

Plants from The Land of The Long White Cloud

by Tom Price

When Magdalen College undertook the renovations to the Daubeny Building along the front of the Garden, it provided an opportunity for us to assess the plants grown within the beds adjoining the building. The main bed in question housed the New Zealand native flora collection.

The decision was made to completely empty the bed in preparation for scaffolding and exterior building work. The specimen and herbaceous plants were transplanted and stored in Rose Lane while others were preserved as cuttings. The decision, to start again from scratch, gave us the opportunity to plan new additions and make improvements to the collection.

The New Zealand bed is one of the six phyto-geographic collections held within the Hardy Collection at the Garden, the others being the Mediterranean, South Africa, South America, North America and East Asia. These phyto-geographic collections are

an integral part of the Garden, highlighting global plant biodiversity, distribution of taxa and plant evolution (phylogeny). Needless to say the bed has remained as part of the phyto-geographic collections. However, what has changed, is what we now represent within it.

New Zealand is an extremely popular tourist destination, and rightly so, as it is stunning. Many of those who visit will be aware that it has a rather interesting fauna, the most famous example being the Kiwi, a large native flightless bird. However, what many people fail to realise is just how unique its plant life is. A good number of stalwart garden plants come from New Zealand, plants like *Hebe*, *Olearia*, *Phormium* and *Cordyline*. However there are some weird and wonderful species that just have to be seen to be believed. In terms of the number of species it may not be anything to shout about with around 2,300 indigenous vascular



The Australian Brushtail Possum

plants. However, when we consider that over 80% of these plants are found nowhere else on earth, suddenly the story gets a lot more interesting. This high level of endemism, in relation to total species number, combined with extensive habitat loss over time, has led to New Zealand's classification as a Global Biodiversity Hotspot.

So, with such an important flora, how are we best to represent it within the context of the Garden? Firstly, it is important that the collection should convey the key messages of the Garden, those of biodiversity, conservation and sustainability. But how do you measure biodiversity? We could use number of species perhaps, or number of genera, number of families or indeed the diversity of natural habitats. Representing all these aspects of a flora would be ideal, but we must also consider what we can grow considering the constraints of size, aspect and condition of our site.

Mid alpine zone



Pseudowintera colorata – the pigmentation is thought to act as camouflage to prevent herbivory. Used by the Maori as a natural pain killer.

What we have done then, is to represent plants from the major habitats found in New Zealand, such as the mountain flax (*Phormium cookianum*) and snow tussocks (*Chionochloa* species) from low and mid alpine zones respectively. Southern beech (*Nothofagus*) Forest under storey species such as *Coprosma* and *Hoheria* and plants from the Podocarp–Hardwood Forests such as the ground fern, *Blechnum novae-zelandiae*, the lancewoods (*Pseudopanax* sp.) and horopito (*Pseudowintera colorata*).

We have represented diversity by cultivating a variety of both families and genera, but also by growing a range of species within one genus: *Pseudopanax*. There are seven species of *Pseudopanax*, all of which are native to New Zealand, and found in various habitats in both the North and the South Islands. We are growing four of them at the Garden. There are two distinct groups to the genus, the first comprising the broadleaved species such as *P. discolor* and *P. lessonii* and a second group comprising the dimorphic species which includes, *P. crassifolius*, *P. ferox*, *P. chatamicus* and *P. linearis*. It is this second group that are perhaps the most interesting, characterised by having two very different growth habits, one juvenile and one mature. The species *P. crassifolius* and *P. ferox* in particular have a rather unique habit of imitating a collapsed umbrella, with whorls of long, narrow, very thick, toothed armour leaves when young. When mature, and reaching a height of over three metres, they change habit, branching freely and replacing the juvenile leaves with simple, broad, untoothed leaves. It is proposed that this phenomenon is an evolutionary adaptation to overcome herbivory, in this case as a defence against the now extinct large ratite bird, the Moa.

Traditional use of a flora by indigenous people is another important aspect to consider. In the case of New Zealand, the first colonisers (the Polynesians), had to learn how to utilise the plants in an entirely alien environment. It appears they were extremely intuitive, as there hardly seems to be a plant from the Temperate Forests that the Maori did not utilise in one way or another. From food plants such as the edible pith of the giant tree fern *Cyathea medularis*, edible fronds of *Blechnum novae-zelandiae* and berries from the tree fuchsia (*Fuchsia excorticata*), some more palatable than others it is safe to



Urtica ferox – The much bigger and more dangerous relative of our native stinging nettle

assume. To medicinal plants, such as *Hebe*, where young shoots were eaten or infused in tea to treat dysentery, perhaps a result of eating the fern fronds? And finally to plants for fibre such as the New Zealand flax (*Phormium tenax*), dyes from *Phyllocladus trichomanoides*, track marking using the silver fern, *Cyathea dealbata* and tools, such as fishing spears, from *Pseudopanax crassifolius*.

Finally, perhaps the most important issue to address, is that of the threat to plant diversity. With one third of the world plant species under threat, it is imperative we do as much to reduce the impact our existence has on it. We are representing a number of threatened native plants in the new collection. These include: *Clianthus puniceus* (close to extinction in the wild), *Euphorbia glauca*, *Pseudopanax ferox*, *Muehlenbeckia astonii* and *Myosotidium hortensia*.

I think what we have tried to communicate is that collections like that of the New Zealand flora are incredibly important to the Botanic Garden. They are an excellent example of how we are actively contributing to the Global Strategy for Plant Conservation by ensuring our collections reflect as many of the 16 targets that underline the Strategy, all of which are focused on halting the unnecessary loss of global plant diversity.

Tom Price is Curator of the Hardy Collection at the University of Oxford Botanic Garden

Donations to the Garden

The University of Oxford Botanic Garden and Harcourt Arboretum wishes to thank the following individuals and trust funds for their recent support

Finders Keepers Ltd are supporting the 2009 Winter Lecture Series



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The Helen Roll Charity have donated £2,000 towards the perimeter fencing for Palmer's Leys

The Hartnett Conservation Trust have donated £1,000 towards the perimeter fencing for Palmer's Leys

The Countryside Stewardship Scheme have extended our existing agreement to take in Palmer's Leys. This will provide capital support and on-going annual payments

Arts & Business have donated £1,900 towards the Magic Hour

The Trust for Oxfordshire's Environment have donated £18,113 towards the restoration of Palmer's Leys

A Garden of Delights' raised over £20,000 before Gift Aid, thanks to the generosity of over 60 people who either bought tickets or gave money in lieu. We would also like to thank our main evening sponsors, Saffery Champness, and our other kind supporters, Lightfoots, Smiths Gore, Lassco and the Mogford Group, for helping to make the evening such a success

Oxford University's Van Houten Bequest have donated £25,000 towards the Arboretum car park