



BLOOD PARASITISM OF SOME FISHES FROM MONTANA AND YELLOWSTONE NATIONAL PARK

Author: HECKMANN, RICHARD

Source: Journal of Wildlife Diseases, 7(1) : 3-4

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-7.1.3>

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.

BLOOD PARASITISM OF SOME FISHES FROM MONTANA AND YELLOWSTONE NATIONAL PARK

Blood samples from 498 fish, representing 18 species were taken during 1968 and 1969 (Table 1). These specimens were obtained from 14 locations in Montana and Yellowstone National Park, Wyoming.

For each fish, duplicate blood samples were taken from the heart and from the peripheral circulatory system. Blood smears were air-dried, fixed with absolute methyl alcohol and stained by Giemsa's method. Each slide was examined for at least ten minutes using magnifications of 430X and 970X. Only one of 259 cutthroat trout (*Salmo clarki lewisi*), from Pelican Creek, Yellowstone National Park, and one of 39 mountain whitefish

(*Prosopium williamsoni*), from the Madison River (Bear Trap Access), Montana, were infected with *Haemogregarina* (Danilesky). Both appear to represent new host records for this blood parasite (Hoffman, G. L. 1967. *Parasites of North American Fishes*, Univ. of Calif. Press, Berkeley, 486 p.).

This parasite is typically "U" shaped or deep crescent shaped with one end of the cell blunt and the other tapering to a point (Figure 1). The average length is 14 microns and the width is four microns in the nuclear region. Infection rate was approximately 1:450 blood cells for the two species.

TABLE 1. Fishes Sampled for Blood Parasites

Scientific and Common Name	Number Sampled	Number Infected
<i>Salmo gairdneri</i> (Rainbow Trout)	38	
<i>Salmo trutta</i> (Brown Trout)	28	
<i>Salmo clarki</i> (Cutthroat Trout)	259	1
<i>Oncorhynchus nerka</i> (Kokanee or Sockeye Salmon)	10	
<i>Salvelinus fontinalis</i> (Brook Trout)	13	
<i>Thymallus arcticus</i> (Arctic Grayling)	10	
<i>Prosopium williamsoni</i> (Mountain Whitefish)	39	1
<i>Catostomus catostomus</i> (Longnose Sucker)	34	
<i>Catostomus platyrhynchus</i> (Mountain Sucker)	3	
<i>Rhinichthys cataractae</i> (Longnose Dace)	2	
<i>Cottus bairdi</i> (Mottled Sculpin)	17	
<i>Stizostedion canadense</i> (Sauger)	2	
<i>Hiodon alosoides</i> (Goldeye)	2	
<i>Cyprinus carpio</i> (Carp)	4	
<i>Carpionodes forbesi</i> (Highfin Carpsucker)	11	
<i>Ictiobus bubalus</i> (Smallmouth Buffalo)	20	
<i>Ictalurus punctatus</i> (Channel Catfish)	3	
<i>Ictalurus catus</i> (White Catfish)	1	

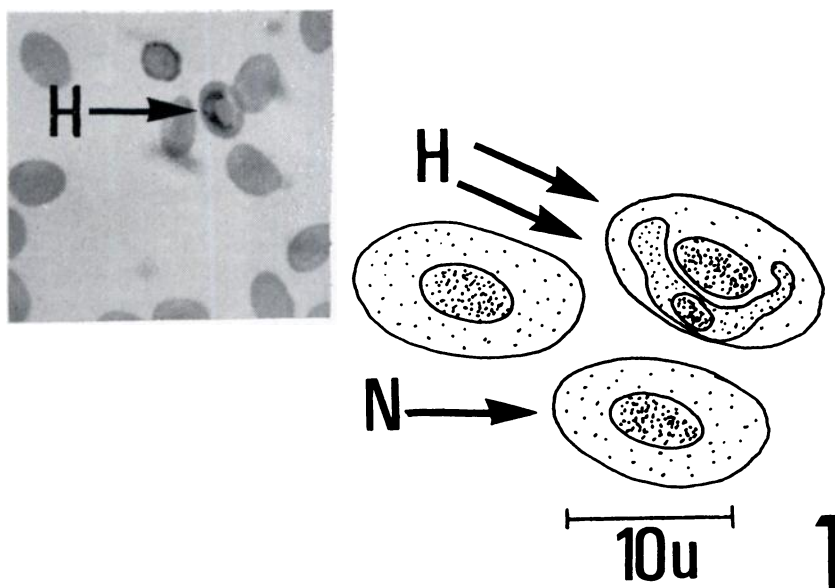


FIGURE 1. *Haemogregarina* sp. (H) infecting blood cells of Yellowstone cutthroat trout. Scale 10 microns. (N) normal red blood cell. Inset: high magnification (430X) of blood film showing infected cells (H).

Speciation of the sporozoan was not completed by the author. Becker and Holloway (1968, Trans. Amer. Microscop. Soc. 87 (3): 354-360) stated "for proper classification of any haemogregarine, it is essential to trace its cycle of multiplication and transmission" which

was impossible for my limited sample, thus the protozoan would be classified *Haemogregarina* sp. Low incidence of blood parasitism in this study is corroborated by the work of Becker (1962, J. Parasitol. 48 (4): 596-600) and Laird (1961, Can. J. Zool. 39 (4): 541-548).

Acknowledgement

Dr. C. J. D. Brown, Montana State University, directed this study. Dr. Willard Godfrey, Boise State College, and Gary Lewis, Bozeman, Mon-

tana, provided 14 blood samples. Excellent cooperation was received from the National Park Service and U.S. Sport Fisheries and Wildlife.

RICHARD HECKMANN*

Department of Zoology & Entomology
Montana State University
Bozeman, Montana 59715

Feb. 13, 1970

*Present address

Department of Biology
Fresno State College
Fresno, California 93710