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Taxonomic notes on the genus *Hexagonia* Kirby, 1825 with description of three new species from the Philippines (Coleoptera: Carabidae: Hexagoniini)

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Three new species of the genus *Hexagonia* Kirby, 1825 from the island of Mindanao (Philippines) are described: *H. amicitia* sp. n., *H. panumanod* sp. n. and *H. nigrocyanea* sp.n. The new synonymy *H. castanea* Jedlička, 1936 = *H. sauteri* Dupuis, 1912 is established. All the known species from the Philippines are redescribed and illustrated. A key to species is provided.

Key words: Coleoptera, Carabidae, Hexagoniini, Philippines, new synonymy, new species.

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INTRODUCTION

According to the most recent data, the genus *Hexagonia* Kirby, 1825 contains 49 taxa (48 species and two subspecies) rather equally distributed in Africa and Southeast Asia, while only two species are known from Australia. The species of this group are relatively rare and usually not commonly collected during scientific expeditions making this group relatively understudied. In spite of this, some species have relatively wide distributions, while others occur only in very small areas.

At present, very little is known about the ecology and behavior of this group. Darlington (1968: 202) noted that *'the species are diurnal, because they rarely fly to the light'*, however, we collected all our species using light trap. Recent observation suggest that this species inhabit in the riparian ecosystem and hide in the crevices between the stalk and the narrow leaves (Baehr, 2012).

MATERIALS AND METHODS

Measurements: body length, from anterior margin of clypeus to apex of elytra along suture; length of pronotum along midline; width of pronotum at widest point; length of elytra from base to apex along suture; and width of elytra at widest point. All measurements are in millimeters (mm). The acronyms used are as follows:

BMNH – Natural History Museum (former British Museum of Natural History), London (UK)
DUBC – Daugavpils University Beetle Collection (Latvia)
SDEI – Senckenberg Deutsches Entomologisches Institut, Müncheberg (Germany)
cRS – collection Riccardo Sciaky, Milano (Italy)

In the reproduction of the label data " | " denotes a new line.

High-resolution habitus images of new species and additional materials are available at the "Carabidae of the World" web project (http://www.carabidae.org).

TAXONOMY

Detailed diagnoses of the genus were provided by Andrewes (1935) and Baehr (2012) and include the following features: body elongate and rather depressed, with parallel-sided elytra; head with narrow neck, which is well separated from the head, elongate mandibles, the movable apical hook of the lacinia; legs with short and wide tarsomeres, very deeply lobate tarsomere 4, and glabrous tarsal claws.

An interesting feature of *Hexagonia* species is their strong similarity in the structure of the aedeagus, even among extremely different groups of species from Africa and Asia. Unfortunately, in some cases, this makes it difficult to study the genus.

Key to the species of the genus *Hexagonia* from the Philippines

1 Head of variable shape, trapezoidal or elongate, with temples moderately or not prominent, color brown to black, without bluish lustre …… 2
– Head more or less markedly trapezoidal, with temples moderately or strongly prominent; color deep black with more or less bluish lustre …… 4

2 Head markedly trapezoidal, temples strongly prominent (Figs. 2–4); mandibles very short and stout, head with a deep horseshoe impression in front of the eyes. Pronotum transverse, disc of pronotum transversally rugate. 3th interval of elytra with 4–7 pores, 5th interval with 2–3 pores. Body uniformly dark brown …… ***H. sauteri* Dupuis, 1912**
– Head of different shape, temples moderately or not prominent (Figs. 1, 4–6); mandibles elongate, head with a shallow round impression in front of the eyes. Pronotum almost as long as wide. 3th interval of elytra with 2–3 pores, 5th interval with 0–1 pores. Body black …… 3

3 …… Lateral pore of pronotum absent. Elytra with only two pores in interval 3 (Fig. 1) ***H. andrewesi* Jedlička, 1935**
– Lateral pore of pronotum present. Elytra with pores in intervals 3 and 5 (Fig. 5) …… ***H. amicitia* n. sp.**

4 Head markedly trapezoidal, with strongly prominent temples; fovea behind the eye connected by a shallow groove with the postorbital pore. Elytral basal margin straight and forming a curve at the junction with lateral margin, between striae 4 and 5. Bluish lustre on elytra very intense (Fig. 4) …… ***H. panumanod* n. sp.**
– Head less markedly trapezoidal, with moderately prominent temples; fovea behind the eye isolated. Elytral basal margin angulose and forming a distinct angle at the junction with lateral margin, between striae 4 and 5. Bluish lustre on elytra perceptible but not very marked (Fig. 6) …… …… ***H. nigrocyanea* n. sp.**

***Hexagonia andrewesi* Jedlička, 1935: 89**
(Figs. 1, 7)

Fig. 1. Habitus of *Hexagonia andrewesi* Jedlička, 1935, Holotype, male. Scale bar 5 mm.

Type material: Holotype, male – "Philippine Islands | Dingat Is. [Dinagat] | 163 | XII.1915 | Coll. Bottcher", "Philippine Is. | Coll. Bottcher | B.M. 1929-201", "Hexagonia | andrewesi | type sp. n. [handwritten]| det. Ing. Jedlička", "Type [round red label]", "NHMUK 014404858" (BMNH). Paratypes, 2 ex – "Philippine Is. | Coll. Bottcher | B.M. 1929-201", "Hexagonia | andrewesi | sp. n. [handwritten]| det. Ing. Jedlička", "Cotype [round yellow label]", "NHMUK 014404929" & idem but "NHMUK 014404872" (BMNH). **Other material:** 2 ex – "Philippine Is. | Coll. Bottcher | B.M. 1929-201", "NHMUK 014404850" & *idem* but "NHMUK 014404853" (BMNH).

