

Revision of *Taurocerus* (Heteroptera, Pentatomidae, Pentatomini)¹

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ABSTRACT. *Taurocerus* Amyot & Serville, 1843 is revised based on morphology of male and female genitalia. Four species are recognized: *T. edessoides* (Spinola, 1837), *T. achilles* Stål, 1862, *T. abruptus* (Walker, 1867), and *T. amazonensis* sp. nov. Illustrations of male and female genitalia and a key for the species are provided.

KEYWORDS. *Taurocerus*, genitalia, *Arvelius*, new species, Neotropical.

RESUMO. Revisão de *Taurocerus* (Heteroptera, Pentatomidae, Pentatomini). *Taurocerus* Amyot & Serville, 1843 é revisado com base na morfologia da genitália masculina e feminina. Quatro espécies são reconhecidas: *T. edessoides* (Spinola, 1837), *T. achilles* Stål, 1862, *T. abruptus* (Walker, 1867) e *T. amazonensis* sp. nov. São fornecidas ilustrações e uma chave para identificação das espécies.

PALAVRAS-CHAVE. *Taurocerus*, genitália, *Arvelius*, espécie nova, Neotropical.

Taurocerus, with three nominal species, is an exclusively neotropical genus, distributed from Mexico to Central Brazil.

SPINOLA (1837) described *Arvelius edessoides*, based on two specimens from Brazil. AMYOT & SERVILLE (1843) proposed the genus *Taurocerus* to include *A. edessoides*, redescribing the species based on material from Brazil, but included a question mark after its name, suggesting that his species was not conspecific with the Spinola's one. DALLAS (1851) listed in *Taurocerus*, as synonyms, *A. edessoides* Spinola and *T. edessoides* Amyot & Serville, based on four specimens from distinct localities from Mexico, Colombia and Brazil. STÅL (1862) described *T. achilles* and *T. hector*, both from Mexico. STÅL (1867) included *Taurocerus* in his key for the American pentatomid genera. WALKER (1867) listed *T. achilles*, *T. hector*, and following DALLAS (1851), *T. edessoides*; he also described *Canaca abrupta*, from Guatemala, and *T. divergens*, from Amazon region, distinguishing the latter from *T. edessoides*. STÅL (1872) considered *T. edessoides* Spinola and *T. edessoides* Amyot & Serville distinct species, the latter being a junior synonym of *T. divergens*. DISTANT (1880) considered *T. divergens* junior synonym of *T. achilles*, and *T. hector* junior synonym of *T. edessoides* Spinola; this author also transferred *Canaca abrupta* Walker, 1867 to *Taurocerus*. ROLSTON *et al.* (1980) included *Taurocerus* in their section 3 of Pentatomini genera which have a tubercle on third abdominal sternite, apposed to posterior margin of metasternal carina. BRAILOVSKY (1988) presented a differential diagnosis for *Taurocerus*, *Arvelius* Spinola and *Pallantia* Stål, with a brief redescription of *T. edessoides*. BRAILOVSKY *et al.* (1992) described eggs and nymphs of *T. edessoides*, providing some biological data.

Taurocerus is here revised, with the description of a new species based on specimens from Brazil and Peru.

MATERIAL AND METHODS

The specimens studied belong to the following collections: AMNH, American Museum of Natural History, New York, USA; BMNH, Natural History Museum, London, England; DZUP, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil; FIOC, Fundação Oswaldo Cruz, Rio de Janeiro, Brazil; IAvH, Instituto de Investigaciones Biológicas Alexander von Humboldt, Bogotá, Colombia; INPA, Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil; MCNZ, Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Brazil; MNRJ, Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; MPEG, Museu Paraense Emilio Goeldi, Belém, Brazil; MRSN, Museo Regionale di Scienze Naturali, Torino, Italy; MZSP, Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil; NHMW, Naturhistorisches Museum Wien, Austria; NHRS, Naturhistoriska Riksmuseet, Stockholm, Sweden; UNCB, Museo de Historia Natural, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia; UFRG, Departamento de Zoologia, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; ZUEC, Departamento de Zoologia, Universidade Estadual de Campinas, Campinas, Brazil.

The morphological nomenclature follows DUPUIS (1970) and GRAZIA & BARCELLOS (1991). The female of *T. abruptus* was not dissected because it is known only from the type specimen. The type material of *T. edessoides* Amyot & Serville (= *T. achilles* Stål) was not found. Measurements (average, minimum and maximum values, standard deviation) are given in millimeters.

Taurocerus Amyot & Serville, 1843

Taurocerus AMYOT & SERVILLE, 1843:151; DALLAS, 1851:302 (list); WALKER, 1867:391 (list); STÅL, 1867:531 (key); 1872:46; LETHIERRY & SEVERIN, 1893:185 (cat.); KIRKALDY, 1909:150 (cat.); ROLSTON *et al.*, 1980:121 (key).
Canaca WALKER, 1867:404.
Canoca (sic); KIRKALDY, 1909:150 (cat.).

Type-species: *Taurocerus edessoides* Amyot & Serville (= *Taurocerus achilles* Stål, 1862), by monotypy.

Diagnosis. Medium to large-sized species. First antennal segment not surpassing apex of head (fig. 1). Jugae shorter than clypeus. Rostrum reaching third to fourth abdominal sternite; first rostral segment projected beyond bucculae. Bucculae anteriorly truncate and posteriorly lobed. Anterior half of pronotum strongly declivent. Humeri strongly produced laterad or antero-laterad, apices not-spinose. Femora distally armed with one dorsal and 1+1 lateral blackish spines. Tibiae dorsally sulcated. Ostiolar rugae short, digitiform. Mesosternum slightly more elevated than metasternum, nearly continuous in profile with it. Metasternum slightly elevated, compressed. Abdominal venter with a mesial, longitudinal keel; third sternite with a stout median tubercle, apposed to posterior margin of metasternum. Ventral surface of pygophore with 1 + 1 lateral, concave areas. Genital plates tumid. Spiracles of gonocoxites 8 visible. Laterotergites 9 surpassing transverse band linking laterotergites 8.

Description. Head. Jugae shorter than clypeus, apices rounded; outer margins sinuated, convergent toward clypeus. First antennal segment not surpassing apex of head. Rostrum reaching third to fourth abdominal sternite; first rostral segment projected beyond bucculae. Bucculae anteriorly truncate and posteriorly lobed.

Pronotum. Anterior half of the disc strongly declivent. Anterior border slightly concave. Antero-lateral angles toothed. Antero-lateral borders crenulated, more strongly on anterior half. Humeri strongly produced laterad or antero-laterad, apex posteriorly directed (laterally in *T. abruptus*). Posterolateral borders sinuated, concave on the anterior half and slightly convex posterad. Posterior border rectilinear. Medium-sized punctures distributed more densely around cicatrices and on posterior half of the disc.

