NOTA CIENTÍFICA

A survey of the family Muscidae (Diptera) (except for Coenosiinae) from Mbaracayú forest, Paraguay

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Levantamento da família Muscidae (Diptera) (exceto Coenosiinae) do Bosque Mbaracayú, Paraguai

■ **RESUMO**. O artigo apresenta inventário da fauna de Muscidae (Diptera) da Floresta Mbaracayú. A floresta compõe uma área de Reserva da Biosfera da UNESCO localizada em Cuenca Alta del Río Jejuí, Departamento Canindeyú, leste do Paraguai. O artigo é o primeiro inventário de Muscídeos para o Paraguai e contribui para as principais prioridades do Plano Estratégico do Sistema Nacional de Áreas Silvestres Protegidas do Paraguai. Os espécimes foram amostrados em 5 diferentes biomas dentro da área do parque durante o ano de 1996. Os métodos de amostragem empregaram amostragem contínua com armadilhas Malaise. O levantamento concluiu um total de 22 gêneros e 52 spécies. Entre estes números estão 4 gêneros (*Dolichophaonia* Carvalho, *Haematobia* Le Peletier, *Sarcopromusca* Townsend e *Stomoxys* Geoffroy) e 21 spécies ainda não registradas para o território paraguaio. O resultado incluiu informações sobre as espécies amostradas incluindo bioma, data e posição taxonômica.

PALAVRAS CHAVE. Inventário. Biodiversidade. Alta cabeceira do Rio Paraná. Lista de espécies.

■ **ABSTRACT.** A survey of the Muscid (Diptera) fauna of the Mbaracayú forest is presented. The forest is a UNESCO Biosphere Reserve located in Cuenca Alta del Río Jejuí, Canindeyú department, eastern Paraguay. The paper constitutes the first Muscid survey for Paraguay and contributes for the main priorities of the Paraguayan Plan Estratégico del Sistema Nacional de Áreas Silvestres Protegidas. The specimens were sampled in five different biomes within the park area during 1996. The sampling method employed continuous sampling with malaise traps. The survey accounted for 22 genera and 52 species, comprising four genera (*Dolichophaonia* Carvalho, *Haematobia* Le Peletier, *Sarcopromusca* Townsend, and *Stomoxys* Geoffroy) and 21 species not yet registered for Paraguay. The results included sampled specimens information including biome, date and taxonomic position.

KEY WORDS. Inventory. Biodiversity. Upper Paraná River. Checklist.

Recibido: 1-IX-2010; aceptado: 12-IV-2011

The growing concern with the maintenance of the upper Paraná River ecosystems has mobilized great international effort. More than 30 governmental agencies and third sector organizations from Paraguay, Brazil and Argentina have joined forces in order to build up a director plan aiming at biodiversity conservancy. The main priorities were presented in 2003 (Plan Estratégico del Sistema Nacional de Áreas Silvestres Protegidas, 1993) including long term actions for the next 50-100 years. Among the main actions was the development of the taxonomic knowledge of the local species as a priority. Grounded in the International Initiative for Taxonomy, the Paraguayan General Strategic Goals of the National Strategy and Biodiversity Action Plan (Secretariat of the Environment, 2003) emphasized the taxonomic knowledge as a basis for natural resources conservancy. The faunistic surveys were pointed as the first action in this taxonomic investigation process.

A large Paraguayan natural reserve included in this action plan, the Mbaracayú forest (Reserva Natural del Bosque Mbaracayú), is a UNESCO Biosphere Reserve located in Cuenca Alta del Río Jejuí. The reserve is currently administrated by Fundación Moisés Bertoni para la Conservación de la Naturaleza (FMB). Located in the Canindeyú department (eastern Paraguay) (Fig. 1), its total area is over 64.406 hectares, with 57.715 hectares of Atlantic Forest domain and 6.600 hectares of Cerrado, and the average altitude ranges from 140-450 m. The park area includes several ecosystems where the main one is the Humid Subtropical Forest structured most of all over fragile sandy and little fertile soil. Other significant ecosystems are pasturelands, savannahs with different grades of woods covering, lagoons and pasturelands with flooded ground (FMB, 2005).

