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**A MONOGRAPH OF THE GENUS *BELOSTOMA*  
(HEMIPTERA)**

PART II. *B. AURIVILLIANUM*, *STOLLII*, *TESTACEOPALLIDUM*,  
*DILATATUM*, AND *DISCRETUM* GROUPS

DAVID R. LAUCK  
*Chicago Academy of Sciences*



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**A MONOGRAPH OF THE GENUS *BELOSTOMA*  
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This is the second part of a taxonomic monograph of the genus *Belostoma* and is continuous with the first part, comprising vol. 11, no. 3 of this bulletin. Part 1 included the Introduction and treated the *dentatum* and *subspinosum* groups. The present part continues with the descriptions of the species and includes five groups—aurivillianum, *stollii*, *testaceopallidum*, *dilatatum*, and *discretum*--which are separated in the key given in part I, page 46. These five groups, with the *dentatum* and *subspinosum* groups, include moderately large to large species, while the remaining groups in the monograph contain species of medium to small size.

***Belostoma aurivillianum* group**

This is represented by a single unusual species, *Belostoma aurivillianum* (Montandon) . The group may be characterized by the description of the species.

***Belostoma aurivillianum* (Montandon)**

*Zaitba aurivilliana* Montandon, 1899, Bull. Mus. Hist. Nat. Paris, 4: 171-172.

*Belostoma aurivillianum*, Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash., 10: 190.

*Belostoma aurivillianum*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39: 220-221, pl. 7, fig. 57.

*Size and shape.* Body elongate, robust. Length : d d , 32.0-36.0 mm. ; 9 9 , 35.5-37.5 mm. Width : d cr, 13.5-16.5 mm. ; 9 9 , 14.5-15.8 mm. Width of head, 6.8-7.7 mm. ; width of pronotum, 10.8-13.2 mm. ; length of pronotum, 6.1-6.8 mm.

*Color and markings.* Blackish-brown, with mid-longitudinal yellow carina on posterior part of pronotum and scutellum ; yellow bordering hemelytral commissures forming a mid-dorsal, yellow stripe ; thoracic venter brownish-black with yellow patches. Each femur with three wide, often coalescing,

irregular, dark bands ; protibia with three dark bands, proximal band partially divided, forming two bands, meso- and metatibiae and tarsi dark. Abdominal venter mahogany, spotted with yellow, sometimes with a mid-yellow stripe ; connexivum brown, without markings.

*Structural characteristics.* Interocular space 1.8 to 1.9 times the width of an eye ; anteoculus nearly subequal to, or slightly longer than, interoculus ; clypeus reaching the ocular line; eyes globular, about as long as broad ; beak short, stout, segment I slightly shorter than II ; lateral grooves and foveae deep, prominent, producing a slight median carina on the caudal portion ; scutellum elevated, rough, with median carina on caudal part, not reaching nodal line ; prosternal keel prominent, elongate, bluntly pointed. Pronotum and hemelytra covered with fine, brownish-golden, scale-like hairs. Pilosity covering about three-fourths the connexivum, not conspicuously constricted between spiracles, extending slightly beyond penultimate segment. Genitalia as shown in figures 57 and 63.

*Comparative notes.* *B. aurivillianum* has many distinctive features. It is probably distinguished most readily by the median carina and rough surface of the pronotum and scutellum.

*Types.* Described from specimens from Colombia (PMNH) and Venezuela (HNM) . The types have not been examined, but specimens identified by Montandon have been seen.

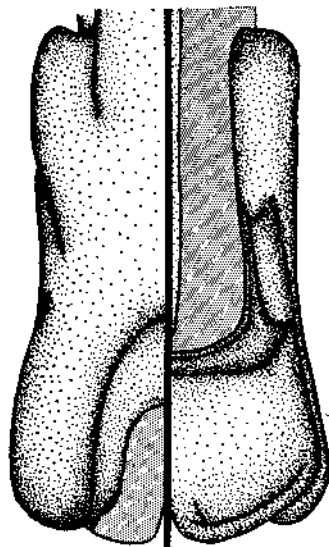
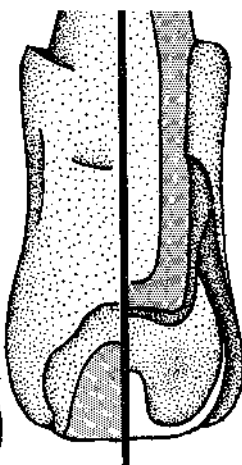
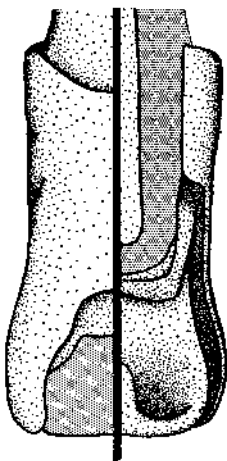
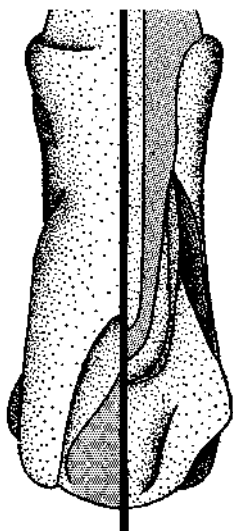
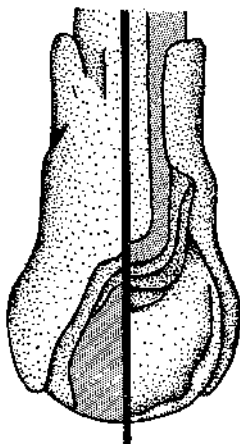
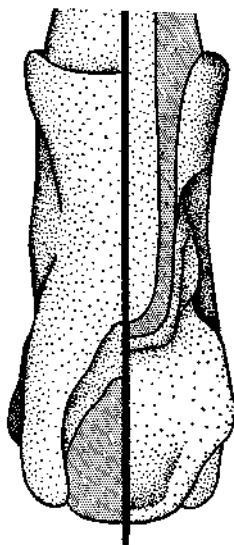
*Distribution.* In addition to the type localities, specimens from Brazil, Bolivia, and Venezuela have been examined. Specimens from the following localities have been identified :

