

INVERTEBRATE COLONISATION OF RESTORATION PLANTINGS IN CHRISTCHURCH

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OUR STUDY

The invertebrate community is frequently overlooked in ecological restoration projects. And yet insects and spiders are major players in both the biodiversity and function of restoring ecosystems. We wanted to know how the invertebrate community had developed in areas that were planted with indigenous species at different times over the past 100 or so years. Christchurch offers a number of study sites with good records of site history. We chose eight sites which included two 'reference sites' of remnant, indigenous bush (Riccarton or Deans Bush and Dry Bush) and three pairs of sites of similar age (8-10 yrs, 15-20 yrs and 50-plus years since planting). Within sites, we were also interested to know to what extent invertebrates were associated with particular species of plant.

BEETLE DATA

Coleoptera is an Order of diverse form and function, sometimes chosen by ecologists to represent the total invertebrate community. The data shown are for the Coleoptera, alone, assigned to feeding guilds so as to provide a measure of the community structure. Some species or RTU occur in more than one guild, depending on their immature and adult lifestyles. Malaise traps were used to catch flying invertebrates associated with the site, while those associated with particular plants were collected by beating and sweep-netting, and those in the litter layer were collected by pitfall traps. Sampling was conducted during two periods, November 1996 and January 1997.

The youngest sites had numerically the lowest diversity, while the reference sites had the highest. The 15-20yrs and 50+yrs sites are somewhat indistinguishable from each other, but intermediate in diversity between the youngest and the reference sites.

In the samples collected from three indigenous tree species by beating and sweep-netting the foliage, the beetles showed a reasonably high degree of plant species specificity *S circa* 40-50% of the species on each tree type were not found on the two other tree types.

CONCLUSIONS

1. Beetle species and community diversities were highest in the reference sites, and lowest in the youngest restoration sites (6-10 years old). Intermediate aged sites had intermediate diversity but no clear difference between the 15-20 and 50+ year old sites.
2. Diversity and community structure are likely to be influenced not only by age of plantings but also by size of the habitat patch, type of vegetation and urban pollution.
3. Many of the beetle species appear to be specific to indigenous plant species.
4. In 20-50 years time the recent waterway plantings in Christchurch may have greater invertebrate diversity than the 'garden' plantings of Ilam House and Ashgrove Reserve, because of their greater variety of indigenous plant species.

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