

FOUR NEW SPECIES OF *HORAEOMORPHUS* SCHAUFUSS FROM THE ORIENTAL REGION (COLEOPTERA: STAPHYLINIDAE, SCYDMAENINAE)

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ABSTRACT. – Four new species of the genus *Horaemorphus* Schaufuss (Coleoptera: Scydmaenidae: Scydmaeninae) are described: *H. imitator* new species and *H. minor* new species from Mindanao, Philippines; *H. fakfakensis* new species from Irian Jaya, Indonesia; and *H. samosirensis* new species from Sumatra, Indonesia. Habitus and important diagnostic characters of the new taxa, including aedeagi, are illustrated.

KEY WORDS. – Coleoptera, Staphylinoidea, Staphylinidae, Scydmaenidae, Scydmaeninae, Cyrtoscydmini, *Horaemorphus*, new species, Oriental, Indonesia, Sumatra, New Guinea, Philippines.

INTRODUCTION

Thirty species of the genus *Horaemorphus* Schaufuss (Coleoptera: Staphylinidae, Scydmaeninae: Cyrtoscydmini) have been reported so far to occur in the Oriental Region and areas forming a transient zone between the Oriental to the East Palearctic Regions. The majority of species inhabit the Malay Peninsula and the Sunda Islands (20 species); most of them were revised by Jałoszyński (2006), and later three more species were described (Jałoszyński et al., 2007; Jałoszyński & Nomura, 2008). Within the Malay Subregion, *Horaemorphus* is known to occur in the peninsular Malaysia (Kedah, Pahang, Kuala Terengganu), Singapore, Tioman Is., Penang Is., Borneo (Sabah, Sarawak, Kalimantan, Brunei Derussalam), Sumatra, and Siberut Is. In addition, one species is known from Thailand (Franz, 1985), one from Vietnam (Jałoszyński & Nomura, 2004), one from Taiwan (Jałoszyński, 2003), one from the Philippines (Jałoszyński, 2004), one from mainland China (Franz, 1985), four from Nepal (Franz, 1973; 1974; Vit, 2004), and one from Japan (Jałoszyński, 2002). Members of this morphologically diverse genus are not uncommon in hot and humid forests of SE Asia; they are usually encountered in leaf litter, rotten wood and under bark of trees. Most efficient collecting methods are sifting appropriate substrates and flight intercept traps.

Thanks to kindness of Dr. Wolfgang Schawaller, I had an opportunity to examine several undetermined specimens

of *Horaemorphus*. Four species from Indonesia (Sumatra and New Guinea) and the Philippines turned out to differ from all other members of the genus, and they are described below as new taxa.

MATERIALS AND METHODS

Dry-mounted specimens were handled in a standard way, i.e., relaxed with warm water and dissected; aedeagi are preserved as Canada balsam mounts on pins under card with specimens. Illustrations of aedeagi were prepared by free-hand drawing. Habitus photos were taken as multiple shots at different depths of focus with Olympus C-750 camera and Raynox macro lenses, final pictures were assembled with CombineZ freeware. The measurement convention applied herein follows that of Jałoszyński (2006). All studied specimens are deposited at: SMNS – Staatliches Museum für Naturkunde, Stuttgart, Germany.

TAXONOMY

Horaemorphus imitator, new species (Figs. 1a, 2a, b, 4a)

Material examined. – **Holotype.** Male, two labels: “MINDANAO, 1-3. May \ MISAMIS OCC., 1700 m \ DON VICTORIANO \ Bolm lgt., 1996” [yellow, printed], “*HORAEOMORPHUS* \ *imitator* m. \ HOLOTYPE \ det. P. JAŁOSZYŃSKI, ‘08” [red, printed] (SMNS).

Diagnosis. – The following set of characters is unique for this species: body nearly as long as 3 mm, brown, slender; pronotum strongly elongate, with three small ante-basal pits located in deep groove; metatrochanters in males strongly modified, each forming very long, slightly curved rod-like projection with rounded apex; aedeagus with very complicated, symmetrical internal armature composed of generally bell-shaped central complex, and each paramere with numerous apical setae, without subapical setae.

Male. – Body (Fig. 1a) large (length 2.93 mm), slender, very convex, moderately dark brown, vestiture slightly lighter than cuticle.