BRAZIL. SAO PAULO: Sao Carlos do Pinhal, <sup>y</sup> (KU) Ypanango, <sup>y</sup> (KU) . PARA.: cr, <sup>y</sup> (MC) . GOIÁS : São Joao da Alianca.

#### ***Belostoma stollii* group**

Large, elliptical, expanded and flattened species, ranging from 36 to 39 mm. long.

Anteoculus about one-third longer than interoculus ; clypeus extending to the ocular line ; interoculus wide, about 1.8 to 2.1 times the width of an eye ; eyes globular, about as wide as long, relatively small ; vertex with prominent median carina ; lateral foveae deep ; dense pile along mesal margins of

**57****58****59****60****61****62**

Figures 57 through 62

57-62, Dorsal and ventral aspect of genitalia. 57, *B. aurivillianum*; 58, *B. planum*; 59, *B. stollii*; 60, *B. testaceopallidum*; 61, *B. ribeiroi*; 62, *B. grandicollum*.

eyes ; segment I of beak subequal to II. Prosternal keel relatively prominent, with apex projecting slightly cephalad ; scutellum clearly short of nodal line. Hairs covering about half the abdominal connexivum, not extending along the operculum. Genitalia with apical hump on ventral diverticulum.

This group is very similar to the *testaceopallidum* group in overall appearance. However, it differs in a number of structural characteristics. The pilosity of the abdominal venter does not cover the entire connexivum and there is a prominent carina on the vertex. The genitalia of the two groups are quite distinct.

Key to the species of the *stollii* group

1. Pronotum densely covered with a mat of short scale-like hairs and Serville. *B. stollii* Amyot
2. Pronotum only sparsely covered with hairs. *B. planum* n. sp.

***Belostoma planum* n. sp.**

Figures 58, 64

*Size and shape.* Large, flat, elliptical body. Holotype (*d*) : length, 34.0 mm. ; width, 16.6 mm. ; width of head, 7.4 mm. ; width of pronotum, 11.6 mm. ; length of pronotum, 6.4 mm. Allotype (9) : length, 35.0 mm. ; width, 17.0 mm. ; width of head, 7.7 mm. ; width of pronotum, 11.7 mm. ; length of pronotum, 5.9 mm.

*Color and markings.* Gray-brown, mottled with yellow. Pronotum without distinct markings ; scutellum with large lateral dark patches ; venter dark gray to reddish-brown. Profemur with three broad, nearly fused, dark bands ; each meso- and metafemur with three dark bands ; each pro- and mesotibia with three dark bands, hind tibiae dark ; tarsi light or dark. Each segmental margin of connexivum with two dark transverse stripes.

*Structural characteristics.* Interocular space 1.9 to 2.0 times the width of an eye. Pronotum without a mat of short scale-like hairs. Genitalia as shown in figures 58 and 64. (The genitalia of this specimen had been somewhat mutilated when previously removed and therefore some reconstruction was necessary.)

*Comparative notes.* *B. planum* n. sp. differs from *B. stollii*

by the absence of the scale-like hairs on the pronotum and the slightly narrower body shape.

*Types.* Both holotype ) and allotype ( 9 ) (KU) , are from the same locality and bear the following labels : "Peru, S. A., 1930, F. Woytkoski, N. 398. Dept. Huanuco, Loc. Shapajilla 630, M. s. s. 1. 11 km., N. E. Moria."

*Etymology.* *B. planum* n. sp. derives its name from the flattened shape of the body.

*Distribution.* This species is known only from the type locality in Peru.

### ***Belostoma stollii* (Amyot and Serville)**

Figures 59, 65

*Zaitba stollii* Amyot and Serville, 1843, Hist. Nat. Ins., Hem., p. 430 (type for *Zaitba*).

*Zaitba stollii*, Mayr, 1871, Verh. zool.-bot. Ges. Wien, 21: 410. *Belostoma stollii*,

Montandon, 1903, Bul. Soc. Sci., Bucarest, 12: 240.

*Belostoma stollii*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39: 240.

Other species referred to as *stollii* or *stolli*.

*Zaitba stollii*, Mayr, 1863, Verh. zool.-bot. Ges. Wien, 13 : 352353 (= *B. testaceopallidum* Latreille)

*Zaitba stollii*, Dufour, 1863, Ann. Soc. Ent. France, (4)3 :

