

POLLEN REMOVAL AND DEPOSITION BY POLLEN- AND NECTAR-COLLECTING SPECIALIST AND GENERALIST BEE VISITORS TO *ILIAMNA BAKERI* (MALVACEAE).

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Many bee pollinators are “specialists” on their host plants, collecting pollen only from a preferred plant to feed their offspring. Many biologists have wondered why this is so, and whether bee-plant specialization is advantageous for either the bee or the plant. Some think bee specialists have become more “efficient” at collecting the host plant pollen than other bees, and provision their nests faster. All solitary bees have a limited window to provision their nests, and pollen collecting trips are particularly time consuming.

We tested the efficiency hypothesis using a solitary, ground-nesting bee, *Diadasia nitidifrons*, which is a mallow specialist on *Iliamna bakeri* in the northwest USA.

We compared the pollen removal of specialist and generalist bees on *I. bakeri* using single visits. We also tested two other hypotheses concurrently: whether specialist bees deposit more pollen and are superior pollinators; and whether pollen collectors (both specialist and generalist) remove and deposit more pollen compared to nectar collectors (both specialist and generalist).

We found limited support for the ‘efficient specialist’ hypothesis. The specialist pollinator *D. nitidifrons* did remove more pollen than generalist bees, but the difference was not very significant.



*Iliamna bakeri*, a rare, fire-following mallow in NE California.

We found that the specialist bee did not deposit more pollen on plant stigmas than generalist bees, although *Diadasia* was the most abundant visitor to *Iliamna* wherever the bee occurred and may confer a pollination advantage via reliability.

We found strong support for the third hypothesis. Pollen collectors in our study removed significantly more pollen than nectar collectors, and they deposited more pollen than nectar collectors as well. The higher rate of pollen deposition by pollen collecting bees contrasts with several other studies, which have shown pollen collectors are sometimes detrimental to their host plants by collecting more pollen than others yet depositing a similar amount.