

# A SURVEY OF THE HELMINTH PARASITES OF FISHES FROM VAN BUREN LAKE AND ROCKY FORD CREEK

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This survey of the helminth parasites of fishes from Van Buren Lake and Rocky Ford Creek was initiated in July, 1950 and completed in November, 1950. It was an attempt to supplement and substantiate known data on helminth parasitism of fishes through a study of helminths from fishes of a very specific and limited body of water.

In any study of Van Buren Lake, consideration and attention must be given to Rocky Ford Creek which is the chief source of water at one end of the lake and serves at the opposite end as a carry-off for excess water. Therefore, five hundred yards of Rocky Ford Creek above and below the lake was included for collections of fishes for this survey.

TABLE 1

A summary of parasitism of the fishes collected from Van Buren Lake and Rocky Ford Creek.

Family	Genus and Species	Common Name	Number Ex-aminated	Number Para-sitized
Ameiuridae	<i>Ameiurus melas</i> (Rafinesque)	Black bullhead	15	14
	<i>Ameiurus nebulosus</i> (Le Sueur)	Brown bullhead	8	8
Catostomidae	<i>Catostomus commersonnii</i> (Lacepede)	White sucker	11	7
Centrarchidae	<i>Lepomis cyanellus</i> Rafinesque	Green sunfish	15	15
	<i>Lepomis macrochirus</i> Rafinesque	Bluegill	12	7
	<i>Micropterus salmoides</i> (Lacepede)	Largemouth black bass	6	2
	<i>Pomoxis annularis</i> Rafinesque	White crappie	18	18
	<i>Pomoxis nigro-maculatus</i> (Le Sueur)	Black crappie	7	7
Clupeidae	<i>Dorosoma cepedianum</i> (Le Sueur)	Gizzard shad	7	7
Cyprinidae	<i>Cyprinus carpio</i> Linnaeus	Carp	8	6
	<i>Hyborhynchus notatus</i> (Rafinesque)	Bluntnose minnow	1	0
	<i>Notemigonus crysoleucas</i> (Rafinesque)	Golden shiner	32	29
Total			140	120

Van Buren Lake was formed in 1939 under the direction and supervision of the Ohio Division of Wildlife. The lake and the creek sectors covered in this survey were located in section eighteen, Allen Township, Hancock County, Ohio.

One hundred and forty fishes representing five families and twelve species were collected and examined for helminth parasites. Nematodes, cestodes and trematodes were present in the fishes examined. The gills contained especially large numbers of monogenetic trematodes.

There were no known studies on the helminth parasites of fishes of Van Buren Lake. Pearce's (1950) work included a small number of fishes from Rocky Ford Creek; however, the collection stations for fishes were in Wood County and not adjacent to the lake in Hancock County.

## MATERIALS AND METHODS

The fishes examined in this survey were collected with two-man seines, fyke nets, gill, trammel, and hoop nets. An attempt was made to collect nearly an equal

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number of fishes of which most were of the small and medium size. The fishes were killed immediately before examination, since it was found that the small monogenetic trematodes rapidly disintegrated after the death of the fish. The examinations were made with a binocular stereoscopic microscope. When possible, helminths were removed from the host and identified while in the living state. It

TABLE 2  
A list of helminths collected from fishes of Van Buren Lake and Rocky Fork Creek, the host(s), and location(s) in the host(s).