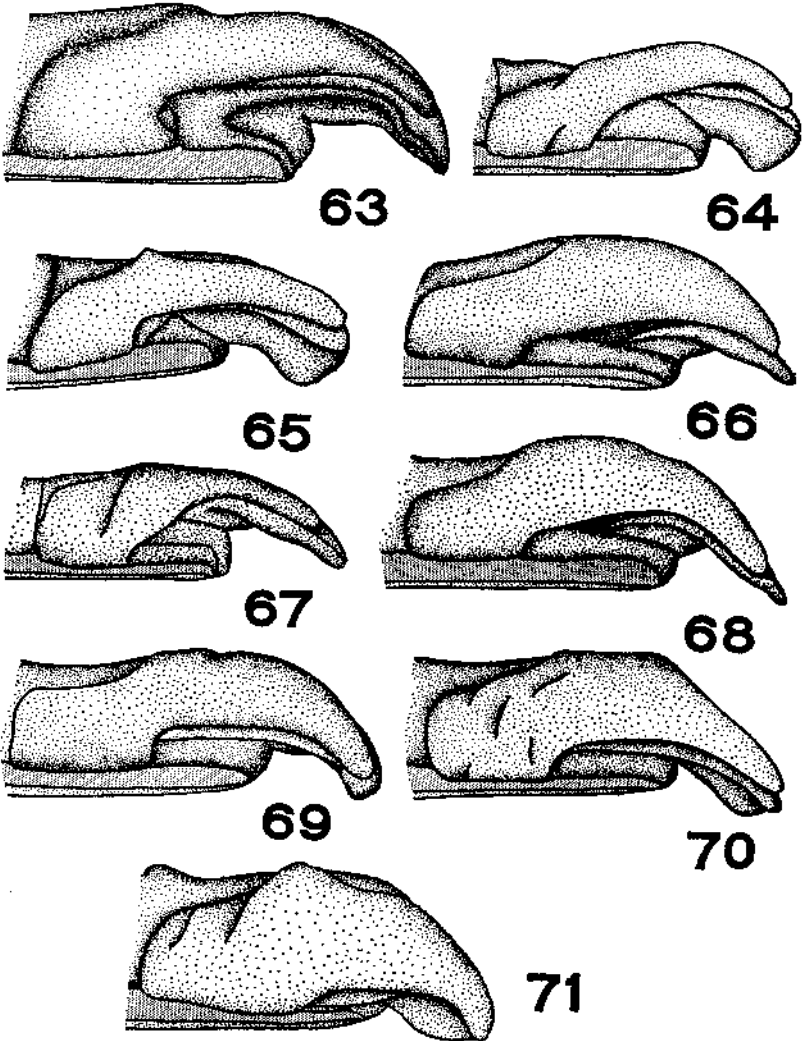
387-388 (unknown identity of *B. subspinosum* group) . *Zaitba stollii*, Signoret, 1863, Ann. Soc. Ent. France, (4)3 : 581 (unknown identity of *B. subspinosum* group)

*Belostoma stollii*, DeCarlo, 1950, Rev. Brasil Biol., 10 : 531-532 (probably *B. testaceopallidum* Latreille) .

*Size and shape.* Broad, flat, large, elliptical body. Length : *cr a*, 34.8-37.2 mm. ; 9 9 , 35.0-37.2 mm. Width : *d a*, 17.5-18.8 mm. 9 9 , 17.4-19.0 mm. Width of head, 7.4-7.6 mm. ; width of pronotum, 11.7-12.3 mm. ; length of pronotum, 4.9-6.0 mm.

*Color and markings.* Dark chocolate-brown to light brown, mottled with yellow. Pronotum without distinct markings ; scutellum concolorous ; venter dark mahogany-brown, sometimes with a purple tinge. Profemur dark with large irregular dark markings ; each meso- and metafemur with three broad, dark bands, often coalescing; each pro- and mesotibia with three dark bands, metatibiae dark ; tarsi dark. Each

segmental margin of the connexivum with two dark transverse stripes.



Figures 63 through 71

63-71, Lateral aspect of genitalia. 63, *B. aurivillianum*; 64, *B. planum*; 65, *B. stollii*; 66, *B. testaceopallidum*; 67, *B. ribeiroi*; 68, *B. grandicollum*; 69, *B. gestroi*; 70, *B. dilatatum*; 71, *B. discretum*.



*Structural characteristics.* Interocular space 2.0 to 2.1 times the width of an eye. Short, dense mat of scale-like hairs covering the pronotum. Genitalia as shown in figures 59 and 65.

*Special variations.* A series of specimens from Brazil is uniformly dark chocolate-brown, while specimens from the Guianas are lighter brown and conspicuously mottled with yellow, especially along the embolium.

*Comparative notes.* *B. stollii* is almost structurally identical with *B. planum* n. sp. The latter, however, lacks the dense mat of scale-like hairs on the pronotum and is not quite as broad, being slightly less than half as wide as long.

*Nomenclature.* The association of the above species with Amyot and Serville's *B. stollii* seems correct even though the original type has been lost. The description is of little value except for data on size, and dimensions and reference to Stoll's figure. If we may assume that the figure illustrated by Stoll represents the same species as that described by Amyot and Serville, *B. stollii* would undoubtedly belong to either this group or the *B. testaceopallidum* group. It is considerably larger than the members of the *testaceopallidum* group and the distribution of the above species corresponds to that given by the authors. Thus, the following neotype is recommended for adoption.

*Type.* A neotype with the following label is hereby designated : "Guyane Francaise, Pariacabo, Riviere de Kourou, Coll. Le Mout" This male and another male from the same locality were determined as *B. stollii* by Montandon. The neotype (USNM) is 36.6 mm. long and 18.0 mm. wide.

*Distribution.* *B. stollii* is found in the northwestern part of South America. Records from Guatemala, Chile, and Southern Brazil are probably erroneous and based on misidentifications. Specimens from the following localities have been identified :

BRAZIL. AMAZONAS : Region Lago Tapaiuna, 2 a a, 4 9 9 (KU) .

MATO GROSSO : Jacare near Rio Xingu, 9 (MC) . DUTCH GUIANA.

(MC)

FRENCH GUIANA. Pariacabo, 2 a a (USNM) .

VENEZUELA. TERRITORIO AMAZONAS : Isla del Esfurzo, (USNM).

