

Annellida, Hirudinea, Piscicolidae, *Stibarobdella macrothela* (Schmarda, 1861): First report for northeastern Brazil

Jessika O. P. Alves^{1, 2*}, Felipe A. C. Monteiro^{2, 3, 4}, Helena Matthews-Cascon^{2, 3} and Paulo Cascon²

¹ Universidade Federal da Bahia (UFBA), Instituto de Biologia. Rua Barão de Geremoabo, 147, Ondina. CEP 40170-290. Salvador, Bahia, Brasil.

² Universidade Federal do Ceará, Departamento de Biologia. Campus do Pici, Bloco 906. CEP 60455-760. Fortaleza, CE, Brasil.

³ Universidade Federal do Ceará, Instituto de Ciências do Mar (LABOMAR), Programa de Pós-Graduação Ciências Marinhas Tropicais. Avenida da Abolição, 3207, Meireles. CEP 60165-081. Fortaleza, CE, Brasil.

⁴ Instituto Federal de Educação, Ciência e Tecnologia do Ceará (IFCE), Campus Jaguaribe. Rua Pedro Bezerra de Menezes, 171, COHAB. CEP 63475-000. Jaguaribe, CE, Brasil.

* Corresponding author. E-mail: jessika.aop@gmail.com

ABSTRACT: This is the first report of *Stibarobdella macrothela*, a parasitic marine leech, for Ceará (Northeastern Brazil), the second report for Brazil, and the first report for the genus *Stibarobdella* in Northeastern Brazil. Two specimens separated from the host shark *Carcharhinus* sp. were identified in the invertebrate collection at LIMCe (Laboratório de Invertebrados Marinhos do Ceará, Universidade Federal do Ceará). This record shows that the distribution of the *S. macrothela* is continuous in the Western Atlantic Ocean. Here, a brief description of the morphology and a new distributional map of the species is presented.

DOI: 10.15560/10.5.1161

Marine leeches, especially those with parasitic habits, are important components of the ecosystem (Siddal and Bureson 1998; Utevsky and Trontelj 2004; Wunderlich *et al.* 2011). Approximately twenty species of marine leeches, all of which of the family Piscicolidae, feed on blood from sharks and rays and are known to be vectors of elasmobranch hematozoa (Caira and Healy 2004; Utevsky and Trontelj 2004). Most piscicolids are circumglobal in tropical and subtropical oceans (Utevsky and Trontelj 2004). Marine leeches feeding on elasmobranchs have previously been reported for

Southern and Southeastern Brazil by Schlensz (1999), Soto (2000; 2003) and Wunderlich *et al.* (2011). This is the first report of the genus *Stibarobdella* for Northeastern Brazil.

Two specimens isolated from the host were identified in the invertebrate collection at LIMCe (Laboratório de Invertebrados Marinhos do Ceará). The specimens were collected off Paracuru town, a coastal location in Ceará State, Northeastern Brazil (3°25'31" S, 39°1'29" W), at a depth of 40 m on July 13th, 1977. The host elasmobranch from which the specimens were retrieved

