



Enriching the Pacific Northwest's New Zealand Plant Palette

BY SCOT MEDBURY

Since its founding in the mid-1930s, the Washington Park Arboretum has served as one of the Pacific Northwest's most important trial and acclimatization gardens, introducing hundreds of

plants not previously known or grown in the region. Hardy plants from New Zealand have formed a small but important part of that legacy of experimentation, such that today the Arboretum contains several of the Pacific

ABOVE: Washington Park Arboretum's New Zealand High Country exhibit is an eco-geographic display of selected plants from alpine and subalpine regions of New Zealand, particularly those found growing at Arthur's Pass in the Southern Alps region of the South Island (for the location of Arthur's Pass, see the area highlighted in black on the map of New Zealand on page 22). **INSET:** *Veronica (Hebe) 'White Gem'* is an evergreen shrub growing three feet tall in the New Zealand High Country exhibit; prolific white flowers appear in July.

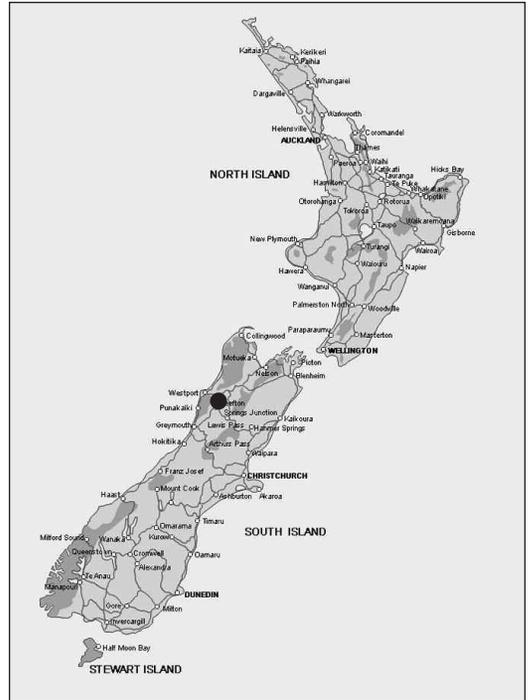
Northwest's largest and most venerable specimens of New Zealand woody plants.

The creation of the Arboretum's Pacific Connections Garden, the plans for which include a sizeable New Zealand entry garden in the first phase, presents the opportunity not only to expand the Arboretum's New Zealand collection, but also to interpret further some of that flora's extraordinary diversity, evolutionary history and horticultural potential. The likelihood of increasingly milder winters suggests that New Zealand plants could have a more prominent place in future cultivated landscapes of the Pacific Northwest, and that continued experimentation may reveal some terrific additions to the Pacific Northwest plant palette.

Flora of Aotearoa

The New Zealand archipelago lies in the southeastern Pacific Ocean between 34 and 48 degrees latitude south, although the New Zealand botanical region proper extends to 29 and 55 degrees latitude south. The first-cited position corresponds to the area between Aberdeen, Washington, and Los Angeles on the west coast of North America. The roughly 100,000 square miles of the two main islands—the North Island and the South Island—are topographically complex, with high mountains, alluvial valleys, broad plains and active glaciers and volcanoes. New Zealand's climate is generally mild and moist, with an ever-present wind and year-round rainfall, resulting in a warm-temperate north and a cool-temperate south. The Maori named New Zealand Aotearoa ("land of the long white cloud"), inspired by a constant cloud formation over the islands. The name also reminds gardeners of the precipitation that is a persistent weather factor.

The indigenous vegetation is primarily of four broad types: 1) richly diverse forests dominated by podocarps (conifer relatives in the Podocarpaceae family), but also kauris (Araucariaceae) and broadleaved evergreen trees; 2) deeply shaded forests composed of species of southern-beech (*Nothofagus* spp. in



the family Nothofagaceae); 3) scrub vegetation typified by dense thickets of manuka (*Leptospermum scoparium*—Myrtaceae); and 4) grass or sedgeland. There are also a number of specialized vegetation types, such as mangrove swamps and the highly developed alpine fells and screes, within which grow the world's largest-flowered buttercup (*Ranunculus lyallii*—Ranunculaceae) and the famed "vegetable sheep" (*Raoulia* spp. Compositae), a genus of silvery, cushion-forming plants that appear deceptively ovine (i.e. sheeplike) from a distance.

