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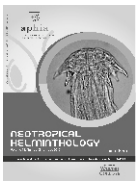

ORIGINAL ARTICLE / ARTÍCULO ORIGINAL

HELMINTH ASSEMBLAGE OF AQUATIC BIRDS (PELECANIFORMES: ARDEIDAE) OF SOUTHERN RIO GRANDE AND A CHECKLIST OF HELMINTHS OF HERONS OF BRAZIL

ENSAMBLAJE DE HELMINTOS DE AVES ACUÁTICAS (PELECANIFORMES: ARDEIDAE) DEL SUR DE RIO GRANDE DEL SUR Y UN LISTADO DE HELMINTOS DE GARZAS DE BRASIL

Fabiana Fedatto Bernardon[1,*]; Ana Luisa Schifino Valente[1] & Gertrud Müller[1]

[1]Programa de Pós-graduação em Parasitologia, Departamento de Microbiologia e Parasitologia, Instituto de Biologia, Universidade Federal de Pelotas. Endereço: Campus Universitário, caixa postal 354 CEP 96010-900, Pelotas, Rio Grande do Sul, Brazil. Telefone: 55(53) 3275-7635.
*Correspondente author: *fabifedatto@gmail.com

ABSTRACT

We examined 44 bird specimens belonging to nine species of Ardeidae from the most south region of Brazil, close to Uruguay boundaries. The aim of the study was to report the occurrence of species of helminths for the aquatic birds, quantify the infections by host species as well as to present a revision of helminths of Ardeidae of Brazil. The aquatic birds were parasitized by helminths from 18 taxa: five Nematoda, nine Trematoda, and four Acanthocephala. New records of helminths for Ardeidae in Brazil have been reported, and *Ardea cocoi* and *Ardea alba* stood out by the number of associated species.

Keywords: Acanthocephala – Ardeidae – Brazil – Digenea – Helminths – Nematoda

RESUMEN

Se examinaron 44 ejemplares pertenecientes a las nueve especies de Ardeidae del extremo sur del estado de Rio Grande do Sul. El objetivo del estudio fue relatar la ocurrencia de las especies de helmintos para las aves, cuantificar las infecciones por especie hospedadora, además de presentar una revisión de helmintos de Ardeidae de Brasil. Las aves acuáticas fueron positivas para 18 tasas, cinco Nematoda, nueve Trematoda y cuatro Acanthocephala. Los nuevos registros de helmintos para Ardeidae en Brasil fueron reportados. *Ardea cocoi* y *Ardea alba* se destacaron por el número de especies asociadas.

Palabras-claves: Acanthocephala – Ardeidae – Brasil – Digenea – Helmintos – Nematoda

INTRODUCTION

Parasitism is considered to be one of the most successful lifestyles exhibited by living organisms (Poulin, 2000). The parasites represent a large proportion of the existing diversity (Price, 1980) and they can be used as biological markers of the host's eating habits, the environment in which they live, and even their migration routes (Amato & Amato, 2010).

According to Piacentini *et al.* (2015) the world bird diversity is estimated in more of 9,021 species. Brazil has one of the three countries richest avifauna in the world with 1,919 species, divided into approximately 33 orders, among them Pelecaniformes Sharpe, 1891, which include: Ardeidae Leach, 1820, Pelecanidae Rafinesque, 1815, and Threskiornithidae Poche, 1904.

Ardeidae is composed of more than 60 species, is one of the largest and most representative families of birds with characteristics adapted to wet and flooded areas (Scherer *et al.*, 2006). At South Brazil, in state of Rio Grande do Sul, 13 species are recorded: *Tigrisoma lineatum* (Boddaert, 1783), *Botaurus pinnatus* (Wagler, 1829), *Ixobrychus exilis* (Gmelin, 1789), *Ixobrychus involucres* (Vieillot, 1823), *Nycticorax nycticorax* (Linnaeus, 1758) , *Nyctanassa violacea* (Linnaeus,1758), *Butorides striata* (Linnaeus, 1758), *Bubulcus ibis* (Linnaeus, 1758), *Ardea cocoi* Linnaeus, 1766, *Ardea alba* Linnaeus, 1758, *Syrigma sibilatrix* (Temminck, 1824), *Egretta thula* (Molina, 1782) and *Egretta caerulea* (Linnaeus, 1758) (Bencke *et al.*, 2010).

The predominant ecosystem is the Pampa Biome which integrates part of Argentina, all of Uruguay and a large part of the territory of the state of Rio Grande do Sul (62.2%) (Boldrini *et al.*, 2010). The extreme southern region of Rio Grande do Sul presents several protected wetlands, such as "Estação Ecológica do Taim" (ESEC-Taim) and the "Parque Nacional da Lagoa do Peixe", natural areas that shelter a unique diversity of wading birds that use this environment for rest, reproduction and feeding. Ardeidae occupy the top of the food chain and their diet is composed by amphibians, reptiles, insects and molluscs (Efe, 2001; Belton, 2004), which may serve as intermediate or paratenic hosts of helminths species.

Informations on helminths of Ardeidae in Brazil was carried out by Travassos, (1926), Yamaguti (1959), Travassos *et al.* (1969), Vicente *et al.* (1995a), Vicente *et al.* (1995b), Arruda *et al.* (2001, 2002), Barros *et al.* (2002), Pinto & Noronha (2003), Pinto *et al.* (2004), Muniz-Pereira *et al.* (2004), Pinto *et al.* (2012), Pinto *et al.* (2013) and Fernandes *et al.* (2015) however, in the state of Rio Grande do Sul, studies with helminths were not performed. In this sense, the objective of the present study was to determine the helminths that parasitize Ardeidae in this biogeographical area and to quantify the infections by host species, also a revision of the helminths is presented.

MATERIAL AND METHODS

Were examined 44 hosts belonging to the Ardeidae: *Ardea alba* (n=6), *Ardea cocoi* (n=5), *Butorides striata* (n=4), *Bubulcus ibis* (n=4), *Egrettathula* (n=6), *Ixobrychus involucris* (n=6), *Nycticorax nycticorax* (n=4), *Syrigma sibilatrix* (n=7) and *Tigrisoma lineatum* (n=2) from the natural environment of extreme southern Rio Grande do Sul, Brazil. From the municipalities: Arroio do Padre, Pelotas, Capão do Leão and Rio Grande (-31º26'34"S -52º25'19"W; -31°46'19"S -52°20'34"W;-31°45'46"S -52°29'02"W; -32°2'6"S -52°5'56"W), respectively. The birds were donated by the "Núcleo de Reabilitação da Fauna Silvestre and Centro de Triagem de Animais Silvestres from the Universidade Federal de Pelotas" (NURFS-CETAS/UFPel), where they died during the period of 2006 at 2015. Hosts were conditioned individually, and forwarded at the "Laboratório de Parasitologia de Animais Silvestres" (LAPASIL/UFPel) and frozen until processing.

