

New species of Leiodidae (Coleoptera) and new records from the Neotropical Region

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New species of Leiodidae (Coleoptera) and new records from the Neotropical region. - Four new species of Neotropical Leiodidae are described: *Adelopsis catarina* sp. n., *Adelopsis curvipes* sp. n., *Eucatops (Eucatops) troglodytes* sp. n. and *Parapaulipalpina giachinoi* sp. n. New information is given on certain basic diagnostic characters of several species, as well as further records on their distribution in the Neotropical Region.

Keywords: Coleoptera - Leiodidae - Cholevinae - Camiarinae - taxonomy - *Adelopsis catarina* sp. n. - *Adelopsis curvipes* sp. n. - *Eucatops (Eucatops) troglodytes* sp. n. - *Parapaulipalpina giachinoi* sp. n.

INTRODUCTION

This paper on the family Leiodidae, subfamilies Cholevinae and Camiarinae, is the continuation of research started by the author in 1991 for the fauna of Neotropical Region. The 11 publications which are of listed in the bibliography.

Four new species belonging to the genera *Adelopsis*, *Eucatops* and *Parapaulipalpina* are described in this study. New data on the distribution of other species are given, as well as descriptions and illustrations of structures considered essential for differentiating the species but which had not been indicated in original descriptions or later papers, such as the male genital segment and spermathecal complex.

MATERIAL AND METHODS

A total of 477 specimens of the collection of the Muséum d'histoire naturelle, Geneva (Switzerland), from now on referred to as MHNG and of the private collection of Dr P. M. Giachino, Turin (Italy), from now on referred to as CPMG were studied.

The types of *Adelopsis insolitus* Szymczakowski, 1961 and *Adelopsis triangulifer* Szymczakowski, 1961 deposited in the Swedish Museum of the Natural History, Stockholm (Sweden) were also examined.

As all the studied material was dry, for the examination of many of the structures the specimens had to be softened in boiling water for 10-15 minutes. Some of the examined pieces were placed in hot 10% KOH to separate adherences. All the extracted structures were mounted on a small rectangular piece of plastic in a drop of "Hoyer liquid". Illustrations were by camara lucida.

SYSTEMATICS

CHOLEVINAE KIRBY, 1837

PTOMAPHAGINI JEANNEL, 1911

Adelopsis catarina sp. n.

Type material. Holotype, ♂. Nova Teutônia, Santa Catarina State (Brazil), IV.1976, Fr. Plaumann leg. (MHNG). Paratypes: Nova Teutônia, Santa Catarina State (Brazil). 2 ♀♀, III-1976; 2 ♀♀, I-1977; 2 ♂♂, VI-1977; 1 ♂, IX-1978, Fr. Plaumann leg. (MHNG); 1 ♂ (CPMG) and 1 ♂ (CJSC), Zoology Department, University of León.

Diagnosis. Length, 2.40-2.80 mm. Segments of antennal club of almost equal thickness; protarsi male dilated; genital segment with median region of spiculum gastrale wide and lobulate; aedeagus with right lobe arcuate and pointed in apical region, bearing numerous microsetae on right dorsal face of median lobe; spermathecal complex with numerous spirals forming arches in posterior region.

Description. MALE. Holotype: length, 2.80 mm; width, 1.30 mm. (Paratypes: length, 2.40-2.80 mm; width, 1.20-1.34 mm). Overall shape oval, fairly robust (Plate 1: Fig. 1). Metathoracic wings fully developed. Reddish brown colour, with legs and base of antennae lighter. Pubescence very short, fine, golden and laid back. Transverse striolae weakly visible on head and clearly visible on pronotum and elytra.

Head 1.60 times narrower than pronotum; eyes developed. Antennae short, 3.20 times shorter than body, not surpassing basal region of pronotum; last five segments almost of equal width; 2nd to 6th segments decreasing progressively in length; 6th segment transverse, the longest being the 1st (Fig. 2). Using the length of the 9th segment as a basis, relative length of each segment from 1st to 11th: 1.80-1.30-1.08-0.85-0.77-0.72-1.05-0.57-1.00-1.00-1.25. Proportions between the length and width of each club segment, from the 7th to the 11th: 1.28-0.69-0.96-0.96-1.26.

Pronotum transverse, 1.65 times wider than long, convex, with sides subparallel in basal half; posterior angles weakly protruding; as wide as anterior region of elytra. Elytra oval, weakly convex and narrowing slightly posteriorly, with scarcely rounded tip; transverse striae quite noticeable, as close together as those of pronotum and slightly oblique. Anterior tibiae robust in anterior region; protarsi dilated, first tarsomere 1.10 times narrower than the apical region of the tibiae (Fig. 3).

Genital segment as long as wide, spiculum gastrale with median branch of anterior region very wide, bearing three lobes, one central and two lateral ones; the two lateral branches of the posterior region strongly arcuate (Fig. 4).

Aedeagus wide, 1.65 times longer than wide and belonging to the ultraevolved group (Szymczakowski, 1961). In lateral view (Fig. 5), with very large, oval apical orifice, closed by the two strongly curved asymmetrical lobes. Left lobe narrow and highly developed, with two apical setae; right lobe arcuate, much more developed than left one, narrowing to a pointed tip. Parameres fused with median lobe, left one differentiated in apical region bearing two inserted short setae very close together. Stylet or flagellum of internal sac very long and spiral-shaped, much more expanded in basal region. Right anterior median region of median lobe with numerous microsetae (Fig. 5). In ventral view, right lobe peak-shaped and flagellum long and wide in median region, forming folds, and end region filiform (Fig. 6).



PLATE 1

Fig. 1. Habitus of *Adelopsis catarina* sp. n. (body length, 2.80 mm); Fig. 8. Habitus of *Adelopsis curvipes* sp. n. (body length, 2.75 mm); Fig. 29. Habitus of *Parapaulipalpina giachinoi* sp. n. (body length, 1.45 mm); Fig. 36. Habitus of *Eucatops (Eucatops) troglodytes* sp. n. (body length, 3.05 mm).



FIGS 2-7

Adelopsis catarina sp. n. 2. Antenna; 3. Protarsus male; 4. Genital segment, ventral view; 5. Aedeagus, lateral-left view; 6. Aedeagus, ventral view; 7. Spermathecal complex. (Scale bars: 0.20 mm).

FEMALE. Generally smaller, though with the same external morphological characters as the male, except for the slender protarsi.

Spermathecal complex with the spermatheca around 3.5 times longer than wide, weakly expanded in anterior region and wider than apical lobe which is blunt at tip, narrowing in median region; highly complex posterior region, formed by numerous spires (9-10), posterior ones slightly wider and set out in archs (Fig. 7).

Discussion. The most similar species to *Adelopsis catarina* sp. n. is *A. triangulifera* Szymczakowski, 1961, captured in the same locality, and although the new taxon is larger, the body shape, striation, antennae and protarsi are the same. However,

examination of the holotype reveals enormous differences between the two species in the spiculum gastrale of the genital segment and in the shape of the aedeagus, with the two parameres clearly differentiated and the large apical orifice in the new species.

