Growth of New Zealand stream insect larvae in relation to food type

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With 2 figures and 1 table

Abstract: Many common primary consumers in New Zealand streams are thought to be opportunists that have broad trophic requirements. To test this contention, larval growth of six commonly occurring insect species (Pycnocentria evecta, Pycnocentrodes aureola, Beraeoptera roria, Deleatidium sp. (nr vernal), Nesameletus ornatus and Zelandobius confusus) was compared when fed three contrasting diets (epilithic biofilm, Nothofagus leaves (CPOM) and fine sediment (FPOM)) for 28 days. Larvae of all six species grew well (increasing in dry weight by 60–550% in 28 days) when fed on each of the three diets. Growth of four species (Z. confusus, P. aureola, Deleatidium sp. and B. roria) was affected by diet. Where differences existed, higher mean growth was observed on biofilm than on CPOM and/or FPOM, suggesting that the former resource was of higher quality. Survivorship of larvae was high on all diets (70–100%), although slightly reduced survival of N. ornatus and B. roria was observed on FPOM. Variation in the growth responses of the six species is discussed in relation to mouthpart morphology, habitat preferences and larval mobility. Our results are consistent with the view that some New Zealand stream invertebrates are trophic generalists.

Key words: Growth, trophic generalists, macroinvertebrates, streams, survivorship.

Introduction

The unpredictable and frequent disturbances that characterise mountain streams in New Zealand have led to the evolution of an opportunistic fauna, well adapted to the harsh physical conditions to which they are exposed (Winterbourn 1997, Winterbourn, in press). Evidence of this opportunism is seen in the wide distribution and abundance of a common core of taxa in streams with very dif-