Head broadest at moderately large, strongly convex eyes, length 0.45 mm, width 0.60 mm; tempora slightly longer than eye in dorsal view, arcuate; vertex weakly convex, with pair of small but deep pits located near posterior margins of supraantennal tubercles; frons weakly convex; supraantennal tubercles very distinct, strongly raised, well delimited from frons but indistinctly delimited from vertex. Punctures on vertex and frons very fine, shallow and sparse, unevenly distributed, separated by spaces 2-4x as long as puncture diameters; setae moderately long, sparse, suberect to erect. Antennae moderately slender, shorter than half length of body, length 1.20 mm; relative lengths of antennomeres (shortest antennomere II as 1): 1.67; 1; 1.67; 1.5; 1.33; 1.17; 1.17; 1.33; 1.5; 1.67; 2.

Pronotum oval, elongate, broadest between anterior third and fourth, length 0.93 mm, width at base 0.45 mm, maximum width 0.73 mm; discal part moderately strongly narrowing posteriorly to sharply marked posterior constriction separating narrow basal collar; hind angles obtuse and blunt; posterior margin arcuate; posterior collar delimited from disc by transverse dorsal row of three small but deep pits located in narrow and deep groove. Punctures on disc very fine and shallow, unevenly distributed, those in middle are separated by spaces 2-5x as long as puncture diameters; vestiture sparse, moderately long, suberect.

Elytra strongly elongate, oval, more convex than pronotum, broadest near anterior third, length 1.55 mm, width 0.98 mm, EI 1.59. Humeral calli weakly marked, delimited from adsutural region by very short and shallow, broad basal impressions; basal foveae indiscernible; apices of elytra separately rounded. Punctures in anterior 2/3 of elytra much more distinct than those on pronotum, large but shallow and slightly diffused; in median part of each elytron separated by spaces slightly longer than puncture diameters, punctures are gradually smaller and shallower toward apices and lateral margins of elytra. Vestiture similar to that on pronotum but slightly longer and slightly more suberect. Metathoracic wings not studied.

Metatrochanters strongly modified, as in Fig. 4a.

Aedeagus (Figs. 2a, b) 0.65 mm in length; with moderately slender median lobe, apical part strongly narrowed,

subtrapezoidal; internal sac symmetrical, with complicated, bell-shaped central complex; parameres slender, slightly exceeding apex of median lobe, each with four apical setae.

Female. – Unknown.

Etymology. – The specific epithet *imitator* refers to the overall resemblance of the new species to *H. blattnyi*, another *Horaemorphus* known to occur in the Philippines.

Distribution. – Philippines: Misamis Occidental Prov: Mindanao Is.

Remarks. – *Horaemorphus imitator* is very similar to *H. blattnyi* Jałoszyński, 2004, known to occur on Luzon. These two species share a very similar body shape, highly modified metatrochanters, and the structures of the aedeagus. A major differences are the body length (>3.3 mm in *H. blattnyi* vs. <3 mm in *H. imitator*), the internal sac of the aedeagus (much more complicated in *H. imitator*), and the parameres (with several setae distributed between middle and apex in *H. blattnyi*, and with only apical setae in *H. imitator*).

Horaemorphus minor, new species (Figs. 1b, 2c,d)

Material examined. – **Holotype.** Male, two labels: “MINDANAO, 30km NW of \ MARAMAG, 13.-17. MAY \ BAGONGSILANG, 1700 m \ Bolm lgt., 1996” [yellow, printed], “*HORAEOMORPHUS \ minor* m. \ HOLOTYPUS \ det. P. JAŁOSZYŃSKI, ‘08” [red, printed] (SMNS). **Paratypes.** 1 male, same data as for holotype (SMNS); 1 male, “MINDANAO, 1-3. May \ MISAMIS OCC., 1700 m \ DON VICTORIANO \ Bolm lgt., 1996” [yellow, printed] (SMNS); paratypes additionally provided with identification labels analogous to that on the holotype, but yellow and annotated “PARATYPUS”.

Diagnosis. – This is one of the smallest species of *Horaemorphus*, remarkable by not reaching 2 mm in length; it differs from all congeners also in the following combination of characters: lateral margins of pronotum slightly, but distinctly raised in posterior part to form rounded lateral longitudinal carinae; base of pronotum without groove, with two large lateral pits and very small median pit; elytra broadest near anterior third and very strongly narrowing from broadest place toward apices; legs in males non-modified; aedeagus with strongly asymmetrical, massive internal sac.

