

# PRELIMINARY MOLECULAR STUDIES OF SYSTEMATICS AND COPHYLOGENY IN RODENT-RESTRICTED SUCKING LICE (ANOPLURA: POLYPLACIDAE)

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This study is the first to use molecular data to reconstruct evolutionary relationships of rodent-restricted sucking lice in the family Polyplacidae (Phthiraptera: Anoplura) and the first to examine cophylogeny between *Fahrenholzia* lice (Polyplacidae) and their heteromyid rodent hosts using molecular data. Anoplurans are the only obligate ectoparasites that feed strictly on blood, and this feeding behavior and extreme host dependency makes them excellent candidates for molecular analysis of cophylogeny. Although studies of cophylogeny greatly increase understanding of associations between parasites and their hosts, few studies have incorporated genetic data from independent host and parasite phylogenies to test for cophylogeny.

Morphological work supports a monophyletic clade of all lice parasitizing rodents, and comparison of all *Fahrenholzia* representatives with known host associations shows promising evidence for cophylogeny. These results indicate that focusing on rodent-restricted anoplura is a feasible place to begin molecular work. Preliminary molecular results indicate a monophyletic Polyplacidae, and lice in the genus *Fahrenholzia* group together within Polyplacidae. Further louse molecular work is still underway, as is host molecular work, and results from this work will be used in statistical tests of cophylogeny. Results from this study indicate that relationships among polyplacid lice can be resolved using mitochondrial data and that these lice are promising candidates for coevolution studies.