To collect helminths, these birds are necropsied and their organs (mouth, esophagus, proventriculus, gizzard, cecum, small and large intestines, trachea, lungs, heart, liver, gall bladder, pancreas, reproductive system, kidneys, cloaca and air sacs) were separated, opened and washed with running water through a 150 μm mesh. The helminths were fixed in AFA for 24 hours and were stored in accordance with the protocol proposed by

Amato & Amato (2010). Trematoda and Acanthocephala were stained with Langeron's carmine and Nematoda were clarified with Aman's lactophenol. They were mounted on permanent and semi-permanent slides.

Morphological identification was performed in accordance with Travassos *et al.* (1969), Dubois (1970), Gibson *et al.* (2002), Johnson *et al.* (2004), Jones *et al.* (2005), Bray *et al.* (2008) for Trematoda (Digenea), Measures (1988), Vicente *et al.* (1995b), Anderson (2000), Shamsi *et al.* (2009), Gibbons (2010) and Shafey (2012) for Nematoda and McDonald (1988) for Acanthocephala. The term assemblage, was utilized according to concept Fauth *et al.* (1996). The parameters calculated were prevalence (P%), mean abundance of infection (MA) and mean intensity of infection (MI), according Bush et al. (1997). The voucher specimens were deposited in the "Coleção do Instituto Oswaldo Cruz (CHIOC)," from Rio de Janeiro, Brasil" (numbers 35942-35946 and 37957-37962) and in the "Coleção de Helmintos do Laboratório de Parasitologia de Animais Silvestres" from Instituto de Biologia, Universidade Federal de Pelotas (CHLAPASIL/UFPel) (numbers 351-471 and 623-631).

The literature review of Ardeidae for Brazil was constructed (checklist format) based on the researches carried out in different places in Brazil (Travassos, 1926; Yamaguti, 1959; Travassos *et al.*, 1969; Vicente *et al.*, 1995a; Vicente *et al.*, 1995b; Arruda *et al.*, 2001, 2002; Barros *et al.*, 2002; Pinto & Noronha, 2003; Pinto *et al.*, 2004; Muniz-Pereira *et al.*, 2004; Pinto *et al.*, 2012; Pinto *et al.*, 2013).

RESULTS AND DISCUSSION

Of the 44 hosts (belong nine species), P% = 97.72 were parasitized by at least one *taxon*. Were identified 18 *taxa*, five Nematoda: *Contracaecum microcephalum* (Rudolphi, 1809) (Ascaroidea: Anisakidae) (P%=63.3; AM=17.6; IM=26.8), *Desportesius invaginatus* (Linstow, 1901) (Acuaroidea: Acuariidae) (P%=36.6; AM= 2.3; IM=6.3), *Desmidocercella ardeae* (Nawrotzky, 1914) Yorke & Maspletone,1926 (Aproctoidea: Desmidocercidae) (P%=20.4; AM=1.1; IM=5.3), *Baruscapillaria* sp. (Trichinelloidea: Capillaridae) (P%=13.6; AM=0.45; IM=3.3) and *Eustrongylides ignotus* Jägerskiöld, 1909 (Dioctophymatoidea: Dioctophymatidae) (P%=9.1; AM=0.9; IM=10.2). Nine species of Trematoda (Digenea): *Amphimerus interruptus* (Opisthorchiidae) (Braun, 1901) Barker, 1911 (P%=2.3; AM=0.06; IM=3.0), *Apharyngostrigea ardearum* (Lutz, 1928) Dubois, 1968 (Syn. *Apharyngostrigea brasiliana* Szidart, 1929 segundo Labriola & Suriano 1998 (Strigeidae) (P%=36.6; AM=17.7; IM=48.9), *Ascocotyle* sp. (Heterophydae) (P%=22.7; AM=61.4; IM=270.4), *Clinostomum marginatum* (Rodolphi, 1819) (P%=29.54; AM=1.1; IM=3.6), *Ithyclinostomum dimorphum* (Diesing, 1850) Witenberg, 1926 (Clinostomidae) (P%=4.5; AM=0.1; IM=2.5), *Episthmium proximum* Travassos, 1922 (P%=20.4; AM=1.0 IM=4.8), *Nephrostomum limai* Travassos, 1922 (P%=15.90; AM=1.36; IM=8.6) (Echinostomatidae), *Ribeiroia ondatrae* (Price, 1931) Price, 1942 (Cathaemasiidae) (P%=11.3; AM=3.1; IM=27.4) and *Stomylotrema* sp. (Stomylotremidae) (P%=11.3; AM=0.27; IM=2.4) and four Acantocephala: *Acanthocephalus* sp. (Echinorhynchidae) (P%=2.3; AM=0.02; IM=1.0), *Andracantha* sp. (P%=29.5; AM=11.6; IM=39.5), *Arhythmorhynchus* sp. (P%=4.5; AM=0.1; IM=2.5) and *Polymorphus* sp. (Plagiorhynchidae) (P%=25.0; AM=5.5; IM=21.9). The parasitological indexes by host specie are presented in Table 1. Were found pregnant proglottids of Cestodes of hosts (P% = 29.5), but not possible identified because scolex were absent. The literature review of Ardeidae for Brazil is shown in Table 2.

Contracaecum microcephalum presented the highest prevalence value (P%=63.3), followed by the trematode *Apharyngostrigea ardearum* (P%=36.6) and the acanthocephalan *Andracantha* sp. (P%=29.54). Concerning to mean abundance of infection, the same helminthes *C. microcephalum*, *A. ardearum* and *Andracantha* sphad the highest indexes (AM = 17.6, 17.7 and 11.6, respectively), however, the highest mean intensity of infection value was presented by *Ascocotyle* sp. (IMI = 270.4) (Table 1). Among the species of Acanthocephala, there was the association between *Andracantha* sp. and *Polymorphus* sp. in

100% of the infected hosts by the species. The value highest of mean intensity of infection of Acanthocephala was presented in *Ardea cocoi* (IMI=86.6), while the highest number of Acanthocephala species occurred in *Ardea alba* (three species) according (Table 1). *Bubulcus ibis* and *T. lineatum* were no infected for Acanthocephala.

