

# Uncovering tropical diversity: six sympatric cryptic species of *Blepharoneura* (Diptera: Tephritidae) in flowers of *Gurania spinulosa* (Cucurbitaceae) in eastern Ecuador

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Diversification of phytophagous insects is often associated with changes in the use of host taxa and host parts. We focus on a group of newly discovered Neotropical tephritids in the genus *Blepharoneura*, and report the discovery of an extraordinary number of sympatric, morphologically cryptic species, all feeding as larvae on calyces of flowers of a single functionally dioecious and highly sexually dimorphic host species (*Gurania spinulosa*) in eastern Ecuador. Molecular analyses of the mitochondrial cytochrome oxidase-I gene from flies reared from flowers of *G. spinulosa* reveal six distinct haplotype groups that differ by 7.2–10.1% bp (uncorrected pairwise distances;  $N = 624$  bp). Haplotype groups correspond to six distinct and well-supported clades. Members of five clades specialize on the calyces of flowers of a particular sex: three clades comprise male flower specialists; two clades comprise female flower specialists; the sixth clade comprises generalists reared from male and female flowers. The six clades occupy significantly different morphological spaces defined by wing pigmentation patterns; however, diagnostic morphological characters were not discovered. Behavioural observations suggest specific courtship behaviours may play a role in maintaining reproductive isolation among sympatric species. Journal compilation

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