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Two new species of the millipede genus *Platyrhacus* C.L. Koch, 1847 from Vietnam (Diplopoda: Polydesmida: Platyrhacidae)

Два новых вида диплопод рода *Platyrhacus* C.L. Koch, 1847 из Вьетнама (Diplopoda: Polydesmida: Platyrhacidae)

Sergei I. Golovatch[1] & Nguyen Duc Anh[2]
С.И. Головач[1], Нгуен Дык Ань[2]

[1]Institute for Problems of Ecology and Evolution, Russian Academy of Sciences, Leninsky pr. 33, Moscow 119071 Russia. E-mail: sgol@orc.ru or sgolovatch@yandex.ru
Институт проблем экологии и эволюции РАН, Ленинский пр., 33, Москва 119071 Россия.
[2]Institute of Ecology and Biological Resources, Caugiay, Hanoi, Vietnam. E-mail: ndanh006@iebr.vast.ac.vn
Институт экологии и биологических ресуров, Каужаи, Ханой, Вьетнам

KEY WORDS: Diplopoda, *Platyrhacus*, new species, Indochina, Vietnam.
КЛЮЧЕВЫЕ СЛОВА: Diplopoda, *Platyrhacus*, новый вид, Индокитай, Вьетнам.

ABSTRACT. All earlier reports of *Platyrhacus marginellus* Silvestri, 1895 from Indochina are shown to have been misidentifications. This species is redescribed from the holotype from Sumatra, Indonesia. All previous records of *Platyrhacus* in Vietnam actually concern *P. similis* sp.n., a species apparently confined to south-central and central Vietnam. A different congener, *P. borealis* sp.n., lives in North Vietnam.

РЕЗЮМЕ. Показано, что все прежние сообщения о присутствии вида *Platyrhacus marginellus* Silvestri, 1895 в Индокитае ошибочны. Этот вид переописан по голотипу из Суматры (Индонезия). Все прошлые находки *Platyrhacus* во Вьетнаме на самом деле относятся к *P. similis* sp.n., очевидно, приуроченному к Центральному и Юго-Центральному Вьетнаму. Еще один вид, *P. borealis* sp.n., живет в Северном Вьетнаме.

Introduction

The millipede family Platyrhacidae comprises nine tribes, more than 40 genera, and numerous species [Hoffman, 1980]. Platyrhacids are characterised by the pervasive simplicity of the male genitalia, in which the telopodite typically carries one to five subapical processes [Hoffman, 2001]. *Platyrhacus* C.L. Koch, 1847 is the largest genus of Platyrhacidae, with several dozen species restricted to the area covering southern Myanmar, Indochina, Hainan Island, Malaya, Java and Sumatra [Hoffman, 1980]. *Platyrhacus* is considered as a heterogeneous assemblage of Oriental species [Jeekel, 2006] that show a very simple gonopod with only two developed branches of the telopodite [Hoffman, 1984, 2001].

Only a single species of this genus, as well as of the entire family Platyrhacidae, has heretofore been reported from Vietnam, i.e. *P. marginellus* Silvestri, 1895. It was originally described highly superficially from Sumatra [Silvestri, 1895], but later recorded in continental Malaya (Gunong Inas, Perak State, Malaysia) [Sinclair, 1901] and Indochina (Lamdong and Phuyen provinces, Vietnam and Xieng Kuang, Laos) [Attems, 1938a, 1953].

P. bouvieri Brölemann, 1896, the only Indochinese congener, which was considered as dubious by Attems [1938b], is known from near Nakon-Naiok (= Nakhon Nayok), central Thailand [Brölemann, 1896, 1904]. This species once was erroneously referred to the fauna of southern Vietnam [Enghoff et al., 2004], but Enghoff [2005] has since corrected the mistake.

We have recently been able to amass and study some old and new material of *Platyrhacus* from Vietnam and elsewhere. To reveal the identity of *P. marginellus*, its holotype has been revised, received on loan from the Museo Civico di Storia Naturale di Genova (MCSNG), Italy. The holotype of *P. bouvieri*, as well as the Vietnamese material which Attems [1938a] referred to *P. marginellus*, all in the collection of the Muséum national d'Histoire naturelle in Paris (MNHN), France, have likewise been re-examined. As a result, all of the Vietnamese samples, including some fresh material, appear to belong to two new species different both from *P. marginellus* and *P. bouvieri*.

The present paper provides descriptions of these new congeners, both certainly among the largest millipedes of the order Polydesmida occurring in Vietnam. Redescriptions of *P. marginellus* and *P. bouvieri* are also given for comparative purposes.

Most of the fresh material studied, including a few paratypes and all non-types, is kept at the Institute of Ecology and Biological Resources (IEBR), Hanoi, Vietnam. One, yet the largest, sample, including the holotype of a new species, belongs to the collection of the Zoological Museum of the Moscow State University

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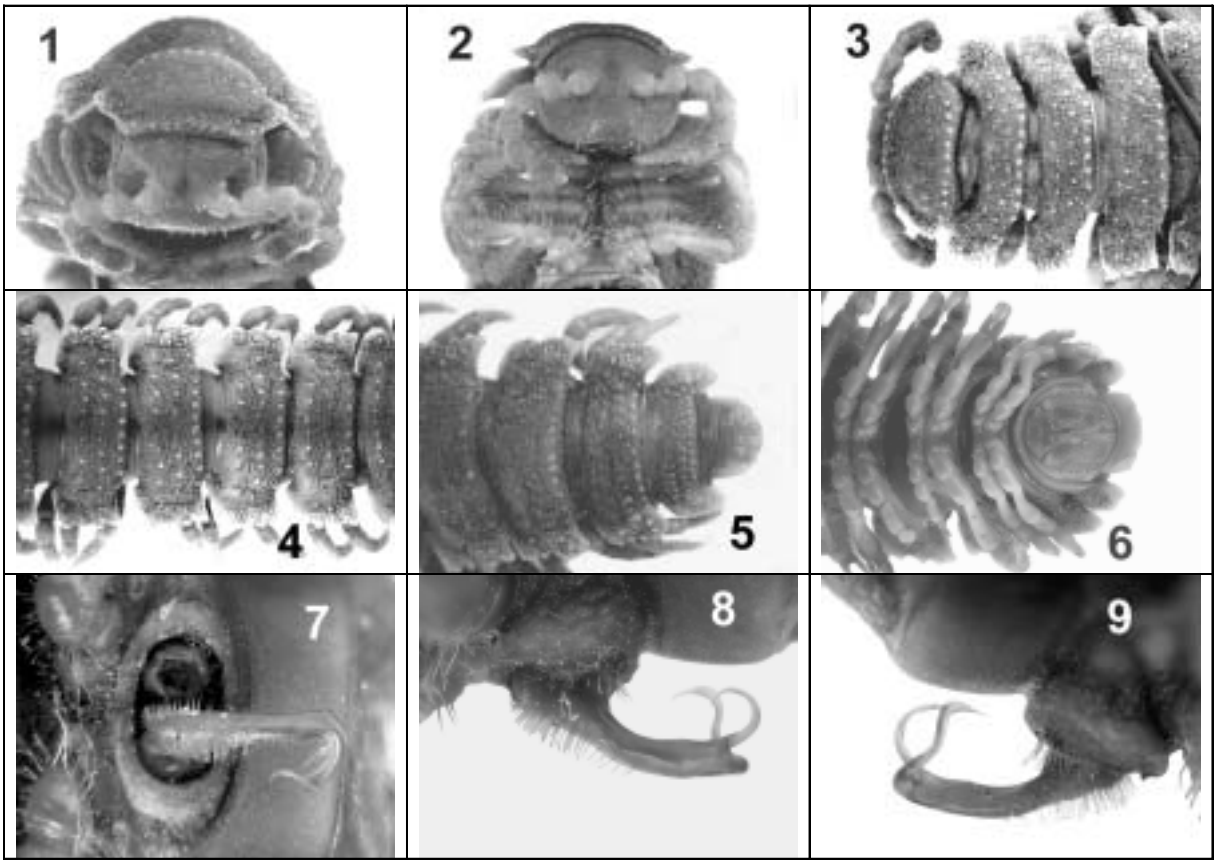


