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The genus *Xyleus* Gistel 1848 (Acridoidea, Romaleidae, Romaleinae)

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Abstract

The Neotropical genus *Xyleus* is revised. All existing types were examined, and many specimens from several large collections in different museums borrowed for study. A general confusion regarding *Xyleus*' species and their geographical distribution was found in the existing literature. Of the 25 specific names published between 1817 and 1935, only 13 were found to be

valid, either as species or subspecies. Five new species and 1 new subspecies are described in this revision. The most reliable characters for the separation of species were found in the phallic complex.

According to the materials studied, the genus has a discontinuous geographical distribution. A northern section includes Southeast Mexico, Central America, Colombia, Ecuador and Venezuela. A southern section includes most of Brasil, Paraguay, Uruguay, parts of Argentina, Bolivia and Perú. Most species of the genus have been found north of parallel 4°N or south of parallel 5°S. While in the northern area only subspecies of *Xyleus discoideus* have been found, all known species of the genus are present in the southern one.

Specimens of all species are figured, together with important characters for their identification. Maps of the known distribution of all species are given.

Key words

genitalia, geographical distribution, habitus illustrations, measurements, new species, redescriptions, repositories, synonymy

Introduction

In some romaleine genera, the species are difficult to identify by means of existing descriptions and other data in the literature. The genus *Xyleus* is an outstanding example of this situation: study of the published data, reveals a general confusion regarding the identity and status of its species and their geographical distribution.

During a visit to the Museum of Paris in 1982, the subject of *Xyleus* came to light in a conversation with Marius Descamps. We found then that both of us had independently been doing some preliminary work on it and had seen that, contrary to what happens in other romaleid genera, the phallic complex was in this case very useful for the identification of species. We agreed then to undertake a revision of the genus together, and Marius gave me copies of some sketches he had made of the male genitalia of several species of the genus. Unfortunately, a few days after I left Paris, he fell gravely ill, and did not recover enough to be able to work again before his death in 1996. So I continued working on the subject by myself, finally arriving at the results recorded here on the taxonomy and geographical distribution of the species of the genus. I dedicate this paper to the memory of my dear friend Marius Descamps, who should have been its co-author.

The genus *Tropinotus* Audinet-Serville (1831: 272) (usually cited as Serville in the literature on Orthoptera), included, according to its author, 2 divisions. In the first were *Gryllus serratus* Linnaeus and *T. discoideus* n. sp. In the second, only the species *T. obsoletus* n. sp. was included (from the Cape of Good Hope according to Serville, but actually a neotropical species). The genus *Prionolopha* was erected by Stål (1873b: 27) for *Gryllus (Bulla) serratus* Linnaeus, and the genus

Colpolopha (1873b: 28) for his species *C. sinuata*. Pictet & Saussure (1887: 338) transferred Serville's *T. obsoletus* to *Colpolopha*, thus leaving *T. discoideus* as the only member of the genus *Tropinotus*. This genus is now called *Xyleus*, according to the information on its taxonomy given below.

Index to specific names

Twenty-six species were described between 1817 and 1935 under the different names given to the genus: none of them under *Xyleus*. No synonymies have been formally made before the present paper, though there is an indication by Liebermann (1942: 25) that his species *Diedronotus uvarovi* might be the same as *Tropinotus insignis* Giglio-Tos, and a comment by Descamps (1975: 52) to the effect that specimens that had been identified as *Diedronotus mexicanus* Bruner and *D. centralis* Rehn seemed identical to him. According to the present work, the genus includes 16 valid species (one of them with 3 subspecies), of which 5 (and 1 subspecies) are here described. Eleven nominal species are synonymized in this paper, and one is eliminated as *nomen dubium et oblitum*.

In the list that follows, specific (or subspecific) names are in alphabetical order. Another order judged to be more related to the taxonomy of the group is followed in the text. Numbers given after each of the names correspond to those given to the species in the text. Names set in boldface are valid, all other names correspond to junior synonyms or are invalid for other reasons. Generic names in parenthesis are those under which the corresponding species were described.

<i>affinis</i> (Bruner 1906) (<i>Tropinotus</i>) (= <i>discoideus</i>)	
<i>aimara</i> n. sp.	17
<i>amabilis</i> (Bolivar 1909) (<i>Diedronotus</i>) (= <i>laevipes</i>)	
<i>andinus</i> n. sp.	8
<i>angulatus</i> (Stål 1873) (<i>Tropinotus</i>) (ssp. of <i>discoideus</i>)	2
<i>araguaia</i> n. sp.	12
<i>attenuatus</i> (Rehn 1909) (<i>Tropinotus</i>)	11
<i>camposi</i> (Bolivar 1909) (<i>Paralcamenes</i>)	20
<i>centralis</i> (Rehn 1918) (<i>Diedronotus</i>) (= <i>mexicanus</i>)	
<i>conspersus</i> (Bruner 1900) (<i>Tropidonotus</i>) (= <i>insignis</i>)	
<i>discoideus</i> (Serville 1831) (<i>Tropinotus</i>)	1
<i>fuscipennis</i> (Bruner 1911) (<i>Diedronotus</i>) (= <i>discoideus</i>)	
<i>goias</i> n. sp.	9
<i>gracilis</i> (Bruner 1905) (<i>Tropinotus</i>)	3
<i>guarani</i> (Rehn 1907) (<i>Tropinotus</i>)	19
<i>insignis</i> (Giglio Tos 1894) (<i>Tropidonotus</i>)	16
<i>laevipes</i> (Stål 1878) (<i>Tropidonotus</i>)	6
<i>laufferi</i> (Bolivar 1891) (<i>Tropidonotus</i>)	15
<i>lineatus</i> (Bruner 1906) (<i>Tropinotus</i>)	18
<i>mexicanus</i> (Bruner 1906) (<i>Tropinotus</i>) (ssp. of <i>discoideus</i>)	5
<i>modestus</i> (Giglio Tos 1894) (<i>Tropidonotus</i>)	7
<i>panteli</i> (Bolivar 1902) (<i>Tropidonotus</i>) (= <i>modestus</i>)	
<i>parvus</i> (Bolivar 1909) (<i>Diedronotus</i>) (= <i>regularis</i>)	
<i>pirapora</i> n. sp.	14
<i>regularis</i> (Bruner 1905) (<i>Tropinotus</i>)	10
<i>rosulentus</i> (Stål 1878) (<i>Tropidonotus</i>) (ssp. of <i>discoideus</i>)	4
<i>scabripes</i> (Stål 1878) (<i>Tropidonotus</i>) (= <i>discoideus</i>)	
<i>schulzi</i> (Bruner 1900) (<i>Tropidonotus</i>) (= <i>modestus</i>)	
<i>strigatus</i> (Bruner 1910) (<i>Tropinotus</i>) (= <i>modestus</i>)	
<i>tuberculatum</i> Palissot 1817 (<i>Acridium</i>) (<i>nomen dubium / oblitum</i>)	
<i>uvarovi</i> (Liebermann 1935) (<i>Diedronotus</i>) (= <i>insignis</i>)	
<i>venezuelae</i> n. sp. (of <i>discoideus</i>)	3

The following species have been in the past assigned to *Tropinotus* but are now not placed in *Xyleus*:

- Tropinotus serratus* (Linnaeus 1758) Serville 1831. (*Prionolpha*, Romaleidae)
Tropinotus obsoletus Serville 1831. (*Colpolopha*, Romaleidae)
Tropinotus sulcaticollis Blanchard 1851 (*Catreolus*, Ommexechidae)
Tropinotus ornatcollis Blanchard 1851 (*Catreolus*, Ommexechidae)
Tropinotus angusticollis Blanchard 1851 (*Tropidostethus*, Tristiridae)
Tropinotus granulatus Stål 1875 (*Alcamenes*, Romaleidae)
Tropinotus australasiae (Leach 1814) Walker 1870 (*Goniaea*, Acrididae, Australian)
Tropinotus cinnamomeus Serville 1839 (= *Goniaea australasiae*, Acrididae, Australian)

Materials and methods

The specimens used for this work have been, for the most part, borrowed from different museums (see the list of repositories, Appendix I). Many have been collected by the author. Methods used are the usual in taxonomic studies; however, the following indications seem relevant.

Genitalia.— Examination of male genitalia is necessary for the identification of species of this genus. Many species are alike in their external morphology, but clearly differ by their phallic complex. A large number of specimens had to be dissected for this purpose. Genitalia were dissected and cleaned by the usual methods. KOH solution was always used at room temperature. The shape and sculpture of the apical valves of the endophallus provide important taxonomic characters. In many instances, however, these valves are heavily sclerotized and of a very dark color, which makes the observation of details very difficult. In these cases a modification of the technique proposed by Fragoso (1980) was used to bleach these structures. After being dissected and cleaned in KOH, the phallic complex is put in a solution of a formula used for the bleaching of hair. The product used in the present study is a mixture of sodium carbonate, magnesium carbonate and ammonium chloride in equal parts by weight, dissolved in concentrated (30 vol.) hydrogen peroxide. Small portions of solution should be made immediately before use by putting a small amount of the mixed powdered chemicals in a vial and covering them with enough hydrogen peroxide. The piece to be bleached is left in this solution for a length of time that varies in each case but usually does not exceed 30 min. This treatment effects a partial bleaching of the darkest parts of the phallic complex allowing its detailed study. Following bleaching, the piece is washed in water and may be stained with alcoholic solution of mercurochrome if necessary, or just washed in ethyl alcohol before transferring it to glycerin for its keeping and observation.

Measurements.— Measures were taken with a sliding stage with which displacement is registered by an attached dial caliper. Accuracy is in the range of 1/10 of a millimeter. Measurements made are those indicated in Fig. 47.

Colors.— These are named according to the nomenclature of Smith (1975). Colors indicated in the descriptions are to be taken very generally: shades and hues vary widely in different specimens of the same species.

Wing venation.— The nomenclature of Ragge (1955) has been followed in all cases.

Distribution maps.— Approximate coordinates of the localities of collection were measured in order to place them on maps. Considering that many records in the literature are due to misidentifications, only the localities on the labels of the specimens examined were used for these maps.

Genus *XYLEUS* Gistel 1848

Several authors have given their opinions about the proper name for this genus. Caudell (1932) mentions that the name *Tropinotus* Kuhl 1822 (Reptilia) antecedes *Tropinotus* Serville 1831, but that on the opinion of Dr. Leonhard Stejneger, Kuhl's name would be a *nomen nudum*. *Tropidonotus* Stål (1878a, b), proposed as an emendation of *Tropinotus*, could not be used because *Tropidonotus* Boie 1826 (Reptilia) was a valid name. He concluded that the name *Xyleus* Gistel 1848, proposed to replace *Tropinotus* Serville, should be used, while *Tropidonotus* Stål 1878 and *Diedronotus* Bolivar 1906 should be considered junior synonyms of *Xyleus*. Uvarov (1940) discussed the case again, arriving at the same conclusion. Roberts (1937) refers to the above opinion of Caudell, pointing to the fact that if *Tropinotus* Kuhl was a *nomen nudum* as indicated by Caudell, *Tropinotus* Serville would be valid and should be used for this genus.

The validity of *Xyleus* Gistel as the proper name for this genus would hence depend on the status of *Tropinotus* Kuhl (Kuhl & Hasselt, Isis 1822: 474; Kuhl 1824: 81). I have consulted Dr. M.S. Hoogmoed and Dr. T.C. Avila-Pires of the Department of Herpetology of the Nationaal Natuurhistorisch Museum in Leiden on the subject of the status of *Tropinotus* Kuhl 1822. After a study of the pertinent literature and discussion with other members of the staff, they informed me that *Tropinotus* Kuhl 1822 is an available name on the terms of article 11.(c),(i) of the International Code of Zoological nomenclature. It was not associated to any specific name (not necessary for names published before 1931), but in both papers mentioned above (1822, 1824) there are brief descriptions of the genus. *Tropidonotus* Boie (Isis 1826: 982, 1827: 474) described and associated with a specific name in Reptilia, is without doubt an available name. Hence, the name *Xyleus* Gistel 1848 is the proper name for the present romaleid genus.

I have not found any further discussion on the status of *Xyleus* after the above mentioned papers of Roberts 1937 and Uvarov 1940, but this generic name has been generally adopted in subsequent literature.

Etymology.— According to Brown (1956: 864, 870) the word *xyleus* (from the Greek, *xylon* = wood) means wood-cutter. Most species of the genus, by their color and color-pattern, look like chips of wood, and this is probably the origin of this name as applied to them.

Distribution.— (Figs 36, 46). According to the specimens available for this work, the genus has a discontinuous geographical distribution. It is found in southern South America, east of the Andes between parallels 5° and 35° S and meridians 34° 55' and 76° 50' W (the only exception being *X. camposi*). In northern South America and Central America it occurs between parallels 4° and 21° N and meridians 61° 13' and 104° W. I have seen no specimens from any part of the continent between 5° S and 4° N, which includes the main course of the Amazon River and part of the Guianas. Many localities in the Brazilian part of this zone have been well collected by Dr. Campos-

Seabra's collectors, some in French Guiana by Marius Descamps, and several in the Peruvian part by Amedegnato and Poulain, but no specimens of this genus have been found. An exception is the species *X. camposi* coming from Posorja, Ecuador, west of the Andes, at 2° 35' S. Another is a single specimen of *X. goias* (labeled as from Amapa State) which I suspect of being mislabeled.

Another interesting fact regarding this geographical distribution, is that all specimens collected in the northern area belong to subspecies of *Xyleus discoideus*, which is the species found along the Atlantic coast in southern South America. It seems probable that this species migrated along the coast from Northeastern Brasil to Venezuela, Colombia and Central America. However, the mouth of the Amazon River, one of the rainiest areas of the Amazonian main course, seems at present an uncrossable barrier for the species; though of course, conditions there have certainly changed through the ages. Also, *Xyleus discoideus* like other species of the genus, is a weak flier, and its flying across any part of the Amazon River, such as it is now, is unthinkable. The antiquity of the South American romaleines is not known with any certainty, but they are probably among the oldest groups of autochthonous neotropical acridoids. Amedegnato (1993:69) states that they "may be the most primitive of true acridians". It has been postulated (but not proved), that the Amazonian basin was open to the Pacific before the lower Miocene. If so, the passage of *X. discoideus* along the Atlantic coast might have taken place by dry land, at the time when the Amazonian basin was open to the Pacific and before the rising of the corresponding part of the Andes. But as far as I know, the passage of *X. discoideus* to the north along the Atlantic coast or by any other route, is at present a matter of speculation.

The center of origin of this genus is indeed the region in south-central South America that includes the Brazilian states of Goias, Mato Grosso, Sao Paulo and Minas Gerais and also northern Argentina, Paraguay, Bolivia and parts of Peru east of the Andes. In this region all the species of the genus are found.

Habitat.—According to some records in the bibliography, and my own observations in the field, most species of *Xyleus* inhabit dry forests and savanna, and in general, places with scattered trees or bushes, or the edges and more open parts of forests (Astacio-Cabrera 1975; Bucher 1974; Descamps 1975, 1976; Rowell 1987). The only species that is always found in the prairie habitat seems to be *Xyleus laevipes* (Bruner 1900, my own records).

Food-plants, economic importance.— Gangwere & Ronderos (1975) describe the mandibles of several species of *Xyleus* as of the forbivorous type, and indicate that the analysis of feces reveals that they are unselectively polyphagous in their food habits. In many publications attacks on diverse crops, particularly sugarcane and tobacco, are recorded, but the damage observed is said to be unimportant. In general, species of this genus have not been reported as of much economic importance.

Cytology.— Most records on the chromosomes of the species of *Xyleus* are summarized in Mesa *et al.* 1983. Of the 9 species there recorded (*attenuatus*, *discoideus*, *gracilis*, *insignis*, *laevipes*, *modestus* and 3 unidentified species) 8 have a chromosomal formula 23 (2n, m)-24 (2n, f) X0 (m) XX (f). The only one with a different formula is *X. laevipes*, with 22-22-XY-XX.

Taxonomy.— Type-species: *Tropinotus discoideus* Serville. This is the only species associated with this genus in its original description

that has not been posteriorly removed from it. Its status as its type-species is indicated by Rehn (1907: 170) and Kirby (1910: 359).

The romaleine genera most closely related seem to be *Prionolopha* Stål, *Colpolopha* Stål (Figs 1, 2) and *Securigera* Bolivar. Differences between the first two genera are summarized in Table 1 (see also Fig. 1). *Securigera* has no significant differences with *Prionolopha*, and these names are probably synonyms. Differences with other romaleines that have a crested pronotum, such as *Alcamenes*, *Taenipoda*, *Titanacris*, *Tropidacris* and others are great, and become evident just by comparing specimens of them with the habitus figures in this work.

Table 1. Diagnostic features distinguishing *Xyleus* from other related genera.

	<i>Colpolopha</i>	<i>Prionolopha</i>	<i>Xyleus</i>
Fastigium	long, sides in part parallel	short, sides converging toward rounded apex	short, sides converging toward angulated apex
Prothoracic crest	obliquely truncate caudad, smooth except in truncate part	not truncate, serrulate throughout	not truncate, smooth throughout or serrulate caudad
Hind femur	serrulate dorsally, smooth ventrally	strongly serrulate dorsally and ventrally	serrulate dorsally and ventrally
Prosternal tubercle	straight, spiniform, forwardly inclined	retorse, apex, slightly swollen	retorse, apex slightly swollen

Rowell & Flook's (1998) study of ribosomal DNA sequences in acridoids only reveals the affinities of *Xyleus* with other romaleines they studied (*Zoniopoda*, *Phaeoparia*, *Abila*), and with some genera of ommexechids. The genera indicated above as related to *Xyleus* were not included in their study.

Characters of genus.—Grasshoppers in this genus are medium-sized. Among 219 specimens measured in this study, the largest and smallest are the following (from frons to end of tegmina, or to end of abdomen in the case of *X. camposi*):

Males: largest ones— 49 mm (*rosulentus*), 45 mm (*mexicanus*), 44 mm (*discoideus*).

smallest ones— 31 mm (*guarani*), 32 mm (*modestus*, *regularis*).

Females: largest ones, 70 mm (*rosulentus*), 63 mm (*discoideus*), 62 mm (*mexicanus*).

smallest ones— 37 mm (*camposi*), 40 mm (*guarani*, *modestus*, *regularis*).

Head: antennae flattened, from slightly to moderately ensiform; eyes large, elyptical, moderately prominent, more so in males than females; vertex prolonged before eyes in a triangular fastigium, somewhat excavated dorsally; dorsal median carinula running from fastigium to occiput. Pronotum: dorsal carina elevated, crest-like, cut by 3 transverse sulci; lateral carinae prominent, diverging caudad; lateral lobes vertical, in definite angle with disk; prosternal tubercle compressed or swollen, always retorse. Meso- and metasternal spaces subquadrate. Tegmina and wings well developed in all known species excepting *X. camposi* which is brevalate. Tegmina (Fig. 4) rather narrow, with marked precostal lobe and variously shaped apices. Wings (Fig. 4) wide, stridulatory area well developed in both sexes. The remigium rather narrow, usually colored in shades of brown, fuscous or umber, like the tegmina. Vannum is the wings'

most characteristic part. What are apparently veins A1 and A2 are placed close together, and between them runs a series of strong, denticulated arched veinlets acting as scrapers during stridulation. Behind them, between A2 and A3, which are widely separated, there is a hyaline area with marked crossveins, likely a radiating area during stridulation. The whole margin of the vannal area is marked by a dusky band of the same color as the remigium, which is rather wide at its limit with the remigium but gradually narrows backwards. The rest of the vannum, between this dusky band and the hyaline resonatory area, is colored in variable shadows of scarlet to orange. This color may be different in different species, and is also somewhat variable within each species. The stridulating apparatus as described above is common to most romaleines. Legs not particularly strong except hind ones: hind femora with well marked carinae, the median dorsal one more or less markedly serrulate, the upper external and medial ventral ones frequently so. Brunner's organ present. Hind tibiae armed with rather large spines, apical external one present in all known species. Abdomen with auditive organ on 1st segment. Male abdominal terminalia with dorsum of 10th segment deeply incised medially, epiproct rhomboidal, cerci straight, subconical, subgenital plate apically pointed. Male genitalia species-specific; form of cingulum and apical endophallic valves particularly useful as species characters. Female with ovipositor of the soil-laying type.

Characters used for the description of species

From a study of the pertinent literature, it has been found that the following characters have been used in most cases, to define the different species.

Colors and color-pattern.— These are not usable without an understanding of how they vary within each species. Some species have fairly uniform colors and color pattern (e.g., *X. laevipes*) while in others both are highly variable. In *X. insignis* for example, specimens vary from a uniformly green coloration to the most diverse patterns of buff, brown and fuscous. In some of the species-groups defined below, the same color-patterns may appear in individuals of different species. As used in most existing descriptions, these color characters are entirely unreliable.

Shape of fastigium.— This is somewhat variable intraspecifically. Slight differences in form have no meaning for the definition of species.

Pronotum.— Measurements made in this work show that the height of the pronotal crest is fairly variable within the same species. However, some species have a high, arcuate crest, while in others it is lower and almost straight. Such marked differences are definitely useful. Crenulation of pronotal crest is variable. In specimens of *X. d. discoideus* for example, these crenulations diminish in a geographic gradient from north to south. Some of the southernmost specimens may lack them altogether. Some species, however, may always have a crenulated crest, while in others the crest is always smooth throughout.

Transverse sulci of pronotum: in some species these sulci are well marked, deep in some places, and the 4 lobes into which they divide the pronotal crest may be not entirely contiguous superiorly. In other species these sulci are less marked, and the different lobes always contiguous.

Shape of the pronotum as seen from above is a valuable character, but the same shape can be seen in different species, for example in

X. discoideus angulatus, *X. modestus* and *X. discoideus venezuelae*. This shape is, however, clearly distinguishable from the one seen in *X. d. discoideus*, *X. andinus* and *X. discoideus rosulentus* (Figs 5, 14, 21).

Prosternal tubercle.— While fairly variable intraspecifically, each species has a characteristic pattern. Examining series of each species is useful for determining the extent of these variations. This may be a useful character when used in combination with others.

Spines on hind tibiae.— Tibial spines vary in different species from 9 to 19. The number is slightly variable within each species, but in general can be taken as an auxiliary character. For example, this number varies from 9 to 11 in several species, from 15 to 16 in others, but no overlapping will occur in such a case. Tibial spines are rather large, the internal ones larger than the external.

Tegmina.— (Fig. 4). Size of tegmina is somewhat variable within each species. The only brevialate species known is the Ecuadorian *Xyleus camposi*. The most reliable tegminal character seems to be the shape of their apices, though even this is subject to some intraspecific variation. Also in some species chromatic characters of the tegmina are of value, such as the presence and location of dark areas or markings. The color of these varies usually in shades of brown, fuscous or umber, but in some species some parts are green, particularly on the costal and anal areas.

Wings.— (Fig. 4). Their color pattern is characteristic for the genus. Remigium and the edge of vannum are usually colored in shades of fuscous or umber; a large basal area of the vannum is colored in shades of scarlet or orange. There is in both sexes a well differentiated stridulatory area in the vannum, which is common to most romaleines. While colors and details of color pattern may be slightly different in different species, these differences are not marked and do not seem useful for purposes of species identification.

Phallic complex.— Not generally used before the present paper to define the different species, it has proved to possess the most reliable characters (in some cases apparently the only ones) for the separation of the species. Shape of the cingulum and of the apical endophallic valves, is particularly useful.

Geographical range.— While some species are totally or partially sympatric, others are entirely allopatric, their ranges being clearly separated. For example, such is the case with 3 species which are externally similar: *X. modestus* from Central Brasil-Paraguay-Eastern Bolivia-Central Argentina; *X. discoideus angulatus* from NE Brasil, and *X. discoideus venezuelae* from Venezuela.

Species Groups

The different species of the genus can be grouped either by their external characters or by the characters of the phallic complex. No way has been found to make groups combining in every case both sets of characters. The groups that have been made in this work are based mainly on the phallic complex. Some of them, however, comprise species that are similar also in their external anatomy, and this will be indicated in the treatment of each one. The following groups have been considered: Discoideus Species Group, including 5 subspecies of *X. discoideus*, namely *X. d. discoideus*, *X. d. angulatus*, *X. d. venezuelae*, *X. d. rosulentus* and *X. d. mexicanus*. To this group probably belongs also *X. camposi*. Laevipes Species Group, with *X.*

laevipes, *X. modestus*, *X. andinus*. *X. goias* and *X. regularis*. Attenuatus Species Group, with *X. attenuatus*, *X. araguaia*, *X. gracilis*, *X. pirapora* and *X. laufferi*, and the Insignis Species Group, with *X. insignis*, *X. aimara*, *X. lineatus* and *X. guarani*.

The principal characters of the above groups are given in Table 2.

Discoideus Species Group

(Figs 5, 6, 13)

It includes what are here considered to be the most primitive species. This should be construed in the sense of the species having a phallic complex which does not greatly diverge from that found in most romaleines. In their external morphology and color pattern all its members are fairly similar. Included in this group are the 5 subspecies of *Xyleus discoideus*, namely *discoideus*, *angulatus*, *mexicanus*, *rosulentus*, and *venezuelae*. As said above, *Xyleus camposi*, whose male is unknown, may belong in this group.

Being composed of 5 subspecies of a single species, this group is in every sense very uniform. Its species are dull-colored in various shades and hues of umber, fuscous and brown, and some of them russet or hazel. Some specimens of any of the subspecies may have some dull-green coloration in the upper parts of the body and tegmina, but this condition is uncommon. Within each of the species, the color-pattern of the different individuals is very variable; no 2 individuals are exactly alike. For the present study I have examined more than 300 specimens of this species-group, without finding a single individual with colors other than those indicated above. The differences that allow the separation of the various subspecies lie mainly in the shape of the pronotum as seen from above, and in the phallic complex, especially the apical endophallic valves and the cingulum. Also the size varies somewhat in the different subspecies (see tables of measurements), specimens of *X. d. angulatus*, for example, being in general of a smaller size than those of the other subspecies.

The species *X. discoideus* as a whole can be characterized as follows (differences among subspecies will be given below when referring to each of them). Pronotal crest high, especially on metazona. Transverse sulci of pronotum very well marked and deep: in side view some of the lobes into which they divide the pronotal crest are not entirely contiguous and show narrow gaps between them. The posterior part of the crest at least is usually crenulated (though this character is subject to some intra-subspecific variation). Hind femora very strong, with their median dorsal and ventral carinae strongly serrulated.

Xyleus discoideus (Serville 1831)

Taxonomy.— This species is treated here as polytypical. *X. angulatus*, *X. rosulentus* and *X. mexicanus*, considered in the past as separate species, differ from it, but very slightly, and so does *X. venezuelae*, here described. All these are treated here as subspecies of *X. discoideus*.

Distribution.— (Figs 37, 38, 39, 40, 41, 46). Considering this species as a whole, it is distributed along the Atlantic coast of South America (*X. d. discoideus*, *X. d. angulatus*) and also in Venezuela (*X. d. venezuelae*), Colombia (*X. d. rosulentus*) and Central America to Southeast Mexico (*X. d. rosulentus*, *X. d. mexicanus*). It seems probable that *X. d. venezuelae* extends into parts of Guyana (formerly British Guiana). South of the Amazon, the species occupies mainly the Atlantic coast, though in some places it reaches far inland.

Table 2. Principal diagnostic characters of species groups of *Xyleus*.

	Discoideus Group	Laevipes Group	Attenuatus Group	Insignis Group
Pronotal crest height and caudal crenulation	high, crenulated (Fig. 5)	low, not crenulated, except in <i>andinus</i> where it is high and crenulated caudad (Fig. 14)	low, not crenulated (somewhat higher in <i>pirapora</i>) (Fig. 21)	rather high, sometimes with a few shallow crenulations (Fig. 28)
Transverse sulci of pronotum	well-marked and deep, sometimes partially separating crestal lobes (Fig. 5a)	well-marked and deep (Fig. 14a)	weakly marked (Fig. 21a)	marked but not deep (Fig. 28a)
Sides of metazona as seen from above	rounded (<i>discoideus</i> , <i>rosulentus</i> , <i>mexicanus</i>), angulate (<i>angulatus</i> and <i>venezuelae</i>) (Fig. 5b)	angulate in <i>modestus</i> , less so in other species (Fig. 14b)	not sharply angulate except in <i>pirapora</i> where lateral angles are marked (Fig. 21b)	angulate (Fig. 28b)
Apical endophallic valves	transversely grooved, short (Fig. 6)	transversely grooved, short in <i>laevipes</i> , <i>modestus</i> , <i>andinus</i> and <i>regularis</i> , longer in <i>goias</i> (Fig. 15)	transversely grooved, short, but shape differs from that of <i>Discoideus</i> and <i>Laevipes</i> Groups. <i>Attenuatus</i> and <i>araguaia</i> similar in profile. <i>Gracilis</i> and <i>pirapora</i> of different shape (Fig. 22)	long and narrow, quite different from other groups (Fig. 29)
Cingulum as seen from above	deeply incised medially caudad (Fig. 13, left column)	medial incision almost non-existent in <i>laevipes</i> and <i>regularis</i> . Similar to <i>Discoideus</i> Group in <i>andinus</i> and <i>modestus</i> , less so in <i>goias</i> (Fig. 13, right column)	similar in <i>attenuatus</i> and <i>araguaia</i> . In <i>gracilis</i> and <i>pirapora</i> quite different from others in this group, and from each other (Fig. 27, right column)	with long posterior rami in <i>insignis</i> and <i>aimara</i> . In <i>lineatus</i> and <i>guarani</i> , quite different from the preceding and from each other (Fig. 27, left column)

1. *Xyleus discoideus discoideus* (Serville 1831)
(Figs 3, 4, 5, 6, 7, 13, 37, 46, Table 3)

Taxonomy.— *Tropinotus discoideus* was briefly described by Serville (1831: 273), and redescribed later (1839: 619) in a somewhat more extended form. Both descriptions are inadequate in the light of present knowledge. Most characters given in them are common to most subspecies of what is here referred to as the *Discoideus* Species Group, and some even to the whole genus *Xyleus*. In his first description Serville refers to male and female specimens. In the second one only a female is mentioned.

The species *Tropinotus discoideus*, being that first described in what is now the genus *Xyleus*, must be considered as the type-species of this genus and is indicated as such by Rehn (1907: 170, genus *Tropinotus*) and later by Kirby (1910: 360, genus *Diedronotus*). Its type specimen, believed to be lost, was recently found in PARIS by Dr. Amedegnato, who has kindly compared it with specimens from the State of Rio de Janeiro and found it to be conspecific with them. Being the type-species of the genus, it seems very important to know to which species this name should be applied. Another reason for trying to identify this species, is the fact that it has been the most frequently mentioned in the literature among those of its genus. Many of these mentions will probably be due to misidentifications.

Its type locality, given by Serville as "Brésil", is not very helpful for this purpose. It seems, however, that for a specimen collected before 1831, some place in coastal Brasil is more probable than one inland. Also, Serville's indication of his type-specimen having denticulations on the posterior part of its pronotal crest, points to a specimen from the northern part of the known range of the species (see below). Rio de Janeiro, being an accessible place at that time, seems very probable as the type-locality.

It is curious to notice that such an ill-defined species was taken in subsequent literature as the main reference for defining other members of the genus, which are compared with it in their descrip-

tions. Out of 23 descriptions of other species, 12 refer to *discoideus* for comparison, pointing to similarities or differences with it to characterize the species under description. Also, the authors who refer to this species assign to it a very large geographical range that includes Colombia, British Guiana, different places in east Brasil, such as Bahia, Rio de Janeiro and Porto Alegre, Uruguay, all of the provinces of Argentina from Misiones and Jujuy in the North to Buenos Aires in the South, and also southeast Bolivia and eastern Paraguay. In the light of the present revision, this suggests that all the taxa we consider in this work to be subspecies of *X. discoideus* and very probably other species as well, have been in the past identified as *X. discoideus*.

Distribution.— (Fig. 37). According to the localities of collection of the specimens examined (see Appendix I) this species ranges along the Atlantic coast from southern Bahia State in Brasil to Uruguay and probably also the extreme north of the Province of Buenos Aires in Argentina. It extends inland to the west as far as Goias and Minas Gerais in Brasil, eastern Paraguay, southeastern Bolivia and the Argentinian provinces of Formosa and Chaco (eastern parts), Misiones, Corrientes and Entre Rios. This subspecies thus reaches to the west as far as the 60° meridian, more than 2000 km inland from its easternmost record on the Atlantic coast.

Habitat.— I have observed this species in nature in Uruguay and in many localities in Brasil. It lives in places with trees, and prefers plant formations with rather scattered trees, in the case of woods, their edge or clearings. Is one of the few species that has managed to survive in parks and large gardens in cities and towns. I have never found it in prairie or open fields. The type of habitat described for this subspecies seems similar to that of other species I have collected, such as *X. modestus* and *X. insignis*.

Identification.— Figures 3 - 7 and 13, together with what has been said on the coloration of the species group, will be enough for the

identification of the species. It must be noticed (Fig. 5) that the pronotum as seen from above has the lateral angles of the metazona always rounded, never sharply angulated as in *angulatus* or *venezuelae*. Also its geographical distribution as stated above is important for its identification, other species sympatric with it can hardly be mistaken for the present subspecies of *X. discoideus*. The pattern of the dark markings on the tegmina is characteristic of *X. discoideus* in general, and shared with the other subspecies. Number of spines in hind tibiae: 10 to 11, rarely 9.

2. *Xyleus discoideus angulatus* (Stål 1873) new status
(Figs 5, 8, 9, 13, Table 4)

Taxonomy.—In much of the literature, this species has been mistaken for *X. modestus* and less frequently for other species. Whenever it is mentioned for regions different from northeast Brasil, it is certainly due to misidentifications.

Distribution.—(Fig. 38). Northeastern Brasil, including the states of Rio Grande do Norte, Ceara (southern part), Paraíba, Pernambuco, Alagoas (probably Sergipe) and Bahia. It is there a very common and abundant species. From an ecological point of view, it is worthy of notice that it is found in very different biogeographical provinces, including parts of Caatinga, Cerrado and Atlantica of Cabrera & Willink (1973). Its limit with *X. d. discoideus* lies around parallel 16° S in southern Bahia, near the coast, coinciding approximately with the course of the Rio Jequitinhonha.

Identification.—Figures 5, 6, 8, 9 and 13 depict the most important features for the identification of this subspecies. The shape of the pronotum as seen from above, with the sharply angulated sides of the metazona, is characteristic. The shape of the cingulum (Fig. 13) and of the apical endophallic valves (Fig. 6) is also important for identification. Number of spines on hind tibiae: 9 to 10.

3. *Xyleus discoideus venezuelae* n. ssp.
(Figs 5, 6, 10, 13, 39, 46, Table 5)

Taxonomy.—The only bibliographical reference to this species is probably the one by Guagliumi (1962: 449) that lists it as *Tropinotus angulatus* (attacking sugarcane) in Venezuela. Among the subspecies of *X. discoideus*, it seems near to *X. d. angulatus*, but the characters mentioned below mark the difference.

Distribution.—(Figs 39, 46). Specimens examined come from a large part of Venezuela north of parallel 7° and west of meridian 63°.

Identification.—The characters for the identification of this subspecies are in Figs 5, 6, 10, and 13. Its prothorax as seen from above (Fig. 5) has the metazona angulate laterally, like *X. d. angulatus*. In its phallic complex, the cingulum (Fig. 13) and apical endophallic valves (Fig. 6) have characteristic shapes that allow its identification. Number of spines on hind tibiae: 10 to 11.

4. *Xyleus discoideus rosulentus* (Stål 1878) new status
(Figs 5, 6, 11, 13, 40, 46, Table 6)

Taxonomy.—Described by Stål as a separate species, but in the light of the present revision it seems more adequate to consider it a subspecies of *X. discoideus*.

Distribution.—(Figs 40, 46). Easternmost Costa Rica, Panamá and Colombia as far east as meridian 73° W. Its limit with *X. discoideus venezuelae* described below, cannot be ascertained from the material now at hand, but seems to lie somewhere near the border of Colombia and Venezuela. In Colombia it reaches south as far as parallel 4° N.

Identification.—(Fig. 11). Its pronotum as seen from above shows the lateral angles of the metazona completely rounded (Fig. 5), without any traces of the angulation found in other subspecies. Characters of its cingulum (Fig. 13) and apical endophallic valves (Fig. 6) allow its easy identification. Spines on hind tibiae: 10 to 11.

5. *Xyleus discoideus mexicanus* (Bruner 1906) new status
(Figs 5, 6, 12, 13, 41, 46, Table 7)

Taxonomy.—As in the case of *X. rosulentus*, it was described (by L. Bruner) as a separate species. I think it more adequate to treat this as a subspecies of *X. discoideus*, its differences with its typical subspecies being slight.

Distribution.—(Figs 41, 46). Southeast Mexico, Central America to and including parts of Costa Rica. It is replaced east and south by *X. d. rosulentus*.

Identification.—(Fig. 12). In dorsal view, its pronotum (Fig. 5) shows lateral angles almost rounded, but marked with small lateral points. Best characters for identification are in the phallic complex, especially in the cingulum (Fig. 13) and apical endophallic valves (Fig. 6). Number of spines on hind tibiae: 10 to 13.

Laevipes Species Group

By the structure of its phallic complex, the *Laevipes* group seems closely related to the *Discoideus* and includes *X. laevipes*, *X. modestus*, *X. andinus*, *X. goias* and *X. regularis*. It is rather heterogeneous, and is made mainly with the purpose of helping in the identification of the species of the genus. Apical endophallic valves (Fig. 15) are of the same general type as in the *Discoideus* group: short, massive and transversally grooved. Those of *X. regularis* are the most divergent within the group. The cingulum in all species is fairly similar (Fig. 13) and of the same general structure as in the *Discoideus* Group. In their external characters, the species in this group are more divergent. *X. modestus* and *X. andinus* have their pronotal crest higher, crenulated on its posterior part, with more marked transverse sulci. Also the color-pattern of their tegmina, with a series of dark markings of which the proximal one reaches the costal area, is very similar to the one found in species of the *Discoideus* Group. *X. laevipes*, *X. regularis* and *X. goias* have their pronotal crest smooth, without any crenulations or denticulations. This crest is relatively high in *X. laevipes*, lower in *X. regularis* and *X. goias*. Colors and color-patterns in the last 3 species are very different (see below).

6. *Xyleus laevipes* (Stål 1878)
(Figs 13, 14, 15, 16, 42, 46, Table 8)

Taxonomy.—This species has a very characteristic aspect and coloration, that makes it the easiest one within the genus to identify accurately. Its color is always predominantly lime-green; I have seen no specimens of the brown, chestnut or russet colors prevalent in other species. Its prairie and grassland habitat is also very characteristic.

Old specimens in collections are sometimes of a buff-yellow color, but this is due to discoloration of the original lime-green color: green colors frequently do not keep well in collection specimens. Also characteristic of this species is a series of (usually 8) subquadrate fuscous spots along the M and Rs areas of the tegmen. These spots are sharply defined, and do not extend into the costal and precostal areas, nor into the cubital area. As said with reference to the genus, this species' chromosomic formula (22-22-XY-XX), is different from that of the other 8 species studied (Mesa *et al.* 1983).

Distribution.—(Figs 42, 46). Common in southern Brasil (State of Sao Paulo and south), eastern Paraguay, northern and central Argentina south to La Plata, and the whole of Uruguay.

Habitat.—Bruner (1900: 56) says this species lives in open grassland (other species of the genus *Xyleus* are usually found among shrubs or in wooded areas). I have collected it often, always in open fields with vegetation prevalently of grasses. In Uruguay it is abundant in the northwest, becoming scarcer to the south and east.

Identification.—(Fig. 16). Colors and color-pattern as described above make this species easily identifiable. Its phallic complex also has some characters peculiar to this species. While the apical endophallic valves (Fig. 15) are of the same general type as those in *X. modestus* and *X. andinus*, its cingulum (Fig. 13) in dorsal view is different from others in the genus in having the median V-shaped posterior incision reduced to a shallow undulation (compare Fig. 13b with most others in the plate). Number of spines on hind tibiae: 12 to 16.

7. *Xyleus modestus* (Giglio-Tos 1894)
(Figs 14, 15, 17, 44, 46, Table 9)

Taxonomy.—This is probably the species of *Xyleus* that has been most frequently misidentified. Giglio-Tos (1894: 16) when describing it, states it is very similar to *X. angulatus*, and lists a series of differences with this species (which he had never seen). His type of *X. modestus* was a badly shriveled and discolored specimen that had been in alcohol. The only specimens in Giglio-Tos' collection identified as *Tropidonotus angulatus* are those mentioned in Giglio-Tos 1894: 16, from Argentina and Paraguay, which are certainly *X. modestus*. When listing the differences between *modestus* and *angulatus*, he was obviously comparing his damaged type of *X. modestus* with the fresh specimens of the same species collected by Borelli, that he believed to be *X. angulatus*. These 2 forms are externally very similar, but their phallic complex is clearly different. *X. discoideus angulatus* is endemic to northeast Brasil, while *X. modestus* inhabits a large territory including parts of Brasil, Argentina, Paraguay and Bolivia. Both ranges are widely separated by a large area where neither species has been found.

Bruner (1900: 56) described specimens of this species as *Tropidonotus schulzi*, a name frequently used for it in subsequent literature. But he also identified as *T. angulatus* many specimens collected in the same area. Examination of the voucher specimens show that he came to use this name (*angulatus*) for most specimens of *X. modestus* collected in the area. In fact, the name *X. modestus* has been less used for this species than either *X. schulzi* or *X. angulatus*.

Distribution.—(Figs 44, 46). This species is common throughout a large territory in inland South America, that includes at least the states of Rondonia, Mato Grosso and Mato Grosso do Sul in Brasil,

most of Paraguay, the lowlands of Eastern Bolivia and northern Argentina south to Cordoba and Corrientes.

Identification.—(Fig. 17). *X. modestus* has colors and color patterning similar to that of *X. discoideus*. It is sympatric with *X. discoideus* in most of its territory, except in the Atlantic coast where *X. modestus* has not been found. Most specimens of *X. d. discoideus* have their pronotum as seen from above, with the sides of the metazona rather rounded, while in *X. modestus* (Fig. 14b) they are angulate, as in *X. d. angulatus*, a species with which *X. d. discoideus* appears not to be sympatric in any part of its territory. Dissection of the phallic complex will clear any doubts, the apical endophallic valves in the 2 species in question being completely different (compare Fig. 15b and Fig. 6b). Number of spines on hind tibiae: 10 to 11.

8. *Xyleus andinus* n. sp.
(Figs 13, 14, 15, 18, 43, 46, Table 10)

Taxonomy.—This is another species with colors and color-pattern not distinguishable from those of *X. discoideus*. All specimens examined have a pronotal crest that is high and crenulated in its metazonal part, but this is not uncommon in *X. discoideus*.

Distribution.—(Figs 43, 46). Collection localities of the specimens examined all lie within the eastern slope of the Andes, from parallel 6° in Perú (east of the town of Tarapoto) to parallel 18° in Bolivia (Santa Cruz de la Sierra).

Identification.—(Fig. 18). Individuals of this species are very similar in shape, colors and color-pattern to specimens of *X. d. angulatus*. However, they inhabit a territory which is entirely separated from that of *X. d. angulatus*. Together with the locality of collection, examination of their phallic complex may be necessary for an accurate identification: shape of the cingulum (Fig. 13) and of the apical endophallic valves (Fig. 15) being the most important characters. There are 10 to 11 spines on the hind tibiae.

9. *Xyleus goias* n. sp.
(Figs 13, 14, 15, 19, 45, Table 11)

Taxonomy.—In its general aspect, colors and color-pattern, this species contrasts with species of the *Discoideus* group. In this sense it is similar to *X. lineatus* and *X. pirapora* which, by their phallic complex, each belong in quite different species-groups.

Distribution.—(Fig. 45). Known specimens are from south-central Brasil, in the states of Goias and Mato Grosso, except for one labeled Rio Anicohe, Amapá State. This locality seems incongruous even for the distribution of the whole genus, being in an area where no species of *Xyleus* have been found. It might be due to mislabeling of the specimen. I have found no river Anicohe either in the Carta do Brasil ao Milhonesimo (Instituto Brasileiro de Geografia e Estatística, 1960) or in the corresponding gazetteer (Vanzolini & Papavero 1968). It may be a small river, not figured in the maps, or a mistake in the label.

Identification.—(Fig. 19). Differing from the species referred to above, which (with the exception of *X. laevipes*) are predominantly of the colors brown, fuscous and umber, *X. goias* is, in its colors and color-pattern, similar to *X. lineatus* and *X. pirapora* treated below. Individuals of the present species may have a green coloration in

the costal or anal areas of the tegmina, sometimes in both. Also, and this is a character shared with *X. lineatus* and *X. pirapora*, it has a light-colored (yellowish or dirty white) longitudinal band in the costal area, just below and along the subcostal vein. This light-colored band occupies in some individuals almost the whole of the costal area, in others it may be limited to part of the costal area just against the costal vein. This band is neatly marked towards the base of the tegmen and usually in the basal half, getting fainter or sometimes disappearing altogether towards the apical part of the tegmen. Individuals of this species also have a series of subquadrate dark markings or spots along the medial and Rs areas, similar to those described for *X. laevipes*. These spots may be clearly visible in some individuals, but in others the whole of the said areas is very dark-colored and the spots on them barely visible or, in some cases, not at all. As in *X. laevipes*, these dark spots are limited to the RM and Rs areas, and do not go into the C and Sc areas. Cingulum (Fig. 13) and apical endophallic valves (Fig. 15) are helpful for identification. Number of spines on hind tibiae: 10 to 11.

