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VERSITA

Description of a new species of *Dolichorchis* (Digenea, Diplostomidae) in the cocoi heron, *Ardea cocoi* (Aves, Ardeidae), from Argentina

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Abstract

Dolichorchis lacombeensis sp. nov., a digenean parasite of the gut of the cocoi heron, *Ardea cocoi* (L.), is described as a new species from Buenos Aires Province, Argentina. This new species most closely resembles *D. buteii* and *D. tregenna* in the distribution of the vitelline follicles, which reach the intestinal bifurcation in the forebody. *D. buteii* can be distinguished from *D. lacombeensis* sp. nov. by the distribution of the vitelline follicles in the hindbody, which are concentrated in midline, by the presence of a sphincter in genital pore and by the size of holdfast organ and posterior testis, which are larger, (240–400 × 176–240 and 315–464 × 240–410 µm, respectively). *D. tregenna* differ from the new species by their larger measurements (pseudosuckers' length 90–100, pharynx 52–90 × 50–70 and eggs 89–104 × 48–68 µm).

Key words

Dolichorchis lacombeensis sp. nov., Digenea, Diplostomidae, *Ardea cocoi*, birds, Argentina

Introduction

During a parasitological survey of birds from the Lacombe Lagoon, Buenos Aires Province, Argentina, specimens of a species of *Dolichorchis* Dubois, 1961 were collected from the intestine of *Ardea cocoi* (L.) (Ardeidae). Members of this genus are diplostomoid digeneans that differ from other genera within the family by the presence of an anterior testis which is asymmetrical; a posterior testis which is symmetrical with elongate lobes; and a copulatory bursa enclosing the genital cone (Niewiadomska 2002). At present, the only known species of *Dolichorchis* in Neotropical region is *D. bonariensis* Ostrowski de Núñez, 1970 [as *Diplostomum* (*Dolichorchis*) *bonariensis*], which was found in the gut of *Phalacrocorax brasilianus* (Gmelin) (Phalacrocoracidae) from Buenos Aires Province (Ostrowski de Núñez 1970). In the present report, a new species of *Dolichorchis* is described.

Materials and methods

One specimen of *Ardea cocoi* was captured in September 2003 at Lacombe Lagoon, Chascomús, Buenos Aires Province. The bird was dissected in the field and twelve specimens were fixed unflattened in hot formalin and preserved in formalin. Whole-mount specimens were stained in hydrochloric carmine and mounted in Canada balsam. In order to facilitate handling and observation, the specimens were mounted between two microscope coverslips. Drawings were made with the aid of a camera lucida. Unless otherwise stated, measurements are given in micrometers (µm); the range is followed by the mean in parentheses. The material studied was deposited in Helminthological Collection of the Museo de La Plata, Argentina.

Results

***Dolichorchis lacombeensis* sp. nov.** (Figs 1–3)

Description based on 12 whole-mounted specimens: Body fusiform, distinctly bipartite, 1.027–1.123 (1.096) mm length. Forebody spatulate, 619–720 × 317–379 (688 × 350); hindbody conical, 470–509 × 235–250 (488 × 244). Ratio of forebody length to hindbody length 1:1.25–1.53 (1:1.41). Anterior part of forebody to the ventral sucker or the holdfast organ