Figs 1–9. *Platyrhacus marginellus* Silvestri, 1895, ♂ holotype: 1–3 — anterior body portion, frontal, ventral and dorsal views, respectively; 4 — midbody segments, dorsal view; 5 & 6 — caudal body portion, dorsal and ventral views, respectively; 7–9 — left gonopod *in situ*, ventral, mesal and lateral views, respectively. Without scale.

Рис. 1–9. *Platyrhacus marginellus* Silvestri, 1895, голотип ♂: 1–3 — передняя часть тела, соответственно спереди, снизу и сверху; 4 — среднетуловищные сегменты, вид сверху; 5 и 6 — задняя часть тела, соответственно сверху и снизу; 7–9 — левый гонопод *in situ*, соответственно снизу, изнутри и сбоку. Без масштаба.

(ZMUM), Moscow, Russia, with one paratype donated to the Zoological Museum of the Copenhagen University (ZMUC), Denmark. One more paratype of the same new species is in the collection of the Museum and Institute of Zoology, Polish Academy of Sciences (MIZW), Warsaw, Poland. In addition, several old samples, all misidentified as representing *P. marginellus* [Attems, 1938a], but actually concerning the other new species, including its holotype, are in the MNHN collection, with two paratypes donated to ZMUM.

Taxonomic part

FAMILY PLATYRHACIDAE (POCOCK, 1895)

Genus *Platyrhacus* C.L. Koch, 1847

Platyrhacus marginellus Silvestri, 1895
Figs 1–9.

Platyrhachus (sic!) *marginellus* Silvestri, 1895: 735.

Non *Platyrhacus marginellus*: Sinclair, 1901: 511.

Nec *Platyrhacus marginellus*: Attems, 1938a: 241; Attems, 1938b: 216 (pro parte); Attems, 1953: 179.

MATERIAL. HOLOTYPE ♂ (MCSNG), Indonesia, Sumatra: Siboga, April 1886, leg. E. Modigliani.

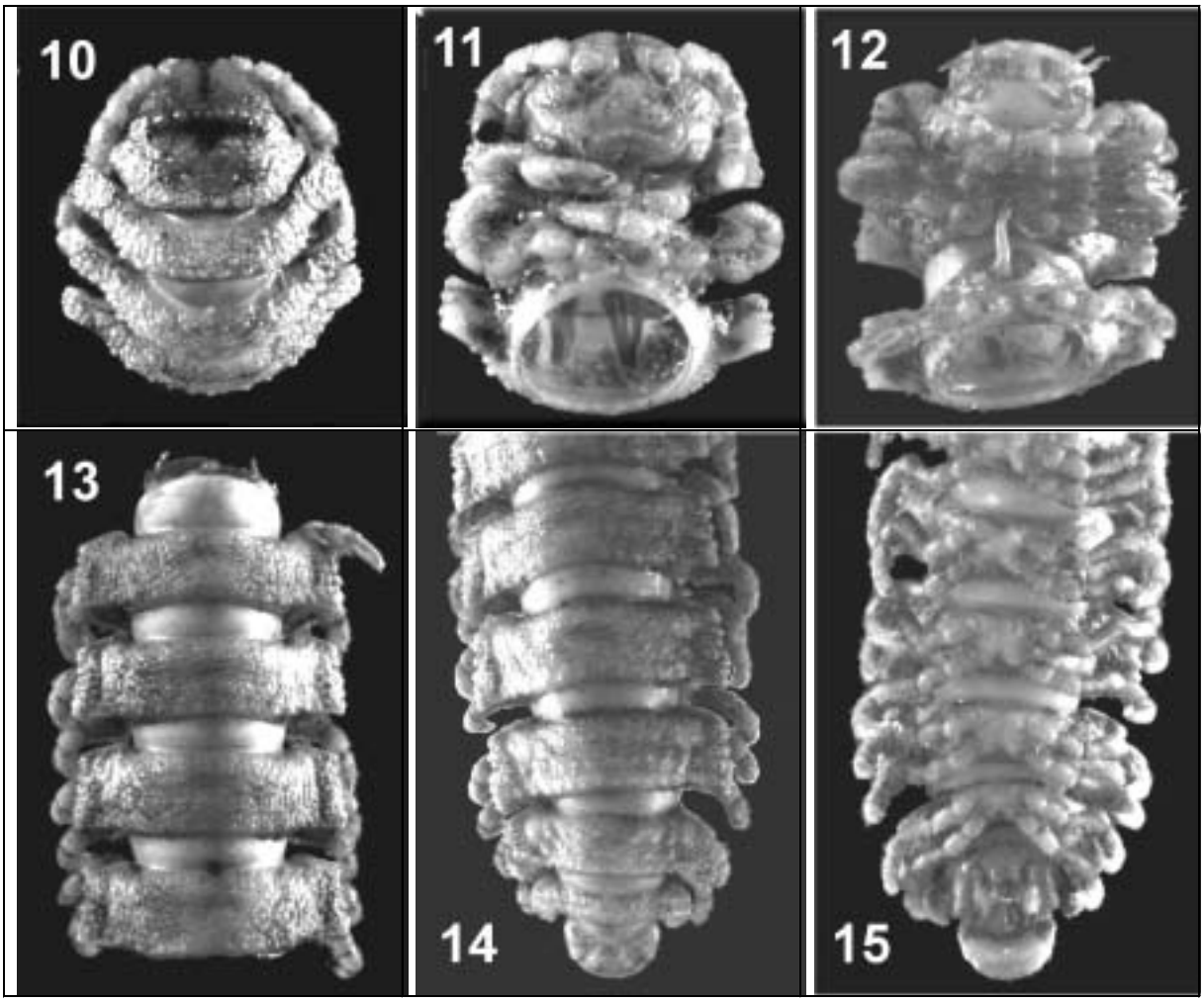
DESCRIPTION. Body large, length *ca* 50 mm, width of midbody metazona 7.6 mm.