Diagnosis. Very similar to *H. amicitia* sp. n., but different in the longer and more prominent temples; asymetric labrum; pronotum without lateral setiferous pores, slightly produced hind angles of pronotum and different length/width ratio of elytra. In addition it can be diagnosed by the presence of obtuse humeral angle and absence of setiferous pores in interval 5 of elytra.

Redescription. Body length: 11.5 – 12.0 mm. Width/length of head: 0.92; width/length of pronotum: 0.9; length/width of elytra: 1.7. Body, antennae and legs uniformly black or slightly brownish, palpi brown.

Head with elongate hexagonal shape; dorsally depressed, slightly narrower than the prothorax. Eye moderately large and markedly protruded, 0.6 times as long as temples; temples not protruding; gradually rounded to the constriction of the neck. Mandibles elongate, slightly incurved in basal two thirds, then strongly incurved towards apex. Palpi elongate, narrowed towards apex, smooth. Mentum with wide triangular tooth, bisetose. Antenna relatively long, two apical antennomeres go beyond the middle lenght of pronotum; three basal antennomeres and basal half of antennomere 4 glabrous. Clypeus with two pores and two shallow pits, apical margin of clypeus slightly concave; clypeal suture very shallow and laterally effaced. Labrum transverse and strongly asymmetric, margin with wide triangular incision, right angle much longer than left. Frons with two deep, elongate, parallel sided pits. Postorbital pore isolated. Surface with indistinct microreticulation, shiny.

Pronotum wider than the head, widest at the middle, almost as long as wide; dorsal surface depressed. Anterior margin straight, anterior angles completely rounded. Lateral margins evenly curved, with short sinuation before hind angles; basal angles right, slightly produced; base of pronotum concave. Median line very narrow and moderately deep, impunctate, almost reaching anterior and posterior margins of pronotum;

anterior and posterior transverse sulcus obsoleted. Apex and base not margined; lateral borders narrowly margined, marginal gutter relatively wide in the middle part of pronotum. Lateral and posterior setiferous setae absent. Dorsal surface smooth, with hardly visible transverse microreticulation.

Elytra elongate, markedly depressed, parallel sided. Base straight, humeri with obtuse humeral angle; lateral margins straight. Basal margin concave, connected at an obtuse angle with lateral margin at position between striae 4 and 5. Scutellar stria long, but very effaced. All striae deeply impressed and smooth; sutural stria effaced near scutellum. Intervals flat and smooth. Scutellar seta situated at base of stria 1. Interval 3 with two setiferous pores, the anterior pore situated in stria 3 at the level of the end of scutellar stria; discal pore absent; posterior one situated in apical fourth, near stria 2. Marginal series widely interrupted in the middle, consisting of 9–10 pores. Intervals impunctate and with well visible microreticulation, consisting of polygonal meshes, glossy.

Legs of average size. Three basal tarsomeres of all legs triangular, very wide and dorsally smooth; tarsomere 4 wide and very deeply excised, with dense brush-like pilosity on ventral surface. Tarsal claws edentate.

Aedeagus (Fig. 7) elongate, ventral surface almost straight to apex. Apex of median lobe moderately long and slightly downturned. Endophallus with big semicircular sclerite.

Female genitalia unstudied.

Distribution. This species known with certainty only from Dinagat island (Dinagat Islands prov., Caraga region). It is an island situated to the north-east of Mindanao. All the other known specimens bear generic labels mentioning only "Philippine Islands".

Affinities. This species is similar to *H. amicitia*, although larger. The two share a similar general structure, but differ in the elytral punctuation, the length/width ratio of the elytra, and the shape of the head and of the pronotum. The only species, among those known to us, to which there two can be compared is *H. nigrita* Van de Pool, 1889, widely diffused in south-east Asia from India to Indonesia, but not known from the Philippines.