The nematodes *Contracaecum microcephalum* and *D. invaginatus* parasited eight of nine species of Ardeidae analyzed; *Desmidocercella ardeae*, *A. ardearum, Andracantha* sp. and *Polymorphus* sp. infected seven species of birds (7/9); *C. marginatum* six (6/9); *Ascocotyle* sp. and *N. limai* five (5/9); *Stomylotrema* sp. four (4/9); *E. proximum* and *R. ondatrae* three (3/9); *Baruscapillaria* sp., *E. ignotus* and *Arhythmorhynchus* sp. two (2/9), and only one species of Ardeidae (1/9) was infected by *A. interruptus*, *I. dimorphum* and *Acanthocephalus* sp. (Table 1).

In relation to the Nematoda life cycles identified, *C. microcephalum* involves two intermediate hosts: copepods (Crustacea) as first intermediate hosts and second intermediate host, young freshwater fish. The definitive hosts become infected from consuming fish containing larvae (Anderson, 2000). *Desportesius invaginatus* that is found under the gizzard lining, has as second intermediate host *Discoglossus* (Amphibia: Anura) or fish (Cyprinidae) (Anderson, 2000).

Capillariidae parasite birds, mammals and fishes, have monoxenous or heteroxenous biological cycles (Anderson, 2000). *Eustrongylides* spp. were found on the wall of proventriculus and gizzard, form large tunnels on the surface of serosa or still in the intestine. The infection may cause high mortality mainly in young birds because due to high pathogenicity (Spalding et al. 1993; Xiong et al. 2009). Ingestion of aquatic Oligochaeta (intermediate hosts) or fish (paratenic hosts) with infective larvae are responsible for host infection (Anderson, 2000).

The species of Trematoda have complex cycles of development, involving one or more intermediate hosts (Olsen, 1974). Some species identified in the present study were more specific (*A. interruptus* and *I. dimorphum*) and others species most generalists, as *A. ardearum*. Acanthocephala is a group of parasites obligate utilize Arthropoda as intermediate hosts and vertebrate as definitive hosts for complete their life cycle (Near, 2002). These parasites are strongly linked to the aquatic environment, and general aquatic birds and marine mammals are definitive (McDonald 1988; Luque et al. 2010).

Considering the parasitological diversity presented in study, Trematoda was the *taxa* predominant composed for nine species, followed by five species of Nematoda and four of Acanthocephala corroborating with researches with helminths of Ardeidae realized by Chipev & Kostandinova (1995) in Bulgaria; Labriola & Suriano (1998) and Drago & Lunaschi (2011) in Argentina; Nogueserola *et al.* (2002) in Spain; Al-Salim & Ali (2010) in Iraq; Sitko (2012) in Czech republic; Violante-González *et al.* (2012) in México; Shafey (2012) in Egypt and Santoro *et al.* (2016) in Italy. In present study, there was difference in the composition of helminths associated with host species. *Ardea cocoi* was parasitized by 14 species of helminths, *A. alba* and *N. nycticorax* by 12 species, *E. thula* and *S. sibilatrix* by 10 species, *B. striata* by seven species, *B. ibis* and *I. involucris* by six species and *T. lineatum* by two species of helminths.

The diversity of helminths and differences in parasitic loads among Ardeidae may be related to the variety of items consumed, quantity, behavioral peculiarities and strategies of dispersion of parasites. *Ardea cocoi* and *A. alba* had the highest number of associated helminth species, these birds are the largest Ardeidae occurring in Rio Grande do Sul and usually share the feeding resources. Infections are likely to have occurred by ingestion of intermediate and paratenic hosts such as fish, amphibians, reptiles, mollusks and insects, as these constitute the diet of Ardeidae (Efe, 2001; Belton, 2004).

Researches with helminths associated with Ardeidae in state of Rio Grande do Sul had not been realized, therefore the work is pioneering in this sense, being for the first time in the state reported the *taxa*: *Contracaecum microcephalum, Desportesius invaginatus, Desmidocercella ardeae, Baruscapillaria* sp., *Eustrongylides ignotus* (Nematoda); *Amphimerus interruptus,*

Table 1. Parasitological indexes for Ardeidae host's species from the state of Rio Grande do Sul, Brazil.

Ardeidae species	Parasites	P (%)	MA	MI
	Nematoda			
Ardea alba (n=6)	*Contracaecum microcephalum*	83.3	28.3	34.0
	Desmidocercella ardeae	16.6	2.5	15.0
	Desportesius invaginatus	33.3	10.3	31.0
	Trematoda			
	Apharyngostrigea ardearum	83.3	31.6	38.0
	Ascocotyle sp.	50.0	12.6	25.3
	Clinostomum marginatum	50.0	3.0	6.0
	Ephistmium proximum	66.6	3.8	5.75
	Nephrostomum limai	16.6	0.3	2.0
	Ribeiroia ondratae	50.0	14.6	29.3
	Acantocephala			
	Acantocephalus sp.	16.6	0.16	1.0
	Andracantha sp.	50.0	5.3	10.6
	Polymorphus sp.	33.3	1.2	3.5
Ardea cocoi (n=5)	**Nematoda**			
	Contracaecum microcephalum	100.0	34.0	34.0
	Desmidocercella ardea	60.0	3.4	5.6
	Desportesius invaginatus	40.0	1.0	2.5
	Baruscapillaria sp.	40.0	1.2	3.0
	Eustrongylides ignotus	60.0	6.8	11.3
	Trematoda			
	Apharyngostrigea ardearum	80.0	42.8	53.5
	Ascocotyle sp.	60.0	111.8	186.3
	Clinostomum marginatum	80.0	4.6	5.7
	Ephistmium proximum	40.0	0.8	2.0
	Ithyoclinostomum dimorphum	40.0	1.0	2.5
	Nephrostomum limai	20.0	1.4	7.0
	Ribeiroia ondratae	20.0	7.0	35.0
	Acanthocephala			
	Andracantha sp.	60.0	52.0	86.6
	Polymorphus sp.	40.0	16.8	42.0
Butorides striata (n=4)	**Nematoda**			
	Contracaecum microcephalum	100.0	8.5	8.5
	Desmidocercella ardeae	25.0	2.7	11.0
	Desportesius invaginatus	50.0	1.2	2.5
	Trematoda			
	Amphimerus interruptus	25.0	0.75	3.0
	Clinostomum marginatum	50.0	2.5	5.0
	Acanthocephala			
	Andracantha sp.	50.0	42.5	85.0
	Polymorphus sp.	50.0	0.5	2.0

Continuation Table1.

