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New Neotropical species of the genera *Gnathymenus* SOLIER, 1849 and *Piestus* GRAVENHORST, 1806 (Coleoptera: Staphylinidae: Paederinae, Piestinae)

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Abstract

Two new species are described from Brazil: *Gnathymenus schubarti* sp.n. (Staphylinidae: Paederinae) from Rio de Janeiro, and *Piestus amazonensis* sp.n. (Staphylinidae: Piestinae) from Amazonas. Their distribution and ecology are shortly discussed.

Key words: Coleoptera, Staphylinidae, Paederinae, Piestinae, *Gnathymenus*, *Piestus*, taxonomy, new species, Brazil, South America.

Introduction

The genera *Gnathymenus* SOLIER, 1849 (Paederinae) and *Piestus* GRAVENHORST, 1806 (Piestinae) were recently reviewed for the Neotropical Region (HERMAN 1981, CARON et al. 2011). HERMAN (1981) listed 68 species of *Gnathymenus* distributed from Mexico to southern Chile. ASSING (2013, 2015) added six species, and IRMLER (2015) one species from Peru and Ecuador, which totals to a number of 75 species in the Neotropics. CARON et al. (2011) listed 44 species of *Piestus* from the same region. The present study adds one species to each of the genera. The descriptions of the two species are given with a short discussion about the species richness and geographical distribution.

Material and methods

The material studied in this investigation is deposited in the collection of the Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil, and in my collection (UIC). For the photographs of the species, a Makroskop M 420 (Wild Herbrugg) was used in combination with a digital camera (Leica EC3). CombineZ5 was used to optimise depth of focus. Length was measured as follows: head from clypeus to posterior edge, pronotum from anterior to posterior edge along midline, elytra from humeral angles to posterior edge; width was measured always at the widest part (head width includes eyes). In the measurement of total length, the abdominal intersegmental space is subtracted.

Gnathymenus schubarti sp.n.

TYPE MATERIAL: Holotype ♂: Brazil: Rio de Janeiro State, Sumaré, 15.III.1962, leg. H. Schubart (INPA). Paratype ♂, same data as holotype (UIC).

DESCRIPTION (Fig. 1a–e): Length: 2.6 mm. Colouration: dark yellow to light brown, legs and antennae yellow. Head: 0.30 mm long, 0.36 mm wide; eyes short; postocular space four times as long as eyes; slightly divergent to posterior angles; neck two thirds as wide as head at posterior angles; preocular sides 1.5 times as long as eyes; slightly convergent to base of antennae; front margin straight; setiferous punctation irregular, coarse; moderately dense; midline widely impunctate; on average, interstices between punctures as wide as diameter of punctures; close to anterior margin denser than on vertex; without microsculpture; surface polished. Antennae as long as head and half of pronotum combined; first antennomere thicker and longer than

following antennomeres; second half as long as first antennomere; third triangular and shorter than second; fourth to tenth antennomeres approximately quadrate; last antennomere thicker and as long as two preceding antennomeres; antennomeres without long setae. Pronotum: 0.43 mm long, 0.39 mm wide; widest close to middle; slightly narrowed in smooth curve to anterior and posterior angles; anterior and posterior angles obtuse; lateral margin fine, in dorsal aspect, invisible in anterior half; setiferous punctures as coarse as on head; punctation in irregular longitudinal rows; midline widely impunctate; row adjacent to midline with 9–10 punctures; at lateral margin few punctures with longer setae; without microsculpture; surface polished. Elytra: 0.27 mm long, 0.39 mm wide; humeral angles obtusely narrowed to scutellum; hind wings absent; sides slightly divergent to posterior angles; posterior angles acute; posterior margin triangularly emarginate; without distinct sutural line; in dorsal aspect, lateral margin invisible; setiferous punctation denser than on pronotum, irregular; on average, interstices between punctures half as wide as diameter of punctures; surface irregular, partly polished, partly with weak coriaceous ground sculpture, slightly less shiny than on head and pronotum. Abdomen with laterotergites; tergites as densely punctate as elytra; setiferous punctures with longer setae than on forebody; surface with transverse microsculpture; surface less shiny than forebody; male sternite VII with small, apically rounded median lobe; punctures with long setae; without any depressions or specific setae; male sternite VIII with long narrow incision; approximately two thirds as long as sternite; posterior margin rounded. Aedeagus long and slender; in ventral aspect approximately parallel in basal half; with obtuse median incision; widened in apical half; shortly in front of apex with second incision and short spoon-like, weakly sclerotised apex; at median widening with two lateral, stronger sclerotised carinae; apex transparent; in lateral aspect dorsal side evenly curved; basal half thick, weakly narrowed; in front of median incision slightly lobed; apex wide.

