**(TITLE)**

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Freshwater unionid mussels require a host fish to complete their lifecycle – they parasitize fish with their glochidia larvae. Some mussels are generalists, using many different species of fish, whereas others use one or two hosts. The evolution of host specificity has resulted in different methods for attracting hosts to increase the chance of successfully infesting the appropriate fish species. One method for attracting a host fish is modification of the mantle margins. *Lampsilis fasciola* (Wavyrayed Lampmussel), have complex mantle margin modifications or lures that look like fish, crayfish/red and hellgrammite larvae. The frequency of this polymorphism differs and may be related to the fish host species. In order to examine this hypothesis, we tested the reproductive success of three different lure types of *L. fasciola* on a known host *Micropterus dolomieu* (Smallmouth Bass). The infestation (glochidia attached/glochidia exposed) and metamorphosis (juveniles produced/glochidia attached) rates as well as numbers of juveniles produced was analyzed over multiple years. There was considerable variation in the magnitude and direction across years. However, despite having the lowest frequency in the nature, the crayfish/red lure had comparable metamorphosis and infestation rates and juvenile production to the other lures in the laboratory. The maintenance of these polymorphic lures may be related in part to the role of different visual predators as hosts, prey recognition, and the confounding effects of turbidity in rivers.