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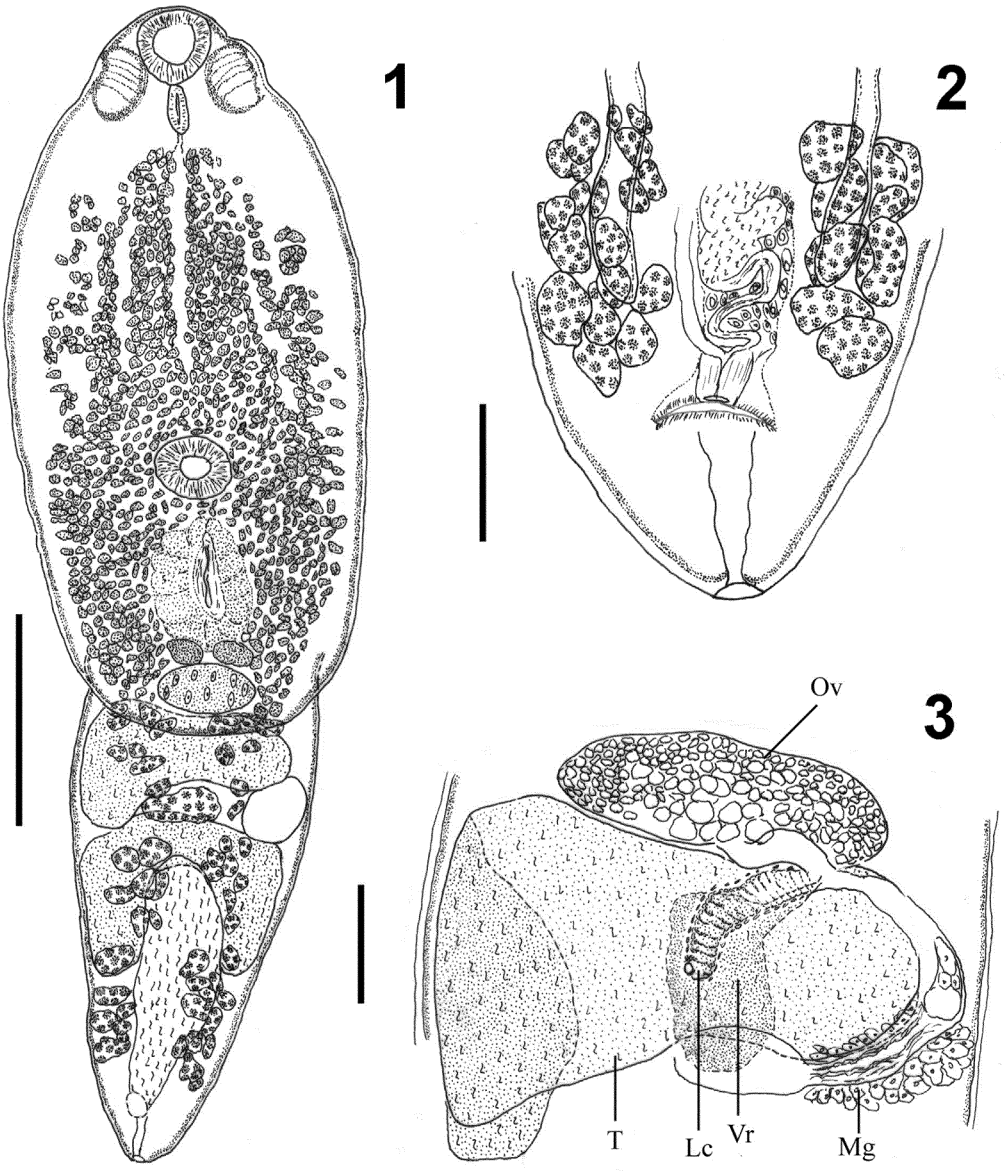
covered by fine spines. Oral sucker, 67–78 × 74–78 (71 × 77), subterminal nearly the same size as the ventral sucker, 62–77 × 74–87 (67 × 80), located in middle third of forebody. Pseudosuckers, 58–69 × 44–58 (64 × 50), smaller than the oral sucker. Ratio of oral sucker length/pseudosuckers' length 1:1.1–1.2 (1:1.1). Ratio of body length/pseudosuckers' length 1:16–18 (1:17). Ratio of forebody length/pseudosuckers' length 1:9.8–11.6 (1:10.7). Distance between oral sucker and ventral sucker 269–361 (334). Suckers width ratio 1:0.90–1 (1:0.93). Holdfast organ oval, 116–141 × 103–116 (129 × 111), immediately posterior to the ventral sucker, 14–29 (22); proteolytic gland at junction of fore- and hindbody. Ratio of body length/holdfast organ length 1:8–8.9 (1:8.5). Ratio of forebody length/holdfast organ length 1:4.9–5.7 (1:5.3). Prepharynx absent; pharynx small, 46–51 × 23–31 (49 × 26); oesophagus short, 19–34 (24); intestinal caeca reach into posttesticular region. Ratio of oral sucker length to pharynx length 1:1.4–1.5 (1:1.48). Ratio of pseudosuckers' length to pharynx length 1:1.2–1.4 (1:1.3). Testes tandem, relatively large, extended transversally occupying whole width of hindbody; anterior testis asymmetrical, 207–216 (210) in width, curved; lobe 126–145 × 53–115 (134 × 84); posterior testis longer than anterior, symmetrical, bilobed, with elongate lobes; 187–223 (212) in width; lobes 138–195 × 53–115 (173 × 73). Seminal



Figs 1–3. *Dolichorchis lacombeensis* sp. nov. from *Ardea cocoi*. **1.** Holotype, entire worm ventral view. Scale bar = 200 µm. **2.** Enlarged ventral view of terminal genitalia. Scale bar = 50 µm. **3.** Enlarged dorsal view of proximal female genitalia. Scale bar = 50 µm. Abbreviations: Lc – Laurer's canal, Mg – Mehlis' gland, Ov – ovary, T – anterior testis, Vr – vitelline receptacle

vesicle posterior to testes, long, sacciform, ventro-medial, 161–235 (196). Copulatory bursa not protrusible, with genital pore dorso-subterminal, enclosing small genital cone and hermaphroditic duct. Ovary median, ellipsoidal, pretesticular, at junction of fore- and hindbody, 44–61 × 107–135 (51 × 120). Oviduct short; Laurer's canal conspicuous, opening dorsally immediately posterior to level of the ovary in midline of body; Mehlis' gland situated latero-posteriorly to anterior testis; uterine seminal receptacle present. Vitellarium follicular, distributed in both parts of body, mainly in forebody and concentrated around holdfast organ, extending from close to level of intestinal bifurcation to posterior extremity of hindbody in two lateral fields; with vitelline reservoir ventral, intertesticular. Uterus not entering forebody, with 1–3 eggs in mature worms; 65–78 × 44–59. Excretory pore terminal. Vesicle not seen.

