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The genus *Spaniophlebia* (Insecta, Ephemeroptera, Oligoneuriidae): new species, new combination and redescription of *S. trailiae*

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Abstract – *Spaniophlebia* male genitalia is described for the first time and the diagnosis of the genus is improved in order to encompass this new set of characteristics. *Spaniophlebia kayapo* sp. nov. is described based on male and female imagos from Pará and Mato Grosso states, Brazil, *Spaniophlebia trailiae* is redescribed based on newly collected material and comparison with the types, and *Spaniophlebia escomeli* is transferred to the genus *Lachlania* based on wing features and distributional data. A key to male imagos of the genus is provided as well as considerations regarding type-localities of *Spaniophlebia* species.

Key words: Identification key / *Spaniophlebia assimilis* / *Spaniophlebia escomeli* / *Spaniophlebia kayapo* sp. nov

Introduction

Spaniophlebia Eaton, 1881 was erected to comprise the species *Spaniophlebia trailiae* Eaton, 1881, based on two male imagos from Brazil. Later, *Spaniophlebia pallipes* Eaton, 1883 was described from Ecuador, but some years later the species was transferred to the genus *Lachlania* Hagen, 1868 (Needham and Murphy, 1924). Over 30 years later, two species were described: *Spaniophlebia assimilis* Banks, 1913 and *Spaniophlebia escomeli* Cockerell, 1926. Only the Andean species *S. escomeli* has no records from Brazil, being registered from Peru based on a female imago from Arequipa. More recently, Kluge (2004) illustrated the wings of *Spaniophlebia*/g(1) sp.O3, a male imago from an unknown locality. Regarding the genus, generic characteristics as well as a key to Oligoneuriidae were given by Domínguez *et al.* (2006). No more data regarding *Spaniophlebia* taxonomy were published since then.

According to Kluge (2004, 2007), *Spaniophlebia* is related to *Lachlania* and *Oligoneuria* Pictet, 1843, but the relationships among these three genera remain unresolved. *Spaniophlebia* and *Oligoneuria* share in common a membranous ventral extension in the head of the adults – this extension, in *Oligoneuria*, represents the remnants of a large frontal projection on the head of the nymphs and, therefore, the presence of such a projection is expected in the undescribed nymph of *Spaniophlebia*. *Spaniophlebia* and *Lachlania*, on the other hand, share with each other the complete lack of the terminal filament or paracercus.

The accurate type-locality of both Brazilian species is unclear. *Spaniophlebia assimilis* is described without any state reference, whereas *S. trailiae* shows a more intriguing record, being described from Rio Solimões, São Paulo. In this paper, we follow Salles *et al.* (2004), in which both type-localities are interpreted as being from Northern Brazil, in the Amazon region.

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The paper presents the description of a new species of *Spaniophlebia* from Pará State as well as the redescription of *S. trailiae* based on material collected on the Amazon River basin and compared to the type-series. New considerations on type-localities of the Brazilian species are also given.

Material and methods

Specimens were preserved in 80% ethanol, wings were mounted dry, legs and genitalia were mounted in Euparal. Photographs were taken with digital camera coupled in stereomicroscope Leica MZ16 and combined using the program Auto Montage® or CombineZP (Hadley, 2010). Nomenclature of wings veins was based on Domínguez *et al.* (2006) and Kluge (2004) interpretation of Oligoneuriidae venation. Male genitalia nomenclature was based on Pescador and Peters (1980) revision on *Homoeoneuria*. Association among structures of both genera seems to agree well, although it is important to emphasize that *Spaniophlebia* and *Homoeoneuria* are not closely related genera and therefore the structures described for these taxa may not be homologous.

Photos of *S. trailiae* types were made available from the Natural History Museum, London, England. The type of *S. assimilis* is housed at the Museum of Comparative Zoology, Harvard, USA, but despite the authors' several requests, photos were not made available for study. The types of *S. escomeli* could not be located. Depositories abbreviations: DZRJ – Coleção Entomológica Prof. José Alfredo Pinheiro Dutra, Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro State, Brazil; MZSP – Museu de Zoologia da Universidade de São Paulo, São Paulo State, Brazil; INPA – Coleção de Invertebrados do Instituto Nacional de Pesquisas da Amazônia, Amazonas State, Brazil; CZNC – Coleção Zoológica Norte Capixaba, Universidade Federal do Espírito Santo, Espírito Santo State, Brazil; NHM – Natural History Museum, London, England.

Results

Spaniophlebia Eaton, 1881

Since the male genitalia of the genus *Spaniophlebia* is herein described for the first time, a generic description is provided, as follows: penial process with apex curved ventrally, forming a flap (Figs. 15 and 18). Lateral process long and apically pointed (Figs. 15, 18 and 19). Membrane uniting the penial process and the lateral process (Figs. 15, 18 and 19).