Scutellum. Coarse punctures irregularly distributed over basal half, decreasing in size toward apex. Apex with a V-shaped, yellowish callous, variable intraspecifically. In most of the specimens of *T. edessoides*, the arms of "V" are broad and closer to each other, making it cordiform in appearance; in some specimens, however, the "V" is faded. In *T. achilles* and the holotype of *T. abruptus*, the callus is thinner than in *T. edessoides*. In *T. amazonensis* sp. nov., the callous is also variable.

Hemelytra. Area between claval suture and R + M vein dull, with small punctures homogeneously distributed. Clavus and costal area shiny, coarsely punctured. Membrane with 12 to 15 longitudinal, parallel veins.

Legs. Femora distally armed with one dorsal and 1+1 lateral blackish spines. Tibiae dorsally sulcated.

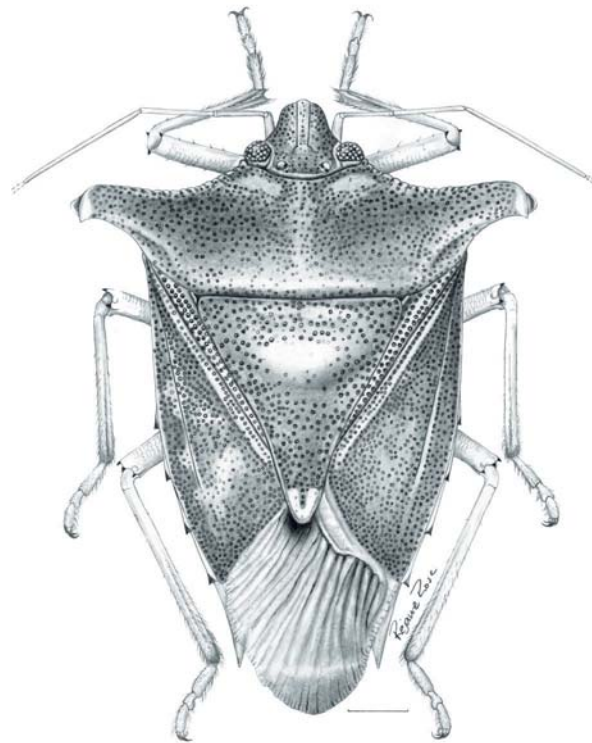


Fig. 1. *Taurocerus amazonensis* sp. nov., holotype. Scale bar, 2 mm.

Ventral surface of thorax castaneous, more coarsely and densely punctured on ventral surface of prothorax, mesepimeron and metepisternum. Prosternum flat; mesosternum slightly more elevated, almost continuous with metasternum in profile. Metasternum slightly elevated, laterally compressed; anterior margin entire, posterior margin slightly concave. Ostiolar rugae short, digitiform, reaching about 1/7 to 1/8 of the distance from inner margin of ostiole to lateral margins of metapleura.

Abdominal venter with a mesial, longitudinal keel; surface rarely punctured. Third sternite with a stout median tubercle, apposed to posterior margin of the metasternum. Tricobothria distributed on a longitudinal imaginary line across the middle of spiracles. Apical angles of connexivum acute, blackish.

Male genitalia. Pygophore subtrapezoidal to quadrangular. Dorsal rim slightly sinuous. X segment trapezoidal, wider basally. Parameres well-developed. Ventral rim excavated medially, with a median process, varying from an inconspicuous to acute tubercle; lateromedially, 1 + 1 processes, variable in shape and size. Posterolateral angles of pygophore mutic or with a small, acute tubercle. *Phallus*. Conjunctiva present, bearing or not processes. *Phallotheca* with 1 + 1 long and slender ventral processes. *Ductus seminis distalis* surpassing or not conjunctiva. Vesica with a ventral process, not visible in *T. achilles*.

Female genitalia. Genital plates tumid. Sutural borders of gonocoxites 8 convergent toward apex; posterior borders slightly to conspicuously concave. Spiracles on laterotergites 8 present. Laterotergites 8 with acute, blackish apex. Laterotergites 9 much shorter than

laterotergites 8, rounded at apex, surpassing transversal band linking laterotergites 8. Gonapophyses 9 with a mesial and 1 + 1 lateral, secondary thickenings variable interspecifically in shape. *Pars intermedialis* with a median constriction; annular crests convergent to each other; *capsula seminalis* with three tooth-like projections.

Distribution. MEXICO (Veracruz), GUATEMALA (Alta Verapaz), COSTA RICA (Guanacaste), PANAMA (Panama, Canal Zone), GUYANA (Cuyuni-Mazaruni), BRAZIL (Amazonas, Pará, Acre, Rondônia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo), COLOMBIA (Distrito Capital, Meta, Amazonas), ECUADOR (Napo), PERU (Loreto, Amazonas, San Martín, Ucayali, Huánuco, Madre de Dios, Junín, Cuzco), BOLIVIA (Cochabamba).

Comments. The apical spines at femora, the mesial tubercle on third sternite, apposed to metasternal carena, and the morphological pattern of the *phallus*, make *Taurocerus* similar to *Arvelius* Spinola, from which can be distinguished by the darker general color, jugae apically rounded, shorter than clypeus; bucculae lobed posteriorly; obtuse apex of humeri, and, on ventral rim of the pygophore, the presence of a median and two latero-medial processes.

Key to species of *Taurocerus*.

1. Apex of humeri black 2
Apex of humeri yellowish 3
2. General color castaneous. Humeral angles somewhat curved, directed antero-laterad. Gonocoxites 8 almost rectangular, two and a half wider than long (fig. 25) *Taurocerus achilles* Stål, 1862
General color reddish to dark reddish-castaneous. Humeral angles almost straight, directed laterad (fig. 2). Gonocoxites 8 quadrangular, one and a half wider than long (fig. 3)
..... *Taurocerus abruptus* (Walker, 1867)
3. Ventral rim of pygophore with an inconspicuous median tubercle and lateral-medial processes truncate (fig. 11). Apex of parameres slightly curved laterad (fig. 8) *Taurocerus amazonensis* sp. nov.
Ventral rim of pygophore with a conspicuous and acute median tubercle; latero-medial processes conical (fig. 12). Apex of parameres strongly curved ventrad (fig. 9) *Taurocerus edessoides* (Spinola, 1837)

Taurocerus abruptus (Walker, 1867)

(Figs. 2, 3)

Canaca abrupta WALKER, 1867:404.

Taurocerus abrupta; DISTANT, 1880:82, pl. 8, fig. 1 (list).

