RESEARCH NOTE

Nematode Parasites of Brazilian Accipitrids and Falconid Birds (Falconiformes)

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This survey was scheduled to add recent data on nematode parasites of Brazilian hawks, in a study regarding avian helminths. Sixty-five samples of nematodes recovered from Brazilian hawks between 1920 and 1955 in north, southeastern, and mid-eastern regions and deposited in the Helminthological Collection of the Oswaldo Cruz Institute (CHIOC) were studied. The number of samples according to each family of host species is:

ACCIPITRIDAE: 6 from Accipiter bicolor pileatus (Temminck); 1 from Busarellus n. nigricollis (Latham); 1 from Buteo magnirostris magniplumis (Bertoni); 12 from Buteo m. magnirostris (Gmelin); 4 from Buteo magnirostris nattereri (Scalater & Salvin); 3 from Buteo gallus u. urubitinga (Gmelin); 2 from Gavilanoides swainsonii (Vigors); 4 from Geranospiza c. caerulescens (Vieillot); 1 from Harpagus diodon (Temminck); 8 from Heterospizias m. meridionalis (Latham); 1 from Ictinia plumbea (Gmelin); and 2 from Rostrhamus s. sociabilis (Vieillot); FALCONIDAE: 1 from Falco f. femoralis (Temminck); 1 from Falco r. rufigularis (Daudin); 1 from Falco sparverius caeræ (Cory); 1 from Falco sparverius cannomominus (Swainson); 2 from Herpetotheres c. cachinnans (L.); 6 from Milvago c. chimachima (Vieillot); 3 from Polyborus p. plancus (Miller) and 5 from Polyborus sp.

Nematodes were fixed in Railliet & Henry’s solution, and were processed for study as described elsewhere (RM Pinto et al. 1993 Mem Inst Oswaldo Cruz 88: 279-284). NHR and NGD indicate New Host Record and New Geographical Distribution, respectively. Classification and common names of hosts follow OMO Pinto (1978 Novo Catálogo das Aves do Brasil 1, 446 pp) and H Sick (1984 Ornitologia Brasileira, uma introdução 1, 474 pp). Confirmation of the taxonomic status of the nematodes was based on G Hartwich (1974 CIH Keys to the nematode parasites of vertebrates 2: 1-15), AG Chabaud (1975 idem 3:1-58), and RC Anderson and O Bain (1976 idem: 59-116).

Contracaecum caballeroi Bravo-Hollis, 1939 (Ascaridoidea, Anisakidae, Anisakinae)

Hosts: Buteo m. magnirostris (Gmelin) (Rupornis magnirostris); common name: roadside hawk (“indaí”) - NHR; Buteogallus u. urubitinga (Gmelin) (Falco urubitinga, Hypomorphus urubitinga); common name: black hawk, zone-tailed hawk (“cã-ca, cauã, gavião preto”); Falco sparverius caerae (Cory) (Cercheis sparverius caeræ); common name: American krestel (“gaviãozinho”) - NHR; Herpetotheres c. cachinnans (L.); common name: laughing falcon (“acauá”) - NHR; Milvago c. chimachima (Vieillot); common name: yellow-headed caracara (“cará-cará-i, cará-cará-pinhé, pinhé, gavião carrapateiro, chimango branco”) - NHR.

Site of infection: intestine.

Localities: Porto Cabral, State of São Paulo, Barranco Alto and Porto Esperança, State of Mato Grosso do Sul, Brazil - NGD.

Specimens studied: CHIOC no 33087 a-c, 33093 a-b (whole mounts); 8671, 8768, 15520 (wet material).

Our specimens were identified as those previously redescribed (H Lent & JPT Freitas 1948 Mem Inst Oswaldo Cruz 46: 1-71), considering the size of the spicules and comparison of length ratios regarding esophagus, esophageal cecum and ventriculus. This is the first record of the genus Contracaecum in Brazilian Falconiformes.

Physaloptera acuticauda Molin, 1860 (Physalopteroidae, Physalopteridae, Physalopterinae)

Hosts: Accipiter bicolor pileatus (Temminck) (Falco pileatus, Odontirochis pileatus); common name: bicolor hawk (“gavião-caça-caicó bicolor”) - NHR; Herpetotheres c. cachinnans.

Sites of infection: stomach and intestine.

Localities: Barranco Alto and Salobra, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 33074, 33099 a-b (whole mounts).

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Physaloptera alata Rudolphi, 1819

Hosts: Buteo magnirostris magniplumis (Bertonio) (=Rupornis magnirostris magniplumis); common name: roadside hawk ("gavião pega-pinto, gavião carujó, indaiá")-NHR; Buteo m. magnirostris-NHR, Herpetotheres c. cahinans.

Sites of infection: stomach and intestine.

Localities: Barranco Alto, Bodoquena and Salobra, State of Mato Grosso do Sul, Brazil-NGD.

Specimens studied: CHIOC no 33,084, 33,085, 33,098 (whole mounts), 13,174 (wet material).