In order to encompass the new species and the characteristics of the male genitalia, the diagnosis given in Domínguez *et al.* (2006) is improved as follows:

Diagnosis: (1) Fore wings with relatively few cross veins, concentrated between Sc/R_1 and R_{4+5}/MA1 (*e.g.*, Fig. 9); (2) fore wings with four or more apparent longitudinal veins behind vein Sc/R_1 (*e.g.*, Fig. 9); (3) vein IMP of fore wings well developed, jointed at base to MA2/MP1 (*e.g.*, Fig. 9); (4) vein R_3/IR_s of fore wings basally attached near the base of R_1 (*e.g.*, Fig. 9); (5) tarsal claws of each pair similar, both blunt; (6) Mesoscutellum with short conspicuous membranous filaments; (7) Posterolateral spines present on segments II–IX; (8) terminal filament absent; (9) forceps two-segmented, penial arm present, penial process with apex ventrally curved forming a flap, lateral process apically pointed and presence of a membrane uniting the penial and lateral processes (*e.g.*, Fig. 15).

Spaniophlebia trailiae Eaton, 1881

(Figs. 1, 2, 5, 6, 9, 10, 13–15, 20, 22 and 23)

Diagnosis: (1) Membranous extension of head with a pair of blackish lateral projections (Fig. 6); (2) overall color pattern on body: head and thorax dorsally brown, with a distinct whitish marking "Y"-shaped on head and "H"-shaped on mesonotum (Fig. 1), abdomen as in Fig. 1; (3) males with area between Sc/R_1 and R_3/IR_s with two to four cross veins, distal one incomplete; area between R_3/IR_s and R_{4+5}/MA1 possessing one to two cross veins (Fig. 9). Hind wings with few cross veins at the base of the wing between Sc and R1 (Fig. 10); (4) spines on abdominal segment II about half as long as in the other segments; (5) male styliger plate long, as long as the length of segment X, distal margin projected medially (Figs. 13 and 14); (6) penial process long and slender (Fig. 15); (7) female subgenital plate long, exceeding posterior margin of segment X (Fig. 20).

Male imago (in alcohol): Length (mm), body: 10.1; fore wing: 8.8; hind wing: 4.4. General coloration whitish heavily tinged with brown (Fig. 1).

Head: Whitish, heavily tinged with brown dorsally, base of head and epicranial suture unpigmented, with scattered black dots (Fig. 1). Eyes black. Ocelli white, base ringed with black. Base of antennae and scape white; pedicel brown with whitish dorsal macula; flagella translucent brown. Head ventrally covered by a blackish membranous extension with irregular margins; extensions with a pair of blackish lateral projections (Figs. 5 and 6).

Thorax: Pronotum whitish with two wide brown taints one on each side of the medial line. Meso and metanota whitish with brown stains. Brown taints on mesonotum forming a distinct whitish medial "H"; mesoscutellum suffused with dark. Posterior margin of metanotum brown (Fig. 1). Prosternum whitish with a few brown stains with a thin transversal brown stripe; posterior margin, where prosternum connects to mesosternum, brown. Meso and metasterna whitish with brown taint except around legs insertion; mesosternum widely tinged with brown (Fig. 2).

