

## **The deader the better: invertebrate communities of decaying timber in a sea of hostile terrain**

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Saproxylic invertebrates are dependent on deadwood to complete their life-cycle. They play key roles in important ecosystem processes such as decomposition and nutrient cycling. Forest loss has been recognised as a critical agent of species decline and saproxylic organisms are a key group affected by the large scale conversion of native forests to agricultural uses, which has occurred in the past. Exotic plantation forests provide important alternate habitat for a range of native species, however little is known about New Zealand's saproxylic fauna. A chronosequence approach was used to sample invertebrate communities of different aged decomposing *Pinus radiata*. Deadwood age was determined using thinning information from forestry companies and is accurate to 1 month. We found that rarefied richness of orders and species was higher in older deadwood. The community structure also differed significantly with age of deadwood and certain orders and species preferred deadwood 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. We discuss the results of a related study showing how the proportion of native habitat in the landscape influences saproxylic beetle communities and subsequent decomposition of *P. radiata*. The importance of the proportion of native habitat was tested using saproxylic communities sampled in passive flight intercept traps and actual colonisation of experimental log billets of both native timber and pine. This experiment was replicated across native forest to pine habitat gradients in landscapes that differed in their degree of native forest fragmentation.