Male. – Body (Fig. 1b) very small (length 1.78-1.93 mm, mean 1.87 mm), slender, flattened, moderately dark brown, vestiture slightly lighter than cuticle; setae on pronotum slightly darker than those on elytra.

Head broadest at moderately large, moderately convex eyes, length 0.25-0.28 mm (mean 0.27 mm), width 0.35-0.38 mm (mean 0.37 mm); tempora as long as eye in dorsal view, regularly, weakly rounded up to posterior 3/4, where

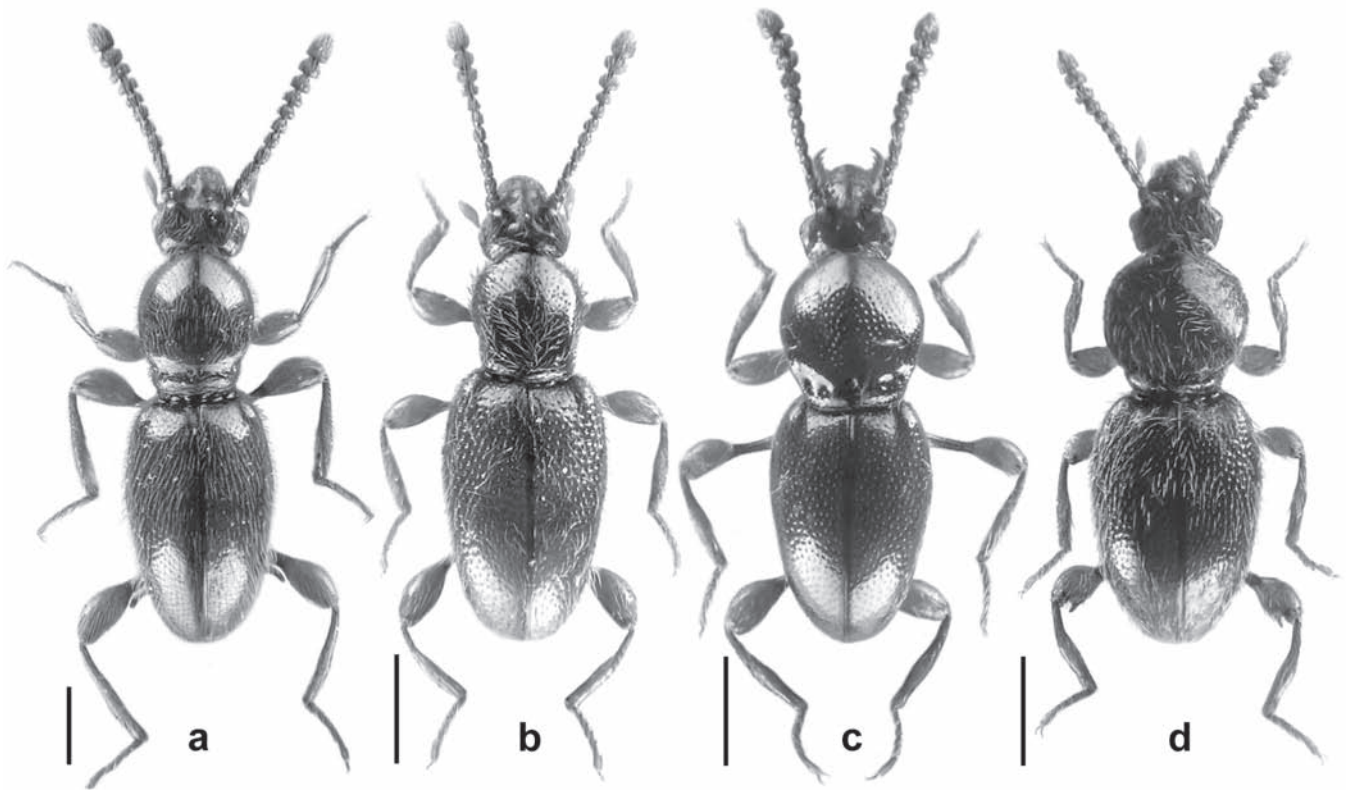


Fig. 1. Dorsal habitus of holotype males: a, *Horaeomorphus imitator*, new species; b, *Horaeomorphus minor*, new species; c, *Horaeomorphus fakfakensis*, new species; d, *Horaeomorphus samosirensis*, new species (d). Scale bar = 0.5 mm.

