

***Oswaldotrema nacinovici* gen. nov. sp. nov. (Digenea: Philophthalmidae) from *Numenius phaeopus* (Aves: Scolopacidae) in Brazil**

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A new genus, Oswaldotrema gen. nov. is proposed. Oswaldotrema nacinovici sp. nov. is described from Numenius phaeopus Latham, 1790. Differentiation from the other related genera, namely Philophthalmus, Pygorchis, Proctobium, Parorchis, Echinostephila, Cloacitrema, Pittacium, Ophthalmotrema, Skrjabinovermis and Paratrema, was based on morphological characters, mainly on those referring to the body surface, body shape, head, esophagus, pharynx, acetabulum, vitellaria, vitelline reservoir and seminal vesicle.

Key words: Digenea - Philophthalmidae - new taxa - Scolopacidae - birds - Brazil

Digeneans parasites of the whimbrel, *Numenius phaeopus* Latham, 1790, were subject of several studies, many of them summarized by Dronen and Badley (1979). The present paper is the first to refer a helminth parasitizing *N. phaeopus* in Brazil, despite the efforts of great Brazilian helminthologists that in this century established the Helminthological Collection of the Instituto Oswaldo Cruz (CHIOC), the biggest in South America, based on large field works, reinforcing the importance of collecting vertebrate hosts, in order to increase the amount of data related to biodiversity in our country.

The subfamily Philophthalminae Looss, 1899, allocated by Looss (1899) in the family Fasciolidae Railliet, 1895, was elevated by Travassos (1918) to the rank of family as Philophthalmidae, to accommodate the genera *Philophthalmus* Looss, 1899, *Pygorchis* Looss, 1899 and *Proctobium* Travassos, 1918. Seven genera are presently included to this family, *Parorchis* Nicoll, 1907; *Echinostephila* Lebour, 1909; *Cloacitrema* Yamaguti, 1935; *Pittacium* Szidat, 1939 for the species *Distomum pittacium* Braun, 1901; *Ophthalmotrema* Sobolev, 1943; *Skrjabinovermis* Belopolskaya, 1953 and *Paratrema* Dronen & Badley, 1979.

MATERIALS AND METHODS

The two specimens (one male and one female) of *Numenius phaeopus* Latham, 1790, and the helminth (from the female) were collected and processed for study, respectively, as reported earlier (Muniz-Pereira & Amato 1995, 1998). Capture of the hosts occurred between October 1989 and October 1990, in the mouth of Piraque river and adjoining mudflat areas (Pedra de Guaratiba), Rio de Janeiro, State of Rio de Janeiro, Brazil. Birds were deposited as type host specimens, *sensu* Brooks (1993), in the Ornithological Collection of the Museu Nacional do Rio de Janeiro (UFRJ). The ecological term (prevalence) is used according to Bush et al. (1997). Measurements are in micrometers, unless otherwise stated. Photomicrographs were obtained in a Zeiss mod. Axiophot system and the figure was achieved with the aid of a drawing tube connected to an Olympus CBA brightfield microscope. Type specimen was deposited in the CHIOC, Rio de Janeiro, RJ, Brazil. Studied specimens were obtained from CHIOC, Harold W Manter Laboratory of Parasitology (HWML), Museum für Naturkunde Humboldt Universität Berlin, Naturhistorisches Museum Wien and United States National Parasite Collection (USNPC).

RESULTS

Oswaldotrema gen. nov.
(Figs 1-5)

Diagnosis: body, elliptical. Oral sucker terminal, width less than half of that of acetabulum; head collar absent (Fig. 4); prepharynx short. Esophagus long, without crenulations, bifurcating in front of the genital pore; ceca extending to near poste-

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rior end of body, distally inflated. Acetabulum in middle third of body, nearly equatorial. Testes juxtaposed, lobed, just posterior to germarium, between the two cecal ends. External seminal vesicle tubular, extending dorsally and longitudinally beyond acetabulum (Fig. 2). Cirrus sac small. Germarium nearly median; uterine seminal receptacle conspicuous (Fig. 5). Vitellaria follicular, extending longitudinally from near the end of the external seminal vesicle to testes; vitelline reservoir absent. Uterus intercecal, not intertesticular; metraterm long; eggs containing ocelate miracidia (Figs 1b, 3). Excretory vesicle V shaped.

