SOUTHLAND	SOUTHLAND ctd
Blackmount Station	Pt Caroline Scenic Reserve
Bluff Hill Scenic Reserve	Stony Creek , Croydon
Broadlands Bush	Taylors Bush/McLees
Bushy Point QEII, Blake Rd, Otatara	Turnbull QEII, Hedgehope
Chaslands	Waiau River, WHOLE AREA
Clifden Bridge/Waiau river	West End Station
Clifden Scenic Reserve	STEWART ISLAND
Cooks Scenic Reserve	Adams Hill
Croydon Bush	Anglem Scenic Reserve
Dean Burn/Motu Bush	Bird Is, Foveaux Str -NZJB 4:133
Dean Forest	Fernery Walk, Halfmoon Bay
Diggers Ridge, J O' Brian's	Golden Bay Walk, Halfmoon Bay
Dunrobin Station, Aparima	Hellfire Hill
Dunsdale, Hokonui/Hedgehope	Masons Bay Shore St Is
Foveaux Walkway, Bluff	Masons Bay to Freshwater Hut
Homebush, D. O'Brian	Mt Aglem Track
Lonekers Bush Scenic Rerserve	Mt Rakeahua Track
Mararoa, Von, Oreti wetlands	Rocky Top
Marshall Bush SR, Hedgehope	Ryan's Walk - Halfmoon Bay
Otahu Bush	Swamp Walk, Port William
Otatara Scenic Reserve , Invercargill	Ulva Is

Sites on the West Coast for which Graeme has species lists will be published in the next issue. If you have species lists from any Otago-Southland areas not listed here Graeme would be very grateful if you forwarded them to him – ed.

ARTICLE

Some thoughts of a British botanist visiting New Zealand

Dr Mike E. Dodd, Biology Dept, Open University, Milton Keynes, UK.

I arrived in Dunedin in September, directly after a month's fieldwork in Japanese Abies forests. It was in the 30's °C when I left Tokyo and 1 °C, dark, and with a howling gale when I eventually stepped off the ancient shuttle bus in the Octagon. I assumed they did not bother with heating during the 6 hour bus journey as it's normally so mild in this part of the world. Why on earth had I travelled all this way when there was a nice British summer to enjoy back at home?

After this inauspicious start, things could only get better and they did. There was an excellent field trip to the west coast, visits to several sites in Otago, Arthur's Pass and a range of sites on the North island. The first thing you notice as a northern hemisphere botanist going into any area of NZ bush is that all the plants are so different to anything you've ever seen before. In Japan, all the plants were familiar either because similar genera grow naturally in the UK or USA where I have also worked, or because the Japanese plants are commonly grown in gardens or as house plants. There are almost no native species common to UK (or Europe or USA) and NZ. So where

should I start trying to identify things? A few genera such as *Phormium* and *Cordyline* with their striking linear leaves were easy to spot. These are grown in gardens in the warmer parts of the UK. What else? Well, after this things start to get more difficult. There are the aliens of course – that beautiful splash of yellow *Ulex* all over the hills on the way into Dunedin not to mention good old Cornish heath (*Erica vagans*) on Swampy. Any disturbed areas such as farmland or track sides, even in native bush, are likely to be completely dominated by familiar European species, alien to NZ. The effect is so strong that over large parts of eastern South Island it is difficult to find any groups of native species. Indeed the species assemblages there can be identified using the British national vegetation classification.

Native forest

Going to an area of native forest is a real eye opener. What on earth are all these different trees and shrubs? They look nothing like the genera we have in Europe. They all appear to be evergreen, but have no flowers or fruit (in September) to help with identification. On closer examination, one or two did look familiar. *Griselinia littoralis,* with its rounded fleshy yellow-green leaves, although instead of just being a bush as it is in UK gardens it can also be an epiphyte in wet areas. Then there was tree Fuchsia (*Fuchsia excorticata*) with its orange brown bark peeling off into strips, and the familiar house plant, *Schefflera digitata*. But for the real structure of the forest I needed to get into Podocarps. They are conifers but quite unlike the familiar conifers of the temperate northern hemisphere such as pines or firs. Instead of needles the Podocarps tend to have short leathery leaves similar to Yew (*Taxus* spp), or very reduced scale leaves like *Cupressus*. Many of them also have naked seeds, or seeds attached to a small fleshy 'fruit' similar in appearance to the red yew berry. One interesting feature of the Podocarps, and several other forest species, is that the shape of their leaves changes between juvenile and adult with the juveniles often having longer or larger leaves, although in some species it is quite the reverse with juveniles having smaller leaves.

The most widespread native conifer is Rimu (*Dacrydium cupressinum*). It is common in many woodland types as a small weeping tree but where the adults have not been logged out it makes a magnificent high (up to 60m), irregular, emergent canopy well above other species. It is perhaps best seen along parts of the west coast of the South Island, in a multi-layered rainforest with large numbers of epiphytes, a mixed-species lower tree canopy, a shrubby layer, then a dense growth of bryophytes with terrestrial orchids, grasses and sedges. From this description it sounds as though it would be an impenetrable jungle, but it is surprisingly light and relatively easy to move around, at least compared to some UK woodlands with their dense tangle of spiny brambles (*Rubus fruticosus*). Whilst mentioning the west coast forests I should add a word, or rather two, to any UK-based botanists reading this: sand flies. Elsewhere in the world they are known as blackflies, there are large numbers of them, they bite, but in the winter they are much less of a problem.

One of the other main forest types is southern beech (*Nothofagus* sp.). These are similar to the northern hemisphere beeches (*Fagus*) but tend to have smaller leaves, indeed the mountain beech *Nothofagus solandri* var *cliffortioides* has tiny leaves only 5mm long. Mountain beech can form almost pure stands from the treeline down about

500m, before other species such as mountain toatoa (*Phyllocladus alpinus*) start to be mixed in. *Phyllocladus* is actually a conifer but has 'leaves' resembling celery leaves, the leaves are in fact flattened branchlets. *(Mike has since observed, in 'Lord of the Rings', that Phyllocladus also occurs at the upper treeline – ed)*

Other habitats

One ecosystem that I particularly wanted to see was the alpine zone. Getting up into this area proved to be difficult since there are few roads suitable for non-4-wheel drive vehicles that go high enough. However there are 'tramping' tracks such as the Routeburn going between mountain huts that take you through very interesting alpine vegetation with huge daisies (flowering in February). Some of the species at this altitude are familiar, such as a NZ form of Eidelweiss and sundews (*Drosera* sp), while others such as the vegetable sheep are more unusual. An alternative name for vegetable sheep is 'scab plants' which is particularly appropriate when they are growing near the sea in sand dunes such as at Chrystalls beach, or in the semi-arid grasslands near Alexandra where they form 1-2 cm high crusty scabs of tightly packed shoots. These *Raoulia* are rare in the dunes. It is not clear, to me at least, whether they have always been rare since I can't really understand how such short slow-growing plants can survive in the succession from the vigorous dune-fixing grasses and sedges leading through to scrub and forest.

Other habitats I particularly like are the spectacular dune systems stabilised by the native Cyperad, *Desmoschoenus spiralis*, at Ship Creek on the west coast, and the black dunes near Patea, Taranaki. I must confess that one of the main reasons for liking them are their photographic possibilities with the reddish brown wispy seedheads mixed in with large amounts of driftwood. Incidentally many of the beaches, especially the more remote ones, are covered in driftwood because the forest goes right down to the edge of rivers and the sea, and there is considerable bank erosion. This is quite different to Britain, where there is very little wood on the beach, apart from old palettes, partly because only 10% of the land is forested and little of this is near the coast.

Botanic gardens

During my trip, I was stuck in Christchurch for several days. The city itself has a botanic garden with a significant area of native plants, as do several other NZ towns and cities. This is very welcome and compares favourably with most European cities. Unfortunately the standard of labelling is very poor in the native plant garden and I would therefore recommend a visit to the Dunedin botanic garden instead. On the North Island, one of the best botanic gardens/parks must be Pukekura park in New Plymouth. It covers an area of 49 ha in a series of gullies and dells and contains a very wide range of mature trees and shrubs along with over 100 species of native ferns. One surprise for me was the number of large Cycads growing outside in this climate, where only a few miles away is one of the main ski fields.

Forestry

The warm wet climate is also responsible for the very fast growth of many alien trees such as *Pinus radiata*, which is ready for harvest after only 25 years, compared to twice this time in most other parts of the world. This is the main forestry species being planted over vast tracts of central north island after the removal of agricultural subsidies

and the abandonment of sheep farming on this marginal land. Such vast areas of one species look like prime candidates for a natural disaster such as a pest or disease outbreak, or fire. Why does this alien species grow so much faster than any of the natives? Why have none of the native trees evolved this very fast growth rate, especially on the good volcanic soils? Is there an ancient history of faster growing species being held in check by herbivores or disease? Is there an equivalent of CSR* for the New Zealand species? Is there any sustainable forestry going on? Have the NZ public woken up to the possible 'hay fever' consequences of the clouds of pine pollen. A NZ forester went very quiet when I mentioned this. Especially since I had just come from Japan, where this is a very hot topic with the public demanding the removal of the main forest tree (*Cryptomeria*) because it is a cause of very serious hay fever in a high proportion of the population.

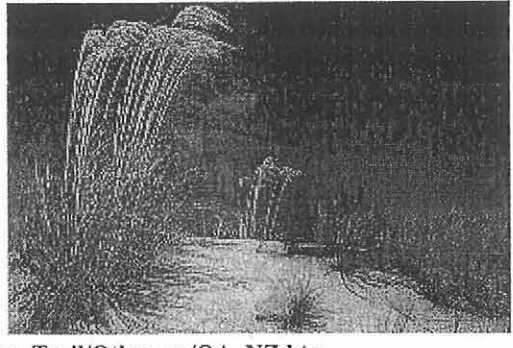
Aliens

It seems that more NZ botanists are studying aliens than natives, which is rather a shame although perhaps understandable since there are clearly major problems in controlling the spread of introduced species. My thoughts on how to go about control mainly involved completely isolating areas such as peninsulas or other clearly defined large areas and eliminating all non-native species. It needs considerable public support as access may have to be restricted, although some of the work could be done by volunteers. It would seem that this kind of approach stands most chance of success but controls on imports of plant material and the species that can be sold in garden centres are also important.

Highlights of the trip

Some of the highlights of the trip were the massive kauri trees in the forests of northland, subalpine *Cordyline indivisa* and Podocarp forests on Mt Taranaki, west coast Rimu forests, sub-alpine *Nothofagus* forests at Arthur's Pass, sedges in the dunes at Haast and the tree ferns on South Island. I started out on the South Island wondering how to identify species, I left Auckland a few weeks later still thinking I knew very little of the native species, but there is just so much of the natural world to see and enjoy in New Zealand that getting out the identification guides takes second place.

*(*Grimes' CSR theory, an attempt to generalize plant strategies according to whether they adapt better to Competitive (C), Stress (S) or Ruderal/weedy/disturbed (R) sites. – ed.)*



West Coast dunes
- *Mike Dodd*

This photo and more can be viewed in colour on Mike Dodd's website, which gives further insight on the way New Zealand is seen from the outside.

See: http://www.open.ac.uk/Nature_Trail/Other_ar/OA_NZ.htm