New Zealand's indigenous flora includes nearly 2,000 vascular plant species in some 150 families. The flora is remarkable for a great many reasons, not the least of which is the extremely high rate of species endemism. More than 75 percent of New Zealand's native plants are not naturally found anywhere else—one of the highest such percentages of any flora, and evidence of New Zealand's long isolation. Like Antarctica, Australia and South America, New Zealand is a fragment of the ancient southern supercontinent, Gondwana. The Gondwanan connection may help explain

why approximately 40 percent of New Zealand seed plant genera are shared with South America. Following a final separation from Australia approximately 60–80 million years ago, ancestral New Zealand plants adaptively radiated into different habitats and evolved into different species. Since then new species arrived by flotation or wind or were carried there by birds. Today, three major floristic affinities are recognized, the Gondwanan or Paleo-Austral element, represented by fuchsias, southern-beeches and the 20 gymnosperm taxa; the Australian component, for which the manuka (*Leptospermum scoparium*) is a good example; and the Malay-Pacific element, exemplified by the world's southernmost-occurring palm, the nikau (*Rhopalostylis sapida*), and most of the 170 ferns, including eight tall tree fern species.

Other notable characteristics of the flora include the relative absence of colorful flowers

and a high incidence of the following conditions: epiphytic habit, in which plants grow off the ground atop other plants; microphyllly, or “small-leafedness”; dioecy, where male and female flowers are on separate plants; leaf juvenility, in which one or more leaf types in youth are replaced by a much different kind of leaf in maturity; and branch divarication, a feature of numerous, unrelated small-leaved shrubs, in which branchlets grow in a wild, zigzag fashion, interlacing with one another to create an impenetrable thicket. One theory on the adaptive significance of this last characteristic is that some of these plants with divaricating branches were better protected from herbivory by moas, a now-extinct group of large, flightless birds that would have had a difficult time gathering much of a meal from such seemingly leafless plants.

The New Zealand landscape has been dramatically altered by human beings, both

CELEBRATE THE REDS

AN ANNUAL CELEBRATION OF FALL COLOR, FINE WINES,
AND NORTHWEST GARDENS

Hosted by Wells Medina Nursery

Savor wonderful award-winning vintages,
enjoy live music and cooking demonstrations,
and browse the nursery's renowned selection of plants

A wine tasting will benefit the Arboretum Foundation



Saturday, October 13, Noon to 4 PM

Wells Medina Nursery • 8300 NE 24th Street • Medina

For more information, call 425-454-1853

PACIFIC CONNECTIONS GARDEN

GROUNDBREAKING CEREMONY

Please join the
University of Washington
Botanic Gardens,
Seattle Parks and Recreation,
and the Arboretum Foundation
to celebrate this
historic occasion at the
Washington Park Arboretum

Thursday, October 11,
11:30 AM



A Pomegranate Center volunteer crafting red cedar columns for the interpretive shelter of the Pacific Connections Garden (photo courtesy Milenko Matanovic)

Watch for details on the
Arboretum Foundation Web site,
www.arboretumfoundation.org,
or call us at 206-325-4510

**Pacific
Connections**
CAMPAIGN



by the Polynesians who began arriving after 750 A.D, and with greater impact, by 19th-century European colonists. Agriculture, grazing, urbanization, extractive industries and exotic plants and animals have all taken their toll on both the landscape and the biota—a story quite familiar in North America. Today, scores of native New Zealand vascular plant species are threatened or endangered, including the kaka-beak (*Cliantbus puniceus*), a showy, pea-flowered shrub sometimes seen in botanic garden collections. Despite all the land cleared for grazing and farming in New Zealand, a remarkable one-quarter of the country remains in native forest. An aggressive program to put mostly cut-over land into exotic timber production, chiefly using select clones of Monterey pine (*Pinus radiata*), has allowed the country to reserve greater areas of natural forest while exceeding its domestic need for timber products.

ABOVE: *Olearia ilicifolia* is a showy evergreen shrub that grows up to five feet tall; the tough, shiny leaves are long, slender and have sharply-toothed edges; daisy-like flowers appear in summer. Specimens can be found in the New Zealand High Country exhibit.

