

## DR C. HAMISH COCHRANE



### Research

Research in the past 12-18 months has focused upon three areas: biosecurity, threatened species (in collaboration with Associate Professor David Norton), and geographic information system (GIS)/ global positioning system (GPS) application in forestry and land management.

The biosecurity research has focused upon two areas: the underlying knowledge and attitudes towards New Zealand's biosecurity systems, and deliberate use of biological organisms in a criminal context. The latter area has led to a short opinion piece in the New Zealand Journal of Forestry that considered the risks associated with the deliberate release of organisms in our production forests.

The threatened species work has been looking at the potential management options for coastal *Lepidium* species. One suggested reason for their decline has been the loss of significant seabird colonies on mainland New Zealand, thereby impacting upon soil compaction and soil nutrients. Our research has led to the submission of a paper to Biological Conservation that reports upon our soil nutrient investigation.

GIS/GPS application research has been pursued with final year undergraduate students as a part of their honours dissertations. Jacqui Egan researched cover changes in the Kaituna Valley, Banks Peninsula using a series of air photographs beginning in 1943. Her research showed a decline in woody vegetation cover until the late 1970s whereupon cover has increased. Part of this increase was attributable to the increasing importance of exotic plantations in the valley. Adam Mills and Jonathon Guy considered the performance of two different GPS units under different types of exotic and indigenous canopies. They found that without the use of post-processing performance between units was quite similar despite significant differences in terms of the value of the different units. Two current honours students, Jeremy Snook and Shaun Foster, are researching the impacts of the proposed Central Plains water reservoir on the costs of wood transport and the development of a spatially based culvert management system respectively.

### Postgraduates

I currently have three postgraduate students that are being directly supervised: Mariana Cattaneo (researching the establishment ecology of wilding conifers in the Craigieburn area), Tim McKenzie (researching spatial and temporal habitat use of deer using GPS collars), and Christine Brears (researching the history and development of pest management systems).

I am also involved in the supervision of Erik van Eyndhoven (PhD candidate researching landscape use of brushtail possums), and Eykolina de Zwart

(MForSc candidate researching habitat utilisation of brushtail possums in a heterogeneous landscape in the Southern Alps). Finally, Sarah McElrea, a MForSc candidate has successfully completed a thesis looking at the effects of exotic plantation management upon indigenous biodiversity values.