BioOne COMPLETE

# Parasites of Fishes in the Gila River Drainage in Southwestern New Mexico

Authors: Wier, William, Mayberry, Lillian F., Kinzer, H. Grant, and Turner, Paul R.

Source: Journal of Wildlife Diseases, 19(1) : 59-60

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-19.1.59

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

the lesser subspecies breeds farther north along the Siberian and Alaskan coasts and into northern Canada (Aldrich, 1978, *In* Proc. 1978 Crane Workshop, Lewis (ed.), Colorado State University Press, Fort Collins, Colorado, pp. 139–148). Elucidation of the life cycle of this parasite will be necessary, however, before definitive statements can be made regarding its use as an indicator for speciation of cranes from mid-continental North America.

*Journal of Wildlife Diseases*, 19(1), 1983, pp. 59–60
© Wildlife Disease Association 1983

# Parasites of Fishes in the Gila River Drainage in Southwestern New Mexico

**William Wier,** Department of Entomology and Plant Pathology, New Mexico State University, Las Cruces, New Mexico 88003, USA (present address: 1707A S. Washington Ave., Roswell, New Mexico 88201, USA); **Lillian F. Mayberry,** Department of Biological Sciences, University of Texas at El Paso, El Paso, Texas 79968, USA; **H. Grant Kinzer,** Department of Entomology and Plant Pathology, New Mexico State University, Las Cruces, New Mexico 88003, USA; **and Paul R. Turner,** Department of Fisheries and Wildlife Sciences, New Mexico State University, Las Cruces, New Mexico 88003, USA

There are no published reports on the parasites of fishes from mountain streams in the Gila River drainage of New Mexico, although Amin (1979, Am. Midl. Nat. 82: 188–196) studied the parasites of certain fishes in the lower Gila River in Arizona. This study was therefore undertaken to determine the prevalence of parasites of fishes in the Gila River drainage of New Mexico.

Between February 1977 and August 1978, 178 fishes were collected with electrofishing gear and by hook and line methods from Black Canyon Creek, White Creek, Turkey Creek, Little Creek and the East Fork of the Gila River in Grant County, New Mexico. All the areas except the East Fork of the Gila River have been stocked historically with fry of *Salmo gairdneri*. The East Fork of the Gila River had been stocked periodically with catchable-sized *S. gairdneri*.

Sex was recorded and scale samples were taken at necropsy for aging hosts. The external surfaces of the fishes were examined for ectoparasites. Fecal samples from the cloaca were stored in 2.5% potassium dichromate and later examined by flotation techniques. Tissue smears from liver, intestine, kidney, and swim bladder were examined for protozoa. The body cavity and visceral surfaces were examined grossly for parasites. The digestive tract was removed, incised longitudinally and the contents examined. Trematodes and cestodes were stained with Semichon's acetocarmine, and mounted in permount. Nematodes were cleared in glycerine.

Where sample size permitted, data were tested for significance ($P < 0.05$) by Student's $t$-test or Chi-square analysis. No significant difference between sexes existed, so data for sexes were combined.

Ectoparasites, including monogenic trematodes, were not recovered from any of the fishes examined. The data on the internal parasites are presented in Table 1.

*Crepidostomum farionis* was the most prevalent parasite found in trout and was found in fishes at all locations except Little Creek and the East Fork of the Gila. This parasite was more prevalent in 2 and 3 yr old *S. gairdneri* than in 1 yr old fishes. In *S. trutta*, however, this trend was reversed and *C. farionis* was more prevalent in 2 yr old than in 3 yr old fishes. The prevalence of infection for both species may be due to food habits. *Salmo gairdneri* tends to

Received for publication 30 June 1980.

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

TABLE 1. Prevalence and intensity of parasites of fishes in the Gila River drainage, New Mexico, 1977–1978.

| Host and parasite | Prevalence (%) | Intensity | | USNM Accession No.[a] |
|---|---|---|---|---|
| | | Mean | Range | |
| *Salmo gairdneri* (n = 94) | | | | |
| *Crepidostomum farionis* | 49 | 8.0 | 2–29 | 75741 |
| *Rhabdochona* sp. | 16 | 4.3 | 2–32 | 75742 |
| *Salmo trutta* (n = 29) | | | | |
| *Eimeria* sp. | 3 | — | — | — |
| *Crepidostomun farionis* | 28 | 3.3 | 2–42 | 77329 |
| *Rhabdochona* sp. | 24 | 2.0 | 1–11 | 77330 |
| *Catostomus clarki* (n = 9) | | | | |
| *Isoglaridacris hexacotyle* | 22 | 36.0 | 3–58 | 77327 |
| Unidentified caryophyllaeid | 22 | 32.0 | 5–51 | 75740 |
| *Catostomus insignis* (n = 19) | | | | |
| *Isoglaridacris hexacotyle* | 21 | 33.3 | 5–98 | 75739 |
| Unidentified caryophyllaeid | 11 | 27.3 | 3–77 | 77328 |
| *Rhabdochona* sp. | 11 | 6.5 | 2–14 | 75743 |
| *Micropterus dolomieui* (n = 8) | 0 | 0 | — | — |

[a] Accession nos. of representative specimens deposited in the U.S. National Parasite Collection, Beltsville, Maryland 20705, USA.

be insectivorous and may ingest the mayfly intermediate hosts for this parasite more consistently than does *S. trutta* which becomes more piscivorous and less insectivorous as it ages (Carlander, 1969, Handbook of Freshwater Fishery Biology, Iowa State Univ. Press, Ames, Iowa, 752 pp.).

The only other parasite collected from trout was *Rhabdochona* sp. Since male specimens were not found, identification to species was not possible; however, the parasite seemed to be identical from both trout species. *Rhabdochona* sp. were found in the stomach and pyloric caeca of both *S. gairdneri* and *S. trutta* in some localities but only in *S. gairdneri* at Black Canyon Creek. The prevalence in these fishes was similar to that reported for *S. trutta* in the South Platte River of Colorado (Voth et al., 1974, Prog. Fish Cult. 36: 212).

The prevalence of *I. hexacotyle* apparently varies considerably depending on habitat. Amin (1979, op. cit.) reported infections of 8% for *C. clarki* and 7% for *C. insignis* from the Upper Verde River of Arizona while 38% of the *C. insignis* from the Lower Salt River and 57% of *C. insignis* from the Lower Verde River, Arizona, were infected with a mean number of parasites per infected fish of 33 and 36, respectively.

Infections of *C. insignis* with *Rhabdochona* sp. may be due to the habitat and behavior of this fish. It inhabits pools and back waters, feeds mainly on invertebrates and is more likely to ingest the mayfly nymphs that serve as intermediate hosts. *Catostomus clarki* on the other hand prefers faster moving water and feeds mainly on algae, periphyton, microscopic organic matter and only occasionally on invertebrates.

This is Journal Article 775, Agricultural Experiment Station, New Mexico State University, Las Cruces, New Mexico 88003, USA. Dr. J. S. Mackiewicz, State University of New York at Albany and Dr. G. D. Schmidt, University of Northern Colorado at Greeley assisted with identification of parasites reported herein.

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use