This species has been referred to a wide range of Falconiforms hosts in several parts of the world (EB Cram 1927 US Nat Mus Bull 140: 1-465; BB Morgan 1943 Trans Amer Micr Soc 62: 72-80) and this is the first report of P. alata in Brazil.

Physaloptera subalata Schneider, 1866

Hosts: Accipiter bicolor pileatus-NHR; Geranospiza c. caerulescens (Vieillot); common name: grey crane hawk ("gaviãozinho-perimelongo")-NHR.

Sites of infection: esophagus and stomach.

Localities: Barranco Alto and Salobra, State of Mato Grosso do Sul; Manaus, State of Amazonas, Brazil.

Specimens studied: CHIOC no 33075 a-f, 33076 a-c, 33097 a-b (whole mounts); 12617, 15601, 21472 (wet material).

Oxyspirura (Cramispirura) altensis

Host: Heterospizias m. meridionalis (Latham); common names: brown buzzard, savannah hawk ("gavião-caboclo, casca de couro, inhapacanvim do campo")-NHR.

Site of infection: eyes.

Location: Barranco Alto, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 33070, 33071 (whole mounts).

Some differences were detected in the male specimen presently studied, when compared to those of the original description: presence of a gubernaculum, greater number of precloacal papillae and the aspect of the spicules; however, in our opinion, these modifications may be related to a parasite/host adaptation process. In order to properly compare both samples, type specimens of O. (C.) altensis deposited in CHIOC no. 28748 a-b, 28749 a-b (whole mounts) were examined.

Thelazia (Thelaziella) aquilina Baylis, 1934

(Thelazioidae, Thelaziidae, Thelaziinae)

Hosts: Accipiter bicolor pileatus-NHR; Buteogallus u. urubitinga-NHR; Milvago c. chimachima-NHR; Polyborus p. plancus (Miller); common name: crested caracara ("carácará, carancho")-NHR.

Site of infection: eyes.

Localities: Barranco Alto and Salobra, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 33073, 33077 (whole mounts); 15078, 15502 (wet material).

This is the second report of this species in Brazil and in new hosts, taking into account that Thelazia spizaeti was proposed (AA Strachan 1957 Can J Zool 35: 179-187) from a Brazilian hawk Spizaetus o. ornatus (Daudin) and later, the species was restudied on basis on type material and considered a junior synonym of T. aquilina (RC Anderson & C Diaz-Ungria 1959 Mem Soc Ci Nat La Salle 19: 35-37).

Procyrnea leptoptera (Rudolphi, 1819)

Chabaud, 1975

(Habronematoidea, Habronematidae, Habronematinae)

Hosts: Buteo m. magnirostris-NHR; Buteo magnirostris nattereri (Sclater & Salvin) (=Asturina nattereri); common name: hawk ("gavião pega-pinto")-NHR; Falco sparverius caerane-NHR; Geranospiza c. caerulescens-NHR; Harpagus diodon (Temminck); common name: rufous-thighed kite ("gavião cinza")-NHR; Heterospizias m. meridionalis-NHR; Milvago c. chimachima-NHR; Polyborus p. plancus-NHR.

Site of infection: gizzards.

Localities: Belém, State of Pará; Bodoquena and Salobra, State of Mato Grosso do Sul, Brazil-NGD.

Specimens studied: CHIOC no 33079 a-b, 33082, 33086 a-c, 33088, 33090 a-g, 33095 (whole mounts); 3300, 8681, 11676, 11677, 11692, 12517, 12618, 13172, 13182, 13483, 13485, 15020 (wet material).

This is the first report in Brazil of P. leptoptera, the type of the genus, previously assigned in several hawks from Europe and Africa as Habronema leptoptera (Cram loc. cit.).

Procyrnea mansioni (Seurat, 1914)

Chabaud, 1975

Host: Buteo m. magnirostris-NHR.

Site of infection: gizzards.

Location: Salobra, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 33078 a-c, 33081 a-c, 33083 a-b (whole mounts).

This species was referred in Brazil as Spiroptera longistriata (R. Molin 1859 Sitzungsbl d k Akad d Wissensch Wien math-naturw C 1 (1858): 297-302). According to LG Seurat (1914 C r Soc Biol Paris 76: 7-10), part of
Molin’s material should be described as a new species, *Habronema mansioni*, proposed at that occasion. In a same necropsy, *P. mansioni* was found together *P. longistrata* and this situation can be related to a possible misinterpretation of Molin, when dealing with two distinct species instead of only *P. longistrata* as formerly stated.

**Synhinimansus (Synhinimansus) rectus** (Molin, 1860) Gendre, 1920

(-Synhinimansus (S.) sygmoideus* (Molin, 1860) Skrjabin, 1924)

(Acariioidae, Acariidae, Acarinae)

Hosts: *Buteo m. magnirostris-NHR; Buteo magnirostris nattereri-NHR; Heterospizias m. meridionalis-NHR; Milvago c. chimachima-NHR.*

Site of infection: gizzard.