The structure of the aedeagus belongs to the ultrarevolved group species, including *Adelopsis asper* Jeannel, 1936, *A. asperoides* Szymczakowski, 1963, *A. bernardi* Portevin, 1923, *A. grouvellei* Jeannel, 1936, *A. insolita* Szymczakowski, 1961, *A. leo* Gnaspini, 1993 and *A. piruapuera* Gnaspini, 1993, all with a large apical orifice in the aedeagus. However, *A. catarina* shows some similarity in the shape of the lobules with *A. insolita*, though is noticeably different when compared with the holotype of the latter species. Also, the general shape of the aedeagus is similar to *A. bernardi* and *A. grouvellei*, however the genitalia of these two species was examined in this study and the differences between *A. catarina* are in the shape and direction of the parameres and of the left and right lobes, and also the lack of microsetae on the median lobe. In conclusion, besides the differentiating characters observed in the aedeagus with regard to the shape of the lobes and the number of setae, those observed in the spiculum gastrale of the genital segment and in the spermathecal complex should also be added as they make this new taxon unmistakable.

Etymology. The name is a noun in apposition referring to the Brazilian state where a great diversity of species belonging to the genus *Adelopsis* is found.

***Adelopsis curvipes* sp. n.**

Type material. Holotype, ♂. Nova Teutônia, Santa Catarina State (Brazil), V.1977, Fr. Plaumann leg. (MHNG).

Diagnosis. Length: 2.75 mm. Wide body. Apical club of antenna flattened, segments clearly transverse. Right lobe of aedeagus developed and pentagonal, with membranous protuberance in mid apical region. Left paramere with apical region curved outwards and bearing three setae, right paramere with five setae.

Description. MALE. Length: 2.75 mm; width: 1.45 mm. Metathoracic wings fully developed. Slightly ovoid; wide and robust appearance; maximum width in anterior sixth of elytra (Plate 1: Fig. 8). Shiny dark brown body. Pubescence golden, short, fine and laid back. Transverse striolae visible on head, prothorax and elytra, with no other punctuation.

Head 1.65 times narrower than pronotum; eyes developed. Antennae quite robust, surpassing posterior margin of pronotum and 3.10 times shorter than body; first five segments yellowish, the following ones darker in colour; 6th segment slightly wider than long, 3rd shorter than 2nd; antennal club with segments flattened and transverse, even 11th, which ends in a whitish membranous structure (Fig. 9). Using the length of the 9th segment as a basis, relative length of each segment from 1st to 11th: 1.40-1.13-1.00-0.75-0.70-0.65-1.04-0.50-1.00-0.95-1.50. Similarly, the proportions between the length and width of each club segment, from 7th to 11th: 1.03-0.50-0.84-0.76-0.98.

Pronotum transverse, 2.00 times wider than long, base scarcely narrower in anterior region of elytra; sides weakly blunt in anterior half, almost rectilinear in posterior half; posterior angles acute, but weakly pointed; transverse striolae quite fine and close together, slightly undulate, more marked than those on the head. Elytra elongate,

weakly convex, with apical region widely arcuate, slightly truncate; 2.50 times pronotal length, 1.25 times longer than wide; transverse striolae spaced further apart than on pronotum, weakly oblique, areas between them smooth. Anterior tibiae short and expanded in apical region; protarsi dilated, first tarsomere 1.35 times narrower than maximum width of protibia (Fig. 10). Median tibiae slightly arcuate and posterior ones straight, both robust at end.

Aedeagus, in lateral view (Fig. 11), slightly curved in ventral face, with very symmetrical tip, bearing three differentiated lobes set out at different levels, two bearing a short seta and the third with microsetae; right paramere slightly dilated before tip, pointed at tip, with 5 setae of unequal length inserted in apical region. In dorsal view (Fig. 12), apical orifice of median lobe displaced towards the left, and feebly developed; completely lacking left lobe; right lobe highly developed, forming transverse pentagonal plate, without visible setae, and with protruding, more membranous anterior median region. Parameres laterally joined along entire length of median lobe, except for the apical area of the left paramere which is curved outwards and surpasses the apical orifice of the median lobe, where three equidistant setae are inserted. Internal sac with robust curved stylet which appears to be resting on a rectangular sclerotized plate.

FEMALE not known.

Discussion. In many species of the genus *Adelopsis* the apical area of the right lobe is triangular, rectangular or pentagonal, for example: *Adelopsis bellatrix* Szymczakowski, 1968; *A. galea* Gnaspini & Peck, 1996; *A. heterocera* Portevin, 1907; *A. onorei* Salgado, 2002; *A. palata* Gnaspini & Peck, 2001; *A. peruviansis* Blas, 1980 and *A. santamarta* Gnaspini & Peck, 2001. Differences in the shape of the mid apical region of the membranous right lobe, the absence of a left lobe and the number and layout of the setae on the parameres make *A. curvipes* sp. n. easily distinguishable by the general structure of the aedeagus in all the previously-mentioned species.

Greater similarity to *A. brunnea* Jeannel, 1936, from Colombia, and its different subspecies from Venezuela, all collected in caves (Szymczakowski, 1975) and to *A. chapadaensis* Salgado, 1999, from Mato Grosso, Brasil, is observed in the structure of the right lobe. Differences in external morphology between these two species and *A. curvipes* sp. n. are observed in the size, *A. curvipes* is larger and wider. The aedeagus of the new taxon is differentiated from *A. brunnea* and *A. chapadaensis* by the membranous protuberance in the mid apical area of the right lobe, and from *A. chapadaensis* by the lack of setae on the right lobe in dorsal view; it is also differentiated from these two species by its length, shape, apical position and number of setae on the parameres.

Etymology. The specific name refers to one of the diagnostic characters of the species, the apical curvature of the left paramere.

Adelopsis ascutellaris (Murray, 1856)

Material examined. 12 km N Luepa, Gran Sabana, Bolívar Province (Venezuela). 2 ♀♀, 1/11-VII-1987, S. & J. Peck leg. (MHNG).

Description. FEMALE. 2.00 mm long, with very weakly arcuate pronotal sides; antennal segments with 6th transverse, 2nd as long as the sum of 3rd and 4th segments

together. The spermathecal complex is formed by an elongate oblong apical lobe, as wide as anterior region of spermatheca which is elongate and of similar width; the posterior region of the spermathecal complex is formed by 4 turns of equal thickness (Fig. 13). See Jeannel (1936) for the description of other structures.

Distribution. The only record known to date is from Caracas D.F. (Venezuela) (Jeannel, 1936), the record from Bolívar Province is now made for the first time.

Adelopsis asperoides Szymczakowski, 1963

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 1♂-1♀, IV-1976; 2♂♂-3♀♀, V-1976; 1♂-1♀, XII-1976; 1♂, I-1977; 1♀, VI-1977, Fr. Plaumann leg. (MHNG and CPMG).

Description. Length 2.15-2.40 mm. Male genital segment as long as wide, spiculum gastrale with median branch of anterior region around 2.5 times longer than wide and with parallel sides; lateral branches of posterior region long, narrow and slightly arcuate (Fig. 14).

Spermathecal complex with spermatheca about four times longer than wide, of uniform thickness and weakly arcuate shaped; apical lobe ovoid and protruding; posterior region coiled with two-three turns (Fig. 15).

For the description of other structures and also figures see Szymczakowski (1963) and Gnaspini (1993).

Distribution. This species is known from Sao Paulo and Minas Gerais States (Brazil), (Peck *et al.*, 1998). The record from Santa Catarina State is new for Brazil.

Adelopsis bernardi Portevin, 1923

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 1♂-1♀, III-1976; 6♂♂, IV-1976; 2♂♂, V-1976; 4♂♂-2♀♀, XII-1976; 1♂-1♀, I-1977; 3♂♂-1♀, V-1977; 2♂♂-1♀, VI-1977, Fr. Plaumann leg. (MHNG and CPMG).