10. *Xyleus regularis* (Bruner 1905).
(Figs 13, 14, 15, 20, 45, Table 12)

Taxonomy.— Individuals of this species are in general aspect and coloration almost identical with those of *X. guarani*. The phallic complex in the present species is very different from that of *X. guarani*, and seems to reveal a closer relationship with *modestus*, *andinus*, *laevipes* and *goias* than with *X. guarani*. Within the *Laevipes* Species Group however, this species' phallic complex is clearly the most divergent from that of the other 4 species in the group.

Distribution.— (Fig. 45). The species is scarce. The limited series at hand indicates it is mostly sympatric with its sibling *X. guarani*, living in central western Brasil and eastern Paraguay.

Identification.— (Figs 14, 20). By their general aspect and coloration, individuals of this species are hardly distinguishable from those of *X. guarani*. Males can be easily identified by examination of their phallic complex, cingulum (Fig. 13) and apical endophallic valves (Fig. 15), these being characteristic. I have not found a way to identify females with any certainty, and the sympatry of these 2 species makes it impossible to identify them by their association with the males. As in *X. laevipes* and *X. guarani*, one of the most prominent color-pattern features is a row of subquadrate dark markings (generally fuscous) on the M- Rs areas of its tegmina. These markings, usually 5 to 6 in males and 8 to 9 in females, are well-defined on the M area, becoming fainter on the Rs area, and gradually disappearing towards the tip of the tegmen. The general color of specimens is tawny to cinnamon, frequently being light shades of these colors. On these background colors, there are usually many small irregular dark markings (fuscous or umber). One female specimen has the anal (dorsal) area of its tegmina of a light olive-gray color; the lateral parts of its pronotal disk are also of this color, while the median part is fuscous. Number of spines on hind tibiae: 9 to 10.

Attenuatus Species Group

Includes 5 species: *X. attenuatus*, *X. araguaia*, *X. gracilis*, *X. pirapora* and *X. laufferi*. The first two are very closely related: they might be considered as subspecies, but differences in phallic complex, particularly in the cingulum (Fig. 27) and the apical endophallic valves (Fig. 22) seem to justify specific status. *X. gracilis* is, in its

external characters, close to the above two, but its phallic complex is clearly different. *X. pirapora* is the most divergent, and its inclusion in this group may be based only on some similarities unrelated to phylogeny. *X. laufferi*, known by its unique female type, might be identical with *X. attenuatus*, *X. gracilis* or *X. araguaia*, but in the absence of a male, its true status cannot be ascertained at present.

Species of this group share some external characters. The pronotal crest is low, (particularly in the metazona) and smooth, generally devoid of any denticulations or crenulations, except in *X. araguaia* and in some specimens of *X. attenuatus*: here the metazonal part of the crest may have some low and inconspicuous crenulations. Transverse sulci of the pronotum are shallow, sometimes not very marked; hence the pronotal lobes are entirely contiguous. Hind femora are narrow in proportion to their length: their median dorsal and median ventral carinae have only very small and low denticulations; denticulations may be absent in some male specimens of *X. gracilis*.

Chromatic characters: specimens are predominantly brown (shades of brown, fuscous or umber) in all species. In some specimens in all species the costal area of tegmina may be green, but in most it is of as many different shades and hues of brown as the rest of the tegmen. The area of the tegmen just above R and M may present a series of dark (fuscous) spots (as shown in the habitus figures of *X. attenuatus* and *X. araguaia*) that never enter the costal area.

11. *Xyleus attenuatus* (Rehn 1909)
(Figs 21, 22, 23, 27, 45, Table 13)

Taxonomy.— Most external characters are mentioned above in relation to the species-group. In all specimens of both sexes the lateral lobes of the pronotum show a series of roughly parallel longitudinal dark stripes, but this character is shared with *X. gracilis*, and can be seen also in the only female specimen of *X. araguaia* examined. With reference to the nomenclature of this species, see observations under *X. laufferi*.

Distribution.— (Fig. 45). This is an inland species, known from northern Bolivia and central-western Brasil (Rondonia, Mato Grosso, Goias, Minas Gerais), reaching near the Atlantic coast in Sergipe. The species is not abundant, and its distribution is probably more extensive than is here registered, as suggested by the Sergipe specimens.

Identification.— (Figs 21, 23). The phallic complex offers the best specific features, especially in the apical endophallic valves (Fig. 22) and the shape of the cingulum (Fig. 27). Number of spines on hind tibiae: 12 to 14.

12. *Xyleus araguaia* n. sp.
(Figs 21, 22, 24, 27, 44, Table 14)

Taxonomy.— In its external features it is almost identical with *X. attenuatus*. The 3 known specimens are paler in color than most specimens of *X. attenuatus*.

Distribution.— (Fig. 44). Apparently an uncommon species, it is known only by the typeseries from the southeast of the State of Mato Grosso. This locality is 350 km southeast of Chapada dos Guimaraes and only 75 km northwest of Mineiros (Goias), but the species has not been collected in either of these places.

Identification.— (Figs 21, 24). Features of its phallic complex allow

its easy identification (Fig. 22, apical endophallic valves; Fig. 27, cingulum). Number of spines on hind tibiae: 14.

13. *Xyleus gracilis* (Bruner 1905)
(Figs 21, 22, 25, 27, 37, 46, Table 15)

Taxonomy.— Characters of this species have been given with respect to the species-group. Most specimens show dark longitudinal lines on the lateral lobes of the pronotum.

Distribution.— (Figs 37, 46). Very imperfectly known due to its being a rather uncommon species, *X. gracilis* occurs in central southern Brasil, from the states of Goiás and Minas Gerais south to Rio Grande do Sul and the Argentinian province of Misiones.

Identification.— (Figs 21, 25). Its elongated form, low pronotal crest and narrow hind femora, are characters of this species, though some of them are shared with others in the group. Many specimens have the precostal and costal areas of the tegmina, and some also the anal areas, lime green. Others have these areas buff-colored. Below the Sc vein in the costal area, there is usually a narrow white longitudinal band that in most specimens is very conspicuous. Along the M and Rs areas most specimens have a fuscous band that in some individuals is continuous; in others it is fractioned into a series of separate fuscous spots. M and R veins usually show some whitish parts, separated by fuscous tracts. The pronotal disc in some specimens is of a uniform buff or cinnamon color; in other specimens a narrow medial area that includes the crest is fuscous, the lateral parts buff or sometimes of a dirty lime green. One female specimen in the series examined is quite melanic, covered with irregular fuscous markings on a buff background. Some specimens have a narrow line at the top of the pronotal crest and on the lateral carinae of the pronotum, of a much lighter shade than the rest of the pronotum. Some have also the first anal vein of a very light color, contrasting with that of the rest of the tegmen. In the hind wings, the base of the anal area is colored in shades of rose to ruby. The phallic complex offers as usual the best characters for the identification of this species: the shapes of the cingulum (Fig. 27) and of the apical endophallic valves (Fig. 22) are characteristic. Number of spines on hind tibiae: 15 to 18.

14. *Xyleus pirapora* n. sp.
(Figs 21, 22, 26, 27, 45, Table 16)

Taxonomy.— As said with reference to the *Attenuatus* Species Group, *X. pirapora* seems the most divergent from the rest of the species in the group, and some similarities with the other species may not be related to a phyletic relationship.

Distribution.— (Fig. 45). The only known specimens are from the country surrounding the town of Pirapora, on the San Francisco River, in central Minas Gerais, Brasil.

Identification.— (Figs 21, 26). This is species with a rather low but arched pronotal crest. The whole insect is rather uniformly colored in shades of chestnut, with a conspicuous longitudinal band of a very light color (very light buff to dirty white) in the costal area of the tegmina, next to and along the Sc vein. Individuals of this species do not have dark longitudinal bands on the lateral lobes of the pronotum. Some have the central area of the pronotal disk colored in a much darker shade than the lateral areas, but in others the

whole disk is uniformly colored. Best characters for identification are in the phallic complex, where cingulum (Fig. 27) and apical endophallic valves (Fig. 22) are characteristic. Number of spines on hind tibiae: 9 to 10.

15. *Xyleus laufferi* (Bolivar 1891) n. comb.
(Fig. 43, Table 17)

Taxonomy: identification.— The species is known only from the female holotype, which is practically identical to females of *X. attenuatus*, *X. gracilis* and *X. araguaia*. Only by finding a male in the general area where the female type was collected could it be ascertained if this taxon is conspecific with any of these species. In this case, such a species will fall as a synonym of *X. laufferi*, this name having priority over the other 3. But the species in this group being so much alike (except in their phallic complex), it might well be that the *X. laufferi* male will prove to be different from any of the 3 species named above. Without the knowledge of the phallic complex of this species, even its placement in the present Species Group, based only in its external aspect, must be considered as tentative.

As to the possibility of one or the other species being identical with *laufferi*, geographical reasons would point to *X. attenuatus* as the most probable, its range lying more to the west, hence closer to Cumbase. On morphological grounds however, a very slight evidence points the other way: *X. attenuatus* has a lower number of external spines on its hind tibiae (12 to 14) while *X. gracilis* has 15 to 18 spines, and the type of *X. laufferi* has 19.

Distribution.— The only known specimen is labelled as from "Cumbase", a locality on the eastern slope of the Peruvian Andes.

Insignis Species Group

Includes *X. insignis*, *X. aimara*, *X. lineatus* and *X. guarani*. These 4 species have in common a high pronotal crest, particularly in the metazona, and the sides of pronotum in dorsal view are rather angulate (Fig. 28). Other details of their external aspect, including color pattern, are different in each species as stated below, with reference to each species. The group is admittedly rather heterogeneous, and has been made mainly on the basis of the shape of the apical endophallic valves (Fig. 29), which are narrow, elongated and upwardly directed in their apical parts. The same general cingulum shape is shared by *X. insignis* and *X. aimara*, but differs from that of *X. lineatus* and *X. guarani*, which also differ in cingulum shape from each other (Fig 27).

16. *Xyleus insignis* (Giglio-Tos 1894)
(Figs 27, 28, 29, 30, 44, 46, Table 18)

Taxonomy.— This is a most variable species in colors and color pattern. Females vary from uniformly lime green to the most diverse patterns of brown, fuscous and umber. These colors may be uniform or with numerous dark spots or markings on a lighter background color. Males are rarely green: most of the ones examined were colored in shades of brown, russet or fuscous.

Distribution.— (Figs 44, 46). A common and abundant species distributed in central western Brasil (Mato Grosso), eastern Bolivia, northern and central Argentina to Entre Rios.

Identification.— (Figs 28, 30). The safest way to identify this species

is by examination of the phallic complex (Figs 27, 29). However, some general indications may help in identifying females or undissected males. Uniformly lime-green males or females are of this species. This uniformly green coloration is much more common in females than in males. Many female collection specimens are uniformly light buff, but I do not know whether these represent green females discolored after death, or originally of this color. An interesting character found in individuals of this species is that the R-vein in the tegmina is frequently either entirely or in parts of a very light color (sometimes almost white); this is very noticeable on a generally much darker background, but is also seen in other species. What allows certain identification in males is their phallic complex: this cannot be mistaken for that of any other species in the genus. Both the cingulum and the apical endophallic valves (Figs 27, 29) are of the most characteristic form, different from those of any of the species mentioned to this point. The cingulum and the apical endophallic valves are somewhat similar to those found in *X. aimara*. The apical endophallic valves, with their narrow and elongated form, have a certain similarity too with those in *X. lineatus* and *X. guarani*; but the cingulum in the latter species is quite different from the one in *X. insignis* and *X. aimara*, and is rather of the form found in the species of the Discoideus and Laevipes Species Groups. Number of spines on hind tibiae: 10 to 11.

Note on the coloration of specimens: among 70 females from Mascasin, Prov. La Rioja, Argentina, 43 are green and 27 brown; for males from the same locality, 3 green, 19 brown.

17. *Xyleus aimara* n. sp.
(Figs 27, 28, 29, 31, 44, Table 19)

Taxonomy.—The single male type of *X. aimara* seems hardly separable from males of species in the groups Insignis or Laevipes. Also, by examination of a single specimen, it would be difficult to define differences or similarities with other species that look like it in general aspect and coloration. Its phallic complex, on the other hand, is quite characteristic, as shown by Figs 27 (cingulum) and 29 (apical endophallic valves). As said above, the phallic complex in *X. aimara* shows a close relationship with *X. insignis*.

Distribution.—(Fig. 44). This species is not known except for the type-locality, a seemingly inhospitable tract of the Andean altiplano in the vicinity of the city of Sucre.

Identification.—(Figs 28, 31). The only safe way to identify this species in the light of what is known of it, seems by examination of its phallic complex (Figs 27, 29). Ten spines occur on each hind tibia.

18. *Xyleus lineatus* (Bruner 1906) n. comb.
(Figs 27, 28, 29, 32, 45, Table 20)

Taxonomy.—This species is, in its external aspect, very similar to *X. pirapora* and *X. goias*. Judging from characters of their phallic complex however, these 3 species belong in different species-groups: while *X. lineatus* belongs in the Insignis Group, *X. pirapora* is a member of the Attenuatus Group, and *X. goias* of the Laevipes Group.

Distribution.—(Fig. 45). This is a rare species. The limited series now at hand indicates that it inhabits central western Brasil (Mato Grosso, Goias) south to Sao Paulo, and also eastern Paraguay and northwestern Argentina. The limited series now at hand has been found within this large territory.

Identification.—(Figs 28, 32). Specimens of this species have a conspicuous light-colored band occupying the whole of the costal area (between C and Sc) of the tegmina, but this character is shared with specimens of *X. goias* and *X. pirapora*. This light-colored line is usually of a very light cream color, sometimes almost white, the basis of its specific name of *lineatus*. Above this line, veins Sc and R are a very dark maroon or chestnut color, though the R vein has frequently some small whitish sections. The rest of the tegmen, as with usually the rest of the insect, is generally in shades of chestnut or hazel, but in some individuals there is a series of indistinct spots, slightly darker than the background along the R and Rs areas. In 3 of the specimens examined, the precostal and anal areas of the tegmen are of a dirty lime-green color. Accurate identification of the species can be done only by examination of its phallic complex, of which both the cingulum (Fig. 27) and the apical endophallic valves (Fig. 29) are quite characteristic. Number of spines on hind tibiae: 10 to 11.

19. *Xyleus guarani* (Rehn 1907) n. comb.
(Figs 27, 28, 29, 33, 45, Table 21)

Taxonomy.—While *X. guarani* and *X. regularis* are almost identical in their external aspect and color pattern, their phallic complexes are quite different, to the point that these species are considered here as members of two different Species Groups: *X. guarani* being maybe the most divergent species of the Insignis Group, but related to it by narrow and elongated apical endophallic valves; *X. regularis* being the most divergent species of the Laevipes Group. Examination of both cingulum and apical endophallic valves does not reveal any affinity between these 2 species.

Distribution.—(Fig. 45). This is a rare species, known from western central Brasil (Goias, Mato Grosso), São Paulo and eastern Paraguay, sympatric with its sibling *X. regularis*.

Identification.—(Figs 28, 33). As said with respect to *X. regularis*, the external aspect of *X. guarani* (Fig. 33) does not allow the separation of these 2 species. Background is buff to clay color, on which are many irregular dark (fuscous or umber) markings. A few specimens have the anal (dorsal) area of the tegmina greenish (shades of lime green). Conspicuous in all specimens is a series of dark (umber) subquadrate markings on the M and Rs areas; these markings neatly defined on the M area, become fainter on the Rs area and gradually vanish towards the tip of the tegmen; their numbers are somewhat variable, but are usually 4 to 6 in males, 7 to 8 in females. Cingulum (Fig. 27) and apical endophallic valves (Fig. 29) are characteristic. Number of spines on hind tibiae: 9 to 10.

Incertain sedis

20. *Xyleus camposi* (Bolívar 1909) n. comb.
(Figs 35, 40, Table 22)

Taxonomy.—I see no reason to consider this species as belonging to a genus different from *Xyleus*. It probably represents the only short-winged species of the genus. As to its affinities, both its general aspect and geographic origin suggest its belonging in the Discoideus Species Group.

Distribution.—The species is known from a few female specimens collected in Posorja, Ecuador, Prov. Guayas, at the northern edge of the Gulf of Guayaquil.

Identification.— A very distinctive species within the genus due to its being brevialete. Its general shape can be seen in Fig. 35. In dorsal view, the prothoracic metazona has its sides rounded as in *rosulentus* and *mexicanus*. The male of this species is unknown.

21. *Xyleus tuberculatus* (Palissot de Beauvois 1817) n. comb.
Nomen dubium, nomen oblitum

The figure in Palissot de Beauvois' paper apparently represents a species of *Xyleus*, but the observable details do not allow assignment to a definite species. Its strongly maculated tegmina suggest a species of the Discoideus Species Group.

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References

- Amedegnato C. 1993. African-American relationships in the acridians (Insecta, Orthoptera) pp. 59-75. In George W., Lavocat R. (Eds) The Africa-South America Connection. Clarendon Press, Oxford, xvii+166 pp.
- Astacio-Cabrera O. 1975. Notas sobre algunos acridios de Nicaragua. Departamento de Sanidad Vegetal, Nicaragua, 41 pp. (mimeogr.).
- Barrera M., Turk S.Z. 1977. Acridios del NOA [Nor-Oeste Argentino], II. Contribución al conocimiento de huevos, desoves y hábitos de postura de algunas especies de tucuras (Orthoptera, Acrididae), de la Provincia de Tucumán. Acta Zoologica Lilloana 32: 167-188.
- Baucke O. 1954. Catalogo dos insetos encontrados no Rio Grande do Sul (Orthoptera, Acridoidea). Revista Agronomica, Porto Alegre 17:2-11, pl. 1-7.
- Blanchard E. 1840. Deuxième Ordre, Orthoptères pp. 1-64. In Histoire Naturelle des Insectes. Tome 3, Paris, 673 pp., 72 pl.
- Blanchard E. 1851. Orden IV, Ortópteros, pp 5-85. In Gay C., Historia Física y Política de Chile. Paris. Zoología, Tomo 6, 572 pp.
- Blanchard E.E. y Colaboradores. 1945. Insectos y nemátodos relacionados con el cultivo del tabaco. Ministerio de Agricultura, Instituto de Sanidad Vegetal, Argentina, Publicación Miscelánea N° 1, (6) 23 pp.
- Boie F. 1826. Generalübersicht der Familien und Gattungen der Ophidien. Isis 19: 982
- Boie F. 1827. Bemerkungen über Merrem's Versuch eines Systems der Amphibien. Isis 20: 508-566.
- Bolivar I. 1884. Insectos Neurópteros y Ortópteros, pp.30-51. lam.1-3. In Artrópodos del Viaje al Pacífico, verificado de de 1862 a 1865, por una comisión de Naturalistas enviada porest Gobierno Español. Madrid, 115 pp.
- Bolivar I. 1890-91. Diagnósis de ortópteros nuevos. Anales de la Sociedad Española de Historia Natural 19: 161-432, lam. 1.
- Bolivar I. 1902. Les orthoptères de St. Joseph's College a Trichinopoly (Sud de l'Inde). Annales Société Entomologique de France, 70: 580-635, pl. 9.
- Bolivar I. 1906. Rectificaciones y observaciones ortopterológicas. Boletín de la Real Sociedad Española de Historia Natural, 6: 387-396.
- Bolivar I. 1909. Acrididos nuevos americanos. Revista Chilena de Historia Natural, 13(6): 337-354.
- Brown R.W. 1956. Composition of Scientific Words. Smithsonian, Washington DC, 882 pp.
- Brullé A. 1835. Orthoptères et Hemiptères. In Audouin V., Brullé A., Histoire Naturelle des Insectes. Paris, Tome 9, 415 pp., 20 pl.
- Bruner L. 1895. Nicaraguan Orthoptera. Laboratory of Natural History, State University of Iowa, Bulletin N° 3: 58-69, pl.2, 3.
- Bruner L. 1900. The second report of the Merchant's Locust Investigation Commission of Buenos Aires. Lincoln, Nebraska, 80 pp.
- Bruner L. 1905. Two new South American grasshoppers. Entomological News 16: 214-215.
- Bruner L. 1906. Synoptic list of Paraguayan Acrididae or Locusts, with descriptions of new forms. Proceedings of the United States National Museum 30: 613-694, pl. 36-38.
- Bruner L. 1900-1909. Acrididae. In Biologia Centrali Americana 2: 1-342, pl. 1-4.
- Bruner L. 1910. Report on an interesting collection of locusts from Peru. Horae Societatis Entomologicae Rossicae 39: 464-488.
- Bruner L. 1911. I. South American Acridoidea. Annals of the Carnegie Museum 8: 5-147.
- Bruner L. 1913a. Results of Yale Peruvian Expedition of 1911. Orthoptera (Acrididae, Short-horned locusts). Proceedings United States National Museum 44: 177-187.
- Bruner L. 1913b. South American Locusts (Acridoidea). II. Annals of the Carnegie Museum 8: 423-506.
- Brunner Von Wattenwyl K. 1893. Révision du système des Orthoptères et description des espèces rapportés par M. Leonardo Fea de Birmanie. Anali del Museo Civico di Storia Naturale di Genova, Ser. 2 13: 5-230, lam. 1-6.
- Brunner Von Wattenwyl K. 1900. Von ihrer Königl. Hoheit der Prinzessin Therese von Bayern auf einer Reise im Südamerika gesammelte Insekten. II. Orthopteren. Berliner Entomologische Zeitschrift 45: 253-269, pl. 3.
- Bucher E.H. 1974. Observaciones ecológicas sobre los artrópodos del bosque chaqueño de Tucumán. Revista de la Facultad de Ciencias Exactas, Físicas y Naturales de Córdoba (Argentina), N.S., Biología, 1:35-122.
- Burmeister H. 1838. Handbuch der Entomologie. Zweiter Band. Berlin, 1050 pp.
- Cabrera A.L., Willink A. 1973. Biogeografía de América Latina. Monografías de O.E.A. (Washington, USA), N° 13, 120 pp.
- Campos F. 1921. Especies nuevas de insectos ecuatorianos. Revista del Colegio Nacional Vicente Rocafuerte, Guayaquil 3: 84-92.
- Campos F. 1923. Estudios sobre la fauna entomológica del Ecuador. IX, Ortópteros. Revista del Colegio Nacional Vicente Rocafuerte, Guayaquil 5: 3-43.
- Caudell A.N. 1932. Insects of the order Orthoptera of the Pinchot Expedition of 1929. Proceedings United States National Museum, 80: 1-7.
- Charpentier T. 1842 (1841-1845). Orthoptera Descripta et Depicta. Lipsiae, Text [unnumbered pages] + 60 pl.
- Cigliano, M.M., M.L. de Wysiecki & C.E. Lange, 2000. Grasshopper (Orthoptera: Acridoidea) species diversity in the Pampas, Argentina. Diversity and Distributions 6: 81-91.
- C.O.P.R. 1982. The Locust and Grasshopper Agricultural Manual. Centre for Overseas Pest Research, London, vii + 690 pp.
- Costa M.K.M., Jantsch I.J. 1999. Acridóideos (Orthoptera, Caelifera, Acridoidea) ocorrentes no Rio Grande do Sul. Biociências (Porto Alegre) 7: 135-155.
- Descamps M. 1975. Etude du peuplement acridien de l'état de Veracruz (Mexique). Folia Entomologica Mexicana, Nos. 31-32:3-97.
- Descamps M. 1976. Le peuplement acridien d'un pèrimètre d'Amazonie colombienne. Annales Société Entomologique de France (N.S.) 12:291-318.
- Descamps M., Amedegnato C. 1970. Acridomorpha (Orthoptera) récoltés en Guyane Française par la mission du Muséum National d'Histoire Naturelle. Annales de la Société Entomologique de France, (N.S.) 6(4):861- 897.
- de Wysiecki M.L., Sanchez N., Ricci S.E. 2000. Grassland and shrubland grasshopper community composition in northern La Pampa province, Argentina. Journal of Orthoptera Research 9: 211-221.

- Dirsh V.M. 1956. The phallic complex in Acridoidea (Orthoptera) in relation to taxonomy. *Transactions Royal Entomological Society of London* 108: 223-356, 66 pl.
- Dirsh V.M. 1961. A preliminary revision of the families and subfamilies of Acridoidea (Orthoptera, Insecta). *Bulletin of the British Museum (N.H.) Entomology* 10: 351-419.
- Erichson W.F. 1848. Insekten, pp 553-617. In Schomburgk R., (Ed.) *Versuch einer Fauna und Flora von Britisch-Guiana. Reisen in Britisch Guiana in der Jahren 1840-1841, etc. Vol. 3, Leipzig*, 1260 pp.
- Fragoso S.A. 1980. Diaphanous preparations from dark, opaque coleopterans. *The Coleopterists' Bulletin* 34: 143-144.
- Gangwere S.K., Ronderos R.A. 1975. A synopsis of food selection in Argentine Acridoidea. *Acrida* 4: 173-194.
- Giglio-Tos E. 1894. Viaggio del dott. Alfredo Borelli nella Repubblica Argentina e nel Paraguay. VI, Ortoteri. *Bollettino dei Musei di Zoologia ed Anatomia Comparata della R. Università di Torino* 9: 1-46, 1 pl.
- Giglio-Tos E. 1895. Ortoteri del Paraguay, raccolti dal Dr. J. Bohl. *Zoologisches Jahrbüchern*, Jena 8: 804-818.
- Giglio-Tos E. 1897. Viaggio del Dott. A. Borelli nel Chaco Boliviano e nella Repubblica Argentina. X, Ortoteri. *Bollettino dei Musei di Zoologia ed Anatomia Comparata della R. Università di Torino* 12: 1-47.
- Giglio-Tos E. 1898. Viaggio del Dr. Enrico Festa nella Repubblica dell'Ecuador e regioni vicine. VI, Ortoteri. *Bollettino dei Musei di Zoologia ed Anatomia Comparata della R. Università di Torino* 13: 1-108.
- Giglio-Tos E. 1900 Viaggio del Dr. A. Borelli nel Matto Grosso e nel Paraguay. IV, Ortoteri. *Bollettino dei Musei di Zoologia ed Anatomia Comparata della R. Università di Torino* 15: 1-8.
- Gistel J. 1848. *Naturgeschichte des Thierreichs für Höhere Schulen*. Stuttgart, Vol. 9, xvi+216 pp., 32 pl.
- Grossbeck J.A. 1912. Types of insects, except Lepidoptera and Formicidae, in the American Museum of Natural History additional to those previously listed. *Bulletin American Museum of Natural History*, 31: 353-379.
- Guagliumi P. 1962. Las plagas de la caña de azúcar en Venezuela. Centro de Investigaciones Agronómicas, Maracay, Venezuela, Monografía N° 2, 2 vols, 850 pp. 14 pl.
- Guagliumi P. 1973. Pragas da Cana de Açúcar no Nordeste do Brasil. Coleção Canavieira, Instituto do Açúcar e do Alcool, Brasil, N° 10, 622 pp.
- Hayward J.K. 1960. Insectos tucumanos perjudiciales. *Revista Industrial y Agrícola de Tucumán* 42: 3-144.
- Hebard M. 1923. Studies in the Dermaptera and Orthoptera of Colombia. Third Paper, Orthopterous family Acrididae. *Transactions American Entomological Society* 49: 165-313, pl. 10-17.
- Hebard M. 1924a. Studies in the Acrididae of Panama (Orthoptera). *Transactions American Entomological Society*, 50: 75-140, pl. 6-8.
- Hebard M. 1924b. Studies in the Dermaptera and Orthoptera of Ecuador. *Proceedings Academy of Natural Sciences Philadelphia* 76: 109-248, pl 5-10.
- Hebard M. 1931. Die Ausbeute der deutschen Chaco-Expedition 1925/26. Orthoptera. Konowia. *Zeitschrift für systematische Insektenkunde*, Wien, 10(4):257-285, pl. 1.
- Hebard M. 1932. New species and records of Mexican Orthoptera. *Transactions of the American Entomological Society* 58: 201-371, pl. 17-21.
- Hebard M. 1933a. Studies in the Dermaptera and Orthoptera of Colombia. Supplement to papers one to five. *Transactions American Entomological Society* 59: 13-67, pl. 2-3.
- Hebard M. 1933b. Notes on Panamanian Dermaptera and Orthoptera. *Transactions American Entomological Society* 59:103-114, pl. 6-7.
- Instituto Brasileiro De Geografia E Estadística. 1960. Carta do Brasil ao Milhonesimo. Rio de Janeiro, 190 pp.
- Irmão José Gregório. 1980. Contribuição Indígena ao Brasil. União Brasileira de Educação e Ensino, Belo Horizonte, 3 vol, 1316 pp.
- Kirby W.F. 1890. On the employment of the names proposed for genera of Orthoptera previous to 1840. *Scientific Proceedings of the Royal Dublin Society* 6: 556-597.
- Kirby W.F. 1910. A Synonymic Catalogue of Orthoptera. Vol. 3. Orthoptera Saltatoria. Part. 2. (Locustidae vel Acrididae). *British Museum, London*, 674 pp.
- Kuhl 1824. Sur les reptiles de Java. *Bulletin des Sciences Naturelles et de Geologie* 2: 79-88.
- Kuhl & Hasselt 1822. Aus einem Schreiben von Dr. Kuhl und Dr. van Hasselt auf Java. *Isis* 4: 472-478.
- Lange C.E., de Wysiecki M.L. 1996. The fate of *Nosema locustae* (Microsporida: Nosematidae) in Argentine grasshoppers (Orthoptera: Acrididae). *Biological Control* 7: 24-29.
- Liebermann J. 1928. Preliminares para el estudio de los acridoideos argentinos. *Anales Sociedad Científica Argentina* 104: 137-158.
- Liebermann J. 1935. Catálogo sistemático y razonado de acridoideos argentinos. Géneros: *Prionolopha*, *Diedronotus*, *Elaeochlora* y *Chromacris* (Orthop. Acrididae). *Revista Sociedad Entomológica Argentina* 7: 25-50, pl. 1-3.
- Liebermann J. 1939. Catálogo sistemático y biogeográfico de acridoideos argentinos. *Revista Sociedad Entomológica Argentina* 10: 125-230.
- Liebermann J. 1941a. Contribución a la zoogeografía, taxonomía y ecología de los acridoideos de Entre Ríos. Publicación del Ministerio de Hacienda, Justicia e Instrucción Pública de Paraná, Entre Ríos, 41 pp., 9 pl.
- Liebermann J. 1941b. Lista de los acridoideos de la Provincia de Buenos Aires. *Anuario Rural, Dirección de Agricultura Ganadería e Industrias*, La Plata 9: 155-158.
- Liebermann J. 1942. Contribución al conocimiento de los acridios de San Luis. *Boletín Agrícola, Mendoza* 1942: 1-36.
- Liebermann J. 1946. Sobre una colección de acridios paraguayos de la Misión Científica Brasileña 1940-1944 (Orth. Acrid.). *Revista de Entomología, Rio de Janeiro* 17: 452-456.
- Liebermann J. 1947. Nuevos materiales acrílicos de la colección del Instituto Oswaldo Cruz, con algunas observaciones acerca de *Episcopotettix Rehn* 1902. *Revista Brasileira de Biología* 7: 391-394.
- Liebermann J. 1948. Los acridios de Santa Fe. *Revista Sociedad Entomológica Argentina* 14: 56-114.
- Liebermann J. 1949. Sobre una colección de acridios argentinos del Naturhistorischen Museum de Viena (Orth. Acrid.). Instituto de Sanidad Vegetal, Buenos Aires, año 5, ser A, N° 46, 12 pp.
- Liebermann J. 1951. Los acridios de Corrientes. IDIA, Buenos Aires, (42-43): 39-48.
- Liebermann J. 1954. Los acridoideos de Catamarca y La Rioja. Instituto de Sanidad Vegetal, Buenos Aires, año 10, ser A, N° 58, 18 pp.
- Liebermann J. 1955. Primeira relação sistemática dos acridoideos do Brasil. *Memórias do Instituto Oswaldo Cruz* 53: 329-344.
- Liebermann J. 1958. Los acridios de Formosa (Orth. Caelif. Acridoidea). Instituto de Patología Vegetal, Buenos Aires, Año 1, Publicación Técnica N° 5, 24 pp., 1 map.
- Liebermann J. 1963. Sinopsis bibliográfica de los acridoideos del Perú. *Revista Peruana de Entomología Agrícola* 6: 61-66.
- Liebermann J. 1967. Revisión de algunos materiales típicos de tucuras argentinas publicadas por Lawrence Bruner en su trabajo de 1900 (Orth. Acrididae). *Revista Sociedad Entomológica Argentina* 29: 96-100.
- Liebermann J. 1972. The current state of the locust and grasshopper problem in Argentina, pp. 191-198. In: *Proceedings International Study Conference on Current and Future Problems of Acridiology*, London 1970.
- Liebermann J., Piran A.A. 1941. Primera lista de acridios uruguayos. Dirección General y de Contralor de la Lucha Contra la Langosta, Montevideo, 12 pp.
- Liebermann J., Ruffinelli A. 1946. Catálogo de acridoideos uruguayos. *Revista de la Asociación de Ingenieros Agrónomos*, Montevideo 74: 9-21.
- Liebermann J., Schiuma R. 1946. Las tucuras mas perjudiciales de nuestra agricultura y ganadería. Publicaciones del Instituto de Sanidad Vegetal, Buenos Aires, Ser. B, N° 7, 63 pp.
- Linnaeus C. 1758. *Systema Naturae per regna tria Naturae, secundum Classes, Ordines, Genera, Species, cum characteribus differentiis, synonymis, locis*. Editio decima reformata. Holmiae, Tomus I, 824 pp.
- Mason J.B. 1969. The tympanal organ of Acridomorpha (Orthoptera). *EOS, Madrid* 44: 267-355.
- Mesa A. 1956. Los cromosomas de algunos acridoideos uruguayos (Orthoptera, Caelifera, Acridoidea). *Agros, Revista de la Asociación de Estudiantes de Agronomía*, Montevideo 141: 32-45.
- Mesa A., Ferreira A., Carbonell C.S. 1983. Cariología de los acridoideos neotropicales: estado actual de su conocimiento y nuevas contribuciones. *Annales de la Société Entomologique de France, (N.S.)* 18: 507-526.

- Muma H.H., 1952. Insect types in the collections of the University of Nebraska State Museum. Bulletin University of Nebraska State Museum 3: 1-35.
- Otte D. 1978. The primary types of Orthoptera (Saltatoria, Mantodea, Phasmatodea and Blattodea) at the Academy of Natural Sciences of Philadelphia. Proceedings Academy of Natural Sciences of Philadelphia 130: 26-87.
- Palissot De Beauvois A.M.F.J. 1817. Insectes recueillis en Afrique et en Amerique, dans les Royaumes d'Oware et de Benin, a Saint-Domingue et dans les Etats-Unis, pendant les années 1786 - 1797. Paris 1805-1821, 276 pp., 26 pl. [Orthoptera in 1817].
- Passerin D'Entrevies P. 1981. Cataloghi. IV - Collezioni ortoterologiche del Museo di Zoologia dell'Università di Torino. Museo Regionale di Scienze Naturali, Torino, 127 pp.
- Petrunkewitsch A., Guaita G. 1901. Ueber den geschlechtlichen Dimorphismus bei den Tonapparaten der Orthopteren. Zoologische Jahrbücher 14: 291-310, pl 15-18.
- Pictet A., Saussure H. 1887. Catalogue d'Acridiens. I. Bulletin de la Société Entomologique Suisse 7: 331-376.
- Ragge D.R. 1955. The Wing-venation of Orthoptera Saltatoria with Notes on Dictyopteran Wing-venation. British Museum (Natural History), vi + 159 pp.
- Ramos J., Pino J.M., Rincon F., Alvarado M., Escamilla E., Labougle J. 1982. Insectos comestibles del estado de Oaxaca. Folia Entomologica Mexicana 54: 92-93
- Rehn J.A.G. 1901. Some necessary changes and corrections in names of Orthoptera. Canadian Entomologist 33: 271-272
- Rehn J.A.G. 1905. Records of some Paraguayan Orthoptera, with the description of a new genus and species. Entomological News 16: 37-42.
- Rehn J.A.G. 1907. Non-saltatorial and acridoid Orthoptera from Sapucay, Paraguay. Proceedings Academy of Natural Sciences Philadelphia 59: 151-192.
- Rehn J.A.G. 1908. Acrididae (Orthoptera) from Sao Paulo, Brazil, with descriptions of one new genus and three new species. Proceedings Academy of Natural Sciences Philadelphia 60: 12-23.
- Rehn J.A.G. 1909. On Brazilian grasshoppers of the subfamilies Pyrgomorphinae and Locustinae (Acridinae of authors). Proceedings United States National Museum 36: 109-163.
- Rehn J.A.G. 1911. Notes on Paraguayan Orthoptera, with descriptions of a new genus and four new species. Entomological News 22: 247-258.
- Rehn J.A.G. 1913a. Descriptions and records of South American Orthoptera, with the description of a new subspecies from Clarion Island. Proceedings Academy of Natural Sciences Philadelphia 63: 82-113.
- Rehn J.A.G. 1913b. A contribution to the knowledge of the Orthoptera of Argentina. Proceedings Academy of Natural Sciences Philadelphia 63: 273-379.
- Rehn J.A.G. 1915. A further contribution to the knowledge of the Orthoptera of Argentina. Proceedings Academy of Natural Sciences Philadelphia 67: 270-292.
- Rehn J.A.G. 1916. The Stanford Expedition to Brazil, 1911. Dermaptera and Orthoptera I. Transactions American Entomological Society 42: 215-308, pl. 14, 15.
- Rehn J.A.G. 1917. On Orthoptera from the vicinity of Rio de Janeiro, Brazil. Transactions American Entomological Society 43: 335-363, pl. 27.
- Rehn J.A.G. 1918a. On Dermaptera and Orthoptera from Southeastern Brazil. Transactions American Entomological Society 44: 181-222.
- Rehn J.A.G. 1918b. Descriptions of one new genus and fifteen new species of Tropical American Orthoptera. Transactions American Entomological Society 44: 321-372, pl. 18-20.
- Rehn J.A.G. 1920. Records and descriptions of Brazilian Orthoptera. Proceedings academy of Natural Sciences Philadelphia 72: 214-293, pl. 10-11.
- Rehn J.A.G., Grant H.J. 1959. An analysis of the tribes of the Romaleinae with special reference to their internal genitalia (Orthoptera, Acrididae). Transactions American Entomological Society 85: 233-271.
- Roberts H.R. 1937. Studies on the family Acrididae (Orthoptera) of Venezuela. Proceedings Academy of Natural Sciences Philadelphia 89: 343-368, pl. 13-14.
- Roberts H.R. 1941. A comparative study of the subfamilies of the Acrididae (Orthoptera) primarily on the basis of their phallic structures. Proceedings Academy of Natural Sciences Philadelphia 93: 201-246.
- Ronderos R.A. 1959. Identificación de las especies de tucuras mas comunes en la Provincia de Buenos Aires. Agro, Buenos Aires 1: 1-31, 4 pl.
- Rosas-Costa J.A. 1963. A propósito del género Paralcamenes Bolivar 1909 (Orth., Acridoidea). EOS, Madrid 39: 307-311.
- Rowell C.H.F. 1987. The biogeography of Costa Rican acridid grasshoppers in relation to their putative phylogenetic origins and ecology. Chapter 43, pp. 470-482. In Baccetti B. (Ed.) Evolutionary Biology of Orthopteroid Insects. Chichester, England.
- Rowell C.H.F. 1998. The grasshoppers of Costa Rica: a survey of the parameters influencing their conservation and survival. Journal of Insect Conservation 2: 225-234.
- Rowell C.H.F., Flook P.K. 1998. Phylogeny of the Caelifera and Orthoptera as derived from ribosomal gene sequences. Journal of Orthoptera Research 7: 147-156.
- Saez F.A. 1956. Estudios citogenéticos en ortópteros sudamericanos. Biología, Chile 22: 21-26.
- Scudder S.H. 1901. Index to North American Orthoptera. Occasional Papers Boston Society of Natural History, N° 6, vi + 436 pp.
- Serville J.G.A. 1831. Revue methodique des insectes de l'Ordre des Orthoptères. Annales des Sciences Naturelles, Paris 22: 28-65, 134-167, 262-292.
- Serville J.G.A. 1839. Histoire naturelle des insectes Orthoptères. Collection des suites a Buffon, Paris, xvii + 776 pp., Atlas, 4 pp., + 14 pl.
- Silveira-Guido A., Carbonell-Bruhm J.F., Nuñez O., Valdes E. 1958. Investigaciones sobre Acridoideos del Uruguay. Facultad de Agronomía, Montevideo, 485 pp.
- Sjöstedt Y. 1933. Orthopterentypen im Naturhistorischen Reichsmuseum zu Stockholm. 2, Acrididae. Arkiv för Zoologi 24: 1-89, 20 pl.
- Smith F.B. 1975. Naturalists' Color Guide. American Museum Natural History, New York, 6 pp., 7 pl.
- Souza M.J. 1991. Two simple methods for the preparation of mitotic and meiotic chromosomes of Orthoptera. Revista Brasileira de Genetica 14: 1079-1084.
- Souza M.J., Lobo-Silva M.H. 1993. Effects of extra chromosome segments on chiasma distribution in *Xyleus angulatus* (Orthoptera: Romaleidae). Revista Brasileira de Genetica 16: 23-33.
- Stål C. 1873a. Orthoptera nova descripsit. Kongliga Vetenskaps-akademiens Handlingar, Stockholm 30: 39-53.
- Stål C. 1873b. Rencensio Orthopterorum. Revue critique des Orthoptères décrits par Linné, De Geer et Thunberg. Norstedt & Söner, Stockholm, part 1, 154 pp.
- Stål C. 1876. Observations orthopterologiques. Aperçu des genres des acridoidées de l'Amerique du Nord. Bihang till Kongliga Swenska Vetenskaps-akademiens Handlingar 4: 36-47.
- Stål C. 1878a. Systema acridiodeorum. Essai d'une systematisation des acridoidées. Bihang till Kongliga Swenska Vetenskaps-akademiens Handlingar 5: 1-100.
- Stål C. 1878b. Observations orthopterologiques. De genere pezetotettigis et nonnullis generibus affinis. (Sur le Pezetotettix et quelques genres voisins). Bihang till Kongliga Svenska Vetenskaps-Akademien Handlingar 5: 3-20.
- Uvarov B.P. 1940. Eleven new generic names in Orthoptera. Annals and Magazine of Natural History, Ser. 11 6 : 337-380.
- Uvarov B.P., Dirsh V.M. 1961. Diagnostic characters, scope and geographical distribution of the subfamily Romaleinae (Orthoptera: Acrididae). Proceedings Royal Entomological Society of London, (B) 30: 153-160.
- Vanzolini P.E., Papavero N. 1968. Indice dos toponimos contidos na Carta do Brasil 1:1000000. FAPESP (Sao Paulo), 201 pp.
- Viana M.J. 1942. Observaciones sobre los Acrididae del Valle de Calamuchita, Córdoba. Ingeniería Agronómica, Buenos Aires 20: 123-126.
- Walker F. 1870. Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. British Museum (Natural History). London, Part 3: 425-604, Part 4: 605-809, Part 5: 811-850.

APPENDIX I

The genus *Xyleus* and its species: taxonomy, synonymy, localities of collection, references

Repositories of specimens are designated by the following:

ANN ARBOR / Museum of Zoology, University of Michigan, USA.
 BERLIN / Museum für Naturkunde, Humboldt Universität, Germany.
 BUENOS AIRES / Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Argentina.
 LAPLATA / Facultad de Ciencias Naturales y Museo, La Plata, Argentina.
 MADRID / Museo Nacional de Ciencias Naturales, Madrid, España.
 MARACAY / Departamento de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela.
 MONTEVIDEO / Facultad de Ciencias, Universidad de la República, Uruguay.
 NEBRASKA / Department of Entomology, University of Nebraska, Lincoln, USA.
 PARIS / Museum National d'Histoire Naturelle, Paris, France.
 PHIL. / Academy of Natural Sciences of Philadelphia, USA.
 RECIFE / Universidad Federal de Pernambuco, Recife, Brasil.
 RIO CLARO / Instituto de Biociências, Universidade Estadual Paulista, Rio Claro, SP., Brasil.
 RIO DE JANEIRO /
 SÃO PAULO / Museu de Zoologia, Universidade de São Paulo, Brasil.
 STOCKHOLM /
 TUCUMAN / Fundación Miguel Lillo, Tucumán, Argentina.
 WASHINGTON / US National Museum, Washington DC, USA.

