

SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

Neriidae (Diptera: Schizophora) of the Brazilian Amazon: New Records of Genera and Species, and Key to Species

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Neriidae (Diptera: Schizophora) da Amazônia Brasileira: Novos Registros de Gênero e Espécie e Chave para Espécies

RESUMO - O presente estudo fornece dados oriundos de coletas em várias localidades da Amazônia e de espécimes depositados na Coleção Entomológica do Museu Paraense Emílio Goeldi (MPEG-Belém). Os Neriidae foram coletados com armadilhas contendo matéria orgânica em decomposição (banana e pulmão bovino). O gênero *Odontoloxozus* Enderlein, representado pela espécie *Odontoloxozus peruanus* Hennig é registrado pela primeira vez no Brasil. As espécies *Glyphidops* (*Glyphidops*) *flavipes* (Widemann), *G. (Oncopsia) flavifrons* (Bigot), *G. (O.) durus* (Cresson) e *G. (O.) dipsar* (Hennig) são novas ocorrências para o Brasil. As espécies *G. (O.) carrerai* Aczél e *N. plurivittatus* Bigot são novos registros para a Amazônia Brasileira. Uma chave dicotômica para as espécies é apresentada.

PALAVRAS-CHAVE: Brasil, *Glyphidops*, *Nerius*, *Odontoloxozus*

ABSTRACT - The present study brings together survey data from collection in several localities in the Brazilian Amazon and specimens from the Entomological Collection of Museu Paraense Emílio Goeldi (MPEG-Belém). The flies were collected over organic decomposing matter (bananas and bovine meat) baits. The genus *Odontoloxozus* Enderlein, with the species *Odontoloxozus peruanus* Hennig, is recorded from Brazil for the first time. The species *Glyphidops* (*Glyphidops*) *flavipes* (Widemann), *G. (Oncopsia) flavifrons* (Bigot), *G. (O.) durus* (Cresson) and *G. (O.) dipsar* (Hennig) are new occurrences for Brazil. The species *G. (O.) carrerai* Aczél and *N. plurivittatus* Bigot are new occurrences from Brazilian Amazon. A key to Brazilian Amazon species is provided.

KEY WORDS: Brazil, *Glyphidops*, *Nerius*, *Odontoloxozus*

Neriidae are medium to large-sized flies of characteristic appearance, with rather long and slender legs usually furnished with short, stout spines. They may be distinguished from most other acalyptratae flies by the arista being situated apically on the third antennal segment (Steyskal 1968).

The family is almost wholly circumtropical. Approximately 110 species are known; two-thirds of these are in New World, including two that extend into southwestern United States. Two subfamilies are recognized, Telostylinae and Neriinae. Only the Neriinae are American; they are distinguished by expanded, biconvex dorsal margin of the face, which is formed into prominently exposed antennal sockets (Steyskal 1987). In the Neotropical Region approximately 38 species are known, placed in two subfamilies and 11 genera (Aczél 1961).

The American species were monographed by Aczél (1961) and cataloged by Steyskal (1968). Papavero & Pimentel (2002) cataloged the Amazonian species and recognized two species and two genera: *Glyphidops*

(*Glyphidops*) *filosus* (Fabricius) and *Nerius pilifer* Fabricius. However, Rafael (1991) collected *Glyphidops (Oncopsia) limbata* Enderlein, in Maracá Island, Roraima.

Very little is known of their biology, but they probably feed on decaying vegetable matter (Olsen & Ryckman 1963). Larvae of *Odontoloxozus longicornis* (Coquillett) were reared from eggs deposited in necrotic tissue of various species of cacti and rotten stems of *Carica papaya* L. (Steyskal 1987)

The present work gives new and updated information on Neriidae species in the Brazilian Amazon, as well as their geographical distribution.

