Interactions between weeds and animals

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Weed–animal mutualisms

Tim Low, 6 Henry Street, Chapel Hill, Queensland 4069, Australia.

Summary

Australia is notoriously infertile, with nutrients often in short supply. Most animals obtain their nutrients from plants, but the plants containing the most nutrients today are often weeds. Weeds are often the plants that dominate the most fertile situations, such as riparian corridors, and when fertilizers are applied to native grasslands they often take over. So for animals today in need of nutrients, weeds can represent a good food source. Many native animals now rely on them for food and other needs.

Native animals will readily form new mutualisms with exotic plants, serving as pollinators when they feed on nectar and as seed dispersal agents when they eat drupes and berries. In early studies of mutualisms as examples of co-evolution, the assumption was often made that mutualisms were narrow and specific. Bird-pollinated flowers were said to be those that were usually red and tubular, and bats, which are colour blind, were said to prefer white fruits (because they show up in the dark). Research to test such claims has seldom vindicated them. While it is true that most of the north American flowers visited by hummingbirds are red and tubular (and recently evolved from insect flowers), most of the 'bird flowers' in Australia are white or some other pale colour, are not tubular, and are visited by other animals (insects and often mammals) as well as birds. Exclusion experiments conducted on banksias, *Syzygium* species and on *Eucalyptus globulus* have found that when any one group of pollinators is excluded (birds, nocturnal visitors, etc.) pollination is still effected by other types of visitor. Studies on flying foxes (which are relatively recent colonizers of Australia) indicate that nearly all the fruits they eat are eaten by birds as well. Mutual relationships between plants and animals generally involve many participants, implying that newcomers to an ecosystem (flying foxes, mistletoe birds, and exotic honeybees, bumblebees, weeds) can and do readily enter into mutual relationships.

Two important conclusions can be drawn from this. In this changing world native animals that feed on nectar and fruits have the potential to become locally reliant upon weeds, since weeds are often nutritious and they are prolific in degraded environments. The other conclusion is that native animals have a great potential to worsen our weed problems by pollinating weeds and spreading their seeds. The challenge for land managers is immense. We want to keep our native species and remove the weeds, yet the two are becoming interdependent. Sometimes it will be best to remove the weeds and let native animals suffer, and sometimes it will best to keep some weeds to conserve native species. Management for conservation will become more and more difficult, as difficult choices keep arising. Conservation managers are already choosing to conserve weeds where these provide shelter or food for rare mammals and birds. For example, biocontrol scientists in Western Australia took into account the importance of the weeds *Emex australis* and *Romulea rosea* as food for rare parrots, and the importance of *Ulex europaeus* and *Rumex fruticosus* as cover for threatened bandicoots has been recognized in south-eastern Australia.