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**A LEEP Forward:
Biodiversity Futures for New Zealand**

**A thesis in partial fulfilment of the requirements for the
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We do not believe that resource management is inherently destructive, but so far the record of its effects on biodiversity is rather bleak.
(Noss & Cooperrider 1994:131)

Biodiversity decline is New Zealand's most pervasive environmental issue
(Conclusion 2. The State of New Zealand's Environment report 1997:10.6)

In the cloistered tradition of scientific specialization, most ecologists think of the world narrowly, as a system of natural environments beleaguered by human activity. They live, as Aldo Leopold put it, in a world of wounds. They have reason to think this way. Today, less than 10% of the earth's surface remains in a mostly unchanged state, and only 4% has been set aside in natural reserves. In their own speciality, planners and landscape designers tend to stay in their larger and wholly different world. For them, the bulk of the land has been given over to humanity; and now, they say, people must redesign it to their liking.

Neither view, taken to the exclusion of the other, is viable any longer... A few...have come to focus on the intellectually rich domain of overlap between the two fields. The result of their deliberate intermediacy is the new discipline of landscape ecology.
(Edward O. Wilson Foreword to *Land Mosaics* (Forman 1995).

ABSTRACT

Loss of indigenous biodiversity continues in New Zealand. Despite admirable goals in the NZBS 2000 to the contrary, efforts at improved biodiversity conservation have been insufficient to halt loss of significant amounts of indigenous forest and wildlife habitat. Increasing numbers of native species are moving towards critically endangered and extinction. Whatever we are doing in New Zealand, it is not effective enough.

The aim of this study is to firstly identify factors contributing to the failure, “*to halt the decline of indigenous biodiversity*” in New Zealand and to then consider opportunities to overcome these barriers.

In considering opportunities, this study then reviews the emerging discipline of landscape ecology as an answer to, at least, some of those factors and the recurring calls from New Zealand ecologists for a more integrated and holistic approach to biodiversity conservation. Recent advances in the planning framework and particularly provisions for biodiversity conservation in England are explored as a model of practical application of landscape ecological principles to land-use planning.

From this review, the study proposes a new ‘LEEP’ model for strategic biodiversity conservation that produces a regional-scale spatial conservation map and accompanying policy and implementation guide. Together they provide an integrated and holistic approach to restoring or creating functional landscapes that also recognises and provides for human activities and development. Application of the LEEP model is demonstrated through a case study of the Wellington region. Benefits and potential uses of the map and policy outputs are canvassed.

Interviews with leading New Zealand and international ecologists provide an assessment of the current status of landscape ecology and interviewees also act as an expert ‘test panel’ against which the Wellington maps and guides produced from the ‘LEEP’ model are assessed.

Finally, suggestions are provided for development of the new model and future research needs towards fuller and more effective implementation of this approach to biodiversity conservation in the New Zealand context.

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