Abbreviations.— In the lists of examined specimens, and also in bibliographic data for each species, a number of abbreviations are used. They are: biogeogr., biogeography; bionom., bionomics; ecol., ecology; econ., economic importance; btw., between; Depto., Department [of a country]; descr., description; distr., geographical distribution; f., female; illustr., illustration; m., male; m-alt., altitude in meters; misid., misidentification; Mun., Municipio (division of a State in Brasil); nr, near; pathol., pathology; Prov., Province; redescr., redescription. Months are abbreviated by their first three letters. Other abbreviations are those in current use in scientific papers. The abbreviation "BR" followed by a number refers to the Federal Highways in Brasil.

Genus *XYLEUS*

Gistel 1848

Tropinotus Serville 1831: 272, 1839: 617 (redescription). Brullé 1835: 219 (as part of *Pamphagus*). Blanchard 1851: 63 (refers only to species now placed in genera different from *Xyleus*). Walker 1870: 529. Stål 1873a: 52 (division of genus), 1873b: 27 (in key to genera). Kirby 1890: 587 (*Gryllus serratus* and *Tropinotus discoideus* as types of the genus); 1910: 359 (*T. discoideus* as type of the genus). Rehn 1901: 272; 1907: 170 (genus discussed, *T. discoideus* as its type). Bruner 1905: 215 (key to species); 1906: 645 (key to species); 1907: 209 (Biol. C. Amer.) (in key to genera). **Not** *Tropinotus* Kuhl 1822 (Reptilia, Serpentes).

Xyleus Gistel 1848: XI, *nomen novum* for *Tropinotus* Serville 1831, preoccupied by *Tropinotus* Kuhl 1822 (Reptilia). Caudell 1932: 3 (nomenclature of genus). Uvarov 1940: 379 (nomenclature of genus). Roberts 1937: 352 (nomenclature of genus); 1941: 239

(in list of Romaleinae). Rehn & Grant 1959: 248, 250 (in tribe Prionolophini, phallic complex of several species illustr.). Uvarov & Dirsh 1961: 158. Dirsh 1961: 395 (in list of genera of Romaleinae). Bucher 1974: 51 (biogeogr., ecol. in Argentina.) Rowell 1987: 478 (ecol., Costa Rican spp.). Rowell & Flook 1998: 147-156 (molecular systematics, phylogeny).

Tropeonotus Stål 1876: 37 (in key to genera). Uvarov 1940: 379.

Tropidonotus Stål 1878a: 14 (in key to genera); 1878b: 19 (misprinted as *Trapidonotus*, key to species). Brunner von Wattenwyl 1893: 133 (in key to genera). Giglio-Tos 1898: 41 (in key to genera). Bruner 1900: 55 (key to species). Rehn 1901: 272 (emended form, not valid). Caudell 1932: 3 (name preoccupied). Roberts 1937: 352 (synonymy). Uvarov 1940: 379 (synonymy). **Not** *Tropidonotus* Boie 1826 (Reptilia, Serpentes).

Diedronotus Bolivar 1906: 393 *nomen novum* for *Tropinotus* Serville (preoccupied); 1909: 352 (in key to genera). Kirby 1910: 359 (indication of *discoideus* Serville as type of the genus). Bruner 1911: 47-49 (distr., key to spp.). Uvarov 1940: 379 (as synonym of *Xyleus*).

Paralcamenes Bolivar 1909: 341. Type-species *P. camposi* Bolivar 1909. **n. syn.**

Species of the genus *Xyleus* (in alphabetical order)

In the text that follows, data on specimen labels are given in full for types, type-series and for all specimens of uncommon or little-known species. In the case of common species of which very large series have been examined, only the names of the different localities of collection are given, in order to save space.

***Xyleus aimara* n. sp.**

(Figs 27, 28, 29, 31, 44, Table 19)

Holotype.— A male labeled "Bolivia, Chiquitos, alrededores de Sucre, 15-VI-1948 C.S. Carbonell". The holotype is the only specimen known. Deposited in PHIL.

Etymology.— Named after the Aimara Nation of the Amerindian people, inhabitants of the region where the species was found.

***Xyleus andinus* n. sp.**

(Figs 13, 14, 15, 18, 43, Table 10)

Holotype.— a male labeled "Bolivia, Depto Santa Cruz, Provincia Sara [now Prov. Gutiérrez] 500 m-alt. Jan 20-Feb 5, 1922 (J. Steinbach)", PHIL.

Paratypes.— **PERU.** Depto Junín: 2♂♂, 2♀♀, Chanchamayo, 1200 m-alt. May 1948 (J.M. Schunke), WASH. 2♂♂, 1♀, Chanchamayo (no additional data); 1♂, 1♀, Campamento Rio Perené, Jun 1920; 1♂, 1♀, Puerto Yessup, Feb 1930 (M.A. Carriker); 1♀, Satipo, Feb 1943 (P. Paprzycki), PHIL. 2♂♂, 1♀, Satipo, Feb, Apr, May 1944 (P. Paprzycki) ANN ARBOR. Depto Cusco: 2♂♂, Prov. La Convención, Kiteni on Rio Urubamba (M. Descamps, CS. Carbonell), MONTEVIDEO. **BOLIVIA.** Depto Beni: Prov. José Ballivian: 3♂♂, 4♀♀, Rurrenabaque 227 m-alt. low tropical region, Oct 1936 (L.E. Peña), ANN ARBOR. Depto La Paz: Prov. Nor-Yungas: 1♂, Rio San Pedro, 5 mi S of Santa Ana 850 m-alt. (L.E. Peña); 1♂, btw. Caranavi &

Santa Ana 1100 m-alt. Jan 1976 (L.E. Peña), PHIL. Depto Cochabamba: Prov. Chapare: 1♂, Alto Palmar, Rio Chapare 1100 m-alt. Sept-Nov 1960 (no collector), PHIL. Prov. Arani: 1♂, El Palmar 920 m-alt., forested region, Sept 1956 (L.E. Peña), ANN ARBOR. Depto Santa Cruz. Prov. Andrés Babiñez: 4♂♂, 2♀♀, Santa Cruz de la Sierra, Apr 1962 (A. Mesa), MONTEVIDEO. 1♂, Rio Espejo, 400 m-alt. Feb 1962 (Walz); Prov. Ichilo: 1♂, Nueva Nova, 400 m-alt. (no date or collector); 1♀, Buena Vista (J. Steinbach); 2♂♂, 2♀♀, Prov Sara (now Prov. Gutiérrez), 450 m-alt. (no date) (J. Steinbach); 1♂, Prov. Sara (now Prov. Gutiérrez), 500 m-alt., Feb 1927 (J. Steinbach). 1♂, Depto Santa Cruz [no province or locality recorded] 500 m-alt. Jan-Feb 1922 (J. Steinbach), PHIL.

Etymology.— Its name refers to the range of the species, which lies within the eastern slopes of the Andes in Bolivia and Perú.

Xyleus araguaia n. sp.
(Figs 21, 22, 24, 27, 44, Table 14)

Type series.— Male holotype, a male and a female paratype, from BRASIL, Mato Grosso, 30 km NW of Alto Araguaia, 750 m-alt. 10 Mar 1980 (H.R. Roberts, O. Roppa, C.S. Carbonell). Those in the type series are the only specimens known. RIO DE JANEIRO.

Etymology.— This is a geographical name related to the collection locality; it is the name of a large river, tributary to the Amazon. Its etymology is not clear and there are several interpretations of the meaning of this name, according to Irmão José Gregório (1980: 446).

Xyleus attenuatus (Rehn 1909)
(Figs 21, 22, 23, 27, 45, Table 13)

Tropinotus attenuatus Rehn 1909: 118. Liebermann 1955: 335 (distr.). *Diedronotus attenuatus*; Bruner 1911: 52.

Xyleus attenuatus; Liebermann 1949: 4 (distr. N W Argentina, misid.). Mesa *et al.* 1983: 516 (chromosomes).

Holotype.— a male labeled "Chapada, Sept. Type N° 12083 USNM", in WASH. The locality named as "Chapada" is Chapada dos Guimarães, Mato Grosso, Brasil.

Specimens examined.— BRASIL. State of Rondonia: 1♂, 1♀, Vilhena, Nov 1987 (O. Roppa, P. Magno). State of Sergipe: 1♂, 1♀ Areia Branca, Feb 1981 (H.R. Roberts, O. Roppa, C. S. Carbonell) PHIL. State of Mato Grosso: Chapada dos Guimarães; 1♂, 1♀, Nov 1965 (M. Alvarenga) ANN ARBOR. 5♂♂, 7♀♀, Sept 1978 (M.A. Monné, J. Becker, O. Roppa); 3♂♂, 2♀♀, Jul 1983. 1♂, Diamantino, May 1980 (B. Silva) RIO DE JANEIRO. State of Goiás: 1♀, 17 km S of Cristalina, Jul 1976 (A. Mesa, A. Ferreira) RIO CLARO. State of Minas Gerais: Serra do Cabral, Penedo, Jul 1933, RIO DE JANEIRO. BOLIVIA. Depto La Paz: 1♀, Prov. Apolo, 14°43' S, 68°31' W (L.E. Peña) PHIL.

Xyleus camposi (Bolívar 1909) n. comb.
(Fig. 35, Table 22)

Paralcamenes camposi Bolívar 1909: 341. Campos 1921: 86, 1923: 21. *Colpolopha camposi* Hebard 1924b: 179. Rosas-Costa 1963: 308 (syn. with *Paralcamenes camposi*). Otte 1978: 130, (location of type). *Holotype* of *Paralcamenes camposi*, a female from Posorja (Prov.

Guayas) Ecuador, (F. Campos, coll.) in MADRID. There are 4 females of this species, one of them labeled by Bolívar as *Paralcamenes camposi* is here considered to be the holotype of the species. According to Bolívar (1909: 341) the holotype is a male. However, there is no male in the type-series, and the measurements given by Bolívar are those of the female, here considered to be the holotype. Holotype of *Colpolopha camposi*, a female, in PHIL., labeled Posorja, Guayas, Ecuador, at sea level (F. Campos) (Hebard type N° 952).

Examination of the above types and comparison of their photographs leave no doubt of their belonging to the same species.

Taxonomy.— I see no reason to consider this species as belonging to a genus different from *Xyleus*. It probably represents the only short-winged species of the genus. As to its affinities, both its general aspect and their geographic origin, suggest that it belongs to the *Discoideus* group. Apparently the collector, the Ecuadorian entomologist F. Campos, sent specimens of the very same species to Bolívar and later to Hebard, and they were identified as indicated above. It may represent a brevialate form of *X. rosulentus* which is the species found farther north in Colombia. Its real affinities could only be ascertained by examination of the male phallic complex, but no males of the species have been available.

Xyleus discoideus angulatus (Stål 1873) new status
(Figs 5, 8, 9, 13, 38, Table 4)

Tropinotus angulatus Stål 1873a: 52, 1873b: 44. Bruner 1906: 646 (distr. Paraguay, misid.). Rehn 1909: 118 (distr., only Pernambuco, others, misid.). Liebermann 1955: 335 (distr. in part misid.). Sjöstedt 1933: 31 (location of type, illustr.). Roberts 1937: 352 (misid.). Hayward 1960 (distr., Argentina, misid.). Guagliumi 1962: 449 (attacking sugarcane, Venezuela, misid.), 1973: 31 (attacking sugarcane, NE Brasil).

Trapidonotus [sic] *angulatus*; Stål 1878b: 19 (misprint for *Tropidonotus*?). *Tropidonotus angulatus*; Pictet & Sausure 1887: 335. Giglio-Tos 1894: 16, (distr., Argentina, Paraguay, misid.), 1895: 81 (distr. Paraguay, misid.). Bruner 1900: 56 (distr., Argentina, misid.). Liebermann 1928: 147 (distr. Argentina., misid.). Passerin 1981: 35 (specimens in Mus Torino, misid.).

Diedronotus angulatus; Bruner 1911: 50 (distr. Brasil, Mato Grosso, misid.), 1913a: 181 (distr. Peru, misid.), 1913b: 461 (distr. Bolivia, misid.). Rehn 1913b: 330 (distr. NW Argentina, misid.), 1916: 283 (distr. NE Brasil only, others due to misid.). Kirby 1910: 360. Liebermann 1928: 147 (distr. Argentina, Tucumán, misid.), 1935: 37 (distr. Argentina, misid.), 1939: 173 (distr. mostly misid.).

Xyleus angulatus; Liebermann 1951: 46 (distr., misid.), 1947: 392 (distr. misid.). Rehn & Grant 1959: 250 (phallic complex figured). COPR 1982: 120 (econ., distr. mostly misid.). Souza 1991: 1079-84 (chromosomes). Souza, & Lobo-Silva 1993: 23-33 (chromosomes).

Holotype.— a male labeled "Bahia" "Linsley" genitalia "CSC-1074", in STOCKHOLM.

Among the above references, the one by Guagliumi (1962) certainly refers to *X. discoideus venezuelae*, here described. Most others refer to *X. modestus* (Giglio-Tos) (see below, under this species).

Specimens examined: 110, from the following localities. BRASIL. State of Ceara: Crato, Serra do Araripe [850 m-alt.]. State of Rio Grande do Norte: Natal; Ceara Mirim; Barbalha. State of Paraíba: Brejo das Freiras. State of Pernambuco: Recife, Igaraçu; Repressa Gurjau in

Município Cabo; BR 232, Serra das Russas, near Gravatá; BR 232, btw. Mimoso & Arcoverde; Belem do São Francisco, Ilha do Estado; Buique; Serra Talhada; Araripina; Gravatá to Pesqueira; Arcoverde; Aldeia; Caruarú 900 m-alt.; Bonito. State of Bahia: BR 234 100 km NW of Feira de Santana; 60 km W. of Feira de Santana; Cruz das Almas; Maracas; Vila de Fatima; Conceição de Feira Murro; Itupeva, Estrada Monte Santo [caatinga]; Livramento do Brumado; Jaguarari; Palmeiras; Vila Nova; Jequié-Barragem de Pedra; BR 116 at Minas Gerais border; Maracas. State of Alagoas: Coruripe.

Atypical specimens.— State of Minas Gerais: 5♂♂, 1♂, Pedra Azul; 3m, Aguas Vermelhas; 1♂, Taiobeiras. These specimens, from the southernmost part of the territory occupied by *X. d. angulatus* are similar to it in their aspect and coloration, but their phallic complex is somewhat atypical. In a first study they seemed to belong to *X. andinus*, but on closer examination were atypical *X. d. angulatus*. Being in the limit between the known distributions of *X. d. angulatus* and *X. d. discoideus*, they may represent an intermediate form between these 2 subspecies. While the cingulum is definitely of the *angulatus* shape, the apical endophallic valves are of a rather unusual shape, closer to those in the *laevipes* group, particularly of the species *laevipes*, *andinus* or *goias*.

Specimens mentioned above in ANN ARBOR, MONTEVIDEO, PHIL., RECIFE, RIO DE JANEIRO, SAO PAULO.

Xyleus discoideus discoideus (Serville 1831)
(Figs 3, 4, 5, 6, 7, 13, 37, Table 3)

Tropinotus discoideus Serville 1831: 273, 1839: 619. Charpentier 1845: IV, tab.32. (illustr. prob. this sp.). Erichson 1848: 582 (distr. Guyana, misid.). Walker 1870: 530 (distr. mostly misid.). Rehn 1905: 37 (distr. Paraguay.), 1907: 170 (color variations, distr. Paraguay), 1911: 251 (distr. Paraguay). Bruner 1906: 646. Liebermann 1939: 172 (distr.), 1941a: 31 (distr.), 1941b: 156 (distr. Argentina.), 1955: 335 (distr. Brasil.). Liebermann & Pirán 1941: 10 (distr. Uruguay.). Viana 1942: 124 (distr.). Baucke 1954: 9 (distr.). Hayward 1960: 78 (distr.). Bucher 1974: 51,83 (bionom.). *Xiphocera discoidea*; Burmeister 1838: 615. *Pamphagus discoideus*; Blanchard 1840: 38. *Trapidonotus* [sic] *discoideus*; Stål 1878b: 19 (misprint for *Tropidonotus*?). *Tropidonotus discoideus*; Bolivar 1884: 32. Pictet & Saussure 1887: 335 (distr. misid.). Giglio-Tos 1894: 16 (distr.), 1895: 812 (distr. Paraguay.), 1897: 29 (distr. Argentina, Bolivia.), 1900: 4 (distr. Brasil, Mato Grosso.). Bruner 1900: 56. Petrunkevitch & Guaita 1901: 292 (stridulatory apparatus). Liebermann 1928: 147 (distr., in part misid.). Passerin 1981: 34,37,43,47,48,90,100 (specimens in Mus. Torino). *Diedronotus discoideus*; Kirby 1910: 360. Bruner 1913b: 462 (distr. Paraguay.). Rehn 1913b: 330 (distr. NE Argentina.), 1915: 284 (distr. Argentina), 1917: 347 (distr. Brasil, Rio de Janeiro), 1918a: 200 (distr. S. Brasil.). Liebermann 1935: 37 (distr. Argentina, in part misid., Uruguay.). *Xyleus discoideus*; Roberts 1941: 219 (phallic complex figured). Liebermann & Ruffinelli (distr. Uruguay.). Mesa *et al.* 1983: 516 (chromosomes). COPR 1982: 121 (econ.). Costa & Jantsch 1999: 140 (econ. S. Brasil).

Xyleus scabripes (Stål 1878) **n. syn.**

Trapidonotus [sic] *scabripes* Stål 1878b: 19. (misprint for *Tropidonotus*?).

Tropidonotus scabripes; Pictet & Saussure 1887. Sjöstedt 1933: 30 (location of type, illustr.).

Tropinotus scabripes; Bruner 1906: 648. Liebermann 1955: 335.

Diedronotus scabripes; Kirby 1910: 361. Bruner 1911: 52 (distr.).

Xyleus scabripes; Costa & Jantsch 1999: 141 (econ., S. Brasil).

Xyleus affinis (Bruner 1906) **n. comb., n. syn.**

Tropinotus affinis; Bruner 1906: 646. Rehn 1908: 12 (distr. Brasil).

Diedronotus affinis; Kirby 1910: 360.

Xyleus fuscipennis (Bruner 1911) **n. syn.**

Diedronotus fuscipennis Bruner 1911: 51.

Tropidonotus fuscipennis; Liebermann 1928: 147 (distr.).

Tropinotus fuscipennis; Liebermann 1939: 173 (distr.). Liebermann & Piran 1941: 10 (distr., econ.). Mesa 1956: 34 (chromosomes).

Xyleus fuscipennis; Liebermann & Ruffinelli 1946: 10 (distr. econ.). Silveira *et al.* 1958: 445-454 (redescr., econ.). Mesa *et al.* 1983: 516 (chromosomes).

Holotypes.— Of *T. discoideus*, a female labeled "Brésil" PARIS. Of *T. scabripes*, a male labeled "Sao Leopoldo, Stahl" STOCKHOLM. São Leopoldo is in the State of Rio Grande do Sul, Brasil. Of *T. affinis*, a female labeled "Sapucay, Paraguay, WT. Foster, Febr. USNM type N° 9732" WASH. Of *D. fuscipennis*, a female labeled "Montevideo" PHIL.

Specimens examined.— 205, from the following localities. **BRASIL.** State of Bahia: Itamaraju. State of Goiás: Rio Araguaia S. of Aruana; Aragarças; 15-30 km E. of Mineiros. State of Minas Gerais: Juiz de Fora; Barbacena; Poços de Caldas; Contagem; Carangola; São Geraldo; Ipanema; 46 km SE of Itajuba; Belo Horizonte. State of Espírito Santo: Linhares; Santa Teresa; Cariacica; Jaguaré; Corrego do Ita; State of São Paulo: São José do Barroso [in Serra da Bocaina], 1600 m-alt.; Salto Grande; City of São Paulo; Piracicaba. State of Rio de Janeiro: Floresta de Tijuca [in City of Rio de Janeiro]; km 47 old road Rio-São Paulo [Seropedica]; Boca do Mato; Sernambetiba; Guapi Mirim; Angra dos Reis; Doutor Matos; Corcovado. State of Parana: São Jose dos Pinhais; Sete Quedas; BR 373, 5 km S. of Prudentópolis; 15 km S. of Ceu Azul; Rondon; Atuba. State of Santa Catarina: Nova Teutonia [300-500 m-alt.]; Corupá; Rio Vermelho; Rio Marombas; Campos Novos [Rio Ibicui]; Ribeirão dos Russos [Município Benedito Novo]; State of Rio Grande do Sul: Nonoai; Trindade; Barro Vermelho [Município Osorio]; Ronda Alta; Pelotas; Santo Augusto. **BOLIVIA.** Depto Santa Cruz: Prov. Chiquitos; Santiago. **PARAGUAY.** Depto Concepción: Horqueta. Depto Guairá: Villarica. Depto Caaguazú: Curuguatí; Caaguazú. Depto Alto Paraná: Puerto Presidente Franco; Puerto Bertoni. Depto Paraguari: Sapucay. Depto Itapúa: 8 km N. of San Rafael. **ARGENTINA.** Prov. Formosa: City of Formosa. Prov. Chaco: E.P. Anello [on road to Zapallar]. Prov. Misiones: Bemberg; Iguazú; Rio Paranay Guazú; Cerro Azul; Puerto Rico; San Javier. Prov. Corrientes: Gobernador Virasoro, Las Marías; Manantiales. Prov. Entre Ríos: Pronunciamiento; Colón. **URUGUAY.** Whole country.

The above specimens are in ANN ARBOR, LA PLATA, MONTEVIDEO, PHIL., RIO CLARO, RIO DE JANEIRO, TUCUMAN.

Xyleus discoideus mexicanus (Bruner 1906) **new status**
(Figs 5, 6, 12, 13, 41, Table 7)

Tropinotus mexicanus Bruner 1906: 645, 1907 (Biol. C. Amer.): 225 (descr., distr.). Muma 1952: 5 (female type in Nebraska). Otte 1978:

35 (location of type). Ramos *et al.* 1982: 92 (edibility). *Diedronotus mexicanus*; Kirby 1910: 360. Hebard 1932: 269 (distr. Mexico). *Xyleus mexicanus*; Rehn & Grant 1959: 250, fig. 54 (phallic complex). Descamps 1975: 52 (distr. ecol.), 1976: 298 (ecol.)

Xyleus centralis (Rehn 1918) **n. syn.**

Diedronotus centralis Rehn 1918b: 329. Hebard 1932: 269 (distr. Oaxaca, descr. of male). Otte 1978: 55 (location of type). *Xyleus centralis*; Rehn & Grant 1959: 250 fig 56 (phallic complex, misid.?). Astacio Cabrera 1975: 34 (redescr. bionom. econ. illustr.). Rowell 1998: 227 (survival, conservation). Descamps 1975: 52 (possible synonymy *X. mexicanus* = *X. centralis* suggested).

Holotypes.— Of *T. mexicanus*, this species was described by Bruner (1906) only in a key of species of the genus. Male and female specimens were mentioned, from "Yucatan" [Mexico] and "Honduras". It was stated that the species would be further described in *Biologia Centrali Americana*. In this publication (1907: 225) a short description is given, and it is stated that the species comes from "Mexico, Vera Cruz; Temax and other localities in Yucatán". There is in PHIL. a single male marked as type, labeled "Temax, N.Yucatan, Gaumer, # H 295", here considered to be the holotype of the species. Type series of *D. centralis*, a male [holotype] labeled "El Pelon, Guanacaste, Costa Rica, Jan 1915, P. Biolley" "#5354". Also a female paratype. PHIL..

Specimens examined.— 42, from the following localities: **MEXICO.** State of Veracruz; Medellín. State of Yucatán: E. of Tunkás; Chichén Itzá; Izamal; W. of Buctotz; Mérida. State of Quintana Roo: Nuevo X-Can. State of Colima; 8 mi. S. of Colima. State of Michoacán: 15 mi. W. of Caleta de Campos, near Playa Azul; 16-20 km. NE of Road Ixtapa-Altamirano. State of Oaxaca: 2 mi. E of Jalapa del Marques; Almoloya; 45 mi. NW of Tequisistlan. State of Chiapas: Ocozocoquantla; Escuintla. **GUATEMALA.** Escuintla-Tiquisate. **HONDURAS:** Progreso; Tela. **NICARAGUA:** Greytown [now San Juan del Norte]; Rivas Javillo; Managua. **COSTA RICA:** Guanacaste.

The above mentioned specimens are in ANN ARBOR, MONTEVIDEO, PHIL., RIO DE JANEIRO.

Xyleus discoideus rosulentus (Stål 1878) **new status**
(Figs 5, 6, 11, 13, 40, Table 6)

Trapidonotus [sic] *rosulentus* Stål 1878b: 19 (misprint for *Tropidonotus*?). *Tropidonotus rosulentus*; Pictet & Saussure 1887: 335. Bruner 1895: 64 (distr. Nicaragua, illustr. male). Brunner von Wattenwyl 1900: 255 (distr. Ecuador [?]). Scudder 1901: 336 (distr. Nicaragua, misid.). Sjöstedt 1933: 30 (location of type, illustr.).

Tropinotus rosulentus; Bruner 1907: 225 (Biol. Centr. Am.) (distr., in part misid.).

Diedronotus rosulentus; Kirby 1910: 360. Rehn 1913a: 88 (distr. Surinam, misid.). Hebard 1923: 223 (distr. in Colombia) 1924a: 102 (distr. Panama). Campos 1923: 21 (in Ecuador as indicated by Bruner v. W.)

Xyleus rosulentus; Caudell 1932: 3 (distr. Panama). Hebard 1933a: 44, (distr. Colombia), 1933b: 129 (distr. Panama). Rehn & Grant 1959: 250 (phallic complex figured). Descamps & Amedegnato 1970: 863 (distr. French Guiana, misid.).

Holotype male labeled "N. Granada, Dämel", Genitalia CSC 1073.

[Nueva Granada being an old name for Colombia]. STOCKHOLM.

Specimens examined.— 40, from the following localities: **COSTA RICA:** Pozo Azul de Pirris [in Osa Peninsula]. **PANAMA.** Canal Zone; several localities. Prov. Panamá: near Chepo. **COLOMBIA.** Depto Atlántico: Puerto Colombia. Depto Magdalena: Las Pavas; Bonda; Río Frío, Tucurínca; Aracataca; Santa Marta-Mamatoco; Dpto. Cundinamarca: Las Mesitas. Depto Meta: Villavicencio; Puerto López. The above specimens are in PHIL. and ANN ARBOR.

Xyleus discoideus venezuelae **n. ssp.**
(Figs 5, 6, 10, 13, 39, Table 5)

Holotype.— male from Venezuela, Curimagua, San Lorenzo. 1040 m-alt. May 1993 (F. Cerdá, L. Joly, U. Savini, A. Chacón) MARACAY.

Paratypes.— **VENEZUELA,** State of Zulia: 1♂, Kasmera, Río Yasa, 250 m-alt., Dec 1962 (R. Lichy, A. Perez) MARACAY. State of Falcon: 1♂, Curimagua, 980 m-alt., Nov 1971 (R. Casares, J.B. Terán, C. Padron) MARACAY; State of Carabobo: Palmichal, nr Canuabo, Mar 1987, (F. Cerdá) MARACAY; State of Aragua: 1♂, Portachuelo, Rancho Grande. 1100 m-alt. Sept 1983 (A. Chacón); 1♀, Cagua, 450 m-alt. Dec 1963 (V. Mendoza), 1♀, El Limón, 450 m-alt. Oct 1979 (J.A. Clavijo), MARACAY. State of Miranda: Est. Exp. Río Negro, nr. Capaya, 100 m-alt. Nov 1977 (C. Andara, J. Clavijo) MARACAY. State of Trujillo: 1♂, Santa Isabel, 250 m-alt. Oct 1983 (A. Azuaje) MARACAY. State Portuguesa: 1♂, 2♀♀, Mesa de Cavaca-Guanare, 180 m-alt. Nov 1982 (MS. Moratorio) MONTEVIDEO; State of Guárico: 1♂, Calabozo area, S. of Río Orituco, treeless plain, Jul 1981, (D. Otte & al.) PHIL. State of Monagas: 1♂, Jusepin, 50 m-alt. Oct 1965 (F. Fernández-Y, C.J. Rosales) MARACAY. State of Táchira: 1♂, Táchira, Apr 1920 (J. & E.B. Williamson) ANN ARBOR. 1♂, Compl. Hidroelectr. Ruiz-Pinedo, Las Cuevas, 07°47' N, 71°47' W, (C.J. Rosales, L. Joly, J. de Marmels, A. Chacón) MARACAY. State of Mérida: 1♂, El Chivo, Dec 1969 (R. Casares, M. Terán, M. Gelbe) MARACAY. State of Bolívar: 2♂♂, Río Panagua, E of Río Chiguao, 425 m-alt, Aug 1983 (Exp. Inst. Zool. Agrícola); 1♂, El Barroso, Río Matupo, Jan 1972 (J. Salcedo) MARACAY. 1♂, Ciudad Bolívar, Sep 1909 (J.A. Carriker); 1♂ Ciudad Bolívar Oct 1940 (P. Anduze) PHIL.

Specimens not marked as paratypes.— (pronotum atypical): State of Carabobo: 1♂, 1♀, San Esteban, Nov. 1939 (P. Anduze) PHIL. State of Bolívar: 1♂, El Pao, Nov 1988, (B. Bechyné) MARACAY. These specimens not marked as paratypes might represent intermediate forms between *X. d. rosulentus* and *X. d. venezuelae*, but their places of collection do not correspond to such status.

Xyleus goias **n. sp.**
(Figs 13, 14, 15, 19, 45, Table 11)

Holotype.— male from BRASIL, Goiás State: Minaçu, Dec 1987, (M.A. Monné, O. Roppa) in RIO DE JANEIRO. Paratypes: 4♂♂, 1♀, same data as holotype; 1♂, Goiás State: Município Cavalcanti, Vila Borba, Dec 1987 (M.A. Monné, O. Roppa); 1♂, Pirapora, Nov 1977, (C.A.C. Seabra, M.A. Monné, O. Roppa), 1♂, Curvelo, Nov 1977, (C.A.C. Seabra, M.A. Monné, O. Roppa) RIO DE JANEIRO. Amapa State: 1♂, Rio Anicohe, Jun 1951 (J. Lane), SAO PAULO. Mato Grosso State: 1♂, Barra do Tapirape, Jan 1966 (B. Malkin) SAO PAULO. 1♂, 1♀, Chapada dos Guimarães, Nov. 1963 (M. Alvarenga), ANN ARBOR. Those in the type series are the only specimens known.

Etymology.— A geographical name, from the Brazilian State of Goiás, where most specimens of this species were found. Originally the name of an Amerindian tribe living in that region (Irmão Jose Gregorio 1980:702)

Xyleus gracilis (Bruner 1905)
(Figs 21, 22, 25, 27, 37, Table 15)

Tropinotus gracilis Bruner 1905: 215 (descr. in key only), 1906: 648 (probably reaching E. Paraguay). Grossbeck 1912: 357 (2 "cotypes" in American Mus. N. H.). Muma 1952: 5 (type in NEBRASKA). Liebermann 1955: 335 (distr. Brasil).

Diedronotus gracilis; Kirby 1910:361.

Xyleus gracilis: Mesa *et al.* 1983: 516 (chromosomes). Costa & Jantsch 1999: 140 (distr. econ.).

Type series of 2 males and 3 females, labeled "São Paulo, Brazil, A. Hempel" in NEBRASKA. One of the males marked as holotype in 1970, here designated.

Specimens examined.— **BRASIL**. State of Goiás: 1♂, Jatai, Oct 1982 (L. Reis) RIO DE JANEIRO. State of Minas Gerais: 3♂♂, 2♀♀, Poços de Caldas, Morro do Ferro, Aug 1965, Aug 1967 (J. Becker, O. Roppa, S. Lancini); 4♀♀, Poços de Caldas Jul 1977, Aug 1979 (O. Roppa, J. Becker, B. Silva) RIO DE JANEIRO. State of São Paulo: 1♀, 8 km W. of Itirapina, Nov 1994 (A. Mesa, P. Garcia, C.S. Carbonell), 1♂, Piracicaba, May 1962 (A. Mesa) MONTEVIDEO. 1♂, Campos do Jordão, Mar 1945 (P. Wygodzinski) RIO DE JANEIRO. State of Parana: 1♀, Curitiba, Feb 1941 (J.R. Bailey) ANN ARBOR State of Rio Grande do Sul: 1♂, 3♀♀, Santo Augusto, Sep 1977 (O. Roppa) RIO DE JANEIRO. 2♀♀, Ronda Alta, Feb 1964, (C.S. Carbonell, A. Mesa, M.A. Monné) MONTEVIDEO. **PARAGUAY**. Depto Cordillera: 1♀, Itacurubí, Mar 1965 (C.S. Carbonell, A. Mesa, M.A. Monné) MONTEVIDEO. **ARGENTINA**. Prov. Misiones: 1♀, (no additional data) LA PLATA.

Xyleus guarani (Rehn 1907) **n. comb.**
(Figs 27, 28, 29, 33, 45, Table 21)

Tropinotus guarani Rehn 1907: 170. Liebermann 1939: 175. Otte 1978: 59 (location of type).

Diedronotus guarani; Kirby 1910: 361.

Male holotype.— labeled "Sapucay, Paraguay, II-25-05 Foster". A female paratype, same locality, III-9-05, 3 female topotypes, in PHIL.

Specimens examined.— **BRASIL**. State of Mato Grosso: 1♂, Chapada dos Guimarães, Jan 1972 (R.A. Ronderos, C.S. Carbonell), MONTEVIDEO. 1♂ BR 364, km 558, Feb 1978 (B. Silva), RIO DE JANEIRO. State of São Paulo: 1♂, Piraçununga, May 1972 (A. Mesa, E. Bran), RIO CLARO. **BOLIVIA**. Depto Santa Cruz; 1♂, Prov. Sara [now Prov. Gutiérrez], 1922 (J. Steinbach), PHIL.

The following female specimens have been tentatively identified as this species on rather slight evidence derived from the shape of the subgenital plate and the length of the fastigium. They are almost identical with the females of *X. regularis*. **BRASIL**. State of Goiás: 1♀, 20 km S. of Brasília, Jul 1972, (A. Mesa, A. Ferreira) RIO CLARO. State of São Paulo: 1♀, Franca, Jan 1911, (Garbe) PHIL. **PARAGUAY**. Depto Paraguari: 2♀♀, Sapucay, Mar 1905 (Foster) PHIL. Depto Caaguazú; 1♀, near Ihú (C.S. Carbonell, A. Mesa, M.A. Monné); MONTEVIDEO.

Xyleus insignis (Giglio-Tos 1894)
(Figs 27, 28, 29, 30, 44, Table 18)

Tropidonotus insignis Giglio-Tos 1894: 16, 1897: 29 (distr., SE Bolivia). Bruner 1900: 57 (distr. Argentina). Liebermann 1928: 147 (distr. Argentina). Passerin 1981: 35, 43 (location of type and specimens in TORINO).

Tropinotus insignis; Bruner 1906: 646 (distr. Paraguay?). Liebermann 1939: 173 (distr.), 1942: 25 (distr., possible syn. of *T. uvarovi*), 1954: 7 (distr. Argentina), 1958: 7 (distr. Formosa), 1972: 195 (econ.). Viana 1942: 124 (distr. Córdoba). Hayward 1960: 78 (econ.). Bucher 1974: 51 (ecol.). Gangwere & Ronderos 1975: 178 (food selection).

Diedronotus insignis; Kirby 1910: 361. Liebermann 1935: 38 (distr.). Viana 1942: 124 (distr.).

Xyleus insignis; Liebermann 1948: 76 (distr.), 1949: 4 (distr.). Mesa *et al.* 1983: 516 (chromosomes). Barreira & Turk 1977: 178 (etology, oviposition). COPR 1982: 121 (econ.).

Xyleus conspersus (Bruner 1900) **n. syn.**

Tropidonotus conspersus Bruner 1900: 56. Liebermann 1928: 147 (distr.). Muma 1952: 5 (type in NEBRASKA).

Diedronotus conspersus; Kirby 1910: 361. Liebermann 1935: 38.

Tropinotus conspersus; Liebermann 1939: 175 (distr.), 1967: 98 (location of type).

Xyleus [misprinted as "Xyles"] *conspersus*; Hayward 1960: 79 (distr.). COPR 1982: 120 (econ.).

Xyleus uvarovi (Liebermann 1935) **n. comb., n. syn.**

Diedronotus uvarovi Liebermann 1935: 38

Tropinotus uvarovi; Liebermann 1939: 175 (distr.), 1942: 25 (distr., probable synonym of *T. insignis*).

Holotypes.— Of *T. insignis*, a female labeled "Salta, Argentina" in TORINO. Of *T. conspersus*, a male labeled "Cordoba, Argentina, F. Schulz" in NEBRASKA. In Bruner's publication, male and female specimens are mentioned, but the female was not found. The male holotype has its abdomen empty, paraprocts and genitalia are missing. It belongs without doubt to the species *T. insignis*. Bruner suggests this in its description, by saying: "...in stature similar to *T. insignis*. May be a dusky form of that species". Type-series of *Diedronotus uvarovi*, a female holotype stated by Liebermann (1935) to be labeled "La Rioja, M. Gómez, N° 27287" and a female paratype labeled "Catamarca, M. Gómez, N° 30223" in BUENOS AIRES. Only the paratype from Catamarca was examined. It corresponds to *X. insignis*, and is conspecific with the holotype according to Liebermann's description. The synonymy suggested by Liebermann (1942: 25) is here confirmed.

Specimens examined.— 250 from: **BRASIL**. State of Mato Grosso do Sul: Urucum, [near] Corumbá; **BOLIVIA**. Depto Tarija: Piedra Pintada (21°35'S, 64°40'W). **ARGENTINA**. Prov. Salta: Campo Belgrano; Las Víboras; Carahuasi [140 km S. of Ciudad de Salta]; Tartagal; San Lorenzo; Tala; La Candelaria; 15-30 km S. of General Güemes; Las Mesitas (Route 34, 900 m-alt. *Opuntia-Prosopis* area); Prov. Chaco: Resistencia; Ruta 11 at Arroyo Palometa; Parque Nacional del Chaco. Prov. Catamarca: Dique Cuyanasta; Las Animas. Prov. Tucumán: Tapia; La Soledad (11 km W of Las Cejas). Prov. Santiago del Estero: 10-15 km SE. of Rio Hondo; Ruta 5, 50-80 km

NE of La Banda (160 m-alt.) Prov. Corrientes: Chavarria. Prov. La Rioja: La Rioja; Mascasin. Prov. Córdoba: Cap. Santa María, Dique Rio Primero; Cabana; Tanti. Prov. Santa Fe: La Guampita. Prov. Entre Rios: Pronunciamento.

The specimens mentioned above in ANN ARBOR, LA PLATA, MONTEVIDEO, PHIL., TUCUMAN.

Xyleus laevipes (Stål 1878)
(Figs 13, 14, 15, 16, 42, Table 8)

Tripidonotus [sic] *laevipes* Stål 1878b: 20 (misprint for *Tripidonotus*?).

Tripidonotus laevipes; Pictet & Saussure 1887: 335. Giglio-Tos 1895: 812. Bruner 1900: 57 (distr. habitat in open fields). Liebermann 1928: 147 (distr.) Sjöstedt 1933: 30 (location of type, illustr.).

Tropinotus laevipes; Bruner 1906: 648 (distr. Paraguay and S. to Buenos Aires). Rehn 1907: 173 (distr.). Liebermann 1939: 174 (distr.), 1941a: 31 (distr.), 1941b: 156 (distr.), 1955: 335 (distr.), 1958: 7 (distr. Formosa), 1967: 108 (distr.), 1972: 197 (econ.). Liebermann & Pirán 1941 (distr. Uruguay). Baucke 1954: 9 (distr. S. Brasil). Mesa 1956: 34 (chromosomes). Saez 1956: 24 (chromosomes). Gangwere & Ronderos 1975: 178 (food selection).

Diedronotus laevipes; Kirby 1910: 361. Bruner 1913b: 462 (distr. S. Bolivia). Rehn 1913b: 330 (distr.), 1915: 284 (distr. Argentina), 1920: 245 (distr.) Hebard 1931: 272 (distr. Formosa). Liebermann 1935: 37 (distr.).

Xyleus laevipes; Blanchard 1945: 4 (distr., econ.). Liebermann 1946: 453 (distr.), 1948: 77 (distr.), 1951: 46 (distr.). Liebermann & Ruffinelli 1946: 11 (distr. Uruguay). Liebermann & Schiuma 1946: 38 (bionom., econ.). Dirsh 1956: 275, pl. 31, fig. 10 (epiphallus illustr.). Ronderos 1959: 21, 27 (bionom. distr. illustr.). Mason 1969: 299 (tympanal organ), Mesa *et al.* 1983: 516 (chromosomes). COPR 1982: 123 (econ.). Lange & Wysiecki 1996: 24-29 (pathol.). Costa & Jantsch 1999: 140 (distr. S. Brasil). Wysiecki *et al.* 2000: 217, 219 (bionom., distr.). Cigliano *et al.* 2000: 88 (bionom.).

Xyleus amabilis (Bolivar 1909) n. comb., n. syn.

Diedronotus amabilis Bolivar 1909: 341

Type series.— Of *T. laevipes*, male holotype and two female paratypes from "Sao Leopoldo" [Rio Grande do Sul, Brasil] STOCKHOLM. Holotype of *D. amabilis*, a male from "Sapucay, Paraguay" MADRID.

Specimens examined.— 45, from the following localities. **BRASIL**. State of São Paulo: Município Itirapina, 8 km W. of Itirapina. State of Rio Grande do Sul: São Leopoldo [holotype]. **PARAGUAY**. Depto Cordillera: Itacurubí. Depto Paraguairí: Sapucay [Type of *D. amabilis*]. **ARGENTINA**. Prov. Jujuy: Santa Clara. Prov. Salta: Campo Belgrano; Santa Clara; Tartagal; San Lorenzo. Prov. Chaco: Resistencia; Parque Nacional del Chaco; Ruta Nacional 11, Arroyo Palometa. Prov. Tucumán: City of Tucumán. Prov. Santa Fe: Villa Ana; Carcarañá; Arocena. Prov. Corrientes: Bella Vista; General Villegas. Prov. Córdoba, San Francisco; Los Molinos. Prov. Entre Rios: Pronunciamento. Prov. Buenos Aires: La Plata. **URUGUAY**. Depto Artigas: Arroyo de la Invernada. Depto Rivera: Sierra de la Aurora. Depto Paysandú: Puerto Pepeají. Depto Tacuarembó: Puntas Arroyo Laureles; Tacuarembó Chico. Depto Rio Negro: Rincón de Fray Bentos. Depto Florida: Casupá.

The specimens mentioned above in ANN ARBOR, LA PLATA, MONTEVIDEO, PHIL., RIO DE JANEIRO, TUCUMAN.

Xyleus laufferi (Bolivar 1891) n. comb.
(Fig. 43, Table 17)

Tripidonotus laufferi Bolivar 1891: 317

Diedronotus laufferi; Kirby 1910: 361.

Tropinotus laufferi; Liebermann 1963: 64

Holotype.— a female labeled "Cumbase, enero 1887, Garleppi," in MADRID. It is stated in Bolivar's text that it was obtained from Staudinger, the Dresden insect collector and dealer. The brothers Gustav and Otto Garlepp are known to have collected in Peru and Bolivia in the second half of the 19th and the beginning of the 20th centuries. A number of erroneous data may be noticed in Bolivar's description. The locality "Cumbase" is stated to be in "Alto Perú" (now Bolivia). Cumbase, however, is in Perú, Department of San Martín, very close to the town of Tarapoto. It is very probably what is marked in modern maps as San Roque de Cumbaza, 35 km WNW of the town of Tarapoto. The type is stated to be a male, but it is a female, and the measurements given in Bolivar's text correspond exactly to the female specimen in Madrid.

No additional specimens that could be assigned to this species, coming from the general area where this type is stated to have been collected, are among the ones examined for this revision. This could mean that the type-specimen was mislabeled as to the locality of collection, a fact not unusual in insects obtained from dealers. But since it belongs to a rather uncommon species-group, it may be that the type really came from the said Peruvian locality, even if no further collections of the species have been made in the area.

Xyleus lineatus (Bruner 1906) n. comb.
(Figs 27, 28, 29, 32, 45, Table 20)

Tropinotus lineatus Bruner 1906: 648. Rehn 1907: 174 (distr. color phases). Kirby 1910: 361. Liebermann 1939: 175 (distr.). Muma 1952: 8 (paratype in NEBRASKA).

Diedronotus lineatus; Kirby 1910: 361. Bruner 1911: 53 (distr.).

Holotype.— According to Bruner (1906) the type-series consists of "Several specimens, both sexes". There is in WASH., however, a single male specimen marked as "Type" by Bruner, labeled "Sapucay, Paraguay, W.T. Foster, 25 Feb 1903, Type N° 9733". Its measurements and number correspond to data given by Bruner for the male. It is here considered to be the holotype of the species.