Up to date few families of Diptera were studied for the park area. Among recent studies within dipterans are: the faunal surveys of streblid (Dick & Gettinger, 2005) and nycteribiid flies (Graciolli *et al.,* 2006); the description of two new Muscid species: *Souzalopesmyia sulina* Carvalho (Carvalho, 1999) and *Pseudoptilolepis elbida* Schuehli & Carvalho (Schuehli & Carvalho, 2005); an occurrence of a Muscid ginandromorph (*Polietina orbitalis* (Stein) in Nihei & Carvalho 2002), and the first record of the Anthomyidae *Coenosopsia brasiliensis* Michelsen was presented for the park area by Nihei & Carvalho (2004).

The present paper represents the first attempt in documenting the muscid fauna of the park, and extensive as well to the country. The Muscidae family, comprising 4.800 extant species (Carvalho *et al.,* 2005), is considered to be a family satisfactorily known worldwide (Thompson, 1990). There are over 800 species recognized in the Neotropical Region distributed in 84 genera (Carvalho & Couri, 2002; Couri & Carvalho, 2002; Carvalho *et al.,* 2005). However, the patterns of distribution of the South American muscid species are poorly known (Carvalho & Couri, 2002). Only 16 genera are listed for entire Paraguay (Carvalho & Couri, 2002; Couri & Carvalho, 2002; Carvalho *et al.,* 2005). The present paper provides a list of species collected on Mbaracayú forest in 1996, including a total account of 13 genera and 36 species of Muscidae (excluding the Coenosiinae). Among these numbers are four genera (*Dolichophaonia* Carvalho, *Haematobia* Le Peletier, *Sarcopromusca* Townsend, and *Stomoxys* Geoffroy) and 21 species not yet registered for the Paraguayan territory. The data were enriched, for a comparative overview, with records of Muscids on Paraguay from literature. The purpose of this work is to present herein an updated list of species for Paraguay. A total of 22 genera and 52 species, including literature records, were provided in this paper.

The Diptera specimens captured during 1996 (from January to December) in the Malaise-traps were preserved in alcohol 98 GL and sorted out as Muscoidea families in the laboratory. The Muscidae specimens were pinned and dried for subsequent examination and identification. Coenosiinae species were not included in our study, however, they were kept with the remaining testimonial material. The material within this