Taurocerus abruptus; LETHIERRY & SEVERIN, 1893:151 (cat.); KIRKALDY, 1909:150 (cat.).

Type-locality. Guatemala.

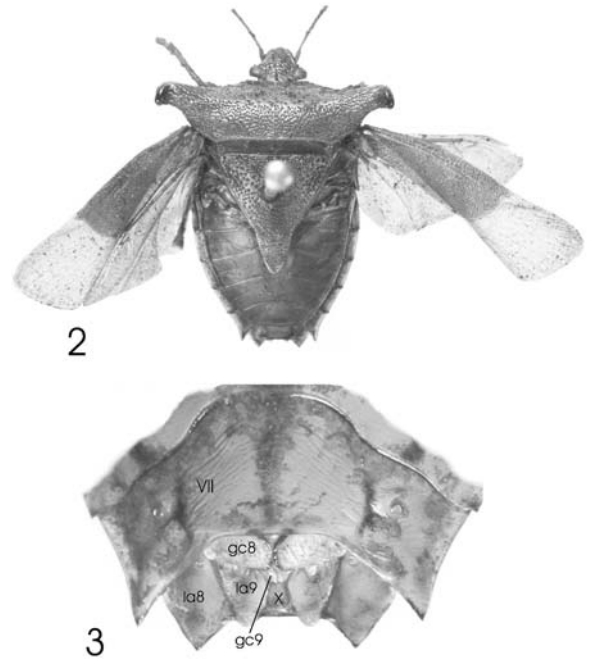
Type material. Holotype ♀, examined, labeled: a)

Type; b) Guatemala (*sic*) 52 119; c) *Canaca abrupta* (BMNH).

Dorsal surface reddish-castaneous, abdominal venter castaneous, more reddish on laterals. Humeri directed laterad, tougher than in the other species, apex blackish (fig. 2). Rostrum attaining third sternite. V-shaped callous of scutellum thin.

Genitalia (fig. 3). Gonocoxites 8 quadrangular, about one and a half wider than long. Sutural borders contiguous at apical two thirds. Posterior borders of gonocoxites 8 almost rectilinear. Laterotergites 9 almost as long as gonocoxites 8, slightly surpassing the transversal band linking laterotergites 8.

Comments. This species, known only from the holotype, may be distinguished from the other congeners by its tougher, laterally directed humeri, and by the shape of gonocoxites 8.



Figs. 2-3. *Taurocerus abruptus* (Walker, 1867), holotype: 2, dorsal aspect; 3, genital plates, ventral view (gc8, gonocoxite 8; gc9; gonocoxites 9; la8, laterotergite 8; la9, laterotergite 9; VII, seventh abdominal sternite; X, tenth segment).

Taurocerus achilles Stål, 1862

(Figs. 4, 7, 10, 13, 16, 19, 22, 25, 27)

Taurocerus edessoides AMYOT & SERVILLE, 1843:151, non SPINOLA, 1837.

Taurocerus achilles STÅL, 1862:108; 1872:46; WALKER, 1867:391; DISTANT, 1880:81, pl. 7, fig. 24 (list); LETHIERRY & SEVERIN, 1893:185 (cat.); KIRKALDY, 1909:150 (cat.).

Taurocerus divergens WALKER, 1867:392; STÅL, 1872:46; DISTANT, 1880:81 (list).

Type-locality. Northern Brazil.

Type material. Holotype ♂, examined, labeled: a)

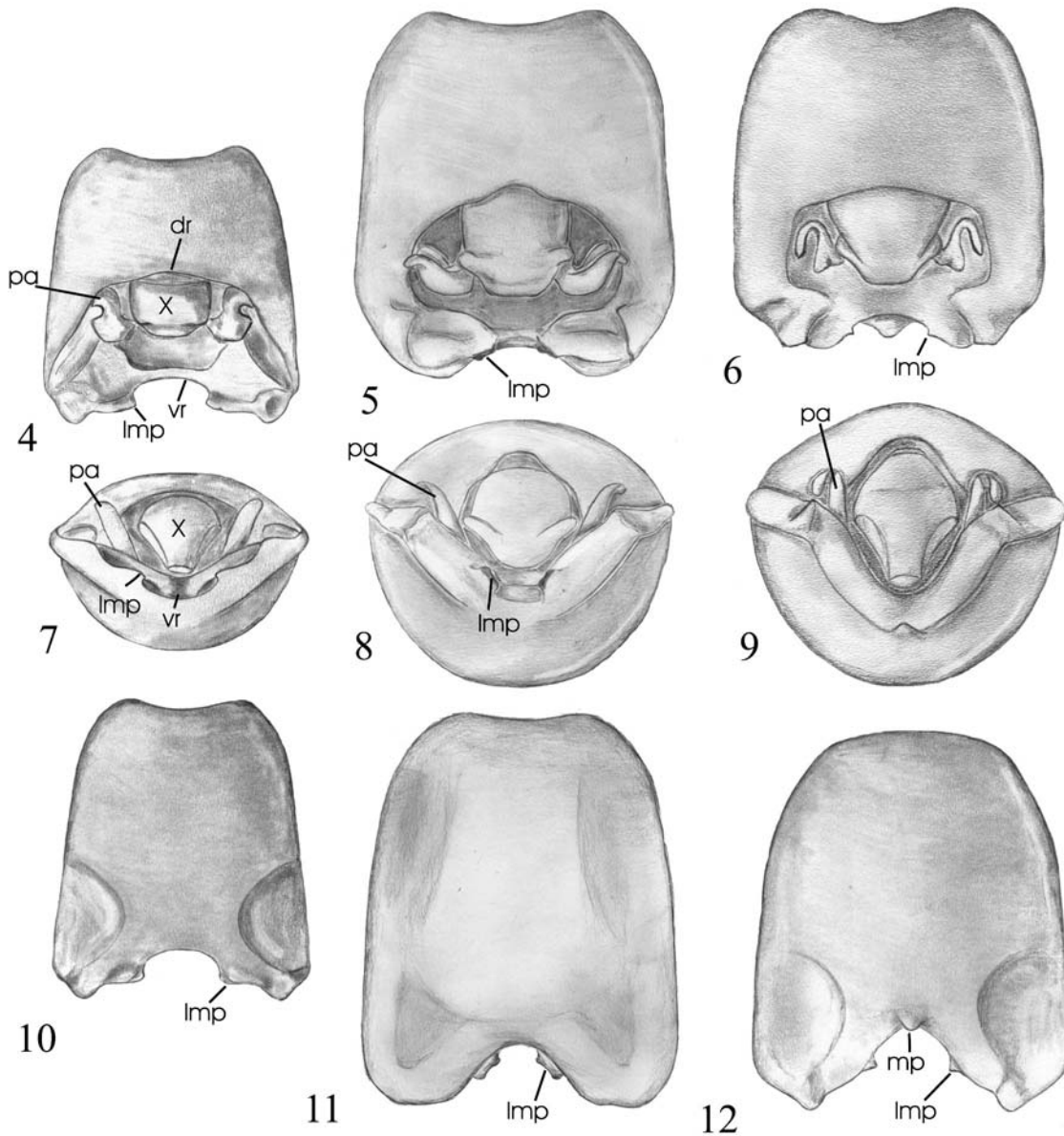
Mexico coll. Signoret; b) *Achilles* det Signoret; c) *Achilles* Stal. (NMWH). Holotype of *T. divergens*, examined, ♀, labeled: a) Type; b) Braz 62 57 [material from Bates' collection, collected "on the banks of the Amazon", purchased by Stevens].