DIAGNOSIS: With its short elytra and short eyes, the species resembles *G. gomphus* HERMAN, 1981 (in contrast to *G. gomphus*, *G. schubarti* has no median depression on sternite VII bordered by short setae and the aedeagus is more slender and elongate), and other Chilean species with short elytra (*G. apterus* SOLIER, 1849). Additionally, the slender aedeagus resembles many of the Chilean species. It can be distinguished from these species by the specific shape of the aedeagus and the shape of the male sternite VII with the apical lobe.

ETYMOLOGY: The epithet honours Dr. H. Schubart, who collected this species.

***Piestus amazonensis* sp.n.**

TYPE MATERIAL: Holotype ♀: Brazil, Amazonas State, Amazonas (Solimões) River, Ilha Marchanteria, 3°15'S 59°58'W, Várzea forest, 18.V.1981, leg. J. Adis (INPA). Paratype ♀: Brazil, Amazonas State, Amazonas (Solimões) River, Ilha de Curarí, 3°18'S 60°9'W, Várzea forest, tree trap, X.1971, leg. U. Irmler (UIC).

DESCRIPTION (Fig. 1f, h, j): Length: 4.3 mm. Colouration: Black; posterior half of abdominal segment VIII reddish; legs dark reddish-brown; antennomeres black, except second and third dark brown.

Head: 0.48 mm long, 0.79 mm wide; eyes semi-circularly prominent; temples short, one tenth as long as eyes; preocular sides to base of antennae at least twice as long as temples; clypeus triangular, less elevated than vertex, margined posteriad by concave line; vertex between eyes impressed, coriaceously punctate, punctures elongate, interstices between punctures forming small ridges; punctures on posterior vertex more striate than on clypeus; in front of eyes interstices between punctures slightly wider and punctures not striate; surface matt. Antennae distinctly longer than head, pronotum and elytra combined; first antennomere thicker than following antennomeres; first antennomere with two thick apical setae at inner side of dorsal face; second antennomere slightly shorter than first; third approximately as long as second;

following antennomeres distinctly longer than second and third, increasing in width; fourth to eleventh approximately twice as wide as long; all antennomeres pubescent and with short apical setae. Pronotum: 0.75 mm long, 1.08 mm wide; widest in middle; sides with large acute teeth; anterior tooth marking apical angle, pointing anteriad; posterior teeth slightly shorter than anterior teeth, pointing laterad; distance between teeth approximately equal, except fifth tooth; interstice between fourth and fifth teeth shorter than between the anterior teeth; posterior third without teeth; concavely narrowed to obtuse posterior angles; anterior margin sinuate; central part prominent; posterior margin less sinuate; coriaceously punctate; interstices between punctures reduced to small ridges; all punctures circular; not elongate as on head; surface matt. Elytra: 0.94 mm long, 1.17 mm wide; sides parallel; humeral and posterior angles rounded; disc with six carinae on each side of suture; interstices between carinae rugosely punctate; punctures large, as wide as interstices; lateral margin carinate; surface matt. Abdomen coarsely and rugosely punctate; punctures large. Spermatheca: seminal bulb approximately circular; slightly cuspidate at apex; short thinner duct combining apical bulb with elongate thicker duct.

Male unknown.

