PROCEEDINGS OF THE ROYAL SOCIETY B

Non-native honey bees disproportionately dominate the most abundant floral resources in a biodiversity hotspot

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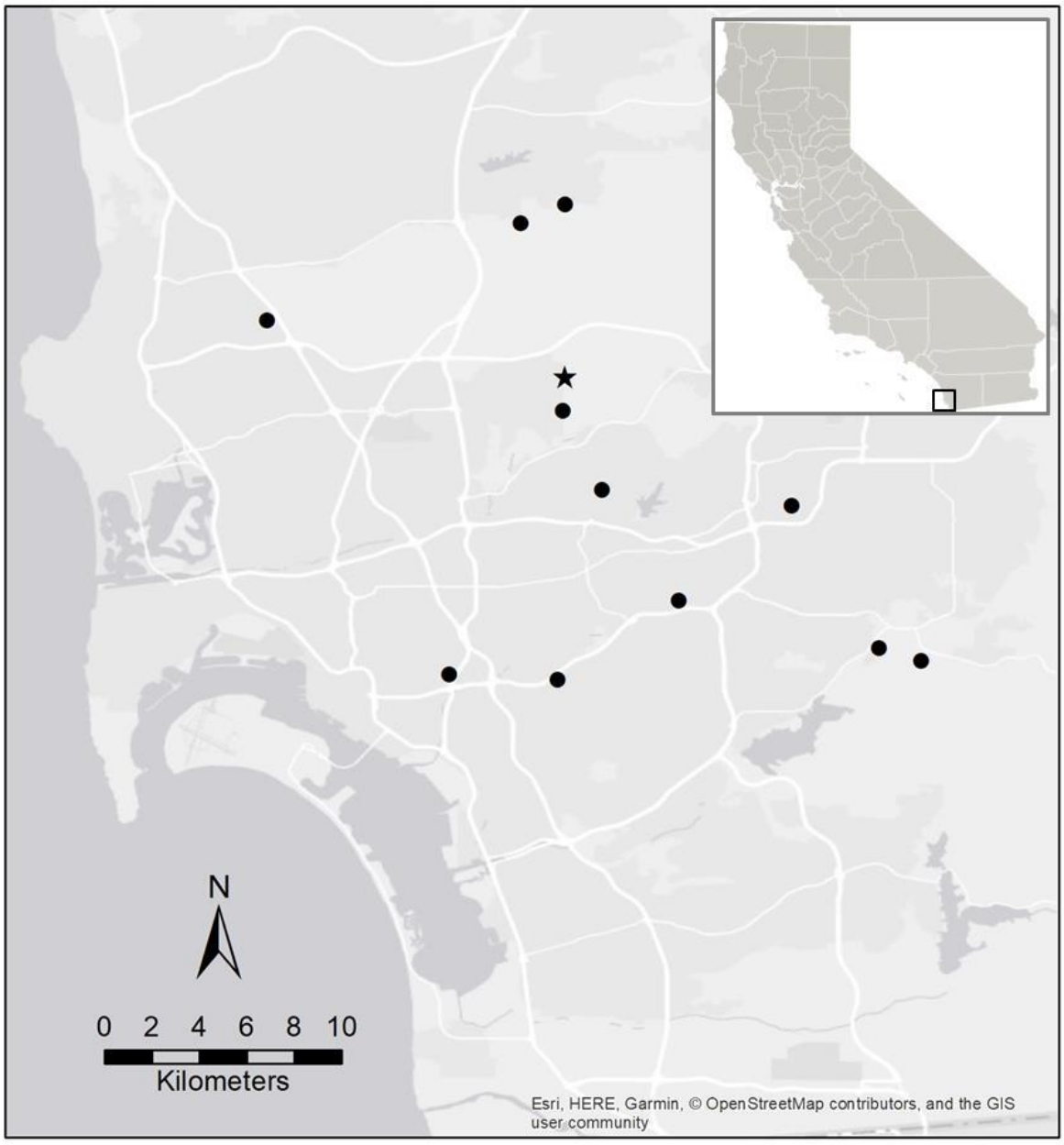
Electronic Supplementary Material S2