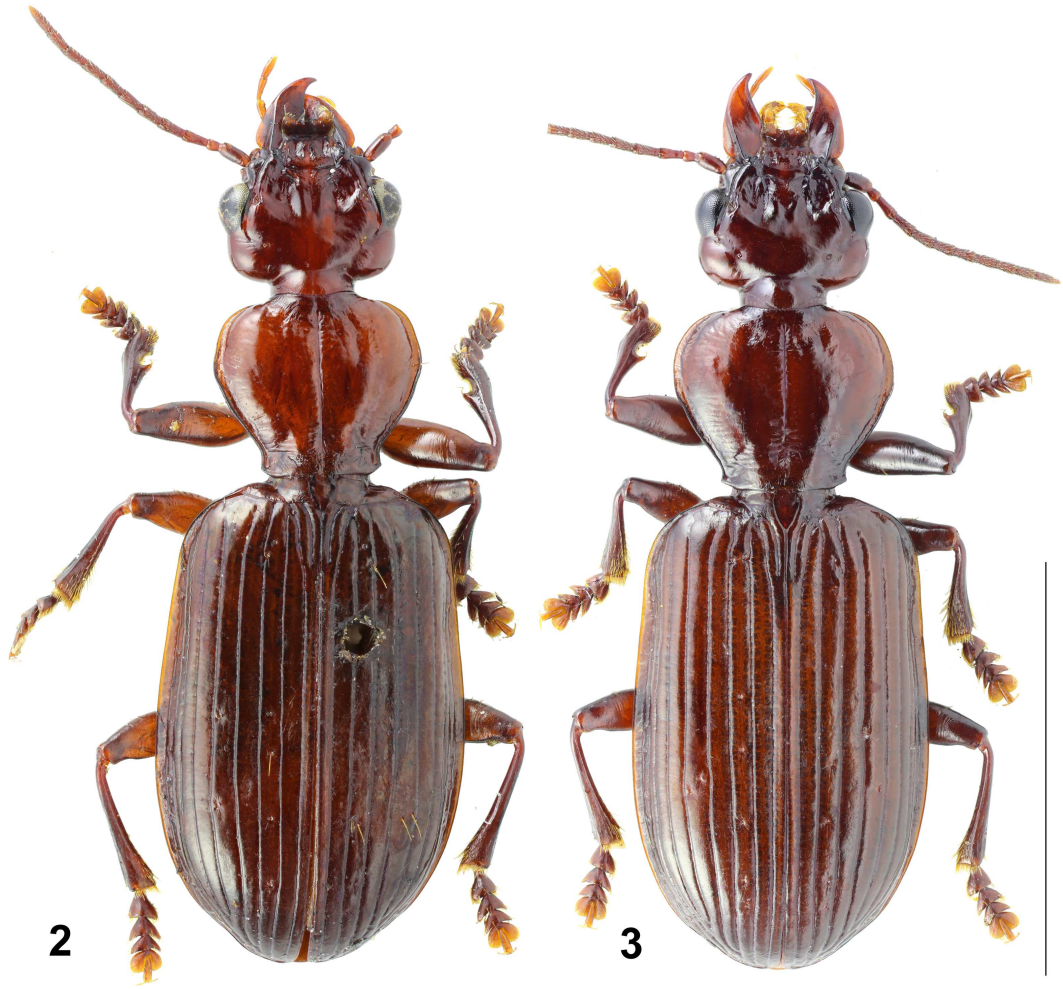
***Hexagonia sauteri* Dupuis, 1912: 308**
(Figs. 2–3, 8–9)
Hexagonia castanea Jedlička, 1936: 55 **syn. n.**

Type material: Holotype, male – "Kankau [= Hengchun] | Formosa | Sauter IV.09", "Ex. Deutsch | Ent. Mus", "H.E. Andrewes Coll. | B.M. 1945-97", "Hexagonia | sauteri | Dupuis [handwritten]", "Dupuis det", "Typus [red label]", "NHMUK 014404802" (BMNH). Paratype, 1 ex – "Formosa | Kankau IV.09 | Sauter", "Ex. Coll. Berl. | Zool. Mus.", "Cotype [green round label]", "Hexagonia sauteri | det. P. Dupuis 1913", "H.E. Andrewes Coll. | B.M. 1945-97", "NHMUK 014404769" (BMNH). Holotype – "Type [red round label]", "Philippine Islands | Manila | 6.II.1914 | Coll. Bottcher", "Philippine Is.| Coll. Bottcher | B.M. 1929-201", "Hexagonia | castanea sp.n. | det. Ing. Jedlička [red label]", "NHMUK 014404930" (BMNH). Paratypes, 5 ex – "Cotype [yellow round label]", "Philippine Islands | Manila | 6.II.1914 | Coll. Bottcher", "Philippine Is.| Coll. Bottcher | B.M. 1929-201", "Hexagonia | castanea sp.n. | det. Ing. Jedlička" (BMNH). 2 ex – "Kankau | Formosa | Sauter IV.09", "Dupuis det", "Typus [red label]", "Hexagonia sauteri | Dupuis", "Syntypus [red label]", "DEI Coleoptera | # 200406"; *idem but* "DEI Coleoptera | # 200407" (SDEI).

Other material: 1 ex – "Philippine Is., Coll. Bottcher, B.M. 1929-201", "NHMUK 014404905" (BMNH); 1 ex female – "Philippines, E Luzon | Sierra Madre, Aurora | Dingalan III.2016" (cRS)

Diagnosis. Instantly recognizable among all other oriental species of the genus by the combination of bifid mentum, short and wide mandibles, and several pores in elytral intervals 3 and 5.

Redescription. Body length: 8.3-9.5 mm. Width/length of head: 1.27; width/length of pronotum:



Figs. 2–3. Habitus of *Hexagonia*. 2 – *H. sauteri* Dupuis, 1912 Holotype, male; 3 – *H. castanea* Jedlička, 1936 syn. n., Cotype, male. Scale bar 5 mm.

1.17-1.2; length/ width of elytra: 1.45-1.56. Body uniformly brown, sometimes tibiae, sides of elytra and mandibles slightly darker.

Head trapezoid, dorsally depressed, narrower than the prothorax. Eyes large and markedly protruded, almost as long as temples; temples protruding; gradually rounded to the constriction of the neck. Neck constriction well marked, narrow and deep. Mandibles relatively short, wide and gradually incurved towards apex. Palpi elongate, narrowed towards apex, smooth. Mentum bifid, bisetose. Antenna relatively short, just reaching lateral pore of pronotum; three basal antennomeres and basal half of antennomere 4 glabrous. Clypeus with two pores and an irregular transverse depression, apical margin of clypeus slightly concave; clypeal suture very strong and deep, laterally effaced. Labrum transverse and slightly asymmetric, margin with wide rounded incision, right angle slightly longer than left. Frons with two deep and wide impressions, connected by a third weaker impression between them. Postorbital pore isolated. Surface with indistinct microreticulation, shiny.

