

## Crayfishes of Lake Wawasee

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### Introduction

Lake Wawasee, the largest natural lake in Indiana, is located in Kosciusko County in headwaters of the Elkhart River, a tributary of the Saint Joseph River which empties into Lake Michigan. However, the lake is less than 5 km from the drainage system of the Wabash River which flows into the Mississippi and about 50 km from the Maumee River drainage into Lake Erie. Hay (4) and House (6) reported crayfishes in this region and in 1955 Eberly (2) summarized the status of crayfishes in Indiana which included a complete survey of the literature as well as new state and county records. In 1980 we collected and identified the crayfishes from Lake Wawasee and immediate vicinity, described the habitats, and observed the general population density.

### Methods

The specimens were collected with nets, seines, jars and fish hooks baited with meat by wading in shallow water and scuba diving in deep water. The classification of the crayfishes follows that of Hobbs (5).

### Results and Discussion

In 1980 four species of crayfishes all in the genus *Orconectes* were collected from Lake Wawasee and the immediate shoreline drainage. The species were, *O. immunis*, *O. rusticus*, *O. virilis* and *O. propinquus*.<sup>1</sup>

Four distinct habitats supported populations of crayfishes. Rocks, rooted aquatic vegetation, debris and mud sheltered the crayfishes in microhabitats. One major habitat was the temporary ponds along the shoreline of Lake Wawasee. The bottom of the ponds consisted of sand and mud which supported dense areas of rooted aquatic vegetation. The only species in the ponds was *O. immunis*. The populations were very large in depths less than 1 m. A second habitat was the drainage stream from the small Pappkeeechie Lake into Lake Wawasee. The bottom of this slow moving stream varied from rocky areas at the outlet to sandy at the entrance to Lake Wawasee. A few *O. propinquus* and numerous *O. rusticus* were collected, chiefly from the rocky area. The depth of the water was less than 20 cm and was reddish in color. Eberly in 1955 reported this habitat for *O. rusticus* as a new locality (2).

A third habitat, the fast flowing stream, Turkey Creek, which flows from the southeast into Lake Wawasee had a rocky bottom covered with rooted vegetation. *O. propinquus* was common in this habitat.

The fourth habitat was the shallow areas of Lake Wawasee proper where the bottom consisted of various mixtures of rock, debris, organic matter and mud. Some of the areas extended 40 m from the shoreline. Crayfishes were found in water to depths of 2.5 m. Numerous microhabitats were formed by the crayfishes digging tunnels in the soft bottom and under rocks and debris. The lake habitat supported a few *O. virilis* and numerous *O. propinquus*.

<sup>1</sup> Thanks to Dr. H. H. Hobbs, Jr. for confirmation of the identification of the crayfishes.

Thus *O. propinquus* was the only species found in more than one of the major habitats. It was the single, abundant inhabitant of a rocky bottom, swift inlet, Turkey Creek. *O. propinquus* was common in Lake Wawasee proper along with a few *O. virilis*. This was the only habitat of *O. virilis*. Also *O. propinquus*, small population, co-existed with numerous *O. rusticus* in the inlet from Pappekeechie Lake. *O. immunis* was the abundant single species in the pond habitat.

In addition to the four species of *Orconectes* collected in 1980, records in the literature indicate that one species of *Procambarus* and four species of *Cambarus* have been taken from some habitats in the three major drainage headwaters in the region of Lake Wawasee. *Procambarus blandingii* inhabits both lentic and lotic water (5). It has been collected from Lake Wawasee (3, 4) and habitats in the upper Wabash River drainage (2). *Cambarus diogenes* typically are found in burrows in wet marshes and swamps. This species has been collected from the three major drainage systems in the region of our study (2). Another burrowing crayfish, *Cambarus fodiens* lives in marshy fields, drainage ditches and ponds. The distribution of *C. fodiens* includes all of Indiana and Eberly (2) collected it in ponds and creeks in Kosciusko Co. Housing and industrial developments as well as farming practices have reduced the number of suitable habitats for the burrowing, marsh species. No specimens were found in the immediate vicinity of Lake Wawasee during this study. The distribution of *C. robustus* includes northern Indiana and the species is common in Michigan and Ohio (1, 2). However, there is only one recorded locality in Indiana, the upper Wabash drainage (2). Finally, *C. ortmanni* has been taken from the upper Wabash River drainage.

#### Literature Cited

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