

IS-4: Beyond the Binary (Part 1): Re-envisioning the complexity of life history evolution in the Bromeliaceae with comparative data

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The study of life history variation is a central part of evolutionary biology. The Bromeliaceae (pineapple family) is a potential model system in which to study the evolution of life history because lineages have evolved differential reliance upon sexual reproduction as the means for propagation. Some groups are very prolific at asexual (clonal) propagation while others, often distantly related, are unable to clone and die after an attempt at sexual reproduction. Life history in bromeliads may be more complex than the simple binary view of iteroparous and semelparous, with lineage-specific strategies shaped by trade-offs that differ within environments. Bromeliaceae is also intriguing from a mathematical modeling perspective because the development of a bromeliad is modular, and the overall body plan is similar across species. I will overview our liberal-arts approach to studying the life history of bromeliads, using data from across species. I will highlight how allometric data taken from multiple species over several years in a common greenhouse allows us to test predictions from the reproductive effort model and develop models of bromeliad body plan trade-offs that could be used across many more species in the field.