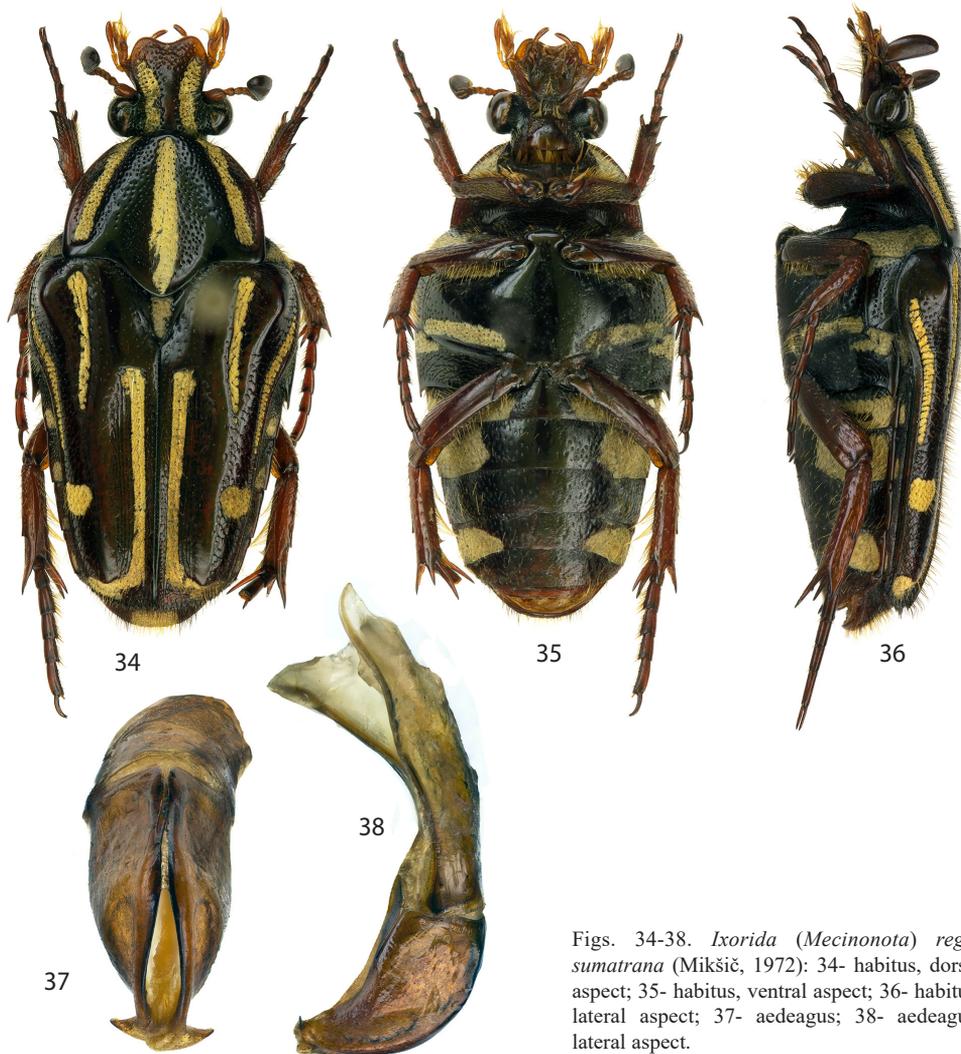
**Type locality.** Malaysia, Kedah State, Langkawi Island.

**Type material.** Holotype (♂) labelled: MAL. Prov. Kedah / Langkawi Isld. / 22.3. - 14.4. 1992 / leg G. u. M. Novak. Paratypes: (Nos. 1-3 ♂♂, 4-7 ♀♀) labelled: same as holotype.

**Description of holotype.** Completely black, two anterior thirds of elytra brick red. White ornament in head and pronotum absent, elytral ornament present but strongly reduced. Body size 21.5 mm (excluding pygidium).

Head. Completely black, disc of frons with cover of black tomentum, white ornament absent. Punctures in clypeus approximately circularly shaped, clypeal punctation rather dense. Frons with distinctly sparser punctation, diameters of punctures smaller. Short setation present throughout total length. Widest point of head in base. Apex of clypeus deeply incised, apical margin impunctate and shining. Antennae brownish, coloration of antennal club lighter. Length of club slightly shorter than stalk.