Arroyo Itabo, Guazu, Alto Paraná Province (Paraguay). 1♂, 4-XI-1979, Expedition Muséum de Genève leg. (MHNG).

Description. Size 2.20-2.50 mm. Male genital segment as long as wide; spiculum gastrale with median brach of anterior region as wide as long, slightly angulose at tip; lateral branches of posterior region narrow, long and almost straight (Fig. 16).

Spermathecal complex with spermatheca of uniform thickness, bearing an arch dorsally and four times longer than wide, with apical lobe and wider than anterior region of spermatheca; posterior region coiled with four turns (Fig. 17).

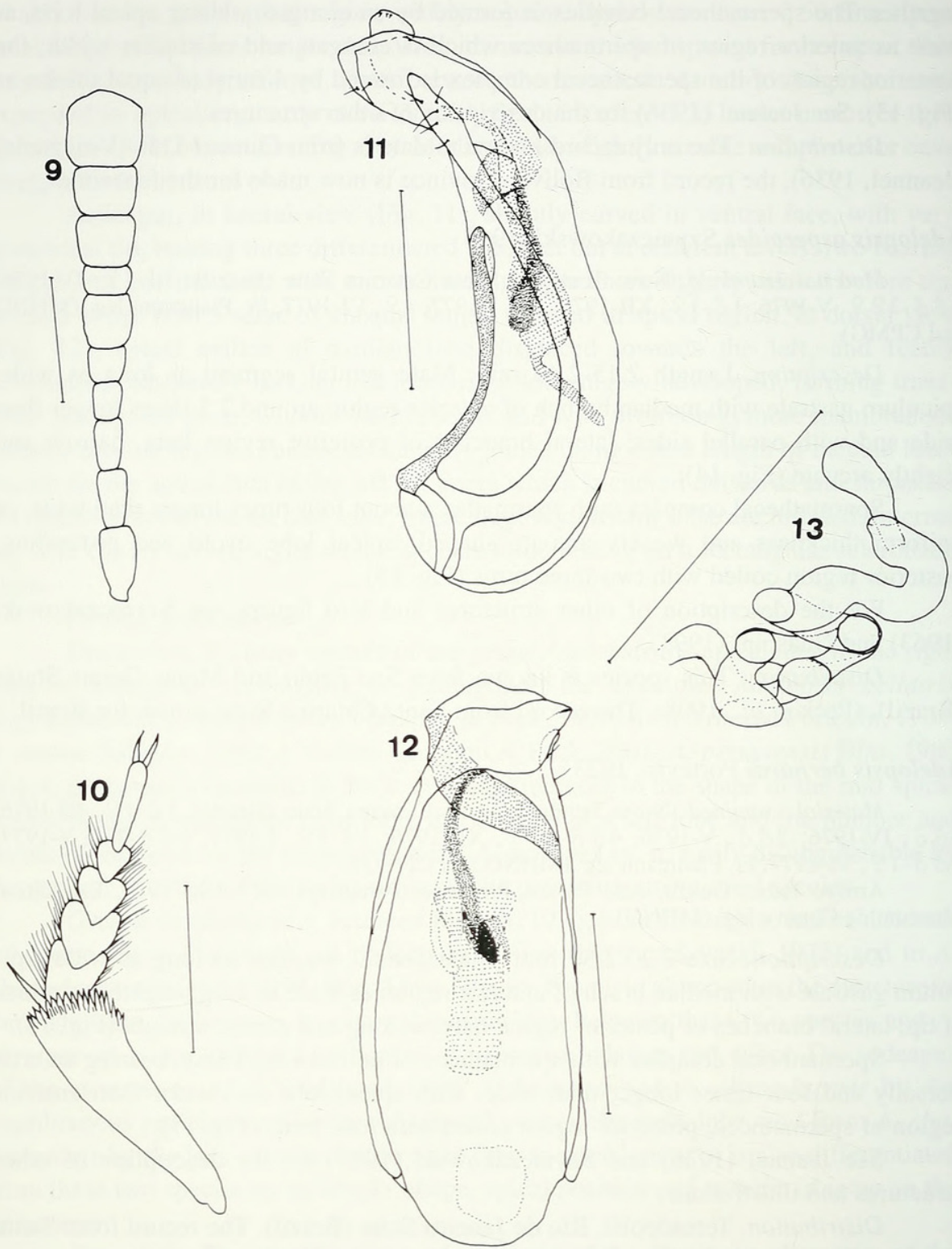
See Jeannel (1936) and Szymczakowski (1963) for the description of other structures and illustrations.

Distribution. Teresópolis, Rio de Janeiro State (Brazil). The record from Santa Catarina State is new for Brazil.

Adelopsis grouvellei Jeannel, 1936

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 1♂, III-1976; 1♂-4♀♀, IV-1976; 2♂♂-1♀, V-1976; 2♀♀, XII-1976; 3♂♂, I-1977; 1♂-1♀, V-1977; 3♂♂, VI-1977; 1♀, IX-1978, Fr. Plaumann leg. (MHNG and CPMG).

Description. Size 2.10-3.00 mm. Male genital segment somewhat wider than long, spiculum gastrale with median branch of the anterior region arcuate and wider



Figs 9-13

Adelopsis curvipes sp. n. 9. Antenna; 10. Protarsus male; 11. Aedeagus, lateral-right view; 12. Aedeagus, dorsal view. *Adelopsis ascutellaris*. 13. Spermathecal complex. (Scale bars: 0.20 mm).

than long; lateral branches of posterior region long and slightly curved upwards (Fig. 18).

Spermathecal complex with arcuate spermatheca, wider in anterior region, apical lobe with anterior region blunt and wider than the anterior region of the spermatheca; posterior region formed by numerous superposed turns of uniform thickness (Fig. 19).

See Jeannel (1936) and Szymczakowski (1963) for the description of other structures and also graphs.

Distribution. Recorded from Bahía, Paraná, Río de Janeiro and Sao Paulo States (Brazil) by Szymczakowski (1963) and Peck *et al.* (1998). The record from Santa Catarina State is new for Brazil.

***Adelopsis insolita* Szymczakowski, 1961**

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 1 ♂, IV-1976; 1 ♀, VI-1977, Fr. Plaumann leg. (MHNG).

Description. Size 2.00-2.50 mm. The aedeagus observed in the holotype has a very large apical orifice; very long and strongly undulate stylet, and curved asymmetrical parameres. Spiculum gastrale with median region wider than long and no anterior branch is observed, unlike in the other species, the lateral branches of the posterior region are long, straight and narrow, though feebly dilated in apical region (Fig. 20).

The spermathecal complex is not described as it is absent in the studied female specimen.

See Szymczakowski (1961) for extensive description and for illustrations.

Distribution. This species has only been recorded in Nova Teutônia, Santa Catarina State (Brazil).

***Adelopsis luculenta* Szymczakowski, 1963**

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 2 ♂♂-2 ♀♀, IV-1976; 1 ♂-1 ♀, V-1976; 1 ♂, XII-1976, Fr. Plaumann leg. (MHNG and CPMG).

Description. Size 2.60-3.70 mm. Male genital segment wider than long, spiculum gastrale with median branch of anterior region wider than long, weakly angulose at the tip, the two lateral branches of the posterior region slightly curved (Fig. 21). This structure is similar in shape to *A. bernardi*, but the spiculum gastrale in this species is less robust than in *A. luculenta* (Fig. 16).