Pronotum much wider than head, markedly transverse, widest near apical third; dorsal surface depressed. Anterior margin slightly concave, ante-

rior angles completely rounded. Lateral margins form a slight and obtuse angle opposite the lateral setiferous pore; with evident excision before hind angles; basal angles right and moderately produced; base of pronotum straight. Median line narrow and deep, impunctate, almost reaching anterior and posterior margins of pronotum; anterior and posterior transverse sulcus obsolete. Anterior margin and base not margined; lateral borders margined, marginal sulcus gradually widened from angles of pronotum to setiferous pore. Lateral setiferous pore situated in widest point of pronotum, posterior pore absent. Disc transversally rugose, with hardly visible transverse microreticulation.

Elytra elongate, markedly depressed, very slightly widened in apical half. Humeri rounded. Lateral margins straight. Basal margin oblique, connected at a very obtuse angle with lateral margin at position between striae 4 and 5. Scutellar stria long, not connected with stria 1. All striae deeply impressed and crenulate. Intervals flat and smooth. Scutellar seta situated at base of 1st stria. Interval 3 with 4–7 setiferous pores (usually 6–7), two anterior pores closely spaced and situated near stria 3 at the level of end of scutellar stria; the discal and apical pores irregularly placed in apical half. Interval 5 of elytra with 2 pores, asymmetrically and irregularly placed in apical half. Marginal series consisting of 12–14 pores. Intervals impunctate and with well visible squamiform microreticulation, glossy.

Legs of average size. Three basal tarsomeres of all legs triangular, very wide and dorsally smooth; tarsomere 4 of all tarsi wide and very deeply excised, with dense brush-like pilosity on ventral surface. Tarsal claws edentate.

Median lobe of aedeagus (Figs. 8–9) elongated, apical third of median lobe slightly downturned. Endophallus with big semicircular sclerite.

Female genitalia unstudied.

Taxonomic notes. After careful study of type material of *H. sauteri* Dupuis, 1912 and *H. castanea* Jedlička, 1936 no differences were found between the two species. The new synonymy is established here.

Distribution. China, Japan (Ryukyu Islands), Taiwan, Philippine Islands: Luzon.

Affinities. This species seems rather isolated within the genus in the rather short and wide elytra, crenulate striae and several points on intervals 3 and 5. Beyond this, it is the only species known to day from an island different from Mindanao.

***Hexagonia amicitia* Anichtchenko, Sciaky & Medina, sp. n.**
(Figs. 5, 10)

Material: Holotype, male – "Maguing, Lanao Del Sur, Mindanao | october 2018" (DUBC); Paratype, female – "Philippines, Mindanao | Mt. Apo | XI.2013" (cRS).

Diagnosis. This species is very similar to *H. andrewesi*; the diagnostic differences are listed under that species.

Description. Body length: 8.9–10.0 mm. Width/length of head: 1; Width/length of pronotum: 1.06; length/ width of elytra: 1.7. Body, legs and palpi dark brown or uniformly black; antennae brown.

Head as long as wide, depressed, slightly narrower than the prothorax. Eye moderately large and markedly protruded, 0.75 times as long as temples; temples not protruding; gradually rounded to the constriction of the neck. Mandibles elongate, slightly incurved in basal two thirds, then strongly incurved towards apex. Palpi elongate, narrowed towards apex, smooth. Mentum with wide triangular tooth, bisetose. Antenna relatively long, last antennomere go beyond the middle lenght of pronotum; three basal antennomeres and basal half of antennomere 4 glabrous. Clypeus with two pores near anterior angles; with wide, transverse and rugate depression, clypeal suture very deep and complete; apical margin of clypeus straight. Labrum transverse and symmetric, slightly bisinuate apically. Frons with two large irregu-

larly shaped, deep impressions. Posterior half of impressions rugate. Postorbital pore isolated. Surface with indistinct microreticulation, shiny.

Fig. 5. Habitus of *Hexagonia amicitia* sp. n. Holotype, male. Scale bar 5 mm.

Pronotum wider than head, widest at apical third, almost as long as wide; dorsal surface depressed. Anterior margin straight, anterior angles completely rounded. Lateral margins evenly curved, in basal fifth of the lenght parallel sided, with long sinuation before hind angles; basal angles right, not produced; base straight. Median line deep, impunctate, not reaching anterior margin of pronotum; anterior transverse sulcus obsoleted, posterior sulcus wide and shallow, connecting apices of very shallow basal grooves. Apex and base not margined, lateral borders narrowly margined, marginal sulcus slightly wider near lateral pore and completely obsolete in basal fifth. Anterior lateral seta situated at widest point, posterior lateral seta absent. Dorsal surface smooth, with very shallow transverse sulci. Microreticulation transverse and very fine.

