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INSTITUTE FOR FISHERIES RESEARCH
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ESTABLISHMENT AND EARLY DISPERSAL OF A LOACH, *Misgurnus anguillicaudatus* (Cantor), IN MICHIGAN

by

Edward E. Schultz

Treatment with rotenone and toxaphene of a private pond on Hy Meadow farm near Holly, Oakland County, Michigan, in July 1958, by Wayne Tody and Bruce Vollmar of the Michigan Department of Conservation, revealed a large population of a small, unfamiliar, eel-like fish. Specimens were submitted to the Museum of Zoology of The University of Michigan where their identity as Oriental weatherfish (or the dojo), *Misgurnus anguillicaudatus* (Cantor), was confirmed by Dr. Reeve M. Bailey. A check of records indicated that six specimens of the same species were sent to the Museum of Zoology for identification from the Sunset Water Gardens, an aquarium supply concern of Holly, Michigan, on July 4, 1939. They were part of a shipment received from Kobe, Japan. The Sunset Water Gardens utilizes Sunset Pond as a rearing and retaining area. Since Sunset Pond is less than a mile from Hy Meadow Pond (Fig. 1), and since both drain into the same intermittent stream, it seems obvious that escaped fish are responsible for this successful establishment, presumably about 19 years earlier. In 1951, Hy Meadow Pond was deepened by dredging and an earthen dyke was constructed across the outlet channel to prevent overflow, so entrance of the dojo into the pond was almost certainly before that time. The owner of

Fig. 1.--Map of the headwaters of the Shiawassee River, Oakland and Genesee counties, Michigan, showing stations where dojos were collected (solid circles) or were not taken (open circles).

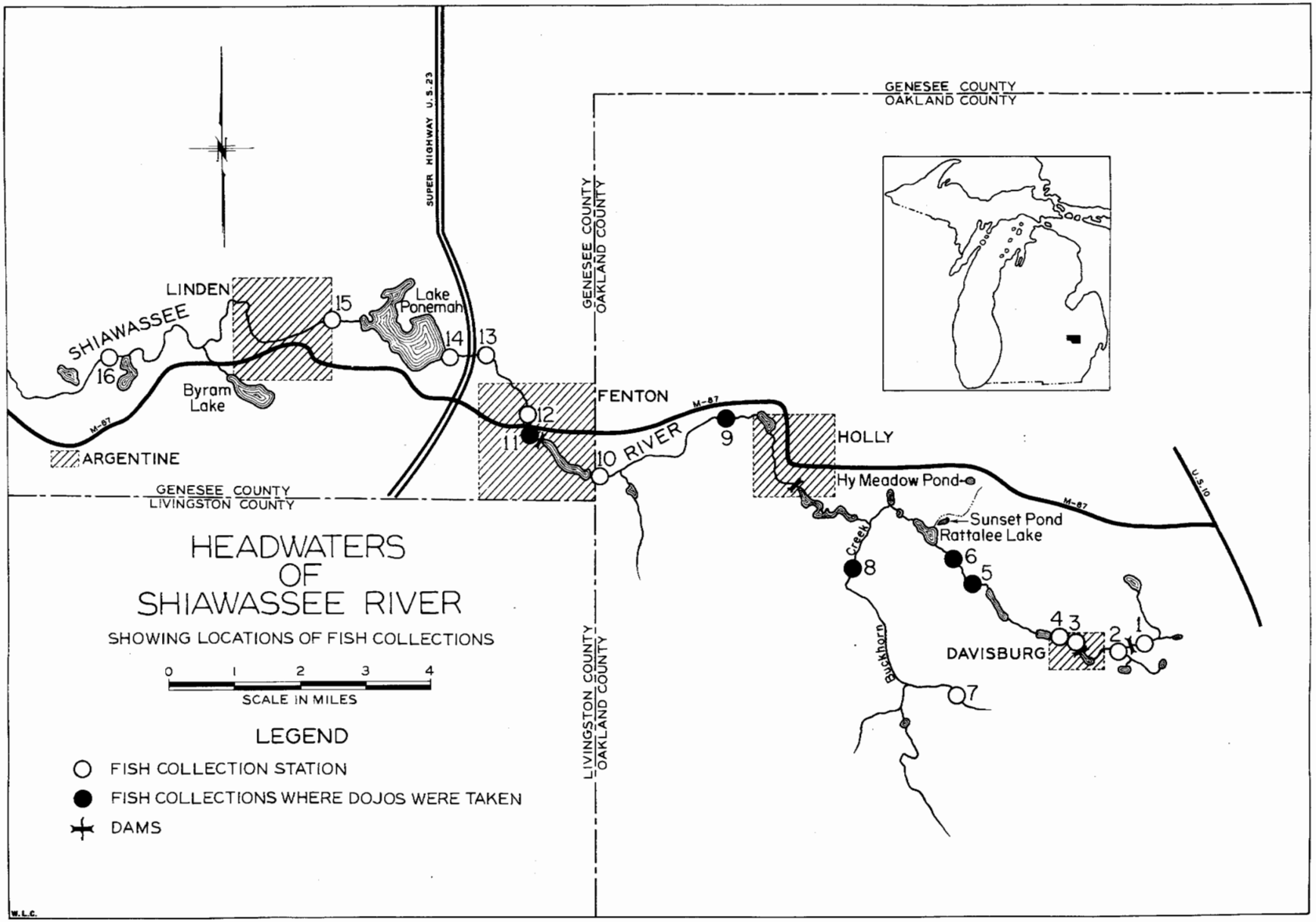
HEADWATERS
OF
SHIAWASSEE RIVER
SHOWING LOCATIONS OF FISH COLLECTIONS
0 1 2 3 4
SCALE IN MILES
LEGEND
FISH COLLECTION STATION
FISH COLLECTIONS WHERE DOJOS WERE TAKEN
DAMS
SUPER HIGHWAY U.S.23
GENESEE COUNTY
OAKLAND COUNTY
GENESEE COUNTY
LIVINGSTON COUNTY
LIVINGSTON COUNTY
OAKLAND COUNTY
LINDEN
SHIAWASSEE
Lake
Ponemah
Byram
Lake
ARGENTINE
FENTON
HOLLY
10 RIVER
Hy Meadow Pond
Sunset Pond
Rattalee Lake
Creek
Buckhorn
DAVISBURG
M-57
U.S.10
W.L.C.

