Cestodes of Some Ecuadorian Amphibians and Reptiles

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ABSTRACT: Three species of amphibians (Bufo typhonius, Bufo marinus, and Hyla geographica) and 1 reptile (Bothrops atrox) collected in Ecuador were examined for cestodes. Hyla geographica was infected with Ophiotaenia olseni, Bufo typhonius and Bufo marinus with Cylindrotaenia americana, and Bothrops atrox with Ophiotaenia calmettei. Bufo typhonius represents a new host record for C. americana and Ecuador a new locality record for O. calmettei and C. americana.

Few references are available on the cestodes of amphibians and snakes of South America and especially so on those of the Republic of Ecuador. In conjunction with an ecological study on amphibians and reptiles of Ecuador conducted during the summer of 1968 under the direction of Dr. William E. Duellman, Museum of Natural History, University of Kansas, an opportunity became available to study the helminths of some of these animals. Included in this report are new host and locality records for three species of tapeworms found in Bufo typhonius (Linnaeus, 1758), Bufo marinus (Linnaeus, 1758), Hyla geographica Spix, 1824, and Bothrops atrox (Linnaeus, 1758) collected from 3 localities in the Republic of Ecuador.

Materials and Methods
Helminths were recovered in situ by autopsy from the amphibians and reptile shortly after capture. The cestodes 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
A single specimen of Ophiotaenia calmettei (Barrios, 1898) La Rue, 1911 (Proteocephala, Proteocephalidae La Rue, 1911) was found in a fer-de-lance, Bothrops atrox (Linnaeus, 1758), collected at an elevation of 340 m in Santa Cecilia, Napo Province, Ecuador. It agrees with the description given by La Rue (1914) supplemented by data from the reports of Marotez (1898) and Schwarz (1908) but differs from the information given in possessing 128–195 testes (average 161) located 27–49 prepyrally, 25–49 postpyrally, and 68–105 antipyramidally rather than 130–160 and in having a cirrus pouch 200–407 μm long by 88–105 μm wide rather than 250–290 μm long by 100–130 μm wide. Further, in gravid segments, the uterus gives off 30–39 uterine branches rather than 24–35 on each side. Ophiotaenia calmettei was originally described from the jararaca, Bothrops jararac (Wied, 1824), from Martinique, Argentina, and Brazil and has since been reported in Bothrops atrox in Venezuela. Ecuador constitutes a new locality record for this tapeworm.

Four slides containing the entire cestode have been deposited in USNM Helm. Coll., No. 78838. Host specimen has been deposited in MNHUK, No. 121934.

Two specimens of Ophiotaenia olseni Dyer and Altig, 1977 were found in the intestines of 2 of 5 Hyla geographica collected at an elevation of 340 m in Santa Cecilia, Napo Province, Ecuador. These specimens agree with the description of Ophiotaenia olseni as given by Dyer and Altig (1977). The finding of O. olseni in H. geographica from Ecuador constitutes the second report of this cestode in H. geographica from this locality.

Cestode specimens have been deposited in USNM Helm. Coll., No. 78868. Host specimens have been deposited in MNHUK, No. 122729 and the Werner C. A. Bokermann Collection, Sao Paulo, Brazil.

One specimen of Cylindrotaenia americana Jewell, 1916 (Cyclophyllidea, Nematotaeniidae Lühe, 1910) was found in the intestine of 1 of 13 Bufo typhonius collected at an elevation of 1,150 m on the south slope of the Cordillera del Dué above Rio Coca, Napo Province, Ecuador. Another was found in the intestine of 1 of 2 Bufo marinus collected at an elevation of 340 m in Santa Cecilia, Napo Province, Ecuador. This cylindroid tapeworm was originally described by Jewell (1916) from the intestines of several species of anurans in the contiguous United States,
namely, *Acris gryllus* (Le Conte, 1825) in Illinois, *Rana pipiens* Schreber, 1782 from Michigan and Illinois, *Rana virescens* Cope, 1889 in Nebraska, and *Bufo lentiginosus* Shelford, 1913 of unknown locality. *Cylindrotaenia americana* has since been reported from anurans and caudate amphibians as well as a single reptile in North America and anurans in South America. Harwood (1932) reported it from *Acris gryllus*, *Hyla squirella* Sonnini and Lateille, 1802, *Pseudacris triseriata* (Wied, 1838), and *Leiopeltes laterale* Cope, 1900. Joyeux (1924) reported *C. americana* from *Arthroleptis ogoensis* Boulenger, 1906 in Mozambique, Africa. However, Harwood (1932) pointed out that the discrepancies that Joyeux noted on comparing his specimens from African amphibians with Jewell’s description are so great that specific identity of the African form with the American form seems unlikely, particularly because a form examined by Harwood taken from an American lizard, namely, *Scincella lateralis* Say, 1823 is similar to Jewell’s description. Mann (1932) reported it from *Desmognathus f. fuscus* (Green, 1818) in North Carolina. Ulmer and James (1976) reported *C. americana* in *Rana pipiens* Schreber, 1782, *Bufo americanus* Holbrook, 1836, and *Acris crepitans* Baird, 1854 from Iowa. More recently, this cestode was reported in *Plethodon jordani* Blatchley, 1901 from North Carolina by Dyer (1983). According to Wardle and McLeod (1952), this species has been reported in *Leptodactylus ocellatus* (Linnaeus, 1758) in Brazil and Argentina. It has also been reported in *Bufo marinus* from Colombia by Brooks (1976). *Bufo typhonius* represents a new host record and Ecuador a new locality record for *C. americana*.

Although neotropical *Cylindrotaenia* and the North American ones are indistinguishable morphologically, they are probably not conspecific. Neotropical specimens are almost entirely found in bufonids, occasionally in leptodactylids, and not in hylids whereas the North American situation is almost the reverse, with hylids being the primary hosts and a variety of other frogs, and some salamanders, being occasional hosts.

Tapeworm specimens have been deposited in USNM Helm. Coll., Nos. 78869 and 78870. Host specimens have been deposited in MNHUK, Nos. 123949 and 123998.

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**Literature Cited**