Moderately large, very flat, elliptical species ranging from 28 to 33 mm. long.

Anteoculus about one-third longer than interoculus ; clypeus reaching or nearly reaching the ocular line ; interocular space 1.6 to 1.9 times the width of an eye ; eyes globular, about as long as wide, prominent (except in *B. grandicollum*) ; segment I of the beak distinctly less than II. Pronotal keel prominent ; scutellum not quite reaching the nodal line. Abdominal pilosity extending along the genital operculum, covering the entire connexivum and all the venter of the abdomen with the exception of a small mesal area along the keel in some specimens. Genitalia with flat, expanded ventral diverticulum. Lateral flanges with heavy ridges.

This group contains only three species, all of which are similar and closely related to the *B. stollii* group. They differ from the members of the latter group by having the first segment of the beak distinctly shorter than the second and the pilosity covering the connexivum and all or nearly all of the abdominal venter.

#### Key to the species of the *testaceopallidum* group

1. Vertex without pilosity along mesal margins of eyes  
..... *B. grandicollum* DeCarlo.
- Vertex with dense pilosity along the mesal margins of the eyes - - - - - 2.
2. Broad, about half as wide as long ; ventral diverticulum with convex situation  
s along laterocaudal margins  
..... *B. testaceopallidum* Latreille.
- Narrower, less than half as wide as long ; margins of ventral diverticulum  
without situations \_\_\_\_ *B. ribeiroi* DeCarlo.

#### *Belostoma testaceopallidum* Latreille

Figures 60, 66

*Belostoma testaceopallidum* Latreille, 1907, Gen. Crust. Ins., 3 : 144-145 (type for *Belostoma*).

*Zaitba stollii*, Mayr, 1863, Verh. zool.-bot. Ges. Wien, 13:352 (questionable).

*Zaitba margineguttata* Dufour, 1863, Ann. Soc. Ent. France. (4) 3 : 388 (questionable) .

- Zaitba carbonaria* Dufour, 1863, Ann. Soc. Ent. France, (4) 3 : 388 (questionable) .
- Zaitba margineguttata*, Mayr, 1871, Verh. zool.-bot. Ges. Wien, 21: 410-411 (questionable).
- Zaitba margineguttata*, Walker, 1873, Cat. Hem. Het. Brit. Mus., 8 : 178 (questionable) .
- Belostoma testaceopallidum*, Montandon, 1903, Bul. Soc. Sci. Bucarest, 12: 114-115.
- Belostoma testaceopallidum*, Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash., 10 : 192 (in part).
- Belostoma testaceopallidum*, Kirkaldy, 1906, Trans. Amer. Ent. Soc., 32 : 151 (in part) .
- Belostoma testaceopallidum*, DeCarlo, 1930, Rev. Soc. Ent. Arg., no. 13: 113-114, pl. 7, *fig.* 25.
- Belostoma longirostrum* DeCarlo, 1934, Bol. Mus. Nac., Rio de Janeiro, 10: 110-111.
- Belostoma testaceopallidum*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39: 236. pl. 2, *fig.* 23, pl. 7, *fig.* 73.
- Belostoma longirostrum*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39: 238, pl. 7, *fig.* 76.
- Belostoma testaceopallidum*, DeCarlo, 1950, Rev. Brasil. Biol., 10: 531-532.
- Belostoma stollii*, DeCarlo, 1950, Rev. Brasil. Biol., 10 : 531-532 (questionable) .
- Belostoma testaceopallidum*, DeCarlo, 1960, Rev. Soc. Ent. Arg., 22: 55.

*Size and shape.* Body broad, elliptical, greatly flattened. Only two males were available for study. Length, 32.0-33.4 mm.; width, 16.2-16.8 mm. ; width of head, 6.7-7.0 mm. ; width of pronotum, 10.5-10.7 mm. ; length of pronotum, 5.1-5.3 mm.

*Color and markings.* Yellowish-brown. Pronotum with irregular dark patches ; anterior portion of scutellum chocolate-brown ; thoracic venter dull brown with darker patches and streaks. Each femur with three dark irregular bands ; each pro- and mesotibia with three dark bands ; metatibiae dark; tarsi dark, protarsi marked with some yellow. Abdominal venter dull mahogany-brown, each segmental margin of the connexivum with two rather indistinct transverse stripes and a wavy longitudinal stripe.

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*Structural characteristics.* Interocular space 1.8 to 1.9 times the width of an eye ; vertex with dense pilosity along the mesal margins of the eyes ; segment I of the beak only slightly shorter than II. Prosternal keel prominent, about as high as broad, apex rounded. Genitalia as shown in figures 60 and 66.

*Type.* The type of *B. testaceopallidum* has apparently been lost and thus a neotype, also representing a generotype, is proposed here. The specimen selected for the neotype is the smaller of the two males listed above and is labelled : "Curitiba, Parana, C. Peroisa, II. 1945." This specimen (USNM) was incorrectly identified as *B. cummingsi* by Oscar Monte.

*Nomenclature.* The designation of this species as *B. testaceopallidum* Latreille is rather arbitrary since the original description could fit any one of the species in this group or the *B. stollii* group. Montandon states that the type is in the Signoret collection and that this species has the pubescence entirely covering the venter of the abdomen. However, he does not say that this observation was made on the type. If this is true *B. testaceopallidum* would be limited to one of the species of this group. Since valid names can easily be given to the other two species, I have designated this species as *B. testaceopallidum* Latreille. Although this is not in keeping with the procedures used in the remainder of this paper, the arbitrary neotype has been proposed rather than establish a new type for the genus *Belostoma*. This also seems to be the same species designated as *B. testaceopallidum* by DeCarlo (1938) and Montandon (1903) .