Type host: *Ardea cocoi* (L.).

Type locality: Lacombe Lagoon (35°49´S, 57°49´W), Chascomús, Buenos Aires Province, Argentina.

Site: Small intestine.

Type material: Holotype and paratypes deposited in Helminthological Collection MLP, Argentina, number 5292.

Discussion

Dolichorchis lacombeensis sp. nov. corresponds with genus *Dolichorchis* Dubois, 1961 in such characters as bipartite body; present pseudosuckers; asymmetrical anterior testis; larger, symmetrical and bilobed posterior testis with elongate lobes; ovary near the junction between the fore- and hindbody; copulatory bursa with genital cone and hermaphroditic duct (Dubois 1961, Niewiadomska 2002).

The following species of the genus *Dolichorchis* were reported: *D. tregenna* Nazmi Gohar, 1932 in *Buteo augur*, *Milvus migrans parasitus*, *M. migrans tenebrosus*, *M. aegyptius* (Accipitridae) and *Ardea cinerea* (Ardeidae) from Africa; *D. buteii* Vidyarthi, 1937 in *Buteo rufinus* and *Haliastur indus* (Accipitridae) from India; *D. ketupanense ketupanense* Vidyarthi, 1937 in *Bubo zeylonensis leschenault* (Strigidae) from India; *D. heronei* Srivastava, 1954 from *Ardeola grayi* and *A. ibis* (Ardeidae) from India; *D. marahoueense* Baer, 1957 (type species) in *Scotopelia peli* (Strigidae) from Côte d'Ivoire, Africa; *D. mashonense* Beverley-Burton, 1963 in *Ardea cinerea* (Ardeidae) from Southern Rhodesia; *D. ketupanense vietnamiae* Odening, 1963 in *Bubo zeylonensis orientalis* (Strigidae) from Vietnam; *D. auriculosum* Dubois et Pearson, 1967 in *Anhinga novaehollandiae* (Anhingidae) from Australia; *D. bonariensis* Ostrowski de Núñez, 1970, in *Phalacrocorax brasilianus* (Phalacrocoracidae) from Buenos Aires Province, Argentina and *D. galaxiae* Smith et Hickman, 1983 in *Ardea novaehollandiae* from Tasmania (Dubois and Pearson 1963, Dubois 1970, Ostrowski de Núñez 1970, Smith and Hickman 1983).

Dolichorchis lacombeensis sp. nov. from *Ardea cocoi* differs from the majority of known species by the distribution of the vitelline follicles, which extend from the level of the intestinal bifurcation. *D. bonariensis*, *D. marahoueense*, *D. mashonense*, *D. auriculosum*, *D. heronei*, *D. ketupanense ketupanense*, *D. ketupanense vietnamiae* and *D. galaxiae* have the vitelline follicles limited to the ventral sucker. Furthermore, *D. bonariensis* differs from the new species by the presence of the oval forebody and by their larger measurements (body 1.147–2.109 × 0.629–1.258; oral sucker 78–143 × 117–143; ventral sucker 91–156 × 143–182; pharynx 65–91 × 39–78; oesophagus length 39–91, holdfast organ 286–455 × 208–416; ovary 91–143 × 91–143).

Dolichorchis buteii and *D. tregenna* are similar to specimens obtained from *Ardea cocoi* in the distribution of the vitelline follicles in forebody. The new species can be distinguished from *D. buteii* by the distribution of the vitelline follicles in hindbody; in *D. lacombeensis* sp. nov. the vitelline follicles extend in two lateral fields, in *D. buteii* they are concentrated in midline; by the presence of a sphincter in genital pore in *D. buteii* and by the size of holdfast organ and posterior testis, which are larger in *D. buteii*, (240–400 × 176–240 and 315–464 × 240–410, respectively). Furthermore, it differs in the ratio of body length/pseudosuckers' length (28–52); ratio of oral sucker length/pseudosuckers' length (1.2–1.3); ratio of forebody length/pseudosuckers' length (12.9–25.9) and suckers' width ratio (1–1.5), which are larger in *D. buteii* and in the ratio of body length/holdfast organ length (7.4), ratio of oral sucker length to pharynx length (1.2–1.3), ratio of forebody length/holdfast organ length (1.8–3.7) and ratio of pseudosuckers' length to pharynx length (1) which are smaller in *D. buteii*.

Specimens obtained from *A. cocoi* can be distinguished from *D. tregenna* by the size of the pseudosuckers, pharynx and eggs, which are larger in *D. tregenna* (90–100; 52–90 × 50–70; 89–104 × 48–68, respectively). In addition, they differ in the ratio of forebody length to hindbody length (0.6–0.7), ratio of body length/pseudosuckers' length (11–16), ratio oral sucker length/pseudosuckers' length (0.6–1), ratio of body length/holdfast organ length (5.7–8) and ratio of oral sucker length to pharynx length (1.1) which are smaller in *D. tregenna*.

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