

ABSTRACT

RESEARCH PAPER: Do parasitic trematode flatworms form castes in freshwater snail hosts?

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Division of labor and caste formation has evolved across multiple groups of social animals, including parasitic flatworms of marine snails. Individual animals in separate castes are often different sizes or shapes and represent reproductive and non-reproductive morphs. This project observed whether trematodes in freshwater snails exhibit similar caste formation as trematodes in marine snails. Caste formation based on body size would result in the secondary morphs being much smaller than the primary morphs with no overlap in body volume or width. Specifically, I determined whether the rediae of freshwater trematodes exhibit size differences within snail host species. The freshwater snail species, *Elimia livescens* and *Physa acuta*, were collected in the White River, Delaware County, IN, USA. Snails were identified to species, the shell lengths were measured, and they were dissected to find parasitic trematodes under a dissecting microscope. Length and width measurements of rediae were taken using a Nikon imaging program and an image processing program. A scatterplot was constructed from rediae length and width measurements. The volume of the rediae bodies were calculated by approximating the shape of the rediae to a cylinder. The volume of rediae bodies varied

extensively, but the trematode parasites did not appear to exhibit distinct size difference within the freshwater snail hosts.