

# Catalogue of Ditomyiidae and Diadocidiidae (Diptera: Bibionomorpha) types housed in the collection of the Museu de Zoologia da Universidade de São Paulo, Brazil

Rafaela Lopes Falaschi<sup>1,3</sup>; Fernanda Ceres Toczek<sup>1,4</sup> & Carlos José Einicker Lamas<sup>2,5</sup>

<sup>1</sup> Universidade Estadual de Ponta Grossa (UEPG), Departamento de Biologia Estrutural, Molecular e Genética, Programa de Pós-Graduação em Biologia Evolutiva. Ponta Grossa, PR, Brasil.

<sup>2</sup> Universidade de São Paulo (USP), Museu de Zoologia (MZUSP). ASão Paulo, SP, Brasil.  
ORCID: <http://orcid.org/0000-0002-7750-590X>. E-mail: [einicker@usp.br](mailto:einicker@usp.br)

<sup>3</sup> ORCID: <http://orcid.org/0000-0002-3046-5744>. E-mail: [rffalaschi@gmail.com](mailto:rffalaschi@gmail.com) (corresponding author)

<sup>4</sup> ORCID: <http://orcid.org/0000-0002-9294-1865>. E-mail: [fernanda.toczek@hotmail.com](mailto:fernanda.toczek@hotmail.com)

<sup>5</sup> Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), fellowship.

**Abstract.** The Museu de Zoologia da Universidade de São Paulo (MZUSP), São Paulo, Brazil houses the largest and most representative Brazilian collection of Diptera. In the present study, following a recommendation of the International Code of Zoological Nomenclature, it is presented a catalogue of the type specimens of Diadocidiidae and Ditomyiidae (Diptera: Bibionomorpha) held in the collection of the MZUSP. Label data and the condition of preservation of 27 type specimens (nine holotypes, two paralectotypes, and 16 paratypes) of 14 Neotropical species are provided.

**Key-Words.** Nomenclature; Scientific collections; Taxonomy; Type specimens.

## INTRODUCTION

Brazil is one of the world's most biodiversity-rich countries and most of their more important scientific collections are deposited in the Museu de Zoologia da Universidade de São Paulo (MZUSP), São Paulo, Brazil. The MZUSP started activities in the second half of the 19<sup>th</sup> century and since then assumed a leading position in the world scenario. The MZUSP zoological collection has about 11 million specimens collected over the great morphoclimatic domains and Brazilian seas, as well as expeditions to other countries, although mostly from the Neotropical region (Tavares *et al.*, 2015). The Diptera collection at this institution is the largest and the most representative in Brazil (Carvalho *et al.*, 2002) being the largest and most important depository for Neotropical Diptera in Brazil and in South America. Additional information on the collection is available at [www.mz.usp.br](http://www.mz.usp.br).

The family Diadocidiidae encompasses two genera with 24 extant described species in the world, 23 of which belong to the extant genus *Diadocidia* Ruthe, 1831, and only species assigned to a fossil genus from the Cretaceous amber from Katchin (Myanmar), *Docidiadia*, with one

species, *D. burmitica* Blagoderov & Grimaldi, 2004. The genus *Diadocidia* is divided into three subgenera: *D. (Adidocidia)* Laštovka & Matile, 1972, *D. (Diadocidia)* Ruthe, 1831, and *D. (Taidocidia)* Papp & Ševčík, 2005 (Bechev & Chandler, 2011; Kjærandsen, 2019). In the Neotropical region, Papavero (1977a) mentioned a single species of *D. (Diadocidia)* from Brazil and a second undescribed species from Chile. Jaschhof & Jaschhof (2007) described two species of *D. (Diadocidia)* from Costa Rica and Vockeroth (2009b) referred to an undescribed species from Mexico. The occurrence of the genus *D. (Diadocidia)* in Colombia is reported by Falaschi (2016b). Catalogues of the World and regional faunas (Argentina, Colombia and Brazil) of Diadocidiidae were presented, respectively by Bechev & Chandler (2011), Falaschi & Amorim (2014b) and Falaschi (2016b, 2019a).

Ditomyiidae, as well as Diadocidiidae, are families of gnats belonging to the suborder Bibionomorpha. The family comprises eight genera and more than 100 species described worldwide (Vockeroth, 2009a), but absent in the Afrotropical region. In the Neotropical region, four genera and 35 species are recorded (Munroe, 1974, Papavero, 1977b; Amorim *et al.*, 2002; Huerta & Amorim,

Pap. Avulsos Zool., 2019; v.59: e20195956

<http://doi.org/10.11606/1807-0205/2019.59.56>

<http://www.revistas.usp.br/paz>

<http://www.scielo.br/paz>

Edited by: Marcelo Duarte

Received: 22/07/2019

Accepted: 18/10/2019

Published: 31/10/2019

ISSN On-Line: 1807-0205

ISSN Printed: 0031-1049

ISNI: 0000-0004-0384-1825



2016). Catalogues of the Neotropical and regional faunas (Argentina, Colombia and Brazil) of Ditomyiidae were presented, respectively by Papavero (1977b), Falaschi & Amorim (2014a) and Falaschi (2016a, 2019b).

Following a recommendation of the International Code of Zoological Nomenclature (ICZN, 1999: 72F.4), the present paper provides a catalogue with information on 27 type specimens (nine holotypes, two paralectotypes and 16 paratypes) of 14 Neotropical species of the families Diadocidiidae (one species) and Ditomyiidae (13 species) held in the collection of the MZUSP (Table 1).

