

EXPERIMENTAL EVIDENCE FOR PREDOMINANT NOCTURNAL POLLINATION DESPITE MORE FREQUENT DIURNAL VISITATION IN *ABRONIA UMBELLATA* (NYCTAGINACEAE)

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Pollinators exert natural selection on the flowers they visit, affecting how flowers evolve over time. Different groups of pollinators, like nocturnal moths or diurnal bees, often have distinct preferences in choosing which flowers to visit. The colours, shapes, sizes, and scents of many flowers today reflect interactions with specific pollinators over evolutionary time, but do not necessarily predict which types of pollinators are important to particular plants today. To determine which flower visitors are effective pollinators, it is important to document the full range of visitors to flowers and determine the relative pollination effectiveness of each group.



Abronia umbellata

We used pollinator observations and pollinator exclusion experiments to determine which flower visitors are effective pollinators of the plant *Abronia umbellata*. The plant cannot produce seeds without insects delivering pollen from a different individual, so insect pollinators are critical for reproduction. We determined which insects visit flowers and calculated visitation rates for daytime (bees and butterflies) and nighttime (moths) flower visitors. To assess whether day or night visitors were more effective pollinators, we excluded visitors from flowers during the day or overnight and compared the incidence of successful pollination for flowers in each group.

We found that flower visitation rates were higher during the day than at night but visitation at night resulted in more successful pollination than daytime visits. Taken together, our results demonstrate that *A. umbellata* is pollinated predominantly by nocturnal moths, although it is visited more frequently by other insects during the day. The most common daytime visitor by far was the honey bee (*Apis mellifera*), which may be acting as a pollen thief, given the frequency with which it visits *A. umbellata* flowers but the lack of successful pollination during the day.