Coloration originally described as intensely black, but currently grey-brown, apparently faded after >130 years of preservation in alcohol. Edges of paraterga and of epiproct, larger tubercles on collum and metaterga, as well as ozopore discs pale yellowish; legs, venter and antennomeres 1–4 and 7 pale brown.

Head finely and densely microgranular (Figs 1 & 2), with 2+2 supra-labral and 5+1+5 labral setae in bundles. Epicranial suture rather shallow but evident (Figs 1 & 2). Frons convex and prominent.

Collum transversely subelliptic in shape, convex middorsally, anterior edge rather flat, not elevated (Figs 1–3). Surface finely microgranular much like that of head. Anterior and posterior margins of collum each with a row of obvious, larger, rounded, flat grains and with two less distinct rows in-between. Paraterga of collum small, set rather low, rounded, granular and druse-shaped.

Antennae strong, short and stout, microgranular, submoniliform (Figs 1–3), reaching somite 3; antennomere 6 longest, but only a little longer than each of subequal antennomeres 2 to 5; antennomere 7 shortest; apex of antenna with four distinct sensory cones.



Figs 10–15. *Platyrhacus bouvieri* Brölemann, 1896, ♂ holotype: 10 & 11 — anterior body portion, dorsal and ventral views, respectively; 12 — segments 5–7, ventral view; 13 — midbody segments, dorsal view; 14 & 15 — caudal body portion, dorsal and ventral views, respectively. Without scale.

Рис. 10–15. *Platyrhacus bouvieri* Brölemann, 1896, голотип ♂: 10 и 11 — передняя часть тела, соответственно сверху и снизу; 12 — сегменты 5–7, вид снизу; 13 — среднетуловищные сегменты, вид сверху; 14 и 15 — задняя часть тела, соответственно сверху и снизу. Без масштаба.

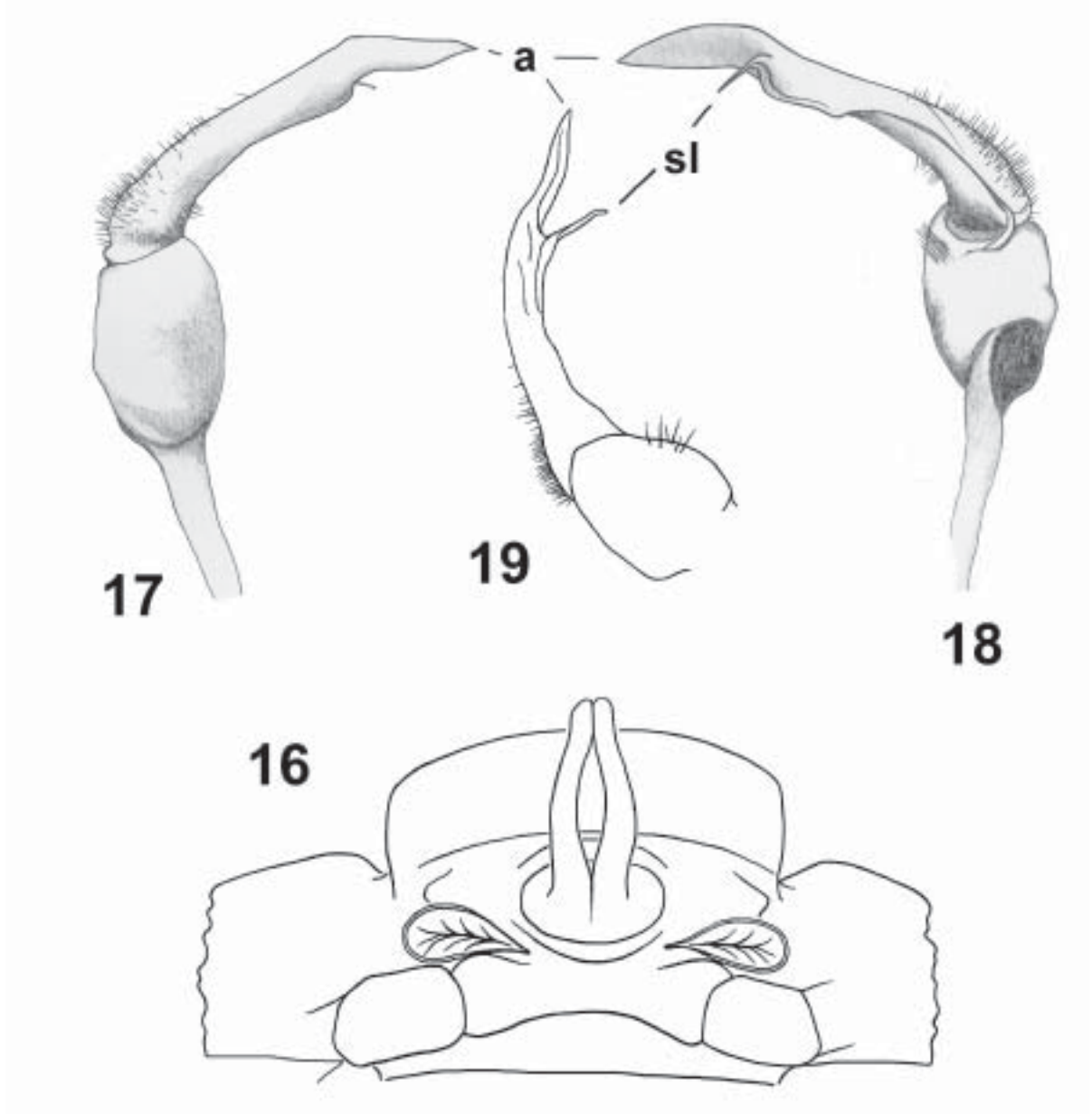
Body parallel-sided on segments 4–16, thereafter gradually tapering. Paraterga subhorizontal, mostly subrectangular in shape, lying at about 1/3 of midbody height (Figs 3–5). Surface of metaterga evidently microgranular, each metatergum also with three, rather regular, transverse rows of 4–6+4–6, rounded, flat, larger tubercles/knobs. Number of the knobs per row gradually increasing toward telson, none of the rows being demarcated by a sulcus. Lateral halves of paraterga slightly elevated, more coarsely granular, set off from paramedian halves by an indistinct sulcus. Lateral margin of paraterga with 4–6 distinct lobules/tubercles, up to serrulate (Figs 3–6). Anterior part of paraterga with a distinct shoulder, front corner mostly subrectangular, rounded. Caudal corner of paraterga always rounded, never pointed, of 2–4 obtusangular, of 5–8 subrectangular, onward increasingly acutangular and narrowly rounded, of 18 and 19 broadly rounded, flap-shaped and surpassing the rear tergal contour.

Pore formula normal. Ozopores obvious, disc-shaped, lying dorsally at about middle of paraterga at a distance of about ozopore diameter off lateral edge.

Surface of prozona delicately shagreened, that below paraterga microgranular. Front and caudal edges of paraterga microdenticulate. Metazona convex mid-dorsally (Figs 3–5). Stricture between pro- and metazona rather deep, distinct, striolate at bottom. Axial line missing. Pleurosternal carinae poorly developed, present as a low granular tubercle near rear coxa on each of segments 3–15, thereafter virtually fully reduced. Stigmata large. Limbus thin and entire.