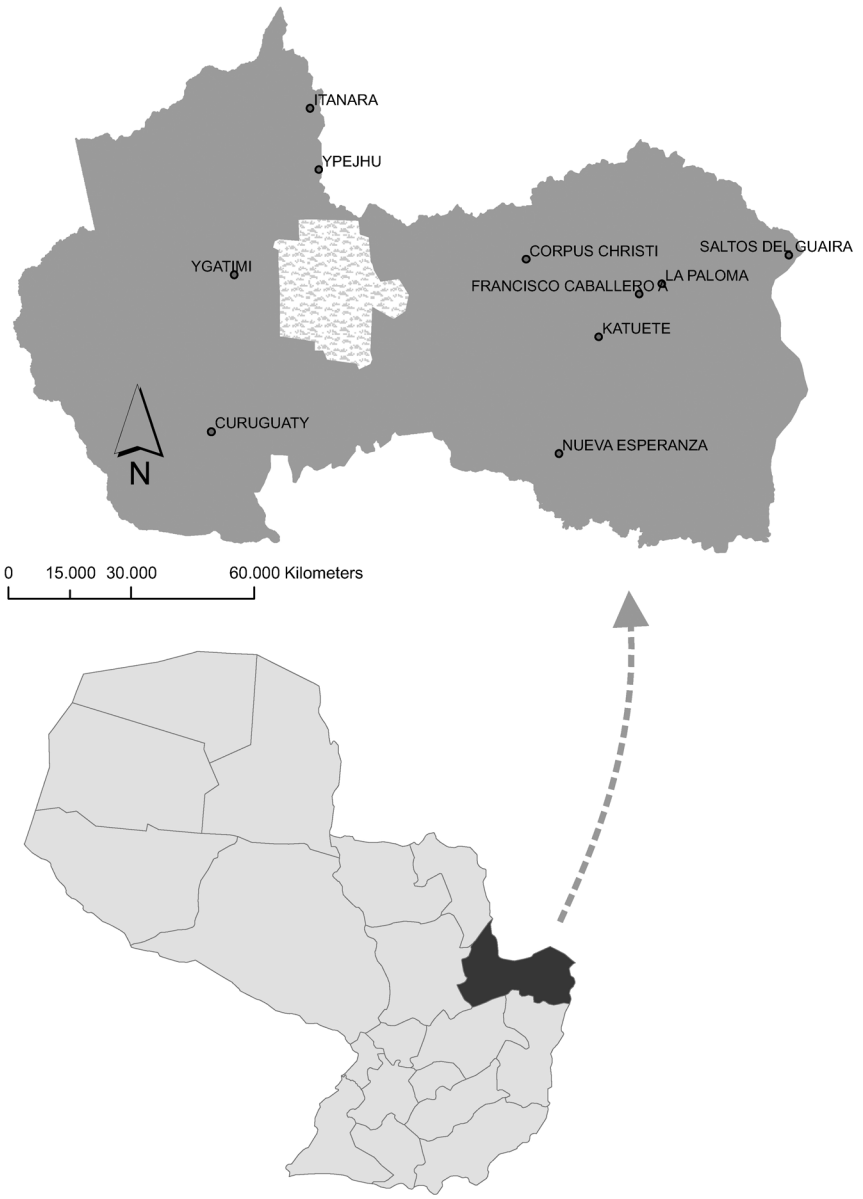

Fig.1. Location of Mbaracayú forest in the Canindeyú department (upper). The position of the Canindeyú is detailed in the Paraguay map (lower).

subfamily will be examined in a further study. The studied specimens were deposited at the Museo Nacional de Historia Natural del Paraguay, Asunción, Paraguay and Coleção Entomológica Pe. Jesus Santiago Moure, Departamento de Zoologia da Universidade Federal do Paraná – DZUP, Curitiba-PR, Brazil.

We also included species with previous records of a Paraguayan distribution. In this case, entries were included based on bibliographic review. The respective papers where the records were originally made were presented under "Previous Record" (Prev.rec.). New records are indicated (**N. rec.**) for genera and species. The Catalog of Neotropical Muscidae (Carvalho *et al.*, 2005) was the main reference for the records older

than 2005 as it summarizes all the previous information on geographical distribution. More recent papers were presented specifically.

All captured specimens were collected in the Reserva Natural del Bosque Mbaracayú, Jejuí – MI, Paraguay, during 1996 by A.C.F. Costa. Therefore, this information was suppressed for each species occurrence. The environments were described originally in labels as biomes and/or their malaise trap number. These were: pastureland with saturated soil (pastizal con suelo saturado – Malaise 1), gallery woods (bosque en galeria – Malaise 2), low flooded woods (bosque bajo inundado – Malaise 3), high woods (bosque alto – Malaise 4), and woods (bosque medio – Malaise 5). For each occurrence we organized the records to promptly discriminate the place where the specimen was captured. The order presented followed the original numbers attributed to each trap. Some previously recorded species were not found in the examined material. In this case, no examined material was presented.

FAMILY Muscidae Latreille

SUBFAMILY **Atherigoninae** Fan

Genus *Atherigona* Rondani

A. orientalis Schiner. Prev. rec.: Carvalho *et al.* (2005).

SUBFAMILY **Muscinae** Latreille

Tribe Muscini Latreille

Genus *Biopyrellia* Townsend

B. bipuncta Wiedemann. Prev. rec.: Carvalho *et al.* (2005).

bosque bajo inundado: Male: 16.v-23.v.

Genus *Morellia* Robineau-Desvoidy (sensu Nihei & Carvalho 2007)

M. humeralis Stein. **N. rec.**

bosque medio: Female: 18.iv-25.iv.