Elytra elongate, markedly depressed, parallel sided. Base straight, humeri widely rounded; lateral margins straight. Basal margin concave, connected at an obtuse angle with lateral margin at position between striae 4 and 5. Scutellar stria long, not connected with first stria. All striae deeply impressed and almost smooth, impunctate. Intervals flat and smooth. Scutellar seta situated at base of stria 1. Interval 3 with three setiferous pores, the anterior pore situated in the 3rd stria at the level of apice of scutellar stria; the discal pore situated immediately behind the middle of elytra near second stria; posterior one situated in apical fifth, near the stria 2. Interval 5 of elytra with one pore. Marginal series consisting of 14–15 pores. Intervals impunctate and with well visible microreticulation, consisting of polygonal meshes, glossy.

Legs of average size. Three basal tarsomeres of all legs triangular and wide; dorsally with longitudinal rugosity, especially in mid- and hind tarsa; tarsomere 4 wide and very deeply excised, with dense brush-like pilosity on ventral surface. Tarsal claws edentate.

Aedeagus (Fig. 10) elongate, ventral surface almost straight to apex. Apex of median lobe moderately long and slightly bent to the lower side. Endophallus with big semicircular sclerite.

Distribution. Known from two different localities of the island of Mindanao, one situated in the province of Lanao del Sur, the other in the province of Davao del Sur; probably it is widely diffused in the whole island of Mindanao.

Etymology. The specific epithet derives from the Latin “amicitia” (fem.) – friendship, in allusion to significance of friendship and collaboration in science and life.

Affinities. This species is similar to *H. andrewesi*, although smaller. The overall aspect is very

similar, but some details ot the elytral punctuation, the different length/width ratio of the elytra, and shape of the head and of the pronotum allow to distinguish between the two.

***Hexagonia panumanod* Anichtchenko, Sciaky & Medina sp. n.** (Fig. 4)

Type material: Holotype, female – "Philippines, Mindanao, Gingoog | Eureka Mt., 730m, 8°41.4970N | 125°14.2710E, 4.v.2022 | M. Medina leg." (DUBC).

Diagnosis. Easily distinguishable from all known species in the Oriental region in the combination of metallic blue elytra and strongly trapezoid head with the fovea behind the eye connected by a shallow groove with the postorbital pore.

Description. Body length: 11 mm. Width/length of head: 1.13; width/length of pronotum: 1.1; length/width of elytra: 1.7. Head and pronotum black with weak bluish sheen, elytra black with bright blue luster. Mandibles dark brown, palpi brown, antenna and legs uniformly black. Lower surface black.

Head strongly trapezoid and depressed, slightly narrower than the pronotum. Eye moderately large and markedly protruded, 0.5 times as long as temples; temples protruding; posterior border almost perpendicular; constriction of neck weak and shallow, neck narrow. Mandibles elongate, almost straight in basal two thirds, incurved towards apex. Palpi elongate, narrowed towards apex, smooth. Mentum with wide triangular tooth, bisetose. Antenna short, attaining the lateral pore of pronotum; three basal antennomeres and basal half of antennomere 4 glabrous. Clypeal suture shallow, laterally indistinct; clypeus slightly emarginate at apex. Labrum with deep wide triangular incision, asymmetric, right lobe longer. Frons with two irregularly shaped, shallow impressions. Supraorbital pore connected by a shallow groove with the postorbital pore. Surface with extremely fine transverse microreticulation, iridescent.

Pronotum wider than the head, obovate, widest at apical quarter; dorsal surface depressed. Anterior

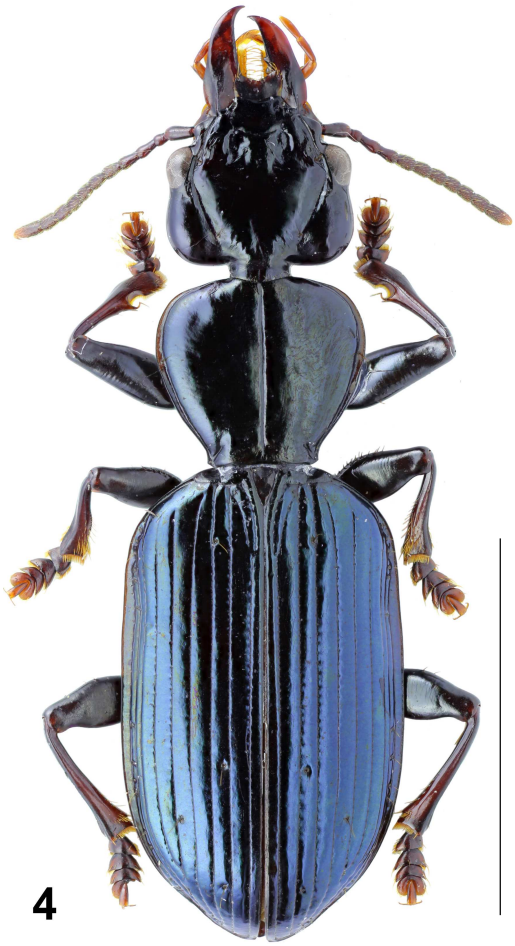


Fig. 4. Habitus of *Hexagonia panumanod* sp. n. Holotype, female. Scale bar 5 mm.

margin slightly convex, anterior angles completely rounded. Lateral margins evenly curved, immediately in front of base slightly excised; base straight, basal angles obtuse and slightly produced. Median line deep, impunctate, almost attaining anterior margin and base; both transverse sulci obsoleted. Basal grooves starts right from the posterior angles in form of short, smooth, diagonal impressions. Anterior margin and base not margined, lateral borders narrowly margined, marginal sulcus slightly wider near lateral pore. Anterior lateral seta situated at widest point, posterior lateral seta absent. Dorsal surface smooth, with some very shallow irregular transverse sulci, with extremely fine transverse microreticulation, slightly iridescent.