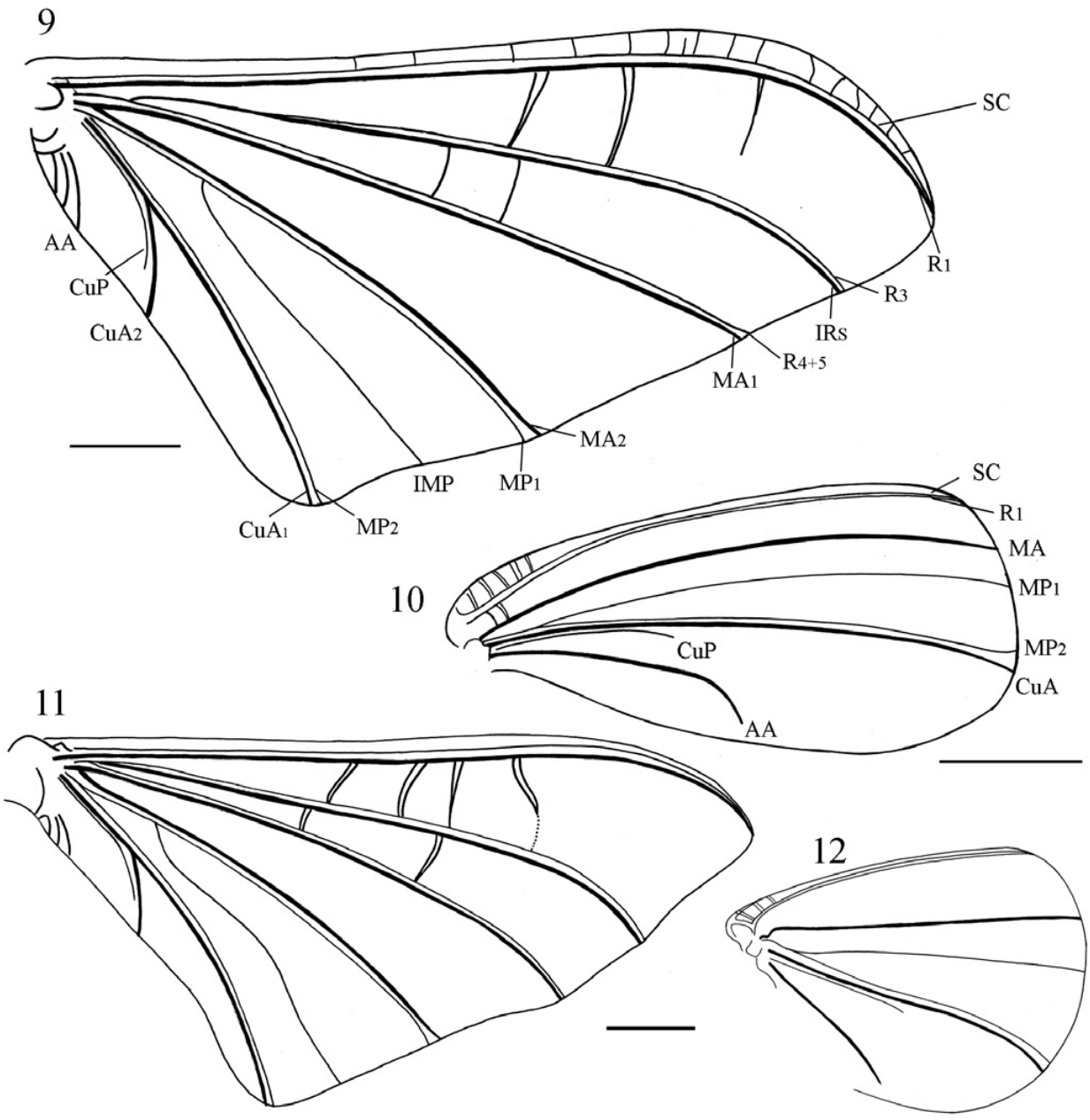
Wings: Membrane of wings translucent white. Veins light brown, cross veins grayish. Several cross veins between C–Sc and between distal 1/3 of Sc–R_1; wing membrane on C–Sc area and on apical 1/3 of the posterior margin of Sc–R_1 less translucent, somewhat grayish.

Figs. 1–8. Male imagos. *S. trailiae*: (1) dorsal view; (2) ventral view. *S. kayapo* sp. nov.: (3) dorsal view; (4) ventral view. *S. trailiae*: (5) head ventral view; (6) detail of membranous extension of head, lateral view. *S. kayapo* sp. nov.: (7) head ventral view; (8) detail of membranous extension of head, lateral view – arrows showing long lateral projections followed by a basal pair of small blackish projections. Scale bars = 1 mm.

Area between Sc/R_1 and R_3/IR_s with two to three cross veins, distal one incomplete; area between R_3/IR_s and R_{4+5}/MA1 with one to two cross veins; Vein IMP jointed at base to MA2/MP1 (Fig. 9). Hind wings with few cross veins at base of the wing on membrane between C and Sc, and between Sc and R1 (Fig. 10).

Legs: Whitish. Coxae largely tainted with brown on basal half of dorsal surface; Trochanters vastly tinged with brown, except for two spots, one on each lateral; Femora with two longitudinal stripes, one on each lateral, fore femora stripes wider. Tibiae and first two tarsal segments of forelegs completely brown on dorsal and lateral surfaces; last tarsal segment with very small brown dots scattered on its surface. Femora, tibiae and tarsi of median and hind legs with small brown dots scattered on its surface; apex of mid and hind legs with brown macula. Foretibia about 1.2 × length of fore femora.

Abdomen: Posterolateral spines whitish. Spines of segment II about half as long as remaining spines. Terga whitish; terga I–VIII tinged with light brown faintly suffused with dark brown; terga I–IX possessing one longitudinal brown lateral stripe. Apical margin of tergum



Figs. 9–12. Wings. *S. trailiae*: (9) fore wing; (10) hindwing. *S. kayapo* sp. nov.: (11) fore wing; (12) hindwing. Scale bars = 1 mm.

