

Bromeliads as *Aedes* breeding habitat in the San Gabriel Valley

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Introduction

Tank bromeliads, a group of plants that can trap standing water and thus serve as breeding habitat for mosquitoes including invasive *Aedes* spp. (Frank 1983), are popular ornamental plants in southern California. Although San Gabriel Valley vector control workers regularly detect and treat *Aedes* spp. and *Culex* spp. larvae in garden bromeliads, the role of these plants in local *Aedes* outbreaks is poorly understood. The goals of the current study were to 1) learn how invasive *Aedes* spp. use bromeliad habitat over a season, and 2) compare these activity patterns with those of adult invasive *Aedes* spp. detected nearby by means of standard adult trap collections.

Methods

Ten *Guzmania* “Allura” plants with a phytotelmata volume of 152 ± 39 mL (mean \pm SD) were placed at each of ten sites across the cities of Alhambra, El Monte, and Pasadena, in which both *Aedes aegypti* and *Aedes albopictus* had been collected in 2017. Weekly between May-Oct. 2018 we triple-rinsed each plant, collected visible larvae from rinse water, and saved the rinse water of four plants per site per week to rear unseen larvae and/or eggs in the laboratory. Plants were then refilled with deionized water. In each city, we operated one BioGents BG-Sentinel (BG) trap baited with BG-Lure for 24 h each week.

Results and Discussion

Only *Ae. aegypti* and *Ae. albopictus* were collected from bromeliads, while BG traps detected *Aedes aegypti*, *Ae. albopictus*, *Culex quinquefasciatus*, *Cx. tarsalis*, and

Culiseta incidens. *Aedes albopictus* was collected from bromeliads at all ten sites, with 5.8 ± 3.3 (mean \pm SD) plants per site producing *Ae. albopictus* at least once during the study. *Aedes aegypti* was collected from seven plants at two sites. *Aedes albopictus* larvae were first found in bromeliads 8.2 ± 4.3 weeks later (mean \pm SD) and last found 4.0 ± 4.4 weeks earlier than adults were collected in BG traps in the same cities.

Conclusions

Small sentinel bromeliads were colonized only by invasive *Aedes* spp. despite the presence of other mosquitoes. Approximately 60% of these plants were colonized by *Ae. albopictus* at least once during the season. *Aedes albopictus* adults were collected at BG traps before and after larvae were found at most bromeliad sites.

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