New species and records of Antillocladius Sæther and Litocladius Mendes, Andersen et Sæther from Brazil and Costa Rica (Chironomidae: Orthocladiinae)

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Abstract

Antillocladius anandae sp. n., A. itatiaia sp. n. and Litocladius neusae sp. n. from Brazil, and L. chavarriai sp. n. from Costa Rica are described and illustrated as males. In addition, new records of A. antecalvus Sæther, A. arcuatus Sæther, A. brazuca Mendes et Andersen, A. folius Mendes, Andersen et Sæther, A. musci Mendes, Andersen et Sæther and Litocladius floripa Mendes et Andersen are given. Including the new species described below Antillocladius Sæther now comprises 27 species from the Neotropical, Nearctic and Oriental zoogeographical regions, while Litocladius Mendes, Andersen et Sæther comprises 5 species from the Neotropical region.

Key words: Chironomidae, Orthocladiinae, Antillocladius, Litocladius, new species, new records, Brazil, Costa Rica, Neotropical region

Introduction

The genus Antillocladius was described by Sæther (1981) based on A. antecalvus Sæther from Saint Vincent, British West Indies. Since then 24 species from the Neotropical, Nearctic and Oriental zoogeographical regions have been described or transferred to the genus (Sæther 1982, Wang & Sæther 1993, Andersen & Contreras-Ramos 1999, Mendes et al. 2004, Yamamoto 2004, Mendes & Andersen 2008). The immatures are described for a few species (Sæther 1984, Mendes et al. 2004).

The genus Litocladius was described by Mendes et al. (2004) based on male, female and pupa of L. mateusi Mendes, Andersen et Sæther from São Paulo State in Brazil. Recently, Mendes & Andersen (2008) described two additional Brazilian species, L. confusus and L. floripa, both as males only.

Spies et al. (2009) presented a key to the chironomid genera of Central America. The genus Litocladius was not included and will key to Antillocladius Sæther, from which it can be separated based on the presence of lateral lamellae on the virga and by having three types of acrostichals, strong decumbent close to the antepronotal lobe followed by a few weak hair-like acrostichals and with several scalpellate acrostichals in mid-scutum.

Recent collecting in Brazil and Costa Rica have yielded two new species of Antillocladius, A. anandae and A. itatiaia from Brazil and two new species of Litocladius, L. chavarriai from Costa Rica and L. neusae from Brazil, as well as new records for A. antecalvus Sæther, A. arcuatus Sæther, A. brazuca Mendes et Andersen, A. folius Mendes, Andersen et Sæther, A. musci Mendes, Andersen et Sæther, and L. floripa Mendes et Andersen.

Material and methods

The specimens were mounted on slides in Canada balsam or Euparal following the procedures outlined by Sæther (1969). The terminology follows Sæther (1980).

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The types and additional material are deposited in the Department of Natural History, Bergen Museum, University of Bergen, Bergen, Norway (ZMBN); Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP); and Instituto Nacional de Pesquisas da Amazônia, Manaus, Amazonas, Brazil (INPA).

**Antillocladius Sæther**


**Type species.** *Antillocladius antecalus* Sæther, 1981: 4, by original designation.

**Other included species.** *Antillocladius anandae* sp. n.; *A. arcuatus* Sæther, 1982; *A. atalaia* Mendes et Andersen, 2008; *A. axitiosus* Mendes et Andersen, 2008; *A. biota* Mendes, Andersen et Sæther, 2004; *A. brazuca* Mendes et Andersen, 2008; *A. calakmulensis* Mendes, Andersen et Sæther, 2004; *A. campususp* Mendes et Andersen, 2008; *A. folius* Mendes, Andersen et Sæther, 2004; *A. gephyrus* Mendes et Andersen, 2008; *A. herradurus* Mendes, Andersen et Sæther, 2004; *A. itatiaia* sp. n.; *A. musci* Mendes, Andersen et Sæther, 2004; *A. plicatus* Mendes et Andersen, 2008; *A. pluspilalus* Sæther, 1982; *A. scalpellatus* Wang et Sæther, 1993; *A. skartveiti* Andersen et Contreras-Ramos, 1999; *A. sooretama* Mendes, Andersen et Sæther, 2004; *A. subnubilus* (Sinhary et Chaudhuri, 1979); *A. tokarameneus* (Sasa et Suzuki, 1995); *A. ubatuba* Mendes, Andersen et Sæther, 2004; *A. ultimus* Mendes et Andersen, 2008; *A. venequatoriensis* Mendes, Andersen et Sæther, 2004; *A. yakyijues* (Sasa et Suzuki, 2000); *A. zempoalensis* Mendes, Andersen et Sæther, 2004; and *A. zhengi* Wang et Sæther, 1993.

