

**Some types of *Berosus* (Coleoptera; Hydrophilidae) kept in
the collections of the Institut royal des Sciences naturelles
de Belgique**

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Abstract

Fifteen South American species of Berosus are redescribed and figured: B. consobrinus KNISCH, B. megillus ORCHYMONT, B. cognitor MOUCHAMPS, B. forsteri MOUCH., B. gynopalpis MOUCH., B. singularis KN., B. auspicalis ORCH., B. arcanus KN., B. firminus ORCH., B. nigrinus KN., B. asphaltinus KN., B. dentifer MOUCH., B. geayi ORCH., B. navatus ORCH. and B. spectatus ORCH. A sixteenth, B. vilipendus MOUCH. is changed from the nervulus-complex to the patruelis-complex. Types of all these species are kept at the Institut royal des Sciences naturelles de Belgique. A key to the South American species of Berosus is given.

Résumé

Quinze espèces sud-américaines de Berosus sont ici redécrites et figurées: B. consobrinus KNISCH, B. megillus ORCHYMONT, B. cognitor MOUCHAMPS, B. forsteri MOUCH., B. gynopalpis MOUCH., B. singularis KN., B. auspicalis ORCH., B. arcanus KN., B. firminus ORCH., B. nigrinus KN., B. asphaltinus KN., B. dentifer MOUCH., B. geayi ORCH., B. navatus ORCH. et B. spectatus ORCH. Une seizième, B. vilipendus MOUCH. est transférée du complexe nervulus au complexe patruelis. Des types de toutes ces espèces se trouvent dans les collections de l'Institut royal des Sciences naturelles de Belgique. Une clé est donnée pour les espèces de Berosus de l'Amérique du Sud.

Resumen

Quince especies sudamericanas de Berosus se describen y se ilustran: B. consobrinus KNISCH, B. megillus ORCHYMONT, B. cognitor MOUCHAMPS, B. forsteri MOUCH., B. gynopalpis MOUCH., B. singularis KN., B. auspicalis

ORCH., *B. arcanus* KN., *B. firmius* ORCH., *B. nigrinus* KN., *B. asphaltinus* KN., *B. dentifer* MOUCH., *B. geayi* ORCH., *B. navatus* ORCH. y *B. spectatus* ORCH. *Una decimosexta*, *B. vilipendus* MOUCH. *se transfere del complejo nervulus al complejo patruelis. Tipos de todas estas especies se encuentran en las colecciones del Institut royal des Sciences naturelles de Belgique. Se da una clave para las especies de Berosus de América del Sur. Palabras clave: Hydrophilidae, Fauna neotropical, Sistemática.*

Introduction

In the year 1989 I published a revision of the genus *Berosus* in South America, which included redescrptions of a good number of species on the basis of typical specimens. An imprevisible circumstance precluded at that moment the examination of the types of some of the species kept at the IRSNB.

Thanks to a scholarship granted by the CONICET (Consejo nacional de Investigaciones científicas y técnicas, Argentina), I have been able to examine the whole of the *Berosus*-collections of the IRSNB, at Brussels, and to establish the identity of the missing species. In this paper I redescrbe fifteen species, of which ten had remained *incertae sedis* in my paper of 1989, since no information about the male genitalia was available.

Methods

Dry material was relaxed in a warm dilute solution of acetic acid to dissect out the terminalia, which were kept in glycerine, in microvials fastened to the same pin that holds the specimen. In some cases, the parts had already been dissected and dry-mounted (R. MOUCHAMPS collection); in the case of single specimens I have preferred to avoid risks, and I have drawn the genitalia from these preparations.

To estimate the prominence of the eyes (which in some species varies according to sex) an ocular index, as used by STRYS (1960) for aquatic heteroptera, was employed. This is

$$OI = S / 1/2(D-S)$$

where D = width of head and S = width of sintlipsis, or minimal distance between eyes in dorsal view.

In this paper I have followed the system of species-complexes proposed in my paper of 1989. No doubt this system could be much improved, but to avoid useless overload of literature I have thought it better to wait until I can consider a world revision. The system employed here is based on the male genitalia, on the presence/absence of spine-like hairs on the elytra, on the presence/absence of lateral depressions on the first apparent urosternite and, in some cases, on secondary sexual characters.

Systematics

1. Key to the South American species of *Berosus*

- 1 - Fore tarsi of males linear, without adhesive soles formed of hairs with modified tips. Moderate-sized to small species, with coarse to hypertrophied dorsal sculpture. First apparent urosternite carinate behind hind coxae, without lateral depressions. Lateral edges of urosternites crenulate in most species. No spine-like hairs on elytra. Male genitalia compressed. Paramera parallel, acuminate. Median lobe strongly s-shaped, with apex strongly swollen (*holdhausi*-complex) 2
- 1' - Protarsi of males with adhesive soles at least on basal segment . . 13
- 2 - Elytral striae with hypertrophied punctures, as wide as, or wider than, the interstriae; striae punctures distinctly coarser than pronotal ones, which are themselves very coarse, polygonal 3
- 2' - Elytral striae narrower than interstriae 8
- 3 - Elytral striae as wide as interstriae. Mesosternal process laminar. Femoral pubescence transverse. Basal piece of male genitalia about half of total length 4
- 3' - Elytral striae wider than interstriae. Mesosternal process with hollow anterior tooth. Femoral pubescence oblique 5
- 4 - Anterior tooth of mesosternal process swollen. Third apparent urosternite without a flattened tooth. Legs of males not different from those of females except for tetramerous fore tarsi. Male genitalia: paramera gradually acuminate. Median lobe a little shorter than paramera, with subapical swelling, apex slender, turned towards sternal side *B. insignis* KNISCH, 1921 (Paraguay)
- 4' - Anterior tooth of mesosternal process laminar. Third urosternite of males with flattened tooth on posterior edge. Males with middle and hind tibiae, and also second segment of middle and hind tarsi, swollen. Paramera broad. Median lobe much shorter than paramera, with abrupt subapical swelling, the apex moderately swollen *B. inflatipes* OLIVA, 1993 (Bolivia: Santa Cruz)
- 5 - Claws of all the legs, in both sexes, bifid. Shape elongate. Dorsum melanic without metallic sheen. Basal piece about 2/5 of total length. Paramera gradually acuminate. Median lobe shorter than paramera, with subapical swelling, apex slender *B. zimmermanni* KNISCH, 1921 (Brasil: Mato Grosso; Paraguay; Argentina: NE)
- 5' - Claws only with minute basal tooth. Shape broad 6

- 6 - Dorsum without metallic sheen, head mainly testaceous. Glabrous part of femora, tibiae and tarsi testaceous. Basal piece a little longer than half of total length. Paramera broad, abruptly acuminate. Median lobe nearly as long as paramera, apical swelling blunt
 *B. marquardtii* KNISCH, 1921
 (Brasil: Mato Grosso)
- 6' - Head melanic at least in part. Tarsi and tips of tibiae melanic. Paramera gradually acuminate 7
- 7 - Head entirely melanic, with metallic sheen. Femora with pubescent part black, the glabrous part testaceous. Tibiae melanic only at tips. Punctures on elytral striae round. Basal piece a little longer than half of total length. Median lobe a little shorter than paramera, with spindle-shaped apical swelling
 *B. holdhausi* KNISCH, 1921
 (Brasil: M. Grosso; Bolivia: S. Cruz; Argentina: N and NW)
- 7' - Head black, with clypeus diffusely testaceous; no metallic sheen. Middle and hind femora entirely black. Tibiae black on apical 3/4. Punctures on elytral striae square. Basal piece a little shorter than half of total length. Median lobe much shorter than paramera, with blunt apical swelling
 *B. rectangulus* MOUCHAMPS, 1963
 (Brasil: M. Grosso)
- 8 - Outer (11th) interstria convex, overhanging the outer edge of elytron in anterior half. Male genitalia: basal piece about half of total length. Paramera gradually acuminate. Median lobe about as long as paramera, with spindle-shaped apical swelling
 *B. consobrinus* KNISCH, 1921
 (Brasil: M. Grosso)
- 8' - Outer interstria not overhanging outer edge of elytron 9
- 9 - Punctures on elytral interstriae nearly as large as pronotal ones. Metasternal process moderately broad. Lateral edges of apparent urosternites smooth
 *B. megillus* ORCHYMONT, 1940
 (Brasil: S. Paulo)
- 9' - Punctures on interstriae distinctly finer than pronotal ones. Metasternal process broad. Lateral edges of urosternites crenulate. Basal piece about half of total length 10
- 10 - Mesosternal process with hollowed anterior tooth. Paramera with narrow apex. Median lobe nearly as long as paramera, with subapical swelling, apex slender and turned towards the sternal side
 *B. freyi* MOUCHAMPS, 1960
 (Brasil: Pará)
- 10' - Mesosternal process entirely laminar 11
- 11 - Punctures on interstriae deep, 1/4 to 1/6 of punctures on striae. Interstriae step-shaped. Anterior tooth of mesosternal process straight, pointing backwards. Median lobe as long as paramera, with

- subapical swelling, apex slender, short
 *B. wintersteineri* KNISCH, 1921
 (Brasil: M. Grosso)
- 11' - Anterior tooth of mesosternal process curved 12
- 12 - Interstriae convex, unpunctured or with fine shallow punctures. Median lobe with blunt apical swelling
 *B. egregius* KNISCH, 1921
 (Brasil: M. Grosso)
- 12' - Interstriae flattened, not step-shaped, with deep punctures. Median lobe as long as paramera, with subapical swelling, apex slender, long
 *B. fratellus* KNISCH, 1921
 (Brasil: M. Grosso)
- 13 - First urosternite carinate only between hind coxae or also behind them, without lateral depressions. No spine-like hairs on elytra. Apical notch of fifth urosternite with a bidentate bottom. Femoral pubescence oblique. Male genitalia compressed. Paramera parallel, acuminate. Median lobe subcylindrical, with spindle-shaped apex, not to moderately swollen (*nervulus*-complex) 14
- 13' - Femoral pubescence transverse, or with sinuate limit 18
- 14 - Outer interstria overhanging elytral edge 15
- 14' - Outer interstria not overhanging elytral edge 16
- 15 - Inner interstriae flat, convex only around the scutellum. Pronotal ground densely punctulate. Male genitalia: basal piece long. Paramera long, narrow, with moderate subapical dilation. Median lobe much shorter than paramera, straight, with strong subapical swelling, apex acuminate
 *B. gynopalpis* MOUCHAMPS, 1963
 (Bolivia: S. Cruz)
- 15' - Inner interstriae convex, outer ones strongly convex. Pronotal ground sparsely punctulate. Lateral edges of urosternites first to fourth crenulate, of fifth serrate. Basal piece about half of total length. Paramera narrowly acuminate, sinuate. Median lobe much shorter than the paramera, strongly s-shaped, with moderate apical swelling
 *B. auspicalis* ORCHYMONT, 1940
 (Brasil: S. Catharina)
- 16 - Lateral edge of apparent urosternites smooth. Punctures on elytral striae not exceeding width of these (interstriae not step-shaped). Fore tarsi of males with basal segment as long as second; claws not modified. Middle tarsi of males with second segment swollen; claws small, sickle-shaped. Median lobe of male genitalia only a little shorter than the paramera, hardly swollen at apex
 *B. cognitor* MOUCHAMPS, 1963
 (Paraguay)

- 16' - Lateral edges of urosternites crenulate. Punctures on striae exceeding width of these (interstriae step-shaped) 17
- 17 - Pronotal sculpture coarse, without punctulation. Females with reticulate pronotum. Males without modified claws or femora. Basal piece a little shorter than half of total length. Paramera in lateral view nearly sickle-shaped. Median lobe shorter than the paramera, s-shaped, with moderately swollen spindle-shaped apex
B. nervulus MOUCHAMPS, 1963
 (Brasil: M. Grosso; Bolivia: S. Cruz; Argentina: NE and NW)
- 17' - Pronotal punctures of moderate size; ground punctulate, smooth in both sexes. Males with middle and hind femora angular; fore tarsi slightly swollen, with basal segment as long as second and third together; claws sturdy, the outer one sinuate; middle tarsi with second segment swollen. Paramera narrow. Median lobe much shorter than these, with swollen spindle-shaped apex
B. forsteri MOUCHAMPS, 1963
 (Bolivia: S. Cruz)
- 18 - Fore tarsi of males with adhesive sole on basal segment only. Spine-like hairs only on posterior part of outer elytral interstria. Metasternal process large, strongly produced backwards. Apparent urosternites with lateral edges serrate, the first carinate on anterior half, with small lateral glabrous areas or rudimentary lateral depressions; fifth with bottom of apical notch produced into a bifid tooth, raised at sides of notch. Large species (length 5 mm or more); head melanic with metallic sheen; shape sturdy, rather elongate; elytral apices narrowly rounded. Male genitalia cylindrical; paramera parallel, acuminate or bluntly narrowed; median lobe thick, curved towards tergal side (*auriceps*-complex) 19
- 18' - Fore tarsi of males with adhesive soles on the two basal segments. If bottom of apical notch carries a bifid tooth, then the edge of the fifth urosternite is smooth 21
- 19 - Anterior tooth of mesosternal process swollen. No punctulation on elytra. Basal piece a little longer than half of total length. Paramera broadly acuminate. Median lobe with sternal subapical membranous portion, apex narrowly rounded
B. auriceps BOHEMAN, 1859
 (Argentina, Brasil, widespread)
- 19' - Mesosternal process entirely laminar. Elytral interstriae punctulate 20
- 20 - Interstriae more densely and coarsely punctured on posterior half. Pronotum usually with large medial spot with metallic sheen. Basal piece 2/5 of total length. Paramera acuminate. Median lobe much shorter, apex broadly rounded
B. aulus ORCHYMONT, 1940
 (Argentina: NW)

- 20' - Interstriae more sparsely and finely punctured on posterior 1/4. Pronotum usually with small paramedial spots without metallic sheen. Basal piece 2/5 of total length. Paramera rounded and thickened at the apex
B. ethmonotus OLIVA, 1989
 (Argentina: Parana basin)
- 21 - Moderate-sized to very small species. No metallic sheen on dorsum. No spine-like hairs on elytra. First urosternite carinate behind hind coxae, without lateral depressions. Male genitalia compressed in most species. Paramera parallel, with apex acuminate, curved towards the sternal side. Median lobe subcylindrical, with spindle-shaped apex, not or weakly swollen (*sticticus*-complex) 22
- 21' - First urosternite carinate only between hind coxae; if carinate behind, then the elytra bear spine-like hairs 32
- 22 - Dorsum entirely melanic. Mesosternal process with anterior edge curved. Metasternal process with posterior angle raised into a convex lamina
B. nigrinus KNISCH, 1921
 (Brasil: M. Grosso)
- 22' - Dorsum testaceous or reddish 23
- 23 - Dorsum reddish without definite spots. Mesosternal process rectangular, with small anterior tooth. Fifth urosternite with serrate edges. Males with a carinate tooth on posterior edge of urosternites 2nd to 5th. Basal piece 2/3 of total length. Paramera abruptly acuminate at apex, which is strongly curved towards the sternal side
B. rufulus KNISCH, 1924
 (Argentina: widespread; Paraguay; Bolivia: S. Cruz)
- 23' - Dorsum testaceous with melanic spots. Fifth urosternite with smooth edges 24
- 24 - Anterior tooth of mesosternal process swollen, hollowed. Metasternal process with posterior angle raised into a lamina as high as posterolateral angles. Carina on first urosternite thick, high, as long as the sternite. Basal piece 3/4 of total length. Paramera with apices abruptly acuminate, curved strongly towards the sternal side; tergal edges thickened, angular
B. coelacanthus OLIVA, 1989
 (Argentina: NW and Parana basin; Brasil: M. Grosso)
- 24' - Anterior tooth of mesosternal process not hollowed, rarely thickened 25
- 25 - Size very small: length usually under 2.2 mm, some females up to 2.5 mm. Elytral spots small, well defined 26
- 25' - Length usually over 2.5 mm 28
- 26 - Punctures on frons and pronotum round. Lateral edges of urosternites finely serrate under 50 X. Claws bifid. Pubescence covering about