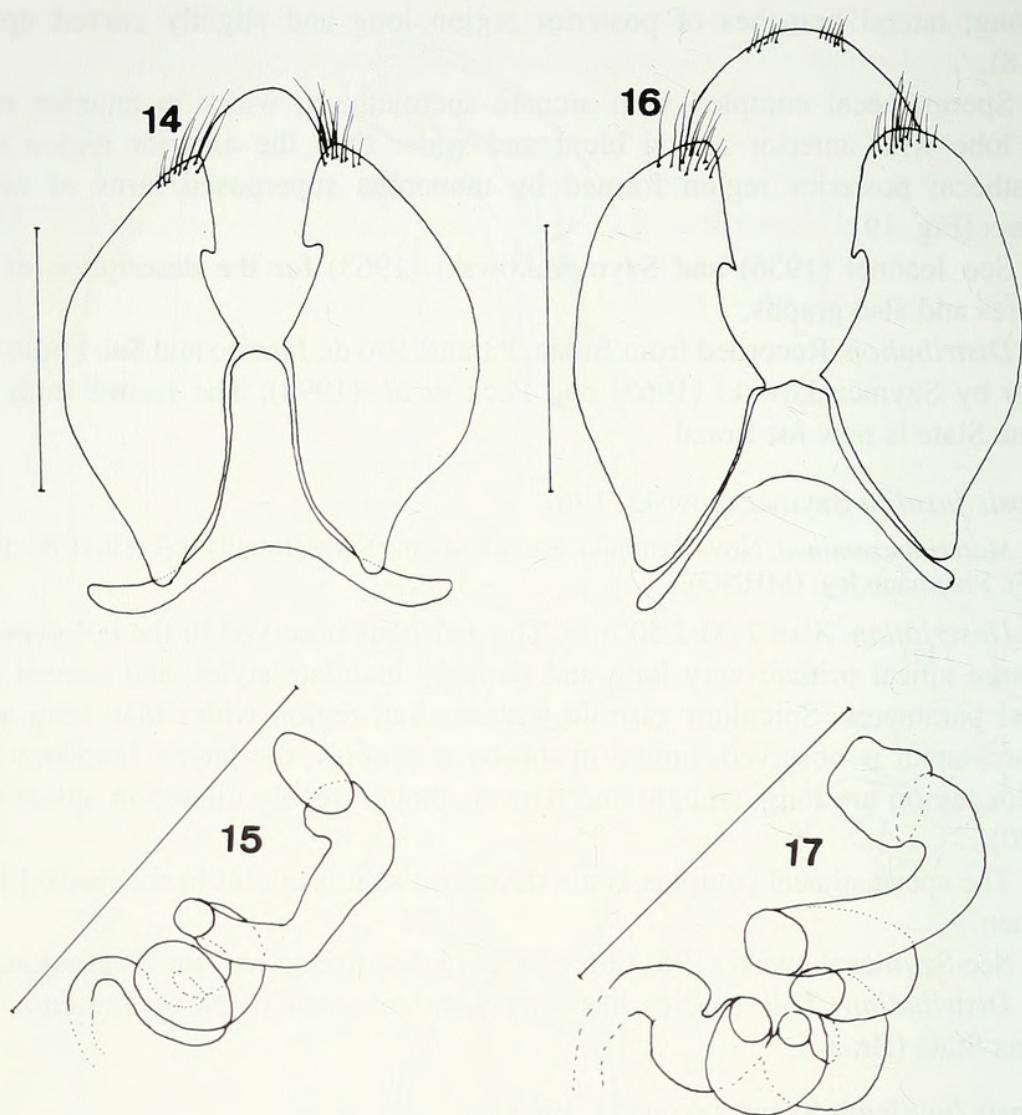
Spermathecal complex with anterior region of spermatheca strongly expanded; apical lobe oval, weakly blunt at the tip; posterior region formed by two robust turns (Fig. 22).

See Szymczakowski (1963) for extensive description and for illustrations.

Distribution. Only the record for Sao Paulo State is known, its distribution has now been extended to Santa Catarina State.

***Paulipalpina claudicans* (Szymczakowski, 1980)**

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 112 ♂♂-129 ♀♀, captured in III-1976, IV-1976, V-1976, XII-1976, I-1977, V-1977, VI-1977, Fr. Plaumann leg. (MHNG and CPMG).



FIGS 14-17

Adelopsis asperoides. 14. Genital segment, ventral view; 15. Spermathecal complex. *Adelopsis bernardi*. 16. Genital segment, ventral view; 17. Spermathecal complex. (Scale bars: 0.20 mm).

Description. Size 2.00-2.30 mm. Male genital segment as long as wide, spiculum gastrale narrow, long and straight (Fig. 23).

Spermathecal complex with small lobe in mid anterior region of spermatheca in a widely arcuate shape which narrows progressively; posterior region formed by numerous superposed turns and ending in a structure resembling a flattened lobe (Fig. 24).

See Szymczakowski (1980) for extensive description and for illustrations.

Distribution. Only data from Nova Teutônia, Santa Catarina State (Szymczakowski, 1980) and from Río de Janeiro State (Salgado, 1999) are known.

***Parapaulipalina giachinoi* sp. n.**

Type material. Holotype, 1♂. Samiria, Loreto Province (Perú). 28-X/8-XI-1980, Cl. Vaucher leg. (MHNG).

Diagnosis. Length, 1.45 mm. Antennal club segments transverse, except for 11th. Aedeagus very long and narrow, with lateral margins slightly undulate. Lobes of apical region of aedeagus touching, both robust, especially the right one. Flagellum as long as median lobe.

Description. MALE. Length, 1.45 mm; width, 0.75 mm. Metathoracic wings fully developed. Body ovoid, quite elongate (Plate 1: Fig. 29). Shiny reddish colour, legs lighter in colour with whitish protarsi and pale yellow antennae, except for slightly darker 7th to 10th segments. Pubescence very short, fine golden and laid back. Eyes developed. Maxillary palps with final segment very fine, pointed and around twice as short as penultimate.

Antenna 1.30 times as long as pronotum, almost reaching base of pronotum (Fig. 25); 8th, 9th and 10th club segments weakly transverse, 4th also transverse; in lateral view, last segment ventrally concave, forming a small pointed lamina. Using the length of the 9th segment as a basis, relative length of each segment from 1st to 11th: 1.48-1.50-0.80-0.60-0.70-0.70-1.10-0.50-1.00-1.00-1.60. Proportions between length and width of each club segment, from 7th to 11th: 1.36-0.60-0.98-0.95-1.85.

