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Use of Molluscs as Pupation Sites by *Oecetis inconspicua* (Trichoptera: Leptoceridae)

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ABSTRACT

Within navigation pools of the upper Mississippi River, the caddisfly Oecetis inconspicua uses molluscs for pupation sites. This association apparently forms out of the need of Oecetis for a solid substrate to pupate on within a habitat dominated by soft shifting substrates. Oecetis generally colonized pelecypods and larger gastropods with an exposed shell surface area >2.5 cm^2. Oecetis was found only on the posterior exposed end of clams, but occurred somewhat randomly on snails. Few pupae were found on dead molluscs. Oecetis pupates on molluscs that can maintain a portion of their shell above the surface of the substrate, thus preventing pupal burial.

INTRODUCTION

The first symbiotic associations noted between aquatic insects and molluscs were parasitic (Steffan 1967). More recently non-parasitic (phoretic) associations have been reported between Rheotanytarsus (Diptera: Chironomidae) and pleurocerid snails (Vinikour 1982; White et. al. 1980; Mancini 1979). This association formed in areas of low food resources (Vinikour 1982) and/or inadequate substrate (White et. al. 1980) for the midge. Certain caddisflies use molluscs as part of their cases (Wiggins 1977; Anderson and Vinikour 1980). Use of invertebrates by hydroptilid caddisflies for pupation sites have also been reported and include dragonflies (White and Fox 1979) and pleurocerid snails (Vinikour 1982). In this paper, we report on the use of molluscs by Oecetis inconspicua (Walker) (Trichoptera: Leptoceridae) for the purpose of pupation.

STUDY SITE AND METHODS

This study was conducted in a pooled reach of the Upper Mississippi River just above Lock and Dam 19 located at Keokuk, Iowa. The dam was constructed in approximately 1913 and, since completion, 14 to 15 m of fine sediments have accumulated behind it. Due to heavy sediment accumulation above the dam, the border area adjacent to the navigation channel is shallow (1-5 m) with a substrate composed primarily of fine sand and silt. Submerged macrophytes occur in areas less than 1.5 m deep. Sediments continue to accumulate in this area although occasional scouring may occur during high-flow periods. The study area was the lower 6.5 km of the pool formed by the dam. Specifically, the study site was the shallow channel border section of the Illinois side of the river. Two sampling locations were used, one in submerged vegetation and the other in an unvegetated area. Both were in approximately 1 m of the water. Samples were collected monthly from May to October 1981. Pupae were encountered primarily in July with fewer obtained in August and September.

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