I dark brown. Tergum X brown. Tergum IX with two apicolateral brown stains (Fig. 1). Sterna whitish, sterna I–VIII tinged with light brown, faintly suffused with dark brown. Sterna IX–X tinged with brown (Fig. 2). Basal segments of caudal filaments brown; remaining segments whitish (Fig. 1).

Genitalia: Forceps whitish, first segment curved on distal 2/3; inner margin with short simple setae on distal half of segment I and on segment II. Styliger plate whitish and long, as long as length of segment X, extension tinged brown; distal margin medially projected (Figs. 13 and 14). Male genitalia with penial process long and slender (Fig. 15).

Variations on Subimago: A small lateral membranous projection was found on meso- and metathorax next to legs insertions; such projections were lacking on male imago and may allude to projections on epimera and episternum of nymphs of this species (Fig. 22). On abdomen, tergum IX with triangular- or square-shaped basal white stain. Caudal filaments bearing several whitish long setae on subimagos but not on imagos.

Comparisons with the *Types* (dry male imagos): Types are in bad state, but typical coloration of epicranial suture and its branches are visible, as well as the white "H" shaped mark on mesonotum. Wings membrane are hyaline, veins dark brown. Membrane between C–Sc dark

brown; in our material (including one **dry** wing), this area was usually somewhat grayish, not as translucent as the remaining membrane of the wings, although such color difference was very subtle. On the types, the area between Sc/R_1 and R_3/IR_s showed three to four cross veins, distal vein might be incomplete or not; area between R_3/IR_s and R_{4+5}/MA1 with one cross vein. In our material, only one fore wing has four cross veins between Sc/R_1 and R_3/IR_s, the distal one incomplete.

Female imago (in alcohol): Length (mm), body: 9.7–1.4; fore wing: 10.8–12.2; hind wing: 4.9–5.9. General coloration similar to the male, sometimes with darker shade. On female subimagos, much darker shade, particularly among the epicranial suture and its branches, on the "H" like mark on mesonotum and on the abdomen.

Overall description similar to males. Membranous filaments on mesoscutellum longer than in males. On fore wings: area between R_1 and R_3/IR_s with one to four cross veins, distal one usually incomplete; some individuals showed an short incomplete vein between R_{4+5}/MA1 and MA2/MP1. Legs atrophied; femora twisted, tibiae and tarsi thin and twisted. Subgenital plate exceeding posterior margin of segment X (Fig. 20).

Variations: One female from Rondônia State was found with anomalous venation on fore wing: area between R_1 and R_3/IR_s with six to seven cross veins, 7th vein incomplete; area between R_3/IR_s and R_{4+5}/MA1 possessing three to four cross veins. Another specimen had one fore wing with three cross veins on R_3/IR_s and R_{4+5}/MA1.

Examined Material. Brazil, Rondônia State, Distrito Calama, Porto Velho, 13.x.2007, Cruz, PV col., two female subimagos, two female imagos, two male subimagos (INPA). Brazil, São Paulo State, Luiz Antônio, Reserva Jataí, 9.iv.1990, Froehlich, CG leg., one male imago (MZSP). São Paulo, Rio Solimões, two male imagos (dry) (NHM). Brazil, Mato Grosso State, Araguaia, Fazenda Ellus, 17.x.2000, Batista, J.D. col., two male imagos (CZNC). Brazil, Rio Madeira, lençol, 17.ix.2004, 1 male imago, 1 female imago (abdomen and left wings missing) (CZNC). Brazil, Amazonas, Fonte Boa, Praia Rio Solimões, 07-08.ix.2003, one male subimago (CZNC).

Spaniophlebia kayapo sp. nov.

(Figs. 3, 4, 7, 8, 11, 12, 16–19, 21 and 23)

Diagnosis: (1) Membranous extension of head with a pair of whitish long lateral projections sometimes followed by a basal pair of small blackish projections, usually curved inwards (Fig. 8); (2) overall color pattern on body: head and thorax whitish heavily suffused with black dorsally, abdomen as in fig. 3; (3) males with area between Sc/R_1 and R_3/IR_s with three to five cross veins, distal one usually incomplete; area between R_3/IR_s and R_{4+5}/MA1 possessing two cross veins, distal vein sometimes incomplete, presence of zero to two cross veins between veins R_{4+5}/MA1 and MA2/MP1 (Fig. 11); (4) spines on abdominal segment II as long as in other segments; (5) male styliger plate short, not reaching posterior margin of segment X; distal margin of styliger plate truncate (Figs. 16 and 17); (6) penial process short and wide, with a flap extending throughout the length of the inner lateral margin (Figs. 18 and 19); (7) female subgenital plate shorter than segment X (Fig. 21);

Male imago (in alcohol): Length (mm), body: 9.8–11.0; fore wing: 8.5–9.2; hind wing: 4.3–4.6. General coloration whitish suffused with black, thorax light brown.