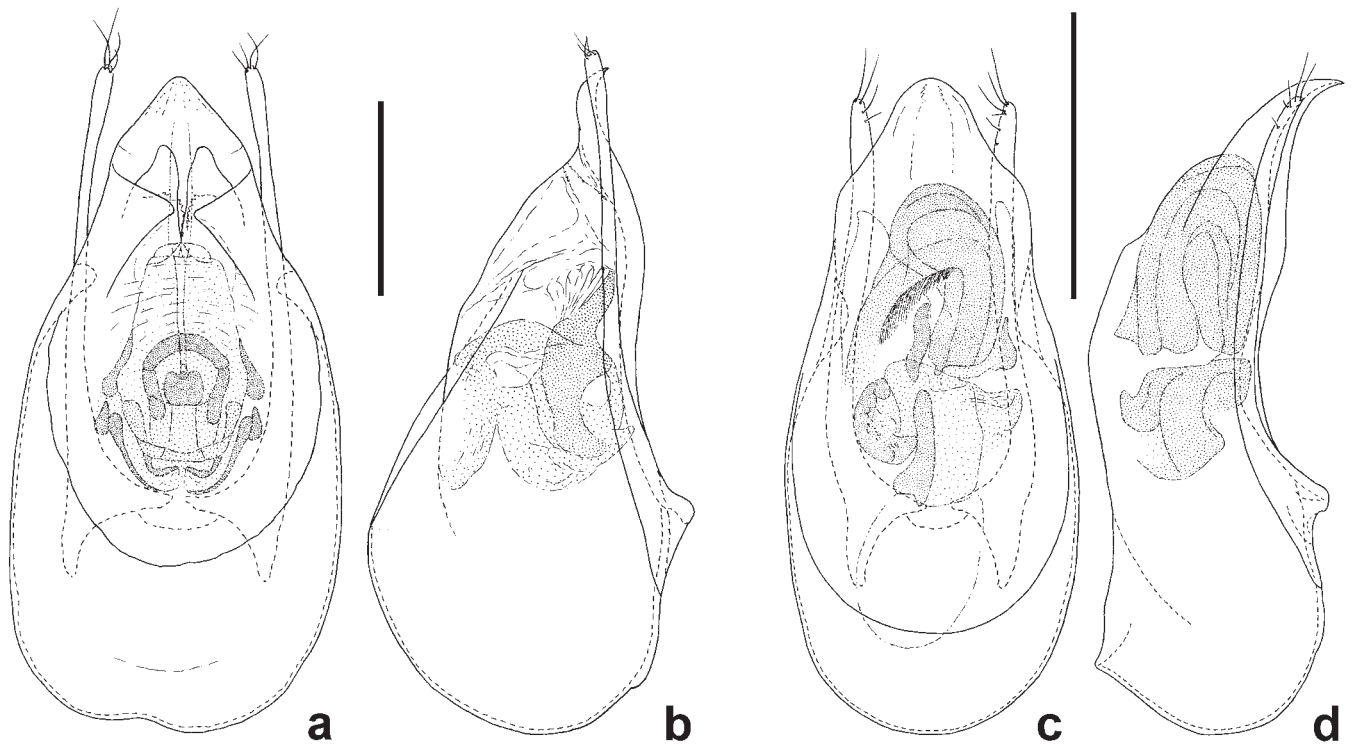


Fig. 2. Aedeagus in ventral (a, c) and lateral (b, d) views: a, b, *Horaeomorphus imitator*, new species; c, d, *Horaeomorphus minor*, new species. Scale bar = 0.2 mm.

they are strongly bent toward occipital constriction; vertex weakly convex, with pair of small but deep pits located near posterior margins of supraantennal tubercles; frons weakly convex; supraantennal tubercles very distinct, strongly raised, well delimited from frons but indistinctly delimited from vertex. Punctures on vertex very fine, barely noticeable under magnification 80 $\times$; median part of frons bears dense, moderately large, distinct punctures unevenly distributed and separated by spaces 1–3 $\times$ puncture diameters; setae moderately long, sparse, suberect to erect. Antennae moderately slender, shorter than half length of body, length 1.75–0.80 mm (mean 0.78 mm); relative lengths of antennomeres (shortest antennomere II as 1): 0.83; 1; 1.07; 0.93; 0.8; 0.77; 0.73; 0.70; 0.97; 0.83; 1.5.

