

Eucalypt plantations as habitat for wildlife

Birds and mammals are being studied in eucalypt plantations (59 sites so far) and nearby farmland and forest, to develop ways of enhancing plantations as habitat for wildlife. Plantations can make a positive contribution to conserving biodiversity in the landscape, supporting intermediate populations of forest species (higher than open farmland but lower than remnant forest).

People and industry invest effort into establishing eucalypt plantations on farmland for many purposes, often hoping that they provide habitat for native wildlife. Until recently, there was little information about which species would benefit, and even less about ways to improve the value of new plantations for wildlife while meeting commercial objectives.

Now a team of biologists from the Arthur Rylah Institute for Environmental Research (DSE) and the Department of Primary Industries is addressing these questions, in collaboration with the Rural Industries Research & Development Corporation and the Natural Heritage Trust. Five experimental plantations were established in north-east Victoria, with understorey shrubs planted among the eucalypts, and will be monitored for five years. Existing eucalypt plantations (5+ years old) are also being examined at 59 sites in north-east and central-west Victoria, along with nearby sites in farmland and remnant forest. The 5-year project focuses on practical ways to enhance biodiversity values in commercial eucalypt plantations.

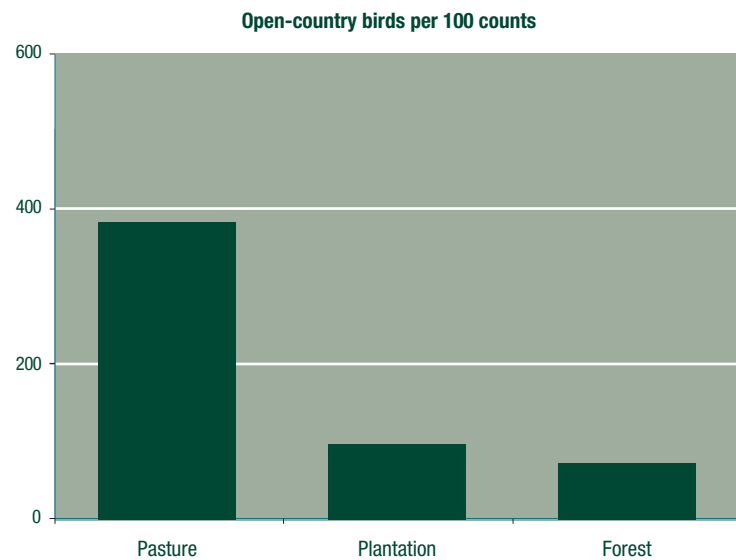
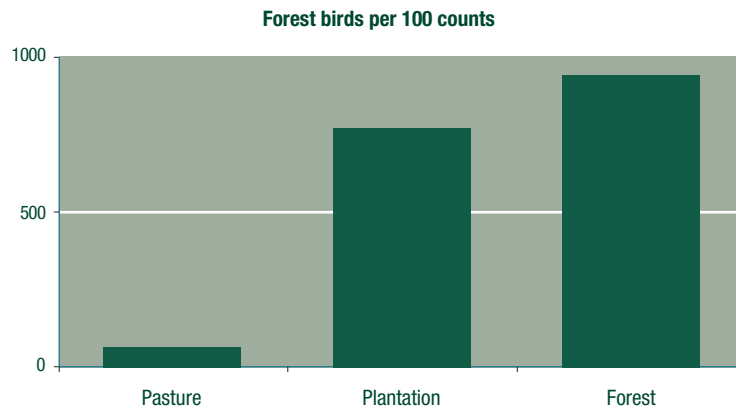
What value are eucalypt plantations to wildlife?

The study so far has shown that plantations support higher densities of forest birds and mammals than cleared farmland, and slightly lower densities than native forest. The reverse applied to open-country birds. Pessimists expected that introduced birds or invasive native species would dominate the bird fauna, but this was not the case. Introduced birds formed less than 1% of the bird population in plantations, compared with 1.7% in native forest and 2.5% in cleared farmland. Evidence was found that plantations could help protect adjacent remnant native vegetation against adverse effects of stock and invasive birds.

The common mammals in eucalypt plantations included bats (recorded by ultrasonic detection at all sites) and eastern grey kangaroos *Macropus giganteus*. Plantations provided day-time shelter for kangaroos, and night-time foraging for bats, which

need large old hollow-bearing trees for roosting and are known to fly many kilometres between roosting and foraging habitats. Arboreal marsupials were scarce but five species were recorded by spot-lighting or hair-tubing, mainly close to remnant native forest. Five introduced mammal species were recorded, in low numbers.

The common birds in plantations were species that were also common in nearby native forest, along with a few that favour open country (e.g. Australian magpie *Gymnorhina tibicen* and yellow-rumped thornbill *Acanthiza chrysorrhoa*). Forest birds that feed from the eucalypt canopy (e.g. striated thornbill *A. lineata*) or open ground among trees (e.g. buff-rumped thornbill *A. reguloides*) were as common as in native forest, and made little use of open farmland. They have clearly benefited from plantation establishment. A forest bird that often visits open farmland in winter (flame robin *Petroica phoenicea*) was common in eucalypt plantations and nearby pasture. Seed-eating parrots and finches were as common as in forest. Insectivores that forage from understorey, honeyeaters, carnivores and hollow-nesting birds inhabited plantations at intermediate densities (higher than open farmland, lower than native forest). Insectivores that feed from the eucalypt bark (e.g. white-throated treecreeper *Cormobates leucophaeus*) used some plantations, but were much less common than in native forest.



Proposed analysis and further work

Analysis is planned to examine how various habitat features (e.g. retained old trees) contribute to the value of plantations as habitat for wildlife, and how values can be enhanced through small changes to plantation design or management. We hope to extend the project by examining low-rainfall plantations in the Wimmera, and extensive plantations in south-west Victoria. We propose to compare more patches of remnant native vegetation, embedded in eucalypt plantations or farmland.

Conclusions

The study so far confirms what many tree growers know or hope. Eucalypt plantations can make positive contributions to conserving forest wildlife in rural landscapes, even though they cannot be expected to provide the complex habitat needs of all species. From preliminary analyses, we can begin to describe these contributions for two regions of Victoria, and hopefully will be able to do so more broadly in the near future.

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