M. nigricosta Hough. Prev. rec.: Carvalho *et al.* (2005).

bosque en galeria: Females (7): 27.iii-3.iv (2); 17.iv-23.iv; 4.vii-18.vii (4).

bosque bajo inundado: Male: 16.v-23.v; Female: 29.iii-9.iv.

bosque medio: Females (13): 2.iv-10.iv; 2.iv-12.iv (9); 11.iv-17.iv; 4.vii-10.vii; 2.iv-14.iv.

M. violacea Robineau-Desvoidy. Prev. rec.: Carvalho *et al.* (2005).

M. xanthoptera Pamplona. **N. rec.**

pastizal con suelo saturado: Male: 1.v-8.v; Females (11): 31.iii-10.iv; 2.iv-10.iv; 11.iv-17.iv; 16.v-23.v; 16.v-23.v; 24.v-28.v (2); 29.v-11.vi; 4.vii-18.vii; 25.vii-8.viii (2).

bosque en galeria: Males (5): 26.iii-27.iii (2); 3.iv-9.iv; 17.iv-23.iv (2).; Females (35): 26.iii-27.iii (2); 27.iii-3.iv; 3.iv-9.iv (2); 10.iv-16.iv (4); 17.iv-23.iv (3); 24.iv-30.iv (2);1.v-15.v (8); 16.v-23.v (4); 12.vi-19.vi (3); 20.vi-27.vi (2); 18.vii-28.vii (4).

bosque bajo inundado: Males (4): 1-8.v (2); 9-15.v;16-23.v; Females (13): 29.iii-9.iv; 1-8.v (10); 9-15.v; 16-23.v.

bosque alto: Females (8): 10-16.iv; 1-9.v; 24-28.v; 28.vi-5.vii; 6-10.vii (2); 10-18.vii (2).

bosque medio: Males (4); 2-10.iv (3); 28.vi-3.vii; Females (35): 2-10.iv (21); 11-17.iv (3); 26.iv-1.v (2); 16-23.v (2); 29.v-11.vi; 12-19.vi; 12-19.vi (2); 26.vii-8.viii (2); 26.vii-8.viii.

Genus *Musca* Linnaeus

M. domestica Linnaeus. Prev. rec.: Carvalho *et al.* (2005).

Genus *Parapyrellia* Townsend

P. maculipennis Macquart. Prev. rec.: Carvalho *et al.* (2005).

Genus *Polietina* Schnabl & Dziedzicki

P. bicolor Albuquerque. Prev. rec. Nihei & Carvalho (2005).

Unregistered biome: Females (21): 27.iii-03.iv. (2); 29.iii-09.iv. (3); 2-10.iv. (3); 10-16.iv.; 11-17.iv. (2); 24-30.iv.; 26.iv-01.v.; 1-15.v.; 2-8.v.; 16-23.v.; 24-28.v.; 20-27.vi.; 18-28.vii.; 19-26.vii.; 26.vii-08.viii.

P. flavithorax Stein. Prev. rec. Nihei (2004), Nihei & Carvalho (2005).

Unregistered biome: Males (2): 29.iii-09.iv.; 12-19.vi.; Females (2): 10-16.iv.; 24-28.v.

P. major Albuquerque. Prev. rec. Nihei (2004), Nihei & Carvalho (2005).

Unregistered biome: Males (49): 25-30.iii.; 27.iii.-03.iv.(7); 29.iii.-09.iv.; 31.iii.-10.iv.; 02-10.iv. (3); 03-09.iv.(6); 10-16.iv.(2); 11-17.iv.(2); 17-23.iv.(3); 24-30.iv.(4); 01-08.v.; 01-15.v.(10); 16-23.v.; 24-28.v.(2); 29.v-11.vi.(2); 12-19.vi.; 11-18.vii.; 19-26.vii; Females (22): 27.iii.-03.iv.(3); 02-10.iv.(4); 03-09.iv.(2); 10-16.iv.; 11-17.iv.; 17-23.

iv.(2); 26.iv-01.v.(2); 01-15.v.(2); 16-23.v.; 29.v.-11.vi.(2); 06-10.vii.; 18-28.vii.

