

TREMATODES OF SOME ECUADORIAN AMPHIBIANS

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ABSTRACT

Four species of amphibians (*Atelopus ignescens* (Cornalia 1849), *Rana palmipes* Spix 1824, *Leptodactylus wagneri* Peters 1862, and *Phyllomedusa tarsius* Cope 1868) from various localities in Ecuador were each found to be infected with one or more of the following helminths: *Gorgoderina cryptorchis* Travassos 1924 (Trematoda: Gorgoderidae), new host record in *A. ignescens*; *Loxogenes macrocirra* (Caballero and Bravo Hollis 1949) Yamaguti 1958 (Trematoda: Lecithodendriidae), second report in *R. palmipes*; *Polystoma* sp. (Trematoda: Polystomatidae), new host record in *L. wagneri* and *P. tarsius*; and *Neohaematolochus iturbei* (Cordero and Vogelsang 1939) Odening 1960 (Trematoda: Haematolochidae). All helminths except *L. macrocirra* are reported for the first time in Ecuador.

INTRODUCTION

According to Gomes and Rodriguez (1981) approximately 50 trematode species have been recorded from amphibians of South America. All are parasitic on anurans (Pipidae, Bufonidae, Leptodactylidae, Hylidae, and Ranidae). Twenty-nine species are recorded from Brazil, 6 from Paraguay, 1 from Peru, 5 from Colombia, 13 from Venezuela, 3 from Argentina, 12 from Uruguay, and 5 from Panama. A search of the literature reveals few references to the helminths of amphibians from Ecuador. Dyer and Altig (1976) redescribed *Cosmocerca brasiliensis* Travassos 1925 (Nematoda: Cosmocercidae) on the basis of specimens found in the large intestine of *Dendrobates parvulus* Boulenger 1882, *Eleutherodactylus lathinities* Lynch 1975, *Hamptophryne bolivianus* (Parker 1927), *Hyla boans* (Linnaeus 1758), *Hyla geographica* Spix 1824, *Hyla lanciformis* (Cope 1870), *Hyla leucophyllata* Beireis 1783, *Hyla marmorata* (Laurenti 1768), *Hyla sarayacuensis* Shreve 1935, *Ischnocnema quixensis* (Jimenez de la Espada 1872) and *Phyllomedusa tarsius* (Cope

1868) from Ecuador. The following year, Dyer and Altig (1977a) reported new host and locality records for several helminths of anurans taken in Ecuador, namely, *Loxogenes macrocirra* (Caballero and Bravo Hollis 1949) Yamaguti 1958 (Trematoda: Lecithodendriidae) from *Rana palmipes* Spix 1824, *Ochoterenella digiticauda* Caballero 1944 (Nematoda: Filariidae) from *Hyla lanciformis*, *Oswaldocruzia mazzai* Travassos 1935 (Nematoda: Trichostrongylidae) from *Bufo typhonius* (Linnaeus 1785), *Eleutherodactylus altamazonicus* Barbour and Dunn 1971, *Leptodactylus mystaceus* (Spix 1824) and *Leptodactylus pentadactylus* (Laurenti 1768) and *Cosmocerca brasiliensis* from *Rana palmipes*. Later the same year, Dyer and Altig (1977b) described *Ophiotaenia olseni* (Cestoda: Protocephalidae) from a single adult female *Hyla geographica* from Ecuador. That this was the only individual infected with tapeworms in the 16 species of frogs examined was not considered unusual, as extensive surveys of amphibian helminths usually reflect few cestodes.

The following is an account of several trematodes from frogs collected during the course of a study conducted by Dr. William E. Duellman, Museum of Natural History, University of Kansas, on amphibians and reptiles of Ecuador. Included are several new host records and range extensions.

MATERIALS AND METHODS

Helminths were recovered in situ by autopsy from the frogs shortly after capture. Flukes were fixed in AFA, stained with either alcoholic borax carmine or Harris' hematoxylin, dehydrated, cleared in beechwood creosote and mounted in Canada balsam. Notations for deposited specimens are: USNM Helm. Coll. for United States National Museum Helminthological Collection, USDA, Beltsville, Maryland and MNHUK for Museum of Natural History, University of Kansas, Lawrence, Kansas.

RESULTS AND DISCUSSION

Seven species of anurans were found infected with intestinal parasites. These included *Atelopus ignescens* (Cornalia 1849), *Rana palmipes*, *Leptodactylus wagneri* Peters 1862, and *Phyllomedusa tarsius* Cope 1868.

Loxogenes macrocirra (Caballero and Bravo Hollis 1949) Yamaguti 1958 (Trematoda: Lecithodendriidae). — *Langeronia* was proposed by Caballero and Bravo Hollis (1949) with *L. macrocirra* from *Rana pipiens* Schreber 1782 as the type. Yamaguti (1958) synonymized this genus with *Loxogenes* and Ubelaker (1965) considered *Langeronia provitellaria*, described by Sacks (1952) from *Rana sphenoccephala* Cope 1886 in Florida, to be conspecific with *Loxogenes macrocirra*.