Pronotum. Black, completely covered with black tomentum. White ornament not developed. Disc with very few, minute and simple punctures, pronotal sides with much

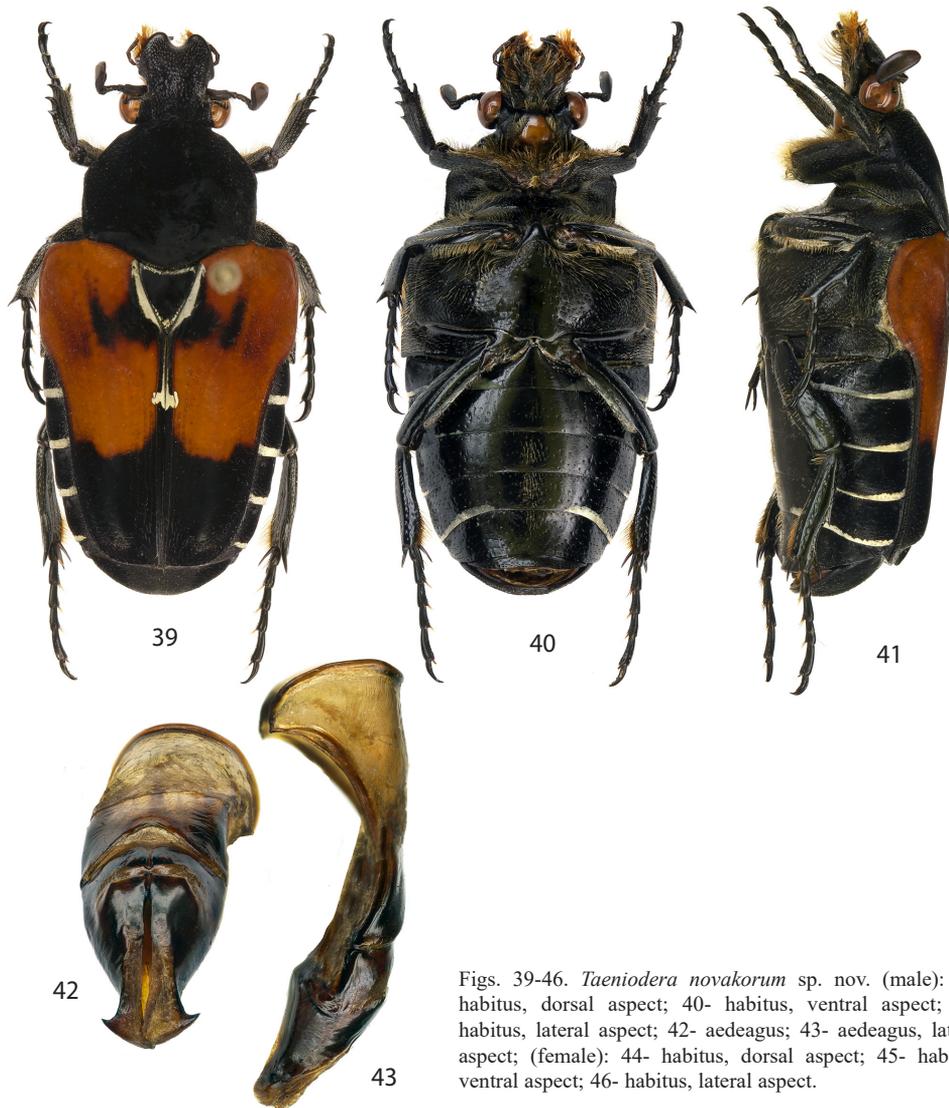


Figs. 34-38. *Ixorida (Mecinonota) regia sumatrana* (Mikšič, 1972): 34- habitus, dorsal aspect; 35- habitus, ventral aspect; 36- habitus, lateral aspect; 37- aedeagus; 38- aedeagus, lateral aspect.

denser, semicircularly shaped punctation. Setation nearly absent. Pronotal side with obtuse border running throughout total length.

Scutellum. Black, velutinous, triangularly shaped, impunctate, setation absent. Base with shallow emargination, margins and part of apex with silvery white ornament.

Elytra. Two anterior thirds brick red (excepting blackish small subscutellar area), posterior third of elytra black. Silvery white ornament reduced to area bordering with scutellum and to one small patch placed on sutural ridge approximately in half of length, rest of elytra immaculate. Posterior half of each elytron with five longitudinally running striae lines, two inner lines reaching white patch, three outer lines shorter. Area between