Ardeidae species	Parasites	P (%)	MA	MI
Bubulcus ibis (n=4)	**Nematoda**			
	Contracaecum microcephalum	50.0	3.5	7.0
	Desportesius invaginatus	25.0	0.2	1.0
	Trematoda			
	Apharyngostrigea ardearum	50.0	9.5	19.0
	Ascocotyle sp.	25.0	7.0	28.0
	Nephrostomum limai	25.0	2.0	8.0
	Stomylotrema sp.	25.0	2.5	10.0
Egretta thula (n=6)	**Nematoda**			
	Contracaecum microcephalum	66.6	1.5	2.2
	Desmidocercella ardeae	16.6	0.2	1.0
	Desportesius invaginatus	50.0	0.6	1.3
	Baruscapillaria sp.	66.6	2.3	3.5
	Digenea			
	Apharyngostrigea ardearum	16.6	21.1	127.0
	Clinostomum marginatum	16.6	0.3	2.0
	Ephistmium proximum	50.0	2.8	5.6
	Stomylotrema sp.	16.6	0.2	1.0
	Acanthocephala			
	Andracantha sp.	16.6	1.0	6.0
	Polymorphus sp.	16.6	0.6	4.0
Ixobrychus involucris (n=6)	**Nematoda**			
	Contracaecum microcephalum	83.3	42.6	51.2
	Desmidocercella ardeae	16.6	0.16	1.0
	Desportesius invaginatus	33.3	2.0	6.0
	Trematoda			
	Clinostomum marginatum	16.6	0.3	2.0
	Acanthocephala			
	Andracantha sp.	16.6	0.2	1.0
	Polymorphus sp.	33.3	0.2	0.5

Apharyngostrigea ardearum, Ascocotyle sp., *Clinostomum marginatum, Ithyclinostomum dimorphum, Episthmium proximum, Nephrostomum limai, Ribeiroia ondatrae, Stomylotrema* sp. (Trematoda); *Acanthocephalus* sp., *Andracantha* sp., *Arhythmorhynchus* sp. and *Polymorphus* sp. (Acanthocephala) and their indexes parasitological.

New records of Nematoda to Ardeidae hosts in Brazil were: *C. microcephalum* in *A. cocoi*, *B. ibis*, *I. involucris*, *N. nycticorax* and *S. sibilatrix; Desportesius invaginatus* in *A. alba*, *A. cocoi*, *B. ibis*, *B. striata*, *I. involucris*, *N. nycticorax* and *S. sibilatrix; Desmidocercella ardeae* in *B. striata*, *E. thula*, *I. involucris*, *S. sibilatrix* and *T. lineatum; Baruscapillaria* sp. in *A. cocoi* and *E. thula*. For the Trematoda the new records were: *Ascocotyle* sp. in *A. alba*, *A. cocoi*, *B. ibis*, *N. nycticorax*, and *S. sibilatrix; Apharyngostrigea ardearum* in *A. alba*, *A. cocoi*, *B. ibis*, *E. thula*, *N. nycticorax*, *S. sibilatrix* and *T. lineatum*; *Clinostomum marginatum* in *E. thula* and *I. involucris*; *Episthmium proximum* in *A. alba* and *E. thula*;

Continuation Table 1.

Ardeidae species	Parasites	P (%)	MA	MI
Nycticorax nycticorax (n=4)	**Nematoda**			
	Contracaecum microcephalum	50.0	30.5	61.0
	Desportesius invaginatus	25.0	0.2	1.0
	Eustrongylides ignotus	25.0	1.7	7.0
	Trematoda			
	Apharyngostrigea ardearum	25.0	9.25	37.0
	Ascocotyle sp.	50.0	448.7	897.5
	Clinostomum marginatum	75.0	2.7	3.6
	Nephrostomum limai	50.0	10.0	20.0
	Ribeiroia ondratae	25.0	3.5	14.0
	Stomylotrema sp.	25.0	0.2	1.0
	Acanthocephala			
	Andracantha sp.	50.0	10.2	20.5
	Arhytmorhynchus sp.	25.0	0.2	1.0
	Polymorphus sp.	50.0	4.0	8.0
Syrigma sibilatrix (n=7)	**Nematoda**			
	Contracaecum microcephalum	28.5	0.3	1.0
	Desmidocercella ardeae	14.3	0.3	2.0
	Desportesius invaginatus	42.8	1.6	3.6
	Trematoda			
	Apharyngostrigea ardearum	28.5	24.4	85.5
	Ascocotyle sp.	14.3	35.1	246.0
	Nephrostomum limai	28.6	0.4	1.5
	Stomylotrema sp.	28.6	0.4	1.5
	Acanthocephala			
	Andracantha sp.	14.3	0.43	3.0
	Arhytmorhynchus sp.	14.3	0.6	4.0
	Polymorphus sp.	14.3	18.1	127.0
Tigrisoma lineatum (n=2)	**Nematoda**			
	Desmidocercella ardeae	50.0	0.5	1.0
	Trematoda			
	Apharyngostrigea ardearum	50.0	2.5	5.0

Nephrostomum limai in *A. alba*, *A. cocoi*, *B. ibis* and *N. nycticorax*; *Ribeiroia ondatrae* in *A. alba*, *A. cocoi* and *N. nycticorax*; *Stomylotrema* sp. in *B. ibis*, *E. thula* and *N. nycticorax*. For to Acanthocephala: *Acanthocephalus* sp. in *A. alba*; *Arhythmorhynchus* sp. in *N. nycticorax* and *S. sibilatrix*; *Andracantha* sp. in *A. alba*, *A. cocoi*, *B. striata*, *E. thula*, *I. involucris*, *N. nycticorax* and *S. sibilatrix*; *Polymorphus* sp. in *A. alba*, *A. cocoi*, *B. striata*, *E. thula*, *I. involucris*, *N. nycticorax* and *S. sibilatrix*.

The records, and indexes as well as the presentation of the Ardeidae helminth checklist aim to contribute to existing knowledge in Brazil.

Table 2. Checklist from helminths from Ardeidae (Aves: Pelecaniformes) in Brazil.