Epiproct typical of Platyrhacidae, spatuliform, most of its few caudal setae in bundles (Figs 5 & 6). Paraprocts also with setae in bundles, distal pair being a little closer to midline than proximal one. Subanal scale (= hypoproct) with a caudomedially convex margin and 1+1, large, setigerous, paramedian knobs.

Sterna with 1+1 ventral tubercles near coxae, these tubercles being especially well-developed on segments 3–8, onward increasingly obliterate. Legs about 1.5 times as long as midbody height, femora being longest; legs especially densely setose, and both tibiae and tarsi with ventral brushes, until segment 8, thereafter the setation gradually thinning out.



Figs 16–19. *Platyrhacus bouvieri* Brölemann, 1896, ♂ holotype: 16 — segment 7, ventral view; 17–19 — right gonopod, lateral, mesal and subdorsal views, respectively. Without scale.

Рис. 16–19. *Platyrhacus bouvieri* Brölemann, 1896, голотип ♂: 16 — сегмент 7, вид снизу; 17–19 — правый гонопод, соответственно сбоку, изнутри и почти сверху. Без масштаба.

Gonopods relatively simple, biramous just after a clear-cut telopodite geniculation, each branch being long, pointed and curved (Figs 7–9). Solenomere slightly longer than acropodite.

REMARKS. Attems [1938b] not only uncritically accepted Sinclair's [1901] record of this species in continental Malaysia, but he [1938a, 1953] also identified several samples from Vietnam and Laos as representing *P. marginellus*. Some of these samples are described below as belonging to a new species.

Platyrhacus bouvieri Brölemann, 1896
Figs 10–19.

Platyrrhachus Bouvieri (sic!) Brölemann, 1896: 333.
Platyrrhacus Bouvieri (sic!): Brölemann, 1904: 11.
Platyrhacus bouvieri: Attems, 1938b: 229.

MATERIAL. HOLOTYPE ♂ (MNHN JB20), Siam, leg. M. Pavie, 8965-86 [Thailand, Nakon-Naiok (= Nakhon Nayok), leg. A. Pavie].

DESCRIPTION. Many characters like in *P. marginellus*, except as follows.

Body large, length *ca* 47 mm, width of midbody metazona 10.0 mm.

Coloration originally described as uniformly cinnamon brown, but currently light yellow-brown, apparently faded after >120 years of preservation in alcohol. Head, antennae, legs and metaterga pale brown.

Head finely and densely microgranular (Figs 10 & 11), with 2+2 supra-labral and 6+1+6 labral setae in bundles. Epicranial suture evident but not too deep (Fig. 11). Frons poorly convex, with a pair of flat, oblong-oval, transverse and distinctly granular tubercles laterally in front of incisure.

Collum transversely subhexagonal in shape, much like in *P. marginellus*, but flattened mid-dorsally; anterior edge rather flat, not elevated (Fig. 10). Surface finely microgranular much like that of head. A regular row of 7+7 rather obvious, larger, rounded, flat grains behind anterior margin of collum, followed by a very shallow transverse impression; a similar but shorter and less regular row of 4+4 larger grains in front of posterior margin of collum, without evident transverse rows of larger grains in-between. Paraterga of collum very small, subtriangular, well rounded, granular and druse-shaped, set especially low.

Antennae strong, short and stout (Fig. 11), like in *P. marginellus*.

Body parallel-sided on segments 4–16, thereafter gradually tapering. Paraterga slightly declined ventrad, lying slightly above 1/2 of midbody height. Surface of metaterga evidently microgranular, with 4–6+4–6 larger round grains, all only barely larger than others, arranged in two (near anterior and posterior margins on metaterga 2–12) or three (near anterior and posterior margins, as well as in the middle on metaterga 13–19) more or less regular rows better visible laterally and nearly fully obliterated middorsally (except for metaterga 16–19) (Figs 10, 13 & 14). Number of the larger grains per row gradually increasing toward telson, none of the rows being demarcated by a sulcus. Lateral halves of paraterga only very slightly elevated, more coarsely granular, set off from paramedian halves by an indistinct sulcus (Figs 13 & 14). Lateral margin of paraterga with 4–6 rather distinct lobules/tubercles, up to serrulate (Figs 13 & 14). Anterior part of paraterga usually with a distinctly rebordered and non-denticulate shoulder; front corner usually narrowly rounded to nearly pointed, only of 2, 3 and 19 evidently rounded, of 4 and 5 subrectangular and narrowly rounded, onward increasingly obtusangular and nearly pointed (except for 19th) (Figs 10–15). Caudal corner of paraterga mostly nearly pointed, of 2 and 3 obtusangular and evidently rounded, of 4 and 5 subrectangular, onward increasingly acutangular but never claw-shaped, of 18 and 19 broadly rounded and flap-shaped, surpassing the rear tergal contour only on paraterga 17–19 (Figs 10–15).

Ozopores usual, disc-shaped, lying dorsally at about 1/2 (until midbody segments) to 2/3 (thereafter) of paraterga at a distance of about ozopore diameter off lateral edge (Figs 13 & 14).

Surface of prozona very delicately shagreened, that below paraterga microgranular. Metazona mostly convex middorsally (Figs 13 & 14). Stricture between pro- and metazona rather deep, distinct, striolate at bottom. Axial line missing. Pleurosternal carinae poorly developed, present as a tooth to grain near rear coxa on each of segments 3–15, thereafter virtually fully reduced. Stigmata large. Limbus thin and entire.

Epiproct spatuliform, most of its few caudal setae in bundles, dorsally with two very low paramedian ridges (Fig. 14). Paraprocts also with setae in bundles, distal pair being a little closer to midline than proximal one. Subanal scale (= hypoproct) with a caudomedially truncated margin and 1+1 large paramedian knobs, each supporting setae in a bundle (Fig. 15).

Sterna with 1+1 ventral tubercles near coxae, these tubercles being especially well-developed on segments 3–10(11), onward increasingly obliterate. Legs about 1.2 times as long as midbody height, femora being longest; both tibiae and tarsi without ventral brushes.

Gonopods relatively simple, biramous, *in situ* placed as in Figs 12 and 16; solenomere (sl) subflagelliform, about twice as short as a somewhat broadened but terminally pointed acropodite (a) (Figs 17–19).

REMARKS. Attems [1938b] must have only been aware of Brölemann's [1896] all too short original description of *P. bouvieri*, not of his later [1904], detailed and nicely illustrated redescription. Otherwise Attems would not have listed it among the inadequately described *Platyrhacus* species.

The new description above is only meant to put together the most important specific characters in a more standard way, as well as to correct a few errors (e.g. the absence of pleurosternal denticles or knobs). In addition, as the 1904 paper by Brölemann is still difficult to obtain, his beautiful original drawings are reproduced here as Figs 16–19.

Platyrhacus borealis **sp.n.**
Figs 20–30.

(?) *Platyrhacus marginellus*: Attems, 1953: 179.