*Distribution.* The distribution of the original type other than in the Americas is unknown. The other male that I have examined is from the same locality (Curitiba, Parana, Brazil) as the neotype. DeCarlo (1938) also records specimens from Brazil and Argentina (Misiones) .

### *Belostoma ribeiroi* DeCarlo

Figures 61, 67

*Belostoma ribeiroi* DeCarlo, 1933, Bol. Mus. Nac., Rio de Janeiro, 9 : 95-96,  
 fig. 3.

*Belostoma lufouri* DeCarlo, 1933, Bol. Mus. Nac., Rio de Janeiro, 9 : 96-98,  
 fig. 4.

*Belostoma ribeiroi*, DeCarlo, 1935, Rev. Soc. Ent. Arg., 7 : 205, fig. 3.

*Belostoma ribeiroi*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39: 237-238, fig. 75.

*Belostoma ribeiroi*, DeCarlo, 1960, Rev. Soc. Ent. Arg., 22: 55-56.

*Size and shape.* Body elliptical, somewhat flattened. Length : ♂, 27.5-31.1 mm. ; ♀, 28.0-32.5 mm. Width : d e, 13.5-15.0 mm. ; ♀, 12.9-14.2 mm. Width of head, 6.1-6.6 mm. ; width of pronotum, 9.0-10.5 mm. ; length of pronotum, 4.7-5.3 mm.

*Color and markings.* Uniformly dark brown. Embolium of hemelytron yellow, often with numerous dark brown reticulations. Each femur with three, irregular dark bands, wider than the intervening light areas ; each pro- and mesotibia with three dark bands, metatibiae dark ; tarsi dark. Abdominal venter dark brown, becoming silvery where covered with hairs ; each segmental margin of connexivum with irregular transverse, dark bands.

*Structural characteristics.* Interocular space 1.5 to 1.7 times the width of an eye ; vertex with dense pilosity along mesal margins of eyes ; segment I of beak about three-fourths II. Pronotum slightly concave ; prosternal keel prominent, apex rounded to bluntly pointed. Genitalia as shown in figures 61 and 67.

*Comparative notes.* *B. ribeiroi* is distinguished from the other members of this group by its narrower body and the shape of the ventral diverticulum.

*Types.* Described from a single specimen, the or holotype, from Grute do Tucun, Mato Grosso, Brazil. The type is reported to be in the National Museum of Natural History in Buenos Aires, but is apparently still in the collection of DeCarlo. The above type has not been examined. DeCarlo also lists an additional specimen from Brazil (Mato Grosso) which was described as *B. dufouri* and later (1935) placed in synonymy with *B. ribeiroi*.

*Distribution.* This species is known only from Brazil. The following series of specimens have been examined : BRAZIL. GOIAS : E. Formosa, 4 ♂' a, 3 ♀ ♀ (LACM) ; S.

Amaro Leite, , 9 (LACM) ; Veadeiros, 2 d' cr, 5 9 9 (LACM).

***Belostoma grandicollum* DeCarlo**

Figures 62, 68

*Belostoma grandicollum* DeCarlo, 1934, Bol. Mus. Nac., Buenos Aires, 10: 109-110, fig. 1.

*Belostoma grandicollum*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39: 236-237, pl. 6, fig. 74.

*Belostoma grandicollum*, DeCarlo, 1960, Rev. Soc. Ent. Arg., 22: 55-56.

*Size and shape.* Body broad, elliptical, greatly flattened. Only a single male and female examined. Length : cr, 28.9 mm. ; 9 , 30.1 mm. Width : 14.8 mm. ; 9 , 15.7 mm. Width of head, 6.4 mm. ; width of pronotum, 9.5-9.8 mm. ; length of pronotum, 4.8-5.2 mm.

*Color and markings.* Yellowish-brown. Caudal part of scutellum lighter yellow ; thoracic venter yellow, streaked with dark brown. Each femur with three zigzag bands, the distal bands of the meso- and metafemora H-shaped ; each pro- and mesotibia with four dark bands ; metatibiae dark ; protarsi light yellow, meso- and metatarsi dark. Abdominal venter dark mahogany, each segmental margin of the connexivum with two dark transverse stripes.

*Structural characteristics.* Interocular space 1.8 times the width of an eye ; segment I of the beak about three-fourths the length of II ; vertex without dense pilosity along the mesal margins of the eyes. Lateral margins of the pronotum nearly straight ; prosternal keel very prominent, much higher than wide, apex moderately pointed. Genitalia as shown in figures 62 and 68.

*Special variations.* A male specimen (Santa Catharina, Brazil) does not have the pilosity of the venter completely covering the abdomen. There are distinct bare areas along the sternal keel. The holotype as described by DeCarlo has the entire abdomen covered with hairs. The above male is identical in other respects to those with pile covering the entire abdomen. The same variation occurs in a series of specimens of *B. ribeiroi*, and too few specimens of this group have been studied to establish the constancy of characters.

*Comparative notes.* *B. grandicollum* differs from the other species of this group by the lack of dense pilosity along the mesal margins of the eyes. It is also broader and slightly smaller in size.

*Type.* Described from a single specimen from Brazil

(Mato Grosso) . The type is in the National Museum of Rio

de Janeiro, and the specimen has not been examined. *Distribution.* The two specimens examined were from : BRAZIL. SANTA CATARINA : Nova Teutonia, cp ( LACM) ,  
9 (MC).

### **Belostoma dilatatum group**

Large expanded, ovate species ranging from 35 to 50 mm. long.

