

Do exotic birds contribute usefully to native fruit dispersal?

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It is unclear whether exotic birds make useful contributions to native fruit dispersal, because they sometimes eat mainly exotic fruits. Using five sites around Christchurch we measured whether this bias towards exotic fruit results from habitat separation, with exotic birds mainly in towns where exotic fruits predominate. We classified observed frugivory events by habitat, bird species and fruit species, April through September 2015. We looked particularly at exotic blackbirds (*Turdus merula*), an important frugivore in one NZ study but unimportant in another.

We recorded 823 frugivory events involving 4 native, 7 exotic bird species consuming fruit from 10 native and 13 exotic plant species. Fruit preferences were significantly different. Native plants made up 94% of fruit feeding observations for endemic bellbirds (*Anthornis melanura*), 52% for native silvereyes (*Zosterops lateralis*) but only 25% for blackbirds. Habitat differences affected bird relative abundances, relative availability of native and exotic fruiting plant species at sites, but bird preferences for and against native fruit were still highly significant after controlling for habitat (GLMM, site as a random effect).

Focusing on blackbirds specifically, we found they were providing little dispersal to native plants. Blackbirds made only 9% of observed feeding events on native fruit in this study, less than silvereyes (70%) and bellbirds (18%) even though bellbirds were scarce at two of five sites. Three reasons accounted for this. Firstly blackbirds mainly selected exotic fruit (as above). Secondly, they were more abundant at city sites (28 encounters/hour) than semi-rural sites (6 encounters/hour) and a native forest site (1 encounter/hour). Finally, they mainly ate invertebrates, with only 12.5% of blackbird feeding observations being fruit, most of which (as above) was exotic species.

Although blackbirds eat a wide range of fruits, especially exotic fruit in towns, they are not effective replacements for missing native or endemic frugivorous birds.