**Diagnostic characters.** The males can be separated from other orthoclads by the following combination of characters: scalpellate acrostichals at least in mid scutum (some simple anterior acrostichals may occur) combined with a moderately to extremely long anal point with lateral setae; virga present or absent, but lateral lamellae never present. All known females and several males have setae apically on the wing membrane. The combination of absence of thoracic horn and presence of thorn-like macrosetae will separate the pupae from other genera. The larva is distinguished by a palmate S I, pecten epipharyngis divided into about 8–12 teeth, anal segment protruding over posterior parapods, and anal setae absent or perhaps reduced to single seta on minute tubercle.

**Description as in Mendes & Andersen (2008).**

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**Key to the males of Antillocladius Sæther**

1. Squama bare. Mexico .................................................. *A. zempoalensis* Mendes, Andersen et Sæther
   - Squama with at least one seta .................................................. 2

2. Anal point nearly parallel-sided, with numerous, weak, partly anteriorly directed setae; inferior volsella either pointed triangular or consisting of a long apically simple or bifid lobe; wing bare .................................................. 3
   - Anal point tapering, with numerous, usually strong and posterolaterally directed setae; inferior volsella either with a dorsal anterior triangular to digitiform part and a more rounded ventral lobe or circular with or without additional rounded posterior extension, and conspicuously set off; wing usually with apical setae ........................................... 9

3. Inferior volsella pointed triangular; costal extension > 1.5 times RM .................................................. 4
   - Inferior volsella consisting of a long posteromedially directed simple or apically bifid lobe; costal extension < 1.5 times RM .................................................. 6

4. Inferior volsella triangular, leaf-like. Brazil .................................................. *A. folius* Mendes, Andersen et Sæther
   - Inferior volsella sharply pointed or with rounded apex .................................................. 5

5. Inferior volsella small, sharply pointed. Brazil .................................................. *A. biota* Mendes, Andersen et Sæther
   - Inferior volsella large, with rounded apex. Brazil .................................................. *A. axitiosus* Mendes et Andersen

6. Inferior volsella apically bifid .................................................. 7
   - Inferior volsella simple .................................................. 8

7. Virga absent. Brazil .................................................. *A. sooretama* Mendes, Andersen et Sæther
   - Virga present. Brazil .................................................. *A. atalaia* Mendes et Andersen

8. Inferior volsella uniformly colored, with sharply pointed apex. Brazil, Venezuela .................................................. *A. ubatuba* Mendes, Andersen et Sæther
   - Inferior volsella with a distinctly darker oral part bearing strong setae, with rounded apex. Brazil .................................................. *A. ultimus* Mendes et Andersen

9. Virga longer than half the length of phallapodeme .................................................. 10
   - Virga absent or shorter than half the length of phallapodeme .................................................. 17
**Antillocladius anandae** sp. n.

(Figs 1–5)

**Type material.** Holotype male, BRAZIL: Rio de Janeiro State, Penedo, 22°24′65.2″S 44°33′21.7″W, 468 m a.s.l., 18–19.xii.2009, light trap and net, H.F. Mendes (MZUSP).

**Etymology.** Named after Ananda Ballarini, the owner of the land where the specimen was collected, for her kindness and permission to collect.