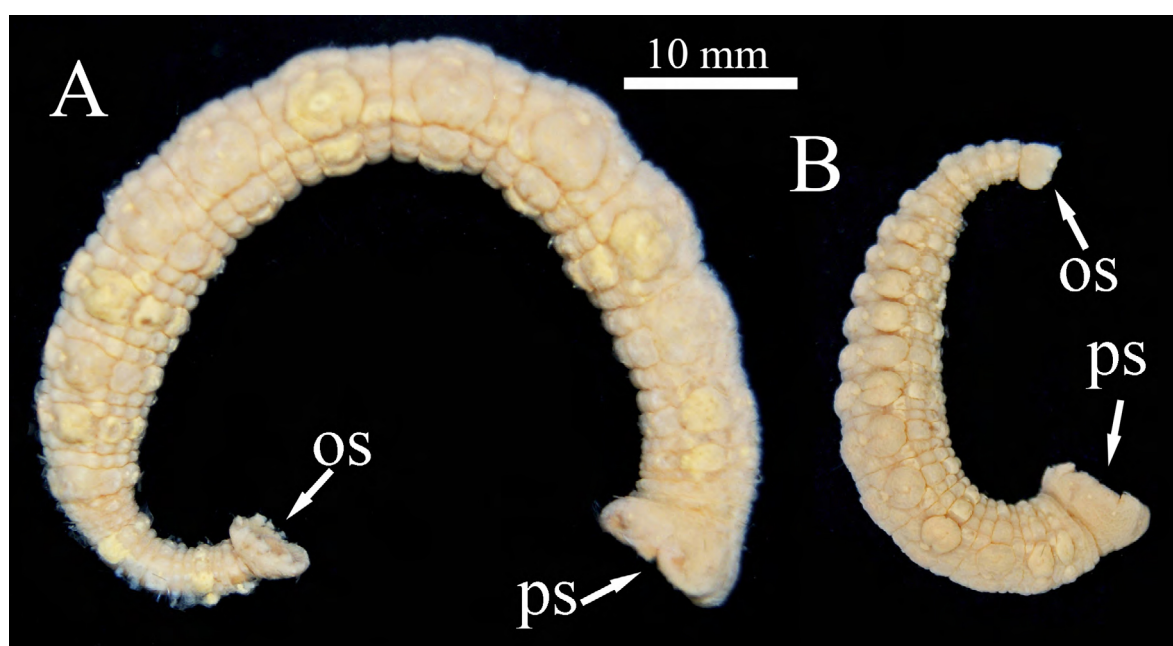


FIGURE 1. Specimens of *Stibarobdella macrothela* (LIMCE-0001-AN-H) from Paracuru, Ceará, Brazil (3°25'31" S, 39°1'29" W). Abbreviations: os – oral sucker and ps – posterior sucker. A – Measurements: 75.0 mm of total body length, 8.0 mm of posterior sucker diameter and 3.5 mm of anterior sucker diameter. B – Respective measurements: 30.0 mm, 4.5 mm and 2.0 mm.

was not found in the collection but was recorded to be of the genus *Carcharhinus*, with no indication of the site of infestation. The two specimens had a total body length of 75.0 and 30.0 mm, a posterior sucker diameter of 8.0 and 4.5 mm and an anterior sucker diameter of 3.5 and 2.0 mm. The voucher specimens were catalogued at LIMCe (Laboratório de Invertebrados Marinhos do Ceará, Universidade Federal do Ceará/UFC) under entry # LIMCE-0001-AN-H.

Our specimens matched descriptions of *S. macrothela* by Llewellyn (1966), Sawyer *et al.* (1975) and Furiness *et al.* (2007) with regard to the characteristics that differentiate the species within the genus *Stibarobdella*: (1) a distinct pattern of tubercles, and (2) a relaxed posterior sucker two or three times the size of the oral sucker (Figure 1). Due to damage to the anterior sucker, the presence of trumpet-shaped eyes could not be confirmed for our specimens.

The genus *Stibarobdella* has previously been described for Southern and Southeastern Brazil (Soto 2003; Wunderlich *et al.* 2011). Furthermore the first report of the species *S. macrothela* in Brazil was published by Soto (2000) for the Southern region. This species was first registered in Jamaica, but is now known to be circumglobal in tropical and subtropical oceans (Llewellyn 1966; Sawyer *et al.* 1975; Williams 1982; Furiness *et al.* 2007). Nevertheless this is the first report of the species for Northeastern Brazil (Figure 2).

The known distribution of *S. macrothela* in tropical and subtropical oceans worldwide coincides with that of its elasmobranch hosts, especially sharks of the genus *Carcharhinus* (Llewellyn 1966; Nelson 2006; Furiness *et al.* 2007; Bonfil *et al.* 2009). It may be noted that 10 species of *Carcharhinus* occur along the coast of Ceará: *Carcharhinus falciformis*, *C. leucas*, *C. limbatus*, *C. longimanus*, *C. obscurus*, *C. perezi*, *C. plumbeus*, *C. porosus* and *C. signatus* (Jucá-Queiroz *et al.* 2008). These shark species likely serve as hosts for *S. macrothela*.