Head: whitish, heavily suffused with black dorsally (Fig. 3). Eyes black. Ocelli white. Base of ocelli surrounded with black. Base of antennae and scape white; pedicel black with whitish dorsal macula; flagella translucent white, brown at base. Head ventrally covered by a blackish membranous extension with irregular margins; extension with pair of whitish long lateral projections sometimes followed by a basal pair of small blackish projections, usually curved inwards (Figs. 7 and 8).

Thorax: pronotum whitish suffused with black. Meso and metanota light brown suffused with black; suture of mesonotum black, white marks on mesonotum forming a faded "H" (Fig. 3). Prosternum whitish shaded with black. Meso and metasterna light brown; suture between basisterna and suture between basisterna and furcasterna shaded with black (Fig. 4).

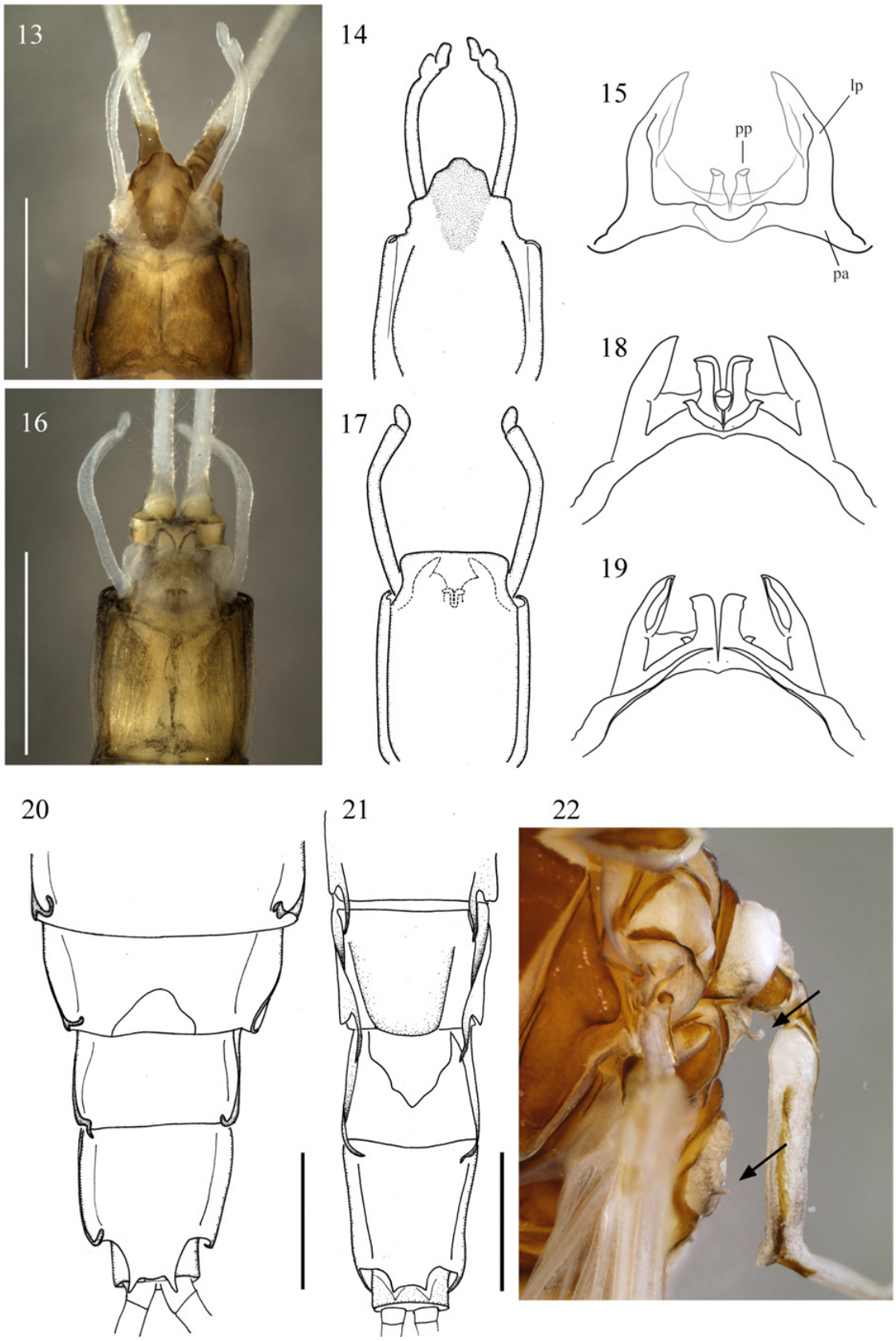
Wings: Membrane of wings translucent whitish. Longitudinal veins light brown, cross veins whitish. Several cross veins between C–Sc/R_1 and few cross veins on distal 1/3 of area between Sc and R_1; area between Sc/R_1 and R_3/IR_s with three to five cross veins, distal one usually incomplete; area between R_3/IR_s and R_{4+5}/MA1 possessing two cross veins, distal vein sometimes incomplete; presence of one weak cross vein between veins R_{4+5}/MA1 and MA2/MP1. Vein IMP jointed at base to MA2/MP1 (Fig. 11). Hind wings with a few cross veins at base of the wing between C and Sc (Fig. 12).

