

Effects of Deposited Sediment on a Keystone Grazer, *Glossosoma intermedium* (Trichoptera: Glossosomatidae) and its Associated Macroinvertebrate Community in Southwest Wisconsin Streams

by

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ABSTRACT

Large-scale effects of deposited sediment on benthic macroinvertebrates are well documented, but mechanistic responses to deposited sediment are poorly understood. I examined the response of *Glossosoma intermedium* (Klapalek) populations to naturally varying levels of deposited sediment to determine mechanisms responsible for alterations in density and distributions. From March to November 1997, samples of macroinvertebrates were taken monthly from seven stream reaches varying in levels of deposited sediment, macroinvertebrate community composition, and *G. intermedium* density. Mean densities of *G. intermedium* larvae varied by location and were negatively influenced by cobble embeddedness. The mean size of *G. intermedium* larvae was inversely related to larval density and increased with cobble embeddedness. Under embedded conditions, *G. intermedium* was the dominant macroinvertebrate, and terminal size, measured as prepupae, was reduced. Canonical Correspondence Analysis of species assemblages revealed temporal increases in *G. intermedium* density were negatively correlated to other macroinvertebrates. In laboratory flumes, *G. intermedium* larvae displayed a wider range of locomotive capabilities on hard tiles than on sand. For early instar larvae, locomotive difficulties on sand often led to stranding, case abandonment, and drifting. These results suggest that deposited sediment constrain the distribution of larval *G. intermedium*, and locally affect density and terminal body size.