- 2/5 of middle and hind femora. Basal piece about 3/5 of total length *B. arcanus* KNISCH, 1924
(Bolivia: S. Cruz; Brasil: Amazonas)
- 26' - Lateral edges of urosternites smooth under 50 X. Claws only weakly dentate at base 27
- 27 - Pronotal punctures dense, elliptical. Males with the outer claw of middle legs hook-shaped. Pubescence covering 3/4 of middle and hind femora. Basal piece about 2/3 of total length
. *B. minimus* KNISCH, 1921
(Brasil: M. Grosso, Amazonas; Argentina: widespread; Paraguay)
- 27' - Pronotal punctures sparse, on sides a little denser, polygonal. No claw modifications. Pubescence covering about 2/3 of middle femora and 3/5 of hind femora. Basal piece more than 3/4 of total length
. *B. firmius* ORCHYMONT, 1940
(Brasil: Pernambuco)
- 28 - Metasternal process with postero-lateral angles not produced, posterior angle raised into a carina. Dorsal sculpture fine and shallow. Pronotum finely rugulose in both sexes. Apical notch of fifth urosternite with bottom weakly sinuate, in males a carinate tooth in front of notch. Male genitalia weakly compressed; basal piece more than 3/4 of total length, encasing the greater part of paramera; these deeply emarginate on sternal edge, so that the narrow apices are curved towards the sternal side. Median lobe s-shaped, with apex weakly dilated, bearing a rough patch tergally
. *B. subandinus* OLIVA, 1989
(Argentina: NW)
- 28' - Metasternal process with postero-lateral angles produced. Dorsal sculpture more or less coarse and dense; pronotal ground smooth 29
- 29 - Posterior angle of metasternal process not raised 30
- 29' - Posterior angle of metasternal process raised into a lamina 31
- 30 - Head usually melanic only on base of frons. Mesosternal process with curved anterior tooth, posterior angle straight. Apical notch of fifth urosternite with bottom bidentate, in males a fine carina in front of notch. Paramera abruptly acuminate, with apex strongly turned towards the sternal side *B. festivus* BERG, 1887
(Argentine: widespread; Uruguay; Brasil: M. Grosso; Guyana)
- 30' - Head usually with a median melanic triangle taking up most of frons and part of clypeus. Mesosternal process with anterior tooth nearly straight, posterior angle very weakly raised, hidden by middle coxae. Apical notch with bottom sinuate. Paramera gradually acuminate
. *B. ussingi* JENSEN-HAARUP, 1910
(Argentina: widespread; Uruguay; Paraguay)

- 31 - Mesosternal process with anterior tooth prominent, pointing downwards. Males without urosternal carinae. Basal piece a little longer than half of total length. Paramera gradually acuminate, with apices weakly curved towards the sternal side, with short subapical row of hairs; median lobe short, thick *B. sticticus* BOHEMAN, 1859
(Brasil: Rio de Janeiro)
- 31' - Mesosternal process with anterior tooth weakly prominent, pointing downwards and backwards. Males with fifth urosternite raised at the sides of apical notch, with large raised tooth in front of the base of the notch, both tooth and raised parts strongly melanic. Male genitalia weakly compressed; basal piece a little less than 3/4 of total length. Paramera sickle-shaped in lateral view; in tergal view the apices abruptly acuminate, pointing outwards. Median lobe much shorter than the paramera, thick *B. multicarinatus* OLIVA, 1989
(Argentina: NW)
- 32 - Moderate-sized to large species; shape convex, sturdy. Head with metallic sheen. Elytra without spine-like hairs, with outer striae deeper at level of stridulatory patch on inner face of elytron. Metasternal process broad and short, with large, deep medial depression. First urosternite carinate only between hind coxae, or on anterior half, without lateral depressions. Male genitalia compressed, with long basal piece encasing the greater part of distal pieces. Paramera forming a dihedral angle with their sternal edges, the distal portion, which is free of basal piece, dilated, divided into a strongly sclerotized tergal part and a membranous sternal part. Median lobe cylindrical, apex spindle-shaped, swollen or not (*adustus*-complex) 33
- 32' - Elytra with spine-like hairs at least on posterior part of outer elytral interstria. If spine-like hairs are absent, then size is under 3.5 mm 36
- 33 - Elytral apices produced, emarginate or not 34
- 33' - Elytral apices not produced 35
- 34 - Outer elytral striae very strongly arched over stridulatory patch. Elytral apices simply produced. Metasternal process with posterior angle raised into a lamina. Basal piece about 3/4 of total length. Paramera with sternal edge convex where it emerges from basal piece, then notched so that the narrow apex points obliquely towards the sternal side. Median lobe nearly as long as paramera, apex swollen *B. adustus* KNISCH, 1922
(Argentina: E; Uruguay)
- 34' - Outer striae only weakly arched. Elytral apices emarginate into a quarter of a circle, with dehiscent sutural angle and a broad parasutural point. Metasternal process with posterior and postero-lateral angles not raised. Basal piece very long, about 2/3 of total length because the paramera are also long. Paramera gradually acuminate,

- with subapical narrowing followed by slight expansion; in tergal view apices acute, pointing outwards. Median lobe shorter than paramera, apex hardly swollen *B. bruchianus* KNISCH, 1924 (Argentina: B. Aires, R. Negro; Chile; Uruguay; Brasil: Rio Grande do Sul)
- 35 - Shape elongately oval, humeral humps not prominent. Interstriae with punctures in a single row. Metasternal process with postero-lateral angles more strongly raised than posterior one. First urosternite carinate in anterior half. Basal piece about 3/4 of total length. Paramera moderately dilated, gradually acuminate. Median lobe with apex moderately swollen *B. asphaltinus* KNISCH, 1922 (Brasil: M. Grosso; Rio grande do Sul)
- 35' - Shape angular, humeral humps prominent. Interstriae with punctures in several rows. Postero-lateral angles of metasternal process not more strongly raised than posterior one. First urosternite carinate only between hind coxae. Basal piece a little longer than 3/4 of total length. Paramera with sternal edge emarginate, the narrow apex pointing obliquely towards the sternal side. Median lobe hardly swollen at the apex *B. cornicinus* KNISCH, 1922 (Argentina: W, NW)
- 36 - Moderate-sized species; shape slender, elongate, weakly convex; humeral humps prominent. Pronotal punctures more or less coarse and dense; ground punctulate. Elytral striae fine with fine punctures; interstriae with dense punctures, larger than those on striae. Spine-like hairs on all the interstriae. First urosternite carinate only between hind coxae, with or without lateral depressions. Eyes unusually prominent, a little more in males. Maxillary palpi long and slender, specially in males. Male genitalia cylindrical. Paramera parallel, acuminate. Median lobe thick, weakly s-shaped or nearly straight, with a tergal ridge and a large sternal opening (*patruelis*-complex) 37
- 36' - Shape either broad or with humeral humps not prominent; if shape is angular, then dorsal punctulation is lacking. Sternal edges of paramera always forming a dihedral angle 41
- 37 - No lateral depressions on first urosternite; apical notch of fifth with bottom bidentate. Elytral apices not emarginate. Elytra reticulate in females. Femora with pubescent part black, glabrous part testaceous. Maxillary palpi with long, thin distal segment nearly entirely melanic. Male genitalia: basal piece about 2/3 of total length. Paramera gradually acuminate, their greater part encased in basal piece. Median lobe as long as paramera, with long, low tergal ridge *B. palposus* KNISCH, 1921 (Brasil: M. Grosso)

- 37' - First urosternite with small lateral depressions; apical notch of fifth broad and shallow, with bottom sinuate or straight. Femora testaceous. Maxillary palpi melanic on tip 38
- 38 - Elytral apices not emarginate. Stridulatory patch simple. Basal piece about 2/3 of total length. Paramera broadly acuminate. Median lobe much longer than the paramera, cylindrical *B. vilipendus* MOUCHAMPS, 1963 (Brasil: M. Grosso)
- 38' - Elytral apices emarginate (narrow and truncate in some individuals of *B. patruelis*). Stridulatory patch double, anterior part iridescent because formed of parallel ridges. Basal piece short 39
- 39 - Length usually exceeding 4.5 mm. Eyes much more prominent in males than in females. Elytral apices of males with sutural angle not produced, in females produced. Mesosternal process with anterior tooth curved, pointing downwards. Fifth urosternite of males with very broad emargination, with straight bottom; females with broad emargination with bottom sinuate. Fore tarsi of males hardly swollen at base. Pronotal punctures contiguous, polygonal. Male genitalia thick and short. Paramera short, narrowed at the apex; median lobe longer than paramera, with tergal ridge raised into a disk in lateral view *B. pedregalensis* JENSEN-HAARUP, 1910 (Argentina: widespread)
- 39' - Length usually under 4.5 mm. Eyes remarkably prominent, hardly more so in males. Elytral apices of males with sutural angles produced as those of females. Anterior tooth of mesosternal process pointing downwards and backwards. Median lobe slightly dilated at the apex, with short tergal ridge 40
- 40 - Pronotal punctures dense (distances smaller than diameters). Mesosternal process with anterior edge nearly straight. Fifth urosternite without sex dimorphism, with broad apical notch, the bottom of this sinuate. Male genitalia with median lobe nearly as long as paramera *B. patruelis* BERG, 1887 (Argentina: widespread; Paraguay; Bolivia: S. Cruz; Brasil: M. Grosso; Venezuela: Barinas)
- 40' - Pronotal punctures moderately dense (distances equal to diameters). Mesosternal process with anterior edge convex. Fifth urosternite with sex dimorphism as in *B. pedregalensis*. Male genitalia with long paramera and very short median lobe *B. batesi* OLIVA, 1993 (Brasil: Amazonas)
- 41 - Metasternal process weakly raised, with small medial depression; postero-lateral angles not produced, rounded; posterior angle carinate. Elytral striae fine, the outer one reduced to a row of punctures on anterior half. Male genitalia not or moderately compressed. Paramera

- with apices narrowed and rounded. Median lobe cylindrical, weakly s-shaped (*alternans*-complex) 42
- 41' - Metasternal process with postero-lateral angles produced backwards. If outer stria is reduced to a row of punctures, then elytral apices are produced, not bispinous 44
- 42 - No spine-like hairs on elytra. No lateral depressions on first urosternite. Claws sickle-shaped. Smallish species (length about 3.5 mm). Male genitalia compressed. Basal piece about half of total length. Paramera gradually acuminate. Median lobe as long as paramera, apex spindle-shaped, weakly swollen
B. alternans BRULLÉ, 1841
 (Argentina: B. Aires, R. Negro, Neuquén)
- 42' - Spine-like hairs at least on outer interstria. Claws weakly arched 43
- 43 - Smallish species (length 3.0-3.5 mm). Spine-like hairs on all the interstriae. Elytral apices rounded. First urosternite with lateral depressions. Edge of urosternites smooth. Male genitalia compressed. Basal piece very short; paramera not narrowed at apex. Median lobe with blunt apex
B. paraguayanus KNISCH, 1924
 (Paraguay; Argentina: NE and NW)
- 43' - Large species (5.9-7.3 mm). Spine-like hairs only on outer interstria. Elytral apices with small semicircular emargination; in females produced as well. First urosternite without lateral depressions. Fifth urosternite with serrate edge. Male genitalia cylindrical. Basal piece about 1/3 of total length. Paramera narrowed at apex. Apex of median lobe spindle-shaped
B. stenocoetus JENSEN-HAARUP, 1910
 (Argentina: widespread)
- 44 - Elytral apices produced or weakly emarginate, or both, not bispinous. The two outer striae often reduced to a row of punctures at base. Pronotum with round, moderately coarse punctures and coarse, dense punctulation. Femora testaceous, at the most diffusely dark at base. Spine-like hairs at least on outer interstria. Male genitalia compressed. Basal piece short to moderate-sized. Paramera long, with apex dilated, part of the edges of dilated portion sharply turned inwards. Median lobe cylindrical; apex spindle-shaped, not swollen (*chalcocephalus*-complex) 45
- 44' - Elytral apices either rounded or bispinous, if produced, then there is no pronotal punctulation or the first urosternite is carinate behind the hind coxae and lateral depressions are large 51
- 45 - Dorsum of head melanic with metallic sheen; labrum, and sometimes the anterior angles of the clypeum, testaceous. Elytral apices weakly emarginate near sutural line. The two outer striae reduced to rows of punctures on anterior half. Mesosternal process weakly prominent, the anterior tooth hardly more prominent than the posterior angle,

- both pointing downwards and backwards. Paramera without membranous appendices, the dilated apical portion lanceolate
B. chalcocephalus GERMAIN, 1865
 (Argentina: B. Aires, N of Patagonia, W up to N; Bolivia; Chile)
- 45' - At least the clypeum entirely testaceous. Elytral apices produced 46
- 46 - Elytral apices produced into large triangles, acute. Elytral interstriae weakly convex. Long spine-like hairs on more than the posterior half of elytra. Mesosternal process with small anterior tooth. Metasternal process with posterior and postero-lateral angles produced into laminae. Apical notch of fifth urosternite with bottom bidentate. Dorsum reticulate (females). Length of female holotype 4.7 mm.
B. navatus ORCHYMONT, 1940
 (Brasil: Pernambuco)
- 46' - Elytral apices blunt, weakly emarginate, or produced into short diverging triangles. Elytral interstriae flattened. Metasternal process with postero-lateral angles not or weakly produced, posterior angle not raised into a lamina. Paramera with inner membranous appendices 47
- 47 - Pronotum sparsely punctulate. Elytral apices produced, a little more so in females, blunt. Mesosternal process shaped as a parallelogram, with curved anterior tooth, pointing downwards and backwards. Metasternal process narrow, with small postero-lateral laminae. Spine-like hairs on all the interstriae. Fifth urosternite with bottom of apical notch bidentate in females; in males a carinate tooth hides the bottom of the notch, and there is another tooth on fourth urosternite. Paramera with apices abruptly acuminate after dilated portion; appendices large, nearly as long as the paramera themselves. Median lobe a little shorter than the paramera, as long as the appendices
B. inpa OLIVA, 1993
 (Brasil: Amazonas)
- 47' - Pronotum with dense punctulation 48
- 48 - Length under 4.0 mm. Spine-like hairs only on outer interstria. Elytral apices produced into triangles, weakly emarginated so that apices are diverging. Mesosternal process with long, narrow, acute anterior tooth. Metasternal process with postero-lateral angles not produced. Basal piece about 1/2 of total length. Paramera with distinct notch in tergal edge, in tergal view broadly rounded subapically; membranous appendices tergal. Median lobe distinctly shorter than paramera but longer than appendices
B. toxacanthus OLIVA, 1989
 (Argentina: NW)