Localities: Angra dos Reis and Rio de Janeiro, State of Rio de Janeiro; Salobra, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 33080, 33091 a-h, 33092, 33096 a-d (whole mounts); 4183, 7691 (wet material)

The junior synonymy proposed herein, considering *S. (S.) sygmoideus* identical to *S. (S.) rectus*, the valid species, is based on the fact that data concerning morphometrics, hosts and geographical distribution on both species are coincidental. Moreover, the character that has been taken into account to distinguish *S. (S.) sygmoideus* from *S. (S.) rectus* refers only to the aspect of the body in the former, described as “bent in a sigmoid curvature”. In the several samples examined, some specimens from the same necropsy, either appeared properly straight or were somewhat bent, indicating that this difference in aspect may be related to the individual absorption of the fixative solution.

**Skrjabinura spiralis** Gnédina, 1933 (–*S. magnum* Johnston & Mawson, 1941) Mawson, 1960

(Seratoidea, Seratidae, Seraturinae)

Hosts: *Falco r. rufigularis* Daudin (–*Falco albigularis*); common name: bat falcon (*gavião de coleira, cauré, tentenzinho*)-NHR; *Milvago c. chimachima*-NHR.

Site of infection: intestine.

Locality: Salobra, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 33094 a-b (whole mounts), 11539 (wet material).

This is the second report of *S. spiralis* in Brazil, already referred in a guira cuckoo, *Guira guira* (Gmelin), based on a single male specimen (SS Rodrigues & HO Rodrigues 1981 *Atas Soc Biol Rio de Janeiro* 22: 39-56). In this opportunity, *S. magnum* (Johnston & Mawson, 1941) Mawson 1960, is proposed as a junior synonym of *S. spiralis*. The genus *Seuratina* was erected (TH Johnston & PM Mawson 1941 *Proc Linn Soc N South Wales* 66: 250-256) to include *S. magnum* as the type species, based on a single female specimen. The synonymy of the genus *Seuratina* with *Skrjabinura* was proposed (PM Mawson 1960 *Ann Par hum comp* 35: 430-431), and this concept was ratified by AG Chabaud (1978 *CHI Keys to the nematode parasites of vertebrates* 6: 1-71), who also referred to the mistake of Mawson (1960), when reporting *Skrjabinura* instead of *Skrjabinura*, which is the concerned genus. Comparison of original morphometric data on *S. spiralis* according to MP Gnéda (1933 *Ann Par 11*: 180-184) and Johnston and Mawson (loc. cit.) with those of the present findings, supports the synonymy proposed herein.

**Diplotriaena falconis** (Connal, 1912) Blanc, 1919

(Diplotriaenoidae, Diplotriaenidae, Diplotriaeninae)

Host: *Polyborus p. plancus*.

Site of infection: body cavity.

Locality: Salobra, State of Mato Grosso do Sul, Brazil.

Specimen studied: CHIOC no 15099 (wet material).

Specimens which could not be identified to the already referred species, due to their poor conditions of preservation are distributed in the following genera:

**Contracaeacum** sp.

Hosts: *Busarellus n. nigricollis* (Latham); common name: black collared hawk (*gavião velho, gavião padre, gavião belo, panema*);

*Polyborus* sp., *Rostrhamus s. sociabilis* (Vieillot); common name: snail kite (*gavião-caramujeiro, gavião de aruá*).

Sites of infection: intestine and stomach (?).

Localities: Barranco Alto and Salobra, State of Mato Grosso do Sul; Lassance, State of Minas Gerais, Brazil.

Specimens studied: CHIOC no 8095, 8146, 8162, 8689, 8695, 14102, 14969, 15548 (wet material).

**Physaloptera** sp.

Hosts: *Gampsonix s. swainsonii* Vigors; common names: Vigor’s hawk, pearl kite (*gaviãozinho*); *Ictinia plumbea* (Gmelin); common name: plumeous kite (*sovi, gavião sauvage*).

Site of infection: stomach.

Locality: Salobra, State of Mato Grosso do Sul, Brazil.

Specimens studied: CHIOC no 12630, 12988, 20504 (wet material).
Oxyspirura sp.
Hosts: Falco f. femoralis Temminck (= Falco fuscocaerulescens); common name: aplomado falcon ("gavião de coleira"); Heterospizias m. meridionalis.
Site of infection: eyes.
Localities: Cachimbo, State of Pará; Salobra, State of Mato Grosso, Brazil.
Specimens studied: CHIOC no 33072 (whole mount), 11675, 12526 (wet material).

Procyrnea sp.
Hosts: Falco sparverius connamomimus Swainson; common name: American krestel ("gaviãozinho"); Polyborus sp.
Site of infection: gizzard.
Localities: Lassance, State of Minas Gerais; Rincão, State of São Paulo, Brazil.
Specimens studied: CHIOC no 2008, 6164 (wet material).
Other nematode species reported from hawks in Brazil and not found during the present study: