The Deader the Better?

Invertebrate community composition on decaying *Pinus radiata*

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Introduction

Forest loss has been recognised as a critical agent of species decline (Ewers and Didham 2006). In New Zealand, exotic plantation forests provide important alternate habitat for native flora and fauna (Pawson et al. 2008). Saproxylic organisms are an extremely important group and possibly the most affected by the large scale conversion of native forests to agricultural uses which has occurred in the past, little is known about this group in New Zealand.

Figure 1

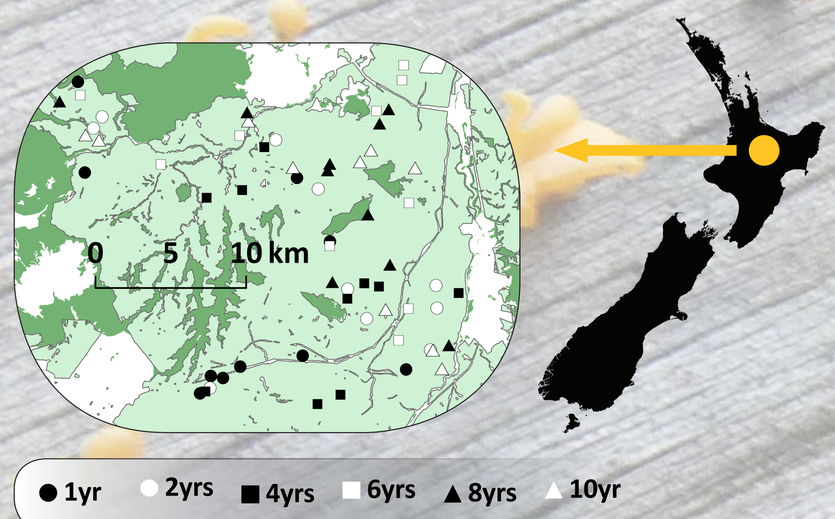
The rarefied insect order richness is higher in dead wood aged at 8 and 10 years, than in that aged 1 or 2 years old. Error bars show 95% confidence intervals around means.

Figure 2

The rarefied species richness of coleoptera in dead wood increased after the first year of decay and then remained constant. Error bars show 95% confidence intervals around means.

Methods

A chronosequence approach was used to sample invertebrate communities of different aged decomposing *P. radiata*. Deadwood age was determined using thinning information from forestry companies and is accurate to 1 month.



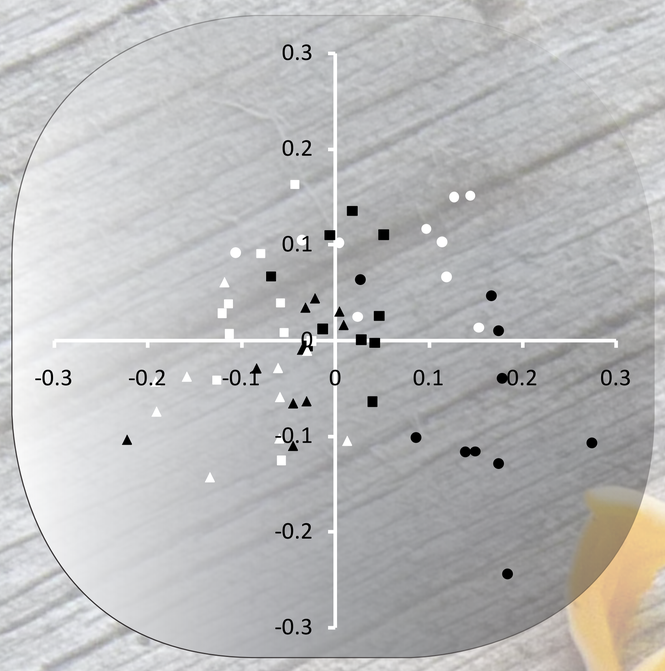


Figure 3

A multivariate analysis of variance highlighted significant differences in invertebrate order composition between different aged dead wood communities (P value < .05).

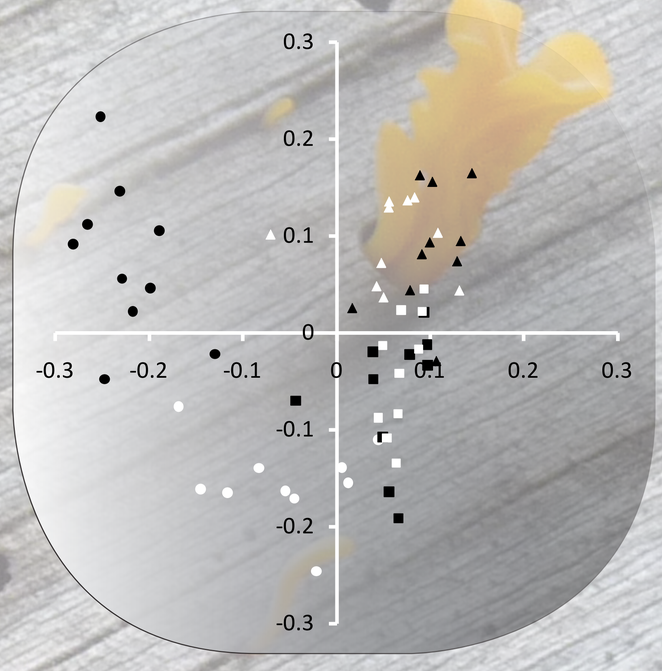
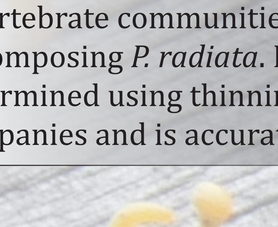


Figure 4

A multivariate analysis of variance highlighted significant differences in beetle species composition between different aged dead wood communities (P values ≤ 0.0184).

Decomposition chronosequence



Invertebrate sampling with emergence chambers

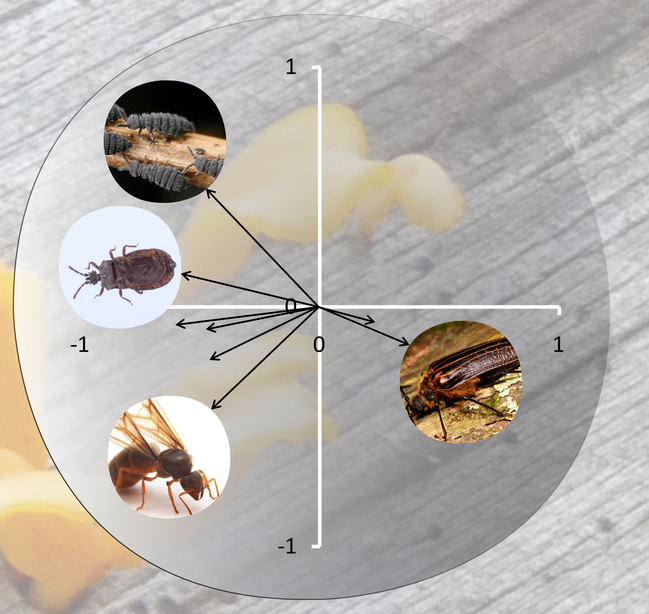


Figure 5

Correlation of several original invertebrate order variables with the first two CAP axes of invertebrate community ordination (Figure 3).

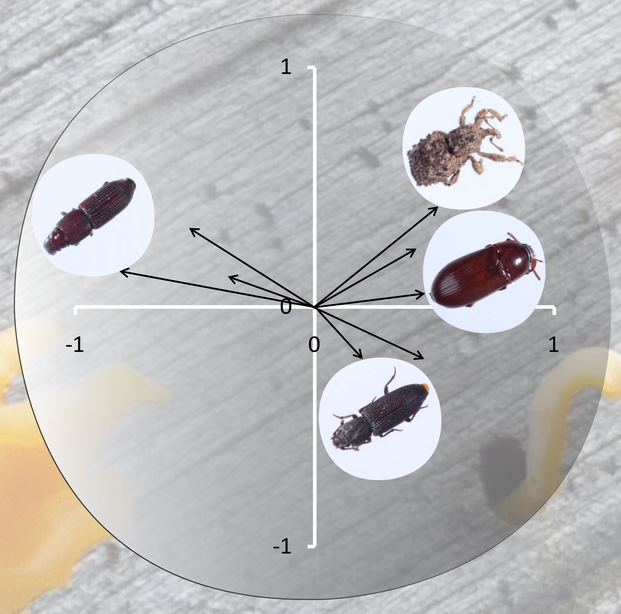


Figure 6

Correlation of several original beetle species with the first two CAP axes of coleoptera community ordination (Fugure 4).

Conclusions

Certain orders and species prefer dead wood of a specific age. This suggests a succession of species due to changes in resource quality and abiotic conditions. These changes may in part be due to facilitation, where the action of colonising species affects future colonisation and species richness pattern.

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