Material and Methods

In addition to data from the literature, 165 specimens from the Entomological Collection of Museu Paraense Emílio Goeldi (MPEG-Belém) were studied and another 88 specimens were collected from several localities in the

Brazilian Amazon. Neriidae were collected in Tefé and Juruá River (Amazonas), in 1993; the Caxiuanã National Forest (Melgaço, Pará), in 1995, 1996, 1997, 2004 and 2005; Porto Urucu (Coari, Amazonas), in 2004 and 2005; Monte Dourado (Pará) in 2004 and 2005. Organic decomposing matter (bananas and bovine meat) was used as bait in traps like in by Carvalho *et al.* (1984).

Collected specimens were preserved in 80% alcohol in the field and then mounted on pins. Voucher specimens are deposited in the Entomological Collection of Museu Paraense Emílio Goeldi (MPEG-Brazil). Species were identified with keys from Aczél (1961).

Genus *Odontoloxozus* Enderlein

This genus comprises two species: *O. longicornis* (Coquillett), found in the USA, Mexico, and Costa Rica; and *O. peruanus* Hennig, recorded from Bolivia and Peru (Steyskal 1968) and now for the first time in Brazil.

Odontoloxozus peruanus Hennig

Geographical distribution: Brazil (new record) (Acre and Pará), Bolivia and Peru.

Specimens examined. Brazil. *Acre*: Porto Acre, Humaitá, 15/VI-20/VII/92, I.S. Gorayeb *col.* (one male). *Pará*: Tucuruí, Tocantins River, Arapari Lake, 28-30/VII/1984, without collector (one female); Saúde, Malaise Trap, 01-03/VI/1984, without collector (one male). Serra Norte, Manganês, Malaise Trap, 12-15/XI/1985, F.F. Ramos *col.* (one female); 3-Alfa, Shannon Trap, 15-18/X/1986 J. Dias *col.* (one male and one female); Fofoca Lake, 19/11/1984, F.F. Ramos *col.* (one female); Caldeirão, 29/X/1985, without collector, (one female).

Genus *Glyphidops* Enderlein

The genus includes two subgenera: *Glyphidops* Enderlein and *Oncopsia* Enderlein. Both subgenera have been recorded in Brazil (Steyskal 1968).

Glyphidops (Glyphidops) filus (Fabricius)

Geographical distribution: Brazil (Bahia, Pará, Acre, Amazonas, Rio de Janeiro, São Paulo), Guatemala, Honduras, Suriname, Costa Rica, Panama, and Bolívia.

Discussion: This is the only species of the subgenus *Glyphidops* that has been captured in the Brazilian Amazon (Papavero & Pimentel 2002).

Glyphidops (Glyphidops) flavipes (Widemann)

Geographical distribution: Venezuela and Brazil (Pará)

Specimens examined: Brazil. *Pará*, Serra Norte, Pojuca Forest, 29/IV/1989 (one female) without collector.

Discussion: This species was previously known only from Venezuela (Steyskal 1968).

Glyphidops (Oncopsia) carrerai Aczél

Geographical distribution: Brazil (São Paulo and Pará)

Specimens examined: Brazil. *Pará*: Bragança, Tracauteua, 02-04/IX/1990, I.S. Gorayeb *col.* (one male). Benevides, PA-408 Km06 road, 23/VI/1981, T. Pimentel *col.* (one female). Melgaço, Caxiuanã, ECFPn, VII/1995, XII/1995, XII/1996, M.C. Esposito *col.* (three females). Serra Norte, Fofoca, 29/X/1984 T. Pimentel *col.* (one female); Serra Norte, Serraria, 20/X/1984, without collector (one female); Serra Norte, Est. Fofoca, 12/VI/1983, without collector (one female). *Amazonas*: Tefé, II/03 (three females and one male) M.C. Esposito *col.*

Discussion: This species was discovered by Aczél (1961) in São Paulo, and this material is a new record from the Brazilian Amazon.

Glyphidops (Oncopsia) limbatus Enderlein

Geographical distribution: Brazil (Rio de Janeiro, Minas Gerais, São Paulo (Steyskal 1968), Roraima (Rafael 1991), Acre, Amazonas, Amapá, and Pará).