Pronotum inversely subtrapezoidal, elongate, broadest at anterior third, length 0.50–0.53 mm (mean 0.52 mm), width at base 0.33 mm, maximum width 0.43–0.45 mm (mean 0.43 mm); anterior margin rounded; lateral margins rounded near broadest place, then nearly straight up to indistinct subbasal constriction separating short posterior collar; lateral margins in posterior third to half raised, forming low and rounded lateral carinae; hind angles blunt, obtuse; posterior margin weakly arcuate; base of pronotum with pair of large lateral pits and very small, indistinct median pit. Punctures very small, moderately sharply marked, but well visible under magnification 40 $\times$, unevenly distributed, those on median part of disc are separated by spaces 1–3 $\times$ as long as puncture diameters; setation moderately dense and long, suberect.

Elytra strongly elongate, drop-shaped, about as convex as pronotum, broadest near anterior third and strongly narrowing toward apices, length 1.03–1.13 mm (mean

1.08 mm), width 0.60–0.65 mm (mean 0.63 mm), EI 1.69–1.73. Base of elytra arcuate so that humeri are projected anteriorly, humeral calli weakly marked, delimited from adsutural region by short and shallow, very broad basal impressions; basal foveae indiscernible; apices of elytra separately rounded. Punctures in anterior 2/3 of elytra much more distinct than those on pronotum, large, deep and relatively sharply marked; in median part of each elytron separated by spaces distinctly shorter than puncture diameters, punctures are gradually smaller and shallower toward apices and lateral margins of elytra. Vestiture slightly longer and distinctly more suberect than that on pronotum. Metathoracic wings long, functional.

Legs non-modified.

Aedeagus (Figs. 2c, d) 0.45 mm in length; median lobe moderately slender, with subtrapezoidal apical part; internal sac strongly asymmetrical, darkly sclerotized and complicated; parameres slender, not exceeding apex of median lobe, each with 4–5 apical and subapical setae.

Female. – Unknown.

Etymology. – The name *minor* refers to the small body of this species.

Distribution. – Philippines: Provinces Bukidnon and Misamis Occidental: Mindanao Island.

Remarks. – This small, slender and flattened species can be easily distinguished from any other congeners by the asymmetrical and very large internal sac of the aedeagus. The only other species with asymmetrical internal sacs are