**Diagnostic characters.** The species resembles *A. venequatoriensis* in the shape of the inferior volsella. However, it can be separated from *A. venequatoriensis* and all other members of the genus by the combination of the following characters: bare wing membrane, long costal extension and long virga.

**Description.** Male (*n* = 1). Total length 1.84 mm. Wing length 1.01 mm. Total length / wing length 1.81. Wing length / length of profemur 2.39.

**Coloration.** Amber to light brown, thorax with darker markings on preepisternum, median anepisternum, and notum; legs uniformly light brown.

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**Antillocladius** anandae** sp. n.
FIGURES 1–5. Antillocladius anandae sp. n., male. 1—tentorium, stipes and cibarial pump; 2—thorax; 3—wing; 4—hypopygium, dorsal aspect; 5—hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right.
**Head.** AR 0.55. Ultimate flagellomere 216 μm long. Temporal setae 8 including 3 inner verticals, 1 outer vertical, and 4 postorbitals. Clypeus with 5 setae. Tentorium, stipes, and cibarial pump as in Figure 1. Tentorium 86 μm long, 18 μm wide. Stipes 73 μm long. Palp segment lengths (in μm): 18, 25, 54, 59, 73. Third palpomere with 4 sensilla clavata subapically, longest 9 μm long.

**Thorax** (Fig. 2). Antepronotum with 2 strong setae. Dorsocentrals 7; acrostichals 13 starting close to antepronotum, all scalpellate; prealars 3; no supraalar. Scutellum with 6 setae, uniserial.

**Wing** (Fig. 3). VR 1.41. Costal extension 63 μm long. Brachiolum with 1 seta, remaining cells and veins bare. Squama with 3 setae.

**Legs.** Spur of fore tibia 34 μm long, spurs of mid tibia 23 μm and 15 μm long, spurs of hind tibia 31 μm and 14 μm long. Width at apex of fore tibia 25 μm, of mid tibia 24 μm, of hind tibia 32 μm. Comb with 8 setae, longest 16 μm long. Lengths and proportions of legs as in Table 1.

**TABLE 1.** Lengths (in μm) and proportions of legs of *Antillocladius anandae* sp. n., male (n = 1).

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<td>185</td>
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<td>3.53</td>
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**Hypopygium** (Figs 4–5). Tergite IX covered with microtrichia, laterosternite IX with 5 setae. Anal point triangular, 38 μm long, 15 μm wide at base, 2 μm wide at apex, with 10 setae. Phallapodeme 73 μm long, transverse sternapodeme 64 μm long. Virga 43 μm long. Gonocoxite 127 μm long. Gonostylus 62 μm long, megaseta 7 μm long. HR 2.04. HV 2.97.

**Biology and distribution.** The species was collected close to Parque Nacional do Itatiaia and is thus likely to occur in the park itself too. The area surrounding the park is mostly covered with secondary forests that have been left undisturbed for the past 50 years. The material was, however, collected in an area with cabins surrounded by gardens planted with mainly native species. The soil was very humid and covered with grass, sedges and mosses and the few remaining trees were completely covered by epiphytes and mosses.

In addition to the new species, *Antillocladius brazuca*, *A. folius* and *A. musci* have been taken in Parque Nacional do Itatiaia and its vicinity.

**Antillocladius antecalvus** Sæther


**Remarks.** These are the first records of the species from Costa Rica and the Amazonas State in Brazil. It has previously been recorded from Mata Atlântica in Brazil, Saint Vincent and Venezuela (Sæther 1981, Mendes et al. 2004, Mendes & Andersen 2008).

**Antillocladius arcuatus** Sæther

*Antillocladius arcuatus* Sæther, 1982: 474.

**Material examined.** COSTA RICA: Alajuela Province, Alfaro Ruiz Cantón, near Zarcero, 10°10'29"N 84°24'40"W, 1566 m a.s.l., 2 males, 15.viii.2010, net, T. Andersen, H.F. Mendes & L.K. Hagenlund (ZMBN).