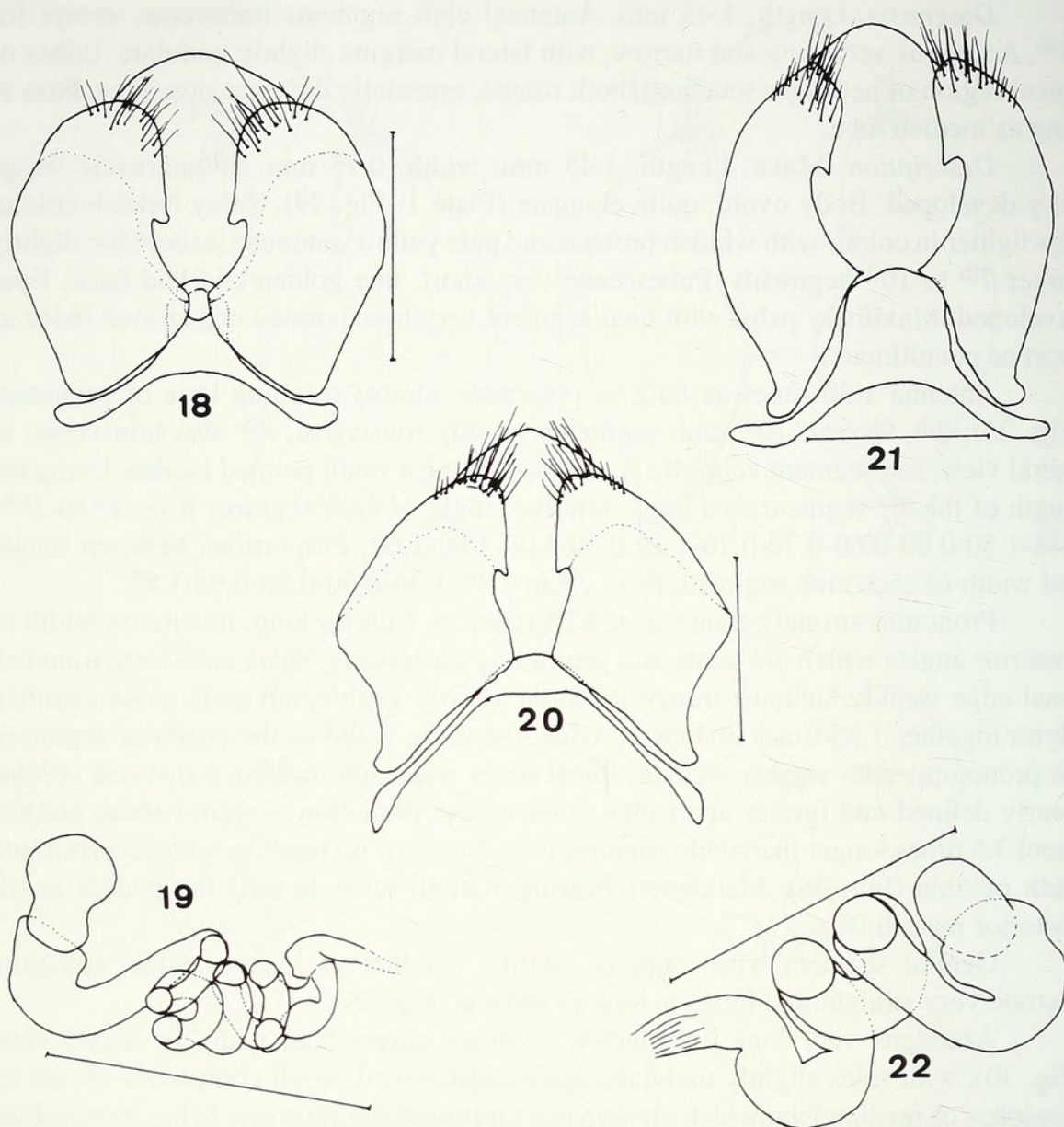
Pronotum strongly transverse, 2.25 times as wide as long, maximum width in posterior angles which are acute and protruding posteriorly; sides uniformly rounded, basal edge weakly sinuous; transverse striae clearly visible and quite close together. Elytra together 1.35 times as long as wide, the same width as the posterior region of the pronotum; sides weakly arcuate, apical edges wide, subtruncate; transverse striae clearly defined and further apart than those on the pronotum. Anterior tibiae simple, about 3.5 times longer than wide, anterior tarsi dilated, 0.60 times as wide as maximum width of tibia (Fig. 26). Metafemur bearing a small tubercle near the middle at the posterior margin (Fig. 27).

Genital segment with lobes of sternite together as long as wide; spiculum gastrale very straight and long, as long as sternite (Fig. 28).

Aedeagus very long and narrow, 5 times longer than wide. In dorsal view (Fig. 30), with sides slightly undulate; apical orifice oval, small completely closed by two lobes of median lobe which are unequal and short, the right one being more robust and blunt, with 4-5 small setae inserted; left lobe with truncate tip and one small seta. In lateral view (Fig. 31), on ventral side median lobe uniformly curved, dorsally with two curvatures, one anterior and concave and the other posterior, longer and convex; apex forming very characteristic point bearing four small setae and dorsal hump; internal sac enclosing heliocoidal membranous structure, and a long flagellum. Parameres scarcely visible, joined to whole length of median lobe. Internal sac with stylet or flagellum very long and undulate, as long as aedeagus (note: when extracting the holotype genitalia the end section of the less sclerotized stylet may have broken off); no other structures visible.

FEMALE unknown.

Discussion. *Parapaulipalpa giachinoi* sp. n. is included in the genus *Parapaulipalpa* due to the short antennae, slightly elongate antennal segments, aedeagus somewhat S-shaped in dorsal view and the stylet very elongate. The only two species in the genus, *Parapaulipalpa dentata* Gnaspini, 1996, from Venezuela, and *P. filicornis* (Jeannel, 1936), from Colombia, *P. giachinoi* sp. n. are easily differentiated



Figs 18-22

Adelopsis grouvellei. 18. Genital segment, ventral view; 19. Spermathecal complex. *Adelopsis insolita*. 20. Genital segment, ventral view. *Adelopsis luculenta*. 21. Genital segment, ventral view; 22. Spermathecal complex. (Scale bars: 0.20 mm).

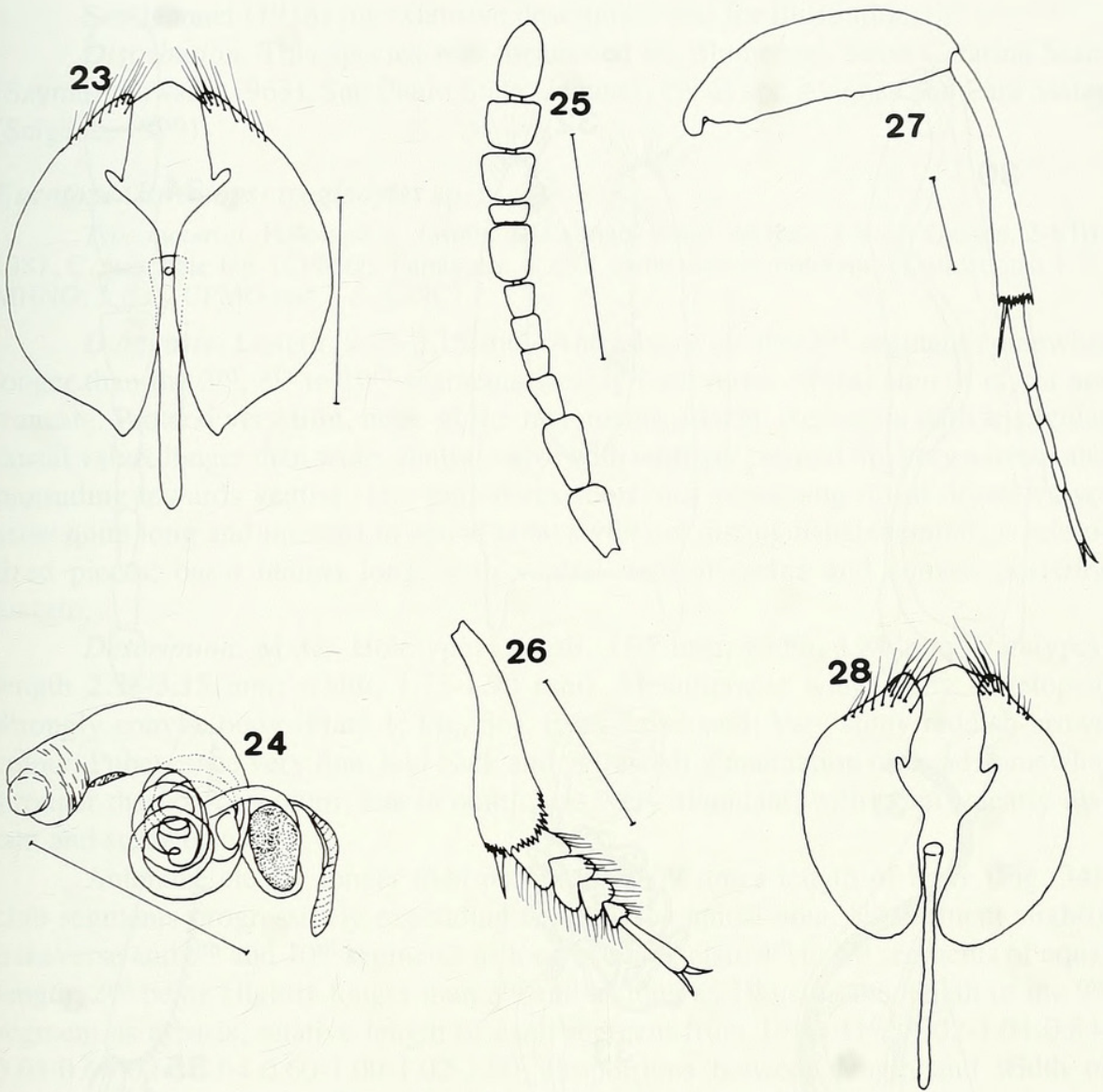
by: smaller body size, antennal club segments more transverse, aedeagus less curved in dorsal view and, in particular, the two lobes closing the apical orifice more dilated and rounded.