Etiology: this genus is named after Dr Oswaldo Gonçalves Cruz, in recognition of his contribution to science, in the centenary of the Instituto Oswaldo Cruz.

Type species: *Oswaldotrema nacinovici* sp. nov.

Oswaldotrema nacinovici sp. nov.
(Figs 1-5)

Description: with the characteristics of the genus. Body 3.71 mm long, greatest width 1.22 mm at hindbody. Oral sucker 280 long, 260 wide; prepharynx 70 long; pharynx 140 long, 150 wide. Esophagus 530 long, 80 wide; ceca extending up to 91% of the body length. Acetabulum 670 long, 590 wide. Left testis 410 long, 360 wide, right 290 long, 340 wide, distance between the end of the testes level and posterior extremity of the body 350 long. External seminal vesicle extends 172 posterior to acetabulum. Germarium 137 long, 151 wide; oviducts leaves germarium at posterior end; uterine seminal receptacle filled with sperm, 57 in greatest width. Extension of the vitellaria 950 long, in hindbody. Eggs 61-68 long (median = 65, n = 5), 29 wide.

Etiology: this species is named after Prof. Jorge Bruno Nacinovic, Museu Nacional do Rio de Janeiro, for his works devoted to ornithology.

Taxonomic summary

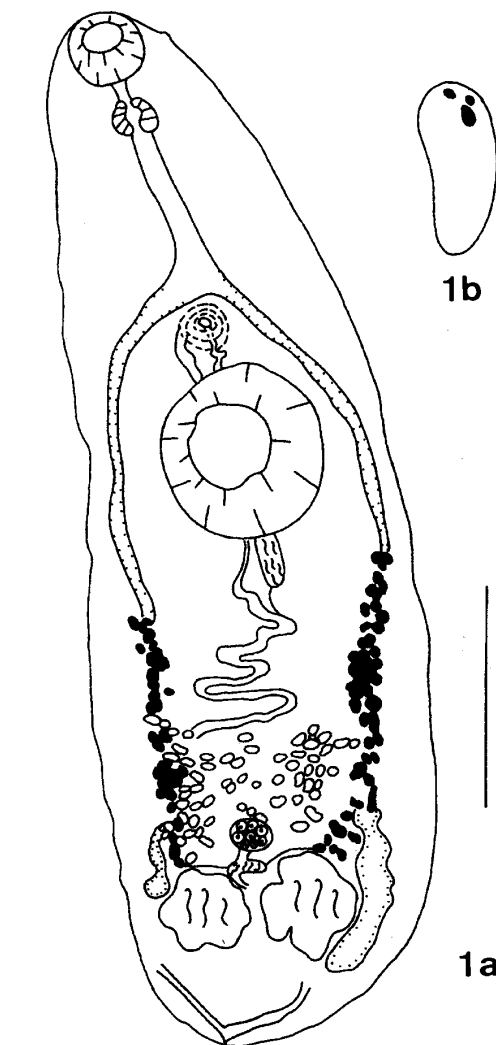
Type host: *Numenius phaeopus* Latham, 1790 (female), whimbrel, “maçarico-de-bico-torto”

Site of infection: anterior intestine

Type locality: mouth of Piraque river (Pedra de Guaratiba), Rio de Janeiro, State of Rio de Janeiro, Brazil

