ARTICLES

On South American and New Zealand Rainforests

By Barbara Anderson

Since I arrived in Concepción in November, Chris Lusk (a N.Z. expatriate who has been living in Chile for 8 years) and I have been discussing whether the Chilean forests are similar to New Zealand forests.

A question like this is always problematic because it depends how similar is 'similar', and similar in what way. Here lies the crux of the problem: while Chris is a forest ecophysiologist (though he doesn't like the title and prefers to be called an ecologist who looks at physiological aspects of forest species) I am merely an interloper in forest ecosystems – a passive observer. So our opinions come from different points of view. Still, who is more correct?

The first thing I noticed upon entering a piece of Valdivian rainforest (a type of humid cool-temperate southern forest) was that everything seemed so familiar. It wasn't at all like when I visited oak and hazel forests in Europe, where I could never quite get over the feeling that it wasn't a real forest. In Europe, the forests just seemed to be too full of 'exotics'. Even the understorey had blueberries, or bilberries as Bastow kept reminding me, and violets and other exotic garden species.

But I diverge. This Valdivian rainforest felt to me like a real forest should feel – I felt quite at home. It wasn't New Zealand rainforest – in my mind, when I recall New Zealand rainforest it always looks like a small piece of forest from the Catlins, or maybe somewhere near Haast. This wasn't that piece of forest! But it felt somehow related, though not exactly the same forest – like the first time I visited a North Island forest. Of course when I looked more closely, I recognised hardly any of the species, but I soon realised that I could guess most of the genera. The mosses and liverworts looked the same; there were ferns and filmy ferns; there were tall podocarps and beech trees – not those northern beeches mind but real *Nothofagus* beech trees; there was something that looked like *Aristotelia* and a tree I was sure was a *Weinmannia* and the ground was covered with beech litter.

And then I stumbled into a BAMBOO thicket!!! Dense, tall and completely bamboo, Chris says the light extinction at ground level is almost 100%, and I believe him because the bamboo is so thick even my most valiant attempts to bash through it were soundly rebuffed. Nor did I even attempt to crawl through it, and, as it was at least twice as tall as me, I couldn't climb over it. I began to suspect that Chris was right! There was nothing like this bamboo in New Zealand!!

Here the bamboo (quila or colihue pronounced key-la and co-lee-way) fills in the forest gaps, and although they all look the same to me there are different species. Whenever a tree falls in this forest, even if there's no one else to hear it, the bamboo hears it and comes running, quickly taking over, covering the floor and crowding out any other

pretenders to the throne. There it stays and grows and spreads, shading and blocking out everything else, until finally a bamboo mast year arrives, maybe once in 20 years and then all the bamboo shoots flower and die. In this short respite, if the shrubs and trees can reach above bamboo height before the bamboo returns they can take their turn in the gap – otherwise they must wait for the next bamboo mast year. (Technically it's not actually a mast year as bamboo are monocarpic so they only flower once, then die, but when they do reproduce they do it synchronously so if you are used to thinking about mast years, like I am, it seems like a mast year).

But Chris was looking for ecological equivalents, things which played the same role in the ecosystem functioning, and here he swapped sides and remarked that actually in New Zealand the tree ferns, although they don't mast, do spread clonally, sending up shoots from rhizomes and taking over gaps just as the bamboo does here.

No, according to Chris the main difference in South America is not the bamboo but the *Nothofagus*!! In New Zealand, the *Nothofagus* species are never emergent, it's the podocarps that are emergent. But here as we sat across the road drinking coffee and looking up at the Valdivian Rainforest it was clearly *Nothofagus dombeyi* (coihue pronounced coy-way) that stood with its crown far above even the tallest podocarp. So what had I to say to this? Well I wish I could say an immediate and insightful response came to mind – but it didn't. Maybe here the podocarps were acting like *Nothofagus* and *Nothofagus* was acting like a podocarp - But I don't really believe it because the podocarps still live longer, and they still look like Podocarps. Just as the *Nothofagus* still looked distinctly like a *Nothofagus*. They were just acting a different role in Chile to the one they play in New Zealand.