## MATERIALS AND METHODS

The list given below is in alphabetical order of subfamily, genus, and epithet. Names, combinations, and spellings follow the available catalogues of Ditomyiidae and Diadocidiidae (Papavero, 1977a, 1977b; Bechev & Chandler, 2011). The standard for reproducing the information on the labels follows previous catalogues of type specimens of Diptera housed in the Museu de Zoologia da Universidade de São Paulo (MZUSP), Brazil (Fachin & Lamas, 2015; Falaschi *et al.*, 2016; Mello & Lamas, 2011; Yamaguchi & Lamas, 2009). All types specimens listed here are dry-pinned and slide-mounted specimens. High-resolution photographs will be subsequently provided for most primary types at MZUSP's homepage ([www.mz.usp.br](http://www.mz.usp.br)).

### Acronyms used for the depositories

- CAIM** = Colección de Artrópodos con Importancia Médica, México City, Distrito Federal, Mexico.  
**CAS** = California Academy of Sciences, San Francisco, California, USA.  
**MZUSP** = Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.  
**BMNH** = The Natural History Museum, London, UK.

## RESULTS

### Family Diadocidiidae Winnertz, 1863

#### *Diadocidia (Diadocidia) stanfordensis* Arnaud & Hoyt, 1956

Arnaud & Hoyt, 1956: 87 (original description), figs. A-E (male genitalia, male wing, female genitalia). Ref. – Bechev & Chandler, 2011: 51 (catalogue). *Type locality*: USA, California. Distr. – Nearctic: USA, California. Holotype ♂, CAS.

2 Paratypes ♂ with labels: (1) handwritten on yellow paper: "Stanford Univ. [Stanford University] | Santa Clara Co. CAL. [Santa Clara County, California] | 26 Jan. 53 [26.i.1953] | P.H. Arnaud"; (2) printed with handwritten inscriptions on yellow paper: "PARATYPE | *Diadocidia stanfordensis* | Arnaud & Hoyt"; printed on white paper: "MZ004373".

**Table 1.** Type specimens of Diadocidiidae and Ditomyiidae held in the MZUSP, in alphabetical order of family, genus and species epithet, with reference to the number of specimens, males, and females, for each type category.

Species list	Holo-type	Para-type	Paralectotype
<b>Family Diadocidiidae</b>			
<i>Diadocidia stanfordensis</i> Arnaud & Hoyt, 1956			2♂
<b>Family Ditomyiidae</b>			
<i>Australosymmerus (Melosymmerus) bisetosus</i> (Edwards, 1940)			1♂
<i>Australosymmerus (Melosymmerus) bororo</i> (Lane, 1946a)	1♂	1♀	
<i>Australosymmerus (Melosymmerus) guarani</i> (Lane, 1946a)	1♂	7♂	
<i>Australosymmerus (Melosymmerus) guyanasi</i> (Lane, 1946a)	1♂	1♂	
<i>Australosymmerus (Melosymmerus) lenkoi</i> Lane, 1959	1♂		
<i>Australosymmerus (Melosymmerus) pediferus</i> (Edwards, 1940)			1♂
<i>Australosymmerus (Melosymmerus) tupi</i> (Lane, 1946a)	1♂	1♂	
<i>Calliceratomyia pantelhomia</i> Huerta & Amorim 2016			1♂
<i>Calliceratomyia papaveri</i> Huerta & Amorim 2016			2♂
<i>Calliceratomyia pectinata</i> Lane, 1946b	1♂		
<i>Nervijuncta laffooni</i> Lane, 1952	1♂	1♀	
<i>Neocronisca collessi</i> Papavero, 1977b	1♀		
<i>Rhipidita nigra</i> Lane, 1952	1♂		

**Condition of paratypes:** Both pinned. One entire and the other with right wing slide-mounted on coverslips, pinned with the specimen. Missing parts: none.

### Family Ditomyiidae Keilin, 1919

#### Genus *Australosymmerus* Freeman, 1954 *Australosymmerus (Melosymmerus) bisetosus* (Edwards, 1940)

Edwards, 1940: 442 (original description). Lane, 1946a: 339 (redescription), fig. 1 (male genitalia); Munroe, 1974: 65 (redescription), figs. 35 (male genitalia), 61 (female genitalia), 65b (wing), 73 (phylogeny); Papavero, 1977b: 19B.2 (catalogue), Falaschi & Amorim, 2013: 123 (lectotype designation). *Type locality*: Brazil, Santa Catarina, Seara, Nova Teutônia. Distr. – Neotropical: Brazil (São Paulo, Santa Catarina). Lectotype ♂, BMNH.

Paralectotype ♂ with labels: (1) printed on white paper: "PARALECTOTYPE | *Australosymmerus (Melosymmerus) bisetosus* (Edwards, 1940) | Designated by Falaschi, RL & Amorim, DS"; (2) printed on white paper: "MZ004473"; (3) printed with handwritten inscriptions on white paper: "9..7 1938 | Brasilien | Nova Teutonia | 27°11'B.52°23'L [27°11'S 52°23'W] | Fritz Plaumann"; (4) printed on white paper: "Brit.Mus. | 1938-682."; (5) handwritten on white paper: "*Centrocnemis* | bisetosa Edw."; (6) printed on rounded yellow paper: "Para- | type".

