



EFFECTS OF SHADING AND HABITAT COMPLEXITY ON SHREDDER ASSEMBLAGES IN STREAM MESOCOSMS

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Riparian alterations associated with agricultural expansion often modify key structural features of stream ecosystems, particularly shading and habitat complexity, with important consequences for detritus-based food webs. In forested streams, shredders play a central role in leaf litter processing by converting coarse organic matter into fine particles, supporting energy flow across trophic levels. However, the relative importance of different structural drivers in shaping shredder responses remains unclear. This study evaluated how shading and habitat complexity influence shredder colonization in a controlled mesocosm experiment simulating stream conditions. A leaf decomposition experiment was conducted in mesocosms subjected to three shading levels (0%, 30%, and 70%) and two levels of habitat complexity (low and high). Shredder responses were primarily driven by shading. Shredder biomass increased significantly with shading increase, with higher values observed under 70% shade in the whole experiment and in specific incubation times. Shredder density also responded to shading throughout the experiment, although this pattern was less consistent in some incubation times. In contrast, habitat complexity did not significantly affect shredder density or biomass, and no interaction between factors was observed. These results indicate that environmental conditions associated with riparian shading may exert stronger control over shredder assemblages than local habitat complexity. Increased shading may favor shredder establishment and activity, with potential consequences for leaf litter processing and ecosystem functioning. Our findings highlight the importance of riparian vegetation in maintaining key ecological processes and



suggest that restoration strategies should prioritize canopy recovery to support detritivore activity in stream ecosystems.

Palavras-chave: *Canopy cover; Organic matter processing; Mesocosm experiment; Freshwater ecosystems*