- 48' - Length usually over 4.0 mm. Spine-like hairs on all the interstriae. Elytral apices blunt or distinctly (but shallowly) emarginate. Median lobe little longer than membranous appendices 49
- 49 - Frons melanic with metallic sheen; clypeum testaceous. Elytral apices produced and emarginate. Basal piece about 2/5 of total length. Paramera hardly dilated subapically, the row of hairs on them nearly straight *B. dehiscens* JENSEN-HAARUP, 1910
(Argentina: W)
- 49' - Frons partly testaceous, the melanic part without metallic sheen. Paramera distinctly dilated subapically 50
- 50 - Elytral apices produced, in males usually emarginate, in females produced into blunt triangles. Pronotum reticulate in females. Apical segment of maxillary palpi melanic only on tip. Basal piece 1/3 of total length. Paramera dilated apically into a trapeze. Line of insertion of hairs curved *B. pallipes* BRULLÉ, 1841
(Argentina: widespread; Uruguay; Brasil: M. Grosso, R. Grande do Sul; Venezuela: Barinas)
- 50' - Elytral apices produced and emarginate in both sexes. Pronotum reticulate in both sexes. Apical segment of maxillary palpi melanic on distal 2/3. Male genitalia remarkably large. Basal piece about 1/2 of total length. Paramera dilated into an oval
. *B. coptogonus* JENSEN-HAARUP, 1910
(Argentina: N, NW, center)
- 51 - First urosternite without lateral depressions. Spine-like hairs on all the elytral interstriae (South-American species) or only on outer one. Male genitalia cylindrical to compressed. Basal piece long. Paramera acuminate. Median lobe subcylindrical, weakly s-shaped to straight (*corumbanus*-complex) 52
- 51' - First urosternite with distinct lateral depressions 57
- 52 - Dorsum of head melanic with metallic sheen 53
- 52' - Dorsum of head partly testaceous, without metallic sheen 55
- 53 - Lateral edge of urosternites smooth. Bottom of apical notch with a pair separate teeth. Paramera narrow, sinuate
. *B. corumbanus* KNISCH, 1921
(Brasil: M. Grosso; Paraguay; Bolivia: S. Cruz)
- 53' - Fifth urosternite with serrate edges; bottom of notch with a pair of contiguous teeth, divergent, in males a carinate tooth in front of bottom of notch 54
- 54 - Basal segment of fore tarsi of males strongly dilated. Basal piece of male genitalia more than half of total length
. *B. dentifer* MOUCHAMPS, 1963
(Bolivia: Cochabamba)

- 54' - Basal segment of fore tarsi of males weakly dilated. Basal piece about half of total length *B. pluripunctatus* MOUCHAMPS, 1963
(Brasil: M. Grosso; Venezuela: Barinas)
- 55 - Fifth urosternite with bottom of emargination bearing two contiguous, diverging teeth, in males with carinate tooth in front of notch. Dorsum shining in males, in females reticulate except head. Hind femora of males angular. Male genitalia: basal piece very long. Paramera abruptly acuminate, with short row of hairs; apices broadly rounded in tergal view *B. geayi* ORCHYMONT, 1937
(Brasil: Pernambuco; French Guyane)
- 55' - Apical notch with bottom produced into an arc or a pair of distinct teeth. Dorsum shining in both sexes. Paramera with long row of hairs, in tergal view not rounded 56
- 56 - Mesosternal process with large, curved anterior tooth. Fifth urosternite with bottom of apical notch produced into a pair of teeth, in males a carinate tooth on posterior margin of urosternites second to fifth. Paramera narrowly acuminate
. *B. sinigus* OLIVA, 1989
(Argentina: NE and center; Brasil: Amazonas)
- 56' - Mesosternal process with small anterior tooth. Apical notch with bottom produced into an arc; no urosternal teeth in males
. *B. hispidulus* OLIVA, 1993
(Brasil: M. Grosso)
- 57 - Shape navicular, humeral humps weakly prominent, sides strongly convex, more prominent than humeral humps. Spine-like hairs at least on outer elytral interstriae. Dorsal sculpture moderately dense to sparse; ground punctulate. Mesosternal process broadened at level of postero-lateral angles, which are produced into laminae. Male genitalia only slightly compressed. Paramera acuminate. Median lobe cylindrical, a little shorter than the paramera, apex spindle-shaped, weakly swollen (*obscurifrons*-complex) 58
- 57' - Shape not navicular, or else sides weakly convex, not more prominent than humeral humps 61
- 58 - Dorsum of head melanic with metallic sheen. Spine-like hairs on all the elytral interstriae. Basal piece less than half of total length. Paramera with short row of hairs near apex
. *B. avernus* OLIVA, 1993
(Brasil: ?S. Paulo)
- 58' - Dorsum of head without metallic sheen, partially testaceous. Spine-like hairs only on outer interstria. Paramera with long row of hairs 59

- 59 - Elytral apices weakly produced, rounded. Basal piece of male genitalia about 1/3 of total length *B. elegans* KNISCH, 1921
(Brasil: M. Grosso) 60
- 59' - Elytral apices deeply emarginate, bispinous 60
- 60 - Shape slender; dorsum shining, not reticulate. Length up to 5.7 mm. Mesosternal process with ventral edge smooth. Basal piece of males genitalia 2/5 of total length *B. nitidissimus* OLIVA, 1989
(Brasil: M. Grosso)
- 60' - Shape sturdy; dorsum dull, pronotum reticulate. Length over 6.5 mm. Mesosternal process with ventral edge serrate. Basal piece a little more than half of total length
. *B. obscurifrons* KNISCH, 1921
(Argentina: Paraná basin; Uruguay; Brasil: S. Catharina)
- 61 - Lateral depressions smallish but usually deep. Shape weakly convex, sturdy to slender, with prominent humeral humps. Male genitalia strongly compressed. Paramera long, apices narrowly rounded. Median lobe long, cylindrical, straight or weakly curved, apex blunt or rounded. Dorsum with punctulation or microsculpture (*reticulatus*-complex) 62
- 61' - Lateral depressions large and rounded. No metallic sheen on dorsum. Shape slender or elongate; humeral humps weakly prominent . . . 70
- 62 - The whole dorsum reticulate in both sexes, with soft velvet-like sheen. Punctures fine and sparse. Head with metallic sheen. Pronotum with large discal spot. Sternites black. Femora testaceous. Fifth urosternite with serrate edge, the bottom of apical notch bidentate. Basal piece of male genitalia a little less than half of total length
. *B. reticulatus* KNISCH, 1921
(Argentina: N and E; Paraguay; Brasil: M. Grosso)
- 62' - Reticulation absent at least on head 63
- 63 - Mesosternal process in the shape of a semicircular lamina, with small semicircular notch delimitating a small anterior tooth. Females with head and pronotum alutaceous, not reticulate. Head with metallic sheen *B. borellii* KNISCH, 1925
(Bolivia: S. Cruz)
- 63' - Anterior tooth of mesosternal process large, prominent 64
- 64 - Sutural angle of elytral apices produced and rounded. Mesosternal process with posterior angle hardly prominent, hidden by middle coxae. Head with metallic sheen. Fifth urosternite with smooth edges; apical notch small, with bottom arcuate. Basal piece of male genitalia very short, about 1/3 of total length
. *B. festai* KNISCH, 1925
(Ecuador)

- 64' - Sutural angle of elytral apices produced or not, never rounded . . 65
- 65 - Head entirely melanic, with metallic sheen. Edges of fifth urosternite serrate 66
- 65' - At least the clypeum testaceous 67
- 66 - Sutural angle of elytral apices blunt, not produced. Mesosternal process with posterior angle rounded, prominent. Basal piece about half of total length. Paramera with shallow emargination on sternal edge, so that the rounded apex points towards the sternal side
. *B. ghanicoides* ORCHYMONT, 1941
(Perú: S; Argentina: NW)
- 66' - Sutural angle of elytral apices produced, acute. Basal piece a little shorter than half of total length. Paramera not emarginate
. *B. ghanicus* ORCHYMONT, 1941
(Brasil: Espiritu Santo; Guyana)
- 67 - Frons melanic with metallic sheen, clypeum testaceous. Femora with pubescent part black, glabrous part testaceous. Edges of fifth urosternite serrate; bottom of apical notch bidentate. Basal piece about half of total length *B. erraticus* MOUCHAMPS, 1963
(Argentina: E; Uruguay; Paraguay; Bolivia: S. Cruz;
Brasil: Amazonas; Venezuela: Bolívar)
- 67' - Frons partially testaceous, without metallic sheen 68
- 68 - Edges of fifth urosternite smooth; bottom of apical notch arcuate. Sutural angle of elytral apices produced, acute. Basal piece about 2/5 of total length *B. ambogynus* MOUCHAMPS, 1963
(Bolivia: Tarija; Brasil: Pará, Amazonas)
- 68' - Sutural angle of elytral apices not acute. Bottom of apical notch bidentate 69
- 69 - Pronotum reticulate in both sexes. Sutural angle of elytral apices produced, blunt. Fifth urosternite with serrate edges; bottom of apical notch bidentate. Femora testaceous or diffusely dark at base. Basal piece about half of total length. Median lobe cylindrical
. *B. decolor* KNISCH, 1924
(Argentina: widespread; Paraguay; Bolivia: S. Cruz)
- 69' - Pronotum not reticulate. Sutural angle of elytral apices not produced. Edge of fifth urosternite smooth; bottom of apical notch with a bifid tooth. Basal piece very short, less than 1/4 of total length. Median lobe with sub-basal swelling *B. brevibasis* OLIVA, 1989
(Brasil: M. Grosso)
- 70 - Shape amigdaloid or narrowly navicular. Pronotum with or without punctulation. Male genitalia moderately compressed. Paramera simple or with modified apices, without membranous appendices. Me-

- dian lobe subcylindrical; apex rounded, often swollen. Spine-like hairs on all the elytral interstriae (*subtilis*-complex) 71
- 70' - Shape elongate, not amigdaloid or navicular. Pronotum always punctulate. Male genitalia cylindrical, complex. Paramera with inner membranous appendices. Median lobe simple (*B. uniformis*) or complex. Modifications of legs frequent in males (*truncatipennis*-complex) 75
- 71 - Elytral apices produced, rounded in males, acute and converging in females. Pronotum and elytra with moderately coarse punctures; no punctulation. Mesosternal process with large, curved anterior tooth. Male genitalia with paramera encased for the greater part in basal piece, the apices with a large semicircular emargination, the row of hairs replaced by a single thick arista. Median lobe much longer than paramera, cylindrical, slender, greatly swollen at apex
B. ruffinus ORCHYMONT, 1946
 (Bolivia: La Paz; Brasil: Amazonas; Venezuela: Bolívar)
- 71' - Elytral apices deeply emarginate or at least with parasutural spine. Paramera not emarginate at apex, with a row of hairs 72
- 72 - Claws bifid. Mesosternal process without teeth or marked angles. Pronotum punctulate, rugulose in males, reticulate in females. Elytral apices deeply emarginate; sutural angle produced, acute, short in males, as long as parasutural spine in females. Paramera broadly acuminate, with long row of hairs. Median lobe a little shorter than paramera, subcylindrical
B. unguidentatus OLIVA, 1989
 (Argentina: E; Paraguay)
- 72' - Claws only weakly dentate at base. Mesosternal process with anterior tooth 73
- 73 - Pronotum reticulate in both sexes, not punctulate. Elytra smooth in males, reticulate in females. Elytral apices of males with sutural angle hardly produced, in females strongly produced, not quite spine-shaped. Metasternal process with postero-lateral angles not produced. Bottom of apical notch with a tooth, entire or bifid. Male genitalia with small basal piece; paramera short, broadly acuminate, with a row of very long hairs. Median lobe longer than the paramera, cylindrical, curved towards the tergal side, the apex weakly swollen, rounded. Size under 4 mm
B. speciosus KNISCH, 1921
 (Argentina: Paraná basin; Brasil: M. Grosso)
- 73' - Pronotal ground smooth in males, punctulate. Elytra smooth in both sexes 74
- 74 - Length 3.5-4.6 mm. Elytral apices similar in both sexes, with produced, acute, but not quite spine-shaped sutural angle. Pronotum reticulate in females. Outer elytral interstria flattened. Metasternal process with postero-lateral angles not produced. Bottom of apical notch weakly arcuate. Basal piece short, about 2/5 of total length. Paramera

- ra acuminate. Median lobe shorter than paramera, apex not swollen
B. subtilis KNISCH, 1921
 (Brasil: M. Grosso; Paraguay)
- 74' - Length from 4.1 (male holotype) to 5.5 (females). Elytral apices of males with sutural angle not produced, laid as a straight angle, parasutural spine acute, broad. Elytral apices of females produced, with small but deep emargination. Outer elytral interstria convex on posterior half. Metasternal process with postero-lateral angles produced. Bottom of apical notch bidentate in males, in females sinuate (*vide* SPANGLER, 1967). Basal piece moderately long. Paramera acuminate, nearly sickle-shaped in lateral view. Median lobe much longer than paramera, subcylindrical, swollen subapically
B. spectatus ORCHYMONT, 1940
 (Brasil: Pernambuco; M. Grosso)
- 75 - Spine-like hairs only on outer elytral interstria. Elytral apices narrowly rounded. Mesosternal process with a curved anterior tooth, pointing downwards. First urosternite carinate in nearly all its length; second with short basal carina, fifth with serrate edges, the bottom of apical notch bidentate. Basal piece about half of total length. Paramera acuminate, with membranous appendices about 2/3 of their length, rounded at apex. Median lobe cylindrical, nearly straight, apex not swollen; much shorter than paramera, longer than appendices
B. uniformis KNISCH, 1921
 (Brasil: M. Grosso)
- 75' - Spine-like hairs on all the elytral interstriae; elytral apices truncate or emarginate. First urosternite carinate only between hind coxae; fifth with edges smooth 76
- 76 - Elytral apices emarginate in both sexes; parasutural spine straight; sutural angle in males laid as a straight angle, in females produced. Size up to 4.8 mm. Mesosternal process with a small straight anterior tooth pointing downwards and backwards; the posterior angle produced downwards and backwards, nearly as prominent as anterior tooth. Apical notch with bottom bidentate. Fore tarsi of males with basal segment greatly dilated, shining, reticulate, the second moderately swollen. Basal piece about 2/3 of total length. Paramera abruptly narrowed, blunt; appendices about 3/4 of their length, truncate. Median lobe a little shorter than paramera, complex, with large dilated apical portion
B. phallicus OLIVA, 1989
 (Argentina: Paraná basin)
- 76' - Length over 5.8 mm. Apical notch never with bidentate bottom . . 77
- 77 - Elytral apices emarginate, with produced sutural angle, in both sexes; in males emargination rounded, in females straight. Mesosternal process with large curved anterior tooth, pointing downwards and backwards. Fifth urosternite in males very modified, raised into a disk around a deep, narrow apical notch; of females with broad

shallow emargination with sinuate bottom. Basal piece short. Paramera broad, blunt, with tergal appendices, rounded at the apex. Median lobe much shorter than the paramera, a little longer than the appendices, with apical membranous portion limited by a v-shaped line . . .