Dorsal surface dark to light-castaneous, abdominal venter castaneous. Apex of humeri black. Rostrum reaching the third sternite. V-shaped callous of scutellum thin.

Male. Measurements (n = 4). Total length 15.91 (14.88-16.63) \pm 0.82; head length 2.87 (2.75-3.06) \pm 0.14; width 3.17 (3.06-3.25) \pm 0.09; eye width 0.76 (0.75-0.78) \pm 0.02; interocular distance 1.69 (1.63-1.75) \pm 0.05; anteocular length 1.25 (1.22-1.28) \pm 0.03; antennal segments I, 0.91 (0.88-0.94) \pm 0.04; II, 1.31 (1.25-1.38) \pm 0.09; III, 1.66 (1.63-1.69) \pm 0.04; IV, lost; V, lost; pronotal length 4.05 (3.75-4.25) \pm 0.21; width 14.42 (12.63-15.19) \pm 1.20; scutellum length 6.83 (6.50-7.00) \pm 0.24; width 6.03 (5.75-6.38) \pm 0.28; corium length 9.63 (8.88-10.00) \pm 0.53; abdominal width 8.69 (8.25-9.13) \pm 0.36.

Genitalia reduced when compared to the other species of the genus, despite their similar body size. Pygophore subtrapezoidal, elliptical in caudal view,

widely open dorsally. Proctiger subquadrangular. Parameres distally broad (fig. 13), apex curved anterolaterally (fig. 7). Dorsal rim slightly sinuated (fig. 4). Posterolateral angles rounded apically, mutic. Ventral rim: median process inconspicuous; lateromedian processes obtuse, delimiting a median U-shaped excavation (fig. 10). *Phallus* about one half as long as in the other species (figs. 16, 19, 22). Basal plate short, about one sixth as long as *phallotheca*. Visible part of *processus phallothecae* about one fifth of the length of *phallotheca*. Vesica little developed, without visible processes (maybe so in the everted *phallus*). *Ductus seminis distalis* short, not surpassing conjunctiva. Conjunctiva little-developed, with no evident processes.



Figs. 4-12. Pygophore, respectively dorsal, caudal and ventral views: 4, 7, 10, *Taurocerus achilles* Stål, 1862; 5, 8, 11, *Taurocerus amazonensis* sp. nov.; 6, 9, 12, *Taurocerus edessoides* (Spinola, 1837) (dr, dorsal rim; Imp, lateral-median process; mp, median process; pa, paramere; vr, ventral rim; X, tenth segment). Scale bar, 1 mm.

Female. Measurements ($n = 10$). Total length 16.10 (15.00-17.75) \pm 0.86; head length 2.79 (2.44-3.06) \pm 0.22; width 3.15 (2.97-3.38) \pm 0.14; eye width 0.72 (0.66-0.84) \pm 0.05; interocular distance 1.70 (1.63-1.81) \pm 0.06; anteocular length 1.23 (1.16-1.31) \pm 0.05; antennal segments I, 0.87(0.75-0.94) \pm 0.08; II, 1.32 (1.19-1.44) \pm 0.09; III, 1.65 (1.50-1.81) \pm 0.10; IV, 3.03 (2.88-3.25) \pm 0.12; V, 3.17 (3.00-3.31) \pm 0.10; pronotal length 3.91 (3.63-4.38) \pm 0.26; width 14.69 (13.38-17.13) \pm 1.34; scutellum length 6.85 (6.13-7.88) \pm 0.47; width 6.02 (5.25-6.75) \pm 0.46; corium length 9.73 (9.00-10.88) \pm 0.55; abdominal width 8.83 (8.13-9.75) \pm 0.57.

Genitalia. Gonocoxites 8 broad and short, about two and a half times wider than long. Sutural borders contiguous at median third, divergent apically. Posterior borders of gonocoxites 8 slightly sinuated. Laterotergites 9 broad at the apex (fig. 25). Secondary thickenings of gonapophysis 9 subtrapezoidal (fig. 27).

Material examined. BRASIL, **Amazonas**: Benjamin Constant (rio Javari, alto Amazonas), ♀, III.1942, Dirings col., Coll. Dirings, (MZSP); **Pará**: Óbidos, (Canta Galo), ♀, XII.1956,

Dirings col., Coll. Dirings (MZSP); idem, (baixo Amazonas), ♂, I.1958, Dirings col. (MZSP); **Acre**: Rio Branco, 2♀, 25.X-08.XI.1991, F. Ramos, A. Henrique, I. Gorayeb, N. Bitencourt col. (MPEG); idem, (Reserva Humaitá), ♂, ♀, 11.IV.1996, A. Bonaldo col. (UFRG); **Rondônia**: Ouro Preto d'Oeste (margem esquerda Rio Santa Helena), ♀, 20.III.1985, M. F. Torres col. (MPEG); idem, (Sítio Deus é Amor), ♀, idem, ♀, 04.VII.1985, F. F. Ramos col. ("arm. suspensa 1.6 m") (MPEG); **Espírito Santo**: Linhares, ♀, 24-29.IV.1972, C. Elias col. (DZUP); idem, ♀, II.[1]973, F. M. Oliveira col. (AMNH); **Rio de Janeiro**: Petrópolis (Serra dos Órgãos), ♀, XI.1940, Parko col. (UFRG); PERU, **San Martín**: Achinamisa, ♂, 10-26.I, H. Bassler Collection, F.600, Acc. 33591 (AMNH); **Madre de Dios**: Rio Tamborata (Res. 30 km (air) sw P[uer]to Maldonado, 290 m, 12°50' S, 06°20' W), ♀ (BMNH); **Junín**: Satipo, ♂, XII.1943, P. Paprzyck col. (FIOC).