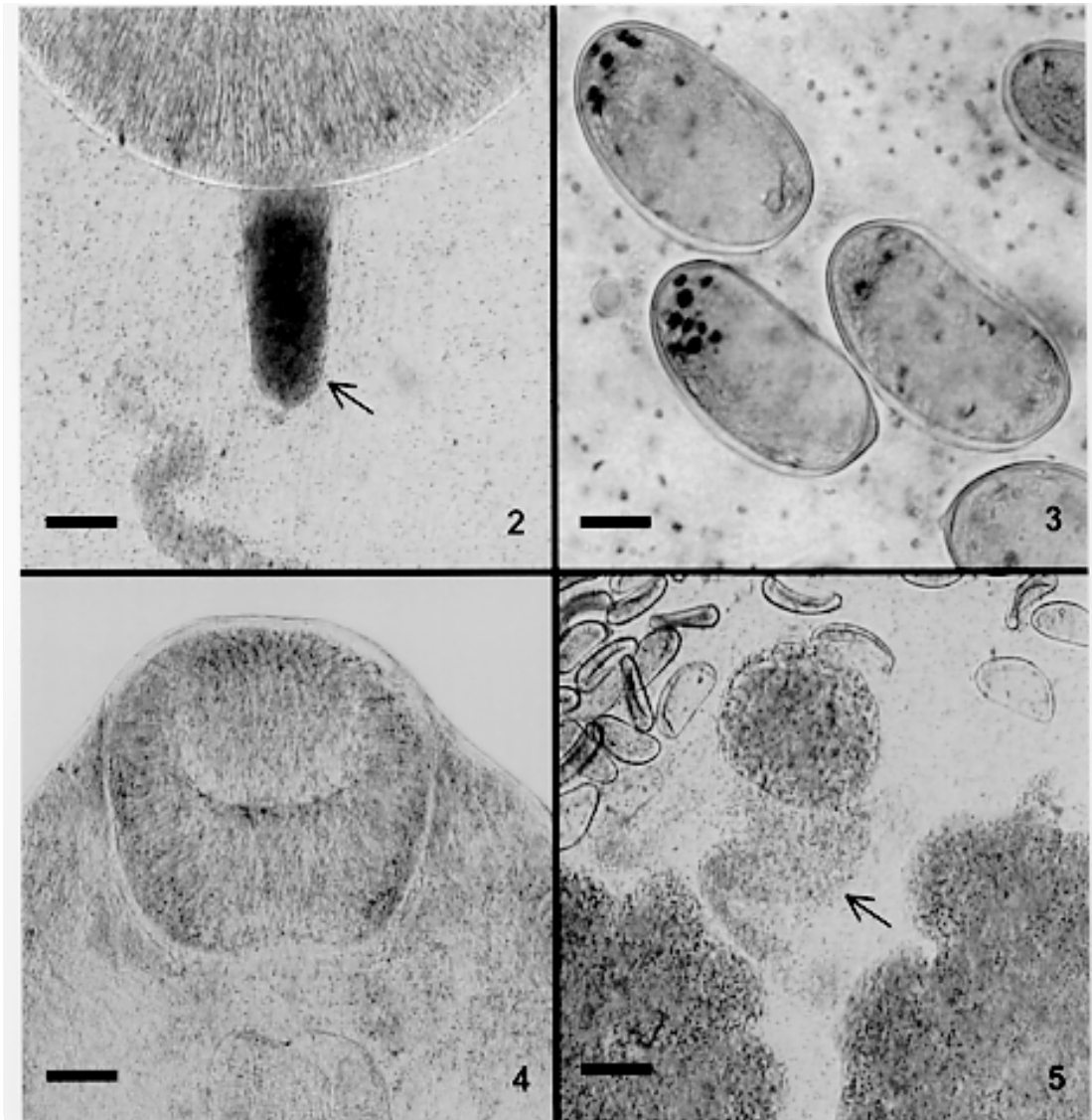
Prevalence: 50%

Specimens studied: CHIOC 1288, 11303a-f (*Proctobium proctobium*, holotype and vouchers), 10697 (*Cloacitrema oswaldoi*, holotype), 16882-16886 (*Philophthalmus lachrymosus*, vouchers), 33049a-b (*Philophthalmus gralli*, vouchers). HWML 20863 (*Philophthalmus pulchrus*, paratype), 30799, 33909, 37036, 38223 (*Parorchis acanthus*, vouchers), 30823 (*Cloacitrema*



Oswaldotrema nacinovici gen. nov. sp. nov. Fig. 1a: total, ventral view. Fig. 1b: eggs. Bar = 0.08 mm.