Interocular space wide, about twice the width of an eye. Anteculus distinctly longer than interoculus clypeus not reaching the ocular line mesal margin of eyes parallel to convergent. Scutellum not reaching the nodal line; prosternal keel prominent, apex rounded. Pilosity of connexivum variable, covering about half the margin in some species and the entire margin in others.

The members of this group are variable and may constitute two separate groups, although the genitalia of the species are very similar. Two species of this group have not been examined and their validity has not been satisfactorily confirmed. For this reason *B. gestroi* and *B. brasiliensis* have not been separated in the following key :

#### **Key to the species of the dilatatum group**

1. Pilosity covering the entire ventral margin of the connexivum .....  
2.  
— Pilosity not covering the entire margin of the connexivum  
..... *B. gestroi* Montandon. *B. brasiliensis* DeCarlo.
2. Segment I of the beak longer than II (This species has not been seen and the character is taken from DeCarlo, 1938) ..... *B. martini* (Montandon) .  
— Segment I of beak shorter than II \_\_\_\_\_ *B. dilatatum* (Dufour) .

#### **Belostoma gestroi Montandon**

Figures 69, 72

*Belostoma gestroi* Montandon, 1900, Ann. Mus. Civ. Genova, 20 (40) : 537-539.

*Belostoma gestroi*, Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash., 10: 191.

*Belostoma gestroi*, DeCarlo, 1930, Rev. Soc. Ent. Arg., no. 13 : 110-111, pl. 5, fig. 15.

*Belostoma gestroi*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39 : 218-219, pl. 8, fig. 54.

*Size and shape.* Large, oval, extremely dilated body. Length : 39.0-45.0 mm. ; ♀♀ , 40.0-45.0 mm. Width :

*d*, 19.5-22.0 mm. ; ♀♀ , 20.5-23.0 mm. Width of head, 7.89.0 mm. ; width of pronotum, 13.9-15.4 mm. ; length of pronotum, 6.2-7.3 mm.

*Color and markings.* Yellowish-brown to dark chocolate-brown. Scutellum dark brown ; thoracic venter dark orange-brown. Each femur with three irregular, often broken or H-shaped and sometimes coalescing dark zigzag bands, mesoand metatarsi dark. Embolium of hemelytron mottled with yellow. Abdominal venter dark orange-brown to mahogany ; each segmental margin of the connexivum irregularly marked, often with a single yellowish-orange spot on the anterior part of each segmental margin.

*Structural characteristics.* Interocular space 1.9 to 2.0 times the width of an eye ; anteoculus about one-and-a-half times the interoculus ; lateral grooves along mesal margins of eyes deep ; interoculus with a prominent longitudinal carina ; interocular space wider than the length of the anteoculus ; beak relatively short, stout, segment I subequal to II. Prosternal keel prominent, elongate, with rounded apex. Pilosity covering one-half to two-thirds the connexivum, slightly constricted between spiracles, hairs extending only slightly beyond the penultimate segment, but not bordering the genital operculum. Genitalia as shown in figures 69 and 72.

*Comparative notes.* This species is very similar to *B. brasiliensis* DeCarlo. I have not seen the latter species and thus have not compared the two. The comparison given by DeCarlo is stated under the treatment of *B. brasiliensis* given below.

*Types.* Montandon designated two cotypes from Argentina (Civic Museum of Geneva) and Paraguay (Paris Museum) . These types have not been examined.



*Distribution.* The distribution of *B. gestroi* is rather general throughout South America, but it is absent in the northeastern part and in Chile. Specimens from the following localities have been identified:

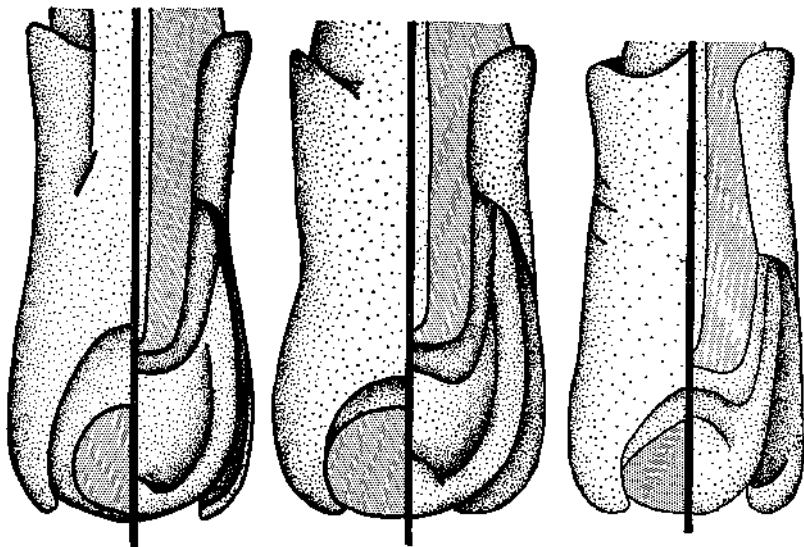
ARGENTINA. BUENOS AIRES : Campana, 2 ♀♀ (KU) .  
MENDOZA : Mendoza, 9 (USNM) . TUCUMÁN: Tucuman, 1 (USNM).

BOLIVIA. BENI : Rio Yacuma, Espiritu, 2 ♀♀, 2 ♀♀ (BM)  
COCHABAMBA : Cochabamba, 1 (BM). SANTA CRUZ : Buena Vista, 9 (KU).

BRAZIL. 1 (KU) . AMAZONAS : João Pessoa, River Juruá, 9 (KU) ; Lago Berury, Rio Purus, (KU). MATO GROSSO : Bodoquena, 2 (USNM).