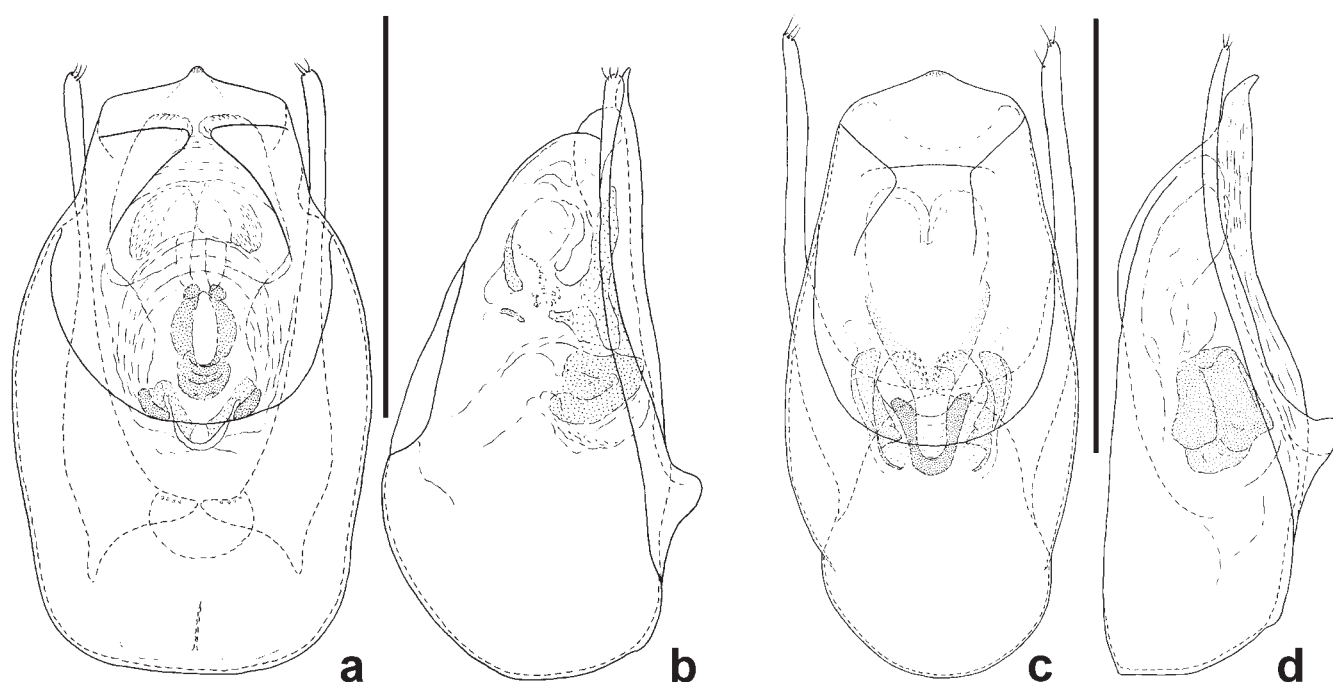


Fig. 3. Aedeagus in ventral (a, c) and lateral (b, d) views: a, b, *Horaeomorphus fakfakensis*, new species, c, d, *Horaeomorphus samosirensis*, new species. Scale bar = 0.2 mm.

H. deformatus Jałoszyński, 2006 from W Malaysia (Kuala Terengganu), and *H. pseudosabahensis* Jałoszyński, 2006 from Sabah and Sarawak. The latter species has distinctly different body form (much larger and strongly convex). *Horaemorphus deformatus* is relatively similar to *H. minor* in general body shape, but it can be easily distinguished on the basis of strongly modified metatrochanters and metafemora in males.

***Horaemorphus fakfakensis*, new species**
(Figs. 1c, 3a, b)

Material examined. – **Holotype.** Male, two labels “IRIAN JAYA:Fakfak \ Kokas Insel Ogar \ 13.VIII.1996 \ leg. SCHÜLE/STÜBEN” [pale blue, printed], “HORAEMORPHUS \ *fakfakensis* m. \ HOLOTYPE \ det. P. JAŁOSZYŃSKI, ‘08” [red, printed] (SMNS).

Diagnosis. – This moderately large *Horaemorphus* can be distinguished from all other species of the genus on the basis of the following set of characters: pronotum very broad, disc nearly circular, with relatively small oval median part covered with large, deep and dense punctures while remaining surface bears small and very shallow punctures; base of pronotum with five pits, without groove; legs non-modified.

Male. – Body (Fig. 1c) moderately large (length 2.08 mm), pronotum and elytra very broad, moderately strongly convex, dark brown, vestiture slightly lighter than cuticle.

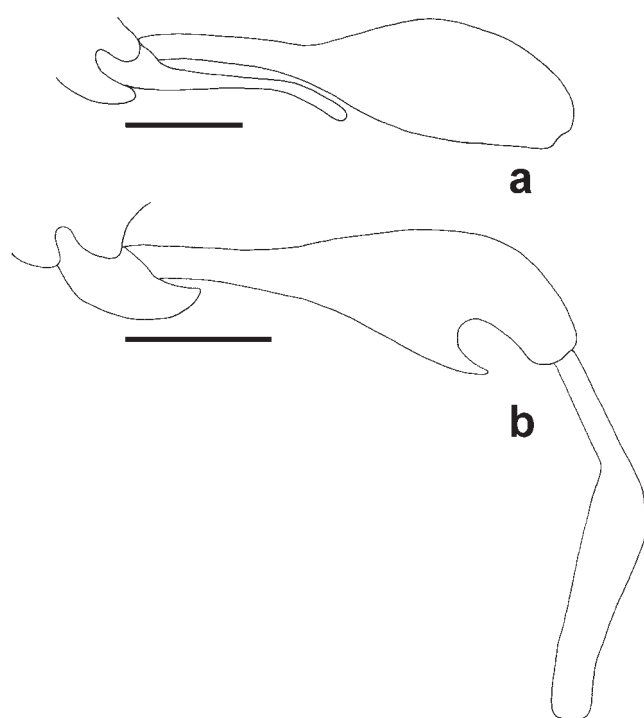


Fig. 4. Hind trochanter and femur (a), and hind trochanter, femur and tibia (b). *Horaemorphus imitator* new species (a), *Horaemorphus samosirensis* new species (b). Scale bar = 0.2 mm.

