

Experimental evidence associates burrowing behavior of *Castalia ambigua* Lamarck 1819 (Bivalvia: Hyriidae) with shell shape and density

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Abstract

Information on freshwater mussel behavior in the sediment is scarce in the Neotropics, especially in the Amazon. Laboratory experiments were used to measure the responses of the mussel *Castalia ambigua* in relation to combinations of two different morphotypes (Morphotype I with an elongated shell and Morphotype II with a rounded shell) and three different densities (4, 8 and 16 mussels). Horizontal movements (cm) were calculated by summing changes in the position of each specimen and the shell exposure at the sediment-water interface was obtained by measuring (mm) the exposed part of the shell. *Castalia ambigua* presents different patterns of shell exposure and horizontal movements linked with shell shape and density. *Castalia ambigua* Morphotype I remained less exposed with 4 mussels. In contrast, this morphotype was more exposed and tended to aggregate in treatments with 8 and 16 mussels, similar to observations of Morphotype II at all densities. Morphotype II is mainly found in low hydrodynamic energy habitats, suggesting that patches with high densities may stabilize the substrate around the shells of Morphotype I, which is associated with high hydrodynamic energy habitats. We suggest that these patterns may be associated with intrinsic factors of the species, such as reproduction and feeding. Moreover, additional studies using other mussel species belonging to the families Hyriidae and Mycetopodidae are important, since the behavior of these mussels in the sediment may provide useful information on their functional roles in river ecosystems.

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