Figure 1

the pond was unaware of the occurrence of the fish. This represents the first successful introduction of any species of the family Cobitidae in the New World.

In order to determine the extent of dispersal, 16 fish collections were taken in the Shiawassee River system (Fig. 1). A three-man stream-survey crew made collections with a 2,500-watt direct-current shocker on September 15, 18, and 23, 1958, and August 18-20, 1959. Six collecting stations were upstream and 10 downstream from Hy Meadow Pond. The shocker was used in all parts of the river at each station, but particular emphasis was directed to the habitat in which most dojos were found, that is, standing or sluggish water in marsh areas adjacent to flowing water.

Dojos were collected at 5 of the 16 stations (Fig. 1 and Table 1), indicating a continuous distribution throughout at least 10 miles of a section of the stream that passes through six lakes. The lakes in Holly and Fenton are impoundments, but the dams did not prevent downstream movement of the fish. Since dojos were not found at four localities above station 5 or at five stations below station 11, it is believed that the collections delimit the present range of the species in the watershed.

The size range of the fish (1.2 to 7.1 inches, total length) prove that dojos reproduce successfully in the watershed. The fact that dojos were collected in both September 1958 and August 1959 verified their survival of the weather extremes in southern Michigan during this period.

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Typed by M. S. McClure

Table 1.--Number of dojos and other fish collected with a direct-current shocker in the Shiawassee River at the stations shown in Fig. 1

Station number	Date of collection	Minutes of shocking	Number of dojos	Number of other fish
1	8/18/59	25	0	53
2	8/18/59	15	0	4
3	8/18/59	15	0	80
4	9/18/58	15	0	65
5	8/18/59	20	10	43
6	9/15/58	20	43	43
7	8/19/59	10	0	32
8	9/18/58	15	8	36
9	9/18/58	20	8	35
10	8/19/59	10	0	13
11	8/19/59	30	1	57
12	8/20/59	20	0	34
13	8/20/59	35	0	63
14	9/23/58	20	0	18
15	9/23/58	15	0	20
16	9/23/58	25	0	47