Legs: Coxae, trochanters and femora yellowish; tibiae, tarsi and tarsal claws whitish. Coxae and trochanters heavily suffused with black. Femora shaded with black, except for two unpigmented areas, one median and one apical; fore femora sometimes completely shaded, without such areas. Fore tibia about 1.2 × length of fore femora.

Abdomen: Terga whitish with black markings; terga I–IX with five longitudinal bands, a single medial, one pair submedial and one pair sublateral; submedial and sublateral pairs preceded by a darker spot; trachea light brown (Fig. 3). Sterna whitish shaded with black, sterna III–VIII bearing a pair of anteromedial dark brown spots (Fig. 4). Caudal filaments whitish with several long and simple setae.

Genitalia: Forceps whitish; first segment curved on apical 2/3, inner margin with short simple setae on distal half of segment I and II. Styliger plate short, not reaching posterior margin of segment X; distal margin of styliger plate truncate (Figs. 16 and 17). Male genitalia with penial process short and wide and with a flap extending throughout whole length of inner lateral margin (Figs. 18 and 19).

Variations: One specimen presented fore wing with only two complete cross veins between R_1 and R_3–IR_s.



Figs. 13–22. *S. trailiae*: (13 and 14) male sternum IX; (15) genitalia of *S. kayapo* sp. nov.: (16 and 17) male sternum IX; (18) genitalia, dorsal view; (19) genitalia, ventral view. *S. trailiae*: (20) female abdomen. *S. kayapo* sp. nov.: (21) female abdomen. *S. trailiae*: (22) subimago thorax, arrows showing small lateral membranous projection found on meso and metathorax. Abbreviations: *lp*: lateral process; *pa*: penial arm; *pp*: penial process. Scale bars = 1 mm.

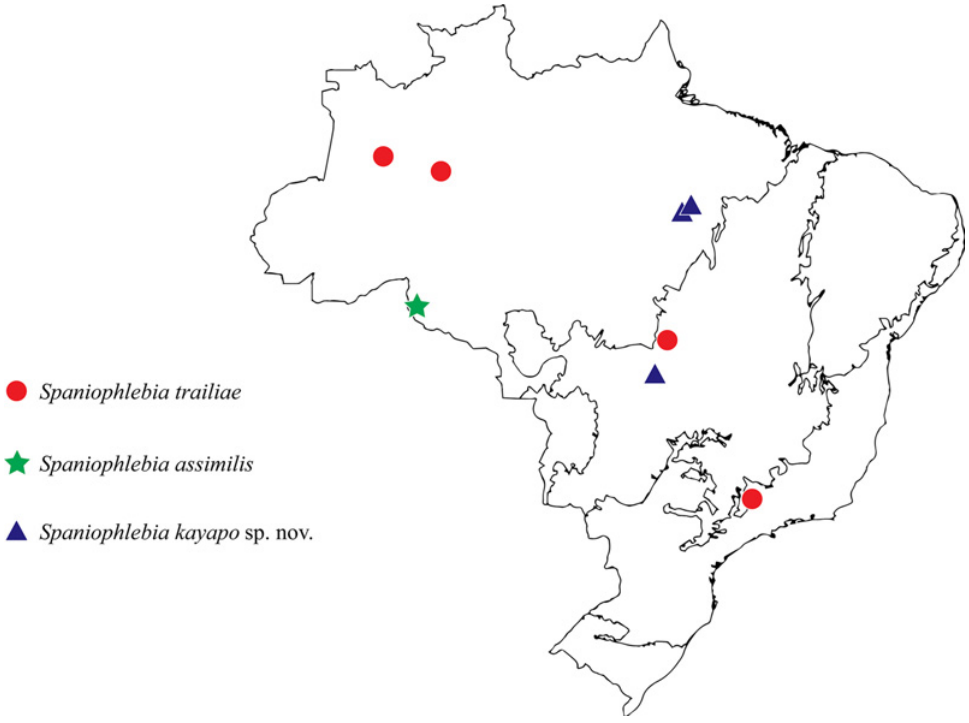


Fig. 23. Map of Brazil showing the biomes and the distribution of the species of *Spaniophlebia*.