Ardeidae species	Taxon	Reference
	Cestoda	
Ardeidae sp.	*Jardugia* sp.	Arruda *et al.* (2001)
	Trematoda	
Ardea sp.	*Clinostomum marginatum* (Rudolphi, 1819)	Travassos *et al.* (1969)
	Parastrigea cincta (Brandes, 1888)	Travassos *et al.* (1969)
	Trematoda	
Agami agami (Gmelin, 1789)	*Posthodiplostomum grande* (Diesing, 1850)	Travassos et al. (1969)
	Posthodiplostomum microsicya Dubois, 1936	Travassos et al. (1969)
	Sphincterodiplostomum musculosum Dubois, 1936	Travassos et al. (1969)
Ardea alba Linnaeus, 1758	**Trematoda**	
	Apharyngostrigea ardearum (Lutz, 1928)	present study
	Ascocotyle sp.	present study
	Clinostomum detruncatum Braun, 1899	Travassos *et al.* (1969)
	Clinostomum marginatum (Rudolphi, 1819)	Travassos *et al.* (1969); Pinto *et al.* (2004)
	Clinostomum marginatum (Rudolphi, 1819)	present study
	Ephishmium proximum Travassos, 1922	present study
	Ignavia venusta Freitas, 1948	Travassos *et al.* (1969)
	Ithyoclinostomum dimorphum (Diesing, 1850)	Pinto *et al.* (2004)
	Nephrostomum limai Travassos, 1922	present study
	Opisthorchis sp.	Travassos *et al.* (1969)
	Philophtalmus lacrymosus Braun, 1902	Travassos *et al.* (1969)
	Posthodiplostomum grande (Diesing, 1850)	Travassos *et al.* (1969)
	Ribeiroia insignis Travassos, 1939	Travassos *et al.* (1969)
	Ribeiroia ondatrae (Price, 1931) Price, 1942	present study
	Nematoda	
	Spiruroidea	Arruda *et al.* (2001)
	Contracaecum sp.	Vicente *et al.* (1995b)
	Contracaecum microcephalum (Rudolphi, 1819)	Vicente *et al.* (1995b)
	Contracaecum microcephalum (Rudolphi, 1819)	present study
	Contracaecum multipapillatum (Drasche, 1882)	Pinto *et al.* (2004)
	Desmidocercella ardeae (Nawrotzki, 1914)	Pinto *et al.* (2004)
	Desmidocercella ardeae (Nawrotzki, 1914)	present study
	Desportesius invaginatus (Linstow, 1901)	present study
	Eustrongylides sp.	Vicente *et al.* (1995b)
	Eustrongylides perpapillatus Jägerskiöld, 1909	Vicente *et al.* (1995b)
	Eustrongylides ignotus Jagerskiold, 1909	Pinto *et al.* (2004)
	Porrocaecum reticulatum (Linstow, 1899)	Vicente *et al.* (1995b)

Continuation Table 2

Ardeidae species	Taxon	Reference
Ardea alba Linnaeus, 1758	**Cestoda**	
	Deudrouterina pilherodiae Mahon, 1956	Arruda *et al.* (2001)
	Valipora mutabilis Linston, 1927	Pinto *et al.* (2004)
	Acanthocephala	
	Acanthocephalus sp.	present study
	Andracantha sp.	present study
	Centrorhynchus spinosus (Kaiser, 1893)	Travassos (1926)
	Polymorphus sp.	present study
	Polymorphus mutabilis (Rudolphi, 1819)	Travassos (1926)
	Polymorphus striatus (Goeze, 1782)	Travassos (1926)
	Acanthocephala	
Ardea cinerea Linnaeus, 1758	*Polymorphus striatus* (Goeze, 1782)	Travassos (1926)
	Trematoda	
Ardea cocoi Linnaeus, 1766	*Amphimerus interruptus* (Braun, 1909)	Arruda *et al.* (2001)
	Apharyngostrigea ardearum (Lutz, 1928)	present study
	Ascocotyle sp.	present study
	Ascocotyle (*Phagicola*) *longa* Ransom, 1920	Barros *et al.* (2002); Pinto *et al.* (2004)
	Cladocystis trifolium (Braun, 1901)	Travassos *et al.* (1969)
	Clinostomatopsis sorbens (Braun,1899)	Travassos *et al.* (1969)
	Clinostomum detruncatum Braun, 1899	Travassos *et al.* (1969)
	Clinostomum marginatum Rudolphi, 1819	Travassos *et al.* (1969); Pinto *et al.* (2004)
	Clinostomum marginatum (Rudolphi, 1819)	present study
	Clinostomum heluans Braun, 1899	Travassos *et al.* (1969)
	Episthmium oscari Travassos, 1922	Travassos *et al.* (1969)
	Episthmium proximum Travassos, 1922	Travassos *et al.* (1969)
	Episthmium proximum Travassos, 1922	present study
	Ithyoclinostomum dimorphum (Diesing, 1850)	Travassos *et al.* (1969); Pinto *et al.* (2004)
	Ithyoclinostomum dimorphum (Diesing, 1850)	present study
	Nephrostomum limai Travassos, 1922	present study
	Phagicola angrense (Travassos, 1916)	Arruda *et al.* (2001)
	Proctobium proctobium (Travassos, 1918)	Arruda *et al.* (2001)
	Prorrocaecum reticulatus (Linstow, 1899)	Vicente *et al.* (1995b)
	Ribeiroia ondatrae (Price, 1931) Price, 1942	present study
	Nematoda	
	Baruscapillaria sp.	present study
	Contracaecum sp.	Vicente *et al.* (1995b)
	Contracaecum multipapillatum (Drasche, 1882)	Vicente *et al.* (1995b); Pinto *et al.* (2004)
	Contracaecum microcephalum (Rudolphi, 1819)	present study

