

THE SAND-DWELLING PREDATORY MAYFLY *PSEUDIRON CENTRALIS* IN MICHIGAN (EPHEMEROPTERA: PSEUDIRONIDAE)<sup>1</sup>

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An examination of samples of Ephemeroptera larvae taken from 19 sites on the Pere Marquette River, Mason County, Michigan in October, 1990 and May, 1991 by A. G. B. Primack (Indiana University, Bloomington) revealed the presence of *Pseudiron centralis* McDunnough. This species was taken at seven sites between State Highway M37 and Rainbow Rapids, east of Ludington. Voucher specimens are held at the Purdue Entomological Research Collection. Michigan has been surveyed extensively for riverine benthic macroinvertebrates in the past, and mayflies in particular are relatively well documented in Michigan because of their importance to fly fishing (e.g., Leonard and Leonard 1962), bioassessment, etc. Despite these facts, however, this distinctive and somewhat large-sized mayfly has not been previously reported for the state.

The new record is noteworthy because *Pseudiron centralis* is an unusual and fascinating species that may be endangered in parts of its range. Larvae are sand-dwelling midge hunters (Clifford and Soluk 1985, Soluk and Craig 1990) that move along the sand much like crabs (Clifford and Soluk 1984) but are also capable of extremely fast swimming (McCafferty and Provonsha 1986). It is the only recognized species of the Nearctic family Pseudironidae (Pescador 1985, McCafferty 1991a), and its distribution in the southeastern, central, and some northwestern United States and west-central Canada is typical of many unrelated psammophilous mayflies (McCafferty 1991b). Michigan represents the most northeastern record for the species. It is known from nearby states of Indiana, Illinois, and Wisconsin. In Indiana, it has recently been considered an endangered species by that state's Natural Resources Commission (Anonymous 1992).

Besides sand and sand/gravel habitats, a few larvae of *P. centralis* were taken on silt, in *Elodea* beds, on logs, or under cut banks on the Pere Marquette River. This may indicate a broader habitat preference for the species than previously thought, or, more likely, that the larvae are prone to drift and thus can be found in atypical habitats.

Pescador (1985) noted a distinct geographic gradation with regard to degree of body pigmentation found in populations of *P. centralis*, with individuals of northern populations being darker than those of southern populations. The specimens from the Pere Marquette River are typical of northern populations. The frons and vertex of the head of the Michigan specimens are dark brown and therefore, according to Pescador (1985), are not typical of other populations from central continental areas, but instead are typical of populations from Alberta, Saskatchewan, Utah, and Wyoming.

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