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SOUTHERN AFROTEMPERATE FOREST TREE SPECIES HAVE GENERALIST, BUT DISTINCT, POLLINATOR COMMUNITIES PREDICTED BY FLORAL TRAITS

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ABSTRACT

The largest indigenous forest in southern Africa is confined to the eastern regions of the mega-diverse Cape Floristic Region. Despite an abundance of work on pollination in the fynbos biome, indigenous forests have been largely overlooked, with the most comprehensive notes on forest tree pollination dating back to 1926. The challenges of spatiotemporal variation in forest tree flowering and accessibility have seen pollination studies in undisturbed forest canopies being unevenly distributed across the globe, mostly restricted to areas where canopy cranes are in place and often covering northern temperate or tropical forest systems. Thus, southern Afrotropical canopies represent two geographic gaps: southern temperate forests and Afrotropical forests. Here, despite divergent phylogenies, the majority of canopy tree species produce a strikingly similar flower morphology of small, white flowers. We accessed flowering tree canopies, using rope pulling techniques, and observed flower visitors to four common canopy tree species in a large, undisturbed forest interior. A total of 144 hours of day- and night-time observations were captured. The most common flower visitor was the Cape honeybee (*Apis mellifera capensis*). However, dipteran, lepidopteran and non-bee hymenopteran species contributed significantly to flower visitation rates, with respective tree species showing statistically unique assemblages of flower visitors. Interestingly, temporal partitioning in flowering phenology was noted for focal tree species, as well as differences in measured floral traits. We conclude that tree species, despite being generalist in their interaction with flower visitors, support a rich diversity of insect species and have high conservation value.