Specimens examined: Brazil. *Acre*: Porto Acre, Humaitá, 15/VI-02/VII/1992, I.S. Gorayeb *col.* (one female). *Amazonas*: Tefé, II/1993, M.C. Esposito *col.* (one male). *Amapá*: Massapé, 01/XII/1981, I.S. Gorayeb *col.* (one male and one female). *Pará*: Serra Norte, Caldeirão 7-10/II/1985, without collector (one female).

Glyphidops (Oncopsia) flavifrons (Bigot)

Geographical distribution: USA, Panama, Trinidad, Guyana, Colombia, Brazil (new record) (Pará and Acre).

Specimens examined: Brazil. *Acre*: Porto Acre, Humaitá, 15/VI-02/VII/1992, I.S. Gorayeb *col.* (one female). Rio Branco, 25/X-08/XI/1991, F. Ramos, A. Henriques, I.S. Gorayeb & N. Bitencourt *col.* (one female). *Pará*: Tucuruí, Tocantins River, Arapari River, 28/III/1984, F.F. Ramos *col.* (one female). Monte Dourado, Jarí, Area 91, 01/05/2005, T.A. Gardner *col.* (one female).

Glyphidops (Oncopsia) durus (Cresson)

Geographical distribution: Costa Rica, Panama, and Brazil (new record) (Amazonas and Pará).

Specimens examined: Brazil. *Amazonas*: Tefé, II/1993, M.C. Esposito *col.* (one male). Monte Dourado, 01/05/05, T.A. Gardner *col.* (one female).

Discussion: This species had never been recorded in Brazil (Aczél, 1961; Steyskal 1968). This record represents a new register for Brazil.

Glyphidops (Oncopsia) dispar (Hennig)

Geographical distribution: Panama (Aczél 1961, Steyskal 1968) and Brazil (new record) (Amapá and Pará).

Specimens examined: Brazil. *Amapá*: Serra do Navio, 13-15/V/1989, N. Bittencourt *col.* (one female). *Pará*: Serra Norte, Pojuca Forest, 18/IV/1983, M.F. Torres *col.* (one female).

Genus *Nerius* Fabricius

Currently there are ten species in the genus *Nerius*, four recorded from Brazil (Aczél 1961, Steyskal 1968) and only *Nerius pilifer* in the Brazilian Amazon (Papavero & Pimentel 2002).

***Nerius pilifer* Fabricius**

Geographical distribution: Mexico, Panama, Guyana, Suriname, Colombia, Venezuela, Paraguay, Peru, Bolivia, Argentina, and Brazil (Pará, Acre, Amazonas Tocantins, Rondônia, Bahia, Mato Grosso, Goiás, and São Paulo).

***Nerius plurivittatus* Bigot**

Geographical distribution: Mexico, Panama, Dominican Republic, Trinidad, Guyana, Venezuela, Colombia, Peru, Bolivia, and Brazil (Pará, Acre, and Amazonas).