Continuation Table 2

Ardeidae species	Taxon	Reference
	Nematoda	
Ardea cocoi Linnaeus, 1766	*Desmidocercella ardeae* (Nawrotzki, 1914)	Vicente *et al.* (1995b)
	Desmidocercella ardeae (Nawrotzki, 1914)	present study
	Desportesius invaginatus (Linstow, 1901)	present study
	Eustrongylides ignotus Jagerskiold, 1909	Vicente *et al.* (1995b); Pinto *et al.* (2004)
	Prorrocaecum sp.	Vicente *et al.* (1995b)
	Cestoda	
	Anomotaenia sp.	Arruda *et al.* (2001)
	Deudrouterina sp.	Arruda *et al.* (2001)
	Drepanidotaenia sp.	Arruda *et al.* (2001)
	Acanthocephala	
	Andracantha sp.	present study
	Polymorphus sp.	present study
	Nematoda	
Ardea herodias Linnaeus, 1758	*Contracaecum perpapillatus* Jagerskiold, 1909	Vicente *et al.* (1995b)
	Acanthocephala	
	Polymorphus obtusus Van Cleave, 1918	Travassos (1926)
	Nematoda	
Ardea leuca	*Eustrongylides multipapillatus* Jagerskiold, 1909	Vicente *et al.* (1995b)
	Acanthocephala	
Ardea purpurea Linnaeus, 1766	*Arhythmorhynchus macrourus* Bremser, 1821	Travassos (1926)
	Trematoda	
Butorides sp.	*Phagicola angrense* (Travassos, 1916)	Arruda *et al.* (2001)
	Cestoda	
	Drepanidotaenia sp.	Arruda *et al.* (2001)
	Trematoda	
Botaurus pinnatus (Wagler, 1829)	*Posthodiplostomum microsicya* Dubois, 1936	Travassos *et al.* (1969)
	Nematoda	
	Eustrongylides ignotus Jagerskiold, 1909	Vicente *et al.* (1995b)
	Acanthocephala	
Botaurus lentigiosus (Rackett, 1813)	*Arhythmorhynchus pumidirostris* Cleave, 1916	Travassos (1926)
	Polymorphus breves Cleave, 1916	Travassos (1926)
	Acanthocephala	
Botaurus stellaris (Linnaeus, 1758)	*Polymorphus striatus* (Goeze, 1782)	Travassos (1926)
	Prosthorhynchus spiralis (Rudolphi, 1809)	Travassos (1926)
	Trematoda	
Butorides striata Linnaeus, 1758	*Ascocotyle* (*Phagicola*) *angrense* (Travassos, 1916)	Pinto *et al.* (2013)
	Ascocotyle (*Phagicola*) *pindoramensis* (Travassos, 1928)	Pinto *et al.* (2013)
	Amphimerus interruptus Braun,1901	Travassos *et al.* (1969)

Continuation Table 2

Ardeidae species	Taxon	Reference
	Trematoda	
Butorides striata Linnaeus, 1728	*Amphimerus interruptus* Braun,1901	present study
	Apharyngostrigea brasiliana (Szidat, 1929)	Arruda *et al.* (2001)
	Centrocestus formosanus (Nishigori, 1924)	Pinto *et al.* (2013)
	Clinostomum marginatum (Rudolphi, 1819)	present study
	Clinostomum marginatum Rudolphi, 1819	Travassos *et al.* (1969); Pinto *et al.* (2013)
	Clinostomum heluans Braun, 1899	Pinto *et al.* (2013)
	Diplostomum sp.	Arruda *et al.* (2001)
	Echinostoma sp.	Travassos *et al.* (1969)
	Episthmium oscari Travassos, 1922	Travassos *et al.* (1969)
	Gynaecotyla adunca (Linton, 1905)	Arruda *et al.* (2001); Muniz-Pereira *et al.* (2004)
	Maritrema sp.	Arruda *et al.* (2001)
	Mesostephanus infecundus Lutz, 1935	Arruda *et al.* (2001)
	Phagicola angrense (Travassos, 1916)	Travassos *et al.* (1969)
	Posthodiplostomum nanum Dubois, 1937	Travassos *et al.* (1969); Pinto *et al.* (2013)
	Prosthogonimus ovatus (Rudolphi, 1803)	Pinto *et al.* (2013)
	Nematoda	
	Contracaecum sp.	Vicente *et al.* (1995b)
	Contracaecum multipapillatum (Drasche, 1882)	Pinto *et al.* (2004)
	Contracaecum microcephalum(Rudolphi, 1809)	Vicente *et al.* (1995b)
	Contracaecum microcephalum (Rudolphi, 1819)	present study
	Desmidocercella ardeae (Nawrotzki, 1914)	present study
	Desportesius invaginatus (Linstow, 1901)	present study
	Pelecitus sp.	Pinto & Noronha (2003)
	Thelazia aquilina Baylis, 1934	Vicente *et al.* (1995b)
	Cestoda	
	Diploposthe bifaria Siebold, 1946	Arruda *et al.* (2001)
	Drepanidotaenia sp.	Arruda *et al.* (2001)
	Valipora minuta (Coil, 1950)	Pinto *et al.* (2012)
	Acanthocephala	
Butorides striata Linnaeus, 1758	*Andracantha* sp.	present study
	Polymorphus sp.	present study
	Polymorphus mutabilis (Rudolphi, 1819)	Travassos (1926)
Butorides virescens (Linnaeus, 1758)	**Cestoda**	
	Raillietina macroscolecina (Fuhrmann, 1908)	Yamaguti (1959)
	Acanthocephala	
	Polymorphus mutabilis (Rudolphi, 1819)	Travassos (1926)
	Trematoda	
Bubulcus ibis (Linnaeus, 1758)	*Apharyngostrigea ardearum* (Lutz, 1928)	present study

Continuation Table 2

Ardeidae species	Taxon	Reference
	Trematoda	
Bubulcusibis *Linnaeus, 1758*	*Ascocotyle* sp.	present study
	Nephrostomum limai Travassos, 1922	present study
	Stomylotrema sp.	present study
	Nematoda	
	Contracaecum microcephalum (Rudolphi, 1819)	present study
	Desportesius invaginatus (Linstow, 1901)	present study
	Nematoda	
Cochlearius cochlearius	*Contracaecum multipapillatum* (Drasche, 1882)	Vicente *et al.* (1995b); Pinto *et al.* (2004)
(Linnaeus, 1766)	*Contracaecum* sp.	Vicente *et al.* (1995b)
	Prorrocaecum sp.	Vicente *et al.* (1995b)
	Trematoda	
Egretta thula (Molina, 1782)	*Apharyngostrigea ardearum* (Lutz, 1928)	present study
	Ascocotyle felippei Travassos,1928	Travassos *et al.* (1969)
	Clinostomum sp.	Travassos *et al.* (1969)
	Clinostomum marginatum (Rudolphi, 1819)	present study
	Episthmium proximum Travassos, 1922	present study
	Ignavia venusta Freitas, 1948	Travassos *et al.* (1969)
	Opisthorchis sp.	Travassos *et al.* (1969)
	Proctobium proctobium (Travassos, 1918)	Arruda *et al.* (2001)
	Stomylotrema sp.	present study
	Nematoda	
	Baruscapillaria sp.	present study
	Contracaecum sp.	Vicente *et al.* (1995b)
	Contracaecum microcephalum (Rudolphi, 1819)	Vicente *et al.* (1995b)
	Contracaecum microcephalum (Rudolphi, 1819)	present study
	Desmidocercella ardeae (Nawrotzki, 1914)	present study
	Desportesius invaginatus (Linstow, 1901)	Vicente *et al.* (1995b)
	Desportesius invaginatus (Linstow, 1901)	present study
	Porrocaecum sp.	Vicente *et al.* (1995b)
	Porrocaecum reticulatum (Linstow, 1899)	Vicente *et al.* (1995b)
	Cestoda	
	Anomotaenia aurita (Rudolphi, 1819)	Yamaguti (1959)
	Dilepis fuhrmanni Railliet & Henry, 1909	Arruda *et al.* (2001)
	Acanthocephala	
	Andracantha sp.	present study
	Polymorphus sp.	present study
	Polymorphus mutabilis (Rudolphi, 1819)	Travassos (1926)
	Trematoda	

