**Attract dispersers**

Plant fleshy-fruited plants to encourage seed dispersal and forest regeneration. The following groups of plant species are known to be eaten by a wide range of seed dispersers. Dispersers could be attracted by planting high densities of plants from these groups in restoration projects that also provide the dense foliage and complex habitat that many of rainforest animals need.

- **Areaceae** (palms e.g., Archontophoenix);
- **Araliaceae** (e.g., Polyscias);
- **Elaeocarpaceae** (e.g., Sloanea & Elaeocarpus with small fruit);
- **Moraceae** (figs e.g., Ficus macrophylla, *F. obliqua*, *F. superba*, *F. watkinsiana*).

Many birds, including the superb fruit-dove *Philemon superbus*, feed on the fruits of *Polyscias* species (e.g., celerywood). Photo: Andrew Dennis

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**Plants that lack dispersers**

Ideally, rainforest restoration will bring back landscapes that support healthy populations of seed dispersers. In the meantime, plants from the following groups are not likely to be dispersed naturally in small rainforest remnants, regrowth or replanted sites. Planting or direct seeding locally native species from these groups will mean that they are present in future forests in these areas.

- **Lamiaceae** (e.g., *Gmelina* & *Vitex*);
- **Lauraceae** (laurels e.g., *Cryptocarya*, *Cinnamomum*, *Endiandra* & *Neolitsea*);
- **Meliaceae** (e.g., *Dysoxylum*, *Synoum*);
- **Myrtaceae** (e.g., *Syzygium*);
- **Rubiaceae** (e.g., Aida, *Atractocarpus*, *Hodgkinsonia*, *Ixora*, *Morinda*, *Psychotria* and *Canthium*);
- Any plants with fruits wider than 1 cm.

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**The solutions**

1. **Restore forest landscapes**

Restoring rainforest on cleared land will provide fruit and other resources for birds and bats. This is especially important for those species that don’t use the small, isolated patches of rainforest that are left in highly-cleared landscapes. These species are much more abundant in patches where the surrounding landscape is covered by more rainforest (recent research suggests at least 60% rainforest), although forest patches don’t have to be joined to one another.

2. **Attract seed dispersers**

The use of fleshy-fruited plants in planting projects may encourage seed dispersers to feed there. At the same time, dispersers may bring in seeds to the site. Birds such as the topknot pigeon, Lewin’s honeyeater, figbird, and the bowerbirds all disperse seeds from over 70 native plant species. Flying-foxes disperse at least 50 plant species.

3. **Establish plants that lack dispersers**

Plants without dispersers could be missing from small patches of rainforest, regrowth and re-planted areas unless they are directly established by people. This could be done using seedlings or seeds.

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**Birds and bats disperse seeds and influence patterns of rainforest regeneration**

The movement (dispersal) of seeds is a crucial part of forest regeneration. The dispersal of seeds throughout the forest increases the chances that seedlings will grow and survive. Also, dispersal allows plants to colonise new areas, including land that has been cleared.

Birds and bats feed on fleshy fruits of rainforest plants and disperse the seeds of more than two-thirds of the plant species in Australian rainforests. Most of the plants that are not dispersed by animals are dispersed by wind.

The information in this brochure is based on research in subtropical Australia, and the specific details relate to that area. However, the general principles apply more broadly to other regions.

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**The problem**

In subtropical Australia, rainforest plants are dispersed by 25 different bird species and three bats (two flying-foxes and a tube-nosed bat). Different types of birds and bats disperse different types of plants. For example, only a few large bird species can disperse large fruits. Without these birds, plants with large fruits may not be dispersed.

Some rainforest bird and bat species are uncommon or missing from small rainforest patches and plantings. These include fruit-doves, bowerbirds and tube-nosed bat. Because of this, some plants may not be dispersed in these areas. Plants most likely to be affected include those with fruits wider than 1cm and native laurels (from the family Lauraceae), Myrtaceae and Rubiaceae.

Because of limited dispersal, natural regeneration of these plants will be low. In these small and isolated patches we can’t expect forests that resemble original rainforests to develop by natural regeneration. Some plants will be missing or rare.