Comments. The general brown color and the blackish apices of humeri distinguish this species from *T. edessoides* and *T. amazonensis*. The size and shape of male genitalia, and the shape of gonocoxites 8 also separate *T. achilles* from their congeners.

***Taurocerus amazonensis* sp. nov.**

(Figs. 1, 5, 8, 11, 14, 17, 20, 23)

Description. Dorsal surface reddish-castaneous, abdominal venter reddish-castaneous to castaneous. Apex of humeri yellow. Rostrum attaining fifth sternite.

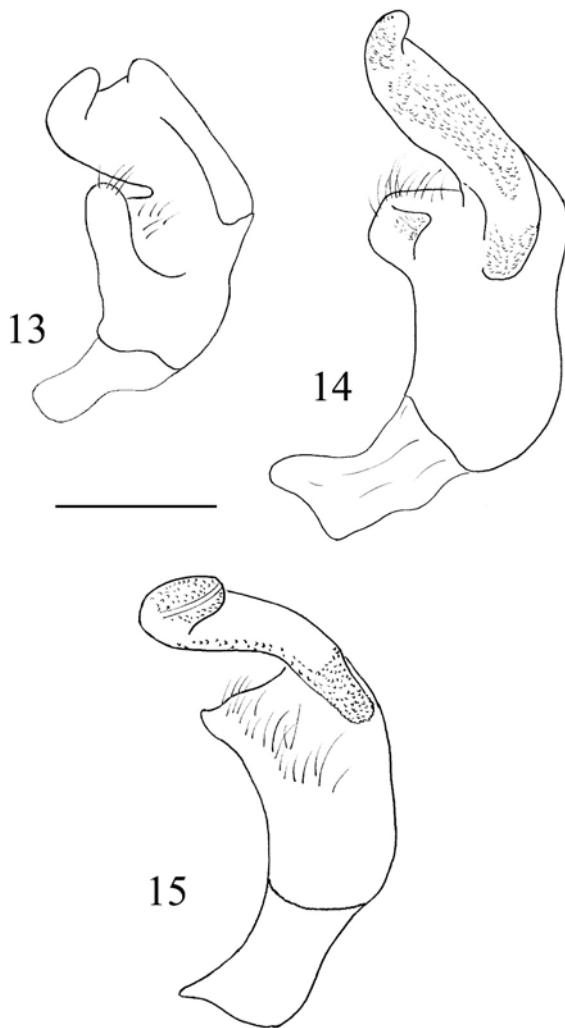
Male. Measurements ($n = 2$). Total length 16.50-17.75; head length 3.22-3.34; width 3.56-3.63; eye width 0.91-0.94; interocular distance 1.81; anteocular length 1.50-1.56; antennal segments I, 1.03-1.16; II, 1.63-1.69; III, 2.19-2.25; IV, 3.94-4.00; V, 3.94; pronotal length 3.88-4.38; width 14.19-16.38; scutellum length 7.25-7.88; width 6.19-6.75; corium length 10.25-10.50; abdominal width 9.00-10.00.

Genitalia. Pygophore subtrapezoidal, almost quadrangular, globose in ventral view (fig 11). Proctiger trapezoidal, slightly wider basally, with a tumid area at the apical third (fig. 5). Parameres distally thin (fig. 14), apex slightly curved laterad (fig. 8). Posterolateral angles rounded, mutic. Ventral rim: median process inconspicuous; lateromedian processes well-developed, truncate and blackish, delimiting a median V-shaped excavation (fig. 11). *Phallus* (figs. 17, 20, 23): basal plate well-developed, half as long as *phallosome*. Visible part of *processus phallosomae* about half of the length of *phallosome*. Vesica well-developed, with one median, ventral process. *Ductus seminis distalis* (dsd) long, surpassing conjunctiva and distally curved back inward it. Conjunctiva well-developed, with two pairs of processes: one basal (prcj1), directed dorsad and one more apical, finger-like (prcj2), turned towards prcj1.

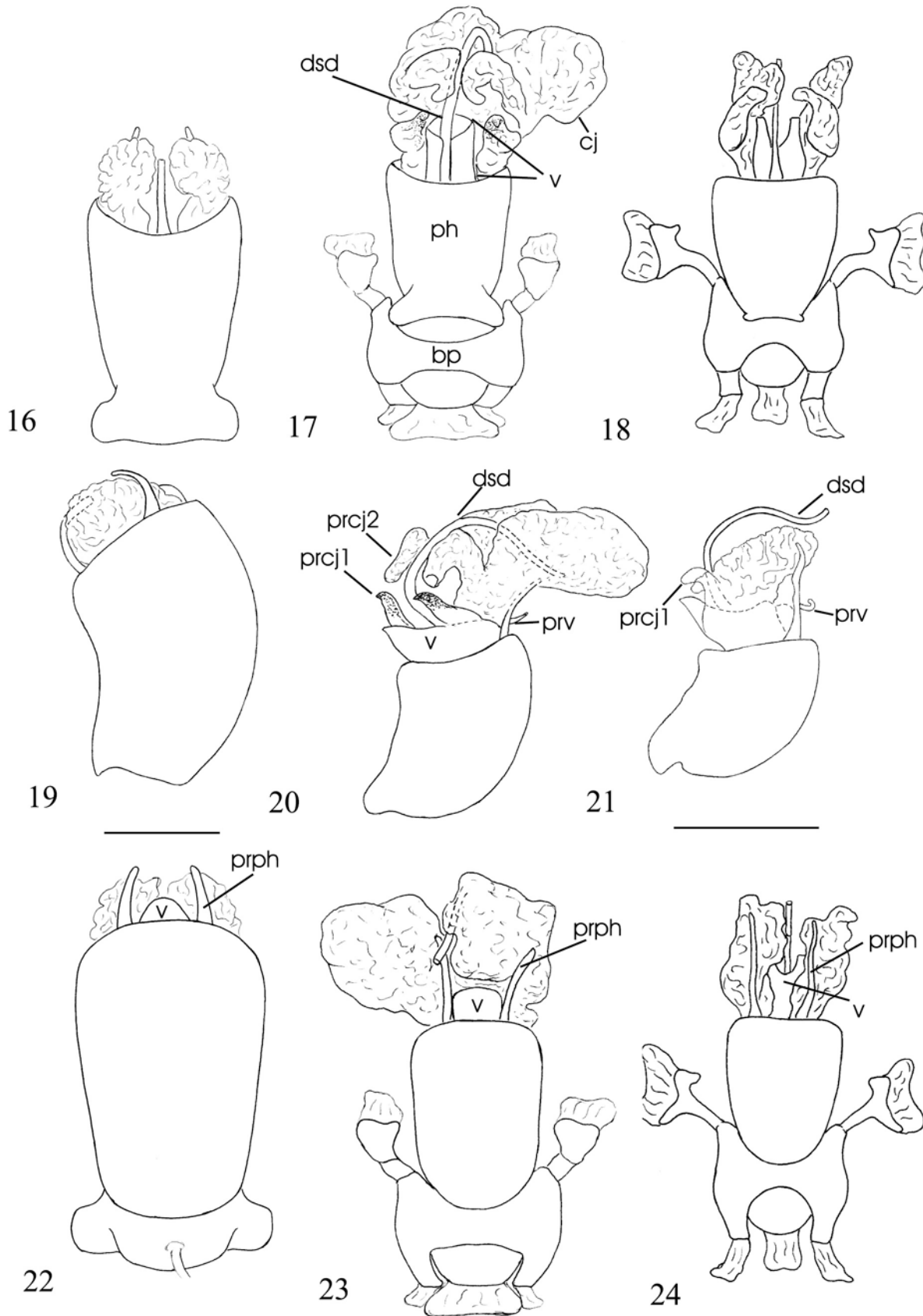
Female unknown.

