Delving into the diversification of *Darwinia* (Myrtaceae): Phylogenomics, historical biogeography, pollination ecology, and gene flow of the southwestern Australian clade

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We aim to analyze the relative importance of different drivers of plant species diversification in the highly diverse and geographically limited genus *Darwinia* (Myrtaceae). This group is ideal for such studies due to the small ranges of many species, sky-island biogeography of several taxa, apparent limited distances of seed and pollen movement, and diversity of inflorescences and associated pollinators. Our research has three major goals: First, to use next-gen phylogenomic data to construct a dated phylogeny to elucidate evolutionary relationships and species-level historical biogeography within *Darwinia*; Second, to investigate reproductive ecology and pollination syndromes of several species through studies of pollinator behavior, inflorescence morphometrics, and floral volatiles; and Third, to quantify the scale and directions of gene flow in *Darwinia* through population genomic studies in three target species. Data resulting from these three studies will inform an analysis of diversification rates to understand which factors drive diversification in *Darwinia*. This research is being conducted in conjunction with collaborators at the Australian Tropical Herbarium, the Western Australian Herbarium, and Kings Park Botanic Garden, and should increase our understanding of plant speciation as well as contribute to our knowledge of the ecology and evolution of threatened elements of the Western Australian flora.