Head broadest at large, strongly convex eyes, length 0.33 mm, width 0.43 mm; tempora slightly shorter than eye in dorsal view, weakly and regularly rounded up to posterior 2/3, where they are strongly bent toward occipital constriction; vertex weakly convex, with pair of small and shallow pits located near posterior margins of supraantennal tubercles; frons weakly convex; supraantennal tubercles very distinct, strongly raised, well delimited from frons but indistinctly delimited from vertex. Punctures on vertex and frons very fine but sharply marked, very sparse, unevenly distributed, separated by spaces 4–6× as long as puncture diameters; setae moderately long, sparse, suberect to erect. Antennae moderately slender, shorter than half length of body, length 0.90 mm; relative lengths of antennomeres (shortest antennomere VII as 1): 1.59; 1.36; 1.36; 1.36; 1.36; 1.27; 1; 1.36; 1.36; 1.36; 2.27.

Pronotum very broad and nearly circular, broadest between middle and anterior third, length 0.68 mm, width at base 0.43 mm, maximum width 0.65 mm; anterior and lateral margins rounded together; subbasal constriction barely marked; hind angles obtuse and blunt; posterior margin nearly straight; posterior collar very short, delimited from disc by transverse dorsal row of five pits; median pit moderately large, deep, two lateral pairs composed of smaller and shallower pits, external ones are shifted anteriorly. Disc with median oval area densely covered with large and deep, oval or slightly irregular in shape punctures separated by spaces 1–2× as long as puncture diameters; remaining surface of disc with similarly dense, but much smaller and very shallow punctures; vestiture moderately dense and long, suberect.

Elytra oval, very broad and relatively short, as convex as pronotum, broadest near anterior fourth, length 1.08 mm, width 0.73 mm, EI 1.48. Base of elytra arcuate, so that humeri are projecting anteriorly; humeral calli moderately distinct, delimited from adsutural region by short and deep, broad basal impressions; basal foveae indiscernible; apices of elytra separately rounded. Punctures in anterior 2/3 of elytra much more distinct than those on sides of pronotum, but much smaller than those on median part of pronotal disc, separated by spaces about equal to puncture diameters; punctures become gradually smaller and shallower toward apices and lateral margins of elytra. Vestiture similar to that on pronotum but slightly longer and slightly more suberect. Metathoracic wings not studied.

Legs non-modified.

Aedeagus (Figs. 3a, b) 0.30 mm in length; relatively stout; median lobe with subtrapezoidal apical part distinctly projected in middle; internal sac relatively simple and lightly sclerotized, with small central complex; parameres slender, with apices reaching apex of median lobe, each with three very short apical setae.

Female. – Unknown.

Etymology. – Locotypical, after the type locality, Indonesian district Fakfak.

Distribution. – Indonesia (New Guinea): Irian Jaya Barat.

Remarks. – This species is most similar to *H. sarawakensis* Franz, 1992 (from W Malaysia and Borneo), *H. valdepunctatus* Franz, 1984 (W Malaysia), *H. punctatissimus* Franz, 1992 (Borneo, Sumatra and Siberut Is.), and *H. samosirensis* described below. Together with *H. fakfakensis*, these taxa share a similar body form, with very broad, nearly circular pronotum, and stout elytra. *Horaeomorphus fakfakensis* can be distinguished from *H. sarawakensis*, *H. punctatissimus* and *H. samosirensis* on the basis of nearly straight metatibiae, while those in the three species are strongly bent. *Horaeomorphus valdepunctatus*, in turn, has only slightly curved metatibiae, but metatrochanters in males are strongly modified, forming a long projection; metatrochanters in *H. fakfakensis* are non-modified. This species is the first member of the genus known to occur in New Guinea.