. *B. truncatipennis* CASTELNAU, 1840
(Argentina: E, NE; Bolivia: S. Cruz; Brasil: M. Grosso; Paraguay; Venezuela: Barinas)

- 77' - Elytral apices of females with curved emargination; if emargination straight, then mesosternal process without a curved anterior tooth. Males with modified fore claws 78
- 78 - Mesosternal process produced into a curve, without teeth or angles. Elytral apices emarginate; sutural tooth of males blunt, of females acute. Fifth urosternite of males with broad arc-shaped emargination; of females with broad emargination, the bottom of this sinuate. Fore claws of male sturdy, dark, the outer one swollen in the middle. Apical segment of maxillary palpi broad in both sexes, but in males more so, black. Basal piece long, encasing distal pieces. Paramera short, acuminate. Median lobe short, complex, with tergal spindle-shaped part and sternal truncate part
. *B. latipalpus* SPANGLER, 1967
(Brasil: M. Grosso)
- 78' - Mesosternal process at least with well-defined posterior angle. Elytral apices of males obliquely truncate, of females emarginate. Apical notch in males straight or v-shaped, in females bisinuate 79
- 79 - Mesosternal process with rounded anterior edge, ventral edge straight, posterior angle pointing backwards. Elytral apices of females with straight emargination. Fifth urosternite of males with broad, straight apical emargination. Fore claws of males black, inner one curved, sturdy, outer one leaf-shaped. Outer middle claw sinuate. Hind trochanters of males produced into a blunt, straight spur. Basal piece about 2/3 of total length. Paramera abruptly narrowed where they protrude from basal piece, then in tergal view dilated into a tapering trapeze. Median lobe complex, without paired appendices
. *B. masculinus* KNISCH, 1921
(Brasil: M. Grosso; Bolivia: S. Cruz; Argentina: NE; Paraguay)
- 79' - Mesosternal process with large, curved anterior tooth pointing backwards and downwards. Elytral apices of females with semicircular emargination. Fifth urosternite of male produced into a pair of teeth at each side of apical emargination, broadly v-shaped. Fore tarsi of males with fourth apparent segment black, reticulate; claws black, greatly dilated, the inner one squarish, the outer one nearly circular; empodium flattened. Middle legs with inner claw bifid, sinuate; tibial spur hook-shaped. Hind leg with tibial spur slightly hooked at apex. Maxillary palpi of male not modified, but labial palpi swollen, bearing a fringe of golden hairs. Basal piece a little longer than half of

total length. Paramera acuminate, in lateral view not narrowed, in tergal view truncate, with shorter membranous appendices. Median lobe complex, with a pair of long dark lateral appendices that protrude from the paramera *B. hamatus* KNISCH, 1924
(Brasil: Amazonas)

2. Description of species

2.1. *Holdhausi*-complex

Shape sturdy; dorsal sculpture coarse to hypertrophied; Mesosternal process strongly produced, with a prominent anterior tooth; metasternal process short, broad, with postro-lateral angles strongly raised. First apparent urosternite carinate behind the metacoxae, without lateral depressions. Fifth urosternite raised on either side of the shallow apical notch, the bottom of which is bidentate. Lateral edges of apparent urosternites crenulate in most species. Fore tarsi of the males tetramerous, but without perceptible dilation of the basal segments; no spine-like hairs on elytra. Paramera widely acuminate, the sternal edges parallel; median lobe s-shaped, with the apex strongly swollen.

Berosus consobrinus KNISCH, 1921

1921 *Berosus* (s.str.) *consobrinus* KNISCH, Arch. Naturgesch. 87 A(6), 1920: 15.

1989 *B. consobrinus*: OLIVA, Revta Mus. arg. Cs. nat., Ent. 6(4): 93-94 (not seen).

Diagnosis: Size small. Head with dorsum melanic, with metallic sheen. Sculpture slightly hypertrophied. Elytral striae with polygonal punctures. Elytral interstriae as wide as the striae, convex (the 11th one cost-shaped, in the anterior half overhanging the elytral edge), with fine punctures, a little larger on odd-numbered interstriae. Mesosternal process with anterior tooth slightly swollen, curved (Fig. 1). Femoral pubescence oblique, moderately extended. Male genitalia as in figure 3.

Redescription: Length of paratypes: 2.9-3.4 mm. Length/maximal width - humeral width: 12.40 (mean). Length/height: 3.09. OI (ocular index): male paratype: 2.0; females (mean): 3.0.

Head melanic with metallic sheen; discal spot on the pronotum with metallic sheen, without a median testaceous line. Sternites melanic. Femora melanic on pubescent part, testaceous on glabrous part.

Dorsal sculpture slightly hypertrophied, irregular, very dense. Punctures on elytral striae rather larger than the pronotal ones, contiguous, polygonal, exceeding the width of stria outwards. Interstriae about the same width as striae, the inner ones slightly convex, the outer ones strongly convex, the 11th one cost-shaped, overhanging the outer edge of the elytron between the humeral hump and the middle of the length. Punctures on

interstriae fine but well impressed, on odd-numbered interstriae larger than on even-numbered ones. Mesosternal process with the anterior tooth slightly swollen, pointing downwards (Fig. 1). Metasternal process short and wide. First apparent urosternite with a low carina, straight in profile, reaching the posterior edge of the sternite. Fifth apparent urosternite with an apical notch, the bottom of which bears two teeth. Lateral edges of apparent urosternites crenulate. Femoral pubescence oblique, covering about 1/2 of the middle and hind femora. Fore tarsi of the males with the two basal segments hardly swollen. Maxillary palpi with the apical segment thin, awl-shaped (Fig. 2)

Male genitalia (Fig. 3): Basal piece of moderate length. Paramera acuminate, curved towards the sternal face. Median lobe about the same length as paramera, with a swollen, spindle-shaped apex.

Material examined: Paratypes from Brazil: Mato Grosso: Corumbá, ex coll. KNISCH, in coll. ORCHYMONT.

Discussion: this species can be distinguished from allied ones, and specially from *Berosus fratellus* KNISCH, 1921, by the convex 11th interstria that overhangs the outer edge of the elytron in the anterior half. The other species of the *holdhausi*-complex presenting this character have a strongly hypertrophied dorsal sculpture.

Berosus megillus ORCHYMONT, 1940

1940 *Berosus* (s.str.) *megillus* ORCHYMONT, Bull. Anns Soc. ent. Belg. 80, 1940: 190.

Diagnosis: Size small. Dorsum melanic, without metallic sheen; femora bicolorous. Dorsal sculpture coarse; punctures on elytral striae about twice the size of those on pronotum. Mesosternal process as in figure 4. First apparent urosternite carinate on anterior half. Lateral edges of apparent urosternites smooth under 50X. Femoral pubescence extensive, transverse.

Redescription: Measurements of holotype (female): length: 3.6 mm; humeral width: 1.3 mm; maximal width: 1.7 mm; height: 1.6 mm. OI: 4.66.

Dorsum melanic, without metallic sheen; pronotum black, without a testaceous median line; elytra dark, with ill-defined spots. Thoracic sternites black, the abdominal ones dark. Femora bicolorous.

Head, pronotum and scutellum with large punctures (about three times the size of an ommatidion), dense on head, on pronotal disk spaced by one to three times their diameter, round; on the lateral portions of the pronotum contiguous, subpolygonal. Elytral striae with round punctures about twice the size of the pronotal ones. Interstriae with punctures a little finer than the pronotal ones, somewhat finer still on the outer interstriae, which are convex, the 11th not raised on the anterior half. Inner interstriae step-shaped. Elytral apices narrowly rounded. Mesosternal process with the anterior tooth laminar, curved, pointing downwards (Fig. 4). Metasternal

process moderately wide. First apparent urosternite with a low, fine carina that reaches the middle of the sternite. Fifth urosternite with a narrow, shallow apical notch, the bottom of which bears two teeth. Lateral edges of the apparent urosternites smooth and entire under 50X. Femoral pubescence transverse, covering about 2/3 of middle and posterior femora. Fore tarsi remarkably short and sturdy (female), with the distal segment shorter than the others taken together.

Male genitalia: Unknown.

Material examined: Holotype (female) labelled "Brasil.S.Paulo/Cidade IV.1921/J. Melzer legit"; "A. d'Orchymont det/Berosus (s.str.)/megillus m."; "Type"; in coll. ORCHYMONT.

Discussion: Tentatively (since male genitalia are unknown) I have placed this species in the *holdhausi*-complex, inside which it can be distinguished from all other species by the smooth lateral edges of the apparent urosternites, by the specially large punctures on the elytral interstriae (nearly as large as the pronotal punctures) and by the metasternal process which is only moderately wide.

2.2. *Nervulus*-complex

Shape not elongate, strongly or weakly convex, with prominent humeral humps. Dorsal sculpture coarse to fine; sometimes microsculpture in females. Mesosternal process entirely laminar. Apparent urosternites with lateral edges crenulate to smooth; the fifth one with an apical notch, the bottom of which is bidentate. No spine-like hairs or lateral depressions. Fore tarsi of the males with adhesive soles of modified hairs on the two basal segments, which are swollen in a variable degree. Other modifications of legs frequent in males. Male genitalia with the paramera acuminate, parallel, and the median lobe subcylindrical, s-shaped or nearly straight, with the apex swollen in a variable degree.

Berosus cognitor MOUCHAMPS, 1963

1963 *Berosus* (*Berosus*) *cognitor* MOUCHAMPS, Mitt. münch. ent. Ges. 53: 130-131.

1989 *B. cognitor*: OLIVA, Revta Mus. arg. Cs. nat., Ent. 6(4): 97 (not seen).

Diagnosis: Size small; Head with metallic sheen; no metallic sheen on the pronotum. Dorsal sculpture moderately coarse; elytral striae with punctures not exceeding the width of striae. Mesosternal process with the anterior tooth not very prominent (Fig. 5). Apparent urosternites with smooth lateral margins. Fore tarsi of the males with a short basal segment (Fig. 6); middle tarsi of the males with the second segment swollen, with small, sickle-shaped claws (Fig. 7); claws of fore and hind legs without modifications. Male genitalia with the median lobe a little shorter than the paramera, hardly swollen at the apex (Fig. 9).

Redescription: Measurements of the holotype (male): length: 3.2 mm; humeral width: 1.4 mm; maximal width: 1.6 mm; height: 1.2 mm. OI: 2.50.

Head and scutellum melanic with metallic sheen. Pronotum testaceous, with a pair of paramedial spots that have no metallic sheen. Elytra testaceous with black spots. Thoracic sternites testaceous, the abdominal ones black. Femora testaceous in the holotype.

Head densely punctured. Pronotum with moderately coarse punctures (2-3 times the size of an ommatidium), at the sides of the pronotum contiguous, on disk spaced by two to three times their diameter. Ground punctulate. Punctures on elytral striae not exceeding the width of these, on the inner ones about the size of pronotal (discal) punctures, on outer striae about the size of punctures on the sides of the pronotum. Interstriae flat, the outer ones slightly convex, the 11th wide and explanate on the anterior half; width of inner interstriae a little more than twice the width of striae; width of outer interstriae one and a half times that of striae. Punctures on interstriae fine, sparse, vaguely uniseriate. Humeral angle of elytra weakly serrate. Mesosternal process laminar, with weakly produced anterior tooth (Fig. 5). Metasternal process moderately wide, with postero-lateral angles raised and produced backwards. First apparent urosternite carinate only between hind coxae; fifth one with an apical notch that has a bidentate bottom. Lateral edges of urosternites smooth. Femoral pubescence oblique, covering about 1/3 of middle and hind femora. Fore tarsi of the males with slightly swollen, bead-like basal segments, the first two with small adhesive soles, the first one as long as the second; fourth segment slender, nearly twice as long as the others taken together (Fig. 6); claws not modified. Middle tarsi of males with the second segment swollen, with small sickle-shaped claws (Fig. 7). Claws of hind legs not modified. Maxillary palpi of the males short, sturdy, with a thick distal segment (Fig. 8).

Male genitalia (Fig. 9): Median lobe cylindrical, nearly straight, with a spindle-shaped, hardly swollen apex, a little shorter than the paramera which are narrow, gradually acuminate, slightly angled at the distal third. The genitalia had been dissected and dry-mounted, apparently after treating them with some alkali; the basal piece is damaged. I desisted from further manipulation as this is the only specimen known of this species.

Material examined: Holotype (male) from Paraguay: Villarrica, Schade leg. (ex coll. KNISCH) in coll. MOUCHAMPS.

Discussion: This species can be distinguished from *B. nervulus* MOUCHAMPS, 1963 and from *B. forsteri* MOUCHAMPS, 1963 by the smooth lateral edges of the apparent urosternites, by the punctures on the elytral striae, not exceeding the width of these outwards, and in the case of males by the fore tarsi with the basal segment as long as the second, in addition to the characters in the male genitalia.

Berosus forsteri MOUCHAMPS, 1963

1963 *Berosus (Berosus) forsteri* MOUCHAMPS, Mitt. münch. ent. Ges, 53: 131-132.

1989 *B. forsteri*: OLIVA, Revta Mus. arg. Cs. nat., Ent. 6(4): 97 (not seen).

Diagnosis: Size small. Metallic sheen only on head. Dorsal sculpture coarse and sparse. Punctures on elytral striae exceeding width of these outwards. Anterior tooth of mesosternal process curved, pointing downwards (Fig. 10). Apparent urosternites with crenulate lateral edges. Femoral pubescence oblique, moderately narrow. Middle and hind femora of males angular on posterior edge. Fore tarsi of males with a modified outer claw and with a basal segment as long as the second and third together (Fig. 11). Middle tarsi of the males with the second segment swollen; claws sturdy. Male genitalia with the median lobe much shorter than the paramera, with a swollen apex (Fig. 13).

Redescription: Measurements of the holotype (male): length: 3.6 mm; humeral width: 1.5 mm; maximal width: 1.7 mm; height: 1.4 mm. Male paratype: same measurements. Female paratypes: length: 3.7-4.2 mm. OI: males: 2.40; females: 2.40-3.0.

