The Occurrence of *Ichthyomyzon castaneus* (Petromyzontidae) in the Saint Joseph River Drainage of Indiana

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Introduction

Marenchin and Sever (3) reported the collection of four specimens of lampreys in a recent survey of the fish of the Saint Joseph River drainage in Indiana. Two were adult individuals of *Lampetra appendix* (= *L. lamottei*), a nonparasitic species. These specimens were collected in the Little Elkhart River, Elkhart County, and represented a new record for the portion of the Saint Joseph River drainage in Indiana (1, 4). The other two specimens were ammocoetes. One specimen came from Christiana Creek and the other from Turkey Creek, both in Elkhart County.

Positive specific identification of ammocoetes of most lampreys is not possible by use of morphological characters alone (8). However, myomere count can eliminate some possibilities (6, 8). The specimen from Christiana Creek (15.1 cm total length) had 50 myomeres while the one from Turkey Creek (9.4 cm TL) had 54 myomeres (3). Based on these counts, the ammocoetes could represent *Ichthyomyzon fossor*, a nonparasitic species, or *I. castaneus* or *I. unicuspis*, both parasitic species (6, 8).

Of these species, there are definite reports in the literature of only *I. castaneus* from the Saint Joseph River drainage (1, 2). Two ammocoetes collected in 1895 from Turkey Creek with 51 myomeres each were questionably listed as *I. unicuspis* by Hubbs and Trautman (2). However, they (2) stated that these specimens were "perhaps *I. fossor*", and Gerking (1) lists this record under both species, with the identification of *I. unicuspis* deemed questionable. There are undisputed records of *I. fossor* and *I. unicuspis* from adjacent drainages (1, 2, 5), so their occurrence in the Saint Joseph River drainage is possible.

This paper reports on further collections of fish at the Christiana Creek locale studied by Marenchin and Sever (3). The primary goal of these collections was to collect adult lampreys so that the identity of the species occurring in that drainage could be established. A secondary purpose of this study was to record additional species beyond the 40 other species of fish reported by Marenchin and Sever (3) from tributaries of the Saint Joseph River in Elkhart County.

Materials and Methods

The locality sampled was a 250 m portion Christiana Creek at T38N R4E, northwestern corner of section 20, Elkhart County, Indiana. Four collections were made. Three collections, on 19 September, 1980, 20 August, 1981, and 18 September, 1981, were made using electrofishing with a Coffelt BP-2 electroshocker as the sole collecting technique. The other collection, on 20 May, 1981, was made using a 190 x 408 cm nylon seine with 6.2 mm square mesh as the only collecting method. All collections were made between 1000-1300 hours. Fish were preserved upon capture in 10% formalin and are currently stored in 60% isopropanol at Saint Mary's College except for one adult lamprey which was deposited in the collections of the Illinois Natural History Survey, Urbana.

Results and Discussion

Lampreys were obtained in the electrofishing collections made on 19 September, 1980, and 18 September, 1981. On the first occasion, two parasitic lampreys were attached to the same side of the lateral body wall of a large *Cyprinus carpio* (ca. 40 cm standard length). These lampreys were 17.9 cm and 18.6 cm TL and had 52 and 51 myomeres respectively. On the second date, a lamprey was collected while attached to the dorsal midline just posterior to the head of a *C. carpio* (27.5 cm SL). This lamprey was 26.3 TL and had 52 myomeres. In addition, four ammocoetes, 7.0-8.8 cm TL and with 50(2), 51 and 52 myomeres, were collected on the latter date by shocking mats of submerged vegetation along shore.

The three lampreys were positively identified as *Ichthyomyzon castaneus*. The other parasitic lamprey likely present, although unconfirmed, in the Saint Joseph River drainage is *I. unicuspis* (1, 2). *I. unicuspis* is known from several adjacent Great Lakes drainages in Indiana, Illinois and Michigan (2, 5, 7). *I. castaneus* can be readily distinguished from *I. unicuspis* because *I. castaneus* possesses bicuspid teeth in the circumoral series, and bicuspid teeth are lacking in *I. unicuspis* (as its name implies).

The previous records of *I. castaneus* from the Saint Joseph River drainage in Indiana are based on a specimen collected in the Saint Joseph River 6 km E of South Bend in 1930 and a report from the Elkhart River at Goshen in 1890 (1, 2). Thus, our specimens represent the first report of the continued existence of the species in the Saint Joseph River drainage of Indiana in over 50 years.

There are few other published records for *I. castaneus* in Indiana. A confirmed record from the East Fork of the White River in Lawrence County and several records from the Lake Michigan drainage in Lake County are the only others reported by Gerking (1) for the species in the state. Rohde and Lanteigne-Courchene (5) show additional localities in the Wabash drainage of Indiana. Although there are no records of *I. castaneus* from northeastern Illinois (6), there are many records from southwestern Michigan (5). Starret et al. (7) suggested that the range of *I. castaneus* in Illinois has withdrawn southward.

The ammocoetes collected at Christiana Creek and Turkey Creek could be *I. castaneus*, *I. fossor* or *I. unicuspis*, since all have similar myomere counts, and other morphological characters useful in distinguishing ammocoetes are unknown (6, 8). As with *I. unicuspis*, there apparently are no definite records of *I. fossor* from the Saint Joseph River drainage in Indiana, although a number of records exist from adjacent drainages (2, 5). An 1895 record Gerking (1) lists for *I. fossor* for Turkey Creek was considered questionable by Hubbs and Trautman (2). Until the presence of *I. fossor* and *I. unicuspis* in the Saint Joseph River drainage is established, we suggest that ammocoetes collected during the current study and those reported by Marenchin and Sever (3) are most likely *I. castaneus*.

Our collections also yielded two species of fish not reported for tributaries of the Saint Joseph River by Marenchin and Sever (3). Single specimens of *Amia calva* were collected on 20 August and 18 September, 1981, and two *Erimyzon sucetta* were collected on 18 September. Both of these species were reported from northern Elkhart County by Gerking (1), but our specimens represent the first records of these species in the drainage since 1945.

In summary, the collection of three adult *I. castaneus* leads us to suggest that ammocoetes reported by Marenchin and Sever (3) from the Saint Joseph River drainage should be assigned to that species. Our collections represent the first

reports of *I. castaneus* in over 50 years and of *A. calva* and *E. sucetta* in over 35 years from waters of the Saint Joseph River drainage in Indiana (1, 2). These species should be added to the list of 40 other species of fish reported by Marenchin and Sever (3) from tributaries of the Saint Joseph River in Elkhart County.

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