P. orbitalis (Stein). Prev. rec. Nihei & Carvalho (2002), Nihei & Carvalho (2005).
bosque bajo inundado: Female: 29.iii.
Unregistered biome: Males (15):25-30. iii.; 29.iii-9.iv.; 2-10.iv.; 11-17.iv.; 26.iv.-01.v; 1-8.v. (2); 1-15.v.; 9-15.v.(3); 28.vi-5. vii.; 4-18.vii.; 6-10.vii.; 11-18.vii; Females (711): 25-30.iii.; 26-27.iii.(4); 27.iii-3. iv.(19); 29.iii.-9.iv.(96); 31.iii.-10.iv. (11); 2-10.iv.(16); 03-09.iv (4); 10-16.iv. (49); 11-17.iv. (5); 17-23.iv. (16); 18-25.iv.; 24-30. iv. (12); 26.iv-01.v. (5); 1-8.v. (41); 1-9.v. (10); 1-15.v.(21); 2-8.v.(5); 9-15.v.(35); 10-23.v.(6); 16-23.v.(74); 24-28.v.(40); 29.v-11. vi.(16); 12-19.vi.(28); 20-27.vi.(6); 28.vi-3. vii.(7); 28.vi-5.vii.(4); 4-10.vii.(5); 4-18.vii. (8); 6-10.vii.(28); 10-18.vii.(17); 18-25.vii. (12); 18-28.vii.(81); 19-26.vii.(14); 19-30.vii. (7); 25.vii-08.viii.(5); 26.vii-08.viii.(23).

P. steini Enderlein. Prev.rec. Nihei & Carvalho (2005).
Unregistered biome: Males (2):31.iii-10.iv.; 01-08.v; Females (17):29.iii-09.iv.(3); 02-10. iv.(2); 10-16.iv.; 24-30.iv.; 16-23.v.; 24-28.v.; 12-19.vi.; 28.vi-03.vii.; 28.vi-05.vii.; 10-18. vii.; 18-28.vii.; 19-26.vii.; 25.vii-08.viii.; 26.vii-08.viii.

Genus *Sarcopromusca* Townsend **N. rec.**

S. pruna Shannon & Del Ponte. **N. rec.**
pastizal con suelo saturado: Males (33): 18-25.iv (8); 26.iv-1.v (4); 2-8.v (2); 9-15.v; 16-23.v (16); 24-28.v (2); Females (19): 18-25. iv (8); 26.iv-1.v (4); 2-8.v (2); 9-15.v (2); 16-23.v (3).

Tribe Stomoxyini Meigen.
Genus *Haematobia* Le Peletier & Serville **N. rec.**

H. irritans Linnaeus. **N. rec.**
pastizal con suelo saturado: Males (3): 26.iv-1.v; 9.v-15.v; 12.vi-19.vi; Females (2): 16.v-23.v; 24.v-28.v.

Genus *Stomoxys* Geoffroy **N. rec.**

S. calcitrans (Linnaeus). **N. rec.**
pastizal con suelo saturado: Males (15): 11-17.iv (10); 18-25.iv; 18-25.iv; 26.iv-1.v; 16-23.v; 12-19.vi; Females (12): 25-30.iii; 11-17. iv (3); 18-25.iv (2); 26.iv-1.v; 2-8.v; 16-23.v; 11.vi-17.iv; 28.vi-3.vii; 25.vii-8.viii.

SUBFAMILY **Azeliinae,** Robineau-Desvoidy
Tribe Reinwardtiini Brauer & Bergenstamm
Genus *Philornis* Meinert

P. angustifrons Loew. Prev. rec.: Carvalho *et al.* (2005).

P. cinnamominus Stein. Prev. rec.: Carvalho *et al.* (2005).

P. dowsi Dodge & Aitken. **N. rec.**
bosque bajo inundado: Males (2):9-15.v; 16-23.v; Females (6): 29.iii-9.iv (2); 1-8.v; 9-15.v; 16-23.v; 6-10.vii.
bosque medio: Female: 11-17.iv.