Microvial with labels: (1) printed on yellow paper: "Paratype"; (2) printed with handwritten inscriptions on white paper: "BRASIL, SC, Nova Teutônia | 27°11'B, 52°23'L [27°11'S 52°23'W] | 09.vii.1938 | Fritz Plaumann col. | P"; (3) printed on white paper: "PARALECTOTYPE | *Australosymmerus (Melosymmerus) bisetosus* (Edwards, 1940) | Designated by Falaschi, RL & Amorim, DS"; (4) printed on white paper: "MZ004473".

**Condition of paralectotype:** Head, thorax and three undetermined legs, and an undetermined broken wing slide-mounted on a permanent slide; male terminalia kept in the microvial. Missing parts: antennae, abdomen, undetermined wing, and three undetermined legs.

***Australosymmerus (Melosymmerus) bororo*  
(Lane, 1946)**

Lane, 1946a: 342 (original description), fig. 8 (male genitalia). Ref. – Papavero, 1977b: 19B.2 (catalogue).  
*Type locality:* Brazil, Rio de Janeiro, Itatiaia. Distr. – Neotropical: Brazil (Rio de Janeiro, São Paulo).  
Holotype ♂, MZUSP.

Holotype ♂ with labels: (1) printed on pink paper: "HOLOTIPO"; (2) handwritten on white paper: "IX.46 [ix.1946] | R. Janeiro [Rio de Janeiro] | Itatiaia | Barretto col."; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *bororo* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004490".

Slide with labels: (1) printed on white paper: "MZ004490"; (2) printed on red paper: "HOLOTYPE"; (3) printed on white paper: "BRASIL, Rio de Janeiro | Itatiaia | ix.1946 | Barreto col.".

**Condition of holotype:** Pinned. Right wing and male terminalia on a permanent slide; broken undetermined legs glued on triangle. Missing parts: undetermined legs.

Paratype ♀ with labels: (1) printed on pink paper: "ALOTIPO"; (2) handwritten on white paper: "IX.46 [ix.1946] | R. Janeiro [Rio de Janeiro] | Itatiaia | Barretto col."; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *bororo* | det. John Lane 1946"; (4) printed on white paper: "MZSP [MZUSP]"; (5) printed on white paper: "MZ004489".

Slide with labels: (1) printed on white paper: "MZ004489"; (2) printed with handwritten inscriptions on white paper: "BRASIL, Rio de Janeiro | Itatiaia | ix.1946 | Barreto col. | *M. bororo* | ALÓTIPO".

**Condition of paratype:** Pinned. Left wing left fore and mid legs on the permanent slide; female terminalia slide-mounted on coverslips, pinned with the specimen. Missing parts: none.

***Australosymmerus (Melosymmerus) guarani*  
(Lane, 1946)**

Lane, 1946a: 341 (original description), fig. 4 (male genitalia). Ref. – Papavero, 1977b: 19B.2 (catalogue).  
*Type locality:* Brazil, São Paulo, Cantareira. Distr. – Neotropical: Brazil (Goiás, São Paulo, Santa Catarina).  
Holotype ♂, MZUSP.

Holotype ♂ with labels: (1) printed on pink paper: "HOLOTIPO"; (2) printed with handwritten inscriptions on white paper: "S. Paulo [São Paulo] 9.x.45

[09.x.1945] | *Cantareira* | J. Lane coll."; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004501".

Slide with labels: (1) printed on white paper: "MZ004501"; (2) printed on red paper: "Holotype"; (3) printed with handwritten inscriptions on white paper: "BRASIL, SP, Cantareira | 09.x.1945 | J. Lane col. | *M. guarani*";

**Condition of holotype:** Pinned. Male terminalia on the permanent slide. Missing parts: none.

Paratype ♂ with labels: (1) printed on pink paper: "PARATIPO"; (2) handwritten on white paper: "1.x.45 [01.x.1945] | São Paulo | Cantareira | Barretto"; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004626".

**Condition of paratype:** Pinned. Missing parts: right antenna.

Paratype ♂ with labels: (1) printed on pink paper: "PARATIPO"; (2) printed with handwritten inscriptions on white paper: "S. Paulo [São Paulo] 9.x.45 [09.x.1945] | *Cantareira* | J. Lane coll."; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004627".

**Condition of paratype:** Pinned. Missing parts: abdomen.

Paratype ♂ with labels: (1) printed with handwritten inscriptions on white paper: "S. Paulo [São Paulo] | 9.x.45 [09.x.1945] | *Cantareira* | J. Lane coll."; (2) printed on pink paper: "PARATIPO"; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004505".

Slide with labels: (1) printed on white paper: "Brasil, São Paulo, Cantareira | 9.x.1945 [09.x.1945] | Lane col. | *A. (Melosymmerus) guarani*"; (2) printed on yellow paper: "Paratype"; (3) printed on white paper: "MZ004505".

**Condition of paratype:** Pinned. Male terminalia on the permanent slide. Missing parts: none.

Paratype ♂ with labels: (1) handwritten on white paper: "15.x.45 [15.x.1945] | S. Paulo [São Paulo] | Cantareira | Barreto"; (2) printed on pink paper: "PARATIPO"; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004625".

Slide 1 with labels: (1) printed on white paper: "MZ004625"; (2) printed on white paper: "BRASIL, São Paulo | Cantareira | 15.x.1945 | Barreto col."; (3) hand-

written on white paper: "*M. guarani*"; (4) printed on yellow paper: "Paratype".

Slide 2 with labels: (1) printed on white paper: "BRASIL, São Paulo | Cantareira | 15.x.1945 | Barreto col."; (2) printed on white paper: "MZ004625"; (3) printed on yellow paper: "Paratype".