PARASITE	HOST(S)	LOCATION IN HOST(S)	PARASITE	HOST(S)	LOCATION IN HOST(S)
<i>Actinocleidus longus</i>	Green sunfish	Gills	<i>Hymenolepis</i> sp.*	Green sunfish	Intestine and caeca
<i>Agamonema</i> sp.*	Black bullhead	Mesenteries		Bluegill	Caeca
	Golden shiner	Intestine		Golden shiner	Stomach and intestine
<i>Allocreidium iclauri</i>	Black bullhead	Intestine	<i>Masocraes cepedianum</i>	Gizzard shad	Gills
	Brown bullhead	Intestine	<i>Monobothrium ingens</i>	White sucker	Intestine
	White sucker	Intestine	<i>Neascus</i> sp.*	White sucker	Liver (encysted)
<i>Camallanus oxycephalus</i>	White crappie	Intestine and caeca		Green sunfish	Integument and mesenteries (encysted)
	Black crappie	Intestine			
<i>Cleidodiscus capax</i>	White crappie	Gills	<i>Posthodiplostomum minimum</i>	Black bullhead	Intestine
	Black crappie	Gills		Green sunfish	Intestine and spleen
<i>Cleidodiscus diversus</i>	Green sunfish	Gills		Bluegill	Caeca, kidney, liver, and mesenteries
<i>Cleidodiscus longus</i>	White crappie	Gills		Black crappie	Stomach, intestine, liver and mesenteries
	Black crappie	Gills			
<i>Cleidodiscus pricei</i>	Black bullhead	Gills	<i>Onchocleidus cyanellus</i>	Green sunfish	Gills
	Brown bullhead	Gills	<i>Onchocleidus mucronatus</i>	Green sunfish	Gills
<i>Cleidodiscus robustus</i>	Green sunfish	Gills		Bluegill	Gills
<i>Cleidodiscus uniformis</i>	White crappie	Gills	<i>Onchocleidus perditix</i>	Bluegill	Gills
<i>Cleidodiscus vanleavei</i>	White crappie	Gills	<i>Onchocleidus principalis</i>	Largemouth black bass	Gills
	Black crappie	Gills			
<i>Clinostomum marginatum</i>	Brown bullhead	Kidney	<i>Proteocephalus ambloplitis</i>	Brown bullhead	Intestine
	White sucker	Kidney	<i>Pterocleidus biramosus</i>	Black crappie	Gills
<i>Corallobothrium fimbriatum</i>	Black bullhead	Stomach and intestine	<i>Spinitectus carolini</i>	Green sunfish	Intestine
				Bluegill	Intestine
<i>Crepidostomum cornutum</i>	Green sunfish	Intestine and caeca		Largemouth black bass	Intestine
	Bluegill	Caeca	<i>Spinitectus gracilis</i>	Green sunfish	Intestine
	Black crappie	Intestine	<i>Triganodistomum attenuatum</i>	White sucker	Stomach and intestine
<i>Dactylogyrus extensus</i>	Carp	Gills			
<i>Dichelyne cotylophora</i>	Black bullhead	Mesenteries			
	White sucker	Liver			
	Green sunfish	Stomach and intestine			
	White crappie	Intestine			
<i>Glaridacris catostomi</i>	White sucker	Stomach			
<i>Gyrodactylus spathulatus</i>	White sucker	Gills	<i>Triganodistomum simeri</i>	White sucker	Intestine
<i>Haploclleidus furcatus</i>	Green sunfish	Gills			
	Bluegill	Gills			

\* Indicates only larval forms collected.

was almost imperative that monogenes be identified immediately because they were exceedingly difficult to handle for preparation of permanent slides and were present in such large numbers and in mixed infections. The unidentified or doubtful helminths were prepared for identification from stained specimens.

The cestodes and trematodes which were stained to facilitate identification were killed and fixed with Bouin's fixative. The nematodes were killed in warm seventy

percent alcohol solution, and transferred to Bouin's fixative when dead. In carrying a monogenetic trematode or a small digenetic trematode through the various steps preparatory to permanent mounting, the specimens were more easily handled by affixing them to a small tab of paper which was coated with Mayer's albumin. The coated tab of paper was pressed lightly to the trematode which had previously been killed and fixed in Bouin's. Coagulation of the albumin in warm Bouin's firmly attached the minute specimen so that in dehydration or staining they were more easily controlled. All specimens were stained with alum cochineal, cleared with either xylol or clove oil, and then mounted in Harleco Synthetic Resin.

#### DISCUSSION

From one hundred and twenty fishes, thirty-three different species of helminths were identified while in twenty fishes none were found. The parasites were obtained from the digestive tract, gills, integument, kidneys, liver and mesenteries. The degrees of infection of helminths varied but were generally consistent with the species. In all, seventeen species of monogenetic trematodes, seven digenetic trematodes of which three are larval forms, five species of cestodes with one larval form, and four species of nematodes were identified. *Agamonema* sp. is listed to include immature nematodes of unknown species.

The most significant information gained concerning parasitism by this survey was the presence of seventeen species of monogenetic trematodes. Eighty-two fishes had gill infections. Fishes like the green sunfish and the black and white crappies contained large numbers as well as several species of parasites.

The digenetic trematodes, cestodes and nematodes were of subordinate importance because of the numbers and species present. *Acanthocephala* were not found in this survey.

An immature *Hymenolepis* sp. recovered from the green sunfish, bluegill, and golden shiner was impossible to identify by means of hook shape, size, or number. Per anum and per os inoculations of chicks and muscovy ducklings failed to serve as an aid in identification.

Any attempted conclusion drawn from this survey is subjected to such limitation factors as: the number of fishes examined; species, size, and age of fishes; variation aquatic environment; and climatic conditions. In spite of such limiting factors, the survey does present a pressing helminth-fish relationship existing in the fishes from this small definite limited waters.

#### REFERENCES

- Pearce, W. J. 1950. A survey of the helminth parasites of fishes from Lake Erie and Ohio River drainage areas. M.A. thesis. Bowling Green State University, Bowling Green, Ohio.
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