Elytra elongate, markedly depressed, parallel sided. Base oblique, humeri rounded; lateral margins straight. Basal margin straight and forming a curve at the junction with lateral margin, between striae 4 and 5. Scutellar stria long and connected with stria 1. All striae deeply impressed and moderately punctate. Intervals flat and smooth. Scutellar seta situated at origin of stria 1. Interval 3 with three setiferous pores, the anterior pore situated in the stria 3 at the level of the end of scutellar stria; the discal pore situated in apical third of elytra near stria 2; posterior one situated close to apex, near stria 2. Interval 5 of elytra with one pore located opposite the middle between discal and apical pores. Marginal series consisting of 12–13 pores. Intervals impunctate and with weak microreticulation, consisting of polygonal meshes, very glossy.

Legs rather short, tarsomere 3 of all tarsi two times shorter than basal one; tarsomere 4 wide and very deeply excised, with dense brush-like pilosity on ventral surface. Tarsal claws edentate. Three basal tarsomeres of all legs triangular, very wide and dorsally smooth.

Male unknown.

Female genitalia. Gonocoxite 1 apically with five elongate setae along ventro-apical rim. Gonocoxite 2 rather narrow, triangular, slightly curved, with obtusely rounded apex; with three short and stout ensiform setae on the external-apical edge and one large suboval setiferous pit with seta near apex on the medio-ventral surface.

Distribution. Known only from the type locality, situated in the province of Misamis Oriental. in the north of the island of Mindanao.

Etymology. This new species is named after '*Panumanod*', the guardian of the animals of the Higaunon Tribe in Northern Mindanao.

Affinities. This species is very peculiar within the genus in the metallic color and the strongly trapezoid head, with the supraorbital pore connected by a groove with the postorbital pore. In these two characters it is strongly reminiscent of some species of the Madagascan genus *Omphreoides* Fairmaire, 1896 (Jeannel, 1948). The following species (*H. nigrocyanea* n. sp.) is clearly similar in size, shape and general characters, but some of the features are less evident (the trapezoid head, the metallic color, ecc.). These species seem to form a small natural group within the genus, apparently without relationships with any other species group.

***Hexagonia nigrocyanea* Anichtchenko & Sciaky sp. n.**

(Figs. 6, 11)

Type material: Holotype, male – "Philippines, Mindanao | Dominorog | II.2019" (cRS). Paratypes: 1 female – "Philippines, Mindanao | Bukidnon | Dominorog V.2019" (cRS); 1 male – "Philippines, Mindanao | Sarangani | Maitum X.2017" (cRS); 1 female – "Philippines, Mindanao | Lanao del Sur | Wao XI.2019" (cRS); 1 male – "Philippines, Mindanao, Lanao del Sur, Wao, XI.2021" (cRS); 1 female – idem but "X.2021" (cRS); 1 female – idem but "IX.2021" (cRS).

Diagnosis. Easily distinguishable from all known species in the Oriental region for its combination of dark bluish elytra and rather trapezoid head but without a groove connecting the fovea behind the eye with the postorbital pore, as in *H. panumanod*.

Description. Body length: 12,1–14,2 mm. Width/length of head: 0.96; width/length of pronotum: 1.07; length/ width of elytra: 1.63-1.65. Body uniformly black, pronotum and elytra with slight bluish luster.

Head strongly trapezoid and depressed, slightly narrower than the pronotum. Eyes moderately large and markedly protruded, 0.5 times as long as temples; temples protruding; posterior border almost perpendicula. The shape of the head is slightly different in the male specimens compared to the female ones: the temples are more protruding in the males than in the females, indicating a probable sexual dimorphism in this character. Constriction of neck weak and shallow, neck

narrow. Mandibles elongate, almost straight in basal two thirds, incurved towards apex. Palpi elongate, narrowed towards apex, smooth. Mentum with wide triangular tooth, bisetose. Antenna short, attaining the lateral pore of pronotum; three basal antennomeres and basal half of antennomere 4 glabrous. Clypeal suture shallow, laterally indistinct; clypeus slightly emarginate at apex. Labrum with deep wide triangular incision, asymmetric, right lobe longer. Frons with two irregularly shaped, shallow impressions. Supraorbital pore connected by a shallow groove with the postorbital pore. Surface with extremely fine transverse microreticulation, iridescent.

Pronotum wider than the head, obovate, widest at apical quarter; dorsal surface depressed. Anterior margin slightly convex, anterior angles completely rounded. Lateral margins evenly curved, immediately in front of base slightly excised; base straight, basal angles obtuse and slightly produced. Median line deep, impunctate, almost attaining anterior margin and base; both transverse sulci obsolete. Basal grooves starts right from the posterior angles in form of short, smooth, diagonal impressions. Anterior margin and base not margined, lateral borders narrowly margined, marginal gutter slightly wider near lateral pore. Anterior lateral seta situated at widest point, posterior lateral seta absent. Dorsal surface smooth, with some very shallow irregular transverse sulci, with extremely fine transverse microreticulation, slightly iridescent.