Specimens examined.— **ARGENTINA**. Prov. Salta: 1♂, Pocitos, Dec. 1939 (M. Birabén) LA PLATA. **PARAGUAY**. Depto Paraguairí: 1♂, 1♀, Sapucay, Feb-Mar 1905 (Foster) PHILADELPHIA. **BRASIL**. State of Mato Grosso: 1♂, Chapada de Guimarães, Jan 1972, (R.A. Ronderos, C.S. Carbonell). 1♂, 100 km N. of Campo Grande (R.A. Ronderos, C.S. Carbonell) MONTEVIDEO; 1♂, BR 364, km. 616, Feb 1978 (B. Silva), RIO DE JANEIRO. State of Goiás: 1♂, Mun. Formosa, Apr 1992 (M.A. Monné); 1♀, Jataí, Feb 1979 (O. Roppa, B. Silva); 1♂, Minaçu, Dec 1987 (M.A. Monné, O. Roppa), RIO DE JANEIRO. State of São Paulo: 6♂♂, 1♀, Mun. Itirapina, 8 km. W. of Itirapina (A. Mesa, P. García, C.S. Carbonell), RIO CLARO.

Xyleus modestus (Giglio-Tos 1894)
(Figs 14, 15, 17, 44, Table 9)

Tripidonotus modestus Giglio-Tos 1894: 16. Bruner 1900: 56. Liebermann 1928: 147 (distr.). Passerin 1981: 35 (location of type)

Tropinotus modestus; Bruner 1906: 646 (distr.). Liebermann 1939: 194 (distr.).

Diedronotus modestus; Kirby 1910: 360. Liebermann 1935: 37 (distr.).

Xyleus modestus; Mesa *et al.* 1983: 516 (chromosomes).

Xyleus panteli (Bolivar 1902) **n. comb., n. syn.**

Tropidonotus panteli Bolivar 1902: 612 (described as from Madura, India)

Xyleus schulzi (Bruner 1900) **n. syn.**

Tropidonotus schulzi Bruner 1900: 56 (type from Córdoba, Argentina). Liebermann 1928: 147. Muma 1952: 5 (location of type).

Diedronotus schulzi; Kirby 1910: 360. Liebermann 1935: 38.

Tropinotus schulzi; Liebermann 1939: 174; 1954: 7; 1958: 7; 1967: 98. Viana 1942: 124. Hayward 1960: 78.

Xyleus schulzi; Liebermann 1946: 453; 1948: 77. COPR 1982: 121.

Xyleus strigatus (Bruner 1910) **n. syn.**

Tropinotus strigatus Bruner 1910: 469 (partial description on specimen from Perú). Liebermann 1955: 335 (distr. Brasil), 1963: 64.

Diedronotus strigatus Bruner 1911: 50 (description on types from Brasil).

Xyleus strigatus; Rehn & Grant 1959: 250 (misid., phallic complex figured represents apical endophallic valves of *X. andinus*, here described).

Holotypes.— of *T. modestus*, a male, labeled “Resistencia, Chaco” [ex alcohol] (marked as holotype in 1966), (genitalia CSC 1091), in TORINO. Of *T. schulzi*, a male labeled “Cordoba, Argentina, F.Schulz” in NEBRASKA. Type series of *D. strigatus*, 1 male and 2 females from “Chapada near Cuyabá “H.H. Smith” labeled “*Tropinotus strigatus*” “Type” in PHILADELPHIA. The male in this series was marked as holotype in 1983, and is here designated as such. Type of *T. panteli*, a female labeled “Ind. Or, [India Oriental] P. Castets” in PARIS. It was described by Bolivar as coming from the town of Madura in Southern India, but indeed was mislabeled as to the locality. Certain features of this type are similar to those of recent specimens collected in eastern Paraguay.

The case of *X. strigatus* is complex. In his paper of 1910, Bruner erects this species on a specimen from Peru: “east slopes of the Andes to the eastward of Cerro de Pasco”. He does not make a formal description, giving just a few indications of its color and color-pattern, and of the dorsal carina of the prothorax and the hind legs. This specimen belonged to a collection made in Peru by the Russian engineer Ikonikoff which was subsequently deposited in the Lomonosov University in Moscow. In 1970 Dr. Bei-Bienko carried all the types of these species to London for me to study and photograph. Among them there was none belonging to *Xyleus*. Bruner may have retained this specimen or, if he did send it back, he did not mark it as type. In the said 1910 paper, Bruner states that the species will later be given a complete description in a publication of the Carnegie Museum. This description occurs in his paper of 1911. But Bruner states there that the type-series was collected by H.H. Smith in “Chapada, Brazil”. [Chapada dos Guimarães in the State of Mato Grosso]. Since the Peruvian “type” has not been found while the Brazilian series (originally in the Carnegie Museum) is in PHIL., these specimens, marked as types by Bruner and on which

his description is based are here considered as the type-series of the species.

In the light of the present revision, several facts become evident. The specimens in the type-series of *D. strigatus*, (and also the type of *D. schulzi*) belong to the taxon previously described by Giglio-Tos as *Tropidonotus modestus*. The specimen from Peru mentioned as type of the species in the 1910 paper must have been certainly a different species, because *X. modestus* can hardly be expected to occur there. The characters given in Bruner’s description of *D. strigatus* are not adequate to define the species. Some of them are common to several species of the genus. Others, such as the colors and color pattern, are to be found rather frequently in specimens of *X. modestus*. This latter species is common in the region of Chapada dos Guimarães. My study of other specimens identified by Bruner from the Carnegie Museum collection shows also that later he came to consider most of the specimens from this place as belonging to *X. d. angulatus*. This is a species from Northeastern Brasil, superficially similar to *X. modestus*, that does not occur in the region where the latter is found.

Specimens examined.—110, from the following localities. **BRASIL.** State of Rondonia: Colorado do Oeste. State Mato Grosso: Carandazinho; Chapada dos Guimarães. State Mato Grosso do Sul: Descalvados on Rio Paraguay; Urucum; Corumbá; 32 km WNW of Aquidauana; Capim Verde; Corginho. **BOLIVIA.** Depto Santa Cruz: Prov. Andres Bañez; Sta Cruz de la Sierra, Rio Piray; Cordillera Tarenda S. of Charagua. Depto Tarija: Taringuiti, 35 km by road SE of Villa Montes. **PARAGUAY.** Chaco: Prov. Boqueron: Cerro León. Depto Concepción: Horqueta. Depto Amambay: Cerro Corá. Depto Paraguari: Paraguari; Sapucay. **ARGENTINA.** Prov. Jujuy: City of Jujuy; San Juancito; San Pedro. Prov. Salta: Salta Forestal [35 km of J.V.González]; Depto Orán, Chaguaral; Itiyuco [8 km. of Pocitos]; Urundel; M. del Tingo; Tartagal; Rio las Piedras; Aguaray; Rio Bermejo; km 69 Cafayate to Salta [1800 m.alt.]; 15-20 km E. of Salta [370 m-alt.]; Embarcación. Prov. Formosa: Formosa; Prov. Chaco: Puerto Tirol; Charata; Resistencia. Prov. Catamarca: Depto El Alto, El Unquillo; 10-14 km S. of San Isidro; 20 km SW of City of Catamarca [1300 m-alt.]; 8 km NW of City of Catamarca [900 m-alt.]. Prov. Tucumán: San Miguel de Tucumán [460 m-alt.]; Vipos; Dpto. Cruz Alta, La Soledad, Cañete; Reserva Forestal Benjamín Paz; Dpto. Burruyacú, El Bachi [400 m-alt., bosque chaqueño]; La Rinconada; Ticucho; 30 km N of Tucumán, 10 km E of Tapia [900 m-alt.]; Tapia. Prov. Santiago del Estero: La Banda; Beltrán; 10-15 km SE. of Rio Hondo. Prov. Corrientes: Corrientes. Prov. La Rioja: La Rioja; Prov. Córdoba: Cerro Colorado, Tulumba; Anisacate; Calamuchita-Almafuerte. Prov. San Luis: Las Rosadas. The specimens mentioned above in ANN ARBOR, LA PLATA, MONTEVIDEO, PHIL., RIO DE JANEIRO, TUCUMAN.

Xyleus pirapora **n. sp.**

(Figs 21, 22, 26, 27, 45, Table 16)

Holotype.— Male from BRASIL, State of Minas Gerais, Pirapora, Nov 1977, (C.A.C. Seabra, O. Roppa, M.A. Monné) RIO DE JANEIRO. Paratypes: Same data as holotype, 7♂, 1♀. RIO DE JANEIRO, PARIS. 1♀, State of Minas Gerais [no additional data] PHIL.

Etymology.— A geographical name, from the locality where most known specimens of this species were collected. Originally a word meaning “a place abundant in fish” in the language Tupi-Guarani (Irmão José Gregório 1980:1059)

Xyleus regularis (Bruner 1905)
(Figs 13, 14, 15, 20, 45, Table 12)

Tropinotus regularis Bruner 1905: 214, 1906: 647 (descr. of female).
Rehn 1905: 38.

(distr.), 1907: 173 (intraspecific variation, distr.). Liebermann 1955:
335 (distr. Brasil).

Diedronotus regularis; Kirby 1910: 361. Bruner 1911: 52 (distr.).
Rehn 1918a: 200 (distr.). Muma 1952: 8 (type-series in Lincoln,
Nebraska).

Xyleus regularis; Rehn & Grant 1959: 250 (phallic complex fig-
ured).

Xyleus parvus (Bolivar 1909) **n. comb. n. syn.**

Diedronotus parvus Bolivar 1909: 343.

Type-series.— Of *T. regularis*. There are specimens marked as "Types"
in NEBRASKA and WASH. However, a male in NEBRASKA, whose
measurements exactly agree with the ones given by Bruner in his
description of the species, is here considered to be the holotype.
It is labeled "*Tropinotus regularis* Bruner, type, Sapucay, Paraguay, Nov".
There is also a female labeled "Sapucay, Paraguay, W.T. Foster, Nov."
The specimens in WASH. are also marked as types. They are labeled
"Sapucay, Paraguay, W.T. Foster, 174, March" "Type #9720 USNM".
Type of *D. parvus*, a male labeled "Paraguay, C° [camino] a Jansen"
"*Diedronotus parvus* Bol." in MADRID. In Bolivar's description it is
implied that male and female were examined, but only the above
male was found. Measurements, by some typographical error, are
lacking from the original description. Apparently the measurements
of the male body, pronotum, tegmina and hind femur should have
been given, but the corresponding figures are missing from the text.
It is stated in the description that it is "the smaller species known,
its tegmina not surpassing the middle of the body" (meaning the
abdomen?). The male type in MADRID, however, has tegmina much
longer than the abdomen, slightly surpassing the end of the hind
femora. In his publication Bolivar gives "Paraguay" as the origin
of this insect. Its label reads "Camino a Jansen." According to the
label of the type of *Diedronotus amabilis* Bolivar, described in the
same paper, that reads "Sapucay, C° a Jansen" the latter refers to
some place near Sapucay. Bolivar's type in MADRID has not been
dissected to examine its phallic complex. It is very similar to the
present species and also to *X. guarani*. However, the presence of a
conspicuous white band between C and Sc on the tegmina, found
in every male specimen of the present species and generally absent
from those of *X. guarani*, points to its being a specimen of *X. regu-
laris*. The types of both these species were also collected in Sapucay,
Paraguay. Since the latter names are both older than *parvus*, it is of
no consequence whether it is identical with *guarani* or *regularis*. The
presence in Sapucay of a third cryptic species besides *regularis* and
guarani does not seem probable.

Specimens examined.— **BRASIL**. State of Goiás: 1♂, Vianópolis, Ponte
Fundá, Jan 1981 (N. Tangerini) RIO DE JANEIRO. State of Minas
Gerais: 1♂, Gouveia, Nov 1977 (C.A.C. Seabra, O. Roppa, P. Magno)
RIO DE JANEIRO. State of São Paulo: 1♂, btw. Rio Claro and San
Carlos, 1989 (A. Mesa) RIO CLARO. **PARAGUAY**. Depto Paraguari;
2♂♂, Sapucay, Mar 1905 (Foster) PHIL. The following females have
been identified as *X. regularis* on rather slight evidence, derived from
the shape of the subgenital plate and the length of the fastigium.
Otherwise, they seem identical with females of *X. guarani*. **BRASIL**.

State of Goiás: 1♀, Mineiros, Feb 1975 (O. Roppa, B. Silva) RIO DE
JANEIRO. State of São Paulo: 1♀, Buritizal, Faz. Burití, Feb 1964,
(H.M. Canter) RIO DE JANEIRO. **PARAGUAY**. Depto Caaguazú;
1♀, Caaguazú, Mar 1965 (C.S. Carbonell, A. Mesa, M.A. Monné)
MONTEVIDEO.

Xyleus tuberculatus (Palissot de Beauvois 1817) **n. comb.**
Nomen dubium, nomen oblitum

Acridium tuberculatum Palissot de Beauvois 1817: 145, pl. 4 Fig. 1.
Diedronotus tuberculatum; Kirby 1910: 360 (as a synonym of *D.*
discoideus).

Holotype.— lost.

Palissot attributes this species to Fabricius [*Gryllus tuberculatus*
Fab.] but this authorship is denied by Kirby. Patria: USA, according
to Palissot. The action of Kirby of making Palissot's name (1817)
a junior synonym of Serville's (1831) *T. discoideus* does not follow
the law of priority.

APPENDIX II. Approximate coordinates of the localities mentioned in the text

ARGENTINA			Prov. La Rioja		
Prov. Buenos Aires			City of La Rioja	29° 20'S	66° 45'W
La Plata	34° 56'S	57° 58'W	Mascasin	31° 24'S	66° 59'W
Prov. Catamarca			Prov. Misiones		
City of Catamarca (20 km SW of)	28° 35'S	65° 54'W	Cerro Azul	27° 45'S	55° 17'W
City of Catamarca (8 km NW of)	28° 28'S	65° 48'W	Iguazú	25° 35'S	54° 31'W
City of Catamarca (20 km SW of)	28° 35'S	65° 54'W	Misiones (no other data, prob N. of province)	25° 44'S	54° 13'W
Dique Cuyanasta	Not found		Puerto Rico	26° 58'S	55° 18'W
Las Ánimas	Not found		Rio Paranáf Guazú	26° 24'S	54° 48'W
El Unquillo (Depto El Alto)	28° 17'S	65° 23'W	San Javier	27° 53'S	55° 08'W
San Isidro (10-14 km S of)	28° 33'S	65° 45'W	Prov. Salta		
Prov. Chaco			Aguaray	22° 16'S	63° 45'W
Arroyo Palometa, at Route 11	27° 41'S	59° 13'w	Carahuasi	26° 00'S	65° 45'W
Charata	27° 12'S	61° 12'W	Cafayate to Salta	25° 33'S	65° 34'W
General José de San Martín (antes Zapallar)	26° 32'S	59° 21'W	Charagual (Depto Orán)	23° 55'S	64° 01'W
Parque Nacional Chaco	26° 50'S	59° 40'W	Embarcación	23° 14'S	64° 05'W
Puerto Tirol	27° 23'S	59° 05'W	General Güemes (20 km S. of)	24° 53'S	65° 00'W
Resistencia	27° 27'S	59° 00'W	Itijuco (8 km of Pocitos)	22° 05'S	63° 44'W
Prov. Córdoba			La Candelaria	26° 06'S	65° 06'W
Anisacate	31° 40'S	64° 30'W	Las Mesitas (Palomitas)	24° 55'S	65° 00'W
Cabana	31° 13'S	64° 22'W	Las Víboras	25° 02'S	64° 39'W
Calamuchita-Almafuerte	32° 10'S	64° 30'W	Pocitos (near Bolivian border)	22° 05'S	63° 40'W
Cerro Colorado	30° 05'S	63° 57'W	Pocitos (near Rio Piedras)	25° 18'S	64° 58'W
Los Molinos	31° 51'S	64° 23'W	Rio Bermejo	24° 12'S	63° 00'W
Rio Primero	31° 20'S	63° 31'W	Salta (15-20 km E. of)	24° 46'S	65° 15'W
San Francisco	31° 26'S	62° 05'W	Salta Forestal (35 km of J.V.González)	25° 30'S	64° 02'W
Tanti	31° 20'S	64° 36'W	San Lorenzo (S. of Province)	26° 07'S	64° 38'W
Tulumba	30° 20'S	64° 07'W	San Lorenzo (near City of Salta)	24° 45'S	65° 20'W
Prov. Corrientes			Tala	26° 07'S	65° 17'W
Bella Vista	28° 30'S	59° 00'W	Tartagal	22° 33'S	63° 47'W
Chavarría	28° 57'S	58° 34'W	Urundel	23° 33'S	64° 26'W
Gobernador Virasoro	28° 02'S	56° 01'W	Prov. San Luis		
Las Marías	Not found		Las Rosadas	Not found	
Manantiales	27° 57'S	58° 03'W	Prov. Santa Fe		
City of Corrientes	27° 25'S	58° 44'W	Arocena	32° 05'S	60° 59'W
Prov. Entre Rios			Carcarañá	32° 52'S	61° 10'W
Colón	32° 15'S	58° 12'W	Villa Ana	28° 32'S	59° 32'W
Pronunciamiento	32° 21'S	58° 26'W	Prov. Santiago del Estero		
Prov. Formosa			Beltrán	27° 47'S	64° 02'W
City of Formosa	26° 09'S	58° 11'W	La Banda	27° 44'S	64° 14'W
Prov. Jujuy			La Banda (50-80 km NE of)	27° 30'S	64° 52'W
Santa Clara	24° 17'S	64° 41'W	Rio Hondo (10-15 km SE of)	27° 35'S	64° 55'W
San Pedro	Not found		Rio Hondo (56 km SE. of)	27° 38'S	64° 52'W
City of Jujuy	24° 12'S	65° 18'W	Prov. Tucumán		
San Juancito	24° 17'S	65° 00'W	El Bachi (Depto Burruvaciú)	26° 30'S	64° 45'W

Las Cejas	26° 53'S	64° 45'W	Jequiá- Barragem de Pedra	13° 52'S	40° 05'W
La Soledad	26° 53'S	64° 50'W	Livramento do Brumado	13° 38'S	41° 50'W
La Soledad (Depto Cruz Alta)	27° 05'S	65° 05'W	Maracas	13° 26'S	40° 27'W
Reserva Forestal Benjamín Paz	26° 22'S	65° 18'W	Palmeiras	13° 40'S	40° 00'W
San Lorenzo (near City of Salta)	24° 45'S	65° 20'W	Vila de Fatima	11° 36'S	39° 38'W
San Miguel de Tucumán	26° 47'S	65° 15'W	Vila Nova	Not found	
Vipos	26° 25'S	65° 16'W	State of Ceara		
Tapia	26° 36'S	65° 16'W	Araripe	07° 14'S	40° 10'W
Ticucho (30 km N of C. of Tucumán)	26° 31'S	65° 15'W	Crato	07° 15'S	39° 25'W
BOLIVIA.			State of Espirito Santo		
Depto Cochabamba			Cariacica	20° 45'S	40° 22'W
El Palmar, (Prov. Arani)	17° 05'S	65° 18'W	Corrego do Itá	18° 11'S	41° 01'W
Alto Palmar (Prov. Chapare)	16° 40'S	65° 10'W	Jaguaré	18° 47'S	39° 58'W
Depto Beni			Linhares	19° 24'S	40° 04'W
Rurrenabaque (Prov. Gral. J. Ballivan)	14° 28'S	67° 35'W	Santa Teresa	19° 56'S	40° 36'W
Depto Chuquisaca			State of Goiás		
Sucre (Prov. Oropesa)	19° 03'S	65° 15'W	Aragarças	15° 58'S	52° 14'W
Depto La Paz			Brasília (20 km S of)	15° 57'S	47° 54'W
Apolo (Prov. Apolo)	14° 13'S	68° 31'W	Cristalina (17 km S. of)	16° 55'S	47° 36'W
Caranavi to Santa Ana (Prov. Apolo)	15° 35'S	68° 35'W	Curvelo	18° 46'S	44° 26'W
Santa Ana (5 miles S. of) (Prov. Nor-Yungas)	15° 35'S	68° 35'W	Formosa	15° 32'S	47° 32'W
Depto Santa Cruz			Jatai	17° 23'S	51° 45'W
Buena Vista (Prov. Ichilo)	17° 27'S	63° 38'W	Minaçu	13° 27'S	48° 14'W
Rio Espejo (Prov. A. Ibáñez)	18° 05'S	63° 30'W	Mineiros	17° 35'S	52° 38'W
Santa Rosa del Sara (Prov. Gutiérrez)	17° 06'S	62° 35'W	Mineiros (15-30 km E of)	17° 38'S	52° 45'W
Santa Cruz de la Sierra (Prov. A. Ibáñez)	17° 47'S	63° 10'W	Pirapora	17° 20'S	44° 56'W
Santiago (Prov. Chiquitos)	18° 20'S	59° 37'W	Ponte Funda	16° 48'S	48° 27'W
Tarenda S. of Charagua (Prov. Cordillera)	19° 48'S	63° 12'W	Rio Araguaia S. of Aruaná	15° 00'S	51° 12'W
Depto Tarija			Vila Borba (Mun. Cavalcante)	13° 47'S	47° 31'W
Piedra Pintada (Prov. Cercado)	21° 37'S	64° 40'W	State of Mato Grosso		
Taringuiti (35 km SE of Villa Montes) (Prov. Gran Chaco)	21° 26'S	63° 09'W	Alto Araguaia (30 km NW of)	17° 06'S	53° 23'W
BRASIL			Barra do Tapirapé	10° 40'S	50° 37'W
State of Alagoas			Carandazinho	16° 27'S	56° 08'W
Coruripe	10° 07'S	36° 10'W	Chapada dos Guimaraes	15° 27'S	55° 44'W
State of Amapá			Diamantino	14° 24'S	56° 27'W
Rio Anicohe	Not found		State of Mato Grosso do Sul		
State of Bahia			Aquidauana (32 km WNW of)	20° 18'S	56° 00'W
BR 116, at Minas Gerais border	15° 40'S	41° 18'W	Campo Grande (100 km N of)	19° 31'S	54° 28'W
Conceição da Feira Murro	12° 30'S	39° 00'W	Capim Verde	19° 38'S	54° 02'W
Cruz das Almas	12° 40'S	39° 08'W	Corguinho	19° 50'S	54° 40'W
Estrada Monte Santo	10° 25'S	39° 20'W	Corumbá	19° 01'S	57° 39'W
Feira de Santana (100 km NW of)	12° 05'S	39° 55'W	Descalvados on R. Paraguay	16° 43'S	57° 43'W
Feira de Santana (60 km W of)	12° 10'S	39° 30'W	Urucum	19° 08'S	57° 38'W
Itamaraju	17° 04'S	39° 34'W	State of Minas Gerais		
Itupeva	17° 25'S	40° 28'W	Agua Vermelhas	15° 45'S	41° 27'W
Jaguarari	10° 15'S	40° 12'W	Barbacena	21° 18'S	43° 47'W
			Belo Horizonte	19° 55'S	43° 55'W
			Carangola	20° 48'S	42° 03'W

Contagem	19° 55'S	44° 05'W	Pelotas	31° 45'S	52° 22'W
Gouveia	18° 27'S	43° 45'W	Ronda Alta	27° 47'S	52° 49'W
Ipanema	19° 47'S	41° 48'W	Santo Augusto	27° 51'S	53° 47'W
Itajuba, 46 km S. of,	22° 37'S	45° 18'W	Sao Leopoldo	29° 46'S	51° 09'W
Juiz de Fora	21° 45'S	43° 21'W	Trindade	27° 26'S	52° 55'W
Pedra Azul	16° 01'S	41° 17'W	State of Rio Grande do Norte		
Penedo, Serra do Cabral	21° 43'S	43° 33'W	Barbalha	07° 19'S	39° 16'W
Pirapora	17° 20'S	44° 56'W	Natal	05° 48'S	35° 13'W
Poços de Caldas	21° 48'S	46° 35'W	Ceara Mirim	05° 38'S	35° 26'W
Sao Geraldo	16° 42'S	44° 33'W	State of Rondonia		
Taiobeiras	15° 48'S	41° 27'W	Colorado do Oeste	13° 15'S	60° 45'W
State of Paraíba			Vilhena	12° 42'S	60° 08'W
Brejo das Freiras	06° 42'S	38° 31'W	State of Santa Catarina		
State of Paraná			Campos Novos	27° 24'S	51° 17'W
Atuba	25° 26'S	49° 08'W	Corupá	26° 25'S	49° 15'W
Ceu Azul (15 km S. of)	25° 18'S	53° 54'W	Nova Teutonia	27° 10'S	52° 21'W
Curitiba	25° 27'S	49° 18'W	Ribeirao dos Russos (Mun. Benedito Novo)	26° 48'S	49° 25'W
Prudentópolis (5 km SW of)	25° 20'S	51° 00'W	Rio Marombas	27° 12'S	50° 32'W
Rondon	23° 23'S	52° 48'W	Rio Vermelho	26° 17'S	49° 20'W
Sao José dos Pinhais	25° 31'S	49° 12'W	State of Sao Paulo		
Sete Quedas (Ilha, approx.)	23° 45'S	54° 00'W	Buritizal	20° 11'S	47° 44'W
State of Pernambuco			Campos do Jordao	22° 44'S	45° 35'W
Aldeia	07° 50'S	35° 07'W	Franca	20° 32'S	47° 23'W
Arapipina	07° 37'S	40° 34'W	Itirapina (8 km W. of)	22° 16'S	47° 54'W
Arcoverde	08° 26'S	37° 04'W	Piracicaba	22° 43'S	47° 38'W
Belem do Sao Francisco	08° 45'S	38° 38'W	Piraçununga	22° 00'S	47° 25'W
Bonito	08° 29'S	35° 44'W	Rio Claro to San Carlos (betw.)	22° 15'S	47° 42'W
Buique	08° 37'S	37° 10'W	Salto Grande	22° 53'S	49° 58'W
Caruaru	08° 17'S	35° 55'W	Sao Jose do Barreiro (Serra da Bocaina)	22° 37'S	44° 35'W
Gravatá	08° 12'S	35° 34'W	Sao Paulo (City of)	23° 30'S	46° 31'W
Gravatá to Pesqueira (between)	08° 12'S	35° 34'W	State of Sergipe		
Gurjau (Cabo)	08° 20'S	35° 00'W	Areia Branca	11° 18'S	37° 33'W
Igaracu	07° 51'S	34° 55'W	COLOMBIA		
Mimoso to Arcoverde (between)	08° 26'S	37° 00'W	Depto Atlántico		
Recife City of	08° 02'S	34° 55'W	Puerto Colombia	11° 00'N	74° 57'W
Serra Talhada	07° 58'S	38° 18'W	Depto Cundinamarca		
State of Rio de Janeiro			Las Mesitas (near Bogotá)	04° 40'N	74° 10'W
Angra dos Reis	23° 02'S	44° 19'W	Depto Magdalena		
Boca do Mato (in City of Rio de Janero)	22° 45'S	43° 25'W	Aracataca	10° 36'N	74° 11'W
Corcovado	22° 56'S	43° 18'W	Rio Frio	10° 55'N	74° 10'W
Doutor Matos	21° 27'S	41° 34'W	Tucurinca	10° 39'N	74° 10'W
Floresta de Tijuca	22° 55'S	43° 18'W	Depto Meta		
Guapimirim	22° 32'S	42° 58'W	Villavicencio	04° 10'N	73° 40'W
Seropedica (Km 47 old Rd. Rio-S..Paulo)	22° 47'S	43° 47'W	Puerto López	04° 06'N	72° 57'W
Sernambetiba	23° 02'S	43° 28'W	COSTA RICA		
State of Rio Grande do Sul			Guanacaste (National Park, center of)	10° 57'N	85° 33'W
Barro Vermelho	30° 10'S	53° 11'W	Pozo azul de Pirris (Peninsula Osa, aprox.)	08° 34'N	67° 18'W
Nonoai	27° 22'S	53° 29'W			

ECUADOR		
Posorja in Prov. Guayas	02° 43'S	80° 15'W
GUATEMALA.		
Escuintla to Tiquisate (between)	14° 18'N	90° 47'W
HONDURAS.		
Progreso	15° 21'N	86° 16'W
Tela	15° 47'N	87° 28'W
MEXICO.		
State of Chiapas		
Ocozoquantla	16° 46'N	93° 22'W
State of Colima		
City of Colima (8 mi S of)	19° 13'N	103° 44'W
State of Michoacan		
Playa Azul (near)	17° 58' N	102° 20' W
Road Ixtapa-Altamirano (20 km NE of)	18° 25'N	100° 40'W
State of Oaxaca		
Almolayas	16° 45'N	95° 04'W
Jalapa del Marqués (2 mi E of)	16° 26'N	95° 26'W
Tequisistlán (45 mi NW of)	Not found	
State of Quintana Roo		
Nuevo X-Can	20° 53'N	87° 35'W
State of Veracruz		
Medellín	19° 03'N	96° 10'W
State of Yucatán		
Chichén Itzá	20° 40'N	88° 35'W
Izamal	20° 57'N	88° 35'W
Buctotz (W. of)	21° 12'N	88° 48'W
Mérida	20° 59'N	89° 37'W
Tunkás (E. of)	20° 54'N	88° 43'W
NICARAGUA		
San Juan del Norte (Greytown)	10° 55'N	83° 43'W
PANAMA		
Canal Zone, several localities (approx.)	09° 03'N	79° 36'W
PARAGUAY		
Depto Alto Paraná		
Puerto Presidente Franco	25° 32'S	54° 38'W
Puerto Bertoni	25° 37'S	54° 37'W
Depto Amambay		
Cerro Corá	22° 37'S	55° 59'W
Depto Boquerón (Chaco)		
Cerro León	25° 23'S	60° 18'W
Depto Caaguazú		
Caaguazú	25° 28'S	56° 01'W
Curuguatí	24° 31'S	55° 40'W
Yhú	25° 03'S	55° 56'W
Depto Cordillera		
Itacurubí	23° 20'S	57° 22'W

Depto Concepción		
Horqueta	23° 24'S	56° 34'W
Itacurubí	23° 20'S	57° 22'W
Depto Itapúa		
San Rafael (8 km N. of)	24° 25'S	55° 40'W
Depto Guairá		
Villarica	25° 42'S	56° 25'W
Depto Paraguari		
Paraguari	25° 40'S	56° 57'W
PERU		
Depto Cusco		
Kiteni on River Urubamba	12° 22'S	72° 52'W
Depto Junín		
Chanchamayo (prob.)	13° 42'S	75° 48'W
Chanchamayo (prob.)	14° 09'S	75° 41'W
Rio Perené (prob.)	11° 00'S	74° 33'W
Puerto Yessup	10° 27'S	74° 54'W
Satipo	11° 15'S	74° 44'W
Depto San Martín		
San Roque de Cumbaza	06° 22'S	76° 47'W
URUGUAY		
Whole country	From 30° 05'S to 35° 00'S,	from 53° 11'W to 58° 26'W
Depto Artigas		
Arroyo Invernada	30° 49'S	56° 01'W
Depto Florida		
Casupá	34° 02'S	55° 39'W
Depto Paysandú		
Puerto Pepeají	32° 00'S	58° 08'W
Depto Rio Negro		
Rincón de Fray Bentos	33° 20'S	58° 17'W
Depto Rivera		
Sierra de la Aurora	31° 00's	55° 41'W
Depto Tacuarembó		
Puntas Arroyo Laureles	31° 15'S	56° 03'W
Tacuarembó Chico	31° 34'S	56° 58'W
VENEZUELA		
State of Aragua		
Portachuelo, Rancho Grande	10° 20'N	67° 34'W
Cagua	10° 11'N	67° 28'W
El Limón	10° 19'N	67° 40'W
State of Bolivar		
Rio Panagua, E of Rio Chiguao	06° 47'N	63° 02'W
El Barroso, Rio Matupo	07° 26'N	61° 13'W
Ciudad Bolívar	08° 06'N	63° 34'W
El Pao	08° 04'N	62° 39'W

State of Carabobo			El Chivo (tentative, mid-state)		
Palmichal (near Canuabe, tentative)	10° 01'N	67° 45'W	08° 41'N	71° 02'W	
San Esteban	10° 25'N	68° 01'W	State of Monagas		
State of Falcón			Jusepin	09° 47'N	63° 29'W
Curimagua (tentative, mid-state)	10° 55'N	69° 39'W	State of Portuguesa		
State of Guárico			Guanare	09° 03'N	69° 46'W
Calabozo area, S of Rio Orituco	08° 45'N	67° 18'W	State of Táchira		
State of Miranda			San Antonio de Táchira	07° 49'N	72° 26'W
Est. Exp. Rio Negro, (near Capaya)	10° 24'N	66° 07'W	Complejo Hidroelectr. Ruiz Pinedo	07° 47'N	71° 47'W
State of Mérida			State of Trujillo		
			Santa Isabel (tentative, mid-state)	09° 19'N	70° 32'W
			State of Zulia		
			Kasmera on Rio Yasa	09° 56'N	72° 31'W

APPENDIX III Tables of measurements

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
m	800	419	350	15	47	85	132	318	213	192	28	19	39	18	20	55	59	49	39	10
m	801	432	343	13	49	76	125	319	211	188	28	18	35	16	19	56	62	48	42	9
m	802	443	329	13	47	80	127	354	210	187	27	20	38	17	19	60	66	50	42	10
m	803	350	315	12	41	64	105	255	178	149	26	17	23	16	18	51	54	46	35	11
m	804	392	316	13	42	69	111	288	186	167	27	19	27	18	20	51	55	49	39	10
m	805	410	347	13	46	78	124	305	197	179	27	19	30	16	19	57	63	48	40	10
m	806	358	304	12	42	68	110	259	180	162	27	16	26	16	17	48	52	43	35	10
m	807	367	315	13	45	73	118	271	178	161	27	19	30	15	17	51	56	47	36	10
m	808	417	326	13	44	77	121	313	203	177	27	17	31	16	18	52	61	46	42	10
f	809	556	487	19	70	118	188	403	291	263	36	22	63	26	28	90	94	64	53	11
f	810	612	510	18	73	122	195	462	314	284	35	23	68	27	28	93	98	68	58	10
f	811	630	541	17	72	128	200	483	320	293	36	23	62	27	29	94	99	67	58	10
f	812	533	465	15	62	102	164	378	255	221	33	21	46	23	26	80	85	61	49	10
f	813	481	442	15	60	87	147	353	225	205	30	18	39	22	23	71	78	56	47	10
f	814	511	461	16	65	102	167	384	257	226	29	17	40	21	24	75	86	55	48	11
f	815	480	412	15	56	79	135	351	232	208	30	18	35	23	25	66	71	57	45	11
f	816	583	481	18	68	111	179	425	279	260	36	22	45	25	28	80	85	65	54	10
f	817	603	486	17	69	110	179	445	279	246	29	20	47	24	27	90	100	59	56	10

Table 3. *Xyleus discoideus discoideus* (Serville), measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; eye, max.: K, eye, min. L, height of pronotal crest. **M - R, widths:** M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female. BRASIL. Rio de Janeiro, Floresta de Tijuca, 800, 801, 809: Espirito Santo, Cariacica, 802: Minas Gerais, Barbacena, 803: Rio Grande do Sul, Ronda Alta, 806: Rio de Janeiro, Represa Tres Rios, 810: Espirito Santo, Jaguaré, 811: Minas Gerais, Carangola, 812: Rio Grande do Sul, Nonoai, 815. ARGENTINA. Misiones, Iguazú, 804, 813: Entre Rios, Pronunciamiento, 805, 814. PARAGUAY. Sapucay, 807, 816. URUGUAY. Tacuarembó, Arroyo Malo, 808; Florida, Casupá, 817.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	689	340	285	11	33	57	90	254	166	146	26	17	30	12	15	49	58	40	36	10
M	690	322	280	10	39	57	96	236	165	149	27	16	31	13	14	48	56	41	36	9
M	691	327	280	10	37	68	105	246	168	152	24	17	33	13	15	48	54	40	38	10
M	693	370	277	11	40	76	116	269	191	174	27	17	35	15	17	51	59	43	39	9
M	694	326	290	10	39	72	111	265	184	174	29	19	36	14	17	54	62	46	40	10
M	695	328	250	10	37	58	95	242	161	145	25	16	27	13	15	46	55	40	37	10
M	696	394	272	10	37	63	100	262	168	154	27	17	27	12	15	51	60	42	38	10
F	697	479	420	13	55	77	132	350	232	210	31	19	40	18	21	72	80	54	50	10
F	698	502	418	14	57	78	135	373	250	216	30	19	40	19	21	75	85	55	53	9
F	699	550	488	16	70	116	186	390	290	254	35	22	51	26	27	92	106	64	65	10
F	700	527	438	15	59	102	161	388	278	261	34	22	48	22	25	85	98	61	62	10
f	701	540	475	15	66	111	177	393	288	264	35	21	59	24	28	89	96	64	64	10
f	702	504	390	13	58	99	157	380	266	236	35	19	50	22	25	80	90	60	57	10
f	704	477	395	14	58	89	147	349	251	225	32	19	45	21	24	78	85	56	51	10

Table 4. *Xyleus discoideus angulatus* (Stål), measurements in tenths of a mm (Fig.47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, widths: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex, #, specimen number: m, male; f, female. BRASIL. Bahia, Feira de Santana, 689, 697; Bahia, Cruz das Almas, 690; Rio Grande do Norte, Natal, 691; Piaui, Marcolandia, 693, 701; Paraiba, Brandão, 694; Pernambuco, Recife, 695; Pernambuco, Caruaru, 696; Bahia, Jequie, 698; Ceara, Crato, 699; Bahia, Jaguarari, 700; Pernambuco, Mimoso, 702; Pernambuco, Gurjau, 703; Pernambuco, Serra Talhada, 704.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	h	388	338	10	47	68	115	287	210	184	30	18	34	14	18	55	68	46	50	10
Mp	705	433	345	11	40	75	115	335	205	179	28	18	39	14	17	52	62	44	44	11
Mp	706	441	366	12	42	83	125	335	221	194	30	19	41	15	18	58	66	48	45	11
Mp	707	400	341	12	47	74	121	298	207	178	30	19	32	15	18	58	66	49	48	10
Mp	708	405	303	12	41	73	114	300	210	183	31	20	37	14	16	54	65	46	48	10
Mp	709	469	373	14	46	85	131	362	218	193	29	20	39	16	19	59	72	50	49	11
Mp	710	402	340	12	41	76	117	304	215	189	31	20	33	14	18	56	68	50	50	10
Mp	711	408	346	12	41	67	108	308	210	184	30	20	31	14	17	52	63	47	45	10
Mp	712	434	336	13	45	86	131	329	211	186	29	19	47	15	18	61	73	50	47	10
m	721	463	395	12	42	87	129	358	219	199	31	20	42	15	19	59	72	47	48	10
fp	713	589	502	17	61	103	164	452	286	258	36	23	50	23	24	82	94	61	60	10
fp	714	544	436	15	62	115	177	404	291	248	36	22	59	22	24	74	91	60	57	10
fp	715	512	430	16	57	97	154	380	280	251	34	21	54	22	25	81	94	58	60	10
fp	716	568	493	15	60	108	168	424	299	260	38	22	55	22	25	86	98	63	60	10
fp	717	552	503	15	62	108	170	414	277	241	36	21	56	21	24	82	91	60	60	10
fp	718	517	452	17	61	106	167	380	261	231	33	20	55	20	23	73	89	59	51	10
f	722	643	509	16	67	120	187	500	317	287	35	23	55	24	27	90	99	66	61	10

Table 5. *Xyleus discoideus venezuelae* n. ssp., measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, widths: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex #, specimen number: m, male; f, female; h, holotype; p, paratype. VENEZUELA. Falcon, Curimagua, holotype: Merida, El Chivo, 705; Zulia, Sierra Perija, 706; Carabobo, Palmichal, 707; Carabobo, Mariara, 708; Tachira, Ruiz Pineda, 709; Miranda, Est. Exp. Rio Negro, 710; Aragua, El Limón, 711; Bolivar, Rio Paragua, 712; Aragua, Cagua, 713; Portuguesa, Guaviare, 714, 715; Bolivar, El Pao, 716; Bolivar, Ciudad Bolivar, 717; Aragua, 718. BRASIL. Roraima, Rio Surumu, 721, 722.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Mh	pg	440	380	12	48	88	136	335	220	190	30	20	30	16	19	55	62	45	42	10
M	675	485	395	13	50	91	141	379	228	206	33	21	34	15	19	61	70	50	49	10
M	676	472	370	12	44	94	138	368	221	200	32	20	42	14	18	58	66	48	46	10
M	678	466	390	11	46	91	137	359	235	210	33	20	40	15	18	60	69	50	50	10
M	680	425	360	14	46	77	123	314	211	193	32	20	36	15	19	56	65	51	44	10
M	621	489	375	12	46	97	143	383	240	213	32	21	44	16	18	60	68	50	50	10
M	818	428	311	10	41	87	128	324	205	185	30	19	35	14	18	52	61	48	44	10
M	819	350	292	10	42	77	119	255	173	153	26	16	30	14	16	47	54	47	35	10
f a	pg	550	470	15	68	125	193	440	325	280	37	24	44	25	28	78	90	60	55	10
f	682	668	531	15	63	131	194	521	334	310	35	22	62	23	25	93	104	65	68	10
f	683	666	605	15	70	141	211	515	332	293	39	23	70	24	28	95	109	65	67	10-11
f	684	698	613	14	67	130	197	543	345	298	37	24	63	24	26	90	105	65	66	11
f	685	650	514	15	58	111	169	508	299	266	34	22	45	20	23	79	90	59	57	11
f	686	531	486	16	61	110	171	406	280	249	55	20	45	22	25	73	82	58	50	10
f	687	507	441	18	60	111	171	429	284	255	35	22	52	23	26	80	91	62	58	10

Table 6. *Xyleus discoideus rosulentus* (Stål), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; a, allotype; pg, measurements taken from photograph. COLOMBIA. Aracataca, 675, 676, 683; Tucurínca, 678; Puerto López, 680, 686; Río Frio, 621, 682, 685; Mamatoco, 818; Las Mesitas, 819; Las Pavas, 684; Villavicencio, 687.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	786	421	359	12	48	95	143	314	214	191	30	18	44	16	19	58	65	49	46	11
M	787	437	372	13	50	106	156	321	233	211	32	19	46	17	19	60	71	52	52	11
M	788	374	338	14	41	83	124	271	208	184	28	19	38	14	18	58	71	47	49	10
M	789	398	355	12	43	90	133	298	211	187	28	18	42	16	18	59	72	45	48	11
M	790	427	363	15	50	88	138	309	237	210	31	21	40	18	20	59	67	51	50	13
M	791	401	365	13	53	95	148	290	216	198	31	21	43	17	20	59	65	51	48	13
M	792	448	396	14	50	95	145	336	251	228	31	19	48	19	21	60	68	50	50	12
f	793	601	568	19	73	138	211	430	320	295	40	23	72	28	30	97	107	70	72	12
f	794	567	531	15	64	138	202	406	282	253	36	22	65	24	27	92	103	64	61	11
f	795	365	365	14	53	96	149	285	243	215	31	21	48	22	23	76	93	57	61	10
f	796	513	484	15	61	122	183	381	289	250	32	20	64	22	25	87	102	56	64	10
f	797	621	566	20	78	140	218	443	364	328	37	25	66	30	34	100	110	72	73	12
f	798	621	567	18	73	131	204	450	337	311	38	23	67	27	29	86	97	72	67	12
f	799	546	600	19	67	129	196	393	320	293	38	24	58	27	30	90	99	70	62	13

Table 7. *Xyleus discoideus mexicanus* (Bruner), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female. MEXICO. Oaxaca, Jalapa del Marques, 786: Oaxaca, Almolayas, 787, 793: Yucatan, Izamal, 788: Quintana Roo, Nuevo X-Can, 789, 796: Michoacan, Ixtapa-Altamirano Road, 794: Yucatan, Tunkas, 795. NICARAGUA. Managua, 790, 797: Rivas Javillo, 798. COSTA RICA. Guanacaste, 792, 799.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	650	437	360	12	40	83	123	331	222	200	27	17	28	17	20	50	60	43	40	14
M	651	396	315	11	43	84	127	304	200	193	27	17	33	16	19	47	55	43	35	13
M	652	404	338	11	45	90	135	301	193	174	27	17	33	16	18	50	57	41	37	12
M	653	439	366	11	46	87	133	335	213	185	27	18	36	19	20	50	59	45	40	13
M	654	406	344	10	40	88	128	309	207	186	25	15	33	16	18	50	58	41	38	13
M	655	373	298	11	43	78	121	287	200	185	26	16	29	16	18	45	54	42	36	14
F	656	553	454	15	58	106	164	421	261	236	29	18	38	22	25	70	82	53	50	13
F	657	511	422	16	61	100	161	384	261	222	28	18	37	25	27	62	71	55	47	12
f	658	505	425	13	53	193	156	377	255	293	26	18	40	24	25	67	78	49	46	15
f	659	552	456	13	65	115	180	424	288	255	29	19	54	26	30	77	90	55	55	13
f	660	533	441	14	53	99	152	405	286	256	29	18	41	23	26	69	80	55	50	16
f	661	540	440	16	60	114	174	408	260	235	35	17	38	23	26	73	84	55	49	12
f	662	607	474	15	61	119	180	461	304	289	33	18	46	25	27	73	87	58	51	12

