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**Streams in the Lower North Island – regional patterns in
benthic invertebrate communities and the influence of
landuse.**

A thesis presented in fulfilment of the requirements for the degree of Masters of Science
in Ecology at Massey University, Palmerston North, New Zealand.

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1999

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ABSTRACT

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Ten streams from five different ecoregions (Mount Taranaki, Volcanic Plateau, Central Mountains, Eastern Lowlands and the Manawatu Plains) were sampled for benthic invertebrates in May 1995. Invertebrate communities were examined to determine if ecoregions or landuse were better indicators of community structure.

Six bimonthly samples were also taken between March 1995 and January 1996 from two sites on an urban stream (Mangaone stream) to examine the effects of urbanisation in comparison to streams in the Manawatu Plains. The impact of a nearby refuse facility on the Mangaone stream was also examined.

Streams invertebrate communities in the modified Eastern Lowlands and Manawatu Plains were composed of mainly Diptera and Molluscan species. They also showed significantly lower MCI, QMCI and EPT scores than the Central Mountains, Mount Taranaki and Volcanic Plateau streams. Ephemeroptera, Plecoptera and Trichoptera dominated invertebrate communities in the Central Mountain, Mount Taranaki and Volcanic Plateau. Within these two groupings of modified versus unmodified ecoregions individual ecoregions could not be clearly separated. Broad landuse categories were identified as the best discriminator of the benthic invertebrate communities rather than the 5 ecoregions. A greater range of environmental conditions in benthic invertebrate communities of the South Island could explain why ecoregions are more closely linked with lotic community structure in these systems.

Urbanisation of the Mangaone stream had significantly altered the stream invertebrate communities from those in the Manawatu Plains. Streams in the Manawatu Plains were dominated by *Potamopyrgus antipodarum* and *Oxyethira albiceps* in contrast to the Mangaone stream sites that were dominated by oligochaetes and chironomids.

Differences in invertebrate abundance between the two Mangaone stream sites were attributed to smaller and less stable substrate particles at the downstream site.