**Remarks.** These are the first record of the species from Costa Rica. It has previously been recorded from Brazil, Mexico, Venezuela and U.S.A. (Sæther 1982, Mendes et al. 2004, Mendes & Andersen 2008).
**Antillocladius brazuca** Mendes et Andersen, 2008: 26.

**Material examined.** Brazil: Rio de Janeiro State, Penedo, 22°24.652’S 44°33.217’W, 468 m a.s.l., 1 male, 18–19.xii.2009, light trap and net, H.F. Mendes (MZUSP).

**Remarks.** The species seems to be widespread in south and south-eastern Brazil (Mendes & Pinho 2011). This is the first record from Parque Nacional do Itatiaia and its vicinity in Rio de Janeiro State. See *A. anandae* sp. n. for a list of sympatric *Antillocladius* species.

**Antillocladius folius** Mendes, Andersen et Sæther, 2004: 34.


**Remarks.** This is one of the most widespread of the Brazilian *Antillocladius* species, previously recorded from Santa Catarina north up to Sergipe (Mendes & Pinho 2011). This is the first record from Parque Nacional do Itatiaia and its vicinity in Rio de Janeiro State. See *A. anandae* sp. n. for a list of sympatric *Antillocladius* species.

**Antillocladius itatiaia** sp. n.  (Figs 6–11)

**Type material.** Holotype male, Brazil: Rio de Janeiro State, Penedo, 22°24.652’S 44°33.217’W, 468 m a.s.l., 18–19.xii.2009, light trap and net, H.F. Mendes (MZUSP).

**Etymology.** Named after the type locality, Parque Nacional do Itatiaia. The name is to be regarded as a noun in apposition.

**Diagnostic characters.** The species can be separated from all other members of the genus by the following combination of characters: squama with setae, wing membrane bare, tapering anal point, virga composed of two spines, inferior volsella well set-off and composed of a single lobe and gonostylus comparatively short and broad.

**Description. Male** (n = 1). Total length 2.20 mm. Wing length 1.24 mm. Total length / wing length 1.77. Wing length / length of profemur 2.59.

**Coloration.** Amber to light brown, thorax with darker markings dorsally, legs uniformly light brown.

**Head.** AR 1.04. Ultimate flagellomere 385 μm long. Temporal setae 11 including 4 inner verticals, 1 outer vertical, and 6 postorbitals. Clypeus with 3 setae. Tentorium, stipes, and cibarial pump as in Figure 6. Tentorium 81 μm long, 15 μm wide. Stipes 73 μm long. Palp segment lengths (in μm): 6, 36, 70, 64, 82. Third palpomere with 3 sensilla clavata subapically, longest 14 μm long.

**Thorax** (Fig. 7). Antepronotum with 2 weak setae. Dorsocentrals 8; acrostichals 17, all very small and scalpellate. Clypeus with 3 setae. Tentorium, stipes, and cibarial pump as in Figure 6. Tentorium 81 μm long, 15 μm wide. Stipes 73 μm long. Palp segment lengths (in μm): 6, 36, 70, 64, 82. Third palpomere with 3 sensilla clavata subapically, longest 14 μm long.

**Wing** (Fig. 8). VR 1.37. Costal extension 23 μm long. Brachiolum with 1 seta, remaining veins and cells apparently bare (wing not fully dry). Squama with 7 setae.

**Legs.** Spur of fore tibia 40 μm long, spurs of mid tibia 20 μm and 16 μm long, spurs of hind tibia 37 μm and 18 μm long. Width at apex of fore tibia 29 μm, of mid tibia 25 μm, of hind tibia 34 μm. Comb with 13 setae, longest 24 μm, shortest 15 μm long. Lengths and proportions of legs as in Table 2.