Genus *Synthesiomyia* Brauer & Bergenstamm

S. nudiseta Wulp. Prev. rec.: Carvalho *et al.* (2005).

Genus *Cyrtoneurina* Giglio-Tos

C. alifusca Couri. **N.rec.**
bosque en galeria: Males (2), 24.iv-30.iv; 16.v-23.v.
bosque medio: Female: 19.vi-19.vi.

C. geminata Stein. Prev. rec.: Carvalho *et al.* (2005).

Genus *Cyrtoneuropsis* Malloch

C. beebei Curran. Prev. rec.: Carvalho *et al.* (2005).

C. dubia Snyder. **N. rec.**
bosque en galeria: Female: 10.vii-18.vii.

C. incognita Snyder. **N. rec.**

bosque en galeria: Female: 16.v-23.v.
bosque bajo inundado: Female: 29.iii-9.iv.
bosque medio: Females (3): 2.iv-10.iv (2); 28.vi-3.vii.

C. maculipennis Macquart. **N.rec.**
pastizal con suelo saturado: Male: 16.v-23.v; Females (2): 25.iii-30.iii; 31.iii-10.iv.
bosque en galeria: Males (2): 24.iv-30.iv; 12.vi-19.vi; Females (5): 27.iii-3.iv; 10.iv-16. iv; 24.iv-30.iv; 1.v-15.v (2).
bosque bajo inundado: Males (2): 16.v-23.v; 6.viii-10.viii; Females (13): 29.iii-9.iv (3); 10.iv-16.iv; 17.iv-23.iv; 1.v-8.v; 9.v-15.v; 16.v-23.v (4); 24.v-28.v; 6.viii-10.viii.

bosque alto: Male: 24.v-28.v; Females (2): 12.vi-19.vi; 6.viii-10.viii.
bosque medio: Males (2): 2.iv-10.iv; 29.v-11.vi; Females (12): 2.iv-10.iv (4); 11.iv-17.iv; 26.iv-1.v; 2.v-8.v; 16.v-23.v; 12.vi-19.vi; 28.vi-3.viii (2); 26.vii-8.viii.

C. mellina Stein. Prev. rec.: Carvalho *et al.* (2005).
bosque bajo inundado: Female: 16.v-23.v.

C. mimica Snyder. **N. rec.**
bosque en galeria: Females (8): 3.iv-9.iv (2); 10.iv-16.iv; 17.iv-23.iv; 1.v-15.v; 10.v-16.v; 24.v-28.v; 29.v-11.vi.
bosque bajo inundado: Females (5): 29.iii-9.iv; 1.v-8.v (3); 16.v-23.v.
bosque alto: Females (2): 1.v-9.v; 10.v-23.v.
bosque medio: Females (8): 2.iv-10.iv; 26.iv-1.v (2); 16.v-23.v (2); 24.v-28.v; 29.v-11.vi; 28.vi-3.vii.

C. pararescita Couri. **N. rec.**
pastizal con suelo saturado: Male: 25.iii-30.iii; Females (3): 25.iii-30.iii; 11.iv-17.iv; 28.vi-3.vii.
bosque medio: Male: 11.vii-18.vii.

C. polystigma Wulp. Prev. rec.: Carvalho *et al.* (2005).
bosque en galeria: Female: 17.iv-23.iv.
bosque bajo inundado: Female: 1.v-8.v.
bosque alto: Female: 1.v-9.v.

C. protosetosa (Snyder). **N. rec.**
bosque en galeria: Female: 29.v-11.vi.

C. rescita (Walker). Prev. rec.: Carvalho *et al.* (2005).
bosque bajo inundado: Female: 1.v-8.v.

C. similata (Couri). **N. rec.**
bosque en galeria: Male: 28.vi-3.vii.
bosque bajo inundado: Females (3): 1.v-8.v(2); 16.v-23.v.
bosque medio: Females (2): 11.iv-17.iv; 10.vii-18.vii.