DIAGNOSIS: This species is easy to recognize by the five acute pairs of teeth on the pronotum. The similar *P. aper* SHARP, 1876 from the same region has only three teeth (Fig. 1g, i). Moreover, the teeth are wider and more obtuse. Further differences are the longer antennae, which are distinctly longer than the forebody, whereas they are only slightly longer than the forebody in *P. aper*. The punctation of the head is more longitudinally striate in *P. aper* than in *P. amazonensis* and the spermatheca is divided between the globose apex and the base by a short duct. Only few other Neotropical *Piestus* species have pronotal teeth, e.g. *P. angularis* FAUVEL, 1864 or *P. acuminatus* CARON, RIBEIRO-COSTA & NEWTON, 2011. In all these species, there are fewer pronotal teeth, which are shorter.

ETYMOLOGY: The epithet refers to the Brazilian state of Amazonas, where this species was collected.

Discussion

Including the newly described species, *Gnathymenus* and *Piestus* include 76 species and 45 species, respectively. Regarding the distribution of the genus *Gnathymenus*, the large gap in the Amazonian lowland rainforest is obvious. Only one species, *G. plancus* HERMAN, 1981, seems to inhabit this region. The new species, *G. schubarti*, supports this specific distribution, because it was collected in the Atlantic Forest in southeastern Brazil. Thus, in this region ten species are currently known. Like several other species of the region, *G. schubarti* has short elytra and no hind wings, which indicates that it lives in the soil litter of the rainforest and has low dispersion ability. All *Gnathymenus* species have a very restricted distribution and were found usually in only few specimens (HERMAN 1981). A restricted distribution to the Atlantic Forest of South America is therefore also assumed for *G. schubarti*.

In contrast to *Gnathymenus*, many *Piestus* species are widely distributed in the Neotropics, e.g. *P. sulcatus* GRAVENHORST, 1806, which occurs from Nicaragua to southern Brazil. *Piestus amazonensis* is most closely related to *P. aper*, which is known from Panama to Paraguay. According to CARON et al. (2011) it lives in rainforest litter. *Piestus amazonensis* is known only from the Várzea forest along the Solimões/Amazon River. This type of forest is immerged for nearly half a year. As one specimen was found in a tree trap fixed approximately two meters above the ground, it can be supposed that this species lives in the canopy of the inundation forest and might come down only during the low water period.