Continuation Table 2

Ardeidae species	Taxon	Reference
	Trematoda	
Egretta caerulea (Linnaeus, 1758)	*Ascocotyle felippei* Travassos, 1928	Travassos *et al.* (1969)
	Clinostomum heluans Braun, 1899	Travassos *et al.* (1969)
	Gynaecotyla adunca (Linton, 1905)	Arruda *et al.* (2001); Muniz-Pereira *et al.* (2004)
	Maritrema nicolli Travassos, 1920	Arruda *et al.* (2001)
	Cestoda	
	Dilepis papillifera Fuhrmann, 1908	Yamaguti (1959)
	Acanthocephala	
	Polymorphus corynosoma Travassos, 1915	Travassos (1926)
	Trematoda	
Ixobrychus exilis erythromelas Vieilliot, 1817	*Ascocotyle felippei* Travassos, 1929	Travassos *et al.* (1969)
	Phagicola angeloi (Travassos, 1929)	Travassos *et al.* (1969)
	Phagicola angrense (Travassos, 1916)	Travassos *et al.* (1969)
	Pygidiopsis pindoramensis Travassos, 1929	Travassos *et al.* (1969)
	Nematoda	
	Porrocaecum sp.	Vicente *et al.* (1995b)
	Trematoda	
Ixobrychus exilis (Gmelin, 1789)	*Ascocotyle* (*Phagicola*) *rara* Arruda, Muniz-Pereira & Pinto, 2002	Arruda *et al.* (2002)
	Cestoda	
	Drepanidotaenia sp.	Arruda *et al.* (2001)
	Trematoda	
Ixobrychus involucris (Vieillot, 1823)	*Clinostomum marginatum* (Rudolphi, 1819)	present study
	Nematoda	
	Contracaecum microcephalum (Rud., 1819)	present study
	Desmidocercella ardeae (Nawrotzki, 1914)	present study
	Desportesius invaginatus (Linstow, 1901)	present study
	Acanthocephala	
	Andracantha sp.	present study
	Polymorphus sp.	present study
	Acanthocephala	
Ixobrychus minutus (Linnaeus, 1766)	*Polymorphus striatus* (Goeze, 1782)	Travassos (1926)
	Prosthorhynchus spiralis (Rudolphi, 1809)	Travassos (1926)
	Trematoda	
Nycticorax Forster, 1817	*Ithyoclinostomum dimorphum* (Diesing, 1850)	Arruda *et al.* (2001)
	Acanthocephala	
	Polymorphus corynosoma Travassos, 1915	Travassos (1926)
	Trematoda	
Nycticorax nycticorax	*Amphimerus interruptus* (Braun, 1909)	Arruda *et al.* (2001)
(Linnaeus, 1758)	*Apharyngostrigea ardearum* (Lutz, 1928)	present study

Continuation Table 2

Ardeidae species	Taxon	Reference
	Trematoda	
Nycticorax nycticorax	*Ascocotyle* sp.	present study
(Linnaeus, 1758)	*Clinostomum marginatum* Rudolphi, 1819	Travassos *et al.* (1969); Pinto *et al.* (2004)
	Clinostomum marginatum (Rudolphi, 1819)	present study
	Episthmium proximum Travassos, 1922	Travassos *et al.* (1969)
	Ithyoclinostomum dimorphum (Diesing, 1850)	Pinto *et al.* (2004)
	Levinseniella sp.	Arruda *et al.* (2001)
	Nephrostomum limai Travassos, 1922	present study
	Trematoda	
Nycticorax nycticorax	*Pygidiopsis pindoramensis* Travassos, 1929	Arruda *et al.* (2001)
(Linnaeus, 1758)	*Ribeiroia ondatrae* (Price, 1931)	present study
	Stomylotrema sp.	present study
	Nematoda	
	Avioserpens sp.	Arruda *et al.* (2001)
	Contracaecum sp.	Vicente *et al.* (1995b)
	Contracaecum microcephalum (Rudolphi, 1819)	present study
	Contracaecum multipapillatum (Drasche, 1882)	Pinto *et al.* (2004)
	Desportesius invaginatus (Linstow, 1901)	present study
	Eustrongylides ignotus Jagerskiold, 1909	Pinto *et al.* (2004)
	Eustrongylides ignotus Jagerskiold, 1909	present study
	Pelecitus sp.	Pinto & Noronha (2003)
	Tetrameres cochleare Travassos, 1917	Arruda *et al.* (2001)
	Cestoda	
	Valipora mutabilis Linston, 1927	Pinto *et al.* (2004)
	Acanthocephala	
	Andracantha sp.	present study
	Arhytmorhynchus sp.	present study
	Polymorphus sp.	present study
	Polymorphus striatus (Goeze, 1782)	Travassos (1926)
	Trematoda	
Nycticorax nycticorax hoacli	*Clinostomum marginatum* (Rudolphi, 1819)	Travassos *et al.* (1969)
(Gmelin, 1789)	*Ephishmium proximum* Travassos, 1922	Travassos *et al.* (1969)
	Nematoda	
	Avioserpens sp.	Arruda *et al.* (2001)
	Capilaria brasiliana Freitas, 1933	Vicente *et al.* (1995b)
	Contracaecum sp.	Vicente *et al.* (1995b)
	Contracaecum multipapillatum (Drasche, 1882)	Vicente *et al.* (1995b)
	Contracaecum plagiaticium Lent & Freitas, 1948	Vicente *et al.* (1995b)
	Porrocaecum reticulatum (Linstow, 1899)	Vicente *et al.* (1995)