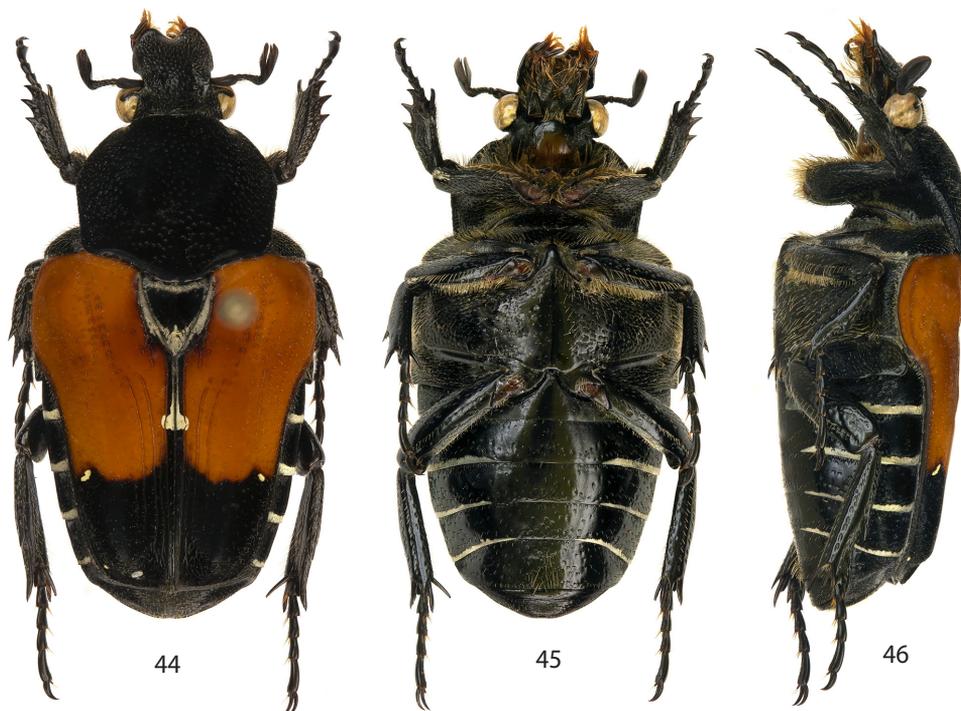


Figs. 39-46. *Taeniodera novakorum* sp. nov. (male): 39- habitus, dorsal aspect; 40- habitus, ventral aspect; 41- habitus, lateral aspect; 42- aedeagus; 43- aedeagus, lateral aspect; (female): 44- habitus, dorsal aspect; 45- habitus, ventral aspect; 46- habitus, lateral aspect.

scutellum and humeral calli with few semicircularly developed punctures, lateral ridge with more simple and fine punctation. Apex and posterolateral angles striolated. Both elytral calli rather obtuse. Sutural ridge flat, in posterior third obtusely elevated, termination of sutural ridge simple.

Pygidium. Completely black, velutinous, horizontally striolated. Beige to grey setation short, moderately dense, present throughout total length. Whitish ornament absent.

Ventrum. Black, moderately shining. Posterior margins of first four abdominal segments, part of metepimeron and posterior margin of prosternum with cover of silvery white



ornament. Disc of abdomen, broad sides of metasternum, nearly whole prosternum with cover of silver to beige setation. Setation of mentum yellowish to ginger. Punctuation very sparse and fine in abdominal sides, disc of abdomen with denser and larger punctures. Punctuation of metasternal sides and prosternum much denser and deeper. Mesometasternal process small, glabrous, keel-shaped, apex obtusely rounded.

Legs. Moderately long, except of brownish coxae, coloration of legs black. Protibia tridentate, equidistant. Meso- and metatibia with carina in posterior half. Nearly total length of mesotibia and posterior third of metatibia with setation on inner sides.

Genitalia. (Figs. 42-43).

**Variability.** Body size 21.0-21.5 mm (excluding pygidium). In one male subscutellar black area much enlarged, forming large black, circularly shaped spot nearly touching pronotal base and posterior black third of elytra. Other two males identical with holotype.

**Sexual dimorphism.** Size of females 17.5-20.0 mm (excluding pygidium). Body shorter and more robust. Two anterior thirds of elytra completely brick red, without blackened part in subscutellar area. Composition of whitish dorsal and ventral ornament same as in males. Abdomen arched. Protibia tridentate, but shorter and wider. Punctuation slightly larger and denser.

**Differential diagnosis.** The closest congener of newly described species is *Taeniodera fujiokai* Jákl, 2014 described from Aceh province in northernmost tip of Sumatra. Newly described species differs in following characters: I. Pronotum immaculate, but with small transversally developed white patch of ornament in anterolateral margins of pronotum in *T. fujiokai* Jákl, 2014. II. Pronotal punctation in new species more expressed, deeper and denser. III. Elytral ornament sparse in both species, but with transversally running patch of white ornament on border between black and red part of elytra in historically described species, but without this patch in new species. IV. Striolae lines in elytra present in both elytral halves in new species, but running only in posterior elytral half in *T. fujiokai* Jákl, 2014. V. Upper margin of mesepimeron in species from Aceh with whitish ornament, but immaculate in new species. VI. Pygidium plum brownish in *T. fujiokai* Jákl, 2014, but black in *Taeniodera novakorum* sp. nov. VII. Mesometasternal process small, apex very obtusely rounded, terminated with small tubercle in *T. fujiokai* Jákl, 2014, but slightly protruding without tubercle in new species. VIII. Male parameres similarly structured, but slightly shorter with not so expressed terminal hook in new species.

New species is not also dissimilar to *Taeniodera borneensis* Kraatz, 1892 occurring in Sumatra and Kalimantan and to *Taeniodera gregori* Reichenbach, 1996 described from Thailand. From those species, new insect from Langkawi Island can be distinguished by structure of male parameres, which are wider, with small terminal hook in new species, but longer, narrower, with much elongated branches of terminal hook in both congeners. Species also differentiate in composition of dorsal and ventral whitish ornament and shape of mesometasternal process.

**Etymology.** Species is named after Gottfried and Margot Novak, who organised several field trips to Langkawi Island and collected newly described species.

**Distribution.** Malaysia: Kedah State, Langkawi Island.

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