MATERIAL. HOLOTYPE ♂ (ZMUM), Vietnam, Vinhphuc Prov., Tamdao, *ca* 120 km N of Hanoi, 800–1200 m a.s.l., subtropical rainforest, 12–22.04.1986, leg. S.I. Golovatch.

PARATYPES: 10 ♂♂, 3 ♀♀ (ZMUM), 1 ♂ (ZMUC), same locality and date, together with holotype; 2 ♂♂, 1 ♀ (IEBR), same locality, Tamdao National Park, 05.2005, leg. Nguyen Duc Hiep; 1 ♀ (MIZW), same locality, 06.04.1997, leg. W. Jêdryczkowski.

NON-TYPES: 1 ♂, 1 ♀ (IEBR) Vietnam, Laocai Prov., Vanban District, Namxay County, bamboo forest, 900–1000 m a.s.l., 31.03.2005, leg. Nguyen Duc Anh.

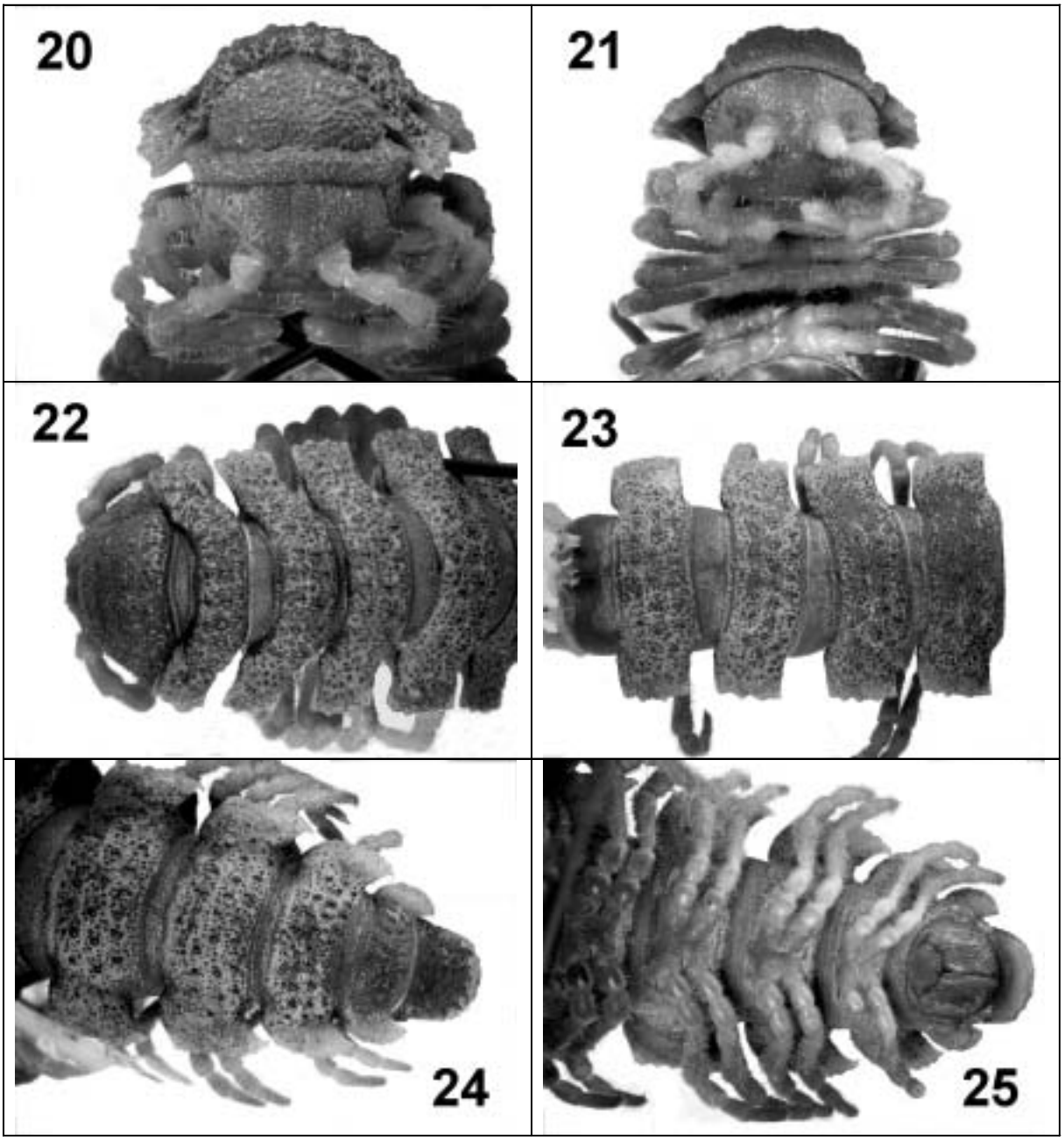
DIAGNOSIS. Differs from congeners by a combination of characters, such as the usually very evident and wide front ridge on the collum, the mostly rib-shaped and dark larger knobs on the metaterga, the large body size, the absence of ventral brushes on ♂ tibiae and tarsi, etc. By its gonopod and leg structure, as well as geographically, the new species seems to be especially close to *P. bouvieri*, but differs well in the presence of a prominent anterior ridge on the collum and of rib-shaped, not rounded, evidently larger grains/knobs on the metaterga, these grains being arranged in three rows on all metaterga, of the caudally spiniform paraterga of the posterior body half, of the slightly shorter and stouter gonopod acropodite, etc. [Brölemann, 1904].

NAME. To emphasize this probably one of the northernmost congeners. In addition, it seems to be restricted to the montane regions of northern Vietnam, being replaced by another species in central and south-central Vietnam.

DESCRIPTION. Many characters like in *P. marginellus*, except as follows.

Body large, length 50–65 mm (♂, ♀). Width of midbody pro- and metazona 4.5–8.5 and 8.5–11.5 mm (♂), 6.5-10.5 and 10.0–14.5 mm (♀), respectively. Holotype *ca* 55 mm long and 9.0 mm wide.

Coloration of ♂ generally black-brown, dark red-brown or grey-greenish, edges of paraterga and of epiproct slightly



Figs 20–25. *Platyrhacus borealis* sp.n., ♂ paratype: 20–22 — anterior body portion, frontal, ventral and dorsal views, respectively; 23 — midbody segments, dorsal view; 24 & 25 — caudal body portion, dorsal and ventral views, respectively. Without scale.