So I guess that it depends how you look at the forest. Based on family associations (phylogenetically) there are many similarities. According to my book (Hoffman 1997), in the Valdivian rianforest the most common tree species are *Nothofagus obilqua* (roble), *N. dombeyi*, *N. pumilio* (lenga), *Aetoxicom punctatum* (olivillo), *Laurelia sempervirens* (laurel), *Weinmannia trichosperma* (tineo) and mañio which includes most of the common Podocarps: *Podocarpus nubigena*, *P. saligna* and *Saxe-gothaea conspicua*. Except for the *Aetoxicom* and the *Laurelia*, all are instantly recognisable. There are species in the Myrtaceae, Eleocarpaceae (*Aristotelia chilensis*) and Winteraceae (*Drimys winteri*).

There are not so many ferns as in New Zealand but those that are there are instantly recognisable: the most common fern species being *Lophosoria quadripinnata*, *Blechnum chilense* and *Hymenophyllum* spp.

In the shrubs (los arbustos), the most striking omission is almost all those species which would belong in the Chilean equivalent of Hugh Wilson's small shrubs of New Zealand book: the coprosmas, and *Coprosma* look-a-likes such as *Neomyrtus pedunculata* that at some stage frustrate every New Zealand botanist. In Chile they have the bamboo and a few shrubs, including the nasty spined calafate (cal-la-fa-te) and other *Berberis* spp. and of course they have the *Fuchsia* we know as a garden escape, *Fuchsia magellanica*, and

many *Solanum* species. For climbers, there is the bright red flowered copihue (co-pee-way) or *Lapageria rosea* and there are two species of lantern berry (*Luzuriaga radicans* and *L. polyphylla*): one with orange berries and one with yellow.

So in brief the debate goes:

"They look the same".

"But they act differently".

"But they look the same, AND they have almost the same species in them".

"But they don't act the same way".

"But they look the same"

(The views attributed to Chris Lusk are as interpreted by the author. Chris will express his own views in the next issue – Ed.)

Searching for Merry Hill – *by Jennifer Bannister*

Anyone who has looked at old herbarium packets or sheets, will have had problems with determining the location of some specimens. First of all, the handwriting might be difficult to read, but the greater problem is with place names. Sometimes a region is given as well, sometimes only a region is given ('Hawkes Bay' alone is not very helpful) but often no region is given. Problems can arise when names are no longer used (e.g., Pelichet Bay in Dunedin) or have been used in many different parts of the country (e.g., the New Zealand Atlas has more than a dozen entries for Mount Misery). A local name may never have been gazetted and may even be no longer be used by local people. In the Dunedin area, one lichen packet from the 1930's had Boyd's Bush as a location, I could find no reference to this but the packet helpfully had 'North Taieri' on it. I still could not find Boyd's Bush, but was told by a local historian that there had been a Boyd's farm in the area and I assume the bush belonged to this farm. Further problems arise when the name is from another part of the country.

Recently, in a loan from the Landcare Herbarium at Lincoln (CHR), a packet had the intriguing place name of Merry Hill, luckily it added 'near Feilding'. The packet contained a lichen called *Ramalina allanii*, named for Dr H. H. Allan. He had collected it at Merry Hill in the 1930's and then sent it to Europe for identification. It was made the type specimen of a new species, *Ramalina allanii*, however this lichen had already been named as *Ramalina australiensis*. I searched for Merry Hill but was unable to find it in any gazetteer. If the lichen had been *Ramalina celastri*, which is widely distributed throughout New Zealand, I probably would not have tried to find the site, but *R australiensis* is found mainly on coastal rocks and nearby coastal forest in the north and north east of the North Island. Feilding appeared to be a highly unlikely site, although there is a disjunct population in Wellington Harbour.

I wanted to locate Merry Hill and see if I could find the lichen. My husband suggested that I should write to the local paper. The Otago Daily Times helpfully provided me with the name and address of the Feilding Herald and Rangitikei Mail, and I wrote a