Head with metallic sheen. Pronotal disk diffusely melanic, with a testaceous median line; scutellum melanic; both without any metallic sheen. Elytra testaceous with black spots. Thoracic sternites testaceous, the abdominal ones black. Femora testaceous in the typical specimens, but the pubescent part reddish (melanic in well-sclerotized specimens?).

Punctures dense on head, sparse on pronotum, irregular in distribution, moderately coarse (2-3 ommatidial diameters on disc; a little larger towards the sides); ground densely punctulate. Elytral striae with punctures exceeding the stria width (interstriae step-shaped), punctures on inner striae a little finer than those on pronotal disk. Inner interstriae flat, three times or more the width of striae, with punctures about half the size of those on striae. Outer interstriae slightly convex, with punctures 1/3 of the size of those on striae. Ground reticulate in females. Mesosternal process laminar, with a curved, strongly produced anterior tooth, pointing downwards (Fig. 10). Metasternal process flat, with postero-lateral angles slightly produced backwards, but not raised. Lateral edges of apparent urosternites crenulate. First apparent urosternite with a carina that reaches the middle of the sternite, high between the hind coxae, gradually depressed backwards. Apical notch of fifth urosternite deep, bottom bidentate. Femoral pubescence oblique, on middle femora from 1/4 to 1/2 of the length, on the hind femora from 2/5 to 3/5 of the length. Middle and (to a greater degree) hind femora of the males with an angular posterior edge, from the angle towards the apex describing an arc. Fore tarsi of males with adhesive soles on the two basal segments, slightly swollen, the basal segment as long as the second and the third taken together, the fourth one slender, as long as the three other ones taken together; claws sturdy, the

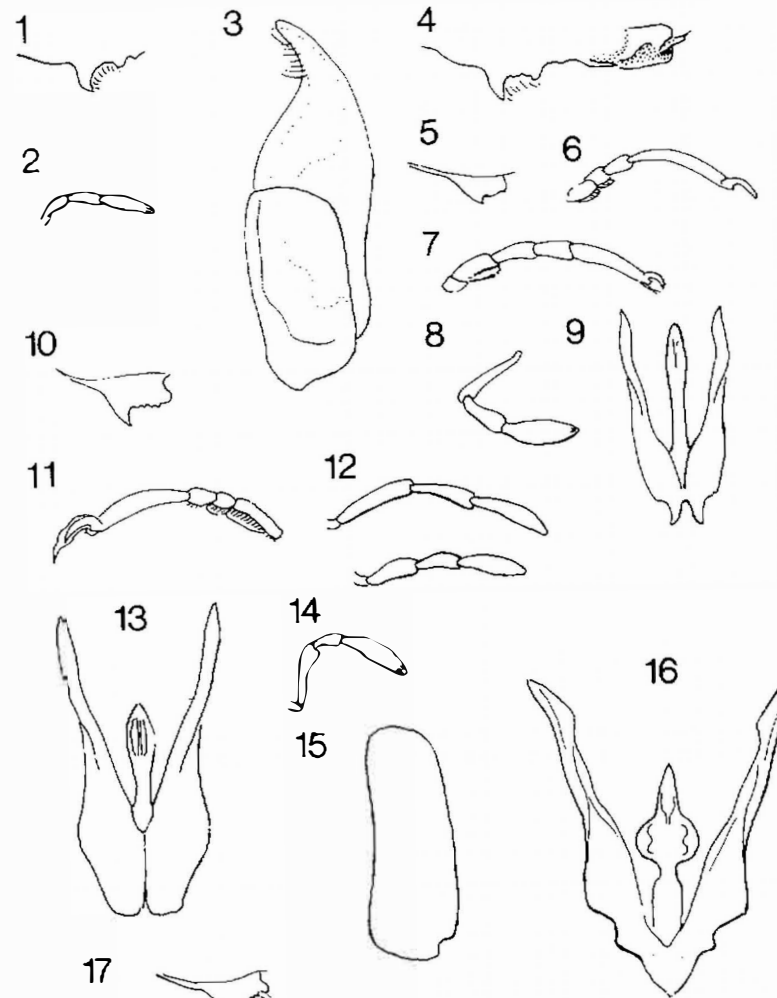
outer one sinuate (Fig. 11). Middle tarsi of males with the second segment swollen; claws sturdy, toothed at base. Hind claws weakly curved. Females with all claws weakly curved. Maxillary palpi of males elongate (Fig. 12).

Male genitalia: as in figure 13.

Material examined: Typical series from Bolivia: río Yacuma, Espíritu, 250 m, 7-1950, in coll. MOUCHAMPS.

Discussion: The males of this species can be recognized by the fore claws (Fig. 11); the modified middle tarsi resemble those of *B. cognitor*, but in this species the claws are noticeably smaller than those on fore and hind legs. The punctures on elytral striae exceed the width of these in *B. forsteri*, not in *B. cognitor*; the lateral edges of the apparent urosternites are crenulate in the first species, smooth in the second one. From *B. nervulus* MOUCHAMPS it can be distinguished by the secondary sexual characters and by a much finer pronotal sculpture, with a punctulate ground; in *B. nervulus* there is usually a metallic sheen on the pronotal spot, which is lacking in the typical series of *B. forsteri*, but this character is not decisive.

It is interesting that in this species-complex secondary sexual characters appear in the middle and hind legs, and in the femora in addition to the tarsi (related to the mounting of the female?). There is a species (which I described on a single male from Bolivia: *B. inflatipes* OLIVA, 1993) presenting linear but tetramerous fore tarsi, together with swollen second segments of the middle and hind tarsi, and also swollen middle and hind tibiae. In that paper I placed the species in the *holdhausi*-complex because of the male genitalia and of the linear fore tarsi. The limit between the *holdhausi*- and the *nervulus*-complexes appears to be an arbitrary one, and yet the number of species makes some subdivision necessary. Another fact worth pondering is that species with sexual characters in the middle and hind legs come from the Bolivian and Paraguayan Chaco and neighbour areas, while at Mato Grosso (Corumbá) there appears a radiation based on modifications of the dorsal sculpture, with small differences in the male genitalia, and only in the median lobe.



Figs 1-17. 1-3: *Berosus consobrinus* KNISCH. 1: mesosternal process in lateral view; 2: maxillary palpus (male); 3: male genitalia in lateral view. 4: *B. megillus* ORCHYMONT, meso- and metasternal processes. 5-9: *B. cognitor* MOUCHAMPS. 5: mesosternal process in lateral view; 6: fore tarsus (male); 7: middle tarsus (male); 8: maxillary palpus (male); 9: distal pieces of male genitalia, tergal view. 10-13: *B. forsteri* MOUCHAMPS. 10: mesosternal process in lateral view; 11: fore tarsus (male); 12: maxillary palpi of male (above) and female; 13: distal pieces of male genitalia in tergal view. 14-16: *B. gynopalpis* MOUCHAMPS. 14: maxillary palpus (male); 15: basal piece of male genitalia in lateral view; 16: distal pieces of male genitalia in tergal view. 17: *B. singularis* KNISCH, mesosternal process in lateral view. (Fig. 3: 100X; the others 50X).

***Berosus gynopalpis* MOUCHAMPS, 1963**

1963 *Berosus* (*Berosus*) *gynopalpis* MOUCHAMPS, Mitt. münch. ent. Ges., 53: 132-133.

1989 *B. gynopalpis*: OLIVA, Revta Mus. arg. Cs. nat., Ent. 6(4): 98 (not seen).

Diagnosis: Size moderate. Metallic sheen only on head. Sculpture dense, moderately coarse. Elytral striae fine; interstriae flat, convex around the scutellum; interstria 11th convex, overhanging the outer edge of the elytron. Fore tarsi of males with the two basal segments strongly dilated. Male genitalia with the median lobe much shorter than the paramera, strongly dilated in the subapical portion (Fig. 16).

Redescription: Measurements of examined paratype (male): length: 4.1 mm; humeral width: 1.7 mm; maximal width: 2.1 mm; height: 1.4 mm. OI: 2.40.

Head with metallic sheen. Scutellum and small para-medial spots on pronotum, black without metallic sheen. Elytra testaceous, with extensive melanic spots, the lateral ones particularly so. Sternites black.

Punctures on head and pronotum dense, moderately coarse, on the pronotal disk elliptical; ground densely punctulate. Elytral striae fine, their punctures not exceeding their width. Punctures on interstriae the same size as those on striae or a little finer, rather dense, forming several indistinct rows. Inner interstriae flat, save at base around the scutellum, where they are convex; outer interstriae convex, the 11th one more so, overhanging the outer edge of the elytron. Ventral characters: not observed (the single specimen available was in a brittle condition). Fore tarsi (male) with the two basal segments strongly dilated and bearing adhesive soles.

Male genitalia (Figs 15-16): Basal piece moderately long (Fig. 15). Paramera gradually acuminate, with slight apical expansion. Median lobe much shorter than the paramera, with strong subapical dilation or swelling (Fig. 16). Drawn from pieces mounted in arabic gum by MOUCHAMPS; since pieces prepared by this author are often brittle (treated with alkali?) I desisted from preparing them again.

Material examined: Male paratype from Bolivia, labelled: "Chiquito/Roboré 300 m/27.28. 12. 53", "Bolivia, 1954/Leg. W.Forster". In coll. MOUCHAMPS.

Discussion: This species can be distinguished from those previously discussed by the larger size and the fine elytral striae; from *B. nervulus* by the punctures on the striae not exceeding the width of these; the two basal segments of the fore tarsi of the males are far more strongly modified (dilated) in this species than in any other of the same complex.

***Berosus singularis* KNISCH, 1921**

1921 *Berosus* (s.str.) *singularis* KNISCH, Arch. Naturgesch. 87 A(6): 20.

Diagnosis: Size moderate. Head with metallic sheen; pronotal spot well defined. Dorsal sculpture dense and coarse; pronotal punctures polygonal; punctures on elytral striae round, about the same size as the pronotal ones. Elytral interstriae flat, with coarse punctures. Ground punctulate (females). Humeral angle of elytra serrate. Mesosternal process laminar, as in figure 17. Metasternal process narrow, with the posterior angle carinate, but not higher than the postero-lateral ones. Lateral edges of apparent urosternites crenulate. Femoral pubescence oblique, moderately extensive.

Redescription: Measurements of holotype (female): length: 4.1 mm; humeral width: 1.7 mm; maximal width: 2.0 mm; height: 1.6 mm. OI: 2.40.

Head and scutellum with metallic sheen. Discal spot on the pronotum well defined, without a testaceous median line. Urosternites black.

Punctures on head and pronotum coarse, contiguous, polygonal, on frons and on pronotal disk forming irregular longitudinal rows. Ground punctulate. Median line of pronotum not punctured, but punctulate (it appears to be raised because of the sunken punctures at each side). Scutellum with coarse dense punctures. Punctures on elytral striae slightly finer than those on pronotum, round. Interstriae moderately wide, flat, only the outer one slightly convex in the middle. Punctures on interstriae about the same size as those on striae, dense, forming several rows. Ground shining (females). Humeral angle of elytra serrate into several coarse teeth. Elytral apices narrowly rounded. Mesosternal process laminar, short, strongly produced (Fig. 17), with the anterior tooth pointing downwards and backwards. Metasternal process narrow; postero-lateral angles produced and raised; posterior angle carinate, not higher than the former. Lateral edge of apparent urosternites crenulate. First urosternite carinate only between hind coxae; apical notch in the fifth urosternite shallow, its bottom bearing two sharp teeth. Femoral pubescence oblique-convex, covering 2/3 of the middle femora and 3/5 of the hind femora.

Male genitalia: Unknown

Material examined: Holotype (female), labelled: "Bras. Corumba/(Matto Grosso)"; "coll. A. Knisch/TYPUS"; "*Berosus* s.str./det Knisz/singularis m." Ex coll. KNISCH, in coll. ORCHYMONT. Besides: one female with the same data, but not labelled as type, in coll. MOUCHAMPS.

Discussion: This species was placed only tentatively in the *nervulus*-complex, since the male genitalia are unknown. The dorsal sculpture is quite primitive (coarse punctures, punctulation, humeral angle of elytra serrate), except for the small detail that the punctures on striae are rather finer than those on the pronotum. In the more primitive type of sculpture (e.g. *B. megillus* ORCHYMONT) the punctures on striae are 2-3 times the size of the pronotal ones. The absence of spine-like hairs on the elytra and

of lateral depressions on the first urosternite, together with the primitive colour, sculpture and configuration of the urosternites, point to a low specialization level for *B. singularis*. It does not appear to belong in the *adustus*-complex because the elytral striae are regular, not deepened and broadened at the level of the stridulatory patch. This last is elongately oval, simple (cf. *B. vilipendus*).

B. singularis differs from *B. nervulus* by the lack of dorsal reticulation in females, by the presence of punctulation and by the femoral pubescence covering more than half of the middle and hind femora. From *B. alternans* BRULLÉ, 1841 (which, however, is not found in the same geographic area) it can be distinguished by the elytral striae, well incised in all their length (in *B. alternans* the outer one is obsolete in the anterior half), by the raised postero-lateral angles of the metasternal process and by the weakly arched claws. Other species with metallic sheen on head and unmodified elytral apices have either a different sort of dorsal sculpture, or spine-like hairs on the elytra.

Berosus auspicalis ORCHYMONT, 1940

1940 *Berosus* (s.str.) *auspicalis* ORCHYMONT, Bull. Anns Soc. ent. Belg. 80: 189.

Diagnosis: Size moderate; shape sturdy, strongly raised. Head with metallic sheen; discal spot on pronotum extensive, without metallic sheen. Dorsal sculpture coarse and dense; elytra reticulate in females. Interstriae wide, the 11th one overhanging the outer edge of the elytron in the anterior half. Mesosternal process short, strongly produced, as in figure 18; metasternal process strongly raised, with a deep median depression. Lateral edge of apparent urosternites crenulate (first) to serrate (fifth). Femora narrow, with narrow, oblique pubescence (Fig. 19). Fore tarsi of the males with adhesive soles on the two basal segments, slightly swollen (Fig. 20). Male genitalia as in figures 22, 23.

Redescription: length: males: 4.6-5.1 mm; females: 4.5-5.2 mm. Length/maximal width - humeral width: 14.41. Length/height: 2.20. OI: males: 2.0-3.2; females: 3.0-3.6.

Head with metallic sheen. Discal spot on the pronotum black, extensive, without metallic sheen, with a testaceous median line. Scutellum black, without metallic sheen. Elytra testaceous with black spots, moderately extensive. Sternites black. Femora testaceous, with the pubescent portion black.