michiganensis, voucher), 34849 (*Philophthalmus hovorkai*, paratype). Museum für Naturkunde Humboldt Universität Berlin 1435, 1436 (*Philophthalmus lucipetus*, syntypes), 7243 (*Philophthalmus hovorkai*, syntype). Naturhistorisches Museum Wien 3305-3309, 3311 (*Philophthalmus lucipetus*, vouchers), 3310 (*Philophthalmus hovorkai*, voucher), 4661 (*Pittacium pittacium*, holotype). USNPC 7942, 43491 (*Parorchis avitus*, vouchers), 9667 (*Pygorchis affixus*, holotype), 74866, 74867 (*Paratrema numenii*, holotype and paratype), 75993 (*Pygorchis americanus*, paratype), 78473, 80794, 81090 (*Parorchis acanthus*, vouchers). Specimen deposited: holotype – CHIOC 34195



Oswaldotrema nacinovici gen. nov. sp. nov. Fig. 2: acetabular area, external seminal vesicle (arrow), ventral view. Fig. 3: eggs. Fig. 4: anterior extremity, ventral view. Fig. 5: ootype area, uterine seminal receptacle (arrow), ventral view. Figs 2, 4, 5, bar = 0.06 mm. Fig. 3 bar = 0.017 mm.

REMARKS

The new genus is closely related to *Parorchis* Nicoll, 1907 and *Pygorchis* Looss, 1899, but differs from the former in the absence of the head collar and body spines, and from the latter in the longitudinal disposition of the vitellaria and by having a longer esophagus. Also, *Pygorchis* has a relatively large pharynx when compared to *Oswaldotrema* gen. nov., that has the diameter of the pharynx almost the half of that of the oral sucker. *Philophthalmus* Looss, 1899, can be characterized by the absence of the external seminal vesicle, present in the genus described herein.

Proctobium Travassos, 1918, was synonymized with *Parorchis* by Yamaguti (1971), although *Proctobium* differs from the latter by the anterior extent of the vitellaria, the absence of crenulations on the esophagus, and the lack of vitelline reservoir. *Proctobium* can be distinguished from *Oswaldotrema* gen. nov. by the absence of the head collar.

The most similar genera to the new genus proposed here are *Cloacitrema* Yamaguti, 1935 and *Pittacium* Szidat, 1939, that were allocated in the subfamily Cloacitrematinae Yamaguti, 1958 by Yamaguti (1971). *Oswaldotrema* gen. nov. differs from *Cloacitrema* by the longer length of the

esophagus, that is almost absent in *Cloacitrema*, and by the position of the acetabulum, that is postequatorial in *Cloacitrema*. In relation to *Pittacium*, it can be easily distinguished from the new genus, by the shape of the body, that is pear-shaped, and not elliptical as *Oswaldotrema* gen. nov. is. Another differential character is the oral sucker/acetabulum ratio, that in *Pittacium* is 1:0.27 and in *Oswaldotrema* gen. nov. is 1:0.42. The distribution of the vitellaria differs in *Oswaldotrema* gen. nov. and in *Pittacium*, reaching the acetabular level in the latter and not in the former. In the new genus the testes width is twice the germarium width, whereas in *Pittacium* these structures present almost the same width.

Lack of data on parasites of *N. phaeopus* in Brazil is probably due to migratory habits of this bird. Considering that the first arrivals in Brazilian wintering grounds occur in September (Hayman et al. 1986), this fact may reduce the opportunity of collecting this host, except for a few non-breeders, that overwinter (Nacinovic 1999 pers. comm.).

According to McNeil et al. (1994, 1995), parasites interfere with migration of their hosts, considering that trematode infection might prevent or delay moulting and fattening in wintering shorebirds. These factors could shed some light in the oversummer and overwinter phenomena, in addition to the hypotheses proposed by previous authors (McNeil 1994). It emphasizes the importance of the studies related to parasites of migratory birds, like *Numenius phaeopus*, that stay on wintering grounds in Brazil, and possibly are also affected by parasite infections, in relation to the migration to breeding grounds in the northern hemisphere.

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