Table 8. *Xyleus laevipes* (Stål), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female. ARGENTINA. Chaco, Resistencia, 650: Salta, Tartagal, 652: Chaco, Arroyo Palometa, 653: Santa Fe, Arocena, 654: Santa Fe, Carcarañá, 656: Salta, San Lorenzo, 661. URUGUAY. Tacuarembó, Arroyo Laureles, 651: Rivera, Sierra de la Aurora, 655, 658: Rio Negro, Rincón de Fray Bentos, 659: Artigas, Arroyo Invernada, 660. PARAGUAY. Cordillera, Itacurubí, 662. BRASIL. São Paulo, Itirapina, 657.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	723	374	283	10	39	58	97	281	181	163	24	15	25	13	16	51	60	42	41	10
M	724	397	315	12	48	71	119	290	201	177	30	20	33	15	17	56	66	47	43	11
M	725	365	286	11	41	61	102	275	175	155	27	18	31	15	18	52	60	44	43	10
M	726	318	245	9	35	54	89	293	154	135	22	16	25	13	16	48	56	37	38	10
M	727	340	298	10	36	52	88	250	172	150	26	17	25	15	17	47	56	43	41	10
M	728	328	275	12	35	58	93	236	174	161	25	18	28	14	17	50	59	45	41	10
M	729	378	290	12	42	63	105	282	189	170	26	17	30	15	17	51	59	44	40	10
M	730	384	322	12	41	68	109	290	189	167	27	17	27	14	16	52	60	45	39	10
M	731	416	325	13	42	69	111	317	199	177	30	19	30	15	17	56	67	48	44	10
M	732	341	284	11	40	61	101	250	180	153	24	17	27	13	16	45	56	39	40	10
f	733	496	402	13	50	76	126	366	242	210	29	20	38	19	24	71	82	53	52	10
f	734	541	437	17	59	90	149	398	250	235	33	20	47	21	23	80	90	57	56	10
f	736	503	401	16	58	88	146	367	258	220	32	20	44	21	24	76	86	56	58	11
f	737	488	411	13	57	93	150	359	252	210	30	19	44	21	24	78	86	60	58	10
f	738	402	376	12	48	77	125	336	217	194	28	19	36	19	21	65	75	53	49	11
f	739	478	456	14	55	81	136	349	240	211	27	18	40	20	24	75	86	52	56	10
f	740	451	425	14	50	74	124	326	245	212	33	20	36	21	23	72	81	58	57	10
f	741	555	459	17	63	108	171	410	292	251	33	21	62	22	24	83	98	59	60	10
f	742	441	379	13	50	81	131	323	214	185	27	18	40	21	23	68	78	51	52	10

Table 9. *Xyleus modestus* (Giglio-Tos), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female. ARGENTINA. Chaco, Resistencia, 723: Tucuman, Vipos, 726, 737: Salta, S. Forestal, 727: Salta, Aguaray, 732: Chaco, Arroyo Palometa, 733: Salta, Urundel, 738: Catamarca, 20 km S of Catamarca, 739: Santiago del Estero, SE of Rio Hondo, 742. BRASIL. Rondonia, Ouro Preto do Oeste, 724: Mato Grosso do Sul, Corumba, 728, 743: Mato Grosso, Corginho, 729: Mato Grosso, Chapada dos Guimarães, 730, 731: Mato Grosso do Sul, Aquidauana, 734. PARAGUAY. Paraguari, Sapucay, 725, 736: Chaco, Cerro León, 740. BOLIVIA: Santa Cruz, Naranjales, 741.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Mh	773	413	355	14	47	75	122	301	207	180	30	20	33	16	19	57	68	47	42	10
Mp	775	390	320	13	43	78	121	289	200	171	29	19	35	15	17	57	67	44	41	10
Mp	776	405	321	14	49	79	128	305	198	182	28	19	36	16	18	54	65	47	39	11
Mp	777	425	321	14	45	78	123	324	203	177	28	19	33	15	17	58	68	45	41	10
Mp	778	403	329	14	40	82	122	306	190	167	26	17	37	14	16	53	65	42	39	10
Mp	779	393	304	14	42	75	117	295	185	160	27	18	27	13	16	53	63	44	39	10
fp	780	550	486	18	68	112	180	410	274	245	32	21	62	23	25	90	100	59	58	10
fp	781	567	473	18	67	114	181	420	294	254	35	23	60	24	26	87	97	61	57	10
fp	782	536	477	16	62	104	166	401	279	249	32	20	60	22	25	84	87	58	59	10
fp	783	552	492	17	60	115	175	417	280	246	33	20	62	21	24	83	100	56	56	10
fp	784	543	439	17	63	101	164	415	255	224	35	20	45	21	22	81	92	57	53	10
fp	785	508	455	19	62	101	163	384	252	220	29	18	42	20	22	76	92	52	51	10

Table 10. *Xyleus andinus* n. sp., measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. **L**, height of pronotal crest. **M - R, widths:** M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. **S**, number of spines on hind tibiae. **Sx**, sex. #, specimen number: **m**, male; **f**, female; **h**, holotype; **p**, paratype. BOLIVIA. Santa Cruz, Prov. Sara, 773, 780, 783: Santa Cruz, Naranjales, 775, 781: Santa Cruz, 776: Alto Beni, Palos Blancos, 777: Santa Cruz, Buena Vista, 782. PERU. Puerto Jessup, 778: Cusco, La Convención, Kiteni, 779: Satipo, 784: Chanchamayo, 785.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
mh	763	342	275	10	37	62	99	249	169	151	28	17	22	14	17	39	44	43	32	10
mp	764	364	303	10	41	70	111	262	167	152	28	17	24	14	18	45	50	44	34	10
mp	765	364	288	11	37	72	109	265	173	149	28	17	25	14	17	42	50	43	33	10
mp	766	366	321	11	38	65	103	275	178	158	27	17	24	14	17	41	48	43	35	10
mp	767	386	324	11	38	77	115	290	181	161	26	17	22	16	18	40	48	44	36	10
mp	768	345	296	11	39	67	106	254	160	150	26	17	23	14	18	43	45	40	34	10
mp	769	345	294	11	38	65	103	246	176	150	29	19	26	15	19	42	46	46	35	10
fp	770	451	390	14	50	82	132	334	225	195	29	18	33	19	22	61	66	51	45	10
fp	771	523	462	14	50	85	135	333	218	197	31	19	34	20	23	60	63	52	44	10
fp	772	457	381	14	44	81	125	346	207	184	28	17	23	18	21	52	59	50	41	10

Table 11. *Xyleus goias* n. sp., measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. **L**, height of pronotal crest. **M - R, widths:** M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. **S**, number of spines on hind tibiae. **Sx**, sex. #, specimen number: **m**, male; **f**, female; **h**, holotype; **p**, paratype. BRASIL. Goiás, Minaçu, 763-768, 770, 771: Goiás, Curvelo, 769: Mato Grosso, Chapada dos Guimarães, 772.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	h	324	288	11	41	56	97	238	168	154	28	18	25	16	18	43	47	44	37	10
M	610	362	338	11	46	63	109	266	182	162	30	19	26	18	21	49	55	49	43	10
M	611	321	287	10	41	56	97	232	166	150	27	17	30	16	18	51	56	45	39	10
M	612	349	300	11	43	60	103	254	180	156	29	18	28	16	18	48	53	48	42	10
M	613	350	292	11	40	61	101	265	180	158	27	18	26	15	19	46	52	45	41	9
M	614	351	300	12	43	59	102	253	177	150	28	18	27	17	19	48	53	45	41	10
f?	616	464	393	14	49	73	122	345	232	202	33	20	32	22	25	68	77	57	58	9-10
f?	620	465	391	17	62	90	152	327	240	202	35	22	42	23	27	70	78	60	55	9-10
f?	622	402	372	14	49	70	119	287	211	187	33	19	40	21	24	64	70	55	52	9-10

Table 12. *Xyleus regularis* (Bruner), measurements in tenths of a mm (Fig.47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. **L**, height of pronotal crest. **M - R, widths:** M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. **S**, number of spines on hind tibiae. **Sx**, sex. #, specimen number: **m**, male; **f**, female; **h**, holotype; **?**, identity doubtful, regularis or guarani. PARAGUAY. Sapucay, holotype, 612, 613: Caaguazú, 616. BRASIL. Goiás, Ponte Funda, 610: Minas Gerais, Gouveia, 611: São Paulo, Rio Claro-Sao Carlos, 614: São Paulo, Buritizal, 620: Goiás, Mineiros, 622.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Mh	pg	400	334	12	38	60	98	305	195	175	28	18	17	15	18	38	43	42	30	12-14
M	635	378	320	10	38	62	100	281	180	164	31	18	22	15	18	40	45	43	31	14
M	636	387	329	11	37	61	98	291	175	153	29	18	17	14	17	36	41	44	31	14
M	637	390	305	11	39	64	103	296	172	153	28	20	20	15	20	37	43	43	32	12
M	638	401	339	12	36	63	99	302	180	158	28	18	18	14	18	40	43	41	33	13
M	639	369	310	10	36	59	95	272	167	150	28	18	21	15	18	37	41	42	30	14
F	640	473	400	12	43	75	118	360	211	193	32	19	21	18	21	46	52	52	39	14
f	641	487	390	13	45	78	123	370	218	197	32	20	24	20	23	50	55	51	36	14
f	642	510	422	16	49	81	130	329	240	215	33	20	28	20	24	51	58	54	38	14
f	643	460	382	13	43	72	115	362	212	190	31	19	23	18	22	49	54	49	38	12
f	644	507	400	13	50	78	128	395	241	217	31	19	23	21	24	54	60	52	41	14
f	645	494	433	15	51	73	124	374	225	203	33	21	24	21	25	54	56	53	39	13

Table 13. *Xyleus attenuatus* (Rehn), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; pg, measurements taken from photograph. BRASIL. Mato Grosso, Chapada dos Guimarães, holotype, 635-643: Goiás, S. of Cristalina, 644: Sergipe, Areia Branca, 645.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Mh	647	394	318	12	36	63	99	300	183	163	28	19	19	14	16	37	41	41	33	14
Mp	648	415	333	13	40	68	108	317	202	176	28	19	20	15	19	39	42	42	32	14
f p	649	487	409	16	48	73	121	368	223	196	31	18	22	19	24	46	52	50	38	14

Table 14. *Xyleus araguaya* n. sp, measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; p, paratype. BRASIL. Mato Grosso, 30 km NW of Alto Araguaya.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	h	357	314	11	39	51	90	270	187	164	27	18	16	15	19	33	38	41	29	15
M	624	412	398	12	44	69	113	306	199	170	32	20	18	16	21	34	37	46	32	16
M	625	346	286	11	37	53	90	263	166	142	27	17	15	14	17	33	36	42	28	15
M	626	360	296	11	37	56	93	274	180	152	26	17	18	14	18	34	40	39	30	18
M	627	388	330	11	39	59	98	296	184	170	29	18	19	14	19	33	38	42	31	15
M	628	369	329	13	37	55	92	281	175	158	29	19	16	16	20	36	39	44	31	17
f	629	490	390	14	47	73	120	382	241	216	30	19	22	19	24	43	51	48	40	15
f	630	470	363	14	45	71	116	337	219	192	31	17	20	18	22	44	49	47	34	15
f	631	544	471	13	52	72	124	363	236	192	35	19	23	20	26	48	51	53	38	17
f	632	502	409	15	54	76	130	386	242	212	35	20	23	21	25	47	52	52	37	16
f	633	527	450	15	52	83	135	405	268	234	35	21	24	22	27	49	55	54	40	17
f	634	484	404	14	52	81	133	376	243	206	32	18	25	20	24	47	53	50	37	17

Table 15. *Xyleus gracilis* (Bruner), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype. BRASIL. São Paulo, São Paulo, holotype: São Paulo, Piracicaba, 624: São Paulo, Campos de Jordão, 625: Rio Grande do Sul, Santo Augusto, 626, 634: Goiás, Jataí, 627: Minas Gerais, Poços de Caldas, 628, 631, 632, 633: São Paulo, Itirapina, 629: Rio Grande do Sul, Ronda Alta, 630.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Mh	754	357	289	11	38	71	109	265	165	148	28	18	27	16	18	49	55	43	34	10
Mp	755	370	295	10	36	70	106	275	160	134	26	17	25	14	16	47	56	42	36	9
Mp	756	325	265	10	35	65	100	239	150	135	26	16	27	14	16	42	50	40	32	10
Mp	757	355	296	10	39	75	114	261	175	150	27	18	30	14	16	52	60	43	36	11
Mp	758	375	294	10	36	66	102	282	166	141	30	18	24	15	17	48	57	45	35	10
Mp	759	377	308	10	39	76	115	285	170	148	26	17	31	13	15	50	57	43	35	10
Mp	760	368	303	10	40	75	115	276	170	146	27	17	31	16	17	49	57	43	34	10
Mp	761	362	291	10	37	71	108	270	170	152	27	18	32	14	16	49	59	43	35	10
fp	762	455	406	13	48	87	135	345	209	192	31	19	33	19	22	62	75	54	41	10

Table 16. *Xyleus pirapora* n. sp, measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, widths: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; p, paratype. BRASIL. Minas Gerais, Pirapora, 754-762.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Fh	pg	530	420	17	49	76	125	410	260	240	32	17	22	21	25	49	55	51	35	19

Table 17. *Xyleus laufferi* (Bolivar), measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, widths: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; pg, measurements taken from photograph. PERU, Cumbase, holotype.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	669	408	327	12	42	83	125	268	196	172	29	18	29	16	18	54	61	46	44	11
M	670	389	320	13	40	68	108	289	184	164	27	17	26	16	19	49	55	44	41	10
M	671	341	300	11	39	61	100	255	173	156	24	17	28	15	17	48	55	42	40	11
M	672	388	280	11	36	58	94	260	155	135	24	16	24	15	17	47	53	41	37	10
M	673	417	346	12	43	77	120	308	196	174	25	18	31	15	19	57	65	45	43	10
M	674	346	305	11	38	62	100	251	173	151	26	16	29	15	17	48	54	41	40	11
Fh	pg	550	450	15	55	110	165	410	250	230	30	--	44	26	28	50	68	54	60	10
F	663	531	360	15	60	95	155	400	258	236	32	19	40	25	28	74	83	59	50	10
f	664	589	483	16	64	114	178	436	274	243	34	21	56	24	27	84	95	59	60	10
f	665	510	473	15	51	99	150	378	235	207	31	20	40	23	26	68	83	55	53	10
f	666	529	448	15	59	85	144	390	252	222	33	20	37	22	25	75	86	55	57	11
f	667	512	392	15	55	94	149	383	234	214	28	18	47	22	24	75	86	51	51	10
f	668	545	492	--	61	99	160	400	256	229	33	18	42	23	25	78	89	57	52	11

Table 18. *Xyleus insignis* (Giglio-Tos), measurements in tenths of a mm (Fig. 47).

SA - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, widths: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; pg, measurements taken from photograph. ARGENTINA. Chaco, Resistencia, 664, 669: Chaco. Arroyo Palometa, 670: Córdoba, 671, 674: Salta, S. of General Güemes, 672: La Rioja, Mascasin, 668, 673: Salta, Santa Rosa, holotype: Corrientes, Chavarría, 663: Catamarca, Dique Cayagasta, 665: Santiago del Estero, NE of La Banda, 666: Salta, Tala, 667.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	h	342	297	13	50	87	137	240	178	156	26	17	35	19	21	62	71	46	43	10

Table 19. *Xyleus aimara* n. sp., measurements in tenths of a mm (Fig. 47).

A - K, lengths: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, widths: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype. BOLIVIA. Chuquisaca, Sucre, holotype.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	744	356	291	10	41	85	126	253	162	174	26	16	38	16	18	49	55	42	36	10
M	745	379	304	10	42	86	128	287	175	151	25	17	38	17	19	48	54	44	38	11
M	746	377	309	10	44	81	123	277	176	151	26	17	40	16	18	53	60	44	37	10
M	748	366	305	10	42	83	125	274	173	150	25	16	35	16	18	48	55	43	36	10
M	749	360	295	10	39	85	124	267	173	150	27	18	38	16	18	48	54	43	35	11
M	750	394	316	11	46	86	132	292	189	162	26	18	37	17	19	50	56	45	39	10
M	751	399	318	10	41	86	127	292	184	157	25	16	35	17	19	51	58	42	38	10
F	752	484	416	14	56	108	164	354	238	207	31	19	45	25	26	68	73	56	49	10
f	753	450	420	14	55	101	156	325	216	190	30	18	50	22	23	64	73	52	44	10
f	754	496	423	14	53	104	157	374	227	205	32	19	46	20	23	70	83	55	45	10

Table 20. *Xyleus lineatus* (Bruner), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female. BRASIL. Mato Grosso, BR 364, km 616, 744: Mato Grosso, Chapada dos Guimarães, 746: Goiás, Município Formosa, 748: Mato Grosso do Sul, 100 km N. of Campo Grande, 749: São Paulo, Itirapina, 750, 751: Goiás, Jatai, 753: Minas Gerais (no locality), 754. PARAGUAY. Paraguari, Sapucay, 745, 752.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
M	h	325	292	11	44	63	107	235	175	154	29	18	33	16	18	50	55	46	42	10
M	605	347	309	11	46	65	111	247	175	151	31	19	31	16	19	58	65	48	50	10
M	606	312	285	10	38	58	96	225	166	133	28	18	28	16	19	49	55	47	44	9
M	607	343	316	10	40	57	97	251	179	163	29	19	29	16	18	49	56	47	42	10
M	608	347	300	10	40	66	106	250	184	151	30	18	32	15	19	54	63	48	46	9
M	609	344	290	11	45	66	111	242	174	146	29	18	35	17	20	54	59	46	45	9
f?	617	426	392	11	55	77	132	309	220	185	32	19	32	22	25	65	74	57	50	10
f?	618	432	403	11	52	76	128	315	221	197	33	21	32	23	25	65	70	56	51	10
f?	619	448	407	11	69	68	137	323	238	205	33	21	32	22	26	74	79	59	57	10
f?	621	397	367	11	52	72	124	284	206	185	33	19	35	21	23	61	66	55	45	10
f?	623	460	382	12	51	71	122	337	239	208	33	20	26	23	25	62	71	56	56	10

Table 21. *Xyleus guarani* (Rehn), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; ?, identity doubtful, *guarani* or *regularis*. PARAGUAY. Sapucay, holotype, 618, 621: Ihú, 623. BRASIL. Mato Grosso, BR 364, km 605, 605: São Paulo, Piraçununga, 606, Mato Grosso, Chapada dos Guimarães, 608: Mato Grosso, Gaúcho, 609: Goiás, 20 km S of Brasília, 617: São Paulo, Franca, 619. BOLIVIA. Santa Cruz, Prov. Sara, 607.

Sx	#	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Fh1	pg	290	360	10	60	100	160	150	220	200	25	15	40	25	25	80	90	60	40	--
Fh2	pg	250	370	15	60	95	155	190	220	200	25	1	40	--	--	--	--	--	40	--

Table 22. *Xyleus camposi* (Bolivar), measurements in tenths of a mm (Fig. 47).

A - K, **lengths**: A, frons to end of tegmen; B, frons to end of abdomen; C, fastigium; D, prozona; E, metazona; F, pronotum; G, tegmen; H, hind femur; I, hind tibia; J, eye, max.; K, eye, min. - L, height of pronotal crest. M - R, **widths**: M, interocular; N, fastigium; O, pronotum, max.; P, prothorax, max.; Q, head at eyes; R, hind femur. - S, number of spines on hind tibiae. Sx, sex. #, specimen number: m, male; f, female; h, holotype; pg, measurements taken from photograph. fh 1, female holotype of *Paralcamenes camposi*. fh 2, female holotype of *Colpolopha camposi*. Both from ECUADOR, Prov. Guayas, Posorja.

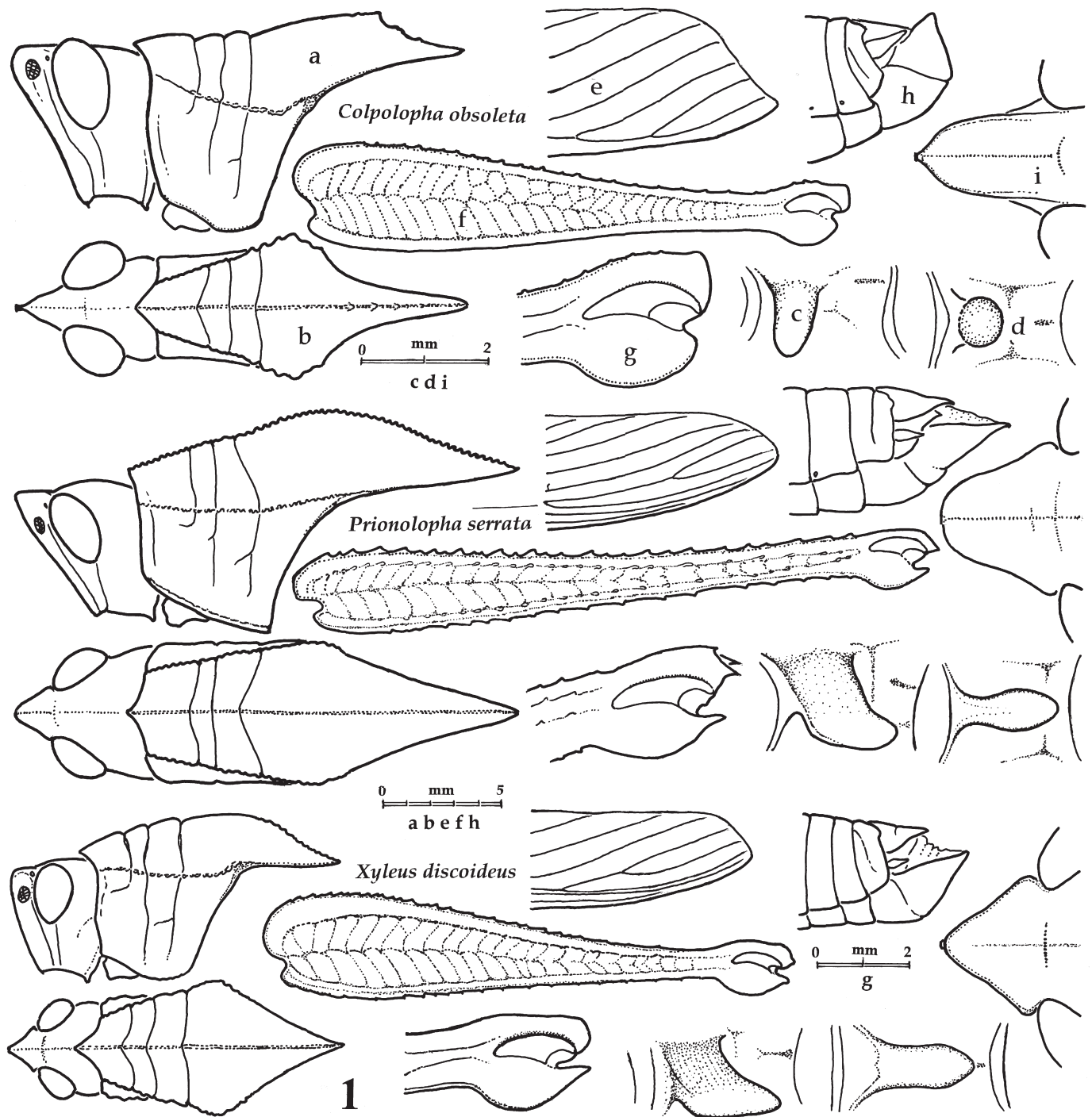


Fig. 1. Genera *Colpolopha*, *Prionolopha*, *Xyleus*, males (species as indicated). a, head and prothorax, lateral; b, head and prothorax, dorsal; c, prosternal tubercle, lateral; d, prosternal tubercle, ventral; e, end of tegmen, lateral; f, left hind femur, lateral; g, genicular lobe of left hind femur; h, end of abdomen, lateral; i, fastigium, dorsal.

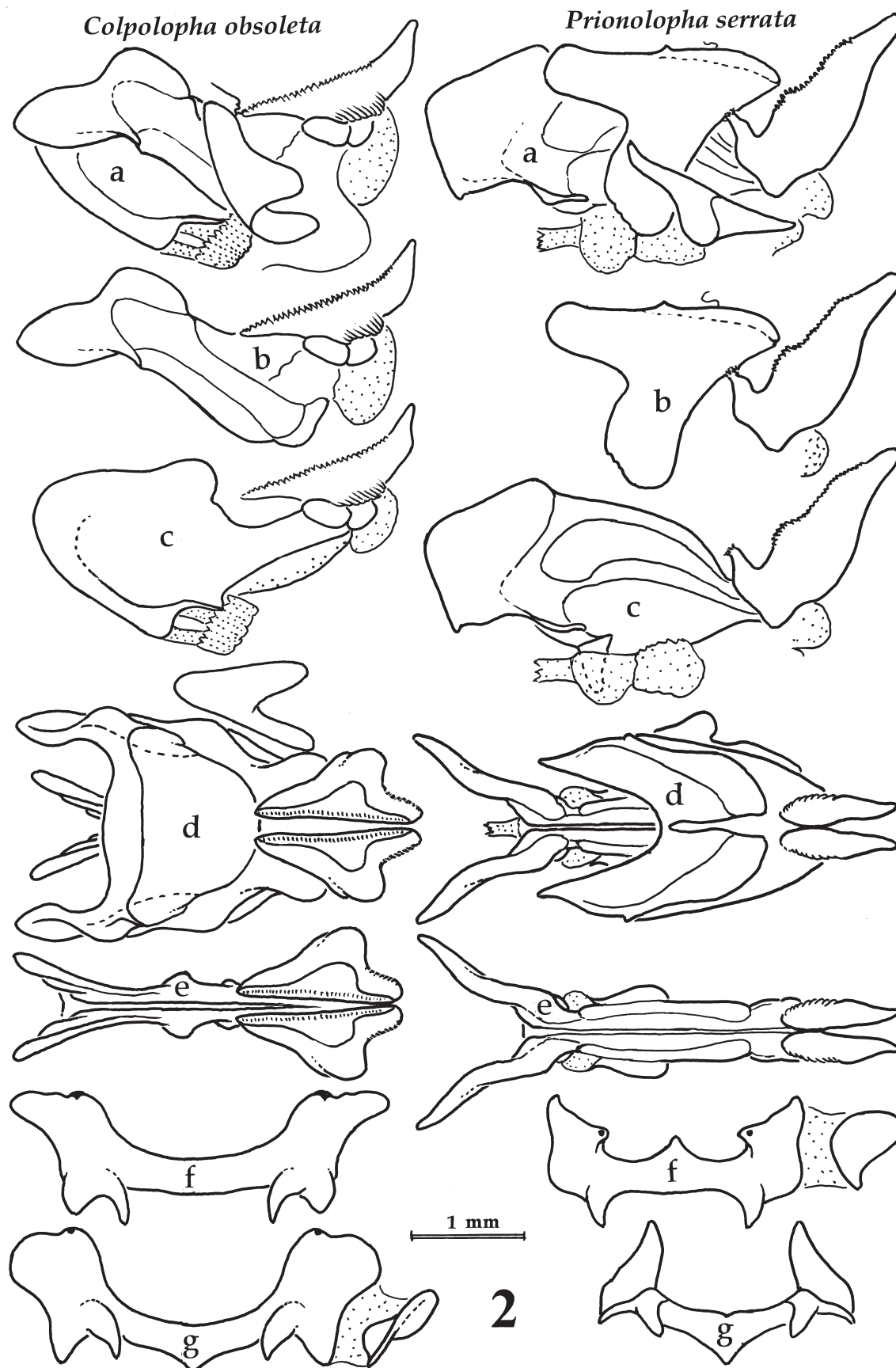


Fig. 2. *Colpolopha obsoleta* and *Prionolopha serrata* (as indicated). a, phallic complex without epiphallus, lateral; b, cingulum and apical endophallic valves, lateral; c, endophallus, lateral; d, phallic complex without epiphallus, dorsal; e, same without cingulum, dorsal; f, epiphallus, dorsal; g, same, frontal.

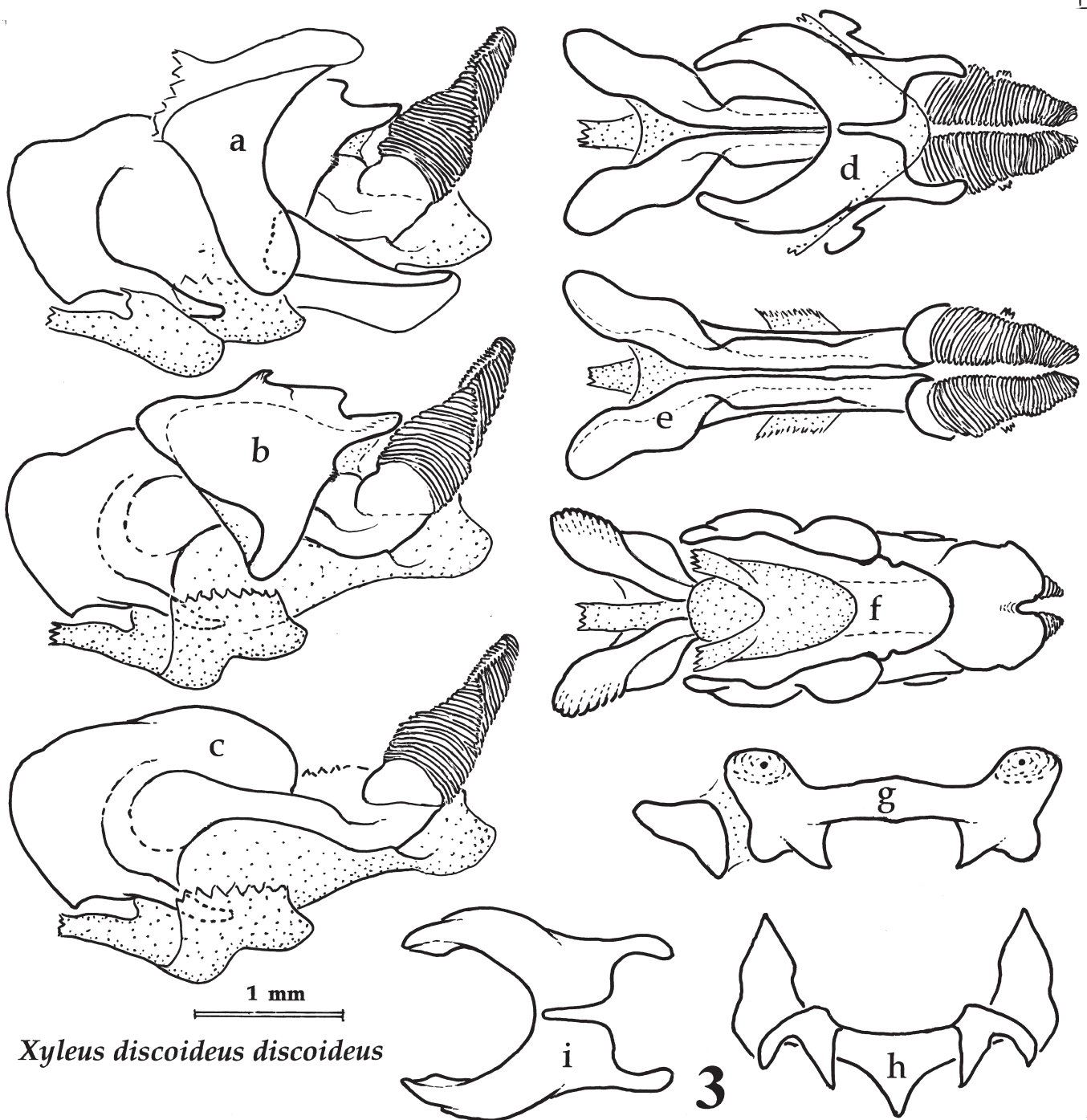


Fig. 3. *Xyleus discoideus discoideus*, phallic complex. a, phallic complex without epiphallus, lateral; b, same without lateral plates, lateral; c, same without cingulum; d, phallic complex without epiphallus, dorsal; e, same without cingulum, dorsal; f, whole complex, ventral; g, epiphallus, dorsal; h, same, frontal; i, cingulum, dorsal.

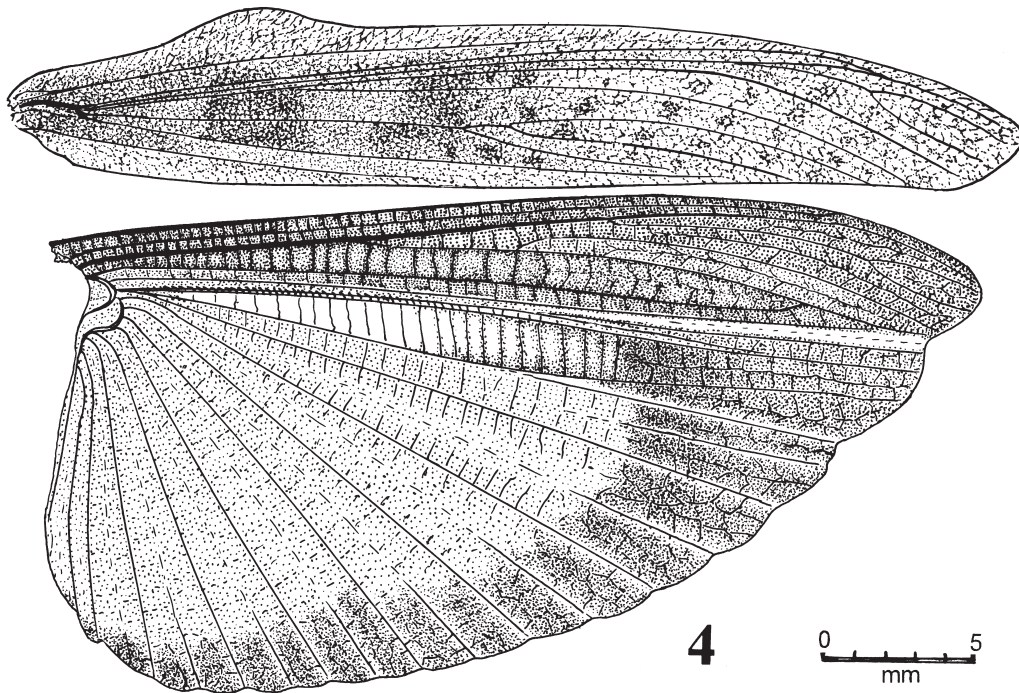


Fig. 4. Tegmen and hind wing (right) of *Xyleus d. discoideus*. Color pattern of the wing is similar in all species of the genus. The remigium and the band along the margin of the vannum are of a color that usually varies between chestnut and russet. The basal part of the vannum is pale chrome orange (but in different species may vary between flame scarlet and spectrum orange). In the anterior part of the vannum, between A1 and A2 is a series of arched serrated veinlets that act as a scraper during stridulation. Right behind them, between V2 and V3, a wide hyaline area that must radiate sound during stridulation.

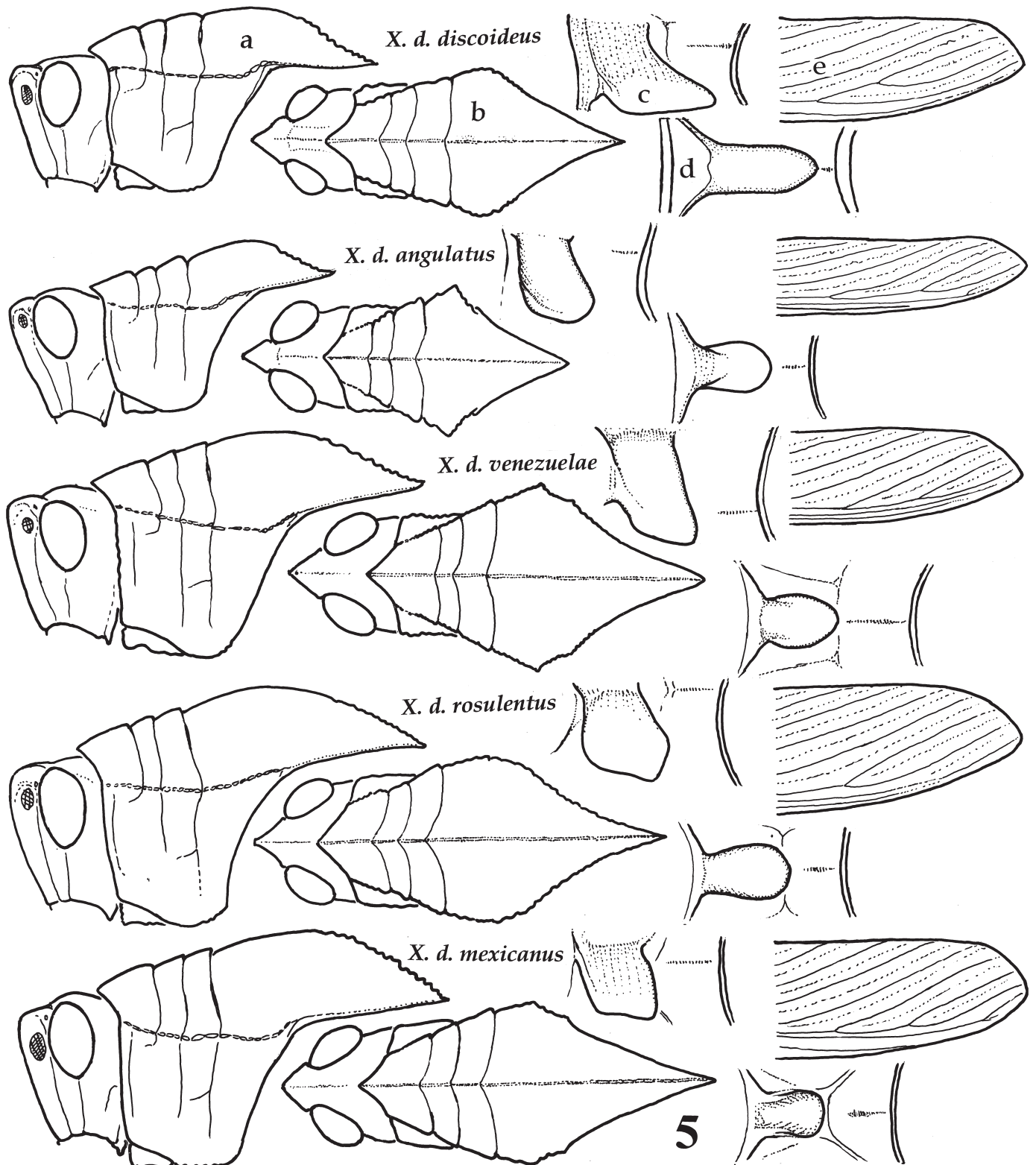


Fig. 5. *Discoideus* group. Males (species as indicated). a, head and prothorax, lateral; b, head and prothorax, dorsal; c, prosternal tubercle, lateral; d, prosternal tubercle, ventral; e, end of left tegmen, lateral.

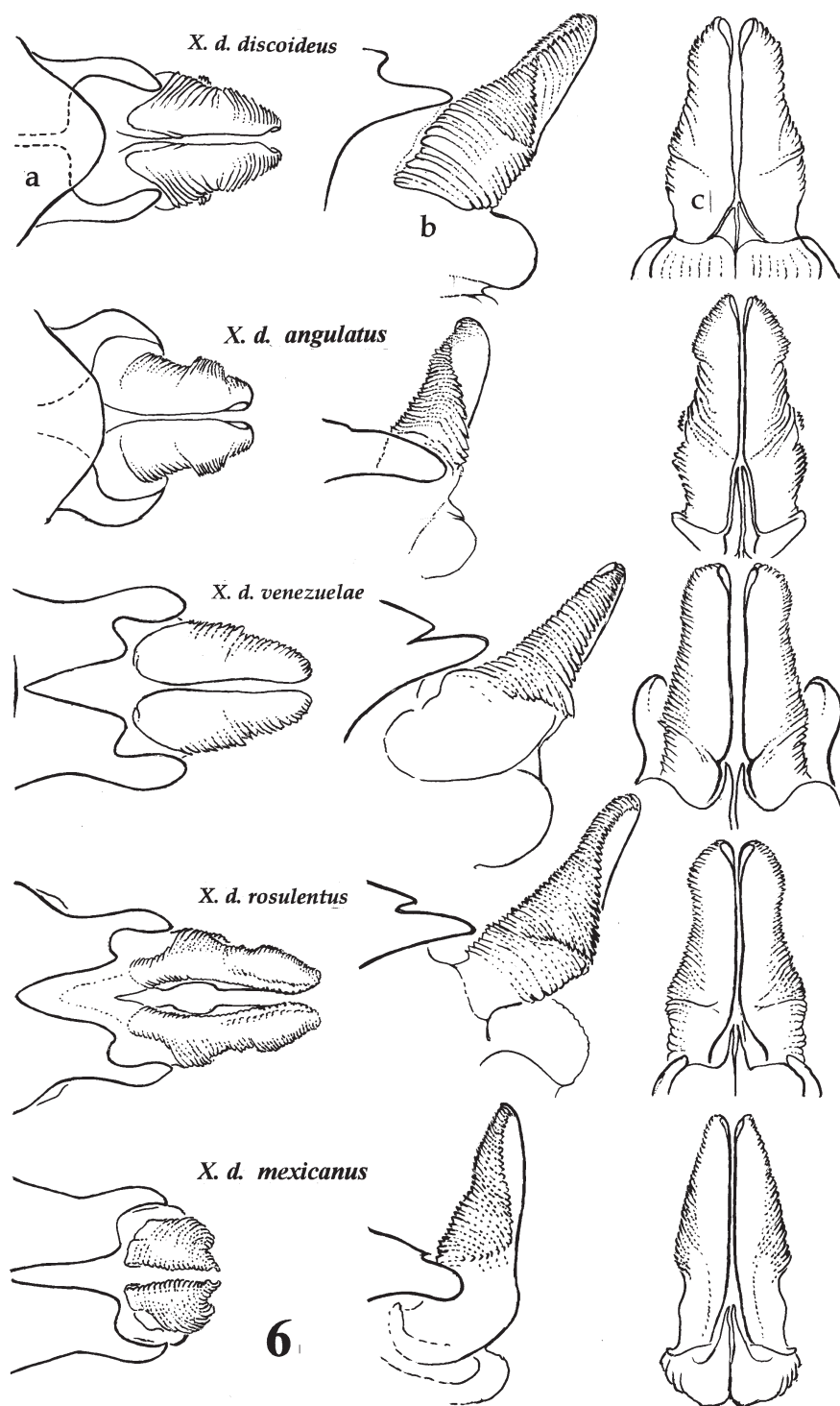


Fig. 6. Apical endophallic valves in the *Discoideus* group (species as indicated). a, dorsal; b, lateral; c, caudal.

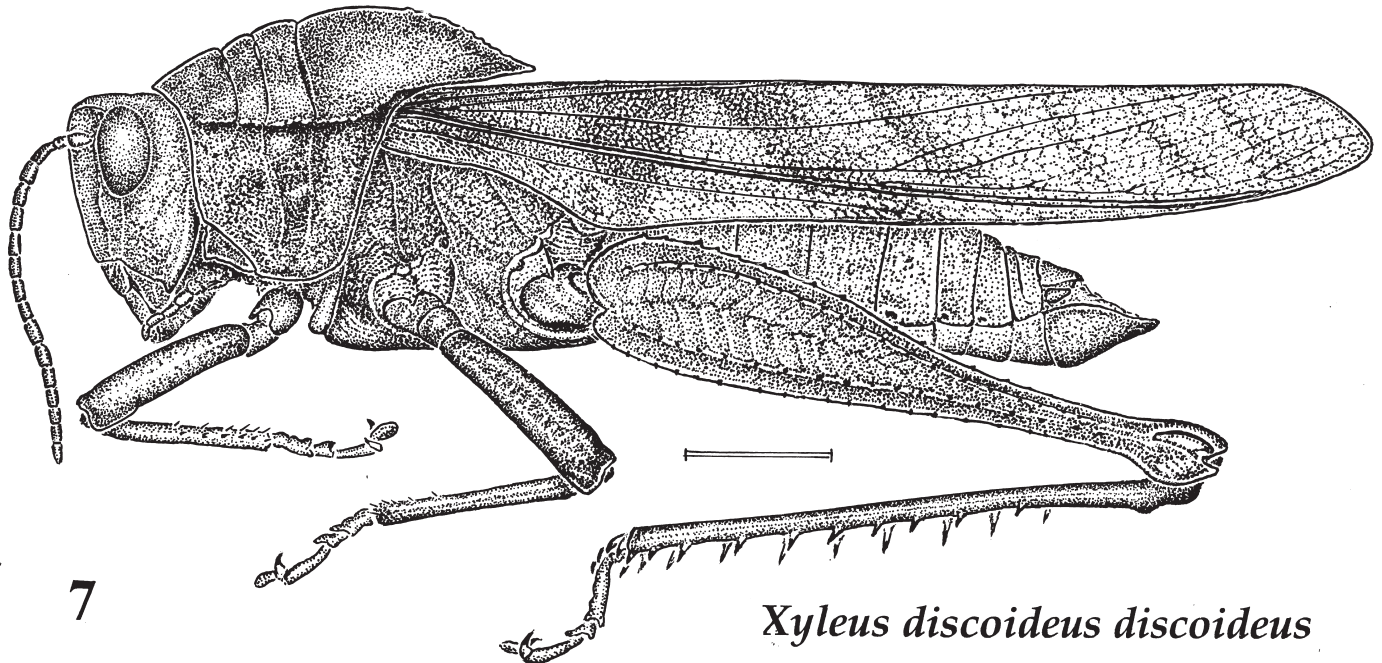


Fig. 7. *Xyleus discoideus discoideus* (Serville). Habitus. Male specimen from Brasil, Rio de Janeiro, Floresta de Tijuca. Length 43 mm. Scale 5 mm.