Punctures on head and pronotum coarse, dense, irregular in disposition, on the pronotal disk polygonal, contiguous, with a few smaller punctures and sparse punctulation; median line sparsely punctulate. Ground shining. Punctures on scutellum coarse, dense, polygonal. Elytral striae deep, their punctures a little larger than those on pronotal disk, spaced by rather less than their diameters. Interstriae wide, the inner ones slightly convex, the outer ones strongly convex, specially the 11th which overhangs the outer

edge of the elytron in the anterior half. Punctures on interstriae about 2/3 (inner interstriae) or 1/4 (outer ones) of the striae punctures, disposed in several irregular rows; ground shining, in females finely reticulate without dimming of the gloss. Mesosternal process short, very strongly produced, with a curved anterior tooth and with a serrate ventral edge (Fig. 18). Metasternal process short and wide, strongly raised and excavate, with a high anterior carina, with produced postero-lateral angles, raised higher than the carinate posterior angle. First apparent urosternite carinate in anterior third, the carina strongly raised only between the hind coxae; lateral edges crenulate. Urosternites second to fourth with progressively finer lateral crenulation, tending to become serrate. Fifth urosternite serrate, with an apical notch, the bottom of which bears two sharp teeth, contiguous but distinct. Hind femora narrow (Fig. 19); femoral pubescence narrow, oblique. Fore tarsi of the males with adhesive soles in the two basal segments which are slightly swollen (Fig. 20). Maxillary palpi of the males slightly elongate (Fig. 21).

Male genitalia (Figs 22-23): Basal piece moderately long. Paramera gradually acuminate, with a short distal row of hairs; apices sinuate in sternal view. Median lobe short, sinuate in lateral view, the apex swollen.

Material examined: Typical series. Holotype (male) labelled: "Brasilien/ Nova Teutonia/27°11'S. 52°23'L (sic)/Fritz/Plaumann". Paratypes: 24 males and 23 females of the same locality. In coll. ORCHYMONT.

Discussion: This species presents a very peculiar combination of characters, that makes it easy to identify, but difficult to place in a species-complex. The male genitalia with a short, arched median lobe resemble that of *B. auriceps* BOHEMAN, 1859, but this species and allied ones have rudimentary lateral depressions on the first apparent urosternite, the bottom of the apical notch in the fifth urosternite bearing a bifid tooth, some spine-like hairs on the outer elytral edge and (in males) adhesive soles restricted to the first segment of the fore tarsi. In *B. auspicalis* there are no lateral depressions or spine-like hairs; the notch in the fifth urosternite bears two distinct teeth at the bottom and the fore tarsi of the males bear soles on the two basal segments. On the other hand, the narrow hind femora in *B. auspicalis* recall those of *B. auriceps*, although in the last species the modification is more marked. Granting that it belongs in the *nervulus*-complex, *B. auspicalis* can be recognized by the 11th interstria overhanging the elytral edge. This character appears also in *B. gynopalpis*, but this species is easily distinguished by the flat interstriae that become convex only around the scutellum and by the dense punctulation on the pronotal disk. The lateral edges of the apparent urosternites in *B. auspicalis* show a peculiar condition, unique as far as I know for the South-American fauna.

2.3. *Sticticus*-complex

Moderate-sized to very small species. No metallic sheen on the dorsum. Shape not elongate, strongly or weakly convex. Dorsal sculpture coarse and dense to sparse; pronotal punctures often elliptical. No spine-like hairs or lateral depressions. Lateral edges of apparent urosternites smooth, rarely serrate. First urosternite always carinate behind the hind coxae. Fore tarsi of the males with adhesive soles on the two basal segments. Male genitalia with long basal piece, arched, acuminate paramera and a more or less cylindrical median lobe, s-shaped, usually weakly so, usually with spindle-shaped apex.

Berosus arcanus KNISCH, 1924

1924 *Berosus* (s.str.) *arcanus* KNISCH, Wien. ent. Ztg 41(4-10): 137.

Diagnosis: Size very small. Dorsum testaceous; frons and pronotal disk diffusely melanic; elytral spots well defined. Punctures on pronotum round, dense. Elytral interstriae moderately narrow, slightly convex. Femoral pubescence covering a little less than half of the femora. All the claws bifid (Figs 25-26). Maxillary palpi short in both sexes (Fig. 27). Male genitalia as in figure 28.

Redescription: Measurements of the holotype (male): length: 2.1 mm; humeral width: 0.7 mm; maximal width: 0.9 mm; height: 0.7 mm. OI: 2.0.

Dorsum testaceous; frons, pronotal disk and scutellum diffusely melanic; elytral spots small and well defined. Sternites melanic (reddish in holotype). Femora bicolorous.

Punctures on head and pronotum coarse and round, contiguous, on the pronotal disk only spaced by the equivalent of their own diameter. Elytral interstriae a little wider than striae, convex, the three outer ones only a little more convex than the rest. Mesosternal process laminar, as in figure 24. Apparent urosternites with lateral edges microscopically serrate, the first one finely carinate in its entire length, the fifth one with a shallow apical notch, the bottom of which is produced into a triangle. Femoral pubescence narrow and oblique on the fore femora, on the middle and hind femora covering about the basal 2/5, with a convex limit. Fore tarsi of the males sturdy, with adhesive soles in the two basal segments (Fig. 25). All the claws bifid besides having an angular base, in both sexes (Figs 25-26). Maxillary palpi short, with a sturdy apical segment, in both sexes (Fig. 27).

Male genitalia (Fig. 28): Basal piece long (3/5 of total length). Paramera acuminate, curved towards the sternal face. Median lobe cylindrical, nearly as long as the paramera.

Material examined: Holotype (male) from Bolivia: Cuatro Ojos, IX. 1917, "Sammlung/Lizer & Délétang/(durch C. Bruch)/dedit 1921"; "Bero-

sus s.str./Knisz det/arcanus m.". Ex coll. KNISCH, in coll. ORCHYMONT. Also one female: "239. Amazonie/Lar Comprido (Careiro)/8.IV.1964/G. Marlier". In the general collection of the IRSNB.

Discussion: this species can be mistaken for no other except *B. minimus* KNISCH, 1921 (very wide in distribution), from which it can be distinguished by the round (instead of elliptical) punctures on frons and pronotum, by the lesser extension of the femoral pubescence and by the bifid claws; in the case of males, the genitalia show differences (see discussion of *B. firmius* for details). A character that sets *B. arcanus* apart from the rest of the species in the *sticticus*-complex is that the lateral edge of the apparent urosternites appears finely serrate under 50X.

Berosus firmius ORCHYMONT, 1940

1940 *Berosus* (s.str.) *firmius* ORCHYMONT, Bull. Anns Soc. ent. Belg. 80, 1940: 186

Diagnosis: Size small. Dorsum testaceous, head and pronotum with extensive melanization, elytral spots moderately extensive. Dorsal sculpture sparse except at the sides of the pronotum. Elytral interstriae flat, a little convex around the scutellum; the 11th one wide and flat in the anterior half. Mesosternal process with a small laminar anterior tooth, pointing backwards (Fig. 29); metasternal process with postero-lateral angles more strongly raised than the posterior angle. Femoral pubescence oblique, moderately extensive. Claws not modified. Male genitalia with a very long basal piece; median lobe shorter than paramera (Fig. 32).

Redescription: Measurements of the holotype (female): length: 2.5 mm; humeral width: 1.0 mm; maximal width: 1.2 mm; height: 1.0 mm. OI: 2.66.

Dorsum without any metallic sheen. Melanization on: the greater part of the frons, a median triangle of the clypeus, the pronotum excepting the anterior and lateral edges (there is no testaceous median line), the scutellum and the moderately extensive elytral spots. Sternites vaguely dark in the typical specimens; femora testaceous; maxillary palpi with well defined apical melanization in all the specimens (Fig. 31).

Punctures on head and pronotum rather sparse, fine on clypeus, of moderate size (2 ommatidia) on frons and on pronotal disk, where they are irregular in distribution, some being contiguous, some spaced by 2-3 times their own diameter. On the sides of the pronotum the punctures are a little coarser, polygonal, contiguous; only here some trace of reticulation in the females; on the rest of the dorsum the ground is smooth and shining in both sexes. Elytral striae 1st to 5th deep, 6th to 10th a little more shallow and open, the punctures exceeding the width of striae. Interstriae flat, at base a little convex around the scutellum, the three outer ones slightly convex on the posterior half; 11th one wide and nearly flat on anterior half. Punctures on interstriae sparse, their size 1/3 to 1/4 of that of striae punctures. Humeral angle weakly serrate. Mesosternal process laminar,

with the anterior edge nearly straight, culminating in a small tooth pointing downwards and backwards (Fig. 29). Metasternal process narrow, the postero-lateral angles more strongly raised than the posterior one (Fig. 29). First apparent urosternite finely carinate in its whole length; apical notch of the fifth urosternite with the bottom produced into a triangle; lateral edges of apparent urosternites smooth. Femoral pubescence briefly oblique, covering about 2/3 of the middle femora and 3/5 of the hind femora. Fore tarsi of the males with adhesive soles on the two basal segments, the first one twice as long as the second, both slightly swollen (Fig. 30). Claws of the males without modification. Maxillary palpi short and sturdy in both sexes (Fig. 31).

Male genitalia (Fig. 32): Basal piece more than three times as long as wide. Paramera acuminate, strongly curved towards the sternal face (Fig. 32, left). Median lobe subcylindrical, a good deal shorter than the paramera.

Material examined: Holotype (female) and three paratypes (one male and two females), all labelled "Br.616.Pernambuco/(Mun.Jaboatao) Piedade/(Recife) 15.4.36 Schubart". In coll. ORCHYMONT.

Discussion: The metasternal process with the postero-lateral angles more strongly raised than the posterior angle distinguishes *B. firminus* from *B. sticticus* BOHEMAN, 1859. The species described by ORCHYMONT resembles very closely *B. minimus* KNISCH and *B. arcanus* KNISCH; the holotype of *B. firminus* is rather large for these two species, but it is a female. In the case of males, the three species can be distinguished by the claws (all bifid in *B. arcanus*; outer claw of middle legs hook-shaped in *B. minimus*; no modifications in *B. firminus*) and also by the male genitalia, specially by the length of the basal piece (about 3/5 of total length in *B. arcanus*; 2/3 in *B. minimus*; more than 3/4 in *B. firminus*). Females can be distinguished by the femoral pubescence (in *B. firminus* less extensive than in *B. minimus* and more extensive than in *B. arcanus*); the claws are bifid in *B. arcanus*; the pronotal punctures are denser in this species, much sparser in *B. firminus*. The dorsal melanization, specially on the head and on the pronotal disk, is remarkably more extensive in *B. firminus* than in *B. minimus*, but this character should not be given too much weight.

Berosus nigrinus KNISCH, 1921

1921 *Berosus* (s. str.) *nigrinus* KNISCH, Arch. Naturgesch. 87 A(6): 22.

Diagnosis: Size small; shape sturdy, elongate. Dorsum entirely melanic. Sternites melanic; femora bicolorous. Dorsal sculpture dense; pronotal punctures elliptical. Elytral striae deeply incised; interstriae narrow, the inner ones flat, the outer ones convex, the 11th one raised in the anterior half. Mesosternal process strongly raised, with a curved anterior edge (Fig. 33). Metasternal process with posterior angle raised into a convex lamina (Fig. 33), at least as highly raised as the postero-lateral angles. First apparent urosternite finely carinate in anterior 3/4; the fifth one with

a shallow, narrow apical notch, the bottom of this bearing two rounded projections. Lateral edges of apparent urosternites smooth.

Redescription: Length of holotype (female): 2.5 mm

Both dorsal and sternal surfaces deeply melanic, without spots or metallic sheen. Femora bicolorous. Tarsi and maxillary palpi absent in examined specimen.

Punctures on head and pronotum moderately coarse, dense, on the pronotum elongate, spaced by less than their own diameters, behind the eyes disposed in irregular rows, contiguous. Elytral striae deeply incised, with round punctures about twice the size of those on pronotal disk. Interstriae flat save the three outer ones, strongly convex, specially the 11th one. Outer interstriae narrow, 1 1/2 times the width of striae (the 11th one about equal to these). Mesosternal process laminar, sturdy, strongly raised, the anterior edge curved, the anterior tooth pointing downwards (Fig. 33), behind this the ventral edge of the process concave. Metasternal process with an anterior carina and with the posterior angle raised into a lamina which is convex in lateral view, at least as strongly raised as the posterolateral angles, which are produced into triangular lamellae (Fig. 33). First apparent urosternite carinate on anterior 3/4, the carina raised between the hind coxae, low and fine behind. Fifth urosternite with a shallow, narrow apical notch, the bottom of this produced into two rounded projections (Fig. 34). The sternite strongly raised at each side of the notch and depressed behind this. Lateral edges of the apparent urosternites smooth. The maxillary palpi and most of the legs are lacking in the holotype.

Material examined: Holotype (female) from Brasil: Matto Grosso: Corumbá, ex coll. KNISCH, in coll. ORCHYMONT.

Discussion: in spite of being represented by a single mutilated female, this species cannot be mistaken. The uniform black colour is quite unique in this complex, and rare in the genus. The metasternal process with a raised posterior angle distinguishes this species from all others save *B. sticticus* BOHEMAN, *B. coelacanthus* OLIVA, 1989 and *B. multicarinatus* OLIVA, 1989. The mesosternal process of *B. nigrinus* differs from that of the second species in being wholly laminar, from that of the third one by the downwards-pointing anterior tooth, from that of the first species by the absence of a posterior tooth. The general shape of the body is more elongate in *B. nigrinus* than in *B. sticticus*.

2.4. *Patruelis*-complex

Sculpture on head and pronotum coarse and dense, with dense punctulation; elytra with fine striae and coarsely punctured interstriae carrying spine-like hairs. First apparent urosternite with lateral depressions. Fore tarsi of males with adhesive soles on the two basal segments. Male genitalia with acuminate parallel paramera and with a subcylindrical median lobe bearing a tergal ridge at least at the apex.

***Berosus vilipendus* MOUCHAMPS, 1963**

1920 *Berosus* (s.str.) *seriatus*: KNISCH, Arch. Naturgesch., 87 A(6), 1920: 20 (error in identification).