Specimens examined: Brazil. *Pará*: Serra Norte, Caldeirão, Shanon Trap, 5-10/VII/1986, without collector (one male and one female); ibidem, 3-5/VII/1986, without collector (three males and one female); ibidem, 29/X/1984, without collector (three females); ibidem, 05/VII/1986, T. Pimentel *col* (one male). Serra Norte, Manganês, 22/III/1986, without collector (one female); ibidem, Mata do Pojuca, 18/IV/1983, M.F. Torres *col* (one male); ibidem, 3-Alfa, Shannon Trap, 15-18/X/1986, J. Dias *col* (one female). Serra Norte, Estação Fofoca, 12/VI/1983, without collector (one female). [Island of] Marajó, Breves, Curuacá River, B55L.14, 04/VII/1988, J. Dias *col* (one male); ibidem, 20/II/1988, without collector (one male). Carajás, Estação Fofoca, 22/IV/1993, B. Mascarenhas and team *col* (4 females). Vizeu, Inaicura, Shannon Trap, 26-27/V/1988, J. Dias *col* (one female). Caxiuanã-ECFPn, Curuazinho stream, Malaise Trap, 23/III/1998, O. Silveira and J. Pena *col* (one female); ibidem, M.C. Esposito *col*, VII/1995 (6 females), XII/1995 (two females), XII/1996 (one male) II/1997 (two females). Peixe Boi, 05/VII/1982, I.S. Gorayeb *col* (one male). Tucuruí, Tocantins River, 28/III/1984, F.F. Ramos *col* (one male and one female); ibidem, Chiqueirão, Malaise Trap, 13/IV/1984, without collector (one female); ibidem, south to Jacundá, 01/V/1984, W.L. Overall *col* (one female). *Acre*: Porto Acre, Humaitá, Malaise Trap, 15/VI-02/VII/1992, I. Gorayeb, J. Pena and A. Henriques *col* (two males and two females). Rio Branco, 25/X-08/XI/1981, F. Ramos, A. Henriques, I. Gorayeb & N. Bittencourt *col* (one male). *Amazonas*: Marañão, Rio Japurá, Maguari, 27-31/X/1988, J. Dias *col*

(one female); ibidem, 11/X/1988, J. Dias *col* (one male). Coari, Porto Urucu, 22/06/2005, J. Pena *col* (one male and one female).

Discussion: This species had never been recorded from the Brazilian Amazon, according to Papavero & Pimentel (2002). This material is a new record for the region.

Key to Species of Brazilian Amazon Neriidae

- 1. Pedicel short, as long as the postpedicel (Fig. 1).....2
- 1'. Pedicel elongated and conspicuously longer than postpedicel.....*Odontoloxozus peruanus*
- 2 (1). Antennal arista bare and dark brown; fore coxae dark brown.....9
- 2'. Antennal arista bare or pubescent; fore coxae always yellow.....3
- 3 (2'). Arista entirely or at least its basal third densely whitish pubescent.....4
- 3'. Arista entirely brown and bare or with brown short pubescence.....5
- 4 (3). Postpedicel gradually tapering into a nearly pointed apex with apical arista (Fig. 1); supraalar bristle absent (Fig. 3).....*Glyphidops filosus*
- 4. Postpedicel with rounded tip and subapical arista (Fig. 2), situated near middle of anterior margin of postpedicel; supraalar bristle present.....*Glyphidops flavipes*
- 5 (3'). Legs chiefly dark brown.....*Glyphidops dispar*
- 5'. Legs yellow.....6
- 6 (5'). Arista shining dark brown with short and fine pubescence of the same color.....*Glyphidops limbatus*
- 6'. Arista bare and dark brown.....7
- 7 (6'). Inferior pleurotergite wholly yellow.....*Glyphidops flavifrons*
- 7'. Inferior pleurotergite dark brown.....8
- 8 (7'). Sternopleural bristle conspicuous...*Glyphidops dura*
- 8'. Sternopleural bristle absent.....*Glyphidops carrerai*
- 9 (2). Median longitudinal stripe of the mesonotum narrow and with a dark median line (Fig. 4).....*Nerius pilifer*
- 9'. Median longitudinal stripe of the mesonotum wider and

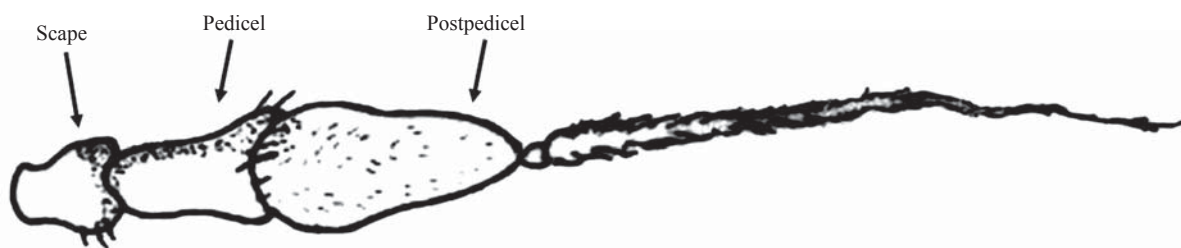


Fig 1. Antenna lateral view of *Glyphidops filosus*.