PARAGUAY. 1 ♀, 2 ♀♀ (KU). GUAIRÁ Villarrica, 2 ♀♀, 3 ♀♀ (KU).

PERU. JUNIN : Satipo, 14 ♀♀, 11 ♀♀ (DC). LORETO : Rio Ucayali, 3 ♀♀ (AMNH).



72

73

74

Figures 72 through 74

72-74, Dorsal and ventral aspect of genitalia. 72, *B. gestroi*; 73, *B. dilatatum*; 74, *B. discretum*.

### *Belostoma brasiliensis* DeCarlo

*Belostoma brasiliensis* DeCarlo, 1950, Rev. Brasil. Biol., 10: 529-530.

I have not seen specimens of this species. DeCarlo's description is nearly identical with that for *B. gestroi*, to which he compares it. DeCarlo gives the following comparison between *B. gestroi* and *B. brasiliensis*. ". . . es muy semejante a *B. gestroi* Montandon, por la banda de pelos angosta de los costados laterales del abdomen, por la carena que hay entre el borde posterior de la cabeza y la base del clipeo, forma de los ojos, cuerpo aplando pero, se diferencia especialmente por tener los fémures de las patas anteriores mucho más dilatados, por ser su cuerpo más angosto y alargado, por la red de nervios bien marcada en el corio y clavo, y por las manchas del convexivo que son distintas."

I consider all the differences cited by DeCarlo as variable and not valid for specific separation. However, the validity of *B. brasiliensis* cannot be determined until the type is examined.

### *Belostoma dilatatum* (Dufour)

Figures 70, 73

*Zaitba dilatata*, Dufour, 1863, Ann. Soc. Ent. France, (4)3 : 387 (misidentification of *Belostoma dilatatum* Say) .

*Zaitba dilatata* Dufour, 1864, Ann. Soc. Ent. France, (4)4 : 221 (corrects above citation and validates name) .

*Zaitba dilatata*, Mayr, 1871, Verh. zool.-bot. Ges. Wien, 21: 411.

*Zaitba dilatata*, Walker, 1873, Cat. Hem. Het. Brit. Mus., 8: 178.

*Belostoma dilatatum*, Montandon, 1900, Ann. Mus. Civ. Genova, 20 (40) : 537.

*Belostoma dilatatum*, Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash., 10: 191.

*Belostoma dilatatum*, DeCarlo, 1930, Rev. Soc. Ent. Arg., no. 13 : 109-110, pl. 6, fig. 17 (fig. 17 is labelled *Belostoma dentatum* Mayr, but is corrected on page 124) .

*Belostoma dilatatum*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39 : 229, pl. 8, fig. 67.

*Size and shape*. Large, greatly dilated, elliptical body.

Length : d ♂, 42.0-46.0 mm. ; ♀, 41.5-52.0 mm. Width :  
, 19.5-21.5 mm. ; , 19.0-25.5 mm. Width of head, 7.28.8 mm. ; width of pronotum, 13.2-17.5 mm. ; length of pronotum, 6.3-8.0 mm.

*Color and markings.* Almost uniformly light to dark brown. Scutellum with anterior portion darker than caudal part ; thoracic venter dark brown. Each femur with three zigzag, irregular, often H-shaped, dark bands ; protibia with three dark bands, meso- and metatibiae dark ; tarsi dark. Abdominal venter mahogany, often with two black longitudinal stripes ; connexival margins brown, without markings.

*Structural characteristics.* Interocular space 1.7 to 1.8 times the width of an eye ; clypeus not reaching the ocular line ; lateral grooves deep ; anterior interocular space distinctly less than anteocular length ; beak stout, segment I slightly shorter than II. Prosternal keel prominent, elongate, apex rounded. Pilosity completely covering connexival margin, extending only slightly beyond penultimate segment, but patch of slightly shorter and stouter hairs bordering about two-thirds genital operculum. Genitalia as shown in figures 70 and 74.

*Comparative notes.* This species is easily distinguished from all other species of *Belostoma* except *B. martini*. I have not seen the latter species but DeCarlo (1938) states that segment I of the beak is longer than II. In general *B. martini* also seems to be smaller in size.

*Types.* The specimens used for the original description are lost, thus the following neotype from Paraguay is hereby proposed : "Paraguay, S. A. Villarrica, 11, 21-1929, F. Schade" (KU) , *cr.* The neotype is 46.0 mm. long and 21.5 mm. wide. The type locality of *Zaitba dilatata* Dufour is unknown since he cites North America, which corresponds to the locality of Say's *Belostoma dilatatum* (= *Abedus dilatatum* (Say)) .

*Distribution.* This species is confined to the southern part of South America. Specimens from the following localities have been identified :

ARGENTINA. BUENOS AIRES : Alrededores de Quilmes, cr (DC) ; Buenos Aires, 2 9 9 (DC) . CORDOBA : La Granja, (KU) . MENDOZA : Mendosa, 9 (USNM) . SANTA FE :

Rosario, 2 *d' d'* (BM) ; Santa Fe, 2 *d' d'* (DC). TUCUMÁN: Tucuman, 9 (DC).

BOLIVIA. SANTA CRUZ : Santa Cruz, 9 (DC) .

BRAZIL. 9 (KU), *d' (KU)*.

PARAGUAY. 9 (KU). GUAIRÁ: Villarrica, 2 9 9, *cr* neotype (KU) .

URUGUAY. PAYSANDU : Paysandú, 9 (BM) .

Additional records from Brazil and Argentina are given by DeCarlo (1938).