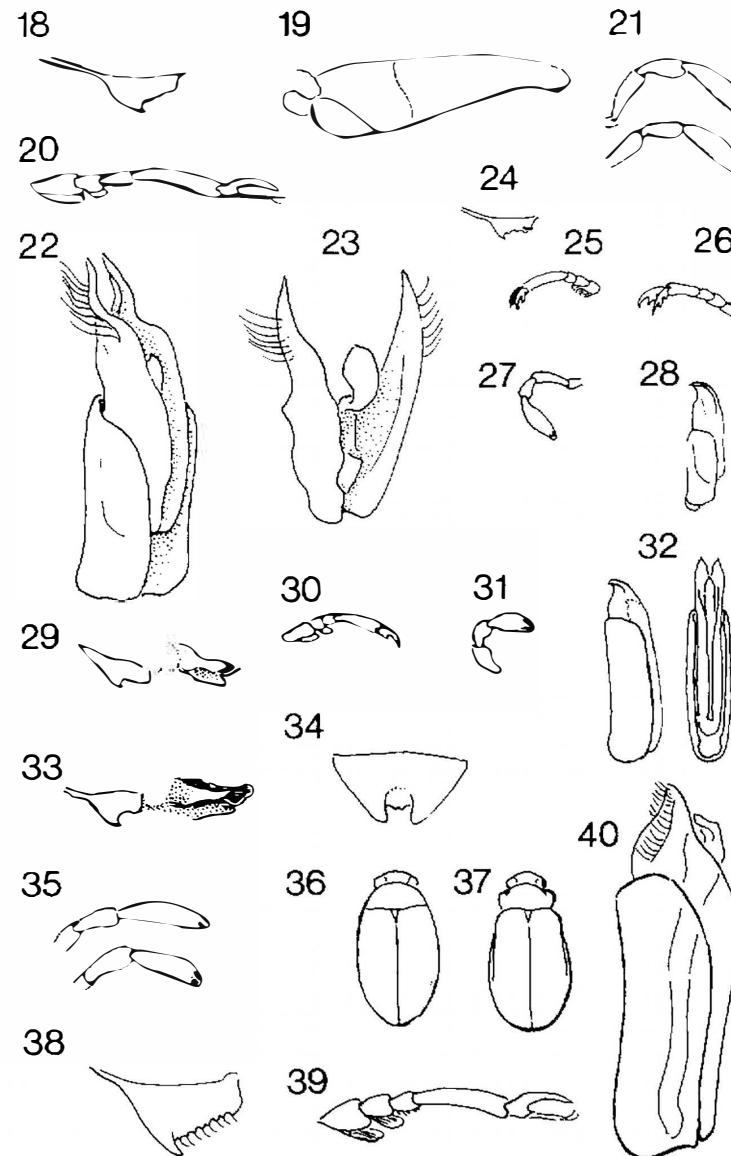
1963 *B.* (s.str.) *vilipendus* MOUCHAMPS, Mitt. münch. ent. Ges., 53: 130.

1989 *B. vilipendus*: OLIVA, Revta Mus. arg. Cs. nat., Ent. 6(4): 96-97.

In my paper of 1989 I assigned this species to the *nervulus*-complex, in spite of some characters that suggested a higher specialization level. When I examined again the specimens of the typical series, I perceived that there are spine-like hairs on the posterior part of the elytra, a fact that eluded me at the moment because I examined the types of *B. vilipendus* before I had grasped the importance of that character. The spine-like hairs are short but unmistakable. Besides, the first apparent urosternite has rudimentary lateral depressions and it is carinate only between the hind coxae. In the *nervulus*-complex the first urosternite is carinate at least on the anterior half. The punctures of the elytral interstriae coarser than those on striae point to the *patruelis*-complex rather than the *nervulus*-complex. The same can be said of the testaceous femora and of the male genitalia with a thick, nearly straight median lobe bearing a tergal ridge and a sternal (secondary?) opening. My first examination had been of genitalia dry-mounted by MOUCHAMPS, which I did not treat in order to reduce manipulation. The *nervulus*-complex becomes more homogeneous by the elimination of *B. vilipendus*.

On the other hand, a study of microstructure with scanning electron-microscope revealed that in several species of the *patruelis*-complex the stridulatory patch on the inner face of the elytron has a peculiar double structure, being divided into a part made up of conical microtrichia and another one made up of continuous ridges (OLIVA, 1992). In *B. vilipendus*, however, the patch is divided into two parts, each one made up of microtrichia of a different size, without ridges. This species (and maybe *B. palposus* KNISCH, 1921) could be placed at the base of the branch, the radiation of which produced the *patruelis*-complex.

Figs 18-40. 18-23: *Berosus auspicalis* ORCHYMONT. 18: mesosternal process in lateral view; 19: hind femur; 20: fore tarsus (male); 21: maxillary palpi of male (above) and female; 22: male genitalia in latero-tergal view; 23: distal pieces. 24-28: *B. arcanus* KNISCH. 24: mesosternal process in lateral view; 25: fore tarsus (male); 26: middle tarsus; 27: maxillary palpus (male); 28: male genitalia in lateral view. 29-32: *B. firmius* ORCHYMONT. 29: mesosternal and metasternal processes; 30: fore tarsus (male); 31: maxillary palpus (male); 32: male genitalia in lateral (left) and tergal views. 33-34: *B. nigrinus* KNISCH. 33: meso- and metasternal processes; 34: fifth apparent urosternite. 35-36: *B. asphaltinus* ORCHYMONT. 35: distal segments of maxillary palpus of male (above) and female; 36: habitus, dorsal view. 37: *B. cornicinus* KNISCH, ditto. 38-40: *B. asphaltinus* ORCHYMONT. 38: mesosternal process in lateral view; 39: fore tarsus (male); 40: male genitalia in lateral view. (Figs 36-37 10X, the others 50X).



***Berosus carinatus* MOUCHAMPS, 1963**= *B. patruelis* BERG, 1887

This synonymy (OLIVA, 1989) has been confirmed by the examination of the type-series.

2.5. *Adustus*-complex

Shape sturdy; dorsal sculpture coarse and dense; microsculpture frequent in females. Outer elytral striae arched at the level of the lateral melanistic spot, corresponding with the stridulatory patch on the inner face. No spine-like hairs or lateral depressions. Fore tarsi of the males with adhesive soles on the two basal segments, which are markedly swollen. Lateral edges of apparent urosternites serrate to smooth. Male genitalia with a long basal piece; paramera with their sternal edges forming a dihedral angle, with apices more or less dilated, divided lengthwise into a tergal, well sclerotized portion and a sternal, membranous portion. Median lobe subcylindrical, weakly sinuate, with a spindle-shaped apex which is hardly or moderately swollen.

***Berosus asphaltinus* KNISCH, 1922**

1922 *Berosus* (s.str.) *asphaltinus* KNISCH, Arch. Naturgesch. 88 A (5), 1921: 117.

Diagnosis: Size moderate; shape sturdy, highly convex, oval with effaced humeral humps (Fig. 36). Head, pronotal spot and scutellum metallic-shining; femora bicolorous. Punctures on head and pronotal disk coarse and dense. Elytral striae fine, the punctures obsolete on inner striae, coarse but shallow on outer ones. Interstriae flat, only the three outer ones slightly convex, the 11th one flat on the anterior half; punctures on interstriae coarse, sparse; ground shining in both sexes. Elytral apices narrow, in the females slightly produced. Mesosternal process with anterior tooth pointing downwards (Fig. 38); metasternal process wide, strongly raised, with a large, deep median depression; posterior angle less strongly raised than the postero-lateral ones. First apparent urosternite strongly carinate on anterior half. Femoral pubescence oblique, moderately extensive. Fore tarsi of the males with the two basal segments moderately swollen (Fig. 39). Maxillary palpi sturdy, in the males the apical segment a little longer and more slender (Fig. 35) Male genitalia as in figure 40.

Redescription: Measurements of examined male: length: 5.0 mm; humeral width: 2.4 mm; maximal width: 2.5 mm. Shape sturdy, highly convex but elongate, in dorsal view oval, with effaced humeral humps (Fig. 36; compare with *B. cornicinus* KNISCH, 1922, Fig. 37). OI (male): 2.0.

Head with metallic sheen. Pronotum testaceous, with a black discal spot with metallic sheen, divided by a testaceous median line. Scutellum black

with metallic sheen. Elytra testaceous with small, well defined black spots. Sternites black. Femora bicolorous. Maxillary palpi with melanistic apices (Fig. 35).

Punctures on head and pronotum coarse, dense, on pronotal disk contiguous, polygonal. Pronotal ground alutaceous in the females. Scutellum with fine, sparse punctures. Elytra with fine inner striae, 1st to 6th ones with obsolete punctures; striae 7th to 10th with large shallow punctures; the 9th and 10th ones deeper at the level of the stridulatory patch. Interstriae wide and flat, the three outer ones convex, with punctures as large as those on striae, disposed in an irregular row in the middle of each interstria; ground smooth, shining. Elytral apices narrow, in the males turned inwards, in the females a little produced. Mesosternal process laminar, strongly raised, with anterior tooth pointing downwards and backwards (Fig. 38) and a serrate ventral edge. Metasternal process wide, with a large, deep median depression; postero-lateral angles produced into blunt lamellae, very strongly raised; posterior angle carinate, less strongly raised. First apparent urosternite with a high carina, ending in a point at the middle of the sternite. Apical notch of the fifth urosternite bidentate at bottom. Femoral pubescence briefly oblique, covering about 2/3 of the middle femora and 3/5 of the hind femora. Fore tarsi of the males with the two basal segments moderately swollen (Fig. 39). Maxillary palpi short, sturdy, in the males with the apical segment a little longer and more slender (Fig. 35).

Male genitalia (Fig. 40): Basal piece long, about 3/4 of total length. Paramera moderately dilated, acuminate at the apex. Median lobe a little shorter than the paramera, with a swollen apex.

Material examined: A male and a female, labelled "Bras. Nova/Teutonia/F. Plaumann", the male labelled "R. Mouchamps det/*Berosus/asphaltinus* Knisch" in coll. MOUCHAMPS

Discussion: This species can be distinguished from those belonging to other complexes by the outer elytral striae deepened on the lateral spot. With reference to the *adustus*-complex, MOUCHAMPS' species differs from *B. bruchianus* KNISCH, 1924 by the smaller size and the entire (not emarginate) elytral apices; from *B. adustus* KNISCH, 1922 by the posterior angle of the metasternal process (less strongly raised than the postero-lateral ones), and in the case of females by the non-reticulate elytra; from *B. cornicinus* by the general shape which is not angular (see Figs 36-37), by the spots on pronotum and elytra (less extensive), by the punctures on interstriae forming a single row (several rows in *B. cornicinus*) and by the fore tarsi of the males with the basal segments only moderately swollen.

2.6. *Corumbanus*-complex

Shape less convex and more slender than in the *nervulus*-complex, but not elongate. Sculpture coarse to fine, with or without punctulation. Spine-like hairs at least on the outer elytral edge. No lateral depressions. Fifth

urosternite primitive or a little modified in males as in figure 48. Male genitalia with basal piece moderate to long. Paramera acuminate, their sternal edges forming a dihedral angle; the row of hairs always present on each parameron is short, placed apically. Median lobe cylindrical, nearly straight.

***Berosus dentifer* MOUCHAMPS, 1963**

1963 *Berosus (Berosus) dentifer* MOUCHAMPS, Mitt. münch. ent. Ges. 53: 136-137.

1989 *B. dentifer*: OLIVA, Revta Mus. arg. Cs. nat., Ent. 6(4): 152 (not seen).

Diagnosis: Size moderate. Metallic sheen only on head. Dorsal sculpture dense about the median line, the punctures round; ground punctulate. Elytral interstriae moderately wide, slightly convex; some spine-like hairs on the 11th interstria, near apex. Elytral apices turned inwards. Fore tarsi of the males with the two basal segments strongly swollen (Fig. 42); claws strongly curved, those on middle legs sickle-shaped (Fig. 43). Male genitalia with the basal piece a little longer than half of the total length (Figs 45-46).

Redescription: Measurements of the holotype (male): length: 5.0 mm; humeral width: 1.9 mm; maximal width: 2.2 mm; height: 1.6 mm. OI: 3.20.

Head with metallic sheen. Discal spot on pronotum without metallic sheen, divided by a testaceous median line that does not reach the anterior edge. Scutellum melanic. Elytra testaceous, with diffuse melanic spots. Sternites and pubescent portion of femora weakly melanic in the holotype.

Punctures on head round, dense, fine on clypeus, moderately coarse on frons, where there is a sparse punctulation. Punctures on pronotum round, dense on the para-medial spots and on the lateral edges, rather sparse on the outer portions of disk; ground punctulate, shining, with traces of reticulation on the anterior angles (male). Scutellum with many contiguous punctures; ground reticulate. Elytral striae deep, wide, but obsolete in apical 1/5 of the elytron; punctures round, on striae 3rd to 10th exceeding width of striae; in size about equal to pronotal punctures. Elytral interstriae slightly convex, moderately wide, with punctures as large as those on striae, forming several rows in the wider interstriae; ground shining. Spine-like hairs only on the posterior part of interstria 11th. Elytral apices narrowly rounded and turned inwards. Mesosternal process laminar, strongly raised, shaped as a parallelogram, with a serrate ventral edge; anterior tooth small, pointing downwards and backwards (Fig. 41). Metasternal process moderately narrow, with postero-lateral angles produced into triangular lamellae, strongly raised (more so than the posterior angle). First apparent urosternite carinate only between the hind coxae; fifth one with an apical notch, the bottom of which carries a bifid tooth with diverging points, masked by a carinate tooth in front of notch (cf. *B. geayi*, fig.

48). Lateral edges of apparent urosternites serrate. Femoral pubescence transverse, covering about 2/3 of middle and hind femora. Fore tarsi of the males with the two basal segments strongly dilated, specially the first one (Fig. 42); fourth segment longer than the first three taken together; claws strongly arched, toothed at base. Claws of the middle legs sickle-shaped (Fig. 43); of the hind legs weakly arched (Fig. 44).

Male genitalia (Figs 45-46): Basal piece a little longer than half of the total length. Paramera acuminate, with narrow apices; median lobe cylindrical, shorter than the paramera, with a median sclerotized piece at base.

Material examined: Holotype (male) labelled: "Chapare-Gebiet/Oberer Rio Chipiriri/400 m 2.5-11-53"; "Bolivia 1954/leg. W. Forster", in coll. MOUCHAMPS.

Discussion: The males of this species are easy to recognize by the very peculiar shape of the fifth apparent urosternite, shared only by *B. pluripunctatus* MOUCHAMPS, 1963 and by *B. geayi* ORCHYMONT, 1937. The last species is easily distinguished by the partially testaceous head without metallic sheen. The males of *B. dentifer* differ in the strongly dilated basal segments of the fore tarsi and in the long basal piece of the male genitalia (more than half of total length) from the males of *B. pluripunctatus*, which have the basal segments of the fore tarsi slightly swollen and the basal piece of the genitalia shorter than half of the total length.

***Berosus geayi* ORCHYMONT, 1937**

1937 *Berosus* (s. str.) *geayi* ORCHYMONT, Bull. Anns Soc. ent. Belg. 77 (12): 471-473.

Diagnosis: Size moderate; shape sturdy. Dorsum without any metallic sheen; head melanic in its greatest part; femora bicolorous. Dorsal sculpture moderately coarse and dense, without punctulation. Elytral interstriae wide, with coarse punctures; spine-like hairs on the 11th interstria. Dorsal ground shining in males, in females reticulate except for the head. Mesosternal process as in figure 47. Apparent urosternites with coarsely serrate lateral edges, the fifth one as in figure 48 (in females without the tooth in front of the notch). Hind femora of the males angular, with a row of small tubercles on the posterior edge (Fig. 51). Male genitalia with a very long basal piece; paramera widely rounded at apex (Figs 52-53).

Redescription: length: males: 3.9-4.5 mm; females: 4.2-4.7 mm. Length/maximal width - humeral width (mean): 11.54. Length/height (mean): 2.65. OI (mean): males: 2.32; females: 2.51.