**Condition of paratype:** Pinned. Antennae damaged; right wing and left mid leg on the permanent slide 1; male terminalia on the permanent slide 2. Missing parts: none.

Paratype ♂ with labels: (1) printed on white paper: "S. Paulo [São Paulo] XII.40 [xii.1940] | Cantareira | J. Lane coll."; (2) printed on white paper: "PARATIPO"; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *Guarani* | det. John Lane 1946"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004504".

Slide with labels: (1) printed on white paper: "Brasil, São Paulo, Cantareira | xii.1940 | Lane col."; (2) printed on white paper: "*A. (Melosymmerus) guarani*"; (3) printed on yellow paper: "Paratype"; (4) printed on white paper: "MZ004504".

**Condition of paratype:** Pinned. Male terminalia on the permanent slide. Missing parts: right fore and mid femora, tibiae and tarsi.

Paratype ♂ with labels: (1) handwritten on white paper: "XI.45 [xi.1945] Goiás [Goiás] | Corumbá [Corumbá de Goiás] | Barreto-col"; (2) printed on pink paper: "PARATIPO"; (3) printed with handwritten inscription on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (3) printed on white paper: "MZSP"; (4) printed on white paper: "MZ004503".

Microvial with labels: (1) printed on white paper: "BRASIL, GO, Corumbá [Corumbá de Goiás] | xi.1945 | Barreto col."; (2) printed on green paper: "Parátipo"; (3) printed on white paper: "MZ004503".

Slide with labels: (1) handwritten on white paper: "*M. guarani* | Parátipo | Brasil, GO, Corumbá [Corumbá de Goiás] | Barreto col. | xi.1945"; (2) printed on green paper: "Parátipo"; (3) printed on white paper: "MZ004503".

**Condition of paratype:** Pinned. Male terminalia and wings on the permanent slide; abdomen and undetermined legs in the vial. Missing parts: head and undetermined legs.

Paratype ♂ with labels: (1) handwritten on white paper: "XI.45 [xi.1945] Goiás [Goiás] | Corumbá [Corumbá de Goiás] | Barreto-col"; (2) printed on pink paper: "PARATIPO"; (3) printed with handwritten inscription on white paper: "*Centrocnemis* | *guarani* | det. John Lane 1946"; (3) printed on white paper: "MZSP"; (4) printed on white paper: "MZ004503".

Slide 1 with labels: (1) printed on white paper: "BRASIL, Goiás | Corumbá [Corumbá de Goiás] | xi.1945 |

Barreto col. | A. (M.) guarani | Parátipo"; (2) printed on yellow paper: "Paratype"; (3) printed on white paper: "MZ004503".

Slide 2 with labels: (1) printed on white paper: "MZ004503"; (2) printed on white paper: "BRASIL, Goiás | Corumbá [Corumbá de Goiás] | xi.1945 | Barreto col."; (3) printed on yellow paper: "Paratype"; (4) handwritten on white paper: "*M. guarani*".

**Condition of paratype:** Pinned. Male terminalia on the permanent slide 1; left broken wing on the permanent slide 2. Missing parts: right antenna and left mid tarsus.

### *Australosymmerus (Melosymmerus) guyanasi* (Lane, 1946)

Lane, 1946a: 340 (original description), fig. 2 (male genitalia). Ref. – Papavero, 1977b: 19B.2 (catalogue). *Type locality:* Brazil, São Paulo, Campos do Jordão. Distr. – Neotropical: Brazil (São Paulo). Holotype ♂, MZUSP.

Holotype ♂ with labels: (1) printed on pink paper: "HOLOTIPO"; (2) printed with handwritten inscriptions on white paper: "São Paulo XII 45 [xii.1945] | C. Jordão [Campos do Jordão] | det. J. Lane coll"; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis guyanasi* | det. John Lane 194"; (4) printed on white paper: "MZSP [MZUSP]"; (5) printed on white paper: "MZ004496".

Slide with labels: (1) printed on white paper: "MZ004496"; (2) printed with handwritten inscriptions on white paper: "BRASIL, São Paulo | Campos do Jordão | xii.1945 | J. Lane col. | *M. guyanasi*"; (3) printed on red paper: "HOLOTYPE".

**Condition of holotype:** Pinned. Wings and male terminalia on the permanent slide. Missing parts: none.

Paratype ♂ with labels: (1) printed on pink paper: "PARATIPO"; (2) printed with handwritten inscriptions on white paper: "S. Paulo XII.45 [xii.1945] | C. Jordão [Campos do Jordão] | J. Lane coll."; (3) printed with handwritten inscriptions on white paper: "*Centrocnemis* | *guyanasi* | det. John Lane 1946"; (4) printed on white paper: "MZSP [MZUSP]"; (5) printed on white paper: "MZ004497".

**Condition of paratype:** Pinned. Male terminalia slide-mounted on coverslips, pinned with the specimen. Missing parts: antennae, right wing, hind tibiae and tarsi, right fore femur, tibia and tarsus, left fore tarsus and both mid tarsi broken.

### *Australosymmerus (Melosymmerus) lenkoi* Lane, 1959

Lane, 1959: 105 (original description), fig. 12 (male genitalia). Ref. – Papavero, 1977b: 19B.2 (catalogue). *Type locality:* Brazil, Amapá, Serra do Navio. Distr. – Neotropical: Brazil (Amapá). Holotype ♂, MZUSP.