This is the first record of the genus *Parapaulipalpina* in Peru.

Etymology. This species is named after the entomologist Dr Pier Mauro Giachino, in recognition of his extensive research work in the study of the families Leiodidae and Carabidae.

Ptomaphagus (Adelops) spelaeus (Bilimek, 1867)

Material examined. Cacahuamilca Cave, Guerrero State (Mexico). 1 ♂-1 ♀, 16-IV-1981, Strinati leg. (MHNG).



FIGS 23-28

Paulipalpina claudicans. 23. Genital segment, ventral view; 24. Spermathecal complex. *Parapaulipalpina giachinoi* sp. n. 25. Antenna; 26. Protarsus male; 27. Femur, tibia and tarsi posterior; 28. Genital segment, ventral view. (Scale bars: 0.20 mm).

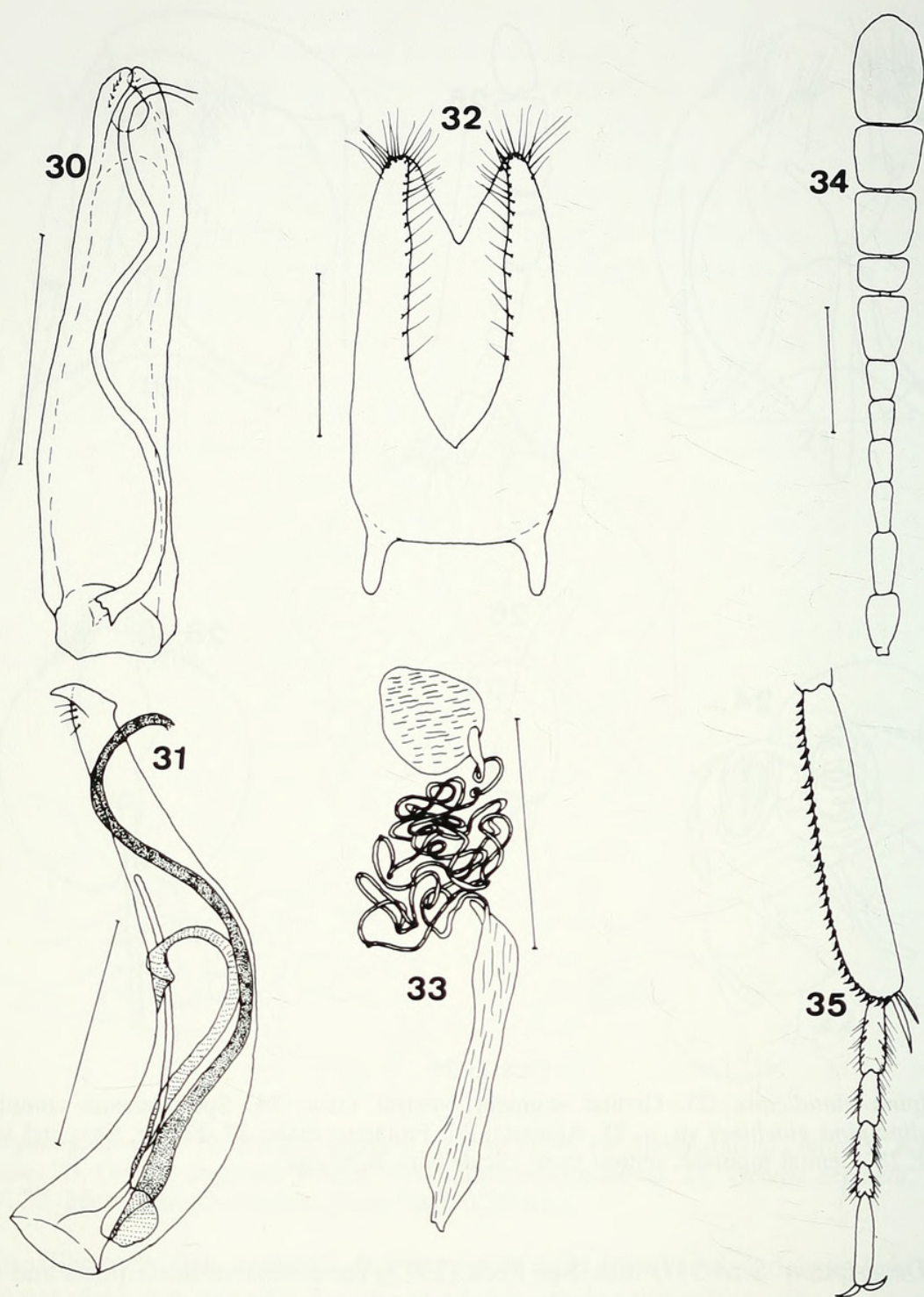
Description. Size 3.00 mm. See Peck (1973) for extensive description and for illustrations.

Distribution. Troglophil species recorded in Guerrero, Jalisco and Oaxaca States (Mexico), (Peck *et al.*, 1998).

EUCATOPINI JEANNEL, 1921

Eucatops (Eucatops) glabricollis (Reitter, 1884)

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 1 ♀, IV-1976; 1 ♂, V-1976; 3 ♂-3 ♀, XII-1976; 2 ♂-1 ♀, II-1977; 1 ♂-1 ♀, V-1977, Fr. Plaumann leg. (MHNG and CPMG).



FIGS 30-35

Parapaulipalpina giachinoi sp. n. 30. Aedeagus, ventral view; 31. Aedeagus, lateral-right view. *Eucatops* (*E.*) *glabricollis*. 32. Genital segment, ventral view; 33. Spermathecal complex. *Eucatops* (*E.*) *troglodytes* sp. n. 34. Antenna; 35. Protarsus male. (Scale bars: 0.20 mm).