Elytra elongate, markedly depressed, parallel sided. Base oblique, humeri rounded; lateral margins straight. Basal margin straight and forming an angle at the junction with lateral margin, at position between striae 4 and 5. Scutellar stria long and connected with stria 1. All striae deeply impressed and moderately punctate. Intervals flat and smooth. Scutellar seta situated at origin of stria 1. Interval 3 with three setiferous pores: anterior one situated in the stria 3 at the level of the end of scutellar stria; median one situated in apical third of elytra near stria 2; posterior one situated close to apex, near stria 2. Interval 5 of elytra with one pore located opposite the middle between discal and apical pores. Marginal series consisting of 12–13 pores. Intervals impunctate and with weak microreticulation, consisting of polygonal meshes, very glossy.

Legs of average size, tarsomere 3 of all tarsi two times shorter than basal one; tarsomere 4 wide and very deeply excised, with dense brush-like pilosity on ventral surface. Tarsal claws edentate.

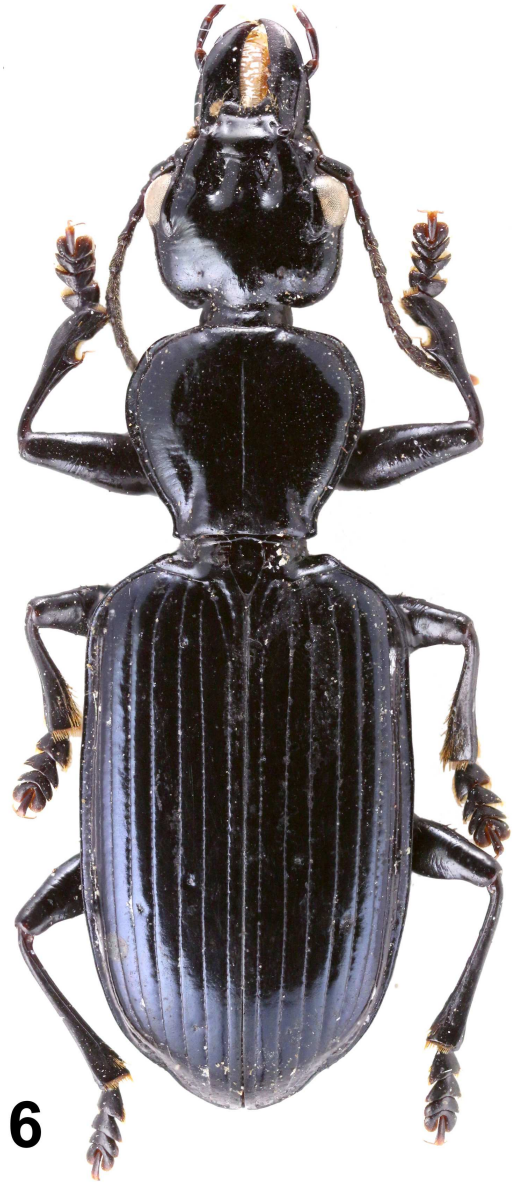
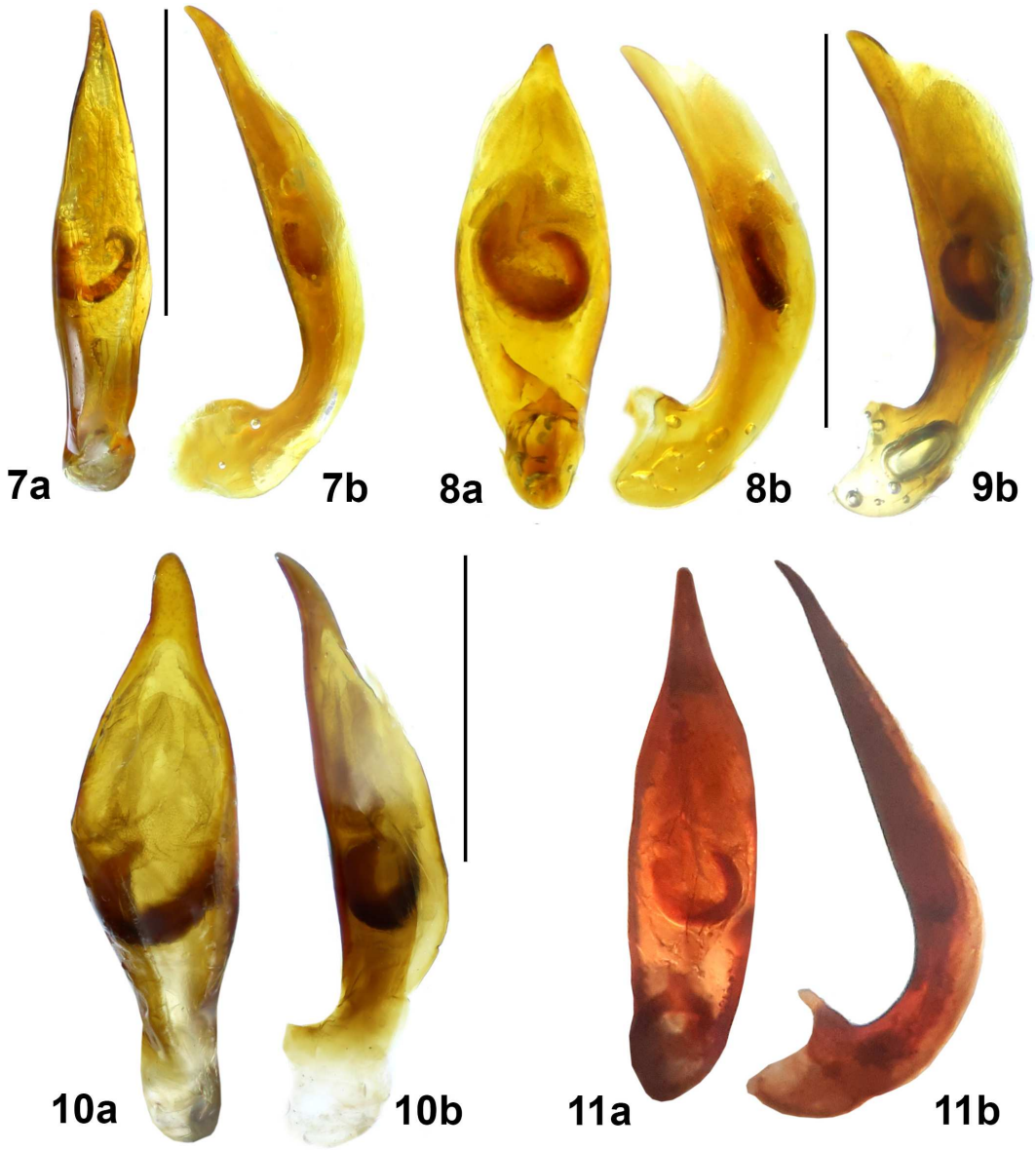