Holotype ♂ with labels: (1) printed on pink paper: "HOLOTIPO"; (2) printed with handwritten inscriptions on white paper: "Serra do Navio | Terr. Amapá BRASIL | 20.IX-1957 [20.ix.1957] | J. Lane [John Lane] leg."; (3) printed with handwritten inscriptions on white paper: "*Australosymmerus* | *lenkoi* | det. John Lane 1959"; (4) printed on white paper: "MZSP [MZUSP]"; (5) printed on white paper: "MZ004495".

Slide with labels: (1) printed on white paper: "MZ004495"; (2) printed on white paper: "BRASIL, Amapá | Serra do Navio | 20.ix.1957 | J. Lane [John Lane] col."; (3) handwritten on white paper: "M. lenkoi."; (4) printed on red paper: "HOLOTYPE".

**Condition of holotype:** Pinned. Left wing and male terminalia on the permanent slide. Left antenna broken. Missing parts: none.

***Australosymmerus (Melosymmerus) pediferus*  
(Edwards, 1940)**

Edwards, 1940: 443 (original description). Ref. – Munroe, 1974: 67 (redescription), figs. 36 (male genitalia), 62 (female genitalia), 65c (wing), 73 (phylogeny); Papavero, 1977b: 19B.3 (catalogue); Falaschi & Amorim, 2013: 123 (lectotype designation). *Type locality:* Brazil, Santa Catarina, Seara, Nova Teutônia. Distr. – Neotropical: Brazil (Mato Grosso do Sul, São Paulo, Santa Catarina). Lectotype ♂, BMNH.

Paralectotype ♂ with labels: (1) printed on white paper: "PARALECTOTYPE | *Australosymmerus* (*Melosymmerus*) | *pediferus* (Edwards, 1940) | Designated by Falaschi, RL & Amorim, DS"; (2) printed on white paper: "MZ004621". (3) handwritten on white paper: "*Centrocnemis* | *pedifera* Edw."; (4) printed with handwritten inscriptions on white paper: "21.9.1937 [21.ix.1937] | Brasilien | Nova Teutonia | 27°11'B, 52°23'L | Fritz Plaumann"; (5) printed on white paper: "Brit.Mus. | 1938-40."; (6) printed on rounded yellow paper: "Para- | type";

Microvial with labels: (1) printed on white paper: "BRASIL, SC, Nova Teutônia | 27°11'B, 52°23'L [27°11'S 52°23'W] | 21.ix.1937 | Fritz Plaumann col."; (2) printed on white paper: "PARALECTOTYPE | *Australosymmerus* (*Melosymmerus*) | *pediferus* (Edwards, 1940) | Designated by Falaschi, RL & Amorim, DS"; (3) printed on white paper: "MZ004621".

**Condition of paralectotype:** Undetermined wing, thorax, head and broken antenna on a permanent slide; abdomen and male terminalia in the microvial. Missing parts: undetermined antenna, undetermined fore leg and both mid and hind legs.

***Australosymmerus (Melosymmerus) tupi* (Lane, 1946)**

Lane, 1946a: 341 (original description), fig. 3 (male genitalia). Ref. – Papavero, 1977b: 19B.3 (catalogue).

*Type locality:* Brazil, Goiás, Corumbá de Goiás. Distr. – Neotropical: Brazil (Goiás, São Paulo), Argentina (Misiones). Holotype ♂, MZUSP.

Holotype ♂ with labels: (1) printed pink paper: "HOLOTIPO"; (2) handwritten on white paper: "Goiáz [Goiás] | Corumbá [Corumbá de Goiás] | Barretto-col."; (3) printed with handwritten inscriptions on white paper "*Centrocnemis* | *tupi* | det. John Lane 194"; (4) printed on white paper: "MZSP"; (5) printed on white paper: "MZ004498".

Slide with labels: (1) printed on white paper: "MZ004498"; (2) printed on white paper: "BRASIL, GO, Corumbá [Corumbá de Goiás] | xi.1945 | Barreto col."; (3) handwritten on white paper: "M. tupi"; (4) printed on red paper: "Holotype".

Microvial with labels: (1) printed on white paper: "MZ004498".

**Condition of holotype:** Pinned. Terminalia slide-mounted on coverslips, pinned with the specimen; right wing broken on the permanent slide; abdomen and hind legs in microvial. Missing parts: right antenna.

Paratype ♂ with labels: (1) printed on white paper: "XI-45 [xi.1945] | Goiáz [Goiás] | Corumbá [Corumbá de Goiás] | xi.1945 | Barretto-col."; (2) printed on pink paper: "PARATIPO"; (3) handwritten and printed on white paper: "*Centrocnemis* | *tupi* | det. John Lane 194"; (4) handwritten and printed on white paper: "MZSP [MZUSP]"; (5) printed on white paper: "MZ004499".

Slide with labels: (1) printed on white paper: "Brasil, Goiás, Corumbá [Corumbá de Goiás] | xi.1945 | Barreto col."; (2) printed on white paper: "A. (*Melosymmerus*) *tupi*"; (3) printed on yellow paper: "Paratype"; (4) printed on white paper: "MZ004499".

**Condition of paratype:** Pinned. Male terminalia on the permanent slide. Missing parts: none.

**Genus *Calliceratomyia* Lane, 1946  
*Calliceratomyia pantelhomyia*  
Huerta & Amorim, 2016**

Huerta & Amorim, 2016: 435 (original description), figs. 3, 6 (antenna), fig. 8 (male head), fig. 9 (maxillary palpus), fig. 11 (wing), figs. 14, 17, 19 (male terminalia). *Type locality:* Mexico, Chiapas, Pantelho. Distr. – Neotropical: Mexico (Chiapas). Holotype ♂, CAIM.