Description. Size 1.80-2.60 mm. Male genital segment subcylindrical, 1.90 times as long as wide, with 8-10 setae in the inner ventral margin (Fig. 32).

Spermathecal complex exhibiting a globose spermatheca, a very long and very fine spermathecal duct forming a jumble of turns and a weakly-defined membranous elongate final region (Fig. 33).

See Jeannel (1936) for extensive description and for illustrations.

Distribution. This species was mentioned by Blumenau, Santa Catarina State (Szymczakowski, 1963), Sao Paulo State (Jeannel, 1936) and Alagoas and Pará States (Salgado, 1999).

***Eucatops (Eucatops) troglodytes* sp. n.**

Type material. Holotype ♂, Grotte de Caiman, Route de Kaw, French Guiana, 2-VIII-1987, C. Juberthie leg. (CPMG). Paratypes: 5 ♂♂, same data as holotype. (Collections: 1 ♂, MHNG; 3 ♂♂, CPMG and 1 ♂, CJSC).

Diagnosis. Length, 2.75-3.15 mm. Antennae with the 2nd segment somewhat longer than the 3rd; 8th to 10th segments weakly transverse. Apical area of elytra not truncate. Protarsi very thin, none of the tarsomeres dilated. Aedeagus with triangular dorsal valve, longer than wide, ventral valve with strongly pointed tip, very narrow and protruding towards ventral face; parameres short, not surpassing tip of dorsal valve, setae quite long and inserted in apical area; stylet not distinguishable amongst sclerotized pieces; basal lamina long, with ventral median carina and convex posterior margin.

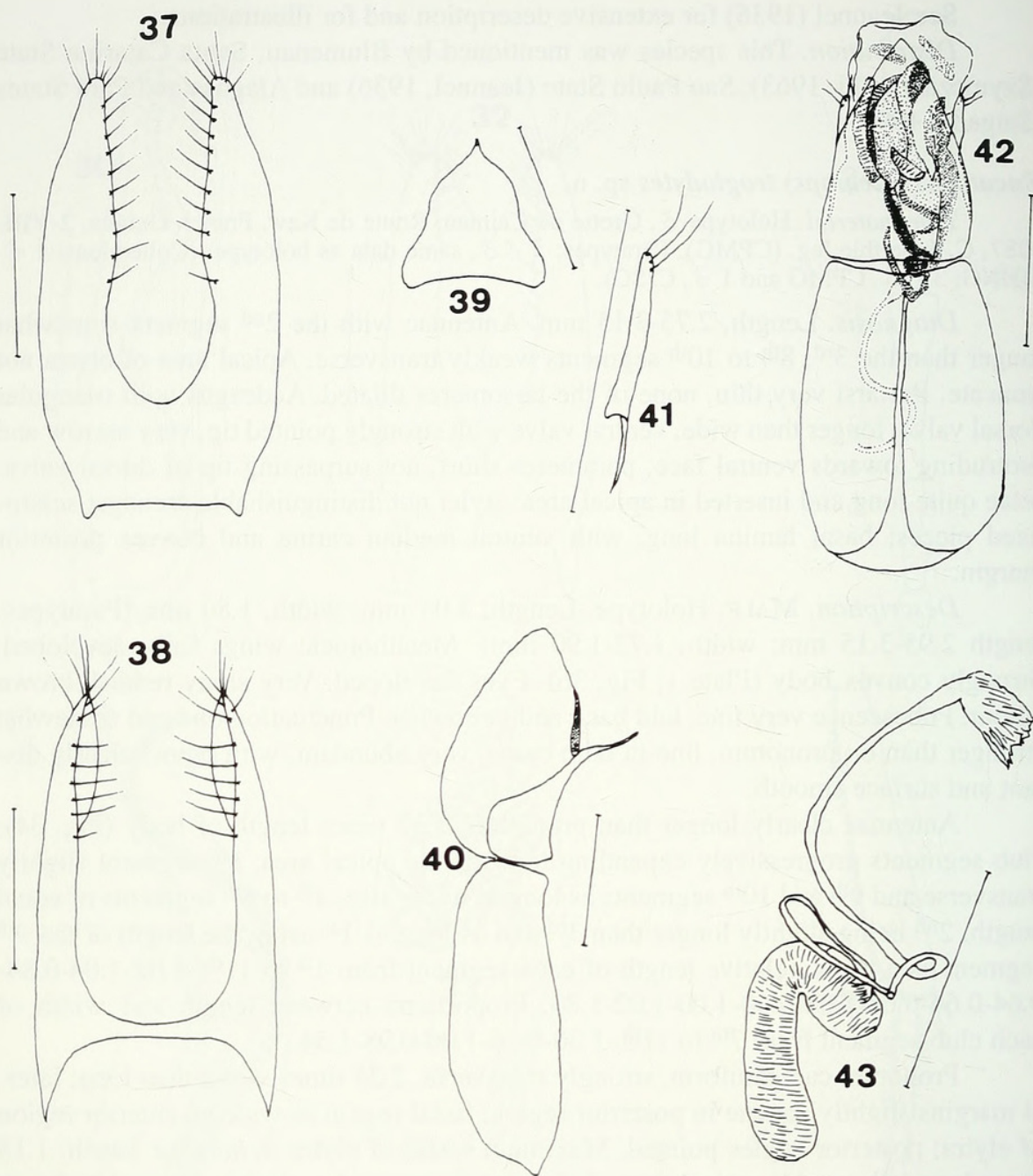
Description. MALE. Holotype. Length, 3.05 mm; width, 1.80 mm (Paratypes: length 2.95-3.15 mm; width, 1.72-1.90 mm). Metathoracic wings fully developed. Strongly convex body (Plate 1: Fig. 36). Eyes developed. Very shiny reddish-brown colour. Pubescence very fine, laid back and yellowish. Punctuation on head somewhat stronger than on pronotum, fine in both cases, very abundant, with points clearly distant and surface smooth.

Antennae clearly longer than pronotum, 0.39 times length of body (Fig. 34); club segments progressively expanding towards the apical area, 8th segment slightly transverse and 9th and 10th segments as long as wide; also, 4th to 6th segments of equal length, 2nd being slightly longer than 3rd and as long as 1st using the length of the 9th segment as a basis, relative length of each segment from 1st to 11th: 1.02-1.04-0.84-0.64-0.64-0.64-1.04-0.60-1.00-1.02-1.80. Proportions between length and width of each club segment from 7th to 11th: 1.30-0.76-1.00-0.98-1.54.

Pronotum campaniform, strongly transverse, 2.25 times wider than long; lateral margins slightly sinuate in posterior region; basal region as wide as anterior region of elytra; posterior angles pointed. Maximum width of elytra in anterior fourth, 1.15 times longer than wide; apical area of elytra not truncate, but slightly pointed and arch shaped; transverse striation clearly visible, defined by well defined points, striae separate and not in continuous curve. Legs long and slender. Protarsi very fine and long, none of the tarsomeres dilated, and much narrower than protibiae which are also slightly expanded (Fig. 35). Posterior femurs lacking spine or tubercle in posterior margin. Posterior tibiae not arcuate, with first metatarsomere shorter than following two together; internal metatibial spur slightly longer than first metatarsomere.

Genital segment twice as long as wide, with 9-10 setae in internal margins of lobes of sternum anterior apical setae (Fig. 37), and 6 setae longer than sternal ones on margins of lobes of tergum (Fig. 38).