***Horaeomorphus samosirensis*, new species**
(Figs. 1d, 3c, d, 4b)

Material examined. – **Holotype.** Male, three labels: “NORD-SUMATRA : \ Umg. Partungkoan \ Samosir, 28.8.91” [white, printed], “1600m, Urwald, \ unt. Pinus-Rinde \ ERBER” [white, printed, middle line handwritten in black], “*HORAEOMORPHUS \ samosirensis* m. \ HOLOTYPE \ det. P. JAŁOSZYŃSKI, ‘08” [red, printed] (SMNS).

Diagnosis. – This stout and moderately large species is unique in having a hook-like ventral projection on metafemora and strongly bent metatibiae of males.

Male. – Body (Fig. 1d) moderately large (length 2.20 mm), with pronotum and elytra very broad and slightly flattened, dark brown, vestiture slightly lighter than cuticle.

Head broadest at moderately large, strongly convex eyes, length 0.38 mm, width 0.48 mm; tempora much longer than eye in dorsal view, very weakly arcuate up to posterior 4/5, where they rapidly bend toward occipital constriction; vertex weakly convex, with pair of small and very shallow pits located near posterior margins of supraantennal tubercles; posterior part of frons flattened, anterior part convex; supraantennal tubercles very distinct, strongly raised, well delimited from frons but indistinctly delimited from vertex. Punctures on vertex and frons very fine, shallow and sparse, unevenly distributed, separated by spaces 2–4x as long as puncture diameters; setae moderately long, sparse, suberect to erect. Antennae moderately slender, distinctly shorter than half length of body, length 0.88 mm; relative lengths of antennomeres (shortest antennomere VIII as 1): 1.4; 1.2; 1.24; 1.2; 1.16; 1.04; 1.04; 1; 1.2; 1.6; 2.

Pronotum very broad, nearly circular, broadest between middle and anterior third, length 0.75 mm, width at base 0.38 mm, maximum width 0.73 mm; anterior and lateral margins rounded together; posterior collar extremely short,

indistinctly separated from disc by very shallow constriction and dorsal row of three very small and shallow pits located in narrow and deep groove, median pit prolonged anteriorly by short longitudinal groove; hind angles of pronotum blunt, obtuse; posterior margin weakly arcuate. Punctures on disc small and shallow but distinct, unevenly distributed, those in middle are separated by spaces 1.5–4x as long as puncture diameters; punctures become gradually smaller and shallower toward margins of disc; vestiture sparse, moderately long, suberect.

Elytra very broad, oval, as convex as pronotum, broadest between middle and anterior third, length 1.08 mm, width 0.85 mm, EI 1.26. Base of elytra arcuate, so that humeri are projected anteriorly; humeral calli weakly marked, delimited from adsutural region by short, broad and relatively deep basal impressions; basal foveae indiscernible; each elytron is slightly impressed near suture in anterior third; apices of elytra separately rounded. Punctures in anterior 2/3 of elytra much larger, deeper and denser than those on median part of pronotum, those on adsutural impression are separated by spaces distinctly shorter than puncture diameters; punctures are gradually smaller and shallower toward apices and lateral margins of elytra. Vestiture slightly longer and more erect than that on pronotum. Metathoracic wings long, functional.

Hind legs strongly modified, as in Fig. 4b.

Aedeagus (Figs. 3c, d) 0.28 mm in length; median lobe relatively slender, with short, subtriangular apical part; internal sac simple and lightly sclerotized; parameres slender, distinctly exceeding apex of median lobe, each with three short apical and subapical setae.

Female. – Unknown.

Etymology. – Locotypical, after the type locality, Samosir Is. on Sumatra.

Distribution. – Indonesia (Sumatra), North Sumatra Prov.: Samosir Is.

Remarks. – The only species of the genus with hook-like projections on the metafemora known so far was *H. heissi* Franz, 1985 from W Malaysia (Pahang) and Indonesia (Sumatra). The latter species is distinctly different in the general body form, it is smaller, more slender and distinctly flatter than *H. samosirensis*; it also has only slightly bent metafemora, whereas those in *H. samosirensis* are strongly bent. This new species is the first *Horaeomorphus* reported to occur in an island located on a lake.

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