Fig. 6. Habitus of *Hexagonia nigrocyanea* sp. n. Holotype, male. Scale bar 5 mm.



Figs. 7–11. Aedeagus of *Hexagonia*, A – dorsal view, B – lateral view. 7 – *H. andrewesi* Jedlička, 1935, Holotype; 8 – *H. castanea* Jedlička, 1936 syn. n. Cotype; 9 – *H. sauteri* Dupuis, 1912, Holotype. Scale bar 1 mm. 10 – *H. amicitia* sp. n., Holotype; 11 – *H. nigrocyanea* sp. n. Holotype. Scale bar 1 mm.

Three basal tarsomeres of all legs triangular, very wide and dorsally smooth.

Aedeagus (Fig. ??) elongate and very thin in lateral view. Apex of median lobe moderately long and slightly bent to the lower side. Endophallus with large semicircular sclerite.

Distribution. Only known from the island of Mindanao, in three different localities in the provinces of Bukidnon, Sarangani and Lanao del Sur, therefore occupying almost all the island of Mindanao. We can expect to find it in different areas of the same island.

Etymology. This specific epithet alludes to the peculiar color of this species: the Latin term *nigrocyanea* means, in fact, black and bluish.

Affinities. This species is the largest of the genus in the Philippines and one of the largest in the whole world. It seems related to the sympatric *H. panumanod*, although well distinct. As far as we know these are the only two metallic species of *Hexagonia* known until now.

General remarks. The genus *Hexagonia* in the Philippine islands seems mainly distributed in the island of Mindanao and its vicinity, in fact, four out of the five species until now known from this country have been found here, while only *H. sauteri* is known from the island of Luzon, beyond Taiwan, from where it had been initially described.

Darlington (1968: 203) wrote when describing *Hexagonia papua*: "One or more similar but apparently undescribed species occur in the Philippines.". This sentence seems to prove that he had seen some specimens from this area belonging to the group of reddish brown species with a black spot at the elytral apex. These species are very numerous in South-East Asia, and only seeing abundant material could allow to decide whether they are new species or species known from other areas.

In any case, we think that the knowledge on this genus in the Philippines are still incomplete and that certainly some new species and new data on the species already known will be discovered as the faunistic exploration of this archipelago continues.

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LITERATURE

Andrewes H.E. 1935. *The fauna of British India, including Ceylon and Burma. Coleoptera, Carabidae. Vol. II. Harpalinae – I.* London: Taylor & Francis, xvi + 323pp. + 5pl. + 1 map.

Anichtchenko A., 2022. Genus *Hexagonia* Kirby, 1825. In: Anichtchenko A. et al., (editors): Carabidae of the world. http://www.carabidae.org Available from: http:// carabidae.org/taxa/hexagonia-kirby-1825b-563 (Last edit 17.5.2022, accessed 19.5.2022).

Baehr M. 2012. Two new Australian species of the genus Hexagonia Kirby, first record of the tribe Hexagoniini from Australia (Coleoptera, Carabidae). *Spixiana* 35 (1): 29–34.

Darlington P.J. Jr. 1968. The carabid beetles of New Guinea. Part III. Harpalinae (continued): Perigonini to Pseudomorphini. *Bulletin of The Museum of Comparative Zoology* 137: 1–253.

Jeannel R., 1948. Coléoptères carabiques de la région malgache (deuxième partie). – Faune de l'Empire Française, 10: 373–766.

Jedlička A., 1935. Nový Druh rodu Hexagonia (Col. Carab.). *Časopis Československé společnosti entomologické* 32: 89.

Jedlička A., 1936. Neue Carabiden aus Ostasien. (XI Teil). *Entomologisches Nachrichtenblatt* 10(1): 51–55.

Kirby, W. A. 1825. description of such genera and species of insects, alluded to in the "Introduction to Entomology" of Messrs. KIRBY and SPENCE, as appear not to have been before sufficiently noticed or described. *The Transactions of the Linnean Society of London*, 14: 563–572.

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