### ***Belostoma martini* (Montandon)**

*Zaitba martini* Montandon, 1899, Bull. Mus. Hist. Nat., Paris, 5 : 170.

*Belostoma martini*, Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash., 10: 191.

*Belostoma martini*, DeCarlo, 1930, Rev. Soc. Ent. Arg., 3: 111, pl. 5, *fig.* 14.

*Belostoma martini*, DeCarlo, 1938, An. Mus. Arg. Cien. Nat., 39 : 230-231, pl. 8, *fig.* 68.

I have not seen specimens of this species, although I have seen several of *B. dilatatum* which are comparable in size. DeCarlo (1938) says that segment I of the beak is longer than II.

DeCarlo lists this species as occurring in Argentina (Prow. de Buenos Aires) and Uruguay. Montandon based his description on specimens from Patagonia but did not designate any types.

### ***Belostoma discretum* group**

This group is represented by a single species, *Belostoma discretum* Montandon and thus is characterized by the description of this species.

### ***Belostoma discretum* Montandon**

Figures 71, 74

*Belostoma discretum* Montandon, 1903, Bull. Mus. Nat. Hist. Paris, 9: 22-23.

*Belostoma discretum*, DeCarlo, 1930, Rev. Soc. Ent. Arg., 3: 116, pl. 5, *fig.* 9.

*Belostoma discretum*, DeCarlo, 1938, An. Mus. Cien. Nat., 39 : 221, pl. 7, *fig.* 58.

*Belostoma discretum*, Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash., 10: 191.

*Belostoma discretum*, DeCarlo, 1950, Rev. Brasil Biol., 10: 532

*Belostoma discretum*, DeCarlo, 1957, Rev. Soc. Ent. Arg., 19: 56.

*Size and shape.* Body elliptical. Length : , 24.0-26.5 mm. ; 9 9 , 24.0-27.0 mm. Width : (3' , 10.5-12.1 mm. ; 9 9, 11.2-12.4 mm. Width of head, 4.8-5.0 mm. ; width of pronotum, 8.4-9.0 mm. ; length of pronotum, 4.3-4.7 mm.

*Color and markings.* Dark brown with black mottling. Scutellum dark, with two short transverse, yellow stripes on posterior portion ; thoracic venter almost uniformly light yellow. Femora with numerous, very narrow, wavy, transverse dark bands, becoming effaced proximally ; protibia with four, often faint, dark bands, mesotibia with three, narrow dark bands, metatibia with irregular dark markings ; each pro- and mesotarsus yellow with dark tip, metatarsi dark. Hemelytral margins often marked with prominent narrow dark stripes. Abdominal venter yellow with dark specks, each segmental margin of the connexivum with three marginal dots.

*Structural characteristics.* Interocular space 1.4 to 1.5 times the width of an eye ; clypeus reaching or nearly reaching the ocular line ; anteoculus slightly longer than the interoculus ; eyes triangular, relatively straight along lateral margins ; segment I of the beak about three-fourths as long as II. Prosternal keel prominent, elongate, somewhat pointed apically. Pilosity covering about half the connexivum, extending only slightly beyond the penultimate segment. Genitalia as shown in figures 64 and 73.

*Comparative notes.* This species is very similar to the members of the *B. subspinosum* group in general size and shape, as well as in the pubescence of the connexivum. In *B. discretum*, however, the scutellum does not reach the nodal line and segment I of the beak is conspicuously shorter than II.

*Types.* Montandon did not designate a holotype or allotype. The species was based on a series of syntypes from Argentina, Brazil, and Paraguay, which are in the Paris Museum of Natural History and the Vienna Museum of Natural History.

*Distribution.* *B. discretum* has a rather extensive range, consisting of the central portion of South America. Specimens from the following localities have been identified: ARGENTINA. SANTA FE: Santa Fe, 2 *d d* (DC). BOLIVIA. BENI: Ivón, 9 (USNM); Reyes, 9 (USNM). BRAZIL.  $\beta$ , 9 (USNM). AMAZONAS: 9 (KU), *d*, 9 (HNM); Lago Tapaiuna, 8 *a a*, 11 9 9 (KU); Manaós, 5 *e*, 4 9 9 (KU), 9 (USNM); Manacapura, *e*, 3 9 9 (AMNH), 200 *d e*, 261 9 9 (KU), 2 *d e* (USNM); Region de Itacoatiara, 63 *a* 28 *ye* 9 (KU); Rio Purus, Castanha, 9 (KU); Rio Purus, Lago Berury, 2 *d e*, 9 (KU); Tefé, (USNM). GOIAS: Santa Isabel, 2 *d e* (CAS), 2 *cr* (LACM). SAO PAULO: Santos, 9 (KU). PERU. *d* (AMNH) *e*, 9 (KU). AMAZONAS: Rio Santiago, *e*, 2 9 9 (AMNH). JUNIN: Satipo, 3 *a d*, 2 9 9 (DC). LORETO: Iquitos, *e* (AMNH); Pucallpa, 9 (DC) Rio Tapiche, 9 (AMNH); Rio Ucayali, 9 (AMNH).

#### ABBREVIATIONS OF COLLECTIONS CITED

AMNH—American Museum of Natural History, N. Y. BM—Zoologische Staatssammlung, Munich.

CAS—California Academy of Sciences, San Francisco.

DC—Collection of Dr. Carl J. Drake (USNM).

HNM—Hungarian National Museum, Budapest.

KU—University of Kansas, Lawrence.

LACM—Los Angeles County Museum, California.

MC—Collection of Arnold S. Menke, University of California, Davis.

PMNH—Paris Museum of Natural History, France.

USNM—United States National Museum, Washington, D.C.