Another individual showed four cross veins on area between veins R_3–IR_s and R_{4+5}/MA1. Regarding cross vein among R_{4+5}/MA1 and MA2/MP1 there was several variations: one specimen had one complete and well-marked vein and one incomplete and weakly marked vein, another showed only one weakly marked and incomplete vein, and in another individual such veins were completely lacking. As usual abdominal coloration (particularly on sterna) varied from heavily to lightly shaded with black.

Female imago (in alcohol): Length (mm), body: 12.4; fore wing: 10.7; hind wing: 5.9. General coloration yellowish suffused with black.

Similar to males. Membranous filaments on mesoscutellum longer than in males. On fore wings: area between R_3/IR_s and R_{4+5}/MA1 with three to four cross veins; one to three cross vein between veins R_{4+5}/MA1 and MA2/MP1. Legs atrophied; femora twisted, tibiae and tarsi thin and twisted. Subgenital plate shorter than segment X (Fig. 21). Caudal filaments broken off.

Variations: White marks on mesonotum were absent on one of the females. One specimen showed one fore wing with only two cross veins between R_1 and R_3/IR_s and two cross veins between R_3/IR_s and R_{4+5}/MA1. Another female had five cross veins between R_3/IR_s and R_{4+5}/MA1 on one of the fore wings, basal vein was incomplete and distal vein weak.

Type Material. Holotype: male imago: Brazil, Pará State, Parauapebas, Floresta Nacional de Carajás, 6°05'43.00"S/50°11'29.25"W, 659 m, 27.ii.2008, Ferreira-Jr, N. and Santos, APM *cols*. (DZRJ – Ephem 2311).

Paratypes: same data as holotype, three male imagos (DZRJ – Ephem 212). Same data as holotype, one male imago, parts on slide (DZRJ – Ephem 2312). Brazil, Pará State, Parauapebas, Floresta Nacional de Carajás, Serra Norte, 6°04'55.56"S/50°09'06.09"W, 664 m, 26.ii.2008, Ferreira-Jr, N and Santos, APM *cols*., one male imago (DZRJ – Ephem 211). Brasil, Pará State, Canaã dos Carajás, Floresta Nacional de Carajás, Serra Sul, 6°20'56.70"S/50°26'54.44"W, 716 m, 29.ii.2008, Ferreira-Jr, N and Santos, APM *cols*., two male imagos and one female imago (DZRJ – Ephem 210). Brazil, Pará State, Floresta Nacional do Carajás, Geladinho, iii.2009, two female subimagos (DZRJ – Ephem 2313). Brazil, Mato Grosso State, Nova Xavantina, Campus UNEMAT, córrego Bacaba, 08.i.2012, 2 male imagos, Pensilvannia trap (CZNC).

Etymology. After Kayapó, an indigenous tribe from southeastern Pará State.

Discussion

Spaniophlebia species

Spaniophlebia kayapo sp. nov. can be easily recognized by the several diagnostic characteristics, such as shape and color of the head membranous extension, body color pattern, wing venation, length and shape of styliger plate, of penial process and of female subgenital plate.

The remaining Brazilian species: *S. trailiae* and *S. assimilis*, share similar shape and length of the styliger plate and number of cross veins on fore wing. But according to Banks' (1913) description, *S. assimilis* lacks a forked CuA and shows unmarked wings. The weak coloration on wings was described above for specimens of *S. trailiae* and may not be a good character to separate

S. assimilis and *S. trailiae*. Regarding wing venation, when observing Banks drawings of *S. assimilis* fore wing, it is possible to see a forked CuA. It seems that Banks interpretation of wing veins was different from that of Eaton (1881) when describing *S. trailiae*. Based on the original drawing and description, Banks was probably referring to vein MA2/MP1 (Cubitus in his manuscript), which is connected to IMP by a cross vein. Such condition is neither found on *S. trailiae* type, nor any of the analyzed material and may be the only characteristic that could distinguish *S. assimilis* and *S. trailiae* with confidence.

