

Encouraging wild pollinators to your orchard

Background

Pollination is a crucial ecosystem service for global food production. With world-wide pollinator diseases and population declines occurring¹, the role of wild insects in pollinating crops is crucial. Understanding the requirements of wild pollinators within orchards will help to ensure resilient agricultural systems into the future.



Figure 1: Retaining alternative flowering plants within the orchard and surrounds can help to naturally boost wild pollinators providing them with floral resources and habitat.

Many different wild pollinators have been found to pollinate crops in Australia. They include native bees, flies, beetles and wasps. To encourage and sustain wild pollinator populations, we need to provide them with diverse foods, in the form of floral resources (pollen and nectar), year round (Fig 1).

Creating and preserving habitat containing native plants with a range of flower colours, shapes and flowering times will ensure various pollinator species occur in your orchard (Fig 2). Pollinators also require suitable habitat for nesting; many of our native bees require undisturbed bare earth, plant stems or trees to nest in.

Objectives

To determine:

- The role of diverse flowering communities in supporting crop pollination by wild insects.
- How wild pollinators can be encouraged and promoted within orchards using native floral enhancements.

This research was conducted on both apple and cherry orchards, with results from apple orchards described here.

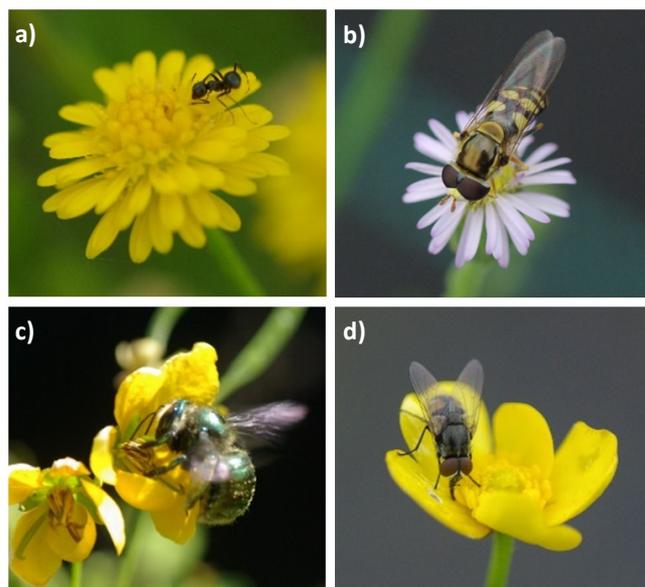


Figure 2: There is a range of native insects contributing to pollination services, including **a)** ants, **b)** hoverflies, **c)** bees and **d)** flies. Providing native floral resources outside the crop flowering period can support healthy pollinator communities within your orchard or farm.

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Results

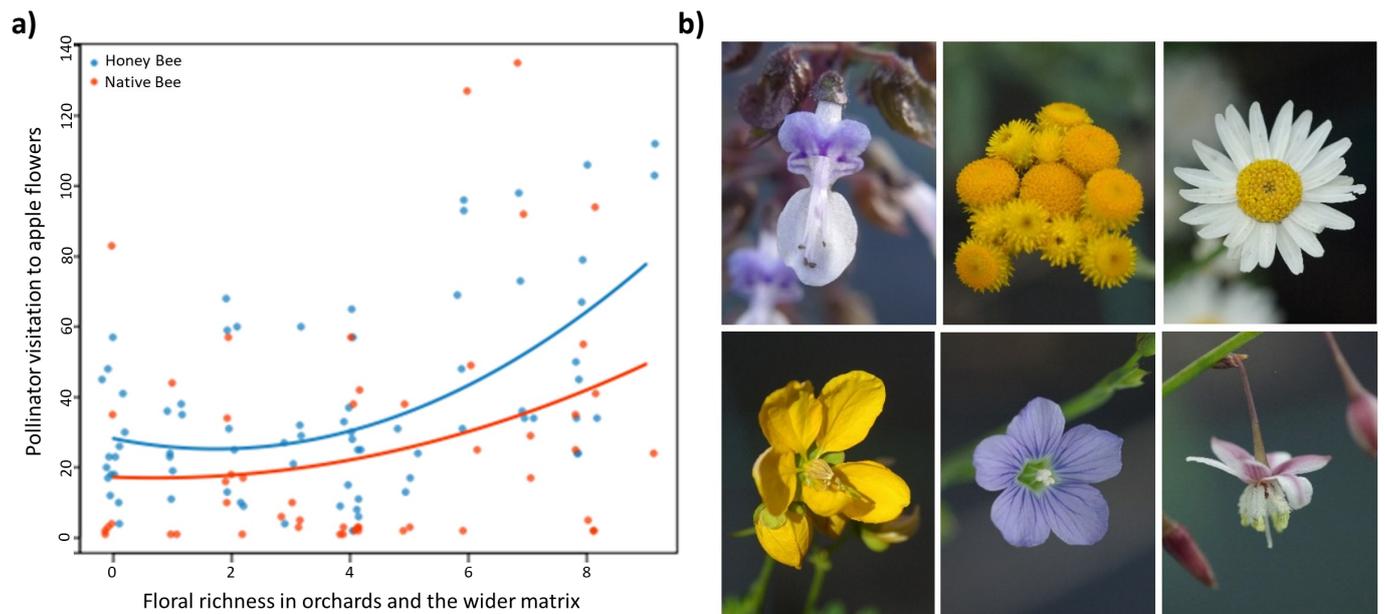


Figure 3: a) As flowering plant species richness increases within and surrounding apple orchards, the number of native bee and honey bee visits to apple flowers significantly increases. b) Different plant species have diverse floral traits (colour, shape) and therefore attract different types of wild pollinators.

Research findings

- High numbers of flowering plant species (ie., more than 3) resulted in more pollinator visits to apple flowers (Fig 3a); experiments using other crops are ongoing.
- Presence of native plants with a wide range of different flower colours, shapes and flowering times attracts a large diversity of wild pollinators (Fig 3b).

Encouraging wild pollinators

- Establish native flowering plants with different flower colours, shapes and flowering times.
- Retain and restore native habitat patches in and surrounding your orchard or farm.
- Retain other flowering species within your farm even if the flowering season overlaps with that of your crop.

Native plants that support wild pollinators

- **Trees and shrubs:** Eucalypts, Angophora, Callistemon, Leptospermum, Banksia, Grevillea, Melaleuca, Westringia, Senna.
- **Ground cover:** Wahlenbergia, Calotis, Goodenia, Plectranthus, Convolvulus.
- **Note:** Check with local nurseries for native plant species specific to your region.

References and Acknowledgements:

1. Garibaldi *et al.* (2011). Stability of pollination services decreases with isolation from natural areas despite honeybee visits. *Ecology Letters*. 14: 1062-1072.

Healthy bee populations for sustainable pollination in horticulture is funded by the Hort Frontiers Pollination Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with co-investment from Western Sydney University, Bayer CropScience, Syngenta Asia-Pacific and Greening Australia, and contributions from the Australian Government.

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