

Mortality of Nontarget Arthropods from An Aerial Application of Pyrethrins

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Abstract

Mortality of nontarget organisms from an ultra-low volume (ULV) aerial application of pyrethrins (Evergreen® EC 60-6) was monitored by collecting arthropods from ground tarps placed at the interface of open and canopy areas. A larger number and greater diversity of arthropods were recovered from tarps in the ULV spray area. The observed mortality was approximately 10-fold greater than in the control area. Kruskal-Wallis tests revealed a significant difference in the abundance and diversity of arthropods collected at treatment and control sites at 1 and 12 h postspray. Arthropods, primarily insects, from the treatment area included representatives from 12 orders and ≥ 34 families, as compared to 7 orders and 12 families in the control area. Chironomidae (midges) and Formicidae (ants) were the most commonly represented families, accounting for 61% of the arthropods collected from the treatment area; no large-bodied insects (>8 mm) were recovered. Mortality of sentinel mosquitoes in the treatment and control areas averaged 96% and $<1\%$, respectively, at 24 h postexposure. This study supports previous work that the impact of a single ULV application of pyrethrins was limited to a variety of small-bodied arthropods.

Keywords: Nontarget organism mortality, ultra-low volume, pyrethrins