Paratype ♂ with labels: (1) printed on green paper: "Parátipo"; (2) printed on white paper: "MZ052859". (3) printed on white paper: "MEXICO, Chiapas, Mpio. [Municipio] Pantelho | 6 km al sur, rumbo al poblado de Pantelho | Malaise trap, 460 m.a.s.l. | 14-17-nov-2009 [14-17.xi.2009] | -92°29'55"N; 16°59'47"W | Col. Salceda, S.B. & Rodríguez, A.J. | & Ordoñez, A."

**Condition of paratype:** slide-mounted. Missing parts: none.

### ***Calliceratomyia papaveroi* Huerta & Amorim, 2016**

Huerta & Amorim, 2016: 431 (original description), fig. 1 (male habitus), figs. 2, 5 (male antenna), fig. 10 (wing), fig. 13, 16 (male terminalia). *Type locality*: Mexico, Oaxaca, Municipio Santo Domingo Petapa. Distr. – Neotropical: Mexico (Oaxaca). Holotype ♂, CAIM.  
2 Paratypes ♂ with labels: (1) printed on green paper: “Parátipo”; (2) printed on white paper: “MZ052860”. (3) printed on white paper: “MEXICO, Oaxaca, Mpio. [Município] Santo Domingo | Petapa, Loc. Rio del Sol | Malaise trap, 480 m.a.s.l. | 29-30-Jul-2009 [29-30.vii.2009] | -95°14'13"N; 16°56'55"W | Col. Salceda, S.B., Rodríguez, A.J. | & Ordoñez, A.”

**Condition of paratypes:** slide-mounted. Missing parts: none.

### ***Calliceratomyia pectinata* Lane, 1946**

Lane, 1946b: 244 (original description), fig. 1 (antenna), fig. 2 (male terminalia), fig. 3 (wing). Ref. – Papavero, 1977b: 19B.4 (catalogue). *Type locality*: Brazil, São Paulo, Campos do Jordão. Distr. – Neotropical: Brazil (São Paulo). Holotype ♂, MZUSP.  
Holotype ♂ with labels: (1) printed with handwritten inscriptions on white paper: “Inst. de Higiene de S. Paulo [Instituto de Higiene de São Paulo] | PARASITOLOGIA | *Calliceratomyia pectinata* | ♂ Holotipo | S. Paulo [São Paulo] | C. Jordão [Campos do Jordão] | xii.1945 | J. Lane [John Lane]”; (2) printed on red paper: “Holotype”; (3) printed on white paper: “MZ004475”; (4) printed with handwritten inscriptions on white paper: “Nº 5944 | Lamina 1508 | Divisão 1 | Gaveta 159”.

**Condition of holotype:** Slide-mounted. Missing parts: none.

### **Genus *Nervijuncta* Marshall, 1896 *Nervijuncta laffooni* Lane, 1952**

Lane, 1952: 139 (new name for *N. marshalli* Lane, 1948). Ref. – Lane, 1948: 250 (original description), figs. 5-7 (male genitalia); Papavero, 1977b: 19B.4 (catalogue); Falaschi & Amorim, 2009: 20 (redescription), figs. 1 (antennal flagellomere), 2 (thorax), 3 (wing), 4-6 (male terminalia), 7 (female terminalia). *Type locality*: Brazil, São Paulo, Salesópolis, Estação Biológica de Boracéia. Distr. – Brazil (São Paulo, Santa Catarina). Holotype ♂, MZUSP.  
Holotype ♂ with labels: (1) printed on pink paper: “HOLOTIPO”; (2) printed on white paper: “BR-S.P.: Salesópolis | (Boraceia) 14-VIII-1947 [14.viii.1947] | E. Rabello & Trav. F. | & J. Lane”; (3) handwritten and printed inscriptions on white paper: “*Nervijuncta* | *Marshalli*, | det. John Lane 1948”; (4) printed on white paper: “MZSP [MZUSP]”; (5) printed with handwritten inscriptions on white paper: “*Nervijuncta* | *laffooni* | Falaschi, R.L. det. 2008”; (6) printed on white paper: “MZ004480”.

**Condition of holotype:** Pinned. Male terminalia on a permanent slide. Missing parts: antennae and all left femur, left tibia and left tarsus.

Paratype ♀ with labels: (1) printed on pink paper: “ALOTIPO”; (2) handwritten on white paper: “IX.49 [ix.1949] S. Paulo [São Paulo] | Boraceia | L. Travassos”; (3) printed with handwritten inscriptions on white paper: “*Nervijuncta* | *Marshalli* | det. John Lane 1949”; (4) printed on white paper: “MZSP [MZUSP]”; (5) printed with handwritten inscriptions on white paper: “*Nervijuncta laffooni* | Falaschi, R.L. det. 2008”; (6) printed on white paper: “MZ004482”.

Slide with labels: (1) printed on white paper: “MZ004482”; (2) printed with handwritten inscriptions on white paper: “*Nervijuncta laffooni* | Falaschi, R.L. det. 2008”; (3) handwritten on white paper: “S. Paulo [São Paulo], Boraceia | ix.1949 | L. Travassos | (Alótipo)”; (4) printed on yellow paper: “Paratype”.

**Condition of paratype:** Pinned. Entire abdomen with terminalia on the permanent slide. Missing parts: head, wings, fore and hind legs.