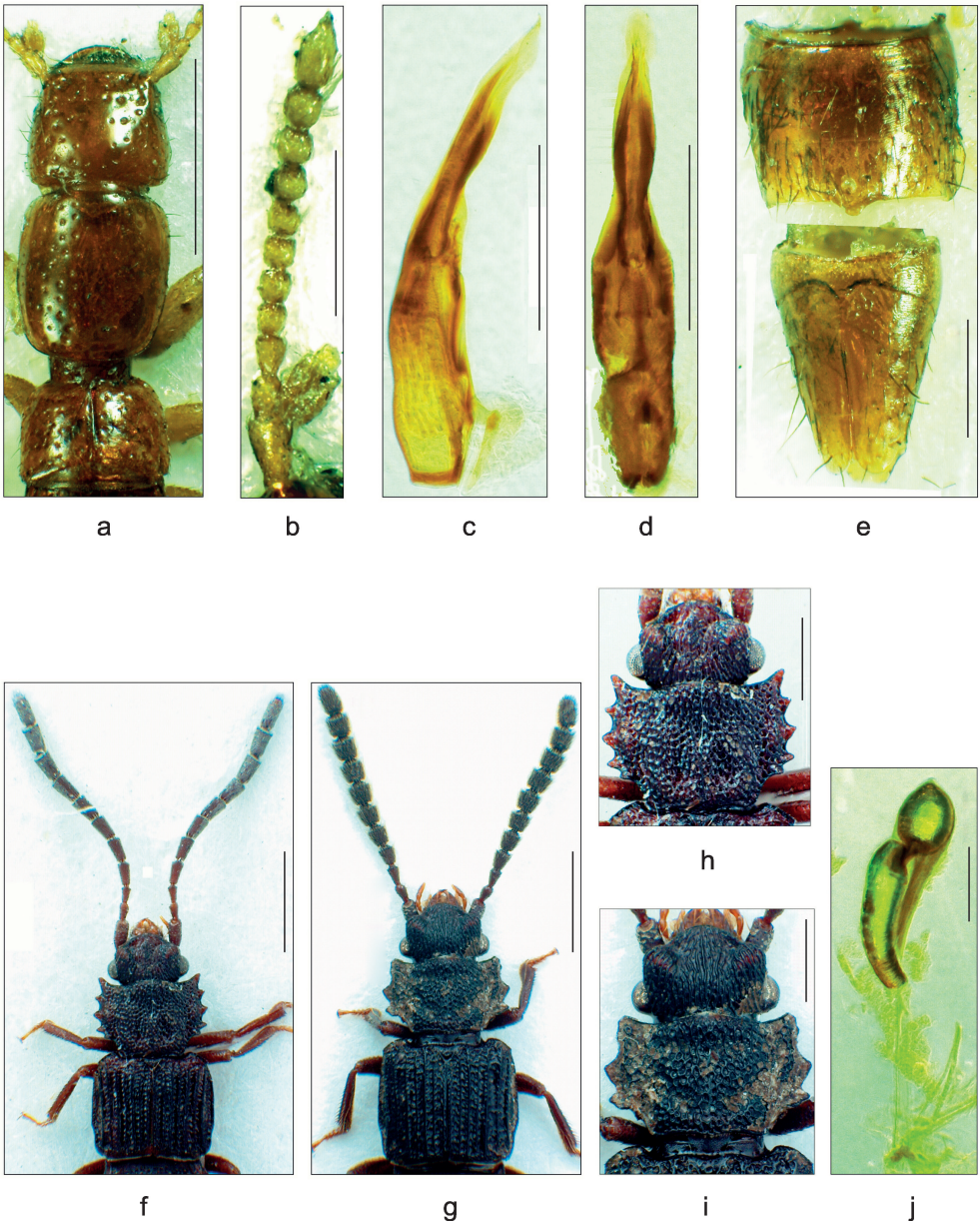

Fig. 1: *Gnathymenus schubarti*, holotype: a) forebody, b) antenna, c) aedeagus in lateral aspect, d) same, ventral aspect, e) abdominal sternites VII and VIII; *Piestus amazonensis*, holotype: f) forebody, h) head and pronotum, j) spermatheca; *P. aper*: g) forebody, i) head and pronotum. Scales: f– g: 1.0 mm; a, h–i: 0.5 mm; b–e: 0.2 mm; j: 0.1 mm.

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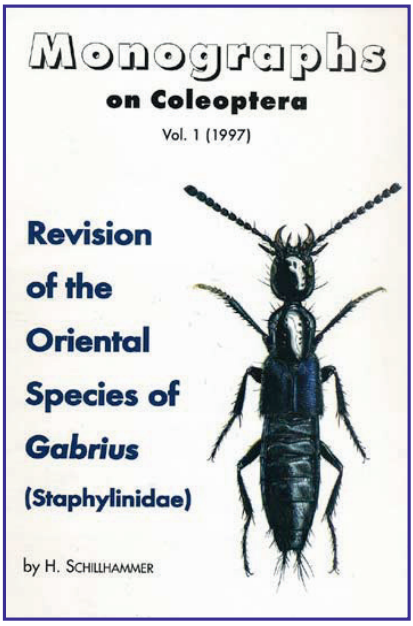

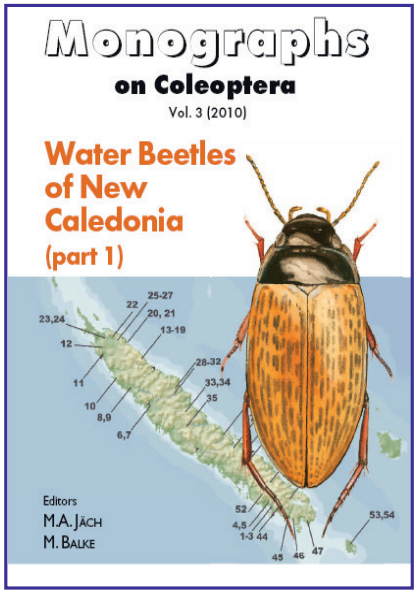

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