Public Abstract

Michael Leslie Ferro

M.S.

Entomology

The Ephemeroptera, Plecoptera, and Trichoptera of Missouri State Parks with Notes on Biomonitoring, Mesohabitat Associations, and Distribution

Advisor: Dr. Robert W. Sites

Graduation Term Winter 2005

Aquatic insects are an important ecological component of both aquatic and terrestrial food webs, and contain a diversity of taxa that grade from extremes in sensitivity and tolerance to pollution. Most species of Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) (collectively EPT) are associated with high quality streams, and are used for assessment of biological integrity and overall ecological health and may be used as an indicator of the status of overall biodiversity in protected, publicly owned lands such as state parks.

Thirty-seven streams within 15 Missouri state parks were sampled for immature and adult EPT through 2002 and early 2003. All totaled, 34,251 EPT larvae were collected. Of approximately 70,000 adult specimens collected, 10,342 were identified to the lowest taxon possible. Fifteen species endemic to the Interior Highlands and two species on the Missouri Species of Conservation Concern Checklist were collected. This research revealed a total of 214 species in 100 genera and 37 families of EPT in the designated state parks, accounting for 52% of the EPT fauna known from Missouri. Specifically, 57 species in 35 genera and 13 families of Ephemeroptera, 43 species in 18 genera and 8 families of Plecoptera, and 114 species in 47 genera and 16 families of Trichoptera were collected. Of seven mesohabitats designated, species richness was highest in the riffle. Many species are reported from each state park for the first time and *Serratella sordida* McDunnough and *Triaenodes perna* Ross were collected in Missouri for the first time.