Aedeagus with both valves of median lobe shaped very differently; dorsal valve longer than wide, triangular and larger than ventral one; ventral valve with undulate lateral margins, tip elongate and strongly pointed and sharp, also, in lateral view tip



Figs 37-43

Eucatops (E.) troglodytes sp. n. 37. Genital segment, ventral view; 38. Genital segment, dorsal view; 39. Ventral valve of aedeagus; 40. Aedeagus, lateral view; 41. Left paramere, latero-dorsal view; 42. Aedeagus and inner sac, dorsal view. *Eunemadus chilensis*. 43. Spermathecal complex. (Scale bars: 0.20 mm).

separated from median lobe, slightly curved and protruding towards ventral (Figs. 39 and 40). Parameres short and weakly robust, not surpassing tip of dorsal valve, bearing 3 fairly long setae inserted in apical region (Fig. 41). Internal sac as long as dorsal valve, with numerous sclerotized pieces; stylet is not differentiated. Basal lamina longer than dorsal valve and clearly longer than wide, with strongly convex posterior margin; also exhibiting a weakly defined carina mid ventrally (Fig. 42).

FEMALE unknown.

Variability. Differences have only been observed in the number of setae in the apical area of the parameres, as some paratypes have 4 or 5 setae, which are always long and all inserted in the apical area. The varying number of setae on the parameres appears to be frequent in species belonging to *Eucatops* (Salgado, 2003).

Discussion. *Eucatops* (*E.*) *troglodytes* sp. n. resembles *Eucatops* (*E.*) *oblongus* Portevin, 1903, from Perú, in the number of setae inserted in the apical area of the parameres, and *Eucatops* (*E.*) *formicetorum* (Bruch, 1918) from Argentina, in the elongate pointed shape of the valves and the short parameres which do not surpass the tip of the valves. However, the shape of the protarsi and many of the characters of the aedeagus, in particular the shape and position of the ventral valve, clearly separate this new taxon from any other species in the genus *Eucatops*.

Ecology. To date, this is the first record of a *Eucatops* being captured inside a cave. Due to their developed eyes, large wings and pigmentation, the specimens of this species should be considered troglophil. They were found in the anterior part of the cave, feeding on organic material.

Etymology. The specific name, an invariable epithet, refers to the tendency of the specimens to colonize caves.

ANEMADINI HATCH, 1928

***Eunemadus chilensis* Portevin, 1914**

Material examined. Argentina: El Bolsón, 150 m altitude, Río Negro Province; 1 ♀, 7-I-1996, M. Etonti leg. (CPMG). Golondrinas, Chubut Province; 1 ♀, 15-IX-1981, Kovacs leg. (MHNG).

Chile: Tolhuaca, Malleco Province; 2 ♀ ♀, I-1987 (CPMG).

Description. FEMALE. Size: 2.90-3.60 mm. Very characteristic spermathecal complex formed by sacciform spermatheca, lacking differentiated lobes, around five times longer than wide with quite clear superficial striation. Long, fine spermathecal duct inserted in basal region, approximately three times longer than spermatheca, which expands slightly at the end (Fig. 43).

See Jeannel (1957, 1962) for extensive description and for illustrations.

Distribution. The species has been recorded in Argentina, Río Negro Province, and now in Chubut Province; and various provinces in Chile, such as Chiloé, Concepción, Llanquihue and Santiago. New for the Malleco Province.

***Dissochaetus hetschkoii* Reitter, 1884**

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 85 ♂ ♂-46 ♀ ♀ captured in I-1977, II-1977 and V-1977, Fr. Plaumann leg. (MHNG and CPMG).

Description. See Gnaspini (1991) and Salgado (1991a) for extensive description and for illustrations.

Distribution. This is a widely distributed species, known from Belize, Brazil, Mexico and Venezuela (Peck *et al.*, 1998).

***Dissochaetus murrayi* Reitter, 1884**

Material examined. Nova Teutônia, Santa Catarina State (Brazil). 49 ♂ ♂-63 ♀ ♀ captured in I-1977, II-1977 y V-1977, Fr. Plaumann leg. (MHNG and CPMG).

Description. See Gnaspini (1991) and Salgado (1991a) for extensive description and for illustrations.

Distribution. Known from the south eastern Neotropical region, with records from Paso de los Libres, Corrientes Province (Argentina) (Salgado, 1991a) and several states in Brazil (Peck *et al.*, 1998).

***Dissochaetus parallelus* Portevin, 1921**

Material examined. 400 m, 35 km N Altagracia, Miranda Province (Venezuela), 2 ♀ ♀, 7-14-VI-1987, S. & J. Peck leg. (MHNG).

Description. See Jeannel (1936) for extensive description and for illustrations.

Distribution. To date, only known from the type locality, El Simón, Caracas D.F. (Venezuela).

***Dissochaetus villosus* Szymczakowski, 1961**

Material examined. Nova Teutônia, Santa Catarina State (Brazil). II-1977, 9 ♂ ♂-3 ♀ ♀, Fr. Plaumann leg. (MHNG and CPMG).

Description. See Szymczakowski (1961) and Gnaspini (1991) for extensive description and for illustrations.

Distribution. This species is endemic in Brazil and known from Minas Gerais, Paraná and Sao Paulo. New for the Santa Catharina State.

***Nemadiolus (Subnemadiolus) kuscheli* Jeannel, 1962**

Material examined. Ushuaia, Monte Susana, Tierra de Fuego Province (Argentina). 1 ♂, 26-III-1975, E. Horak leg. (MHNG).

Description. See Jeannel (1962) and Salgado (1991b, 2000) for extensive description and for illustrations.

Distribution. Jeannel (1962) describes this species from specimens from Chepu, Chiloé Province. Salgado (1991b, 2000) recorded it from several provinces including Aisén, Cautín, Chiloé, Concepción, Llanquihue, Magallanes, Malleco, Ñuble, Osorno, Palena, Talca and Valdivia, all in Chile. The record from Tierra de Fuego Province extends its distribution area to Argentina, from where it is recorded for the first time.

CAMIARINAE JEANNEL, 1911

AGYRTODINI JEANNEL, 1936

***Chiliopelates kuscheli* (Jeannel, 1957)**

Material examined. Tolhueca, Malleco Province (Chile). 3 ♂ ♂-1 ♀, I-1987 (CPMG).

Description. See Jeannel (1962) for extensive description and for illustrations.

Distribution. This species is endemic in Chile. It had been recorded from Aisén and Llanquihue provinces (Jeannel, 1957) and is now recorded for the first time from Malleco province.

***Dasypelates nebulosus* (Jeannel, 1957)**

Material examined. Tolhueca, Malleco Province (Chile). 1 ♂, I-1987 (CPMG).

Description. See Jeannel (1957, 1962) for extensive description and for illustrations.

Distribution. This species is endemic in Chile and is only known from Bío Bío Province. The record from Malleco province is now also included.

***Eupelates transversestrigosus* (Fairmaire & Germain, 1859)**

Material examined. Golondrinas, Chubut province, 2♀, 15-IX-1981, Kovacs leg. (MHNG).

Description. See Jeannel (1957 and 1962) for extensive description and for illustrations.

Distribution. The species is known from various localities in the southern Neotropical region, Chubut and Río Negro Provinces (Argentina) and Aconcagua, Arauco, Cautín, Chiloé, Concepción, Llanquihue, Ñuble, Santiago and Valdivia Provinces (Chile) (Jeannel, 1962; Salgado, 1991b; Peck *et al.*, 1998).

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