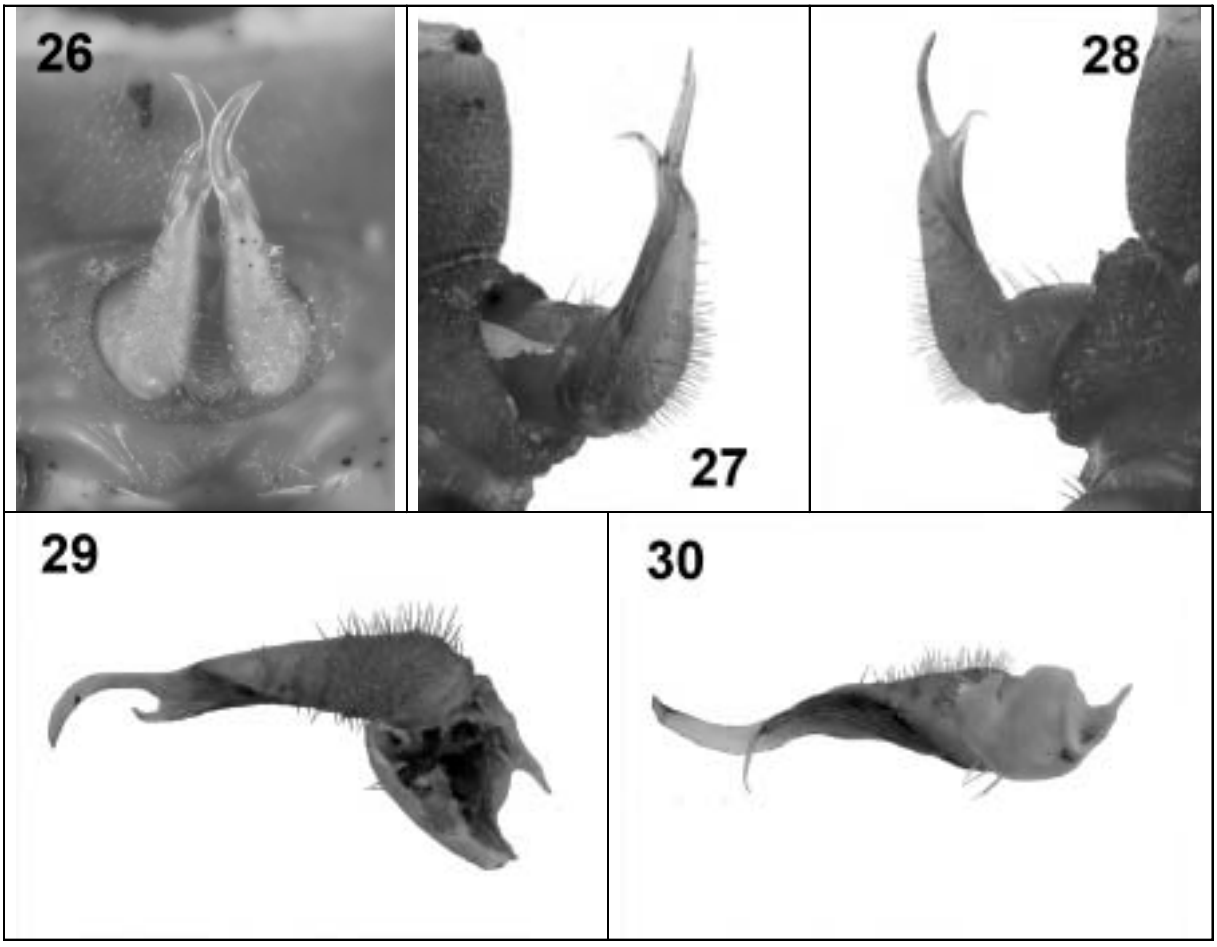
Рис. 20–25. *Platyrhacus borealis* sp.n., паратип ♂: 20–22 — передняя часть тела, соответственно спереди, снизу и сверху; 23 — среднетуловищные сегменты, вид сверху; 24 и 25 — задняя часть тела, соответственно сверху и снизу. Без масштаба.

paler, grey- to yellow-brown; legs and antennomeres grey-brown to yellow; ♀ dark grey-brown to yellow-brown. All podomeres usually yellow except for brown tibiae and tarsi. Coloration of antennomeres 5 and 6 darker brown, other antennomeres yellow. Sterna yellow to reddish brown.

Head finely and densely microgranular (Figs 20 & 21), with 2+2 supra-labral and 5–6+5–6 labral setae in bundles. Epicranial suture mostly lineiform, rather deep and evident (Figs 20 & 21).

Collum helmet-shaped, with an evident and convex ridge frontally, distinctly impressed transversely behind the ridge and often slightly but sufficiently evidently impressed axially (Figs 20 & 21). Anterior ridge bearing a row of 5–6+5–6 larger grains, posterior margin of collum with a row of 3+3 particularly obvious tubercles, usually with an additional row of 3+3 similar knobs in front of latter row. Paraterga of collum set very low, small and druse-shaped.

Body parallel-sided on segments 5–16(17), thereafter gradually tapering. Paraterga subhorizontal, mostly subrectangular in shape (Figs 22 & 23), lying at about 1/3 (♂) to 1/2 (♀) of midbody height. Surface of metaterga evidently microgranular, each metatergum normally with three rather



Figs 26–30. *Platyrhacus borealis* sp.n., ♂ paratype: 26 — both gonopods *in situ*, ventral view; 27 & 28 — left gonopod *in situ*, mesal and lateral views, respectively; 29 & 30 — right gonopod, subventrally and subdorsally, respectively. Without scale.

Рис. 26–30. *Platyrhacus borealis* sp.n., паратип ♂: 26 — оба гонопода *in situ*, вид снизу, 27 и 28 — левый гонопод, соответственно изнутри и сбоку; 29 и 30 — правый гонопод, соответственно почти снизу и почти сверху. Без масштаба.

irregular, transverse rows of 3–4+3–4 (rarely up to 5+5) slightly oblong, rib-shaped, larger blackish tubercles/knobs; sometimes metaterga 2–(3)4 without median row of such knobs. Number of the knobs per row usually remaining unchanged toward telson, sometimes the rows being demarcated by a faint sulcus. Caudal corner of paraterga narrowly rounded, often pointed and even claw-shaped, surpassing the rear tergal contour on segments 17–19; corner of 2–4(5) obtusangular, of (4)5–8 subrectangular, onward increasingly acutangular and pointed/unciform, of 19 narrowly rounded to nearly pointed (Figs 20–25).

Stricture between pro- and metazona rather shallow, striate to ribbed at bottom. Pleurosternal carinae like a small granular knob present near rear coxa on each of segments 3–17 (♂) or 3–16 (♀), thereafter virtually fully reduced.

Epiproct usually without paramedian ridges dorsally.

Legs about 1.4–1.5 (♂) or 1.1–1.2 times (♀) as long as midbody height, even anterior legs in ♂ devoid of ventral brushes on tibiae and tarsi.

Gonopods very simple (Figs 26–30), geniculation before branching virtually absent. Acropodite somewhat flattened and curved, slightly more than twice as long as a flagelliform, often even more strongly recurved solenomere.

REMARKS. Based on geographical grounds alone, the record of *P. marginellus* in northern Laos [Attems, 1953] may actually prove to concern this new species.