Continuation Table 2

Ardeidae species	Taxon	Reference
Nycticorax nycticorax hoacli (Gmelin, 1789)	**Acanthocephala**	
	Polymorphus mutabilis (Rudolphi, 1819)	Travassos (1926)
	Polymorphus inerme Travassos, 1923	Travassos (1926)
	Trematoda	
Nyctanassa violacea (Linnaeus, 1758)	*Apatemom globiceps* Dubois, 1937	Arruda *et al.* (2001)
	Apharyngostrigea brasiliana (Szidat, 1929)	Arruda *et al.* (2001)
	Clinostomum marginatum Rudolphi, 1819	Arruda *et al.* (2001)
	Diplostomum sp.	Arruda *et al.* (2001)
	Gynaecotyla adunca (Linton, 1905)	Arruda *et al.* (2001); Muniz-Pereira *et al.* (2004)
	Levinseniella sp.	Arruda *et al.* (2001)
	Levinseniella cruzi Travassos, 1920	Arruda *et al.* (2001)
	Maritrema sp.	Arruda *et al.* (2001)
	Maritrema nicolli Travassos, 1920	Arruda *et al.* (2001)
	Phagicola angrense (Travassos, 1916)	Arruda *et al.* (2001)
	Philophtalmus lacrymosus Braun, 1902	Arruda *et al.* (2001)
	Proctobium proctobium	Arruda *et al.* (2001)
	Pygidiopsis pindoramensis Travassos, 1929	Arruda *et al.* (2001)
	Nematoda	
Nyctanassa violacea (Linnaeus, 1758)	*Acuaria* sp.	Arruda *et al.* (2001)
	Cheilospirura hamulosa (Diesing, 1851)	Arruda *et al.* (2001)
	Acanthocephala	
	Polymorphus mutabilis (Rudolphi, 1819)	Travassos (1926)
	Polymorphus corynosoma Travassos, 1915	Travassos (1926)
	Filicollis sphaerocephalus (Bremser, 1819)	Travassos (1926)
	Trematoda	
Nyctanassa violacea cayennensis (Gmelin, 1789)	*Clinostomum heluans* Braun, 1899	Travassos *et al.* (1969)
	Clinostomum marginatum (Rudolphi, 1819)	Travassos *et al.* (1969)
	Cloacitrema oswaldoi Travassos, 1940	Travassos *et al.* (1969)
	Echinostoma revolutum (Froelich, 1802)	Travassos *et al.* (1969)
	Lyperosomum sinuosum Travassos, 1917	Travassos *et al.* (1969)
	Parorchis proctobium (Travassos, 1918)	Travassos *et al.* (1969)
	Prohemistomum odhneri Travassos, 1924	Travassos *et al.* (1969)
	Stephanoprora singularis (Lutz, 1924)	Travassos *et al.* (1969)
	Nematoda	
Nyctanassa violacea cayennensis	*Contracaecum* sp.	Vicente *et al.* (1995b)
(Gmelin, 1789)	*Tetrameres micropenis* Travassos, 1925	Vicente *et al.* (1995b)
	Trematoda	
Pilherodius pileatus (Boddaert, 1783)	*Amphimerus interruptus* (Braun, 1909)	Arruda *et al.* (2001)

Continuation Table 2

Ardeidae species	Taxon	Reference
	Trematoda	
Pilherodius pileatus (Boddaert, 1783)	*Ephishmium proximum* Travassos, 1922	Travassos *et al.* (1969)
	Nematoda	
	Contracaecum plagiaticium Lent & Freitas, 1948	Vicente *et al.* (1995b)
	Contracaecum sp.	Vicente *et al.* (1995b)
	Cestoda	
	Dendroteurina pilherodiae Mahon, 1956	Yamaguti (1959); Arruda *et al.* (2001)
	Valipora sp.	Arruda et al. (2001)
	Trematoda	
Syrigma sibilatrix (Temminck, 1824)	*Amphimerus interruptus* (Braun, 1909)	Arruda *et al*. (2001)
	Apharyngostrigea ardearum (Lutz, 1928)	present study
	Ascocotyle sp.	present study
	Nephrostomum limai Travassos, 1922	Travassos *et al.* (1969)
	Nephrostomum limai Travassos, 1922	present study
	Stomylotrema sp.	present study
	Stomylotrema gratiosus Travassos, 1922	Arruda *et al*. (2001)
	Nematoda	
	Contracaecum microcephalum (Rudolphi, 1819)	present study
	Desmidocercella ardeae (Nawrotzki, 1914)	present study
	Desportesius invaginatus (Linstow, 1901)	present study
	Cheilospirura harmulosa (Diesing, 1851)	Arruda *et al*. (2001)
	Pelecitus sp.	Arruda *et al*. (2001)
	Pelecitus vuylstekae (Molin, 1860)	Pinto & Noronha (2003)
	Tetrameres sp.	Vicente *et al.* (1995b)
	Viktocara sp.	Vicente *et al.* (1995b)
	Acanthocephala	
Syrigma sibilatrix (Temminck, 1824)	*Andracantha* sp.	present study
	Arhytmorhynchus sp.	present study
	Polymorphus sp.	present study
	Nematoda	
Tigrisoma sp.	*Contracaecum* sp.	Vicente *et al.* (1995b)
	Trematoda	
Tigrisoma lineatum (Boddaert, 1783)	*Amphimerus interruptus* (Braun, 1909)	Arruda *et al*. (2001)
	Clinostomum marginatum Rudolphi, 1819	Arruda *et al*. (2001)
	Ithyoclinostomum dimorphum (Diesing, 1850)	Arruda *et al*. (2001)
	Apharyngostrigea ardearum (Lutz, 1928)	present study
	Nematoda	
	Pelecitus sp.	Vicente *et al.* (1995b); Arruda *et al*. (2001)
	Desmidocercella ardeae (Nawrotzki, 1914)	present study

Continuation Table 2

Ardeidae species	Taxon	Reference
	Trematoda	
Tigrisoma lineatum marmoratum	*Clinostomum detruncatum* Braun, 1899	Travassos *et al.* (1969)
(Vieillot, 1817)	*Episthmium oscari* Travassos, 1922	Travassos *et al.* (1969)
	Nematoda	
	Contracaecum sp.	Vicente *et al.* (1995b)
	Eustrongylides sp.	Vicente *et al.* (1995b)
	Porrocaecum reticulatum (Linstow, 1899)	Vicente *et al.* (1995b)

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