

**BROMELIAD DISTRIBUTION AND THE
COLONIZATION OF BROMELIAD
PHYTOTELMATA BY MACROSCOPIC
INVERTEBRATES IN PEJIBAYE DE JIMÉNEZ, COSTA RICA**

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Numerous studies have been done to define and identify the organisms living within bromeliad (*Bromeliaceae*) phytotelmata in countries throughout the tropics. However, research concerning the modes for colonization of these same phytotelmata is poorly represented in the literature. Bromeliad phytotelmata provide unique freshwater microecosystems for a myriad of microorganisms, vertebrates and invertebrates. In addition, little research regarding the directional preferences of tree bromeliads within canopies is available. Therefore, we conducted a series of three studies in order to better understand the colonization strategies of macroinvertebrates in bromeliad phytotelmata, and the distribution of tree bromeliads within a group of trees in rural Pejibaye de Jiménez, Costa Rica from February 27 to April 20 2012. We fabricated 150 artificial bromeliad cups under three conditions (control, rainwater as a vector for colonization, and debris as a vector for colonization) to test which vector had more insects. We also measured tree circumferences and diameters from *Gliricidia sepium* (Jacq.) Kunth ex Walp. trees (n=100) along a living fence. Bromeliads living on the fence were counted and measured for their size. We photographed the canopies of 60 trees, taking one photograph for each of the four cardinal directions around the trunk of the tree. Our results showed that there were significantly more insects found in control cups than both rainwater or debris conditions ($p < 0.0001$). We discovered that bromeliads preferred to grow on trees that were larger, and that larger trees had larger bromeliads growing on them. ($p < 0.0001$, $p < 0.0001$) We further learned that there was a greater number of bromeliads growing on the east sides of trees as compared with the west side ($p = 0.058$) The outcome of our research will be useful for conservation efforts of bromeliads, but even more importantly of the complex microecosystems that they house. Overall, our research provides background for further research in little-researched areas.