Lastly, the present report fills the gap in the distribution of *Stibarobdella macrothela* between the Caribbean Sea and Southern Brazil, indicating, as expected, that the distribution of the species is continuous in the Western Atlantic Ocean.

ACKNOWLEDGMENTS: The authors would like to thank Dr. Eugene M. Bureson from the Virginia Institute of Marine Science for scientific support and Jesper R. Sampaio for reviewing the English text. They would like also to thank the anonymous reviewers for their valuable comments that improved this paper.

LITERATURE CITED

- Bonfil, R., A. Amorim, C. Anderson, R. Arauz, J. Baum, S.C. Clarke, R.T. Graham, M. Gonzalez, M. Jolón, P.M. Kyne, P. Mancini, F. Márquez, C. Ruiz and W. Smith. 2009. *Carcharhinus falciformis*. In IUCN 2011. *IUCN Red List of Threatened Species*. Version 2011.2. Accessible at <http://www.iucnredlist.org/details/39370/0>. Captured on 09 April 2012.
- Caira, J.N. and C.J. Healy. 2004. Elasmobranchs as Hosts of Metazoan Parasites; pp. 523–551, in: J.C. Carrier, J.A. Musick and M.R. Heithaus (eds.). *Biology of Sharks and Their Relatives*. New York: CRC Press.
- Furiness, S., J.I. Williams, K. Nagasawa and E.M. Bureson. 2007. A collection of fish leeches (Hirudinida: Piscicolidae) from Japan and surrounding waters, including redescription of three species. *Journal of Parasitology* 93(4): 875–883 (doi: 10.1645/GE-979R1.1).

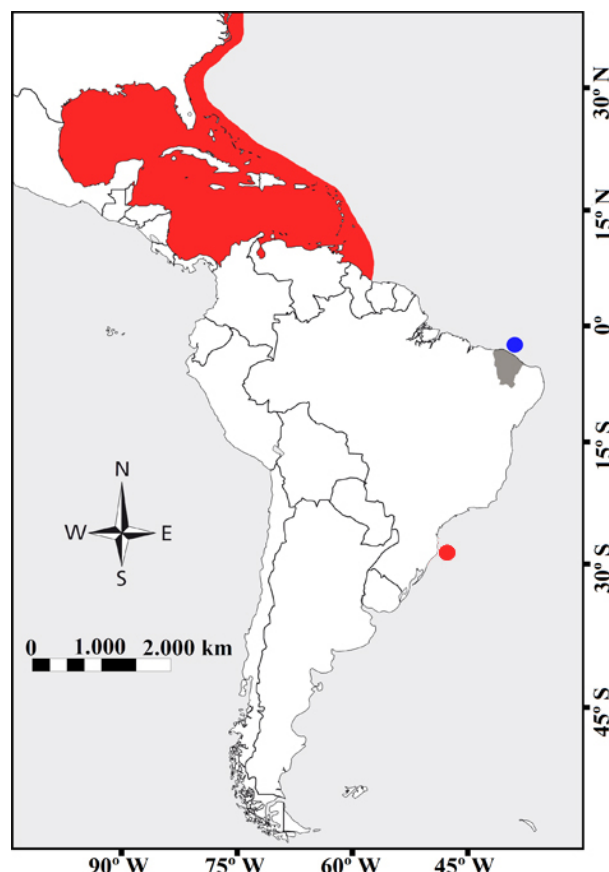


FIGURE 2. Distribution map of *Stibarobdella macrothela* in the Western Atlantic Ocean. Red: Previous records. Distribution in the Northern Hemisphere according to Llewellyn (1966), Sawyer *et al.* (1975), Williams (1982) and Furiness *et al.* (2007), and a single report from the Southern Hemisphere by Soto (2000). Blue: The two specimens reported here were collected off Paracuru, a coastal location in Ceará, Northeastern Brazil (3°25'31\" S, 39°1'29\" W).

