ABSTRACT

THE ECOLOGY OF THE BROMELIAD-INHABITING MOSQUITOES FROM JAMAICA AND TRINIDAD

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The mosquito species which inhabit bromeliads were investigated from Jamaica and Trinidad. Bromeliads were collected from five locations in Jamaica and 10 locations in Trinidad.

A total of 225 plants from six genera were investigated from Jamaica and 79 from four genera in Trinidad. Detailed studies were conducted on the genera *Hohenbergia*, *Tillandsia* and *Vriesea* from Jamaica and on *Aechmea* and *Tillandsia* from Trinidad.

All mosquito species collected from Jamaica are endemic while those from Trinidad are widespread through out Central and South America. Species collected from Jamaica are from the genera *Aedes*, *Wyeomyia* and *Culex*, and represented 50% of the species recorded from bromeliads in Jamaica. Six genera of mosquitoes were collected from Trinidad namely, *Aedes*, *Anopheles*, *Culex*, *Phoniomyia*, *Toxorhynchites* and *Wyeomyia*. All genera except *Culex* (which has two species) were represented by

a single species. These seven species accounted for less than 30% of the species recorded from bromeliads in Trinidad.

The maximum number of larvae collected from a single bromeliad in Jamaica was 451 and from Trinidad 369. In Jamaica, *Hohenbergia* had significantly fewer larvae ($F= 7.59$, $p<0.001$) than *Tillandsia* and *Vriesea*. However, there was no significant difference in the number of larvae in *Aechmea* and *Tillandsia* from Trinidad.

Mosquito species which were most prevalent also had high mean intensities in *Tillandsia* ($R^2=82.8\%$, $p<0.01$) and *Vriesea* ($R^2=79.2\%$, $p<0.01$) but not in *Hohenbergia* ($R^2=36.0\%$, $p=0.07$) from Jamaica. *Wyeomyia* species were generally less prevalent than *Aedes* in all three bromeliad genera. By contrast there was no association between prevalence and intensity for the mosquito species collected from Trinidad.

The distribution of most species in bromeliads was aggregated. Except for two species in Trinidad, those species which showed a good fit to the negative binomial had values of k which were less than one. These results were compared with those of the aggregation model of Atkinson and Shorrocks (1986) as a possible explanation

for species coexistence.

Studies on the community assembly of mosquito species inhabiting bromeliads were done in a single location in Jamaica. Species patterns were elucidated using multivariate methods. *Vriesea* plants contained all species found, and of these, *Aedes aurites* and *Wyeomyia luna* were characteristic. *Aedes stenei* and *Wyeomyia stellata* were characteristic of *Hohenbergia* while *Aedes walkeri* dominated *Tillandsia*. Female ovipositional choice is a major factor influencing the distribution of mosquito species in the different genera of bromeliads.