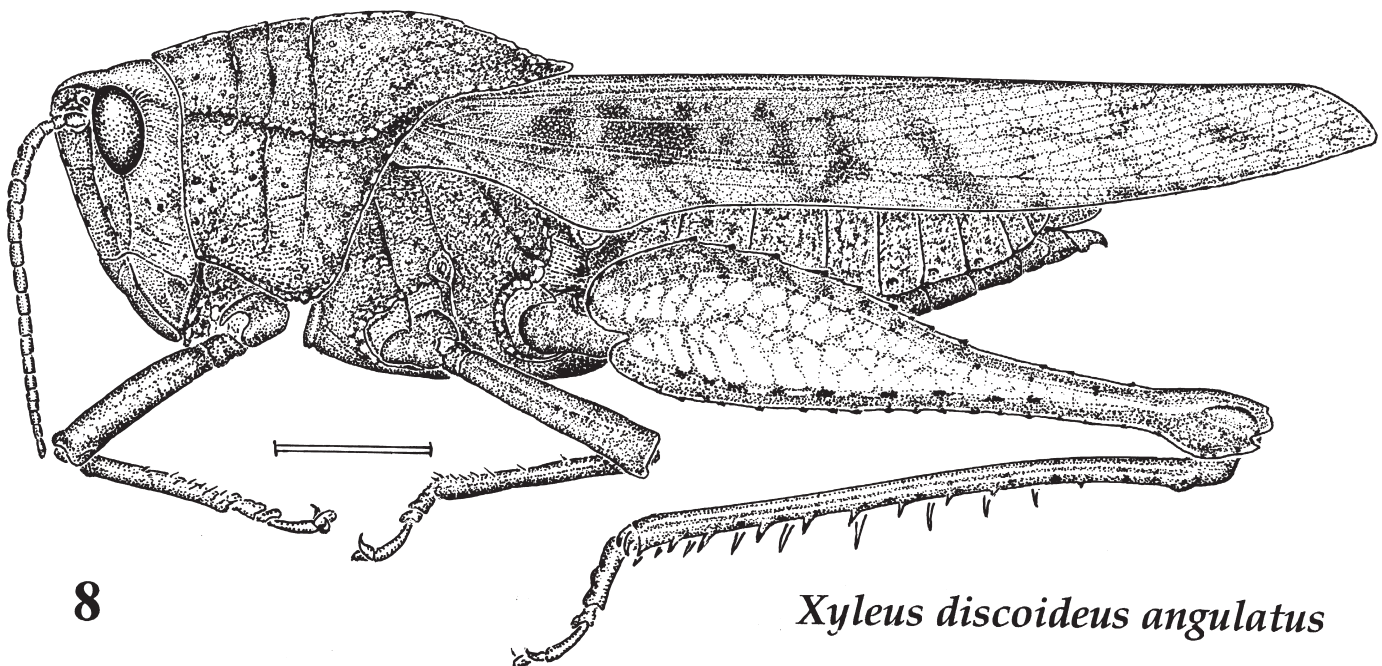


Fig. 8. *Xyleus discoideus angulatus* (Stål). Habitus. Female specimen from Brasil, Pernambuco, Recife. Length 43 mm. Scale 5 mm.

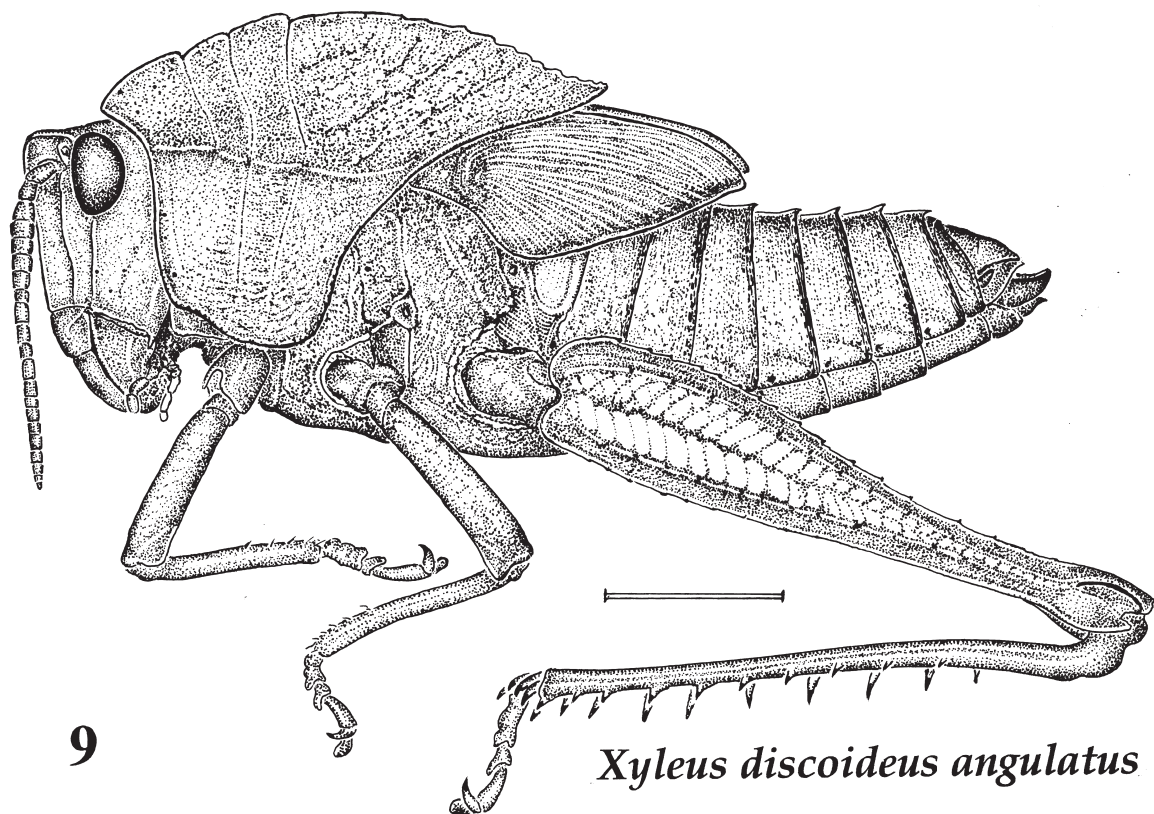


Fig. 9. *Xyleus discoideus angulatus* (Stål). Habitus. Female last-instar nymph from Brasil, Pernambuco, Igaracu. Length 28 mm. Scale 5 mm.

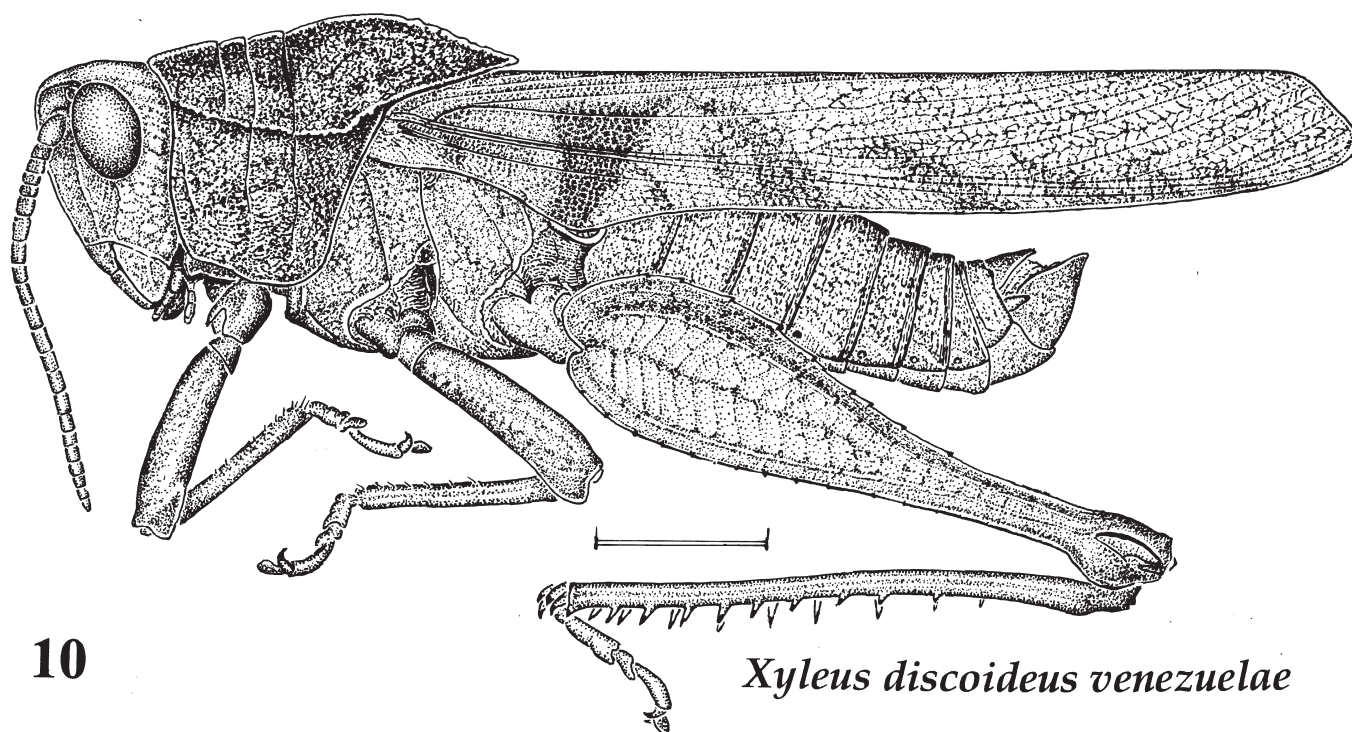


Fig. 10. *Xyleus discoideus venezuelae* n. ssp. Habitus. Male specimen from Venezuela, Falcon, Curimagua. Length 33 mm. Scale line 5 mm.

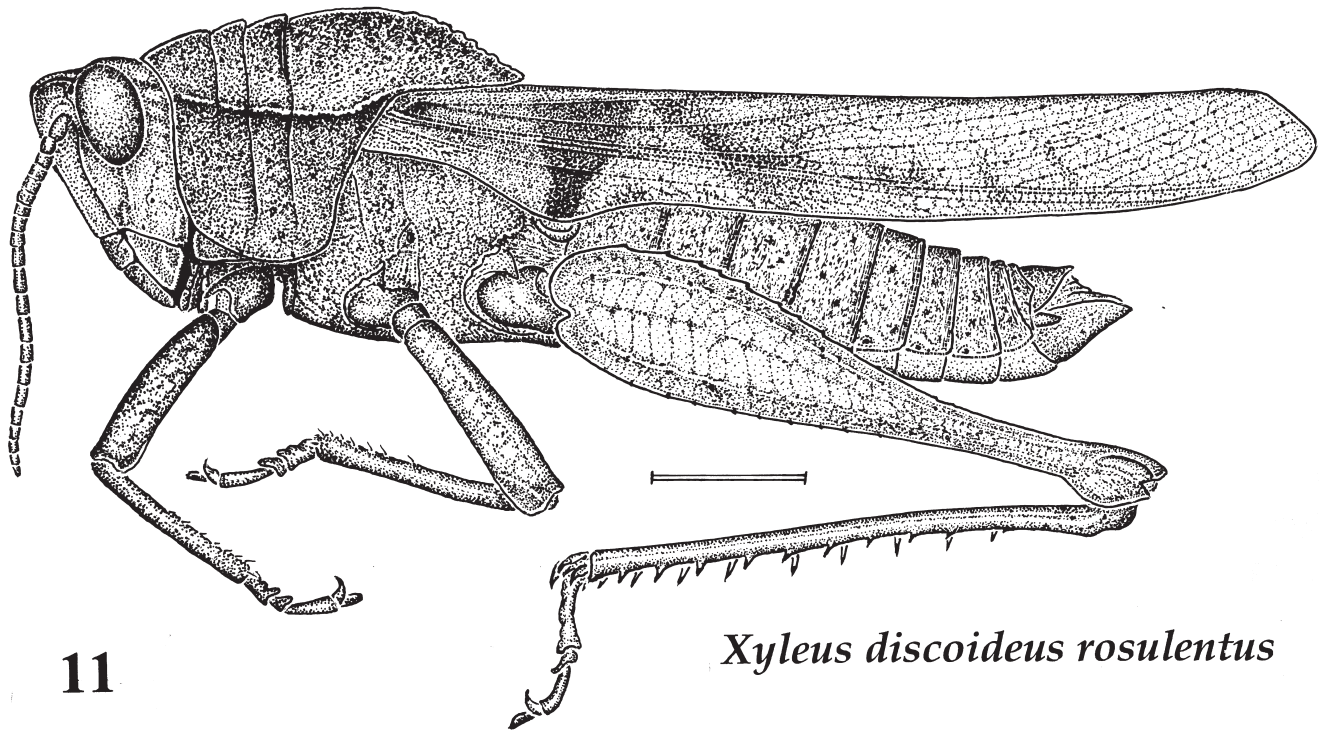


Fig. 11. *Xyleus discoideus rosulentus* (Stål). Habitus. Male specimen from Colombia, Meta, near Puerto López. Length 42 mm. Scale 5 mm.

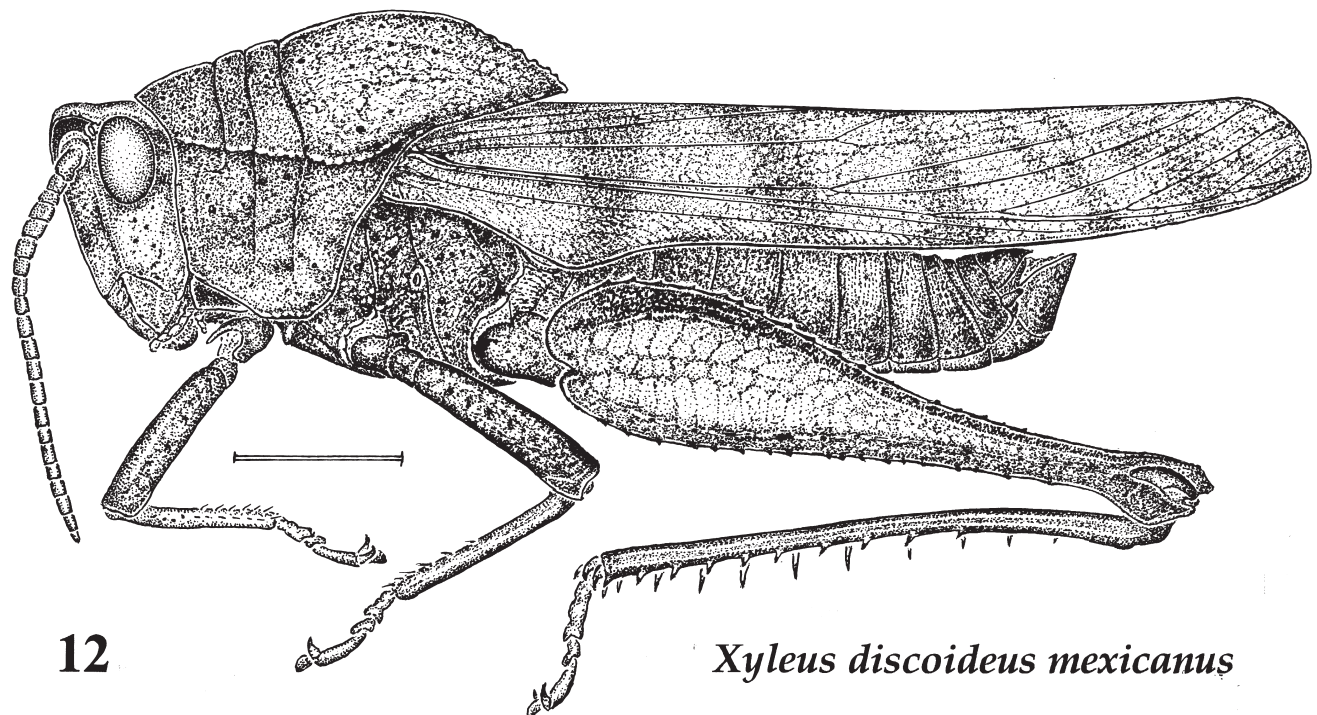


Fig. 12. *Xyleus discoideus mexicanus* (Bruner). Habitus. Male specimen from Mexico, Quintana Roo, Nuevo X-Can. Length 37 mm. Scale 5 mm.

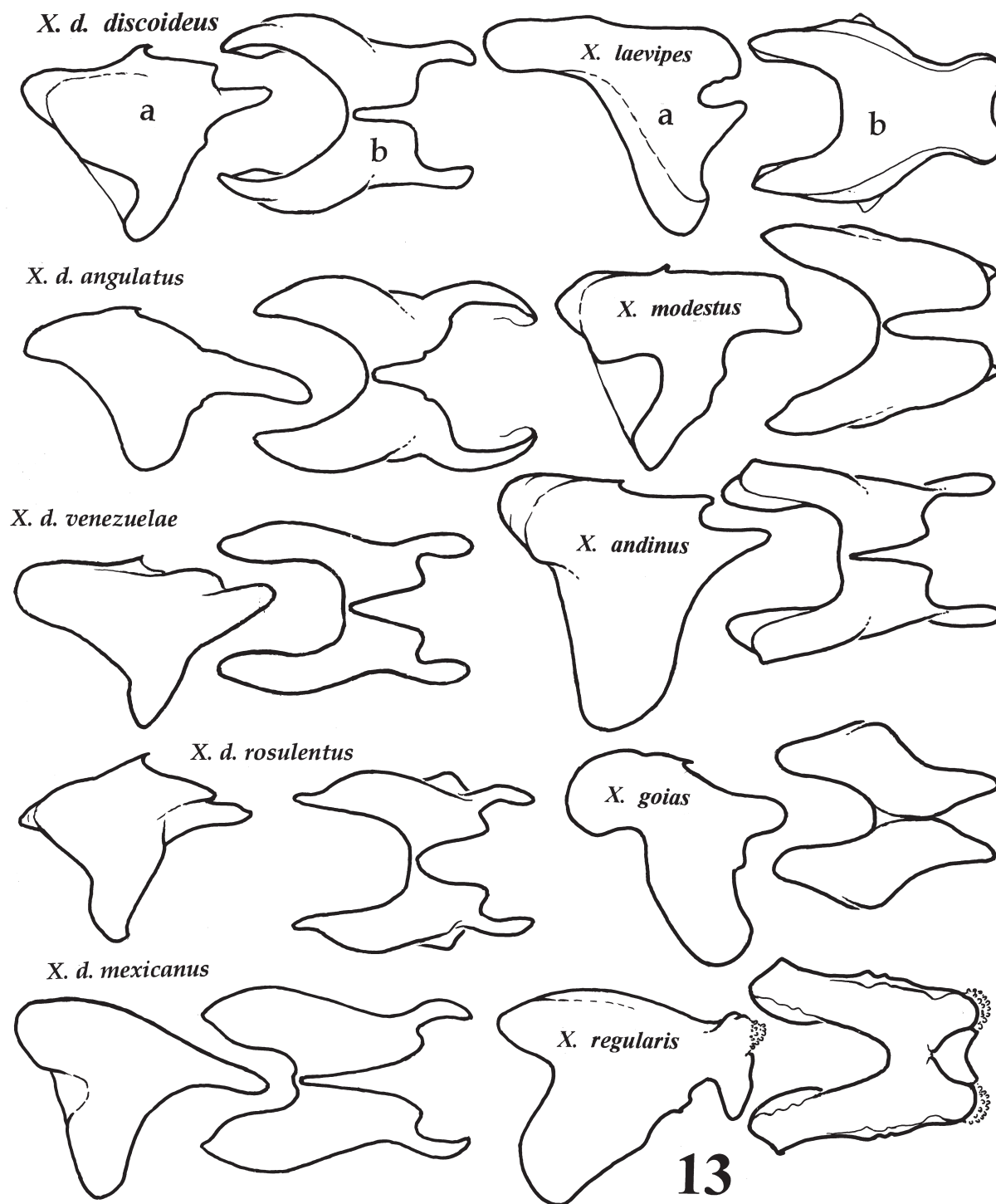
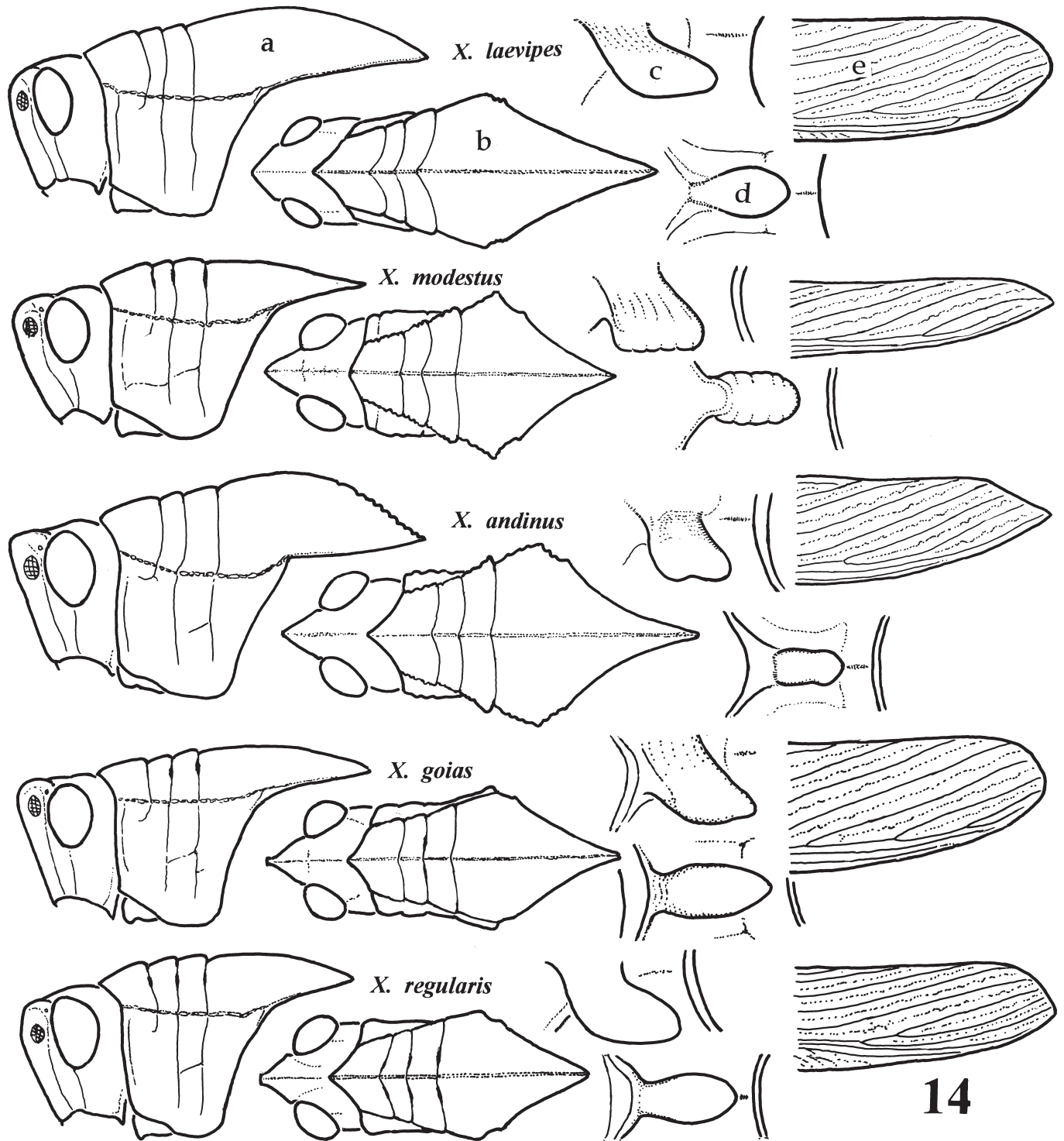


Fig. 13. Cingulum in *Discoideus* and *Laevipes* groups (species as indicated). a, lateral views; b, dorsal views.



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Fig. 14. *Laevipes* group. Males (species as indicated). a, head and prothorax, lateral; b, head and prothorax, dorsal; c, prosternal tubercle, lateral; d, prosternal tubercle, ventral; e, end of left tegmen, lateral.

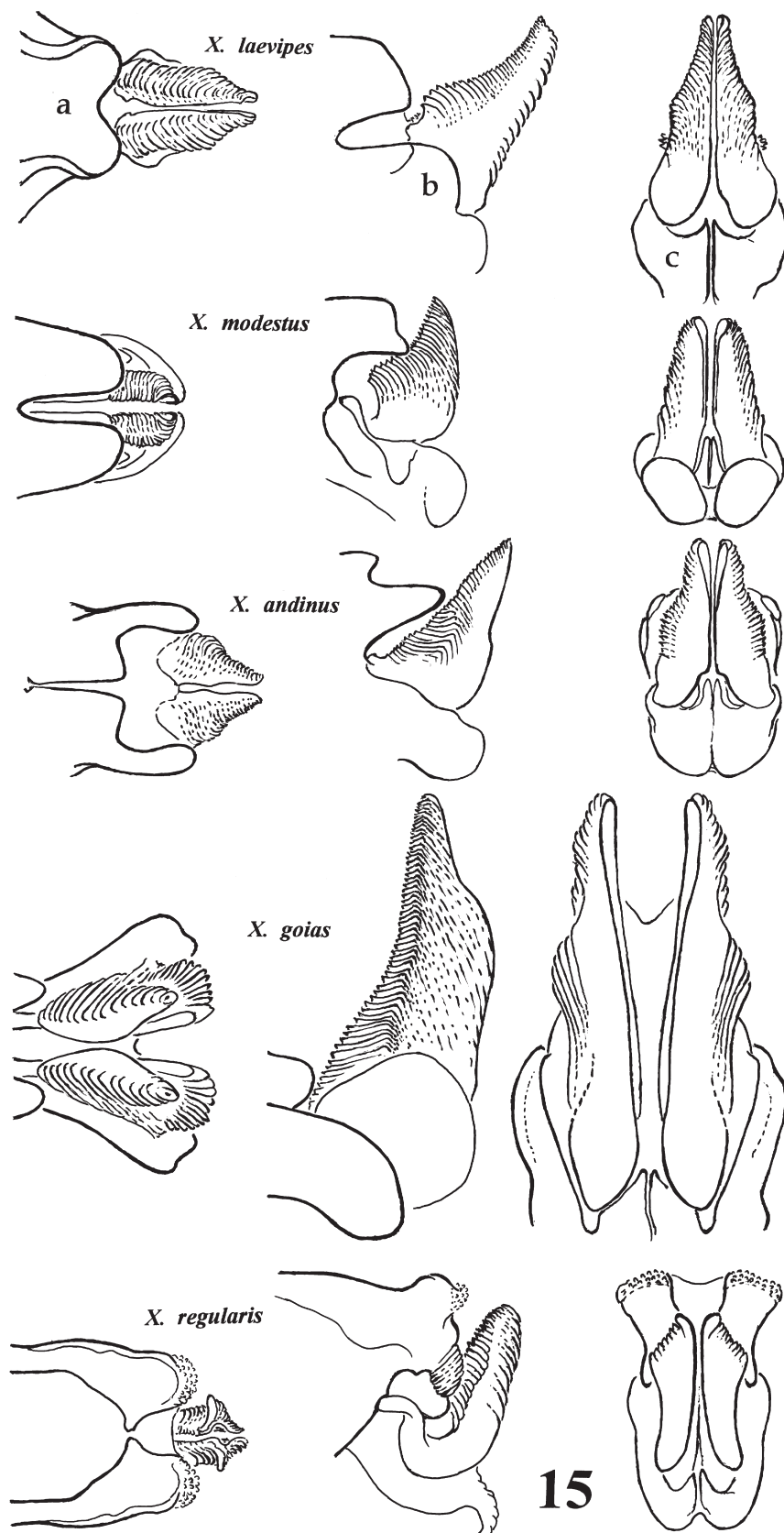


Fig. 15. Apical endophallic valves in the *Laevipes* group (species as indicated). a, dorsal; b, lateral; c, caudal.

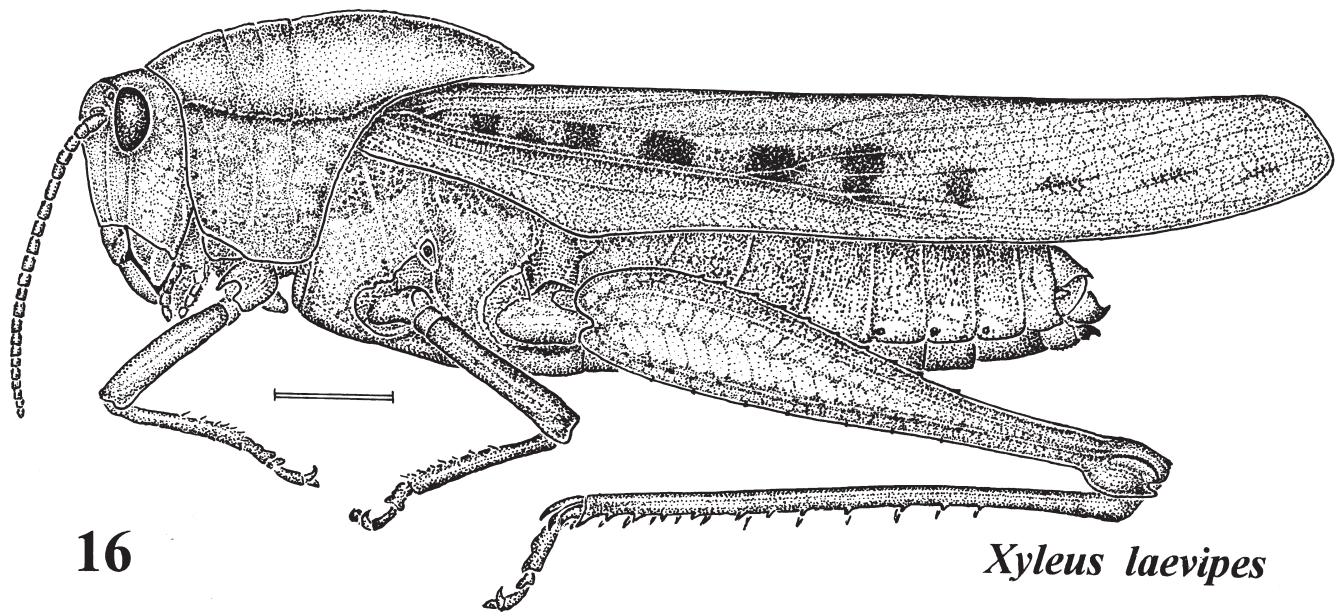


Fig. 16. *Xyleus laevipes* (Stål). Habitus. Female specimen from Uruguay, Rio Negro, Rincón de Fray Bentos. Length 55 mm. Scale 5 mm.

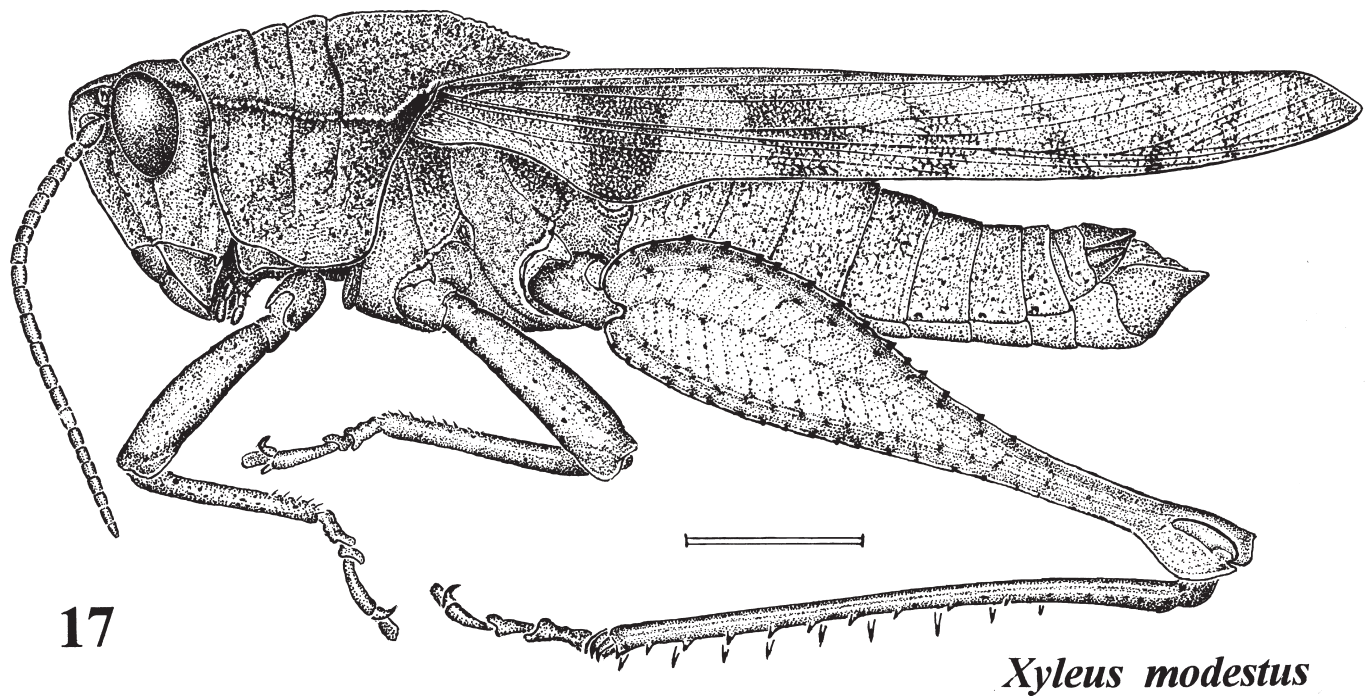


Fig. 17. *Xyleus modestus* (Giglio Tos). Habitus. Male specimen from Brasil, Mato Grosso, Corumbá. Length 36 mm. Scale 5 mm.

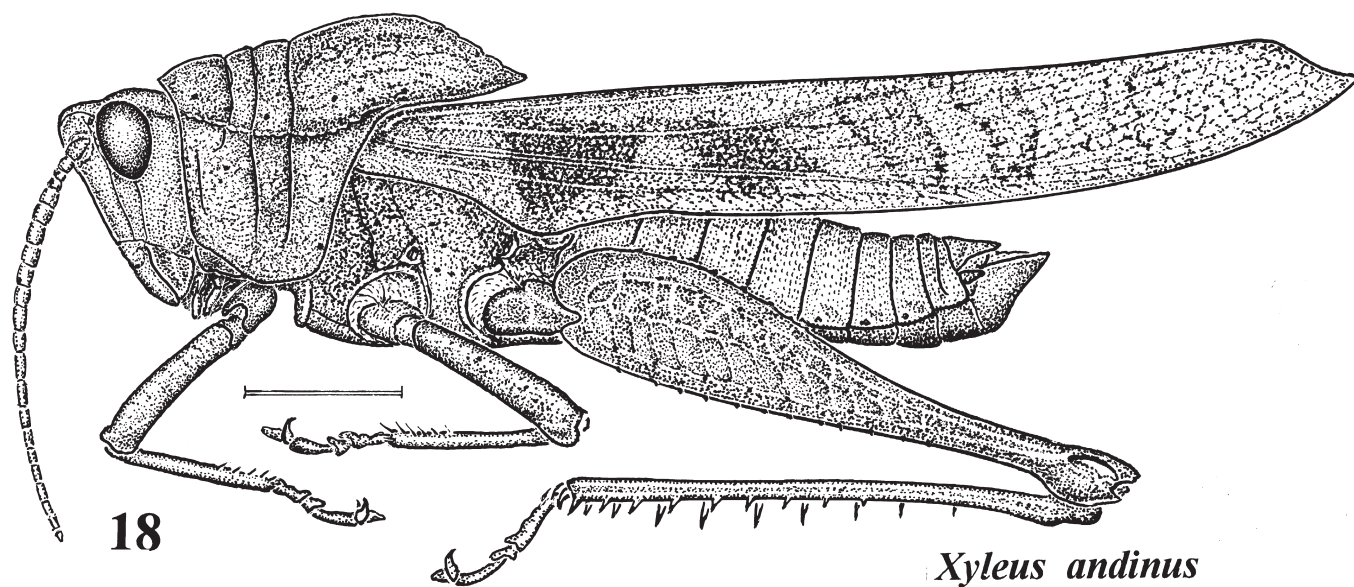


Fig. 18. *Xyleus andinus* n. sp. Habitus. Male paratype from Bolivia, Alto Beni, Palos Blancos. Length 42 mm. Scale 5 mm.

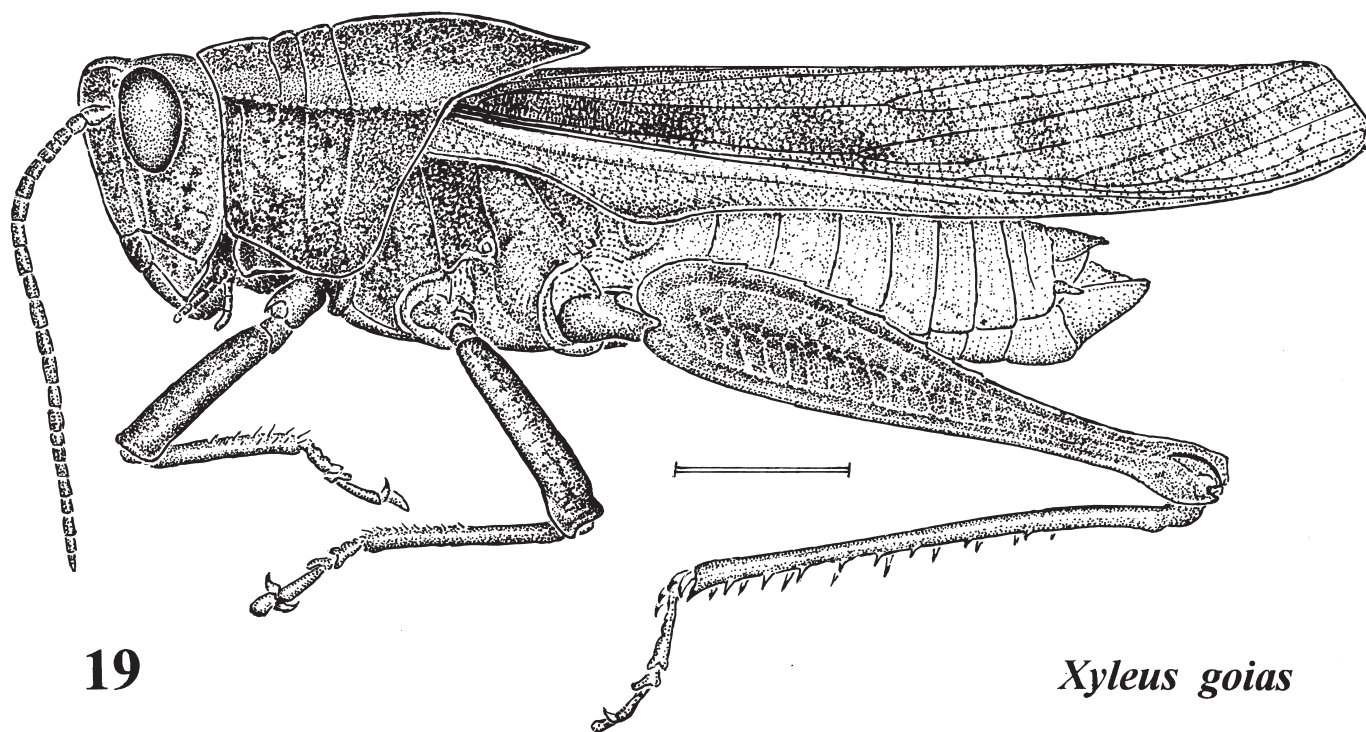


Fig. 19. *Xyleus goias* n. sp. Habitus. Male paratype from Brasil, Goias, Minaçu. Length 37 mm. Scale 5 mm.

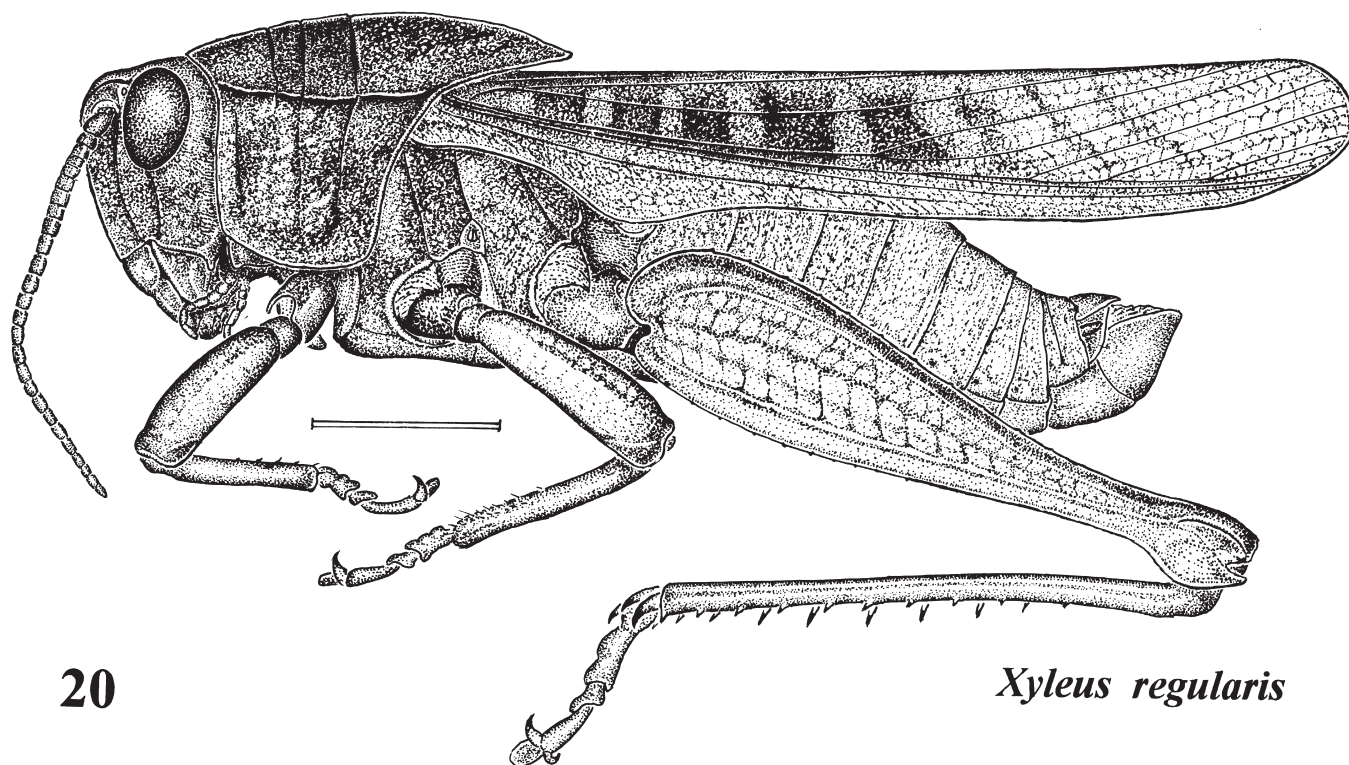


Fig. 20. *Xyleus regularis* (Bruner). Habitus. Male specimen from Paraguay, Paraguari, Sapucay. Length 34 mm. Scale 5 mm.

