

large volumes. This is generally sold as manuka honey with a significant price premium over clover honey. Spectacularly effective antibiotic activity has been tested in some manuka honey (but not from kanuka). There is great potential here for converting 'scrub' into dollars, with careful marketing of reliably tested honey, from undisturbed stands.

The oil extracted by steam distillation from manuka leaves from the East Coast also has striking anti-bacterial and fungicidal properties. Manuka oil is being used in a variety of medicinal and cosmetic products, commercially produced and marketed from Te Araroa. This use too involves non-destructive annual harvesting of the foliage of standing manuka. (Another smaller-scale operation harvests manuka tips and distills oil at Port Fitzroy on Great Barrier Island.)

A remarkable recent discovery is that manuka oil varies dramatically in chemical composition and properties from district to district. This illustrates firstly that manuka goes a long way back into the geological past and has evolved locally, and secondly how much we have still to learn about New Zealand's plants and biodiversity generally.

Kanuka and manuka-dominant vegetation also provide habitat for a remarkable variety of other plants and animals — they are major repositories of New Zealand's indigenous biodiversity. Many native orchid species, for example, particularly favour older kanuka or manuka-dominant vegetation. Twenty-five species of orchid have been recorded in one small area of the Kakanui block near Te Araroa — so far. The more this forest is studied, the more we find.

Measured by species numbers and ecological complexity the most important elements of biodiversity are the invertebrates — moths, beetles, millipedes, spiders, snails and the rest. Research work in the Gisborne



MIKE MARDEN

The roots of kanuka have proven to be valuable in retaining steep slopes and preventing erosion. These are the roots of a 25-year-old tree, exposed by high-pressure sluicing. The photograph was taken by Dr Mike Marden of Landcare Research during research into the occurrence of landslides and the preventive effect of various vegetation types following Cyclone Bola. Note the 'spidery network' of lateral roots fanning out from the stump on all sides. Most roots are found just below the ground surface within the rooting depth of grass (about 10-20 centimetres).

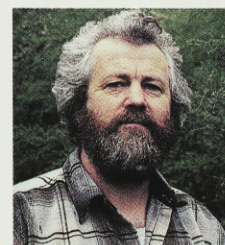
district shows that the significance and diversity of the invertebrate fauna in 60-year-old kanuka forest is as great as that in primary forest. Extensive kanuka-manuka areas support large numbers of the commoner forest birds, and less common species such as native pigeon and the insect-eating whitehead/popokatea. In some places, shorter manuka supports the threatened fernbird.

To some, kanuka-manuka areas are but signs of recent farming gone wrong; an essentially unnatural phenomenon of the past century. But there is a long history of forest modification, extending back to the first Maori occupation and long before, due to fires and other disturbances. So kanuka and manuka scrub forests are an important part of the natural character of most districts.

The character of kanuka and manuka vegetation ranges as a continuum, from nuisance weeds invading pasture at one

end, to a treasure trove of indigenous biodiversity and natural character at the other. The challenge is deciding at what point in the continuum do the positive values become dominant.

There is no simple answer, and to a great extent it must depend on the specific context of an area. Landowners will commonly argue that their own views on the subject must be paramount. I would like to think it possible to stimulate increasing respect among landowners for kanuka and for manuka. It would be nice not to hear again: 'Oh, we wouldn't touch the native, it's only scrub we're cutting!'



CHRIS WARD is the conservancy advisory scientist at Gisborne with the Department of Conservation.

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