

The Impact of Introduced Heather on the Invertebrate Fauna: Implications for Biological control

V. Keesing

Department of Botany and Zoology, Massey University, Palmerston North, New Zealand

The introduced plant *Calluna vulgaris* ling heather has spread over ca. 1/4 of Tongariro National Park (120,000 ha). Biological control is an attractive option because other means of control are too destructive and too expensive in a National park. A current proposal is to introduce *Lochmaea suturalis* for heather control. This would be the first attempt at biological control in a New Zealand native ecosystem. Consequently ecosystem processes before and after the introduction of any control require careful study. Pairs of sites in 5 native communities were compared; 1 site of each pair had been invaded by heather, the other was heather-free. Each site was sampled over 15 months to determine the invertebrate fauna. Methods were continuous pit fall trapping, net sweeping, beating and litter sampling. For each pair, sites were compared using 5 criteria: Shannon diversity indices; number of taxa; presence/absence of taxa; abundance of common taxa; and abundance of phytophagous insects. It has been suggested that common phytophagous taxa, which are generalist feeders, are the first to suffer when plant diversity decreases. My data support this. It has also been suggested that changes in abundance of common species occur before similar changes in rarer species; this implies that trends in common taxa consistently and clearly reflect trends in the entire fauna. My data do not support this. No single criterion adequately reflected trends in the entire fauna. Phytophagous insects were less abundant in heather-dominated sites, suggesting that there maybe an open niche for a heather-feeding insect. The introduction of such a herbivore may strengthen a possibly weakening food web.