Type material. Holotype ♂, BRASIL, **Pará**: Oriximiná (bacia do Cuminá-Miri), 19-26.I.1968, Exp. Perm. Amaz. (MZSP); ♂ paratype, PERU, Rio Santiago, 6.XI.[19]28, F 6198, H. Bassler Collection Acc. 33591, *Taurocerus edessoides* (Spin.) (AMNH).

Comments. This species is very similar to *T. edessoides*, from which can be distinguished only by genital characters, as the parameres laterally directed and ventral rim of pygophore with truncate latero-median and an inconspicuous mesial tubercles.



Figs. 13-15. Left paramere, outer-lateral view: 13, *T. achilles* Stål, 1862; 14, *T. amazonensis* sp. nov.; 15, *T. edessoides* (Spinola, 1837). Scale bar, 0.5 mm



Figs. 16-24. *Phallus*, respectively dorsal, lateral and ventral views: 16, 19, 22, *T. achilles* Stål, 1862; 17, 20, 23, *T. amazonensis* sp. nov.; 18, 21, 24, *T. edessoides* (Spinola, 1837) (bp, basal plate; cj, conjunctiva; dsd, ductus seminis distalis; ph, phallosome; prcj1, processus conjunctivae 1; prcj2, processus conjunctivae 2; prph, processus phallosomae; prv, processus vesicae; v, vesica). Scale bars: figs 16, 19, 22, 0.5 mm; 17, 18, 20, 21, 23, 24, 1 mm.

***Taurocerus edessoides* (Spinola, 1837)**

(Figs. 6, 9, 12, 15, 18, 21, 24, 26, 28)

Arvelius edessoides SPINOLA, 1837:347.*Taurocerus hector* STÅL, 1862:108; 1872:47; WALKER, 1867:391 (list).*Taurocerus edessoides*; DALLAS, 1851:302 (list); DISTANT, 1880:82, pl. 7, fig. 25 (list); Stål, 1872:47; LETHIERRY & SEVERIN, 1893:185 (cat.); KIRKALDY, 1909:150 (cat.).

Type-locality. Brazil.

Type material. Lectotype and paralectotype ♀, here designated. The material belongs to Spinola's collection, at present deposited at MRSN. A green label in the box, containing the following data: *Arvelius edessoides* Spin., *G. taurocerus*, A. et S., D. Bouquet, Brésil.

Type material of *T. hector* examined. Stål described this species based on two males from Mexico and one female from unknown locality. We received from NHRS three males labeled as "typus" (loan number 1068/99) and "paratypus" (numbers 1069/99 and 1070/99), the last one collected in Bogotá [Colombia] by Alexander Lindig. We believe that the specimen 1070/99 is not actually a syntype of *T. hector* and the female mentioned in the Stål's original description is missed. Then, we here designate as lectotype and paralectotype, respectively: 1 ♂, labeled: a) Vera Cruz [handwritten]; b) *Hector* Typ. Stål [handwritten]; c) Sallé; d) Typus [red label]; e) Naturhistoriska Riksmuseet Stockholm Loan no 1068/99; 1 ♂, labeled: a) Mexico; b) Stål; c) *Hector* Typ. Stål [handwriting]; d) Paratypus; e) Naturhistoriska Riksmuseet Stockholm Loan number 1069/99.

Description. Dorsal surface reddish-castaneous, abdominal venter reddish. Apex of humeri yellow. Rostrum reaching the fourth abdominal sternite. V-shaped callous of scutellum, in the most of the specimens examined, with broad and closed arms, becoming cordiform in appearance; in some specimens, however, the callous is faded.

Male. Measurements (n = 10). Total length 15.56 (14.63-16.50) ± 0.73; head length 2.96 (2.69-3.16) ± 0.13; width 3.27 (3.06-3.50) ± 0.15; eye width 0.74 (0.63-0.81) ± 0.06; interocular distance 1.80 (1.69-1.94) ± 0.08; anteocular length 1.47 (1.38-1.56) ± 0.07; antennal segments I, 0.88 (0.81-1.06) ± 0.08; II, 1.47 (1.25-1.63) ± 0.10; III, 1.94 (1.63-2.44) ± 0.22; IV, 3.13 (2.78-3.56) ± 0.22; V, 3.24 (3.06-3.44) ± 0.14; pronotal length 3.81 (3.63-4.25) ± 0.24; width 13.62 (11.88-15.00) ± 1.19; scutellum length 6.70 (6.25-7.25) ± 0.36; width 5.98 (5.50-6.50) ± 0.35; corium length 9.34 (8.50-10.00) ± 0.50; abdominal width 9.24 (8.75-9.63) ± 0.35.

