THE METAZOAN PARASITES OF SOME OKLAHOMA ANURA*

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ABSTRACT

Except for a preliminary study by Trowbridge and Hefley little or nothing is known of the parasites of the Anura of Oklahoma. Most investigations on the parasites of Amphibia and especially the approaches from the ecological viewpoint have been conducted in regions very different and far distant from the plains area of the southern and central United States; therefore, a comparable study from this region has seemed desirable. Collections for the present study were made during the months of June, July, August, and September of 1939, in Comanche County, in the southwestern part of the state.

The 226 anurans, with their parasites, examined for this investigation have been considered from two different points of view. First, they have been segregated into four natural habitat groups according to their habits and the relative amount of time spent in an aquatic environment [aquatic—*Rana catesbeiana* Shaw; semiaquatic—*R. pipiens* Schreber, *R. sphenocephala* (Cope) and *Acris crepitans* Baird; semiterrestrial—*Gastrophryne olivacea* (Hallowell) and *Pseudoacris nigrita triseriata* (Wied); and terrestriofossorial—*Bufo cognatus* Say, *B. compactilis* Wiegmann, *B. insidior* Girard, *B. woodhousii* Girard, and *Scaphiopus couchii* Baird] and second, a group of selected hosts has been treated in respect to the age and type of the habitat from which they were collected [*permanently running stabilized streams* with favorable food and protection, *stabilized artificial ponds* with moderate food and protection, and the *non-stabilized artificial ponds* with a limited amount of food and protection].

The groups of parasites collected were flukes (Tremotoda), tapeworms (Cestoda), round worms (Nematoda), and mites (Acarina). *Rana catesbeiana* was infected with 17 different species of metazoan parasites: 6 trematodes, 2 cestodes, 8 nematodes, and 1 mite. *Rana pipiens* harbored 12 species of parasites; 4 trematodes, 1 cestode, 6 nematodes, and 1 mite; and *R. sphenocephala* harbored 12 species also; 6 trematodes, 1 cestode, 4 nematodes, and 1 mite. No trematodes, 2 species of cestodes, 4 of nematodes and 1 acarina were collected from *Acris crepitans. Gastophrync olivacea* and *Pseudacris nigrita triseriata* were parasitized by no trematodes, 1 species of cestode, 2 of nematodes, and 1 mite; and by 1 species of trematode, no cestodes, no nematodes, and no Acarina, respectively. *Bufo cognatus* possessed 8 different parasites; no trematodes, 2 species of cestodes, 5 of nematodes, and 1 acarina. Parasites obtained from *B. compactilis* totaled 5 species: no trematodes, 2 cestodes, 3 nematodes and no mites. No parasites were recovered from *B. insidior.* Eleven parasites—3 species of trematodes, 2 of cestodes, 5 of nematodes, and 1 mite—were taken from *B. woodhousii. Scaphiopus couchii* harbored only 5 metazoan parasites: 2 species of trematodes, 2 of cestodes, 1 of nematodes, and no acarinas.

In all, twenty-six species of metazoan parasites were found. There were nine trematodes, *Diplorchis americana* Rodgers and Kuntz 1940, *Allossostomoides parvum* (Stunkard 1916) Travassos 1934, *Diplodiscus temperatus* Stafford 1905, *Gorgodera amplicava* Looss 1899, *Haematoloechus medioplexus* Staf-

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ford 1902, *H. uniplexus* Harwood 1932, *Glypthelmins quieta* (Stafford 1900) Stafford 1905, *Halipegus occidualis* Stafford 1905, and *Diplostomulum vegrandis* (La Rue 1917) Hughes 1929. The three species of cestodes included *Nematotaenia dispar* (Göze 1782) Lühe 1898, *Distoichometra bufonis* Dickey 1921, and *Ophiotaenia magna* Hannum 1925. Thirteen species of nematodes were collected, a member of the Aniasakinae, *Rhabdias* sp., *Spironoura catesbeiana* (Walton 1929) Walton 1930, *Spironoura* sp., *Pharyngodon* sp., *Oxysomatium* sp. 1, *Oxysomatium* sp. 2, *Oswaldocruzia waltoni* Ingles 1936, *Oswaldocruzia* sp., *Foleyella* sp., *Camallanus* sp., *Spinitectus gracilis* Ward and Magath 1916, and a member of the Physalopteridae. The new and unidentified nematodes which are being studied are in the hands of an expert. *Hannemania penetrans* Ewing 1931 was the only representative from the Acarina.

Conclusions: The data collected indicate that (1) the trematodes manifest their highest incidence in the aquatic anurans; the cestodes show their highest incidence in the terrestriofossorial hosts; the nematodes show their greatest parasitism in the semiaquatic and semiterrestrial Anura; and the Acarina have their highest incidence in the semiaquatic hosts; (2) in the Anura examined the parasites found offer little or no evidence of strict host specificity; (3) multiple infection of hosts by metazoan parasites is of common occurrence; (4) an increase in the age, and thus, an increase in the stability of the environment increases the incidence of trematode parasites but has little or no effect upon the occurrences of cestodes or nematodes—the Acarina definitely show a preference for the habitat of the stable, artificial pond; (5) one new trematode, *Diplorchis americana* Rodgers and Kuntz (1940), and possibly several new species of nematode parasites have been found.

LITERATURE CITED

Trowbridge, A. H. and H. M. Hefley. 1934. Preliminary studies on the parasite fauna of Oklahoma anurans. Proc. Okla. Acad. Sc. 14:16-19.

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