**TABLE 2.** Lengths (in μm) and proportions of legs of *Antillocladius itatiaia* sp. n., male (n = 1).

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<td>76</td>
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<td>p₂</td>
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<td>36</td>
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<td>4.14</td>
<td>4.43</td>
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<tr>
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<td>43</td>
<td>0.56</td>
<td>3.51</td>
<td>3.41</td>
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FIGURES 6–11. Antillocladius itatiaia sp. n., male. 6—tentorium, stipes and cibarial pump; 7—thorax; 8—wing; 9—hypopygium, dorsal aspect; 10—hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right; 11—gonostylus, dorsal aspect.
Hypopygium (Figs 9–11). Tergite IX covered with microtrichia, laterosternite IX with 8 setae. Anal point triangular, 44 μm long, 20 μm wide at base, 4 μm wide at apex, with 19 setae. Phallapodeme 86 μm long, transverse sternapodeme 61 μm long. Virga 27 μm long. Gonocoxite 145 μm long. Gonostylus 57 μm long, megaseta 11 μm long. HR 2.56. HV 3.86.

**Biology and distribution.** See *A. anandae* sp. n. for details.

**Antillocladius musci** Mendes, Andersen et Sæther


**Remarks.** This species has previously been recorded from São Paulo, Minas Gerais and Santa Catarina States (Mendes et al. 2004, Mendes & Andersen 2008). This is the first record for Rio de Janeiro State and Parque Nacional do Itatiaia. See *A. anandae* sp. n. for a list of sympatric species.

**Litocladius** Mendes, Andersen et Sæther


**Type species.** *Litocladius mateusi* Mendes, Andersen et Sæther, 2004: 74, by original designation.

**Other included species.** *Litocladius chavarriai* sp. n.; *L. confusus* Mendes et Andersen, 2008; *L. floripa* Mendes et Andersen, 2008; and *L. neusae* sp. n.

Description as in Mendes & Andersen (2008).

**Key to the males of Litocladius** Mendes, Andersen et Sæther

1. Third palpomere with 1–2 strong spines apically; wing membrane with at least 10 setae in cell r_{4\,5}’. ................................. 2
   - Third palpomere with setae only; cell r_{4\,5} with 0–1 setae. .............................................................................. 4
2. Veins M_{3+4}, Cu, and An with setae, cell m_{1+2} with 80–140 setae, Costa Rica ....................................................... *L. chavarriai* sp. n.
   - Veins M_{3+4}, Cu, and An bare, cell m_{1+2} with less than 40 setae ................................................................. 3
3. Inferior volsella with dorsal ridge-like projection; veins R_{1}, R_{4\,5} and M_{1+2} always setose. Brazil. ........................... *L. floripa* Mendes et Andersen
   - Inferior volsella rounded; veins R_{1}, R_{4\,5} and M_{1+2} bare. Brazil ............................................................. *L. neusae* sp. n.
4. Crista dorsalis distinct; inferior volsella with rounded oral projection. Brazil ...................................................... *L. mateusi* Mendes, Andersen et Sæther
   - Crista dorsalis absent; inferior volsella low, adpressed to gonocoxite. Brazil ...................................................... *L. confusus* Mendes et Andersen

**Litocladius chavarriai** sp. n.

(Figs 12–17)

**Type material.** Holotype male, COSTA RICA: Alajuela Province, Alfaro Ruiz Cantón, near Zarcero, 10°10’29”N 84°24’40”W, 1566 m a.s.l., 15.viii.2010, net, T. Andersen, H.F. Mendes & L.K. Hagenlund (ZMBN). Paratypes: 1 male as holotype (MZUSP); 2 males as holotype except for 17.viii.2010 (ZMBN).

**Etymology.** Named after Edgar Alonso Chavarría Solano, the owner of the land where the species was taken, for all his help and kindness during our stay in Costa Rica.

**Diagnostic characters.** The species groups with *L. floripa* and *L. neusae* sp. n. based on the presence of spines on third palpomere; it can be separated from both by the presence of setae on M_{3+4}, Cu, and An, and by having 80–140 setae in cell m_{1+2}.

**Description.** Male (n = 3–4, except when otherwise stated). Total length 2.04–2.34, 2.17 mm. Wing length 1.28–1.62 (2) mm. Total length / wing length 1.36–1.60 (2). Wing length / length of profemur 2.34–2.35.
FIGURES 12–17. Litocladius chavarriai sp. n., male. 12—tentorium, stipes and cibarial pump; 13—third palpomere; 14—
thorax; 15—wing; 16—hypopygium, dorsal aspect; 17—hypopygium with anal point and tergite IX removed, dorsal aspect to
the left and ventral aspect to the right.
**Coloration.** Dark brown, thorax without distinct pattern.

**Head.** AR 0.73–0.85. Ultimate flagellomere 277–367 μm long. Temporal setae 9–12, 11 including 4–6, 5 inner ventrals; 2–3, 3 outer ventrals; and 3–5, 4 postorbitals. Clypeus with 5–7, 6 setae. Tentorium, stipes, and cibarial pump as in Figure 12. Tentorium 107–120, 116 μm long; 18–23, 21 μm wide. Stipes 98–118 μm long, 29–36 (2) μm wide. Palp segment lengths (in μm): 18–23, 21; 34–41, 38; 104–120, 110; 107–120 (2); 111–143 (2). Third palpomere (Fig. 13) with 3–4, 4 sensilla clavata subapically, longest 9–14, 12 μm long; and with 1–2 apical spines, 25–36, 30 μm long.

**Thorax** (Fig. 14). Antepronotum with 3–5, 4 setae. Dorsocentrals 10–16, 12; acrostichals 13–21, 16, composed of 3–5, 4 anterior strong decumbent, 2–4, 3 weak hair-like, and 7–14, 9 posterior scalpellate; prealars 4–6, 5; supraalar 1. Scutellum with 7–10, 8 setae, uniserial.

**Wing** (n = 2) (Fig. 15). VR 1.34–1.39. Costal extension 72–79 μm long. Brachiolum with 1 seta, costal extension with 10–16 non-marginal setae, R with 11–17 setae, R1 with 12–13 setae, R4+5 with 22–28 setae, M1+2 with 34–47 setae; M3, with 11–21 setae, Cu with 4–12 setae, An with 9–11 setae; cell m r4+5 with 134–247 setae; m3, with 80–143 setae; m1+4 with 22–52 setae, remaining cells and veins bare. Squama with 7–9 setae.

**Legs.** Spur of fore tibia 41–50 (2) μm long; spurs of mid tibia 27–38 (2) μm and 20–27 (2) μm long; spurs of hind tibia 16–24, 21 μm and 43–52, 48 μm long. Width at apex of fore tibia 29–36, 33 μm; of mid tibia 31–36 μm; of hind tibia 34–45, 41 μm. Comb with 10–15, 11 setae; longest 27–36, 32 μm long. Lengths and proportions of legs as in Table 3.

**TABLE 3.** Lengths (in μm) and proportions of legs of *Litocladius chavarriai* sp. n., male (n = 3–4).

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<td>534–691</td>
<td>507–700</td>
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<tr>
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<td>3.87–5.00</td>
<td>4.10–4.38</td>
<td>3.5–4.0</td>
<td></td>
</tr>
<tr>
<td>p3</td>
<td>3.34–4.15, 3.64</td>
<td>2.84–3.29, 3.06</td>
<td>4.8–6.5, 6.0</td>
<td></td>
</tr>
</tbody>
</table>

**Hypopygium** (Figs 16–17). Tergite IX covered with microtrichia; laterosternite IX with 3–5, 4 setae. Anal point triangular; 68–72, 70 μm long; 29–35, 33 μm wide at base; 2–4, 3 μm wide at apex; with 14–25, 22 setae. Phallopode 82–93, 85 μm long; transverse sternapodeme 95–118, 104 μm long. Virga 86–98, 92 μm long. Gonocoxite 141–170, 153 μm long. Gonostylus 91–102, 94 μm long; megaseta 6–8, 7 μm long. HR 1.53–1.83, 1.63. HV 1.74–2.33, 2.29.

**Biology and distribution.** The males were collected at about 1500 m altitude in a mountainous area with steep hillsides. The area was originally covered with cloud forests, but is now used for cabins and pastures. Several large evergreens have been planted close to the collecting site, but the native vegetation is apparently slowly returning to the area and the trees and soil are covered with mosses and bromeliads. The larva of *Litocladius mateusi* is semiterrestrial living in mosses and the larvae of *L. chavarriai* sp. n. might well be found in similar circumstances.

The genus *Litocladius* was previously known only from southern and south-eastern Brazil; the new record extends its known range to Central America.
**Litocladius floripa** Mendes et Andersen, 2008: 59.


**Remarks.** The species was previously known from Santa Catarina, São Paulo and Rio de Janeiro states (Mendes & Andersen 2008). This is the first record from Parque Nacional do Itatiaia and its vicinity in Rio de Janeiro State.

**Litocladius neusae** sp. n. (Figs 18–23)

**Type material.** Holotype male, BRAZIL: Amazonas State, Manaus, Reserva Adolpho Ducke, 1 km after entrance, 04–08.ii.2010, Malaise trap, L.C. Pinho & H.F. Mendes (MZUSP). Paratype: 1 male as holotype (INPA).

**Etymology.** Named after Dr. Neusa Hamada, for her hospitality and her great effort to increase the knowledge of aquatic insects in the Amazonas State.

**Diagnostic characters.** This species groups with *L. floripa* and *L. chavarriai* sp. n., based on the presence of a spine on third palpomere; it can be separated from both on the shape of the inferior volsella and by having setae restricted to wing veins R and R<sub>4+5</sub> and cells r<sub>4+5</sub> and m<sub>1+2</sub> with less than 30 and 10 setae, respectively.

**Description.** Male (n = 1–2). Total length 1.94–2.16 mm. Wing length 1.10–1.31 mm. Total length / wing length 1.65–1.76. Wing length / length of profemur 2.31–2.54.

**Coloration.** Dark brown, thorax without distinct pattern, tarsi slightly lighter.


**Thorax** (Fig. 20). Antepronotum with 3–4 setae. Dorsocentrals 9–14; acrostichals 12–15, composed of 3–4 anterior strong decumbent, 3–4 weak simple, and 6–7 posterior scalpellate; prealars 5–6; supraalar 1. Scutellum with 7–8 setae, uniserial.

**Wing** (Fig. 21). VR 1.30–1.41. Costal extension 34–39 μm long. Brachiolum with 1 seta, R with 1 seta, M 1+2 with 0–3 setae, cell r<sub>4+5</sub> with 20–29 setae, m<sub>1+2</sub> with 1–3 setae, remaining veins and cells bare. Squama with 7–9 setae.

**Legs.** Spur of fore tibia 48–61 μm long, spurs of mid tibia 41–54 μm and 20–26 μm long, spurs of hind tibia 50–58 μm and 18–27 μm long. Width at apex of fore tibia 24–34 μm, of mid tibia 27–29 μm, of hind tibia 34–40 μm. Comb with 10 setae, longest 27–41 μm, shortest 18–20 μm long. Lengths and proportions of legs as in Table 4.


**Biology and distribution.** The males were collected in a Malaise trap situated close to a temporary pool / swamp inside the nature reserve Adolpho Ducke in Manaus, Amazonas. The area is covered with primary forest and is relatively flat. During the rainy season numerous small pools are formed scattered on the forest floor.
FIGURES 18–23. Litocladius neusae sp. n., male. 18—tentorium, stipes and cibarial pump; 19—third palpmere; 20—thorax; 21—wing; 22—hypopygium, dorsal aspect; 23—hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right.
The genus was previously known only from southern and south-eastern Brazil; this constitutes the first record of *Litocladius* from the Amazon rainforest.

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**References**