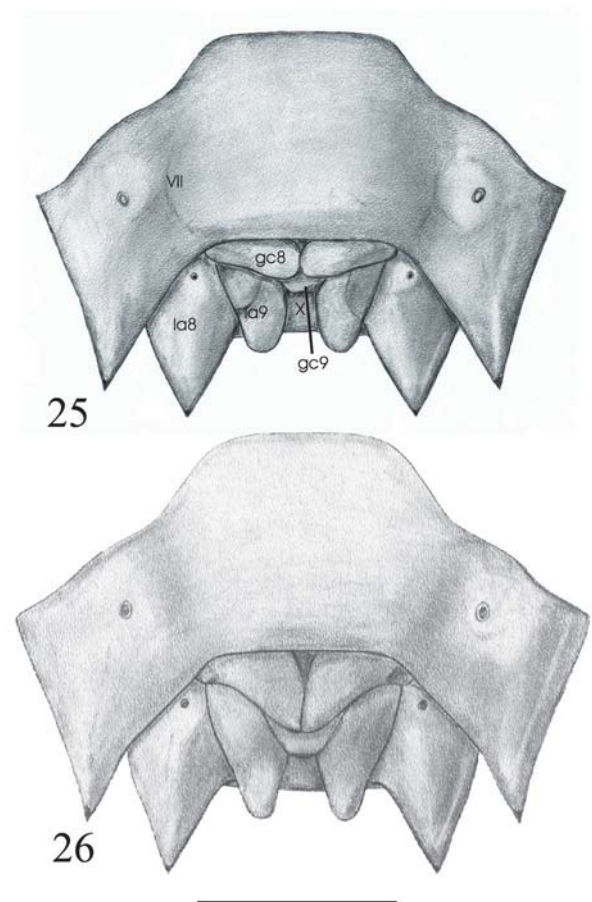
Genitalia. Pygophore quadrangular, globose in caudal view, little open dorsally. Dorsal rim slightly sinuated. Proctiger trapezoidal, wider basally, with 1 + 1 tumid areas at the distal half (fig. 6). Parameres distally thin (fig. 15), apex strongly curved latero-posteriorly (fig. 9). Posterolateral angles with a small, acute tubercle. Ventral rim: median process acute; lateromedian processes small, conical, delimiting a median V-shaped excavation (fig. 12). *Phallus* (figs. 18, 21, 24): basal plate well-developed, half as long as *phalotheca*. Visible part of *processus phalothecae* long, more than two thirds as long as *phalotheca*. Vesica well-developed with one

median, ventral process. *Ductus seminis distalis* long, surpassing conjunctiva. Conjunctiva well-developed, with 1 + 1 dorsal processes (prcj1); prcj2 absent.

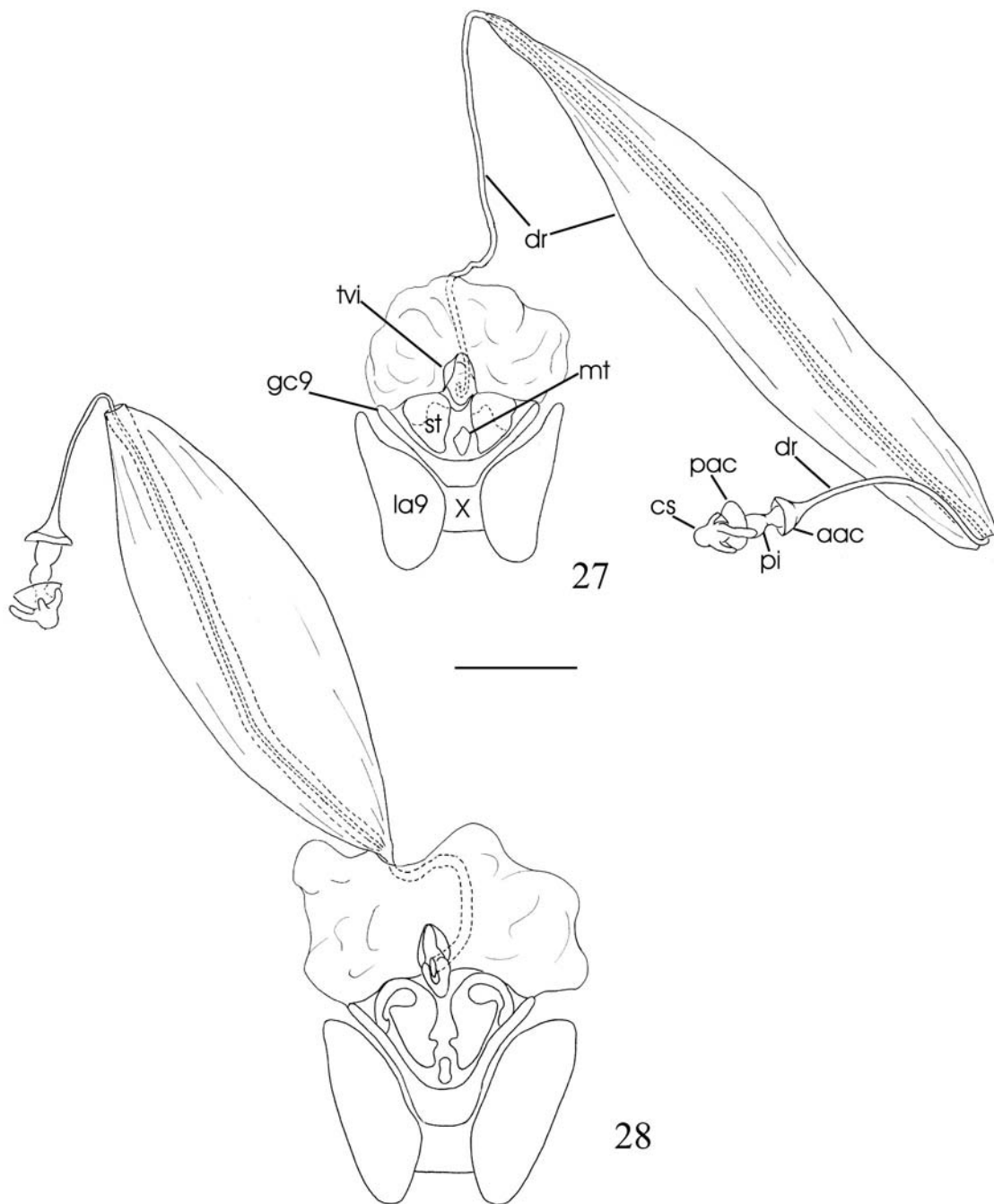
Female. Measurements (n = 10). Total length 15.56 (14.25-17.00) ± 0.98; head length 2.87 (2.66-3.19) ± 0.13; width 3.28 (3.13-3.44) ± 0.10; eye width 0.77 (0.69-0.81) ± 0.04; interocular distance 1.80 (1.69-1.88) ± 0.08; anteocular length 1.43 (1.31-1.56) ± 0.07; antennal segments I, 0.92 (0.81-1.06) ± 0.07; II, 1.40 (1.25-1.56) ± 0.10; III, 1.83 (1.63-2.00) ± 0.11; IV, 3.06 (2.81-3.25) ± 0.15; V, 3.18 (3.06-3.25) ± 0.10; pronotal length 3.81 (3.56-4.00) ± 0.17; width 13.41 (12.13-14.75) ± 0.78; scutellum length 6.73 (6.25-7.19) ± 0.30; width 6.01 (5.75-6.38) ± 0.21; corium length 9.31 (8.88-10.00) ± 0.42; abdominal width 9.29 (8.88-9.75) ± 0.32.