### **Genus *Neocrionisca* Papavero, 1977 *Neocrionisca collessi* Papavero, 1977**

Papavero, 1977b: 19B.3 (original description). *Type locality*: Argentina, Tierra del Fuego. Distr. – Argentina (Tierra del Fuego). Holotype ♀, MZUSP.

Holotype ♀ with labels: (1) handwritten on white paper: “Tierra del | Fuego \_ | 4-24-III-948 [04-24.iii.1948] | coll. Budin”; (2) printed on pink paper: “HOLOTIPO”; (3) handwritten on white paper: “*Neocrionisca* | *collessi*, gen & sp.n. | Papavero & | Bernardi, 1977”; (4) printed on white paper: “MZ004428”.

**Condition of holotype:** Pinned. Missing parts: left antenna and right tarsus.

### **Genus *Rhipidita* Edwards, 1940 *Rhipidita nigra* Lane, 1952**

Lane, 1952: 132 (original description), fig. 1 (male genitalia). Ref. – Papavero 1977b: 19B.4 (catalogue). *Type locality*: Brazil, São Paulo, Campos do Jordão. Distr. – Brazil (São Paulo). Holotype ♂, MZUSP.

Holotype ♂ with labels: (1) printed on pink paper: “HOLOTIPO”; (2) handwritten on white paper: “VIII – 49 [viii.1949] | S. Paulo [São Paulo] | C. Jordão [Campos do Jordão] | J. Lane [John Lane] – col.”; (3) printed with handwritten inscriptions on white paper: “*Rhipidita* | *nigra* | det. John Lane 1949”; (4) printed on white paper: “MZSP [MZUSP]”; (5) printed on white paper: “MZ004439”.

**Condition of holotype:** Pinned. Wings and terminalia slide-mounted on coverslips, pinned with the specimen;

two undetermined legs glued on triangle. Missing parts: antennae, abdomen, right femora, tibiae, and tarsi, and left hind femur, tibia and tarsus.

## ACKNOWLEDGMENTS

We are thankful to Camila Conti and Paula Rodrigues (MZUSP) for help with information on some type specimens of Ditomyiidae. Along the preparation of this paper, RLF benefited from FAPESP grant (2013/16524-9) and by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES – Finance Code 001), FCT by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES – Finance Code 001) and CJEL from CNPq (304512/2016-8).