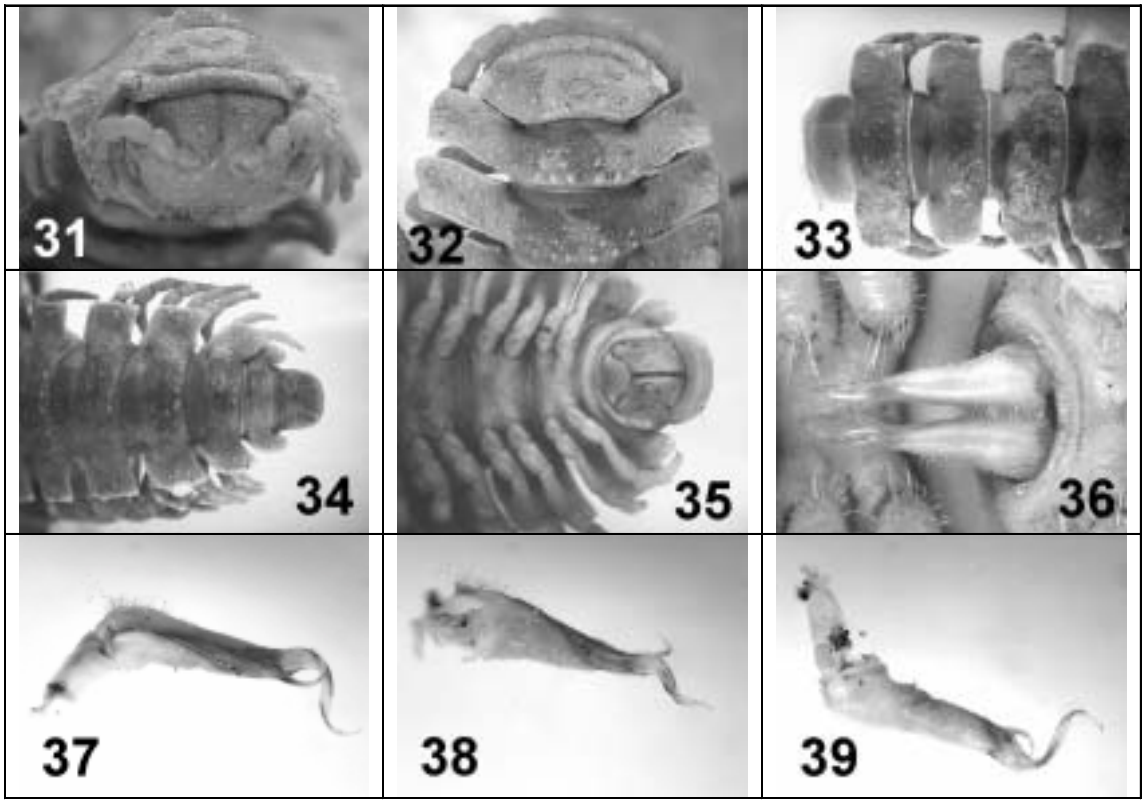
Platyrhacus similis **sp.n.**
Figs 31–40.

Platyrhacus marginellus: Attems, 1938a: 241; Attems, 1938b: 216.

MATERIAL. HOLOTYPE ♂ (MNHN JB120), Vietnam, Dalat, 1500 m, 01.1931 or Deo Ca (Varella), 500 m a.s.l., 03.1931, leg. C. Dawydoff.

PARATYPES: 3 ♂♂, 2 ♀♀, 1 ♂ fragm., 2 ♀♀ fragm. (MNHN JB120), 1 ♂ (ZMUM), same localities and dates, together with holotype; 2 ♂♂, 2 ♀♀ (MNHN JB120), 1 ♂ (ZMUM), Arbre-Broyé, Lang Biang, 1400 m, 23.01.1931; 2 ♂♂, 1 ♀ (MNHN JB120), Djiring, Plateau Lang Biang, 12.1932, all leg. C. Dawydoff;

NON-TYPES: 1 ♂, 3 ♀♀ (IEBR), Danang Prov., Mt Bana, forest, 25–27.04.2005, leg. Quynh Lich; 2 ♂♂, 1 ♀, 1 juv. (IEBR), Quangbinh Prov., Phong Nha – Ke Bang National Park, 05.2003; 2 ♂♂, 2 ♀♀ (IEBR), same locality and habitat, 05.2005, all leg. Pham Duc Tien; 7 ♂♂, 3 ♀♀ (IEBR), Kontum Prov., Mt Ngoclinh, primary forest, 1800–2500 m a.s.l., 25.03.–9.04.2004; 1 ♂ (IEBR), same locality, secondary forest, 1800 m a.s.l., 08.04.2004, all leg.



Figs 31–39. *Platyrhacus similis* sp.n., ♂ paratype from Lang Biang; 31 & 32 — anterior body portion, frontal and dorsal views, respectively; 33 — midbody segments, dorsal view; 34 & 35 — caudal body portion, dorsal and ventral views, respectively; 36 — both gonopods *in situ*; 37–39 — right gonopod, mesal, dorsal and lateral views, respectively. Without scale.

Рис. 31–39. *Platyrhacus similis* sp.n., паратип ♂ из Lang Biang; 31 и 32 — передняя часть тела, соответственно спереди и сверху; 33 — среднетуловищные сегменты, вид сверху; 34 и 35 — задняя часть тела, соответственно сверху и снизу; 36 — оба гонопода *in situ*; 37–39 — правый гонопод, соответственно изнутри, сверху и сбоку. Без масштаба.

Nguyen Duc Anh; 1 ♀ (IEBR), Kontum Prov., Loxo Pass, secondary forest, 850 m a.s.l., 15.04.2004, leg. Nguyen Huu Thuc.

DIAGNOSIS. By its gonopod and leg structure, as well as geographically, the new species seems to be especially close to *P. bouvieri* and *P. borealis* sp.n., but differs well from the former species in the higher paraterga of the collum, the mostly rounded paraterga, the larger grains arranged in three rows on all metaterga, the slightly shorter gonopod acropodite, etc. [Brölemann, 1904]. Differs from *P. borealis* sp.n. mainly by the shape of the collum and the chiefly rounded paraterga.

NAME. To mainly emphasize the similarities with *P. bouvieri* and *P. borealis* sp.n.

DESCRIPTION. Many characters like in *P. marginellus,* except as follows.