Genitalia. Gonocoxites 8 triangular, about one and a half wider than long (fig. 26). Sutural borders of gonocoxites 8 convergent, contiguous at apical half. Posterior borders concave near laterotergites 9. Laterotergites 9 narrow at apex. Secondary thickenings of gonapophysis 9 ear-like (fig. 28).

Material examined. MEXICO, **Veracruz**: playa escondida 28 Km NE of Catemaco, 50 m), ♂, 30.IX.[19]74, M. Madison col. (AMNH); Los Tuxtlas ("camino a Balzapotl"), ♀, 11.IX.[19]86, L. Cervantes col.(10:45 80, Siparuna) (AMNH); idem, ♂, 15.VI.[19]86, idem (13:20, Siparuna), idem (AMNH);



Figs. 25-26. Genital plates, ventral view: 25, *T. achilles* Stål, 1862; 26, *T. edessoides* (Spinola, 1837) (gc8, gonocoxite 8; gc9; gonocoxites 9; la8, laterotergite 8; la9, laterotergite 9; VII, seventh abdominal sternite; X, tenth segment). Scale bar, 1 mm.



Figs. 27-28. Laterotergites, gonocoxites and gonapophyses of ninth segment, and ectodermal genital ducts, ventral view: 27, *T. achilles* Stål, 1862; 28, *T. edessoides* (Spinola, 1837) (aac, anterior annular crest; dr, ductus receptaculi; cs, capsula seminalis; gc9, gonocoxites 9; la9, laterotergite 9; mt, median thickening of gonapophyses 9; pac, posterior annular crest; pi, pars intermedialis; st, secondary thickenings of gonapophyses 9; tvi, thickening of vaginal intima; X, tenth segment). Scale bar, 0.5 mm.

GUATEMALA, **Alta Verapaz**: San Juan, ♀, Champion col. (NHMW); COSTA RICA, **Guanacaste**: Santa Rosa (PN Guanacaste), ♂, 20.X.[19]96, F. Fernández col. (IAvH 05098); PANAMA, **Panama**: Distr. Chame, Cerro Campana (800 m), ♂, 24.VII.[19]82, H.D. Engleman col. (AMNH); idem, ♂, 3.V.[19]81, idem (AMNH); idem, ♀, 10.V.[19]81, E. Giesbert col. (AMNH); **Canal Zone**: Barro Colorado, ♀, II-III.1936, W.J. Gertsch col. (AMNH); COLÔMBIA, **Meta**: Caño Grande (450 m), ♂, II.[19]48, Richter col. (UNCB He 00435); **Amazonas**: Aracuara, ♂, ♀, 21.VIII.[19]77, R. Restrepo col. (UNCB He 00376, He 00377); ECUADOR, **Napo**: Limoncocha (00°24'S, 76°36'W), ♀,

7.VIII.1972, Peter L. Kazan col. (AMNH); GUYANA, **Cuyuni-Mazaruni**: Bartica, ♀, VIII, Pomerat col. (AMNH); BRAZIL, C. Samuel, Jamari, ♀, III.1944, Parko col. (UFRG); **Amazonas**: Benjamin Constant (Rio Javari), ♂, III.1942, August Rabaut col. (AMNH); idem, ♀, 25.I-15.II.1942 (AMNH); Querari (Pelotão), 01°05'N/ 69°51'W, ♀, 20-21.IV.1993, C. Motta, R. Ferreira, J. Vidal, B. Matteo col. ("luz mista de mercúrio e luz negra BL e BLB") (INPA); **Pará**: Belém (Utinga), ♂, 20.I.1977, N. Guimarães col. (MPEG); **Acre**: Feijó, ♂, 2 ♀, XI.1956 (MZSP); idem, ♀, XII.1956 (MZSP); **Mato Grosso**: Chapada [dos Guimarães], ♀, IX, acc.13739 (AMNH); idem, ♂, VIII, acc. 23739 (AMNH);

Rondônia: Porto Velho (Terr. Guaporé), ♀, X.[19]44, Parko col. (UFRG); Vilhena, ♀, 11.XII.1986, C. Elias col., Polonoroeste (DZUP); Rolim de Moura (Linha 204), ♀, 31.X.1978, K. S. Brown Jr. col. ("em mato aberto, terra roxa") (ZUEC 2544); **Minas Gerais:** C[armo do] R[io] Claro, ♀, I.[19]45, Carvalho col. (MNRJ); **Espírito Santo:** Baixo Guandu, ♀, 23-30.XI.1970, C. Elias col. (DZUP); Santa Leopoldina, ♀, 3.IX.1964, Claudionor Elias col. (DZUP); **São Paulo:** Tupã, ♂, V.1947, Fritz Plaumann col., Ex. Coll. H. Ruckes (AMNH); Severinia, ♂, XII.1940, A.G. Silva col. (MCNZ 003616); Osasco, ♀, XII.1957 (MZSP); PERU, **Loreto:** Iquitos, ♀, no date, F6062, H. Bassler Collection, Acc. 33591 (AMNH); Upper Rio Marañon, ♂, 20.IV.[19]24, F6029, idem (AMNH); idem, ♀, 5.X.[19]24, F6103, H. Bassler Collection, Acc. 33591 (AMNH); idem, 3 ♀, 11.X.[19]24, F6102, idem (AMNH); idem, ♀, 11.X.[19]24, F6102, idem (AMNH); **Amazonas:** Rio Santiago, ♂, 06.XI.1928, F619F, H. Bassler Collection, Acc. 33591 (AMNH); idem, ♀, 27.XI.[19]24, F6012, idem (AMNH); idem, ♀, 23.XI.[19]24, F6012, idem (AMNH); Rio Ucayali, ♂, ♀, 27.IX.[19]23, F6004, idem (AMNH); **Ucayali:** Pucallpa, Rio Ucayali, 200m, ♀, no date, Dirings col., Coll. Dirings (MCNZ 003585); **Huánuco:** Tingo María, ♂, 18-23.IX.[19]76, Jeff Baier col. (AMNH); **Cuzco:** Pilcopata, ♀, 11.X.68, ("arbusto, 1604") (UFRG); **BOLIVIA, Cochabamba:** Chaparé (400 m), ♀, 12.XII.1949, Dirings col. (MZSP).

Comments. The color of the specimens varies from reddish to dark reddish-castaneous; the length of humeri is also variable, but the apices are always yellowish. The size and the triangular shape of gonocoxites 8, combined with the color of humeri distinguish *T. edessoides* from *T. achilles* and *T. abruptus*.

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