## REFERENCES

- Amorim, D.S.; Silva, V.C. & Balbi, M.I.P.A. 2002. Estado do conhecimento dos Díptera neotropicais. In: Costa, C.; Vanin, S.A.; Lobo, J.M. & Melic, A. (Eds.). *Proyecto de Red Iberoamericana de Biogeografía y Entomología Sistemática, PRIBES 2002*. Zaragoza, Sociedad Entomológica Aragonesa y CYTED. p. 29-36.
- Amaud, P.H. & Hoyt, C.P. 1956. Description of a new species of *Diadocidia* from California. *Pan-Pacific Entomologist*, 32: 87-90.
- Bechev, D. & Chandler, P. 2011. Catalogue of the Bolitophilidae and Diadocidiidae of the World (Insecta: Diptera). *Zootaxa*, 2741: 38-58.
- Carvalho, C.J.B. de; Couri, M.S.; Toma, R.; Rafael, J.A.; Harada, A.Y.; Bonatto, S.R.; Heriques, A.L. & Gastal, H.A.O. 2002. Principais Coleções Brasileiras de Díptera: Histórico e Situação Atual. In: Cleide Costa; Sérgio A. Vanin; Jorge M. Lobo; A. Melic. (Org.). *Proyecto de Red Iberoamericana de Biogeografía y Entomología Sistemática, PRIBES 2002. m3m-Monografías Tercer Milenio*. Zaragoza, Sociedad Entomológica Aragonesa (SEA) & Cyted. v. 2, p. 37-52.
- Edwards, F.W. 1940. New neotropical Mycetophilidae (IV) (Diptera). *Revista de Entomologia*, Rio de Janeiro, 11: 440-465.
- Fachin, D.A. & Lamas, C.J.E. 2015. A catalogue of the types of Stratiomyidae (Diptera: Brachycera) in the collection of the Museu de Zoologia da Universidade de São Paulo, Brazil. *Zootaxa*, 3918(3): 406-414.
- Falaschi, R.L. 2016a. Family Ditomyiidae. *Zootaxa*, 4122: 50-52.
- Falaschi, R.L. 2016b. Family Diadocidiidae. *Zootaxa*, 4122: 53-55.
- Falaschi, R.L. 2019a. Diadocidiidae In: Catálogo Taxonômico da Fauna do Brasil. PNUD. Available at: <http://fauna.jbrj.gov.br/fauna/faunadobrasil/1610>. Access in: 22/07/2019.
- Falaschi, R.L. 2019b. Ditomyiidae In: Catálogo Taxonômico da Fauna do Brasil. PNUD. Available at: <http://fauna.jbrj.gov.br/fauna/faunadobrasil/1855>. Access in: 22/07/2019.
- Falaschi, R.L. & Amorim, D.S. 2009. Review of the Neotropical species of *Nervijuncta* Marshall, 1896 (Diptera, Ditomyiidae). *Zootaxa*, 2219: 18-30.
- Falaschi, R.L. & Amorim, D.S. 2013. Catalogue of the type-specimens of Bolitophilidae, Diadocidiidae and Ditomyiidae (Diptera, Bibionomorpha) in the Natural History Museum, London. *Revista Brasileira de Entomologia*, 57: 119-128.
- Falaschi, R.L. & Amorim, D.S. 2014a. 78. Ditomyiidae. In: Roig-Juñent, S.A.; Claps, L.E. & Morrone, J.J. (Eds.). *Biodiversidad de Artrópodos Argentinos*. San Miguel de Tucumán, Editorial INSUE – Universidad Nacional de Tucumán. v. 4, p. 363-366.
- Falaschi, R.L. & Amorim, D.S. 2014b. 79. Diadocidiidae. In: Roig-Juñent, S.A.; Claps, L.E.; & Morrone, J.J. (Eds.). *Biodiversidad de Artrópodos Argentinos*. San Miguel de Tucumán, Editorial INSUE – Universidad Nacional de Tucumán. v. 4, p. 367-368.
- Falaschi, R.L.; Oliveira, S.S. & Lamas, C.J.E. 2016. Catalogue of Anisopodidae (Diptera: Bibionomorpha) types housed in the collection of the Museu de Zoologia da Universidade de São Paulo, Brazil. *Revista Brasileira de Entomologia*, 60: 24-29.
- Huerta, H. & Amorim, D.S. 2016. Three new species of *Calliceratomyia* Lane (Diptera: Ditomyiidae) from Neotropical Mexico. *Zootaxa*, 4072(4): 430-440.
- International Commission of Zoological Nomenclature (ICZN). 1999. *International Code of Zoological Nomenclature*. 4.ed. London, The International Trust for Zoological Nomenclature, The Natural History Museum. xxx + 306p.
- Jaschhof, M. & Jaschhof, C. 2007. On the genus *Diadocidia* (Diptera, Sciaroidea, Diadocidiidae) in Costa Rica. *Zootaxa*, 1586: 33-38.
- Kjærandsen, J. 2019. Diadocidiidae Winnertz, 1963 In: *Fungus Gnats Online*. Available at: <http://cite.scratchpads.eu/sciaroidea.info/2019-10-15/Diadocidiidae-Winnertz-1963.pdf>. Access in: 15/10/2019.
- Lane, J. 1946a. New Brazilian Mycetophilidae (Diptera, Nematocera). *Revista de Entomologia*, Rio de Janeiro, 17: 339-360.
- Lane, J. 1946b. A new genus of Neotropical Mycetophilidae (Diptera, Nematocera). *Revista de Entomologia*, Rio de Janeiro, 17(1-2): 244-247.
- Lane, J. 1948. "Mycetophilidae" do Brasil (Diptera, Nematocera). *Revista Brasileira de Zoologia*, 8(2): 247-254.
- Lane, J. 1952. Some new Brazilian Mycetophilidae (Diptera, Nematocera). *Dusenya*, 3(2): 131-140.
- Lane, J. 1959. Insecta Amapaensia – Diptera: Mycetophilidae. *Studia Entomologica*, 2(1-4): 105-118.
- Mello, R.L. & Lamas, C.J.E. 2011. A catalogue of types of Conopoidea, Diopsoidea, Nerioida and Tephritoidea (Diptera, Schizophora) in the collection of the Museu de Zoologia da Universidade de São Paulo. *Revista Brasileira de Entomologia*, 55(2): 187-205.
- Munroe, D.D. 1974. The systematics, phylogeny, and zoogeography of *Symmerus* Walker and *Australosymmerus* Freeman (Diptera: Mycetophilidae: Ditomyiidae). *Memoirs of the Entomological Society of Canada*, 92: 1-183.
- Papavero, N. 1977a. 19A. Family Diadocidiidae. In: Papavero, N. (Ed.). *A Catalogue of the Diptera of the Americas south of the United States*. São Paulo, Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo. 3p.
- Papavero, N. 1977b. 19B. Family Ditomyiidae. In: Papavero, N. (Ed.). *A Catalogue of the Diptera of the Americas south of the United States*. São Paulo, Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo. 6p.
- Papp, L. & Ševčík, J. 2005. New taxa of Diadocidiidae (Diptera) from the Oriental region. *Acta Zoologica Academiae Hungaricae*, 51(4): 329-341.
- Tavares, M.; Lamas, C.; de Vivo, M.; de Pinna, M.; Silveira, L.F.; Landim, M.I.; Duarte, M.; Papavero, N. & Aquino, N.A. 2015. 80 Anos da USP: principais contribuições do Museu de Zoologia. In: Goldemberg, J. (Coord.). *USP 80 Anos*. São Paulo, EDUSP. p. 257-262.
- Vockeroth, J.R. 2009a. Ditomyiidae (ditomyiid fungus gnats). In: Brown, B.V.; Borkent, A.; Cumming, J.M.; Wood, D.M.; Woodley, N.E. & Zumbado, M.A. (Eds.). *Manual of Central American Diptera*. Ottawa, NRC Research Press. v. 1, p. 253-255.
- Vockeroth, J.R. 2009b. Diadocidiidae (diadocidiid fungus gnats). In: Brown, B.V.; Borkent, A.; Cumming, J.M.; Wood, D.M.; Woodley, N.E. & Zumbado, M.A. (Eds.). *Manual of Central American Diptera*. Ottawa, NRC Research Press. v. 1, p. 257-258.
- Yamaguchi, C. & Lamas, C.J.E. 2009. A Catalogue of the types of Asiloidea (Diptera) in the collection of the Museu de Zoologia da Universidade de São Paulo, Brazil (Part 1: Bombyliidae and Mydidae). *Zootaxa*, 2146: 35-52.