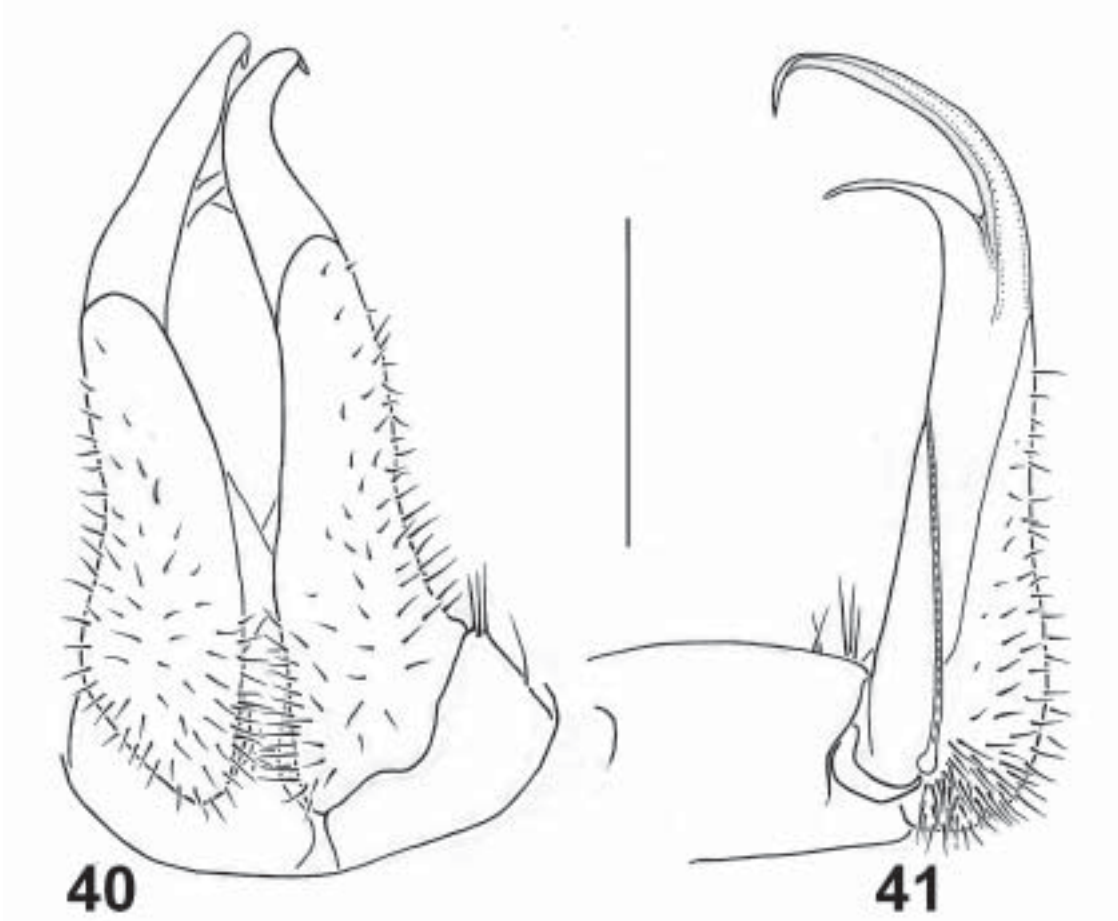
Body large, length 50–65 mm (♂, ♀). Width of midbody pro- and metazona 4.5–5.2 and 8.0–11.5 mm (♂), 6.5–7.5 and 10.0–12.5 mm (♀), respectively. Holotype *ca* 50 mm long and 10.2 mm wide.

Coloration generally light yellow-brown to grey-brown, originally described as dark brown, likely to have somewhat faded upon preservation in alcohol for >75 years; edges of paraterga and of epiproct usually slightly paler, yellowish; legs and antennomeres grey-brown to yellowish, distal segments being somewhat darker brown. Sterna and ventral sides of paraterga grey-yellow.

Head and antennae finely and densely microgranular (Fig. 31), with 2+2 supra-labral and 4–6+4–6 labral setae in bundles. Epicranial suture mostly lineiform, deep and evident.

Collum roundly subhexagonal, with a low ridge of 5–6+5–6 flat larger knobs/grains frontally, distinctly impressed transversely behind the ridge and flattened middorsally, sometimes with a poor axial impression. Posterior margin of collum with a row of 2(3)+2(3) flat but obvious tubercles, usually with an additional row of 1(2)+1(2) similar knobs in front of latter row. Paraterga small, round, druse-shaped, lying relatively high and directed dorsolaterad (Figs 31 & 32).

Body parallel-sided on segments 5–16(17), thereafter gradually tapering. Paraterga subhorizontal (♂) to slightly declined ventrad (usually ♀), mostly subrectangular in shape (Figs 32–34), lying at about 1/3 (♂) to 1/2 (usually ♀) of midbody height. Surface of metaterga evidently microgranular, each metatergum normally with three transverse, often irregular rows of 3–4+3–4 larger, rounded to oblong, pale tubercles/knobs; sometimes metaterga 2–(3)4 without median row of such knobs. Anterior edge of paraterga shoulder-shaped (more faintly so in ♀), poorly to barely rebordered, not denticulate. Anterior corner of all paraterga evidently rounded, of 2–4 acutangular, of 5–15 subrectangular, onward increasingly obtusangular. Caudal corner of paraterga usually narrowly rounded, never claw-shaped, increasingly well surpassing the rear tergal contour on segments 16–19; corner of 2–4 obtusangular, of 5–15 subrectangular, onward increasingly acutangular (Figs 32–35).



Figs 40 & 41. *Platyrhacus similis* sp.n., ♂ paratype: 36 — both gonopods *in situ*, ventral view; 37 — left gonopod, mesal view. Scale bar: 1.0 mm.

Рис. 40 и 41. *Platyrhacus similis* sp.n., паратип ♂: 36 — оба гонопода *in situ*, вид снизу; 37 — левый гонопод, вид изнутри. Масштаб 1,0 мм.

Stricture between pro- and metazona shallow, striolate at bottom. Pleurosternal carinae like a small tooth usually present near rear coxa on each of segments 3–17 (♂) or 3–16 (♀), thereafter virtually fully reduced.

Epiproct sometimes with paramedian ridges dorsally. Hypoproct subtrapeziform, subtruncate to gently convex at caudal edge, setigerous knobs small (Fig. 35).

Legs about 1.4–1.5 (♂) or 1.1–1.2 times (♀) as long as midbody height, even anterior legs in ♂ devoid of ventral brushes on tibiae and tarsi.

Gonopods very much like in *P. borealis* sp.n. (Figs 36–41), but acropodite slightly longer and slenderer, more or less evidently coiled.

REMARKS. There is no doubt now that Attems [1938a, 1953] erred at least in having identified his samples from Vietnam and Laos as representing *P. marginellus*. The same concerns the material from Malaysia reported by Sinclair [1901] but, given its poor description, it appears impossible to refer it with any degree of confidence to any described congener (see also Jeekel [2006]).

The above type samples are exactly the material which Attems [1938a] reported from Vietnam and referred to *P. marginellus*. Like in *P. borealis* sp.n., the above samples show remarkable variation in size. The small denticle at the base of both solenomere and acropodite he depicted seems to only represent an anomaly or variation, because he clearly stated its presence only on the left gonopod. We have failed to trace such a denticle in any of the other males studied.

The distribution of *P. similis* sp.n. in Vietnam thus concerns the mountains in the central and south-central parts of the country, as opposed to that of *P. borealis* sp.n. which seems to be confined to the montane regions of North Vietnam (see Map). Both seem to be strict hygrophilous sylvicoles.

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Map. Distribution of *Platyrhacus* species in Vietnam
■: Localities of *Platyrhacus borealis* sp.n.
▲: Localites of *Platyrhacus similis* sp.n.

kept under his care at MNHN. Special thanks go to our colleagues from IEBR who rendered fresh material for the present study. We also thank Dr Phan Luong and other colleagues from the Vietnamese-Russian Tropical Center, Hanoi for all their help in field-work in Vietnam. Prof. Kirill Makarov (Moscow) and Dr Laurent Albenga (Paris) provided logistic help by taking the pictures.

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