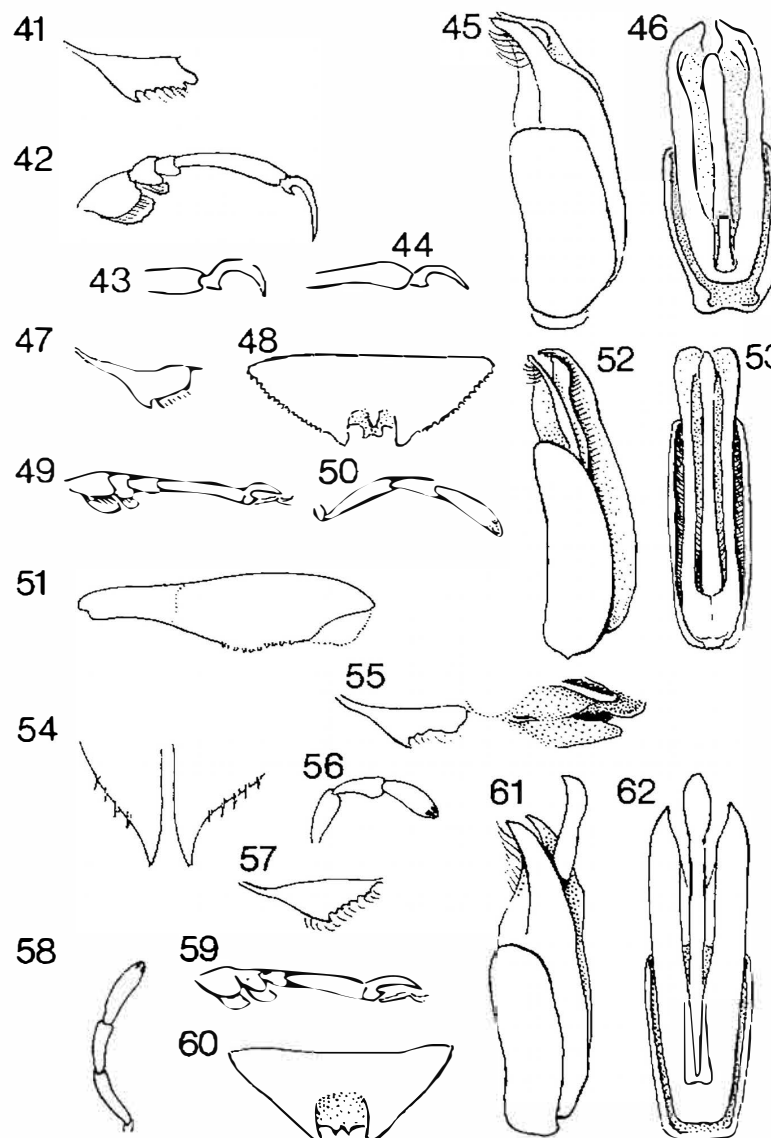
Frons almost entirely melanic (save for a small angle in front of each eye); clypeus testaceous with a black median triangle; no metallic sheen. Pronotum testaceous with a small black discal spot, divided by a testaceous median line. Scutellum black. Femora bicolorous. Maxillary palpi extensively melanic at the apex (Fig. 50).

Punctures on head sparse, fine on clypeus, moderate-sized on frons. Punctures on pronotum moderate (about twice the size of ommatidia), moderately sparse, regular. No punctulation. Ground smooth and shining in males, reticulate in females. Scutellum reticulate in both sexes. Elytral striae deep; punctures not exceeding their width, dense, as large as those on pronotum. Interstriae wide, flat, save for the three outer ones which are slightly convex; punctures as large as those on striae, forming a row (several rows on the wider interstriae); on the posterior part of the 11th one the punctures bear spine-like hairs. At the level of the stridulatory patch there is a slight swelling of the interstriae, but no deformation of the striae. Elytral apices narrowed. Ground shining in males, reticulate in females. Mesosternal process laminar, with a curved anterior edge and the ventral edge serrate (Fig. 47). Metasternal process with postero-lateral angles raised into blunt triangular lamellae. First apparent urosternite carinate only between the hind coxae; fifth one with a narrow, shallow apical notch, the bottom of which is produced into a bifid tooth with diverging points (Fig. 48); in the males, in addition, there is a carinate tooth in front of the notch, partly masking it. Lateral edges of the first and second urosternites crenulate, of the third, fourth and fifth coarsely serrate with irregular teeth that become crenulations near the articulations between sternites. Hind femora of males with an angular posterior edge, bearing a row of small glabrous tubercles (Fig. 51). Fore tarsi of the males with the two basal segments swollen, the first twice as long as the second one (Fig. 49). Maxillary palpi short, in the males slightly elongate (Fig. 50).

Male genitalia (Figs 52-53): Basal piece very long. Paramera acuminate, with a short row of hairs in apical position; the apices broadly rounded in tergal view. Median lobe hardly shorter than the paramera, cylindrical, nearly straight.

Material examined: Holotype and paratype (both males), labelled: "Guyane Franc.se/Nouveau Chantier/Collection Le Monet"; "Juillet"; "Coll. R. Peschet"; "TYPE" ("PARATYPE"); "A. d'Orchymont det/Berosus (s.str.)/geayi m". In coll. ORCHYMONT. Also: several specimens, labelled "Br.522 Pernambuco/(Mun.Caruaru) Riacho/Doce 11.2.1936 Schubart"; a large series, both males and females, labelled: "Br. 1009 Pernambuco (Mun/Cabrobo) riacho Ouricu-ry 9-4-1937 Schubart".

Figs 41-62. 41-46: *Berosus dentifer* MOUCHAMPS. 41: mesosternal process in lateral view; 42: fore tarsus (male); 43: outer claw of the middle leg (male); 44: outer claw of the hind leg; 45-46: male genitalia in lateral and tergal view. 47-53: *B. geayi* ORCHYMONT. 47: mesosternal process in lateral view; 48: fifth urosternite (male); 49: fore tarsus (male); 50: maxillary palpus (male); 51: hind femur; 52-53: male genitalia in lateral and tergal view. 54-56: *B. navatus* ORCHYMONT. 54: elytral apices in dorsal view (female); 55: meso- and metasternal processes; 56: maxillary palpus (female; basal segment omitted). 57-62: *B. spectatus* ORCHYMONT. 57: mesosternal process; 58: fore tarsus (male); 59: maxillary palpus (male); 60: fifth urosternite (male); 61-62: male genitalia in lateral and tergal view. (All the figures 50X).



Discussion: This species differs from *B. dentifer* and *B. pluripunctatus* by the lack of metallic sheen and by the partially testaceous head; from *B. sinigus* OLIVA, 1989 by the shape of the fifth urosternite, the larger size and the spine-like hairs limited to the outer edge of the elytra; from all the species in the *sticticus*-complex by the presence of spine-like hairs and by the shape of the fifth urosternite; from *B. uniformis* KNISCH, 1921, by the fore tarsi of the males with the basal segment longer than the second one, by the modified hind femora of the males and by the reticulate dorsum of the females; also, in both sexes, by the first urosternite without lateral depressions, carinate only between the hind coxae.

2.7. *Chalcocephalus*-complex

Dorsal sculpture formed of round, moderate-sized punctures and a dense punctulation. Elytra with spine-like hairs at least on interstria 11th. Elytral apices angulate or produced. Dorsal reticulation often restricted to females. First apparent urosternite with lateral depressions. Paramera long, forming a dihedrous angle, dilated at the apex, parts of the dilated portion sharply turned inwards; often with membranous inner appendices; median lobe subcylindrical.

Berosus navatus ORCHYMONT, 1940

1940 *Berosus* (s. str.) *navatus* ORCHYMONT, Bull. Anns Soc. ent. Belg. 80, 1940: 188.

Diagnosis: Size moderate; shape elongate. Dorsum without any metallic sheen. Elytra with spine-like hairs in all the interstriae; apices produced into long triangles (females; Fig. 54). Pronotum and elytra reticulate (females). Sternal processes as in figure 55; the metasternal one with the posterior angle raised as strongly as the postero-lateral one. Apical notch of the fifth urosternite shallow, the bottom bidentate. Maxillary palpi melanic at the apex (Fig. 56).

Redescription: Measurements of the holotype (female): length: 4.7 mm; humeral width: 1.7 mm; maximal width: 2.2 mm; height: 1.2 mm. Shape elongate, navicular. OI: 2.00.

Dorsum without metallic sheen. Sternites melanic; femora testaceous. Maxillary palpi dark at the apex (Fig. 56).

Punctures on head moderately dense; ground smooth. Pronotum with round, moderately sparse punctures; ground reticulate (females). Elytral striae fine. Interstriae wide, flat, with dense punctures forming several rows; ground reticulate (females). Elytral apices produced into triangles (Fig. 54; females). Spine-like hairs long (2-3 times the diameter of puncture), covering the posterior part of the elytra from a line before the middle of the length. Mesosternal process laminar, with the anterior tooth weakly produced (Fig. 55). Metasternal process moderately wide; postero-lateral angles raised into blunt lamellae; posterior angle raised into a convex

lamina, at least as strongly raised as the postero-lateral angles (Fig. 55). First apparent urosternite carinate only between hind coxae, with small lateral depressions; fifth one with a shallow, narrow apical notch, the bottom of this bearing two sharp teeth. Femoral pubescence covering about 2/3 of the middle and 3/5 of the hind femora. Fore tarsi of females short, sturdy, with thick, hairy basal segments. Maxillary palpi short (females).

Material examined: Holotype and three paratypes (females), labelled: "Br. 1079 Pernambuco Mun/Ouricuri Rio S. Pedro/17.9.1937 O. Schubart"; "A. d'Orchymont det/ *Berosus* (s.str.)/*navatus* m.". In coll. ORCHY-MONT.

Discussion: This species differs in the shape of the elytral apices from all the others in the complex save *B. toxacanthus* OLIVA, 1989. However, *B. navatus* is larger, has spine-like hairs in all the interstriae, has a mesosternal process with a small anterior tooth (this is remarkably long in *B. toxacanthus*) and a metasternal process with the posterior and postero-lateral angles produced into laminae (unique for the species-complex) and bears two sharp teeth at the bottom of the apical notch in the fifth urosternite. As for the allied species *B. inpa* OLIVA, 1993, it differs also by the smaller size, the blunt elytral apices, the slightly convex elytral interstriae, the absence of reticulation in females and the more extensive femoral pubescence.

2.8. *Subtilis*-complex

Shape elongate, usually with effaced humeral humps. Spine-like hairs in all the elytral interstriae. No metallic sheen on dorsum. Metasternal process narrow, postero-lateral angle often not produced. First apparent urosternite with large lateral depressions. Fore tarsi of males with adhesive soles on the two basal segments. Male genitalia with acuminate paramera, more or less modified according to species; median lobe cylindrical, modified or not.

Berosus spectatus ORCHYMONT, 1940

1940 *Berosus* (*Enoplurus*) *spectatus* ORCHYMONT, Bull. Anns Soc. ent. Belg. 80, 1940: 191

Diagnosis: Size moderate; shape weakly convex, elongate, navicular. Dorsum testaceous, with small dark areas on frons, pronotal disk and elytra; femora testaceous. Sculpture dense, moderately coarse; ground punctulate. Elytral interstriae flat, only the 11th one convex on posterior half; spine-like hairs on all the interstriae. Elytral apices emarginate, sutural angle blunt, not produced (males), the para-sutural spine straight. Mesosternal process as in figure 57. Apical notch of the fifth urosternite shallow, with a bidentate bottom. Femoral pubescence extensive. Fore tarsi of males short, with the two basal segments swollen, with adhesive soles (Fig. 59). Male genitalia as in figures 61, 62.

Redescription: Measurements of holotype (male): length: 4.1 mm; humeral width: 1.7 mm; maximal width: 2.0 mm; height: 1.5 mm. Shape elongate, weakly convex, navicular, with effaced humeral humps. OI: 2.50.

Dorsum testaceous, melanic only on posterior part of frons, small paramedial vittae on the pronotum and small elytral spots. Thoracic sternites melanic, the abdominal ones weakly darkened. Femora testaceous.

Punctures on head and pronotum moderately coarse, rather dense; ground punctulate, shining (males). Elytral striae fine, with small, widely spaced punctures. Interstriae flat, only the 11th one convex on the posterior half; punctures in several rows; on the anterior half of the elytra they are the same size as the punctures on striae (and about the same size as the pronotal ones). Spine-like hairs on all the interstriae. Elytral apices emarginate, the sutural angles blunt, not produced, laid as a straight angle; the para-sutural spines short and straight (males). Mesosternal process as in figure 57; metasternal process with the postero-lateral angles hardly raised. First urosternite carinate only between the hind coxae, with large lateral depressions; fifth one with a shallow apical notch, the bottom of which bears two sharp teeth (Fig. 60). Femoral pubescence covering about 3/4 of the middle and hind femora. Fore tarsi of the males sturdy, as in figure 59. Maxillary palpi of the males short (Fig. 58).

Male genitalia (Figs 61-62): Basal piece about two and a half times as long as wide. Paramera acuminate, nearly sickle-shaped in lateral view. Median lobe much longer than the paramera, subcylindrical, swollen sub-apically.

Material examined: Holotype (male), labelled: "Br. Pernambuco (Mun./Belem) rio S. Francisco 3.9.1937 Schubart". Three Paratypes (males) labelled: "Br.1039 Pernambuco (Mun/Boa Vista Rio S. Francisco 6.9.1937 O. Schubart". In coll. ORCHYMONT.

Discussion: This species can be distinguished from *B. subtilis* KNISCH, 1921, by the 11th interstria convex on the posterior half, by the absence of sutural spines in the elytral apices and by the apical notch in the fifth urosternite bidentate at bottom; from *B. speciosus* KNISCH, 1921, by the pronotal ground which is punctulate not reticulate, by the slightly produced postero-lateral angles of the metasternal process and by the fifth urosternite.

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**A propos de la présence de
Tabanus biguttatus WIEDEMANN au Bénin
(Diptera: Tabanidae)***

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Résumé

Le bilan des données sur la biologie, la distribution et la taxonomie de Tabanus biguttatus est énuméré et sa carte de répartition générale est établie, à la suite de récoltes réalisées au Bénin.

Summary

The data on biology, distribution and taxonomy of Tabanus biguttatus are presented and the general distribution map is set up, according to the captures made in the Republic of Benin.

L'un d'entre nous a capturé, au cours d'une mission de recherche au Bénin, quelques femelles de *Tabanus biguttatus* WIEDEMANN, 1830. Une mise au point des problèmes particuliers à cette espèce, aussi bien systématiques, biologiques et géographiques nous a paru utile, ainsi que le recensement des documents bibliographiques publiés (1 à 26) à son sujet depuis la révision des *Tabanus* de la région afrotropicale réalisée par OLDROYD (1954).

Sites de récoltes

Nous avons observé et récolté cette espèce dans deux localités. A Lokossa, dans une zone marécageuse très herbacée soumise directement à la sécheresse et qui est annuellement débroussaillée par le feu. La végétation dominante renferme plus particulièrement *Cyperus articulatus* (Cyperaceae)

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