- Jucá-Queiroz, B., J. Santander-Neto, R.S. Medeiros, F.C.P. Nascimento, M.A.A. Furtado-Neto, V.V. Faria and G. Rincon. 2008. Cartilaginous fishes (Class Chondrichthyes) off Ceará State, Brazil, Western Equatorial Atlantic—An Update. *Arquivos de Ciências do Mar* 41(2): 73–81.
- Llewellyn, L.C. 1966. Pontobdellinae (Piscicolidae: Hirudinea) in the British Museum (Natural History) with a review of the subfamily. *Bulletin of the British Museum (Natural History) Zoology* 14: 391–439 (<http://biodiversitylibrary.org/page/40573123>).
- Nelson, J.S. 2006. *Fishes of the World*. 4th ed. New York: John Wiley and Sons. 601 pp.
- Sawyer, R.T., A.R. Lawler and R.M. Overstreet. 1975. Marine leeches of the eastern United States and the Gulf of Mexico with a key to the species. *Journal of Natural History* 9: 633–667 (doi: 10.1080/0022937500770531).
- Schlenn, E. 1999. Hirudinea; pp. 183–184, in: A.E. Migotto and C.G. Tiago (eds.). *Biodiversidade do Estado de São Paulo, Brasil: síntese do conhecimento ao final do século XX. 3: Invertebrados Marinhos*. São Paulo: Fundação de Amparo a Pesquisa do Estado de São Paulo.
- Siddall, M.E. and E.M. Bureson. 1998. Phylogeny of leeches (Hirudinea) based on mitochondrial cytochrome *c* oxidase Subunit I. *Molecular Phylogenetics and Evolution* 9(1): 156–162 (doi: 10.1006/mpev.1997.0455).
- Soto, J.M.R. 2000. Marine leech, *Stibarobdella macrothela* (Schmarda, 1861) (Hirudinea, Piscicolidae), parasitic on the whaler shark, *Carcharhinus brachyurus* (Günther, 1870) (Chondrichthyes, Carcharhinidae), in southern Brazilian waters. *Revista Brasileira de Biologia* 60(4): 713–714 (doi: 10.1590/S0034-71082000000400024).
- Soto, J.M.R. 2003. The marine leech *Stibarobdella loricata* (Harding, 1924) (Hirudinea, Piscicolidae), parasitic on the angel shark *Squatina* spp. and sandtiger shark *Carcharias taurus* Rafinesque, 1810 (Chondrichthyes: Squatinidae, Carchariidae) in Southern Brazilian waters. *Brazilian Journal of Biology* 63(4): 691–694 (doi: 10.1590/S0034-71082000000400024).
- Utevsky, S.Y. and P. Trontelj. 2004. Phylogenetic relationships of fish

- leeches (Hirudinea, Piscicolidae) based on mitochondrial DNA sequences and morphological data. *Zoologica Scripta* 33(4): 375–385 (doi: 10.1111/j.0300-3256.2004.00156.x).
- Williams, E.H. Jr. 1982. Leeches of some marine fishes of Porto Rico and adjacent regions. *Proceedings of the Helminthological Society of Washington* 49: 323–325.
- Wunderlich, A.C., O.B.F. Gadig, T.V. Júnior and M.A.A. Pinheiro. 2011. Annelida, Hirudinida, *Stibarobdella moorei* (Oka, 1910): New distribution and host records. *CheckList* 7(3): 360–362 (<http://www.checklist.org.br/getpdf?NGD054-11>).
- RECEIVED: April 2013
ACCEPTED: July 2014
PUBLISHED ONLINE: October 2014
EDITORIAL RESPONSIBILITY: Simone Chinicz Cohen