## FLORA AND FAUNA

# POLLINATE OR PERISH

*by Liz Brown*

*Honey possum (Tarsipes rostratus) getting nectar from Beaufortia sp. (photo: S.D. Hopper)*

POLLINATION is a vital part of any sexually-reproducing plant's life-cycle. Many plants rely on animals such as birds, insects and mammals to transfer pollen from one flower to another and enable the plants to set seed. Although most plant species have both male and female reproductive parts on the same plant, the best seeds result from cross-fertilisation of different plants. The incentive for animals to visit flowers is usually nectar, although sometimes pollen is the only reward available. Some orchids even attract their pollinators (male flower wasps) under false pretences - the flowers smell and look like female wasps, and in the males' attempt to mate with the deceptive flower, the bundles of pollen (pollinia) are inadvertently dislodged by the wasp and carried to the next flower it visits in its pursuit of sex.

Some plants have a wide array of pollinators visiting them. Eucalypts are a good example - they may attract birds, honey possums, native bees and wasps, jewel beetles, butterflies and introduced honey bees. Other plants seem to be dependent on only a few species of insects. For instance, certain orchid species are only ever pollinated by a particular species of flower wasp. Such specific relationships are uncommon, but more prevalent in those plants pollinated by insects.

Regardless of whether the plants are visited by many different

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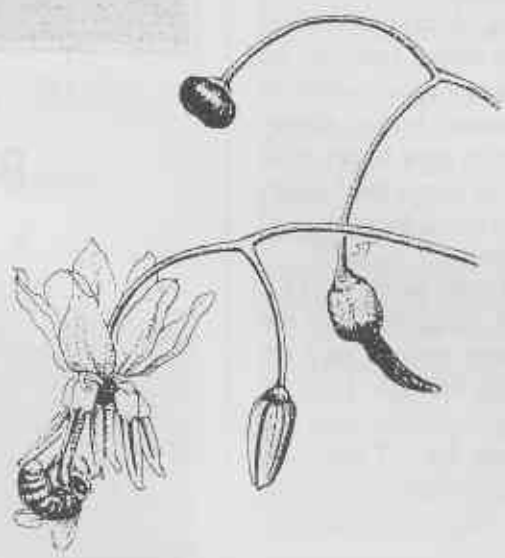
pollinators or require a specialist one, the fact that there is an inter-relationship between the plants and animals is important. What happens to the one will invariably affect the other, and in many cases cause a ripple effect involving the whole community. These relationships can be disturbed very easily, and often quite unwittingly. There is growing concern in the Northern Hemisphere that pollution, habitat loss and disease are killing off pollinators (mainly insects) at a scale sufficient to endanger crop survival. In a similar vein, remnant or rehabilitated bushland in Australia will not be self-sustainable if it no longer supports, or is visited by, the animals necessary to pollinate the plants.

To understand the impact of losing pollinators, we need to know as much as possible about what animals pollinate what plants. There is a large resource of information about animals visiting plants in WA, but it is often inaccessible and spread out through scientific literature, field note books, anecdotal knowledge in peoples' heads, records on herbarium sheets and other places. To be useful for management and for our own interest, all this knowledge needs to be centralised and easily accessible. This is why the WA Naturalists Club, with funding from the Gordon Reid Foundation, has created a "Pollinator Database".

The database has records of birds, mammals (eg the honey possum) and insects visiting species in over 50 different families of native plants from all over WA. (Few records actually confirm pollination - they are mainly records of animals visiting the flowers for nectar or pollen. Hopefully though, at least some of these visits will actually lead to successful pollination). The completed database will be available as a handbook, from the WA Naturalists Club, and hopefully Landcare Offices. It can be used to look up a particular plant and see what animals have been recorded visiting it, or to look up certain animals and see the range of plant species they have visited.



Flower of dianella being visited by blue-banded bee. The bee takes hold of an anther and buzzes; the pollen is shaken out and collects on the bee's hairs. Quite a number of local plants have flowers designed for 'buzz-pollination'.

*Illustration by Susan Tingay from 'Growing Locals' by Robert Powell & Jane Emberson. WA Naturalists' Club. 1996.*

How could this be of use to you? Well, if you are replanting salmon gum woodlands, you could look up all the plant species (trees and understorey) which require animal pollination, and see what animals have been recorded at them and are likely to be necessary to continue pollinating these plants. (Many of the most common species used in revegetation - acacias, melaleucas, eucalypts, grevilleas - require animal pollinators to set seed.) Another example might be if you wanted to know what plants would attract certain birds in a particular area, or at a certain time of year - look up the birds and see what they have been recorded visiting. Of course, a database like this will never be complete, and any extra information is always valuable. If you have any information to add to the database, or wish to find out more about it, please contact me.

What happens in rural land is important for pollinators. Observing what's in flower and what's visiting these flowers is a good start to appreciating the inter-relationships between plants and their pollinators. (Especially with insect pollinators, you might uncover some pretty bizarre systems.) Replanting the understorey provides more habitats and food for pollinators than plantations or monocultures, and linking remnants or revegetated areas by bush corridors (where possible) will encourage reintroduction of the less mobile pollinator species. But apart from conservation, what's the benefit to the farmer? Regardless of why you're revegetating, many of the plant species will need pollinators to produce viable seed for the next generation, unless you plan to continually replant with greenstock. Attracting pollinators can also bring other benefits - increasing the diversity of birds may help to reduce the number of insect pests attacking crops and shelter belts - and even stock; and increased diversity of pollinators and flowers could provide additional income from cut wildflowers and ecotourism (eg farmstay).

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