C. veniseta (Stein). **N. rec.**
pastizal con suelo saturado: Females (3): 31.iii-10.iv; 11.iv-17.iv (2);
bosque en galeria: Males (11): 3.iv-9.iv; 10.iv-16.iv; 13.iv-23.iv; 17.iv-23.iv; 24.iv-30.iv (4); 1.v-15.v; 10.v-16.v; 16.v-23.v.; Females (11): 26.iii-27.iii; 17.iv-23.iv; 18.iv-25.iv; 1.v-15.v; 10.v-16.v (2); 16.v-23.v; 16.v-23.v; 24.v-28.v(3).
bosque bajo inundado: Males (3): 16.v-23.v; 24.v-28.v (2).; Females (16): 29.iii-9.iv; 17.iv-23.iv; 1.v-8.v (5); 16.v-23.v (6); 24.v-28.v; 6.vii-10.vii; 6.vii-10.vii.
bosque alto: Females (4): 24.iv-30.iv (2); 1.v-9.v; 6.vii-10.vii.
bosque medio: Males (3): 26.iv-1.v; 29.v-11.vi (2); Females (9): 29.iii-9.iv; 2.iv-10.iv; 11.iv-17.iv (2); 16.v-23.v; 29.v-11.vi (3); 28.vi-3.vii.

Genus *Neomuscina* Townsend

N. atincticosta Snyder. **N. rec.**
pastizal con suelo saturado: Female: 25-30.iii.

N. inflexa Stein. **N. rec.**
bosque en galeria: Female: 1-15.v.
bosque alto: Females (3): 10-16.iv; 24-30.iv (2).
bosque medio: Male: 2-8.v; Female (3): 18-25.iv; 18-25.iv; 2-8.v.

N. mediana Snyder. **N. rec.**
bosque bajo inundado: Females (2): 29.iii-9.iv; 1-8.v.

N. neosimilis Snyder. Prev. rec.: Carvalho *et al.* (2005).
pastizal con suelo saturado: Male: 18-25.iv; Females (4): 18-25.iv; 1-8.v; 24-28. v (2).
bosque en galeria: Male: 3-9.iv; Females (3): 26-27.iii; 26-27.iii; 27.iii-3.iv.
bosque bajo inundado: Females (2): 29.iii-9.iv (2).
bosque alto: Males (2): 10-16.iv; Females (3): 10-16.iv (2); 24-30.iv.
bosque medio: Males (3): 2-10.iv; 2-10.iv (2); Females (19): 2-10.iv (17); 11-17.iv (2).

N. pictipennis (Bigot). Prev. rec.: Carvalho *et al.* (2005).
pastizal con suelo saturado: Males (5): 25-30.iii (2); 31.iii-10.iv (2); 29.v-11.vi; Females (15): 25-30.iii(6); 31.iii-10.iv (3); 26.iv-1.v; 2-8.v; 9-15.v; 24-28.v (3).
bosque en galeria: Males (34): 26-27.iii (3); 27.iii-3.iv (17); 10-16.iv (3); 17-23.iv (3); 24-30.iv (3); 24-30.iv (2); 1-15.v; 16-23.v; 28.vi-3.vii; Females (29): 26-27.iii (2); 27.iii-3.iv (14); 3-9.iv (4); 24-30.iv; 1-15.v (3); 2-8.v; 16-23.v; 12-19.vi; 4-18.vii (2).
bosque bajo inundado: Males (14): 29.iii-9.iv (3); 10-16.iv; 1-8.v (9); 6-10.vii; Females (37): 29.iii-9.iv (13); 10-16.iv (3); 17-23.iv (2); 1-8.v (5); 1-8.v (4); 9-15.v (2); 16-23.v (5); 18-28.vii (3).

bosque alto: Males (20): 10-16.iv (11); 18-26.iv; 24-30.iv; 1-9.v; 16-23.v; 12-19.vi; 28.vi-5.vii; 6-10.vii (2); 10-18.vii; Females (10): 10-16.iv (6); 24-30.iv; 10-23.v; 12-19.vi; 28.vi-5.vii.
bosque medio: Males (69): 2-10.iv (51); 11-17.iv (11); 18-26.iv; (2); 26.iv-1.v (3); 16-23.v (2); Females (76): 2-10.iv (64); 11-17.iv (7); 26.iv-1.v; 16-23.v; 24-28.v; 12-19.vi; 28.vi-3.vii.