Fig 2. Antenna lateral view of *Glyphidops flavipes*.

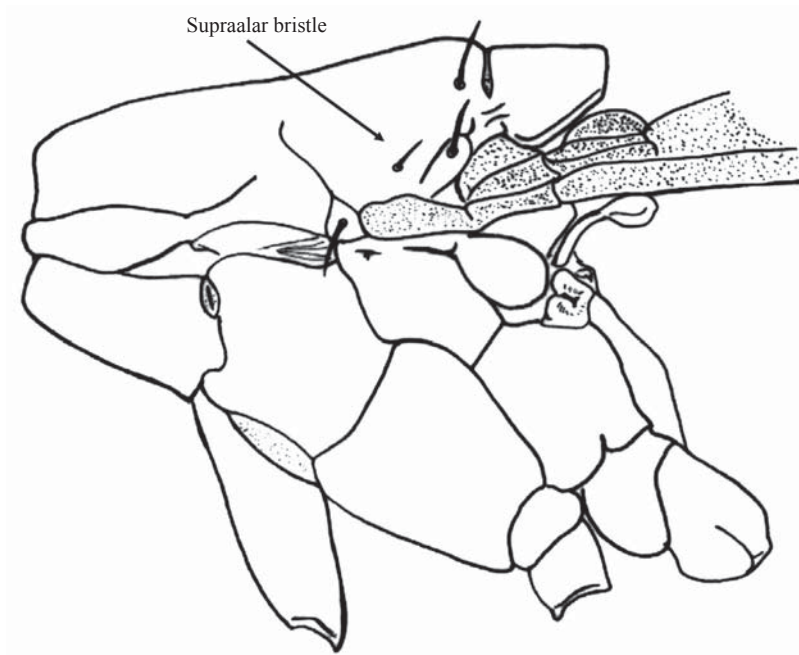


Fig 3. Thorax lateral view of *Glyphidops flavipes*.

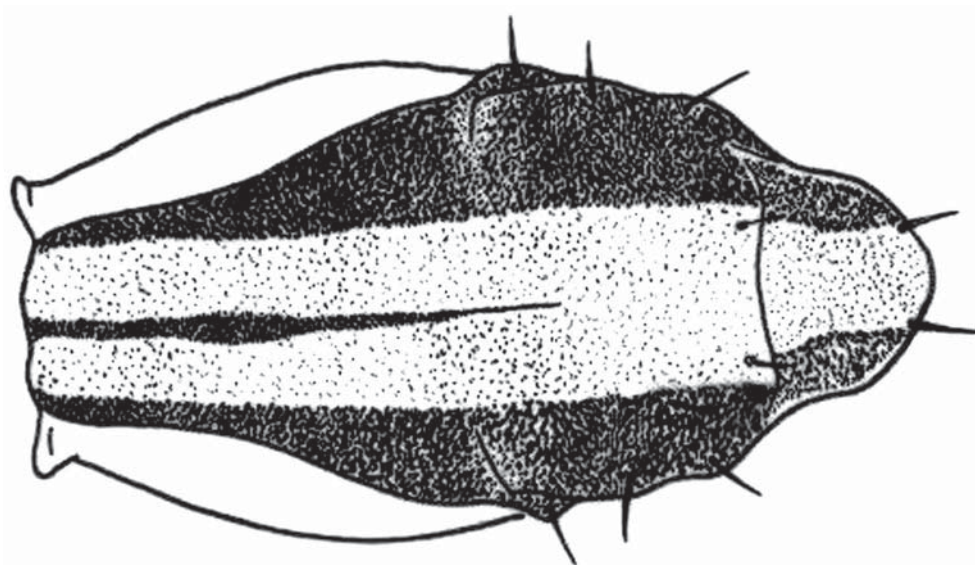


Fig 4. Thorax dorsal view of *Nerius pilifer*.