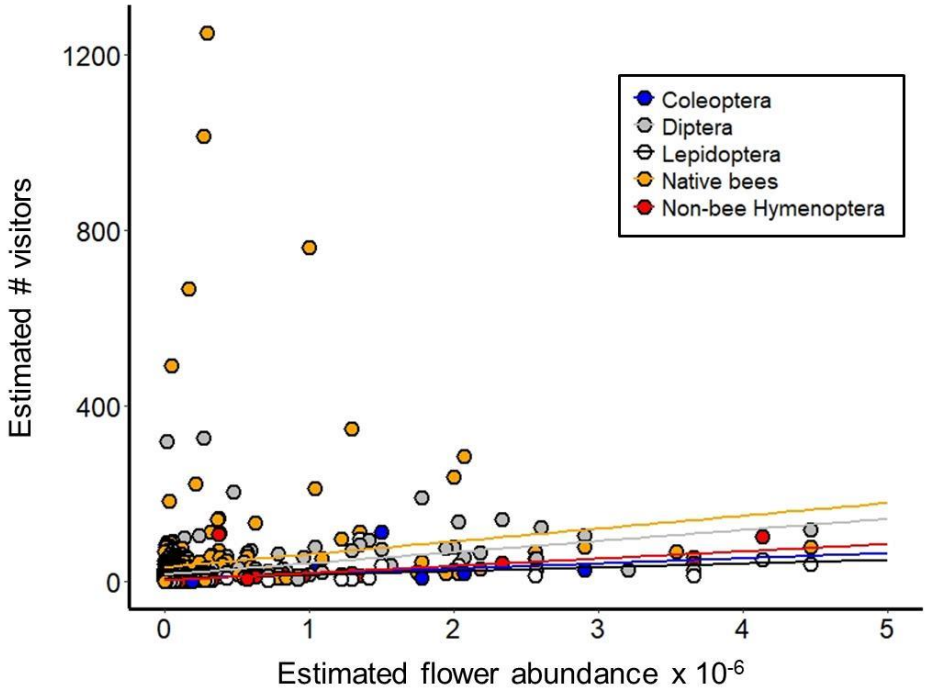


Supplementary Information Figure S2-1: Map of the study sites in coastal San Diego County, with inset map depicting the location of the study region within the state of California, USA. The single site surveyed using Approach 1 is indicated by a star, and the 11 study sites surveyed using Approach 2 are indicated by circles. GPS coordinates of the study sites are reported in table S1-1 I in the electronic supplementary material S1.

Electronic Supplementary Material S3

To examine whether grouping all non-honey bee floral visitors into a single category masked divergent responses of different insect taxa to flower abundance, we excluded honey bees and then repeated the analysis depicted in figure 1 of the main text, grouping non-honey bee visitors according to their taxonomic ordinal rank. Native bees were analysed separately from non-bee Hymenoptera because of the former's higher abundance and greater reliance on floral resources, although combining all Hymenoptera together did not alter our results. This supplementary analysis was only performed on data collected using Approach 2, because data collection in Approach 1 did not resolve floral visitor identity beyond whether the visitor was a honey bee or not.

Estimated numbers of floral visitors were positively related to flower abundance overall (figure S3-1; $F_{1,479} = 12.2$, $P = 0.0005$), although the slopes are much shallower compared to that of honey bees (see table S1-4 in the electronic supplementary material S1). The five non-honey bee floral visitor groups also differed in their overall abundance ($F_{1,633} = 2.94$, $P = 0.020$). Notably, the five highest values of estimated number of floral visitors were represented by a single plant species (*Malosma laurina*) being visited by bee assemblages overwhelmingly dominated by a single solitary species, *Perdita rhois* Cockerell. There was no interaction between visitor group identity and flower abundance ($F_{1,621} = 0.87$, $P = 0.48$), indicating that the five non-honey bee floral visitor groups did not differ from one another in their responses to flower abundance. Thus, it appears that our approach of grouping all non-honey bee floral visitors into a single category did not alter our main conclusions.



Supplementary Information Figure S3-1: Estimated number of floral visitors versus flower abundance for five main groups of non-honey bee insects documented in 11 study plots surveyed using Approach 2. Each data point indicates the number of floral visitors of a given group observed on flowers of a particular plant species during a single day of observation at each site.