N. sanespra Snyder. **N. rec.**
bosque medio: Female: 2-10.iv.

N. schadei Snyder. Prev. rec.: Carvalho *et al.* (2005).
bosque en galeria : Male: 1-15.v.
bosque alto: Females (2): 10-16.iv (2).

Genus *Pseudoptilolepis* Snyder

P. elbida Schuehli. Prev. rec. Schuehli & Carvalho (2005).
pastizal con suelo saturado: Male (4): 25-30.iii; 6-10.vii; 25-30.ii (2); Female (4): 25-30.iii; 25-30.II (3).

P. nudapleura Snyder. Prev. rec.: Carvalho *et al.* (2005).

SUBFAMILY Phaoniinae Malloch
Genus *Dolichophaonia* Carvalho. **N. rec.**

D. paranaensis (Carvalho). **N. rec.**
bosque alto: Male: 10.iv-16.iv.

D. sensitarsis Carvalho. **N. rec.**
bosque en galeria : Female: 10.vii-18.vii.
bosque bajo inundado: Male: 16.v-23.v; Females (2): 27.iii-3.iv; 17.iv-23.iv.

Genus *Helina* Robineau-Desvoidy

H. rufiguttata Macquart. Prev. rec.: Carvalho *et al.* (2005).

H. walkeri Carvalho & Pont. Prev. rec.: Carvalho *et al.* (2005).

H. aff. *praecipua* (Walker)
pastizal con suelo saturado: Females (10): 11- 17. iv; 29.v-11.vi; 28.vi-3.vii; 4-18.vii; 4-18.vii(3); 25.vii-8.viii(2); 28-3.vii.
bosque en galeria: Males (2): 27.iii-3.iv; 1-15.v.
bosque bajo inundado: Males (4):1-15.v; 9-15.v; 18-25.vii (2); Females (16): 29.iii-9.iv; 10-16.iv; 9-15.v (2); 16-23.v (2); 28.vi-5.vii (5); 10-18.vii; 18-25.vii (4).
bosque alto: Male : 6-10.vii; Females (2): 10-16.v; 12-19.vi.
bosque medio: Females (4): 18-25.vii (2); 19-30.vii; 19-26.vii.
Comments: The material does not fit with any of the species included in the keys provided by Carvalho & Couri (2002). Those keys are modified versions from keys presented in Stein (1911), Malloch (1934) and Snyder (1941). Besides, there are several species not keyed in Carvalho & Couri (2002) and, for these species, we have compared the material with the original descriptions available and also with identified material (DZUP). Based on this comparative examination, we considered the material as resembling *Helina praecipua* (Walker), although the material did not fit satisfactorily. The head, thorax and abdomen morphology is similar to that present in *H. praecipua*, but there are differences in coloration, as antennae and palpi, yellowish in the Paraguayan material and dark brown to black in *H. praecipua*. Legs chaetotaxy is the same.

Genus *Phaonia* Robineau-Desvoidy

P. nervicincta Stein. Prev. rec.: Carvalho *et al.* (2005).

Genus *Souzalopesmyia* Albuquerque

S. sulina Carvalho. Prev. rec.: Carvalho *et al.* (2005).

SUBFAMILY Mydaeinae Verrall
Genus *Brontaea* Kowarz (=*Gymnodia* Robineau-Desvoidy, preocc.)

B. normata Bigot. Prev. rec.: Carvalho *et al.* (2005).

Genus *Graphomya* Robineau-Desvoidy

G. chilensis Bigot. Prev. rec.: Carvalho *et al.* (2005).

Genus *Mydaea* Robineau-Desvoidy

M. plaumanni Snyder. Prev. rec.: Carvalho *et al.* (2005).

ACKNOWLEDGEMENTS

We thank Antônio Cláudio F. Costa for collecting and sending us the material. We

also would like to present our thanks to Elaine Della Giustina Soares, Jaime Iván Rodriguez-Fernandes, Mariza Bortolanza and Mauren Turcatel for helping in sorting and mounting of the specimens. We would like to thank the reviewers for their helpful and positive comments which have improved the paper.

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