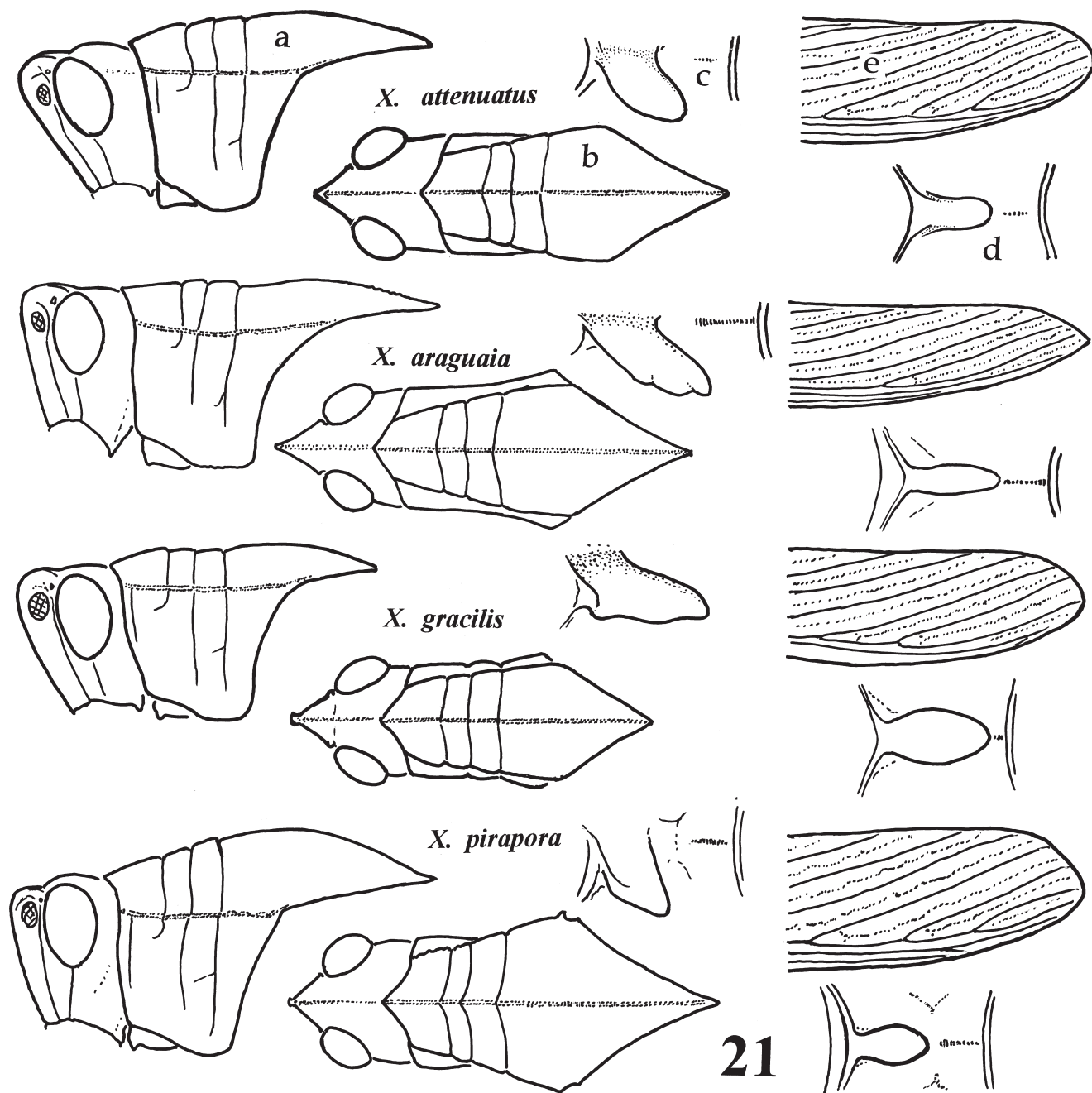


Fig. 21. *Attenuatus* group. Males (species as indicated). a, head and prothorax, lateral; b, head and prothorax, dorsal; c, prosternal tubercle, lateral; d, prosternal tubercle, ventral; e, end of left tegmen, lateral.

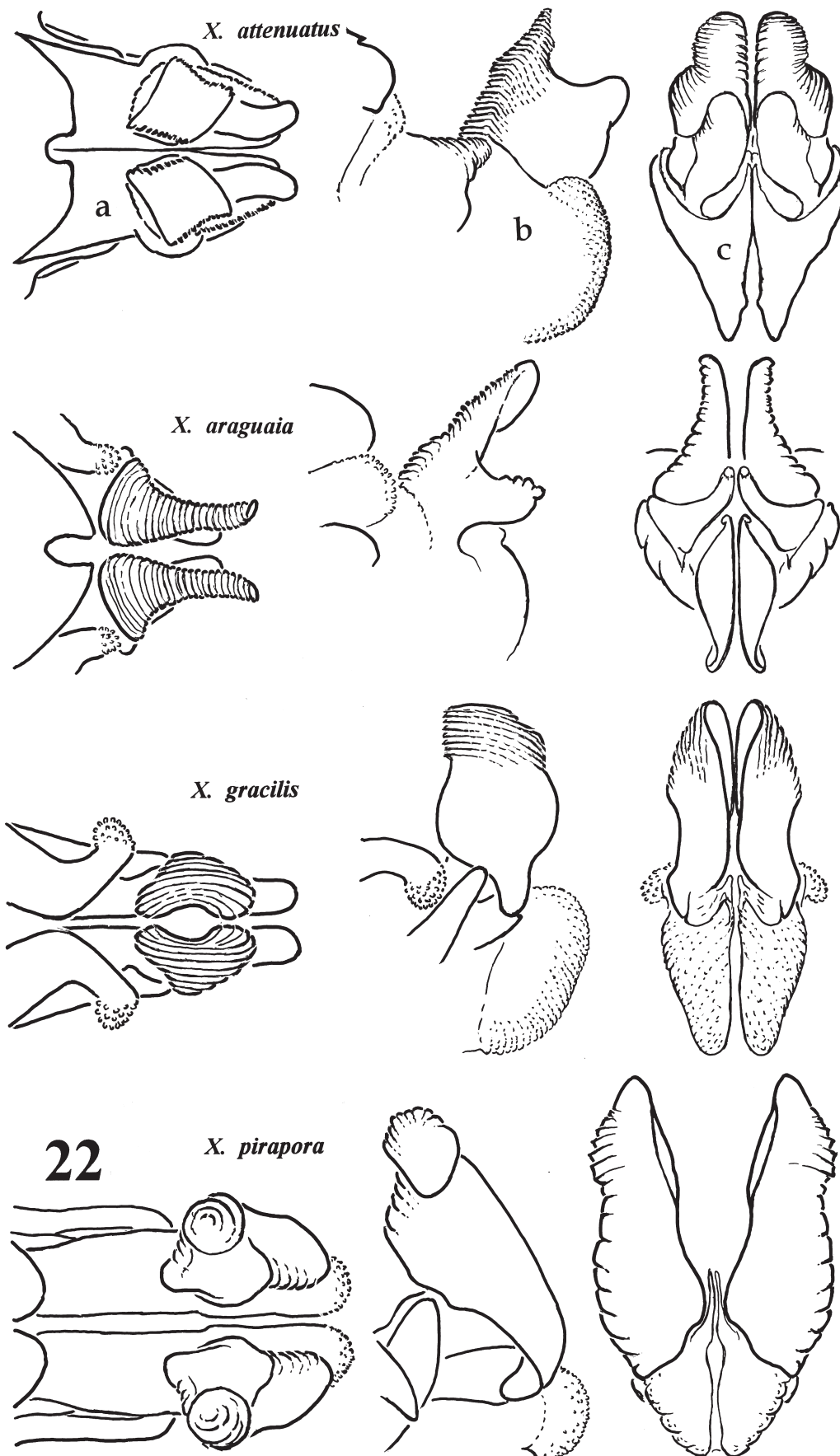
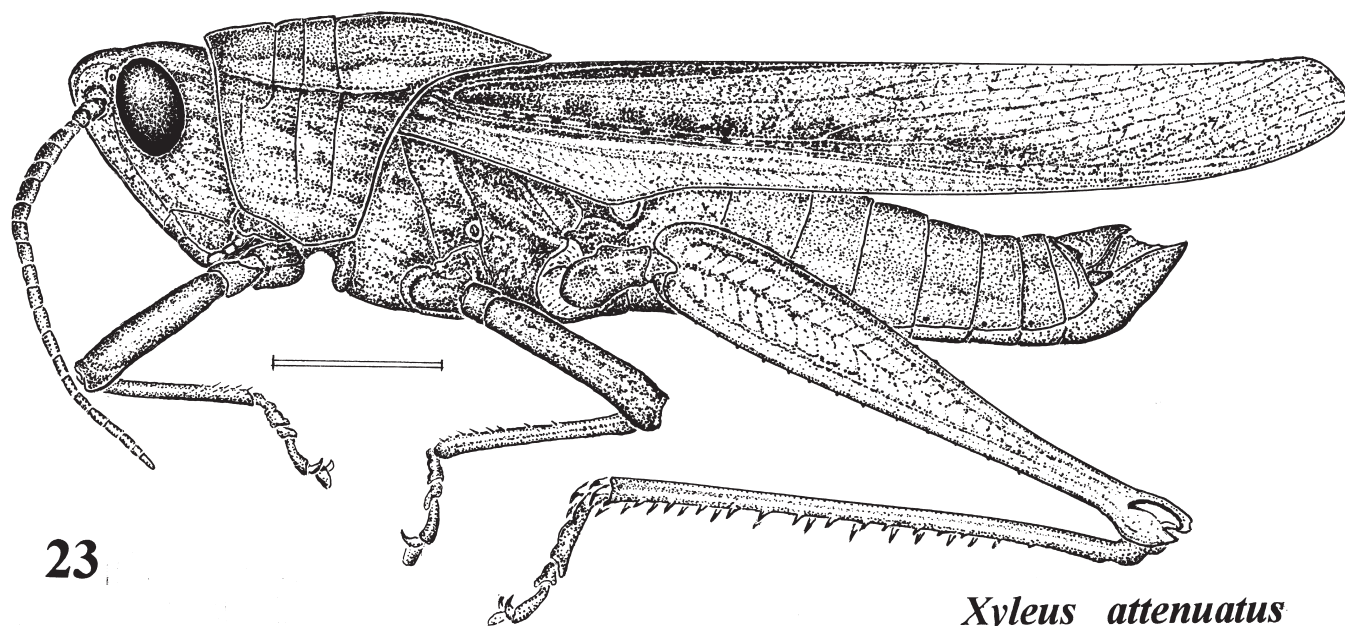
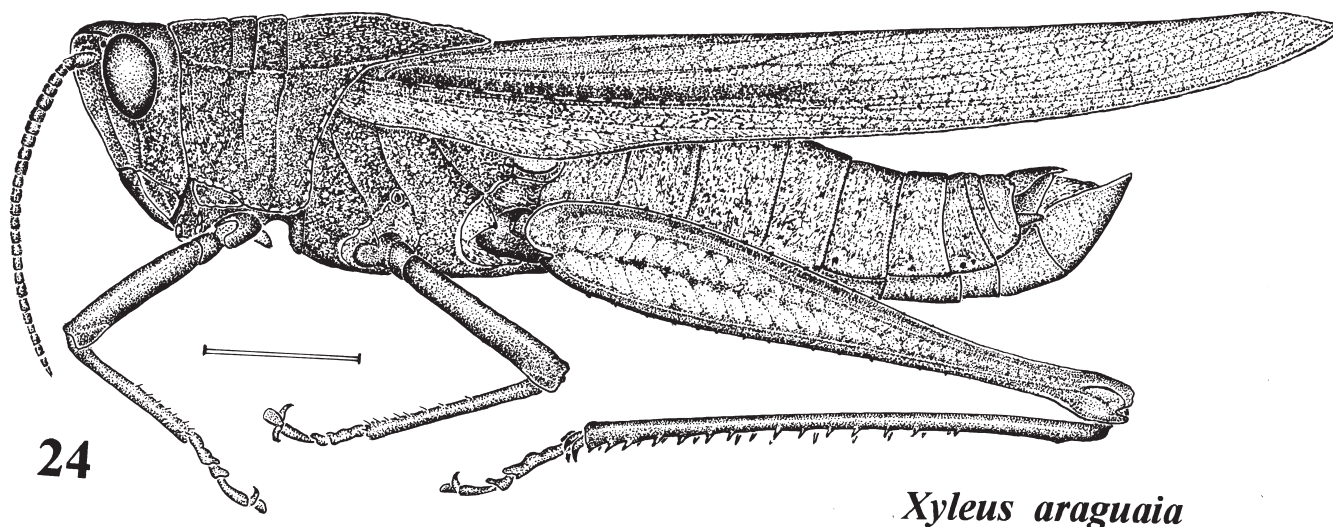


Fig. 22. Apical endophallic valves in the *Attenuatus* group (species as indicated). a, dorsal; b, lateral; c, caudal.



Xyleus attenuatus

Fig. 23. *Xyleus attenuatus* (Rehn) Habitus. Male specimen from Brasil, Mato Grosso, Chapada dos Guimarães. Length 39 mm. Scale 5 mm.



Xyleus araguaia

Fig. 24. *Xyleus araguaia* n. sp. Habitus. Male paratype from Brasil, Mato Grosso, 30 km N of Alto Araguaia. Length 41 mm. Scale 5 mm.

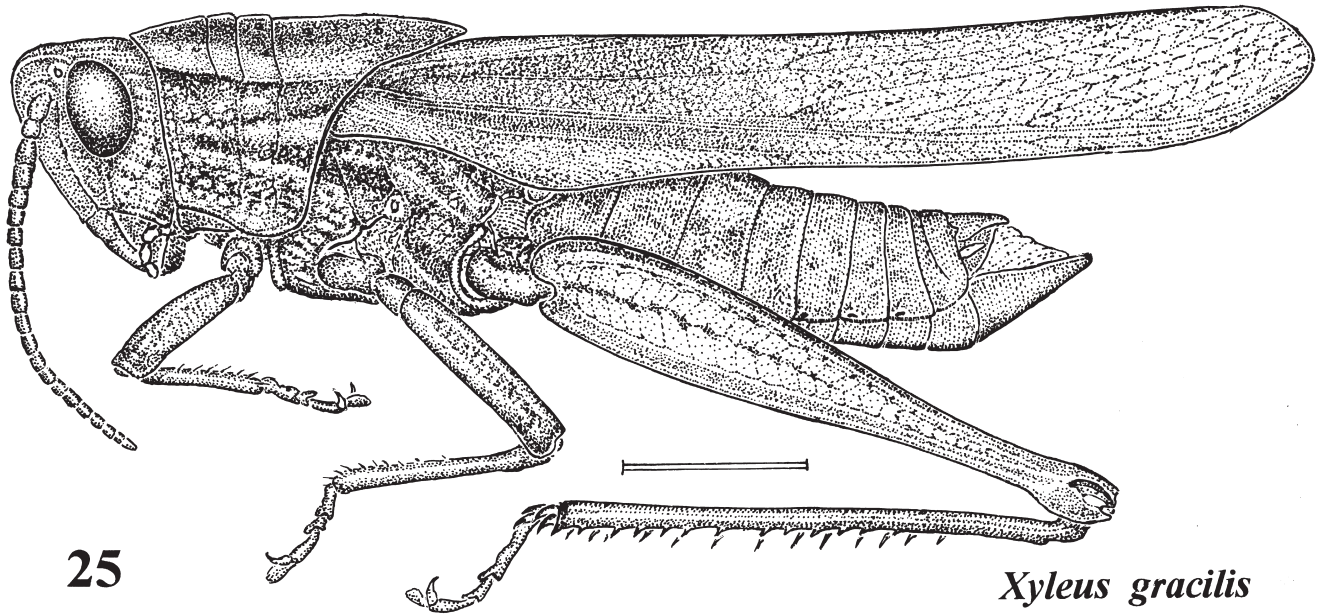


Fig. 25. *Xyleus gracilis* (Bruner). Habitus. Male specimen from Brasil, São Paulo, Campos de Jordão. Length 33 mm. Scale 5 mm.

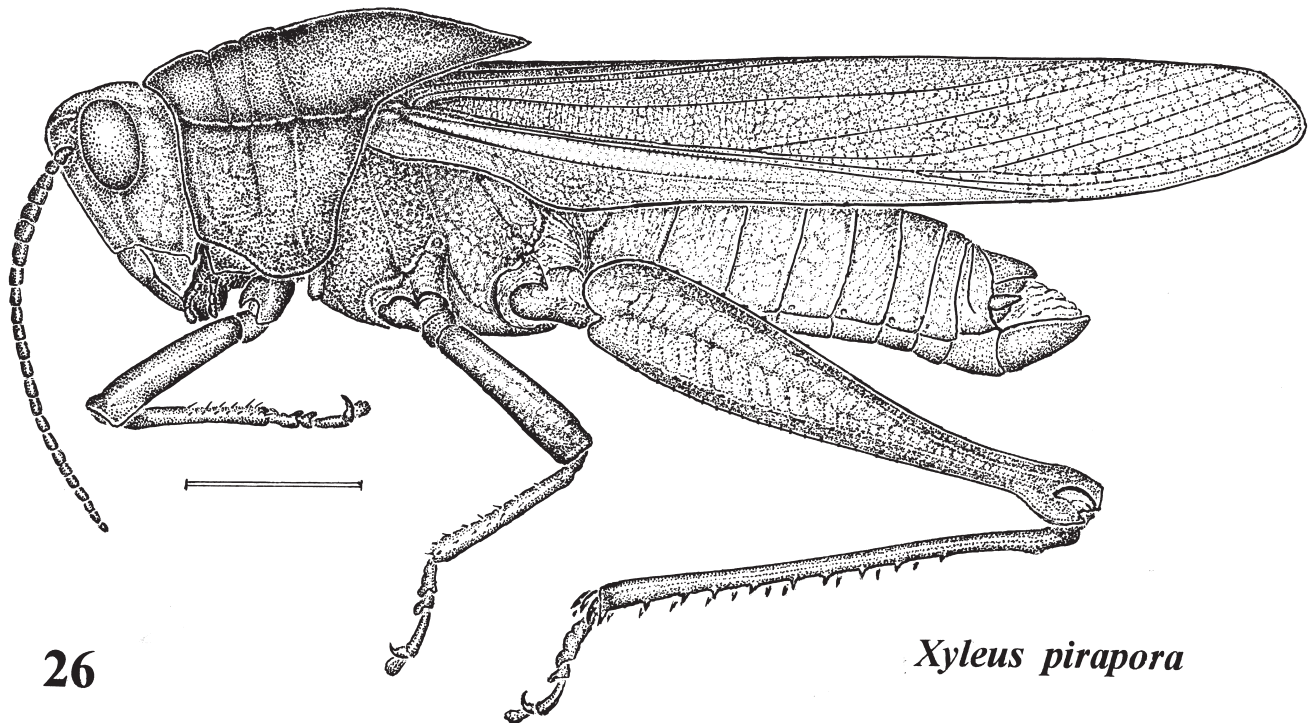


Fig. 26. *Xyleus pirapora* n. sp. Habitus. Male paratype from Brasil, Minas Gerais, Pirapora. Length 36 mm. Scale 5 mm.

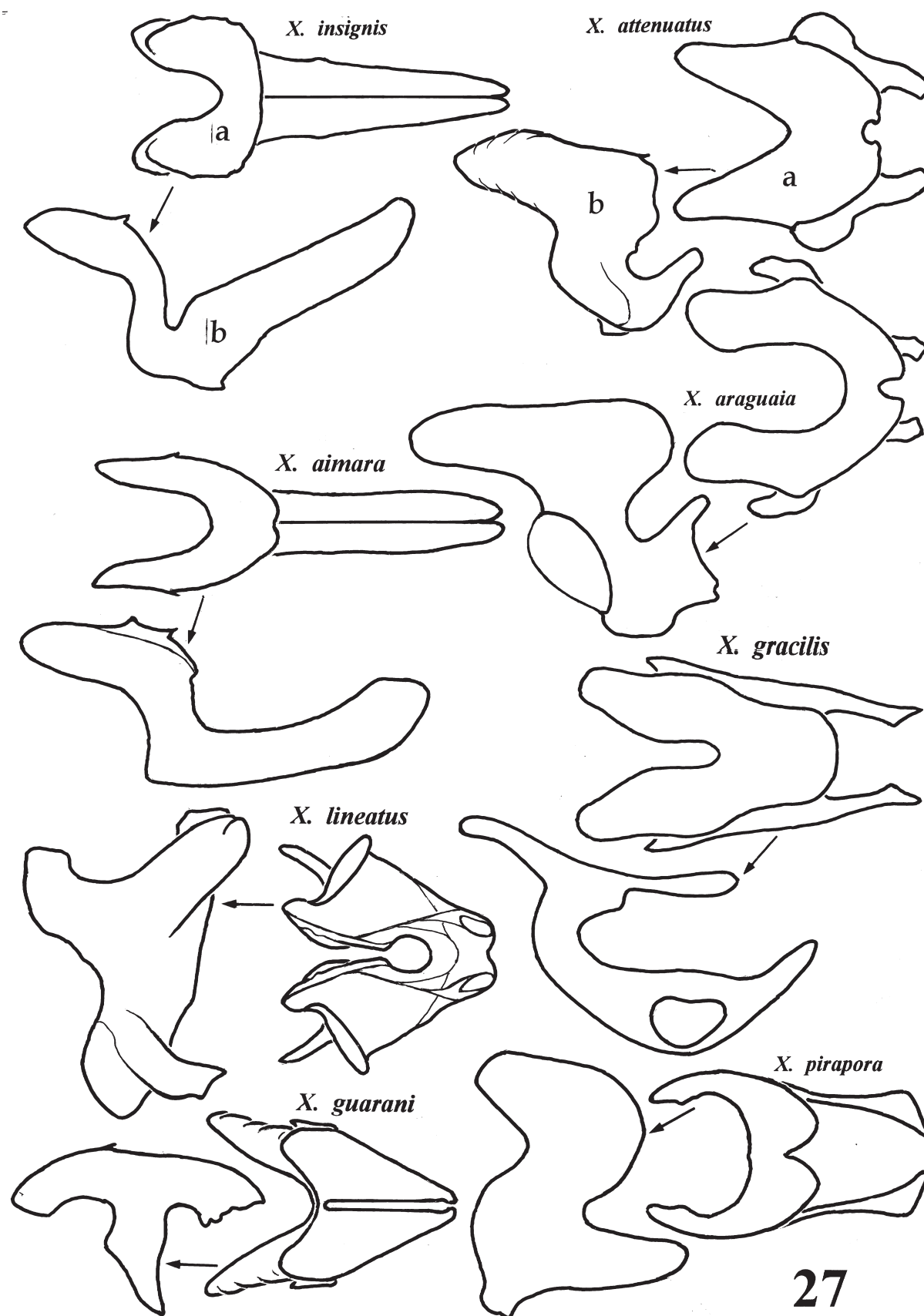


Fig. 27. Cingulum in Attenuatus and Insignis groups (species as indicated). a, lateral views; b, dorsal views.

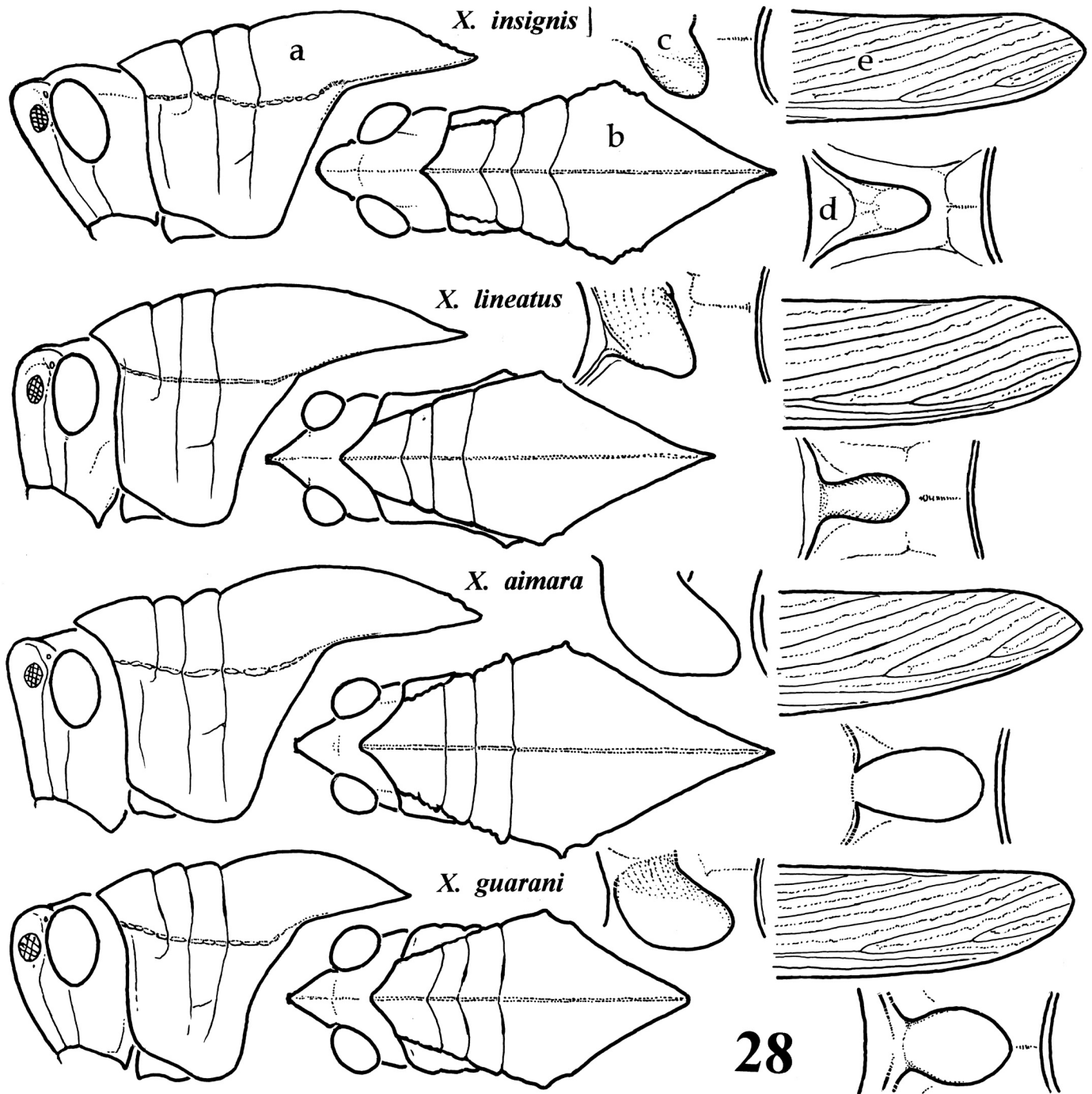


Fig. 28. Insignis group. Males (species as indicated). a, head and prothorax, lateral; b, head and prothorax, dorsal; c, prosternal tubercle, lateral; d, prosternal tubercle, ventral; e, end of left tegmen, lateral.

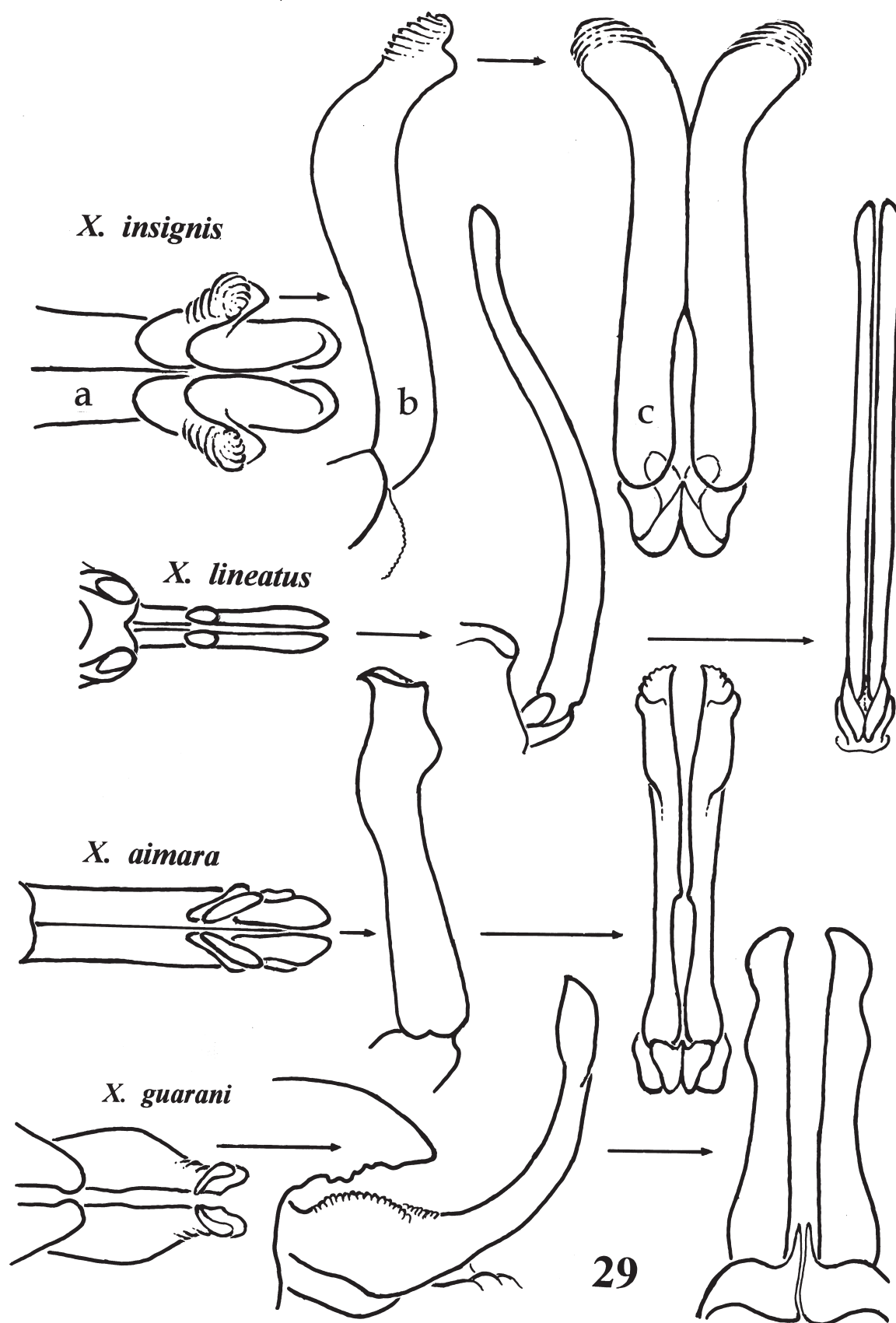


Fig. 29. Apical endophallic valves in Insignis group (species as indicated). a, dorsal; b, lateral; c, caudal.

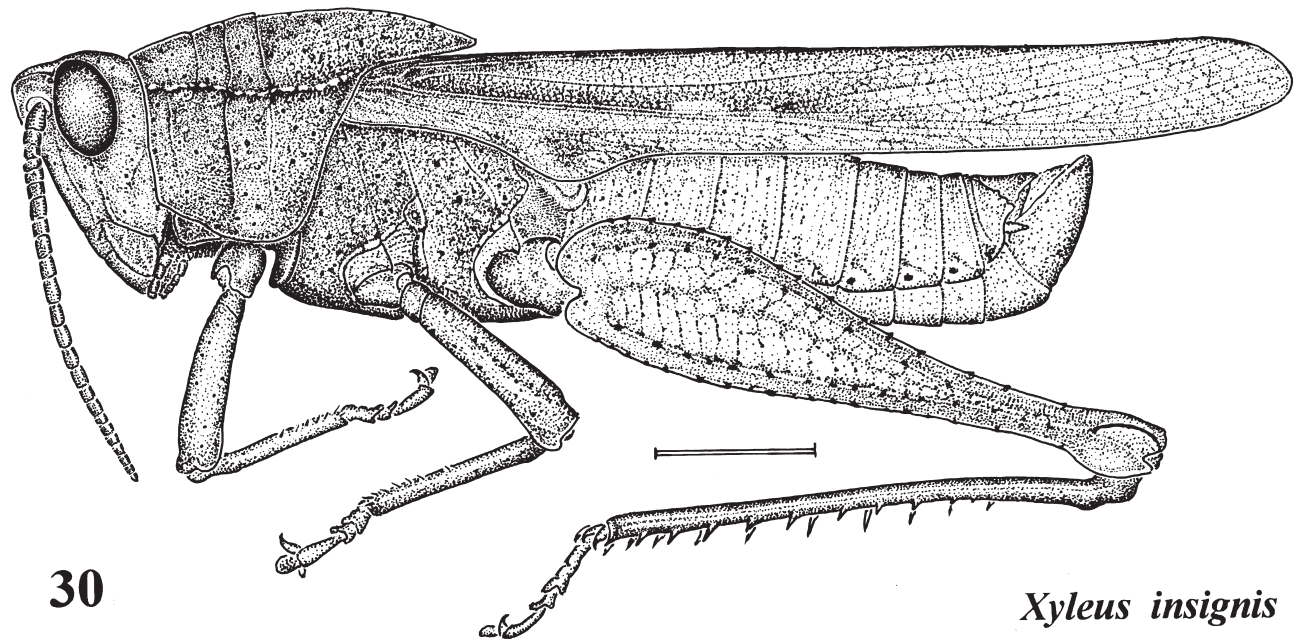


Fig. 30. *Xyleus insignis* (Giglio Tos). Habitus. Male specimen from Argentina, Chaco, Arroyo Palometa. Length 40 mm. Scale 5 mm.

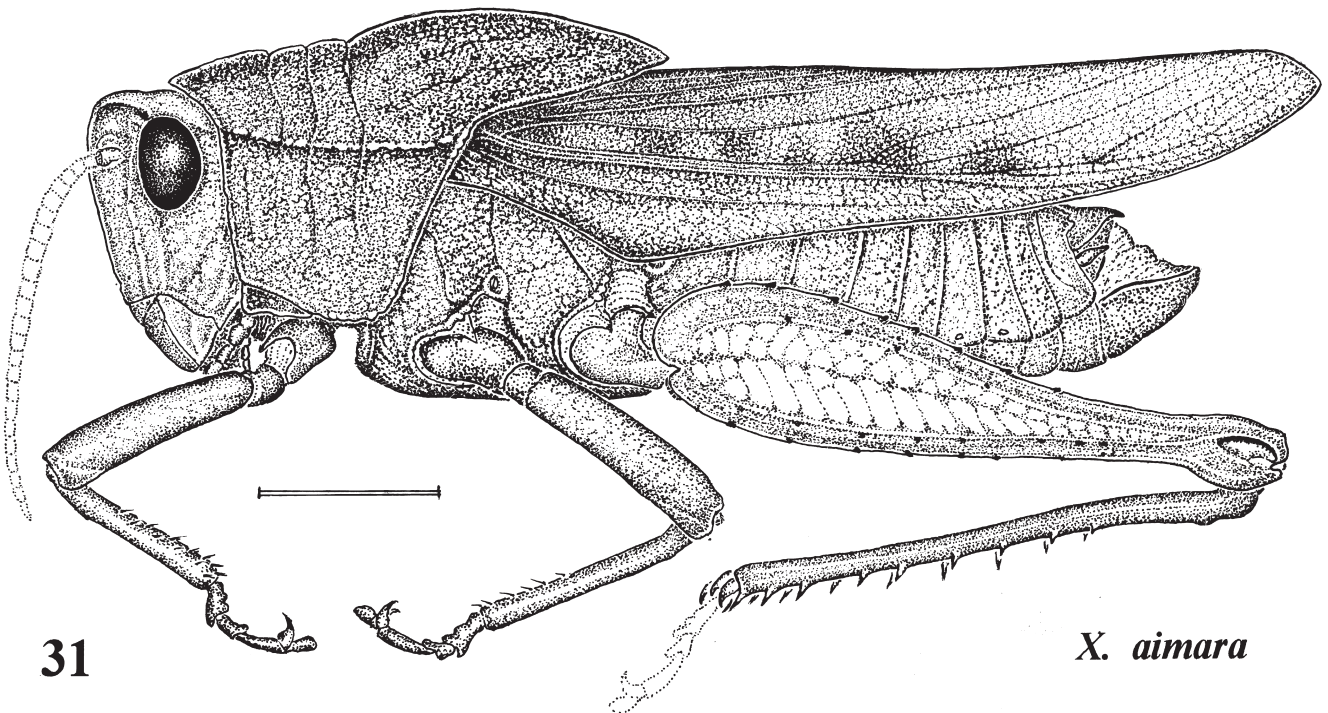


Fig. 31. *Xyleus aimara* n. sp. Habitus. Male holotype from Bolivia, Sucre. Length 34 mm. Scale 5 mm.

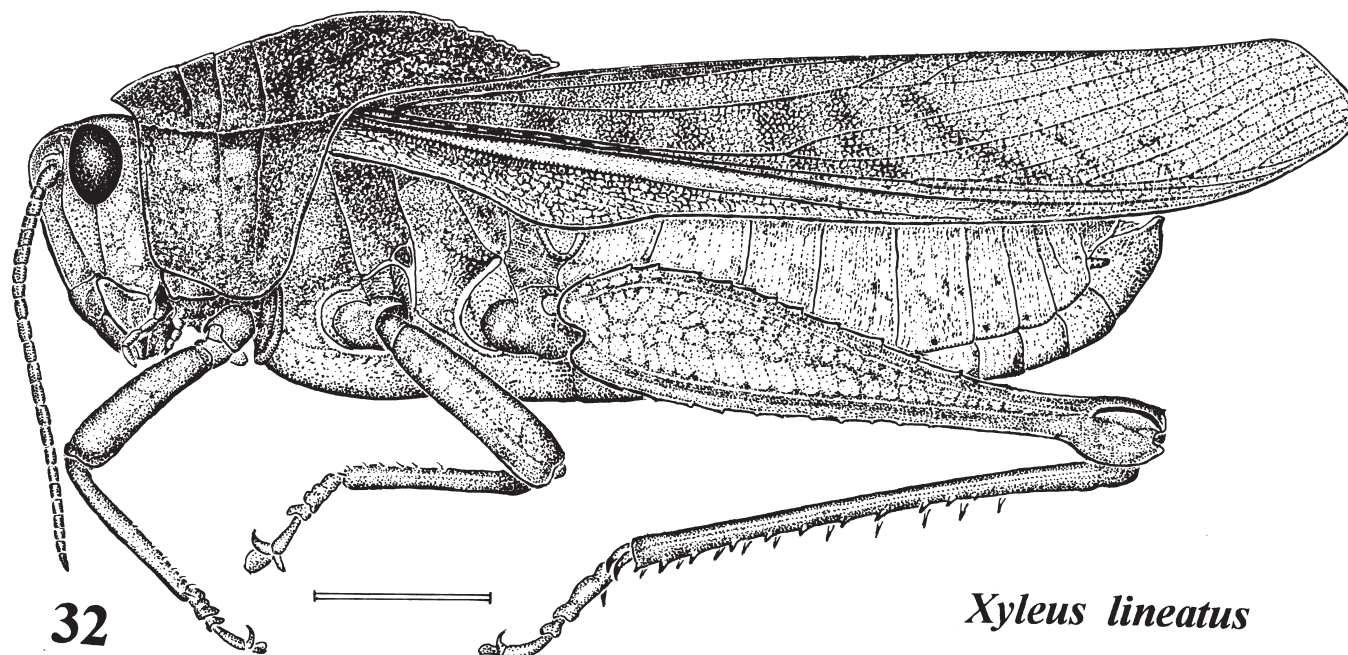


Fig. 32. *Xyleus lineatus* (Bruner). Habitus. Male specimen from Brasil, São Paulo, Itirapina. Length 38 mm. Scale 5 mm.

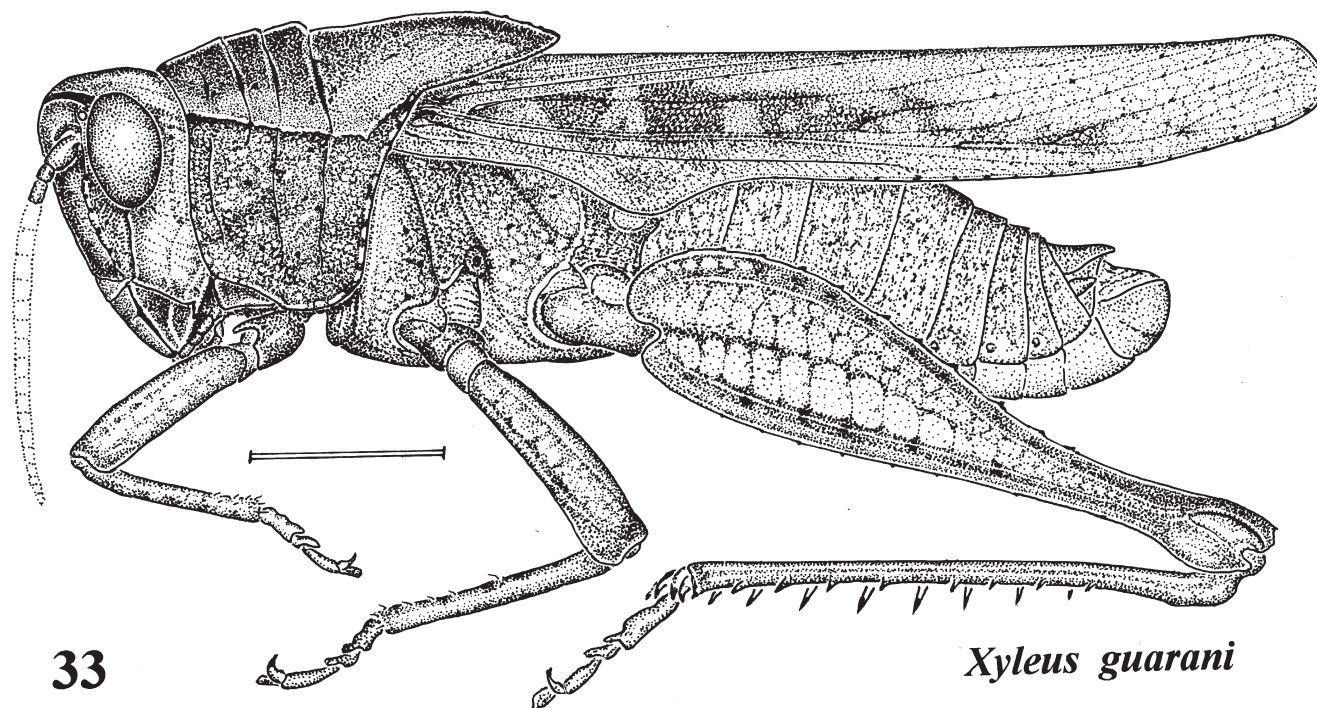


Fig. 33. *Xyleus guarani* (Rehn). Habitus. Male specimen from Brasil, Mato Grosso, Chapada dos Guimarães. Length 33 mm. Scale 5 mm.

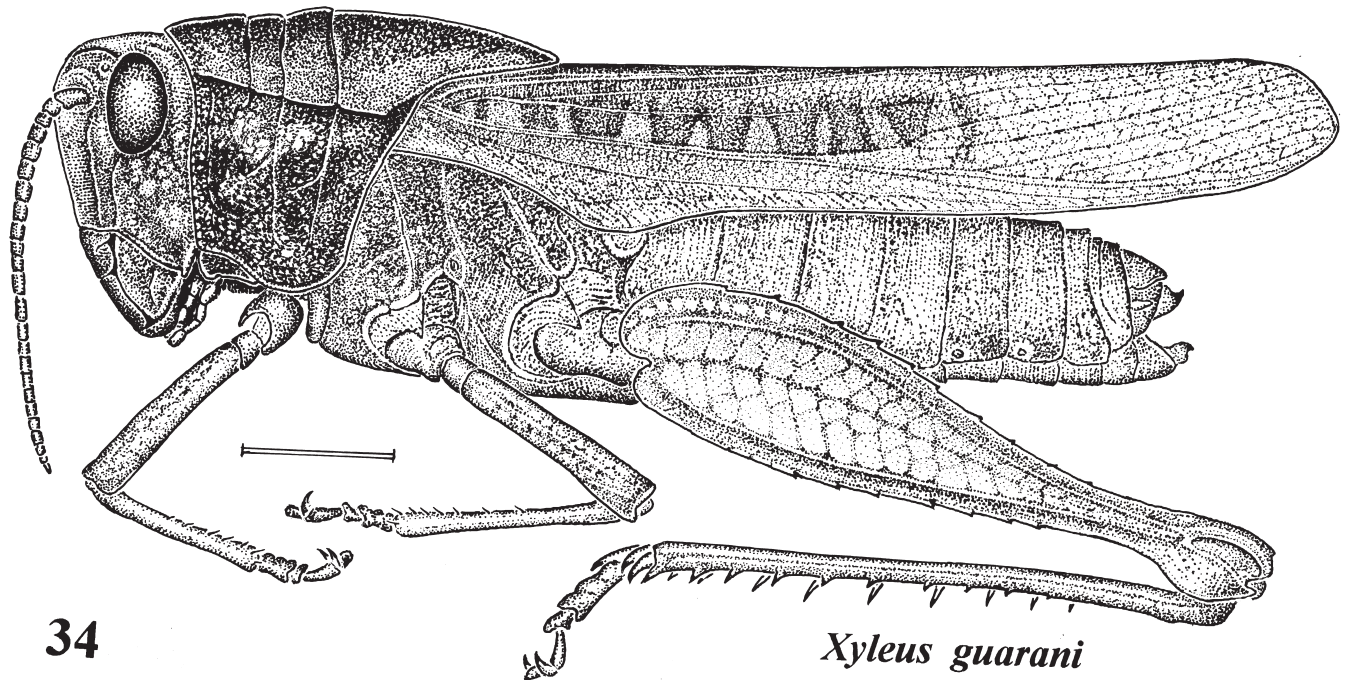


Fig. 34. *Xyleus guarani* (Rehn). Habitus. Female specimen from Brasil, São Paulo, Franca. Length 43 mm. Scale 5 mm.