Observations were based on 40 of 55 specimens from two *Rana palmipes*. Marked variability in the position of the genital pore and in the extent of the vitellaria as reported by Ubelaker (1965) was also noted in my specimens. My material agrees with the description of *L. macrocirra* as given by Ubelaker and I concur that *L. provitellaria* and *L. macrocirra* are synonymous.

In addition to the host and localities mentioned above, *L. macrocirra* has also been reported from *Bufo marinus* (Linnaeus 1758) and *Rana warschewitschii* (Schmidt 1857) in Costa Rica (Brenes et al., 1960) and *B. marinus* in Nicaragua (Ubelaker 1965). This represents the second report of this parasite in *R. palmipes* from Ecuador (Dyer and Altig, 1977a).

Representative specimens are deposited in USNM Helm. Coll., Nos. 78715 and 78716. Host specimens are deposited in MNHUK, No. 124017, locality — 340m Santa Cecilia, Napo Province, and No. 124020, locality — 420m Puerto Ore, Napo Province, Ecuador.

Gorgoderina cryptorchis Travassos 1924 (Trematoda: Gorgoderidae). — Of the 34 species of *Gorgoderina* of amphibians listed in the literature, 9 occur in South America. A single specimen of *Gorgoderina cryptorchis* was collected from the urinary bladder of *Atelopus ignescens*. This specimen agrees with the original description of *G. cryptorchis*. Travassos (1924) reported *G. cryptorchis* from *Bufo crucifer* Wied 1821 and *Leptodactylus ocellatus* (Linnaeus 1758) Wied 1821 in Brazil. It has since been reported from anurans in Paraguay (Fernandes 1958). *Atelopus ignescens* is a new host record and Ecuador a new locality record.

Specimens deposited in USNM Helm. Coll., No. 78717. Host specimen deposited in MNHUK, No. 122303, locality — 3890 m N. Base of Volcán, Cotopaxi, Laguna de Limpios, Pichincha Province, Ecuador.

Neohaematoloechus iturbei (Cordero and Vogelsang 1939) Odening 1960 (Trematoda: Haematoloechidae). — To my knowledge, only two species of *Neohaematoloechus* have been reported in amphibians all of which have been from South America. Two specimens of *Neohaematoloechus* were found in the lungs of a single *Rana palmipes*. These agree with the description of *N. iturbei* from the lungs of *R. palmipes* from Maracay, Estado Aragua, Venezuela as given by Cordero and Vogelsang (1939). It has since been reported in *R. palmipes* from Brazil and Colombia. Ecuador constitutes a new locality record.

Specimens deposited in USNM Helm. Coll., No. 78718. Host specimen deposited in MNHUK, No. 124020, locality — 420m Puerto Ore, Napo Province, Ecuador.

Polystoma sp. (Trematoda: Polystomatidae). — Few monogenetic flukes of the family Polystomatidae have been reported from South American amphibians. Combes and Laurent (1974) described *Polystoma borellii* from *Pleurodema borellii* (Peracca 1895) collected near Tucumán, Argentina. Subsequently, the same authors (1978) described *Polystoma praecox* from *Telmatobius oxycephalus* Vellard 1946 and *P. andinum* from *Melanophryniscus rubriventris rubriventris* (Vellard 1947) in Alto Calilegua, Jujuy Province, Argentina. Kohn et al. (1978) considered representatives of *Polystoma* from *Trachycephalus nigromaculatus* Tschudi 1838, *Hyla mesophaea* Hensel 1867 and *Leptodactylus pentadactylus* in Brazil as being related to the 'nearcticum' group. Combes and Laurent (1979) described *Polystoma guevarai* from *Hyla pulchella* Duméril and Bibron 1841 in Tucumán, Sierra Medina and *P. lopezromani* from *Phrynohyas venulosa* (Laurenti 1768) in Salta Province, Argentina.

In a monumental study of North American Polystomatidae, Stunkard (1917) noted that with the exception of *Polystoma integerrimum* Froelich 1791 members of the genus *Polystoma* are very rarely found and the number of individuals very small. Likewise, in her study of monogenetic trematodes of amphibians in southern Rhodesia Beverley-Burton (1962) found the amphibians to be remarkable for their lack of monogenea. Because of the limited amount of material in the present study, specific diagnosis could not be ascertained.

One specimen of *Polystoma* was detected in the urinary bladder of *Leptodactylus wagneri*.

Specimen deposited in USNM, Helm. Coll., No. 78719. Host specimen deposited in MNHUK, No. 122583, locality — 340m Santa Cecilia, Napo Province, Ecuador.

One specimen of *Polystoma* was found in the urinary bladder of *Phyllomedusa tarsius*.

Specimen deposited in USNM, Helm. Coll., No. 78720. Host specimen deposited in MNHUK, No. 124145, locality — 340m Santa Cecilia, Napo Province, Ecuador.

This is the first report of *Polystoma* in *L. wagneri* and *P. tarsius* and the first report of this genus from Ecuador.

This report brings to four the number of trematodes known from Ecuadorian amphibians. While our knowledge of amphibian trematodes of Ecuador is indeed appalling it appears that they have North, Central and South America affinities.

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