



Biota Neotropica

ISSN: 1676-0611

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Instituto Virtual da Biodiversidade
Brasil

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Biota Neotropica, vol. 9, núm. 1, enero-marzo, 2009, pp. 271-273
Instituto Virtual da Biodiversidade
Campinas, Brasil

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**First recorded of *Pontomyia* Edwards, 1926
(Diptera: Chironomidae: Tanytarsini) in Brazil**

Ana Lucia Henriques-Oliveira^{1,2}, Rodrigo Adelson Silva¹ & Jorge Luiz Nessimian¹

¹Laboratório de Entomologia, Departamento de Zoologia, Instituto de Biologia,
Universidade Federal do Rio de Janeiro – UFRJ,
Cidade Universitária, CP 68044, CEP 21944-970, Rio de Janeiro, RJ, Brazil

²Corresponding author: Ana Lucia Henriques-Oliveira, e-mail: anahenri@biologia.ufrj.br

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Abstract: Some *Pontomyia* Edwards, 1926 larvae were sampled associated with algae and sediment at Atol das Rocas, Rio Grande do Norte, Brazil. This is the first record of the genus from South Atlantic Ocean.

Keywords: Chironominae, marine midges, Brazilian coast.

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Resumo: Larvas de *Pontomyia* Edwards, 1926 foram coletadas associadas a algas e sedimento no Atol das Rocas, Rio Grande do Norte, Brasil. Este é o primeiro registro do gênero para o Atlântico Sul.

Palavras-chave: Chironominae, insetos marinhos, costa brasileira.

Introduction

The family Chironomidae has a world-wide distribution, occurring in all zoogeographical regions (Ashe et al. 1987, Saether 2000), including the Arctic region, where it represents about 1/5 to 1/2 of the entomofauna (Oliver 1971) and Antarctic, where three species have been recorded so far (Cranston 1995). Species of Chironomidae living in the marine and intertidal zones have been recorded from coasts all over the world. These species belong to several taxonomical groups, including representatives of Telmatogetoninae, Orthoclaadiinae and Chironominae (Pinder 1995). The truly marine genus *Pontomyia* Edwards, 1926 belongs to the subfamily Chironominae and is closely related to *Tanytarsus* van der Wulp, 1874 (Cheng & Hashimoto 1978). *Chironomus* Meigen, 1803 is the other genus of the subfamily with marine representatives (Pinder 1995). Species of *Pontomyia* are found from shallow waters to depth of more than 30 m, associated with green algae, coral reefs or sand (Epler 2001). Recently, Schärer & Epler (2007) recorded the occurrence of *Pontomyia* and *Clunio* Haliday, 1855 larvae as epibiont on seaturtles in coral reefs in Puerto Rico.

All the four described species of *Pontomyia* occur in the Indo-Pacific Ocean (Cheng & Hashimoto 1978, Soong et al. 1999, Huang et al. 2004): *P. natans* Edward 1924, from Samoa Island, Marshall Island, Taiwan, Australia and Japan, with descriptions of male, female, pupae and larvae; *P. cottoni* Wormersley 1937 from Australia, with descriptions of male and female; *P. pacifica* Tokunaga 1964 from Japan, Singapore and Australia with descriptions of male, female, pupae and larvae and *P. oceana* Tokunaga 1964 from Palau Island, Taiwan and The Great Barrier Reef in Australia with descriptions of male, female and pupae. An additional unnamed species occurs in the Atlantic Ocean, and is only known from immature forms recorded from Belize, Puerto Rico and Florida (USA) (Epler 1995, 2001).

The life cycle of species of *Pontomyia* is relatively short. According to Soong et al. (1999), the larval development of *P. natans* and *P. oceana* takes approximately 30 days and the adults live for one or two hours and do not feed. The females are larviform, apterous, lacking antennae and forelegs, the mid and hindlegs are atrophied and unable to move. The imago lives associated to algae in the intertidal zone, same environment of larvae. The males do not fly but are very active, skating on the water surface searching for females (Cheng & Hashimoto 1978).

During surveys carried in a study on the biodiversity of crustaceans and polychaetes of Atoll das Rocas, a reef atoll located off the coast of Rio Grande do Norte State, Brazil, larval specimens of *Pontomyia* were collected. In this article the geographical distribution of *Pontomyia* is extended to include the northeastern coast of Brazil, being the first record of the genus in the South Atlantic.

Material and Methods

A total of 51 larvae of *Pontomyia* was collected in October, 2000, associated with algae and sediment in two sites (Central lagoon - inside the reef ring and "Piscina das Tartarugas"). The reef is ellipsoid, its largest axis (E-W) is approximately 3.7 km long, and the shortest (N-S) is 2.5 km (Almeida et al. 2000). The "Piscina das Tartarugas" is an opening in the reef plateau that is about 3 m depth and 400 m length at low tide, filled by sandy sediments and presenting isolated reef columns.

Some exemplars were clarified in 10% KOH and mounted in slides with Euparal® to optical microscopy. The identification up to generic level was done with the taxonomic keys of Pinder & Reiss (1983) and Epler (1995, 2001). The general terminology follows Sæther (1980). The material is deposited in Coleção Entomológica

Professor José Alfredo Pinheiro Dutra, Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

Description of the Larva (n = 6)

Total length: 3.40-3.70 mm. Color (in alcohol): body pale, white; head capsule light brown.

Head: width: 0.21-0.24 mm, length: 0.26-0.30 mm. Mentum (Figure 1a) with 4 pale lateral teeth and a trifid median tooth; first lateral tooth larger than subsequent ones. Ventromental plates touching medially. Antenna 5-segmented (Figure 1b); antennal base on a short and simple tubercle; Lauterborn organ sessile on apex of second segment; antennal blade not surpassing the fourth segment; ring organ near antennal base; length of antenna: 0.06-0.08 mm. SI (Figure 1c) and SII plumose. Epipharyngeal pecten with 3 lobes apically toothed (Figure 1d). Premandible with 5 teeth (Figure 1e). Mandible (Figure 1f) pale with apical tooth light brown, with three internal teeth and one dorsal; seta subdental long, slender and extending at least to the apical tooth; internal seta with 4 plumose branches; length of mandible: 0.08-0.10 mm.

Abdomen: Total length: 2.20-2.72 mm. Procercus bearing 8 anal setae. Claws of posterior prolegs bifid and small (Figure 1g).

Comments

Previous records of intertidal Chironomidae in Brazil were restricted to species of *Clunio* (Orthoclaadiinae), *Telmatogeton* Schiner, 1866 and *Thalassomyia* Schiner, 1856 (Telmatogetoninae) (Oliveira 1950, 1998, 2000). *Pontomyia* as mentioned previously have species known from Indo-Pacific Ocean. The identity of the southern Florida/Caribbean *Pontomyia* species is unknown, because no males were collected yet. The larvae collected at Atol das Rocas are quite similar in morphology to those described by Epler (1995, 2001). It is possible that these exemplars belong to the same species of Florida and Caribbean. The Brazilian exemplars of *Pontomyia* have mentum, mandible, premandible and posterior parapod claws similar to larvae observed by Epler (2001).

Little has been observed or hypothesized concerning the dispersal abilities of marine flightless midges. Cheng & Hashimoto (1978) offered the hypotheses that males or egg masses would be attached on algae growing on the side of fishing vessels or on free algae that are then dispersed by currents. Schärer & Epler (2007) found *Pontomyia* and *Clunio* larvae epibiontic on sea turtles that were covered with patches of filamentous algae. They pointed out that sea turtles may provide a significant way for long range dispersal for members of *Clunio* and *Pontomyia* which have limited dispersal capabilities. The Atol das Rocas is visited by the same species of sea turtle (Hawksbill sea turtle - *Eretmochelys imbricata* (L.)) studied by Schärer & Epler (2007) and perhaps this is the way for which *Pontomyia* disperse over the Atlantic. According to these authors, the distributions of marine chironomids and *E. imbricata* overlap in Pacific and Caribbean tropical regions.

Acknowledgements

We thank Prof. Dr. Paulo Secchin Young (in memoriam) Departamento de Carcinologia, Museu Nacional, UFRJ for collecting the larvae during the project on the biodiversity of crustaceans and polychaetes of Atol das Rocas (Rio Grande do Norte State, Northeastern Brazil), and posterior donation of the studied material.

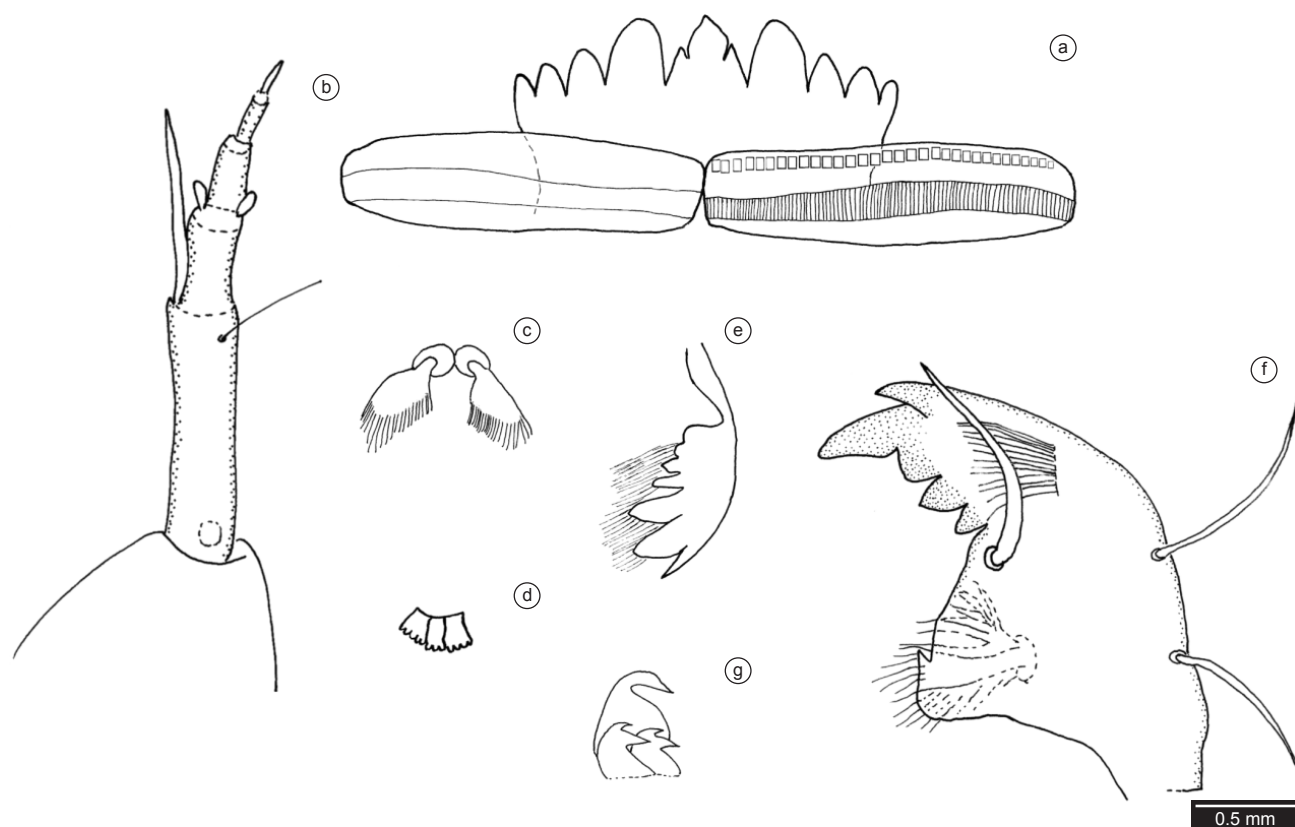


Figure 1. *Pontomyia* sp., larva. a) Mentum and ventromental plates; b) Antenna; c) Seta SI; d) Epipharyngeal pecten; e) Premandible; f) Mandible; g) Claws of anal prolegs.

Figura 1. *Pontomyia* sp., larva. a) Mento e placas ventromentais; b) Antena; c) SI; d) Pente Epifaringeano; e) Pré-mandíbula; f) Mandíbula; g) Garras da pró-pata anal.

References

- ALMEIDA, C.E., MARCHON-SILVA, V., RIBEIRO, R., SERPA-FILHO, A., ALMEIDA, J.R. & COSTA, J. 2000. Entomological fauna from Reserva Biológica do Atol das Rocas, RN, Brazil: I. Morphospecies composition. *Rev. Brasil. Biol.* 60(2):291-298.
- ASHE, P., MURRAY, D.A. & REISS, F. 1987. The Zoogeographical distribution of Chironomidae (Insecta: Diptera). *Ann. Limnol.* 23(1):27-60.
- CHENG, L. & HASHIMOTO, H. 1978. The marine midge *Pontomyia* (Chironomidae) with a description of females of *P. oceana* Tokunaga. *Syst. Entomol.* 3:189-196.
- CRANSTON, P.S. 1995. Introduction. In *The Chironomidae: biology and ecology of non-biting midges* (P.D. Armitage, P.S. Cranston & L.C. Pinder, eds). Chapman & Hall, London, p.1-17.
- EPLER, J.H. 1995. Identification manual for the larvae Chironomidae (Diptera) of Florida. Department of Environmental Protection, Division of Water Facilities, Tallahassee.
- EPLER, J.H. 2001. Identification manual for the larval Chironomidae (Diptera) of North and South Carolina. Department of Environmental and Natural Resources, Division of Water quality, Raleigh and St. Johns River Water Management District, Palatka. 526p. Special Publication SJ2001-SP13. Available from: <<http://www.esb.enr.state.nc.us/BAUwww/Chironomid.htm>>. (último acesso em 27/11/2008).
- HUANG, M.L., LIN, C.S. & SOONG, K. 2004. Factor effects testing for mixture distributions with application to the study of emergence of *Pontomyia oceana*. *J. Data Sci.* 2:213-230.
- OLIVER, D.R. 1971. Life history of the Chironomidae. *Ann. Rev. Entomol.* 12:211-230.
- OLIVEIRA, S.J. 1950. Sobre duas novas espécies neotrópicas do gênero *Telmatogeton* Schiner, 1866 (Diptera, Chironomidae). *Mem. Inst. Oswaldo Cruz*, 48:469-485.
- OLIVEIRA, S.J. 1998. Contribuição ao conhecimento dos Chironomidae marinhos (Insecta, Diptera) do litoral brasileiro. Tese de Doutorado, Instituto Oswaldo Cruz, Rio de Janeiro.
- OLIVEIRA, S.J. 2000. Contribution to the knowledge of the Brazilian marine chironomids. I. Description of a new species of the genus *Telmatogeton* Schiner, 1896 (Diptera, Chironomidae, Telmatogetoninae). In *20th Century Research on Chironomidae: an anthology from the 13th International Symposium on Chironomidae* (O. Hoffrichter, ed.). Shaker Verlag, Aachen, p. 183-188.
- PINDER, L.C.V. & REISS, F. 1983. 10 - The larvae of Chironomidae (Diptera: Chironomidae) of Holarctic region. - Keys and diagnoses. Part I: Larvae. *Ent. Scan. Suppl.* 19:293-435.
- PINDER, L.C.V. 1995. The habitats of chironomid larvae. In *The Chironomidae: biology and ecology of non-biting midges* (P.D. Armitage, P.S. Cranston & L.C.V. Pinder, eds). Chapman & Hall, London, p. 107-135.
- SAETHER, O.A. 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). *Ent. Scan. Suppl.* 14:1-51.
- SAETHER, O.A. 2000. Zoogeographical patterns in Chironomidae (Diptera). *Verh. Int. Verein. Limnol.* 27:290-302.
- SCHÄRER, M.T. & EPLER, J.H. 2007. Long-term dispersal possibilities via sea turtle: a case for *Clunio* and *Pontomyia* (Diptera: Chironomidae) from Puerto Rico. *Entomol. News*, 118(3):273-277.
- SOONG, K., CHEN, G.F. & CAO, J.R. 1999. Life history studies of the flightless marine midges *Pontomyia* spp. (Diptera: Chironomidae). *Zool. Stud.* 38(4):466-473.

Data Received 20/11/08

Revised 25/02/09

Accepted 02/03/09