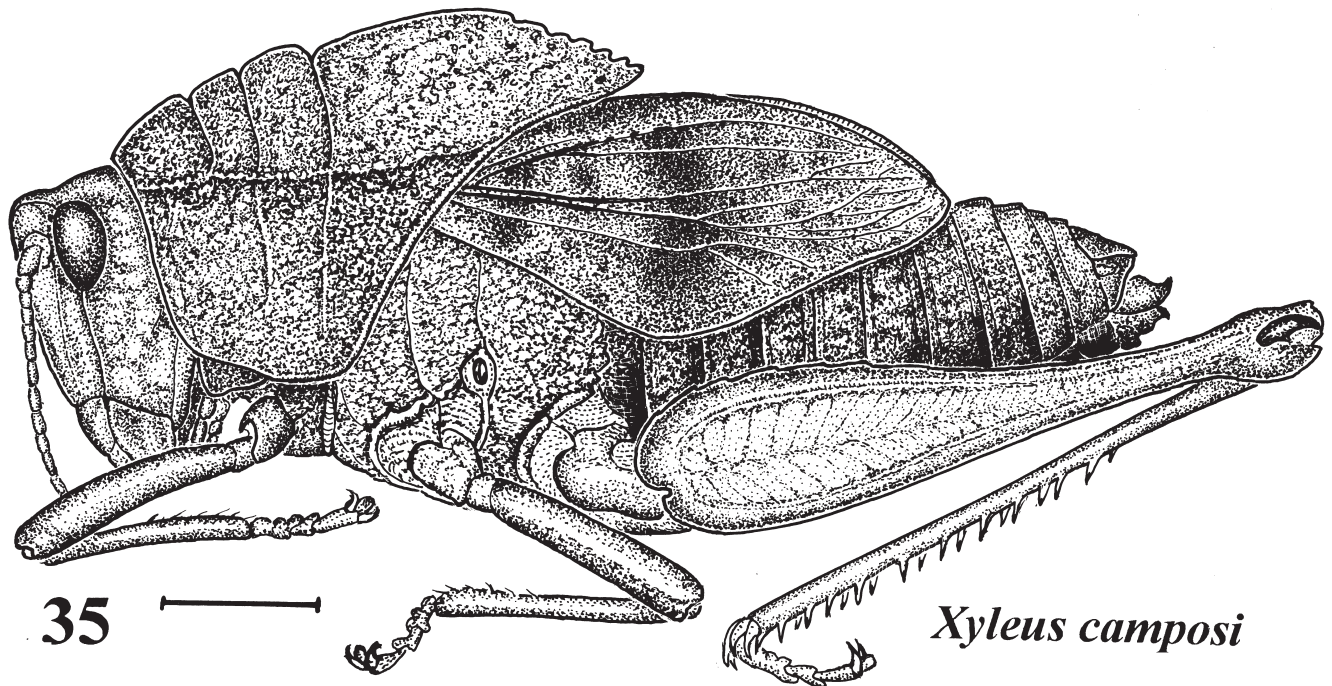


Fig. 35. *Xyleus camposi* (Bolivar). Habitus. Female holotype from Ecuador, Guayas, Posorja. Length 37 mm. Scale 5 mm. Drawing based on photographs. Minor details may be inaccurate.

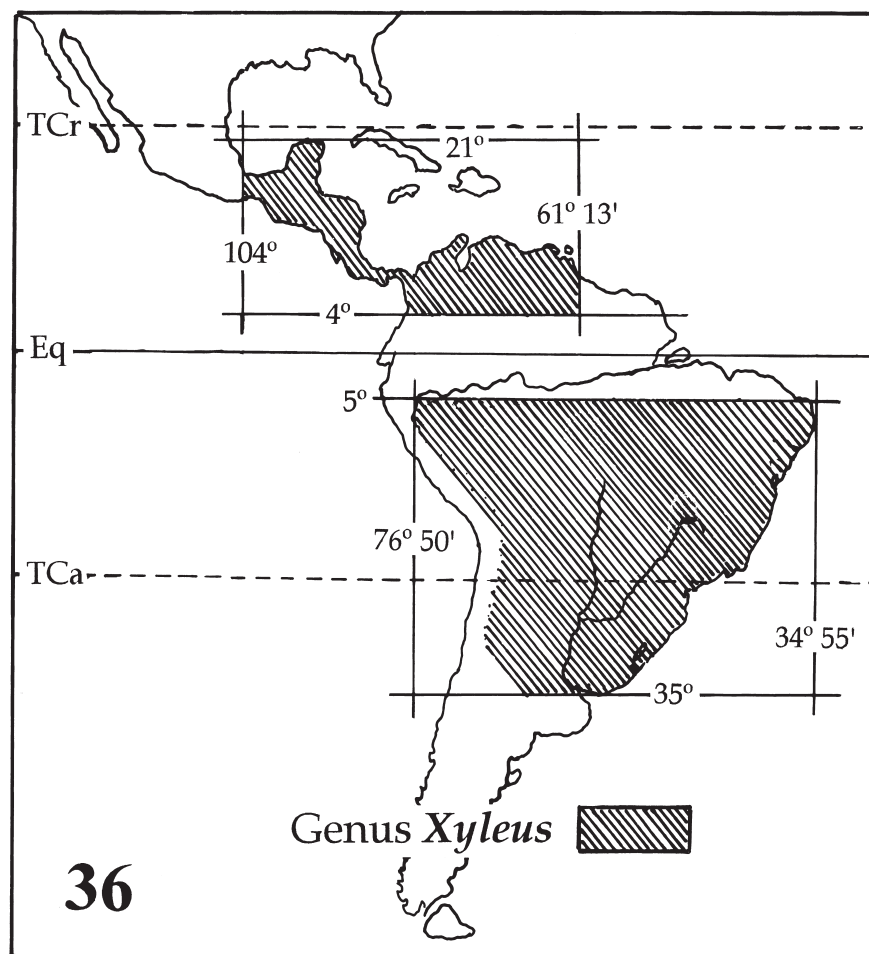


Fig. 36. Genus *Xyleus*, known distribution according to the specimens examined for this work. Eq, Equator. TCa, Tropic of Capricorn. TCr, Tropic of Cancer.



Fig. 37. *Xyleus discoideus discoideus* and *Xyleus gracilis*. Localities of collection of specimens examined. In Uruguay the species is distributed over all the territory.

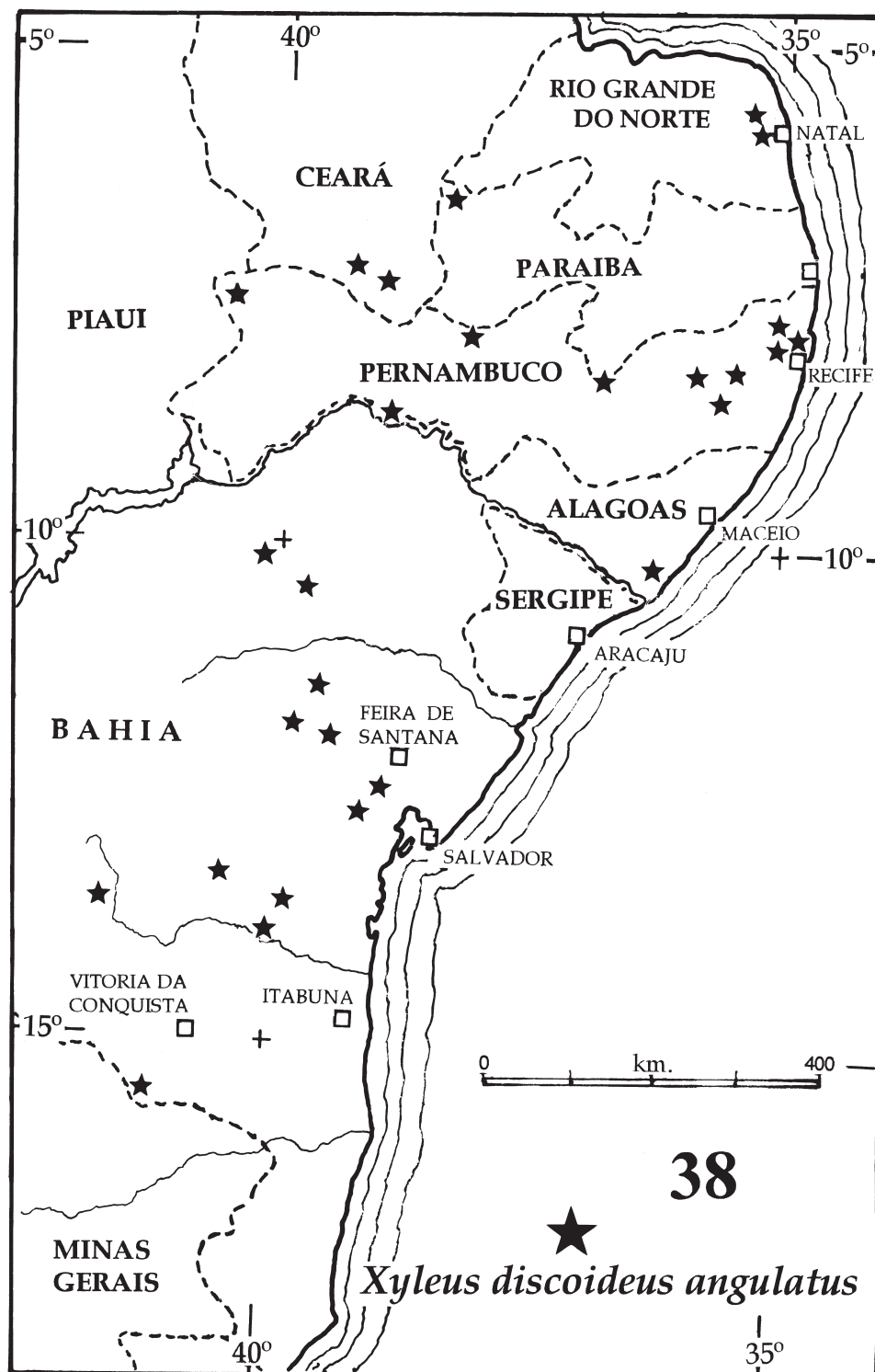


Fig. 38. *Xyleus discoideus angulatus*, localities of collection of specimens examined. Dash-lines in this figure mark the limits of Brazilian states.

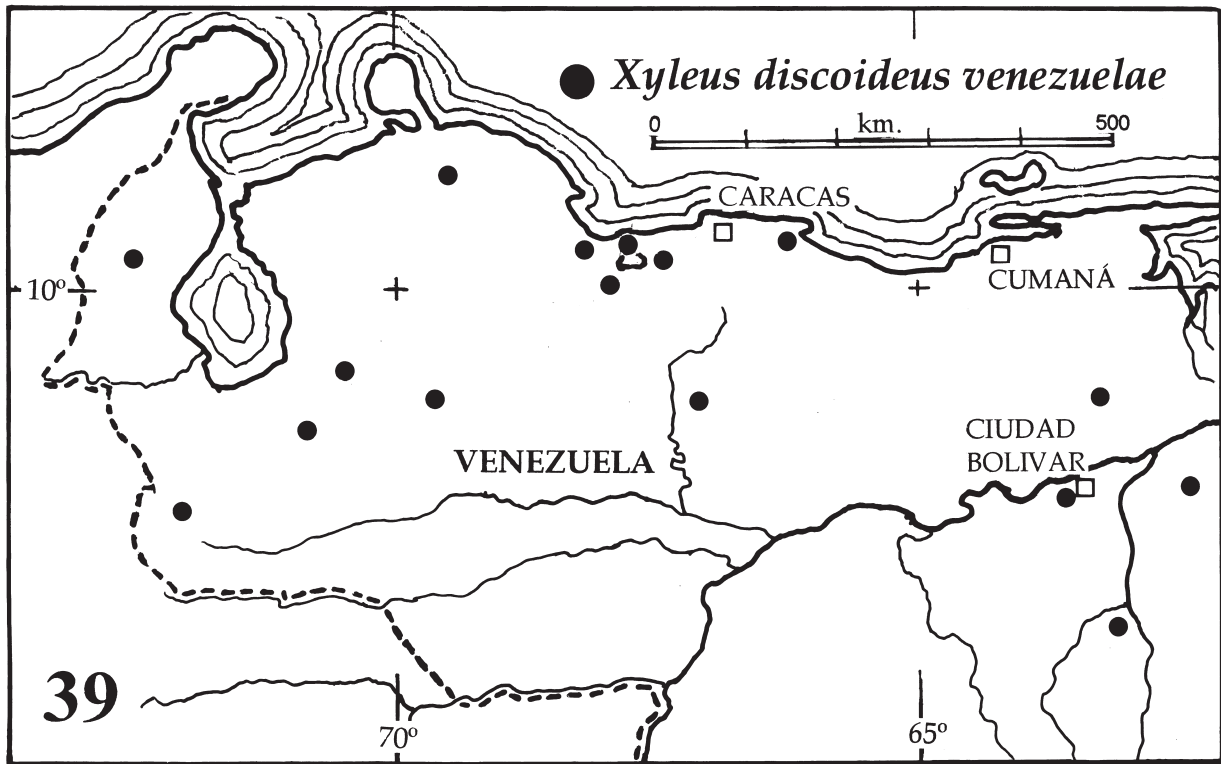


Fig. 39. *Xyleus discoideus venezuelae*, localities of specimens examined.

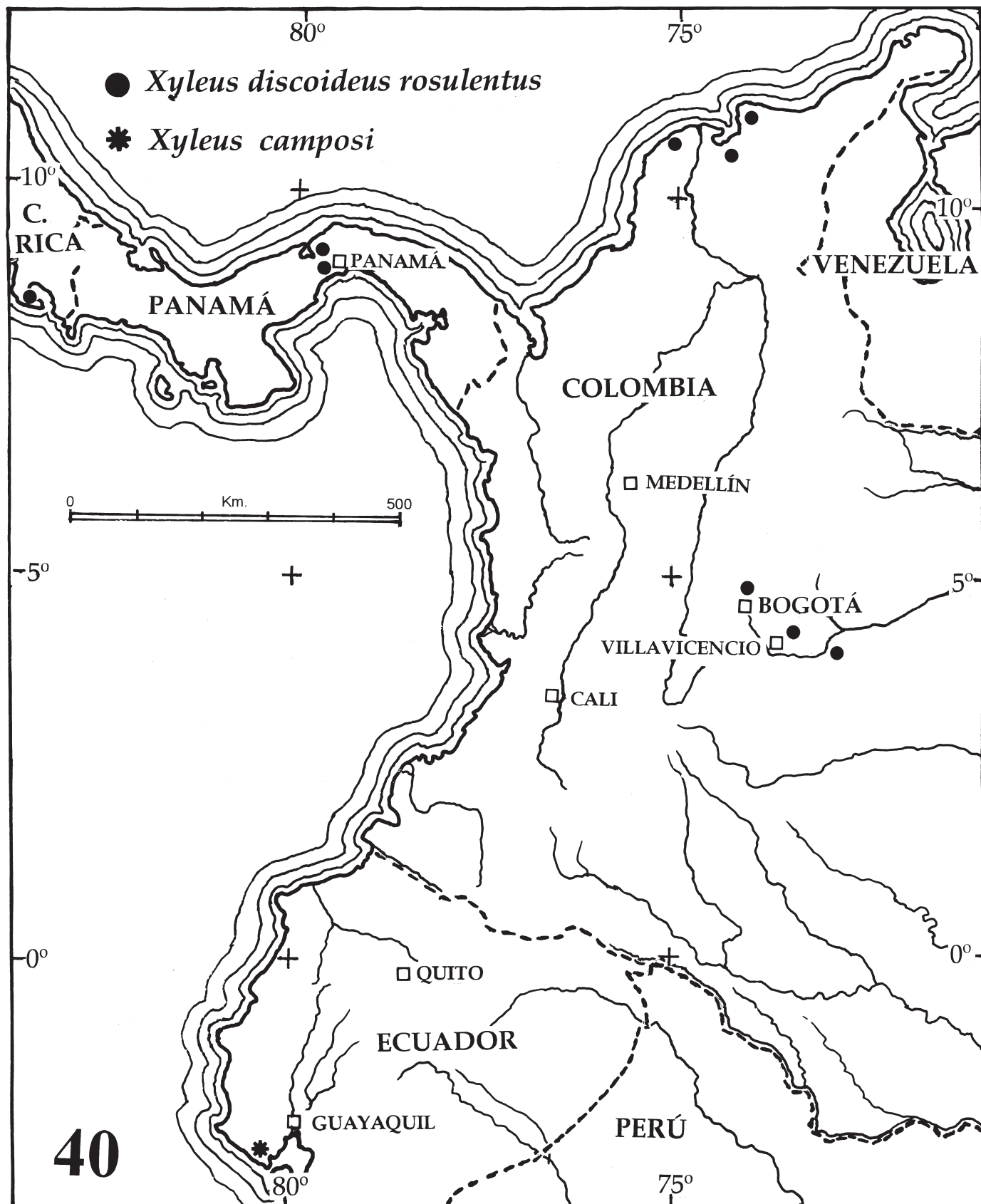


Fig. 40. *Xyleus discoideus rosulentus* and *Xyleus camposi*: localities of specimens examined. The only locality known for *X. camposi* is in Ecuador, near Guayaquil.

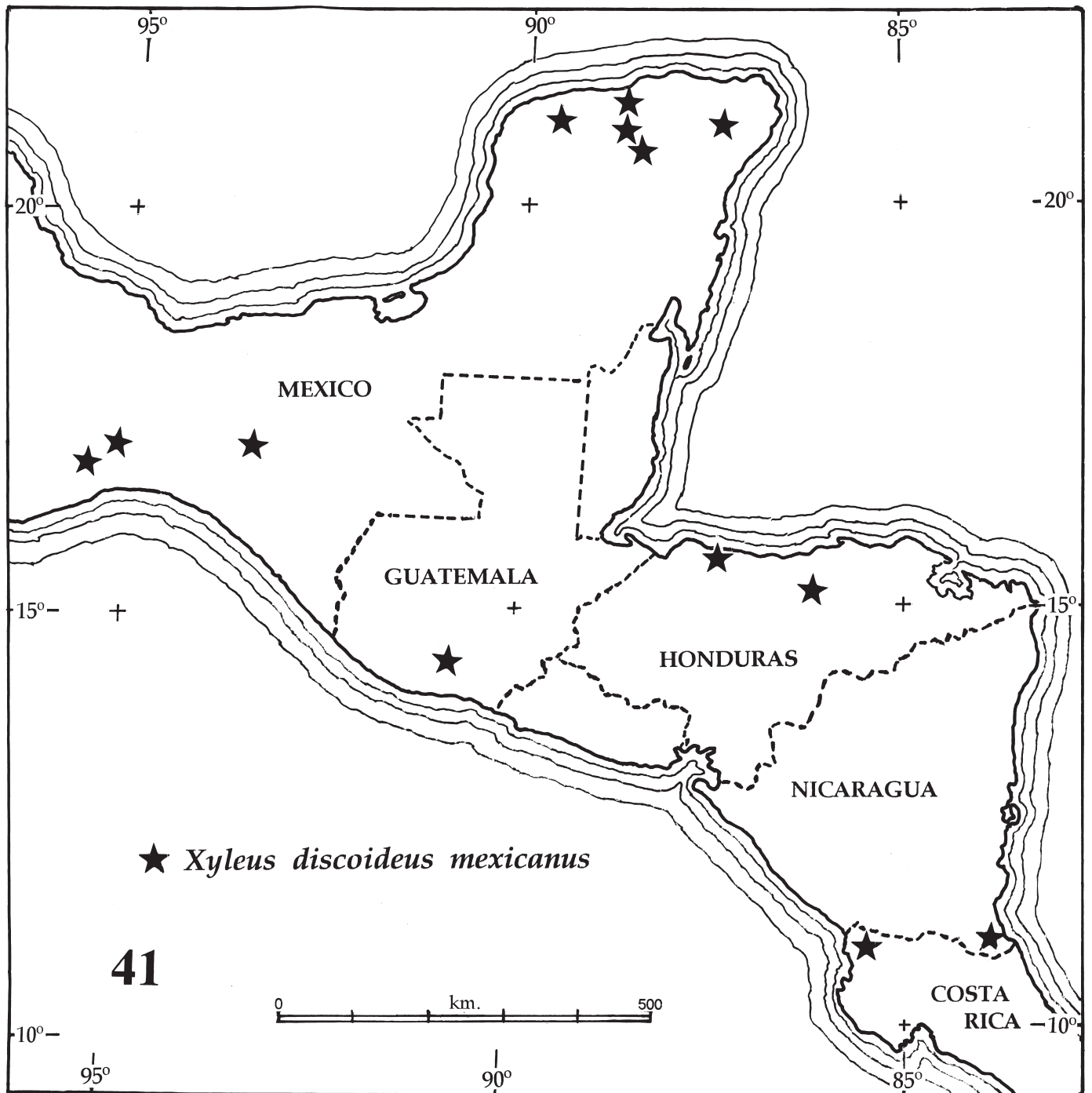


Fig. 41. *Xyleus discoideus mexicanus*, localities of collection of specimens examined.

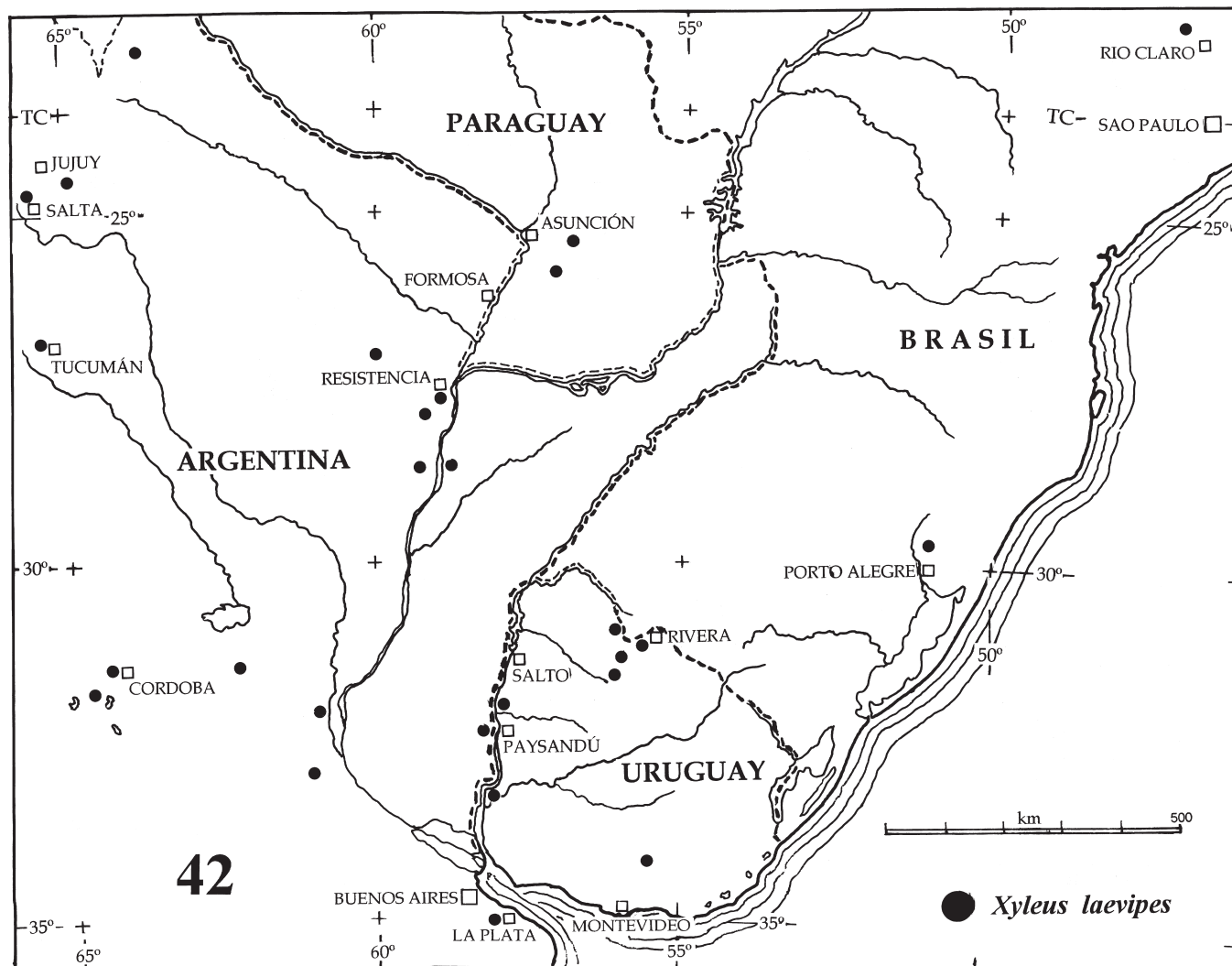


Fig. 42. *Xyleus laevipes*, localities of collection of specimens examined.

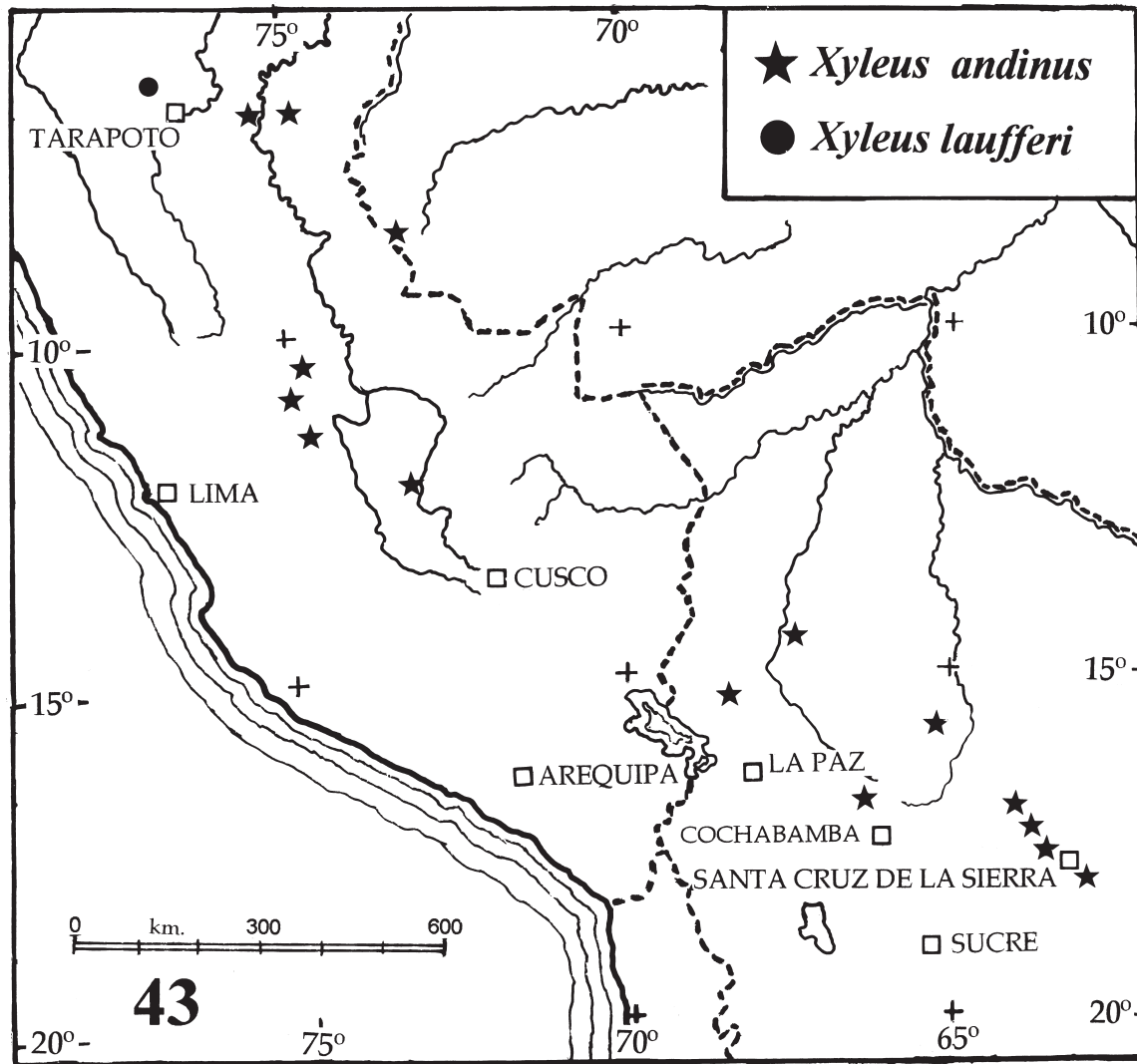


Fig. 43. *Xyleus andininus* and *Xyleus laufferi*, localities of collection of specimens examined. The only locality registered for *X. laufferi* is near the upper left corner of the map.

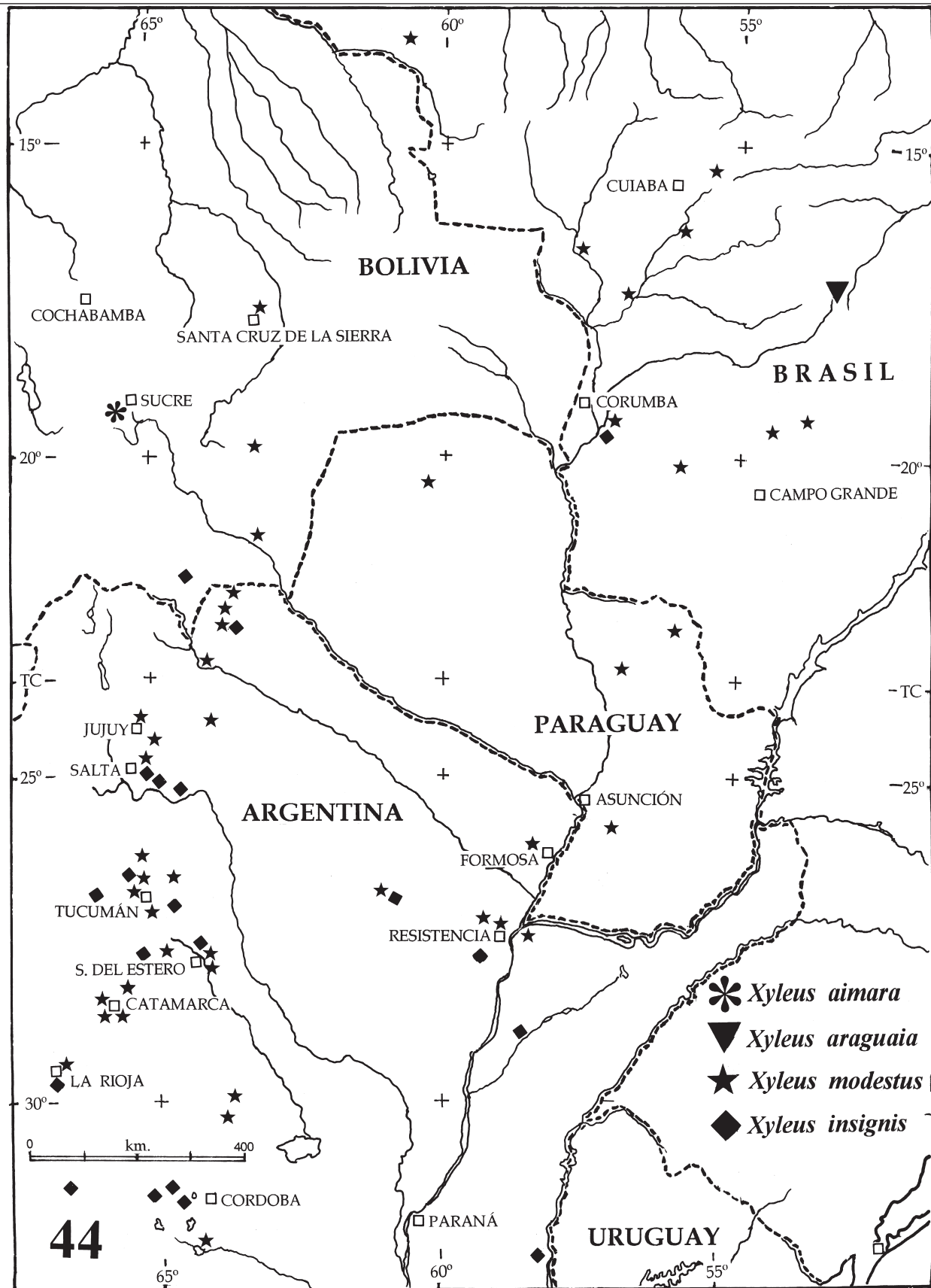


Fig. 44. *Xyleus aimara*, *X. araguaia*, *X. modestus* and *X. insignis*: localities of specimens examined. The first 2 species each known only from a single locality (on the upper third of the map).

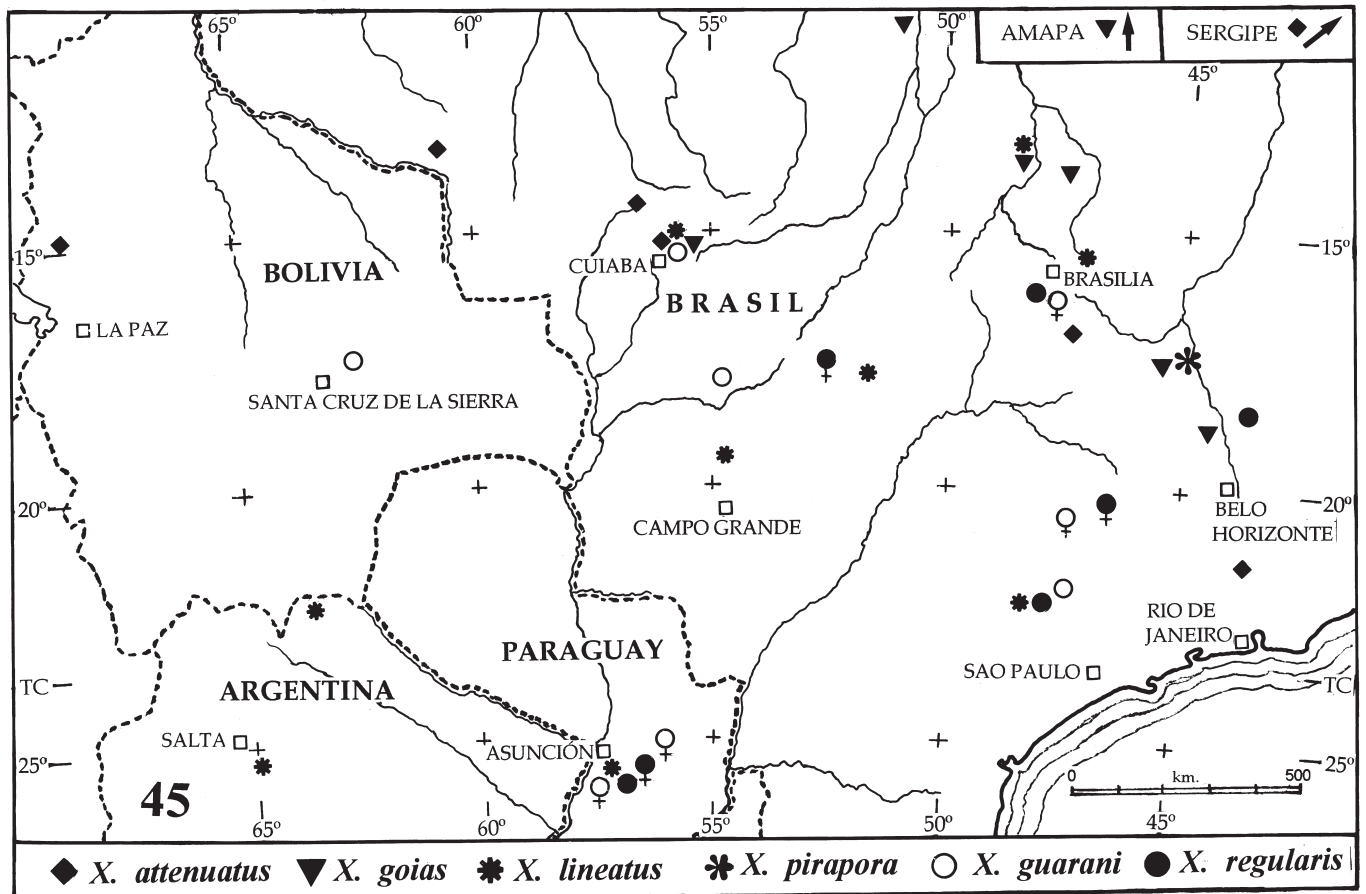


Fig. 45. *Xyleus attenuatus*, *X. goias*, *X. lineatus*, *X. pirapora*, *X. guarani* and *X. regularis* localities of collection of specimens examined. In the case of *X. attenuatus*, there is also registered one locality in coastal Sergipe, and in the case of *X. goias*, one (not found in maps) in the state of Amapá, both far from the area represented in the map. The locality in the state of Amapá seems doubtful for *X. goias*, and may be due to mislabeling of the specimen. For *X. guarani* and *X. regularis*, while males were identified without doubt, females, that have been marked as such, represent only tentative identifications (see text).

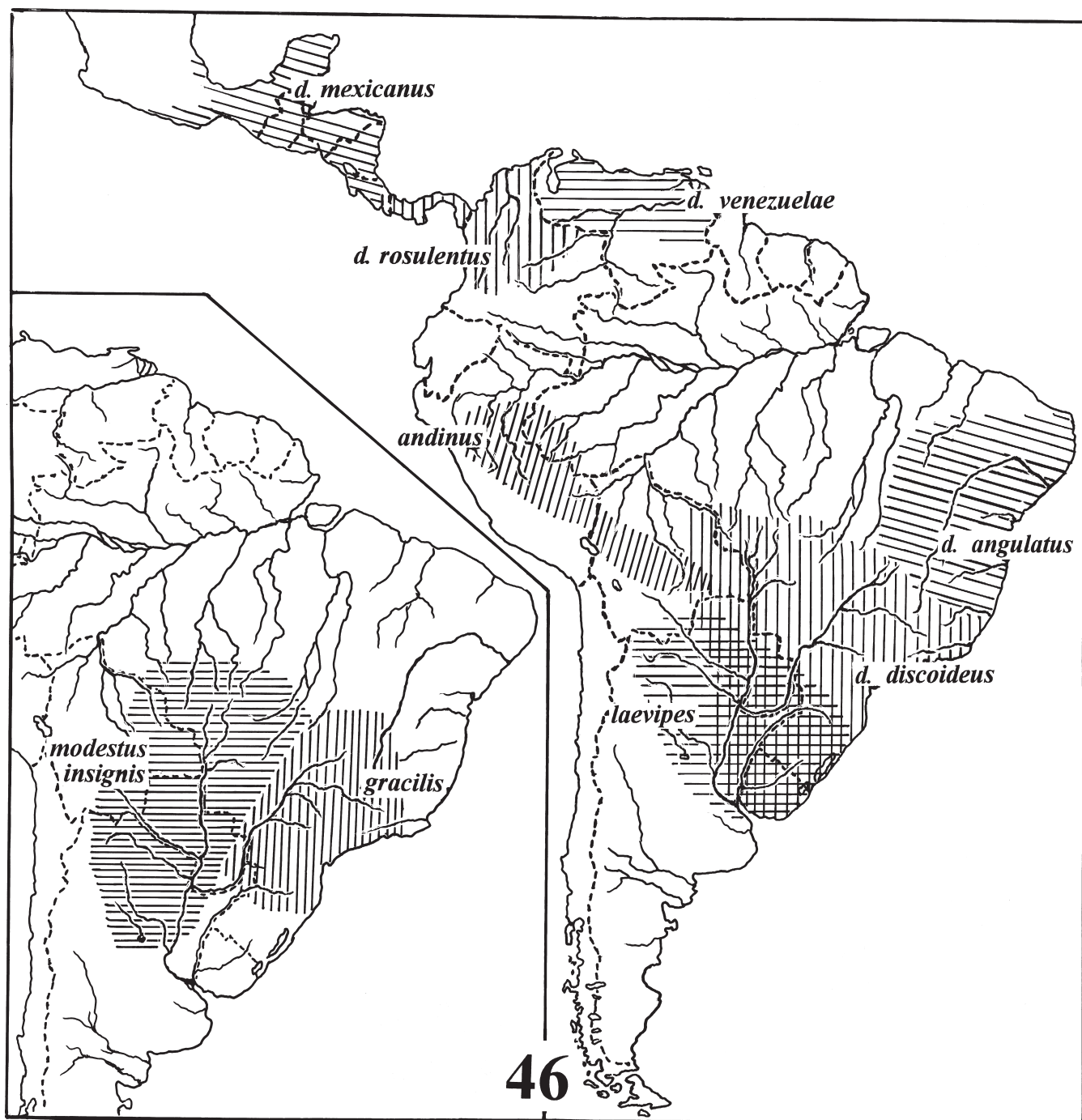


Fig. 46. *Xyleus*, distribution of the 10 best-known species (as indicated). Species known only from a few specimens have not been included here (see preceding maps). Limits of the distribution of each species are approximate. Further collecting will probably enlarge the area of some of these species.

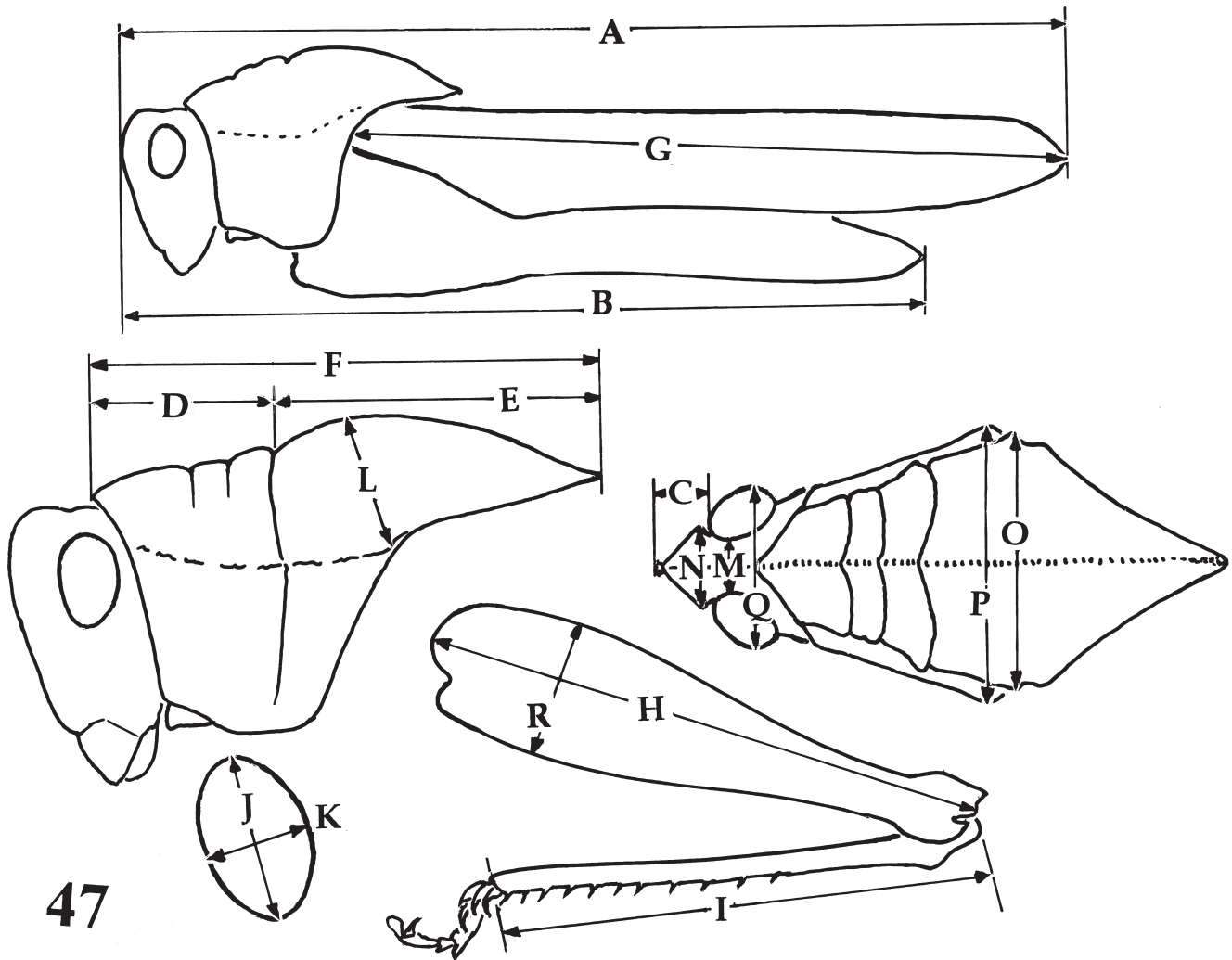


Fig. 47. *Xyleus*, measurements taken (as indicated in corresponding tables). A, length from frons or tip of fastigium to end of tegmen; B, length from frons to end of abdomen; C, length of fastigium; D, length of prozona; E, length of metazona; F, length of prothorax; G, length of tegmen; H, length of hind femur; I, length of hind tibia; J, greater diameter of eye; K, smaller diameter of eye; L, height of pronotal crest; M, interocular distance; N, maximum width of fastigium; O, width of pronotal metazona; P, maximum width of pronotum; Q, width of head at eyes; R, maximum width of hind femur.