forming three narrow dark brown vittae, one median that reach anterior edge of pronotum and two lateral that are short and not reach median line of pronotum (Fig. 5).....
*Nerius plurivittatus*

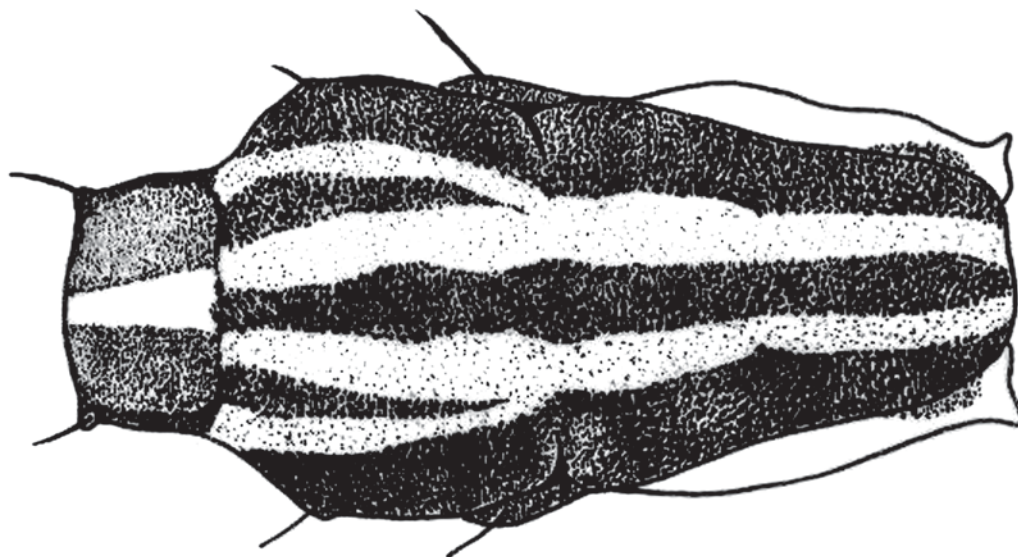


Fig 5. Thorax dorsal view of *Nerius plurivittatus*.

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References

- Aczél, M. 1961. A revision of the American Neriidae (Diptera, Acalyptratae). *Studia Entomol.* 4: 257-346.
- Carvalho, C.J.B., J.R. Almeida & C.B.Jesus. 1984. Dípteros sinantrópicos de Curitiba e arredores (Paraná, Brasil). I. Muscidae. *Rev. Bras. Entomol.* 28: 551-560.
- Olsen, L.E. & R.E.Rickman. 1963. Studies on *Odontoloxozus longicornis* (Diptera: Neriidae). Part 1 Life history and descriptions of immature stages. *Ann. Entomol. Soc. Am.* 56: 454-469.
- Papavero, N. & T.J. Pimentel. 2002. Insecta-Diptera-Neriidae. *Fauna Amaz. Bras.* 21: 1-6.
- Rafael, J.A. 1991. Insetos coletados durante o Projeto Maracá, Roraima, Brasil: Lista Complementar. *Acta Amazôn.* 21: 325-336.
- Steyskal, G.C. 1968. Family Neriidae, 49: 1-7. In N. Papavero (ed.), *A catalogue of the Diptera of the Americas south of the United States*, Departamento de Zoologia, Secretaria da Agricultura, São Paulo, 7p.
- Steyskal, G.C. 1987. Neriidae. p.769-771. In J.F. McAlpine, B.V. Peterson, G.E. Shewell, H.J. Teskey, J.R. Vockeroth & D.M. Wood (eds.), *Manual of Nearctic Diptera Volume 1*, Research Branch, Agriculture Canada, Ottawa, Ontario, 1332p.

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