The only *Spaniophlebia* species not reported from Brazil, the Andean *S. escomeli*, has several cross veins on fore wings. The type specimen could not be found, but some considerations can be made based on the original description. *Spaniophlebia escomeli* fore wing has m_3 and m_4 fork (*i.e.*, MA2/MP1 and IMP) "wider and at a more remote distance from the base of the wing than the Cu fork" (Cockerell, 1926). The oddly high number of cross veins in fore wing is observed only in *Spaniophlebia*/g(1) sp.O3 (Kluge, 2004), from an unknown locality. Despite that, it is unlikely they belong to the same species, the number of cross veins in each field does not match among them and the fork of MA2/MP1 and IMP is on the same level on *Spaniophlebia*/g(1) sp.O3. In fact, on all other species of *Spaniophlebia*, both forks are about the same level, but *S. escomeli* condition is often seen in species of the genus *Lachlania*.

Spaniophlebia escomeli Andean distribution also differs significantly from *Spaniophlebia* general distribution. The genus *Lachlania*, on the other hand, has wide distribution in the American continent including records to the Andean region such as *L. cacautana* (Needham, 1932) and *L. garciai* (Navás, 1912). In that sense, the maintenance of *S. escomeli* in the genus *Spaniophlebia* would not only alter the generic distribution to an illogical pattern but would also compromise the genus diagnosis, once the fork level of IMP does not vary among the genera of Oligoneuriidae. In addition, Cockerell comparison of *S. escomeli* venation with *S. pallipes*, a species now regarded as *Lachlania*, makes another argument towards considering that *S. escomeli* may not belong to *Spaniophlebia* but rather to its closely related genus *Lachlania*. Given these evidences, this species must be transferred to the former genus and therefore be renamed as *Lachlania escomeli* comb. nov. (Cockerell, 1926).

Type-localities

Described based on one male imago, *S. assimilis* was collected by Mann from Camp 41, Madeira River, without any state reference (erroneously stated as "Camp 14" in Domínguez *et al.*, 2006) The material was part of the Stanford Expedition to Brazil in 1911 in which Mann took part. The expedition collected throughout Northeastern and North Brazil and the third part of the expedition traveled up the Amazon River reaching the city of Manaus, in Amazonas State, and then moved up the Madeira and the Mamoré Rivers and its tributaries, leaving the Amazonas State and entering Rondônia State and Bolivia (Baker, 1913; Rehn, 1916). *Spaniophlebia assimilis* type-locality, the Camp 41, is situated at 306 km southwest from Porto Velho, Rondônia State (Fig. 23) (Wolcott, 1912; Kempf, 1959). At the time Mann collected in this location, it belonged to the state of Mato Grosso. However, since 1956, this territory belongs to the Rondônia State.

From Rio Solimões, São Paulo, the species *S. trailiae* is commonly found on the Amazon Basin (Fig. 23) but has no records from the Atlantic Rainforest. The lack of more specific information on the label makes it difficult to know where the real type-locality should be. However, in the Amazon Basin, at the upper Solimões River, there is a municipality named São Paulo de Olivença. This locality agrees very well with the majority of the specimens studied in this paper due to its distribution on the Amazon Basin (North of the Rondônia State). A second possibility is for the material to belong to São Paulo State, at the Atlantic Rainforest domain. This would agree with the single male imago found on Luiz Antônio municipality, Jataí Ecological Station, São Paulo State (Fig. 23). Despite that, no Solimões River is known from the state.

Spaniophlebia kayapo sp. nov. was found in Pará State at Carajás National Forest (Amazon), on altitudes ranging from 650 to 720 m and on Mato Grosso State, inside the Cerrado (Brazilian savannah), but close to the transition between this biome and the Amazon Forest (Fig. 23), at an altitude of approximately 300 m.

Key to male species of *Spaniophlebia*

1. Fore wing area between R_{4+5}/MA1 and MA2/MP_1 with zero to two cross veins (as in Fig. 9) 2
   – Fore wing area between R_{4+5}/MA1 and MA2/MP_1 with five cross veins (Fig. 51A from Kluge, 2004) *Spaniophlebia*/g1 sp.O3
2. Styliger plate with apex projected medially; plate long, at least reaching posterior margin of abdominal segment X (as in Figs. 13 and 14) 3
   – Styliger plate with apex truncate, not projected; plate short, not reaching posterior margin of abdominal segment X (Figs. 16 and 17) ..... *Spaniophlebia kayapo* sp. nov.
3. Vein IMP attached to MA2/MP1 by a cross vein (Fig. 4 from Banks, 1913) ..... *Spaniophlebia assimilis*
   – Base of vein IMP is directly attached to MA2/MP1 (Fig. 9) ..... *Spaniophlebia trailiae*

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