Gardening with New Zealand Plants

New Zealanders are keen gardeners, and in recent decades have been applying their prodigious horticultural talents to the cultivation of New Zealand native plants, and to the selection of new cultivars from wild species. Generally speaking, New Zealand plants are easy to propagate and to grow. The chief limitation on the successful cultivation of New Zealand plants in the Pacific Northwest is winter hardiness, but summer water requirements are also a consideration. Unlike Seattle's sub-Mediterranean climate of winter rain and summer drought, much of New Zealand receives rainfall throughout the year, although its eastern coast has a Mediterranean climate. Therefore, many New Zealand plants grown at present in the Pacific Northwest benefit from, and in many cases require, irrigation during the summer months.

Plans for expansion of the Arboretum's New Zealand collection will build upon the collection assembled for the New Zealand High Country exhibit east of Arboretum Drive, which was developed in conjunction with the Seattle-Christchurch Sister City Committee and dedicated in 1993. Many of the plants in the existing High Country exhibit will be incorporated into the upcoming New Zealand entry garden across Arboretum Drive, where they will be joined by a host of plants new to the Arboretum's collections.

The New Zealand entry garden will be composed of a group of New Zealand plants combined with close attention paid to color, form, texture and seasonality to create an attractive ornamental display. Capitalizing on an open west-facing slope (a condition quite rare in the Arboretum) directly below Arboretum Drive, the entry garden will be planted with mostly lower-growing species and cultivars in such familiar genera as *Veronica* (*Hebe*), *Leptospermum*, *Phormium* and *Fuchsia*. These will be framed by taller shrubs and small trees, which might include such proven Arboretum successes as the

Griselinia littoralis and *Podocarpus nivalis*—the latter a dioecious subalpine shrub that has grown just west of the Arboretum's Pat Calvert greenhouse since the 1950s (look for separate male and female plants; the female specimen sports small, red, yew-like "fruits" in season). Other possibilities for framing the entry garden include the mountain totara, *Podocarpus hallii*, a subalpine tree with thin, exfoliating bark; and *Phyllocladus alpinus*, another conifer that can already be seen growing in the Arboretum.

In the second phase of the Pacific Connections Garden, a much larger New Zealand display will offer visitors immersive experiences within recreations of several New Zealand vegetation types. A key vegetation type to be included is a New Zealand southern-beech forest, anchored by another proven Arboretum winner, the mountain beech (*Nothofagus solanderi* var. *cliffortioides*), half-century old specimens of which can be seen

Pacific Office Automation

thanks the many dedicated

employees and volunteers

whose hard work makes it

possible for all of us to

enjoy the Arboretum.



PACIFIC OFFICE AUTOMATION
— PROBLEM SOLVED —

www.PacificOffice.com





in the Arboretum's oak family section northeast of the Wilcox Bridge. The edges and interior glades of the vegetation types will allow the Arboretum to continue experimenting with other New Zealand *Nothofagus* species, conifers such as *Libocedrus bidwillii*, and broad-leaved evergreens such as the Hibiscus relative *Hoheria glabrata*. Of the plants so far introduced, sub-alpine plants will continue to be featured prominently. If provided with good drainage, these shrubs, sub-shrubs, groundcovers and herbs offer some of the most reliably hardy plants for the Pacific Northwest.

A word of caution is appropriate to any plant-introduction scheme, and care should be taken to avoid introducing species capable of escaping cultivation and changing the ecology of natural or near-natural systems. The Arboretum is well positioned to exclude

invaders from future introductions, having pioneered the implementation of an invasive-species predictive model developed by University of Washington Professor Sarah Reichard. That said, there are hundreds of New Zealand species and cultivars yet to be introduced that will not persist outside of cultivation, and these offer tremendous potential to enrich urban landscapes in the Pacific Northwest. ∞

SCOT MEDBURY is president of the Brooklyn Botanic Garden in New York and has long been fascinated by the New Zealand flora. His initial interest was incubated as a teenager when he encountered specimens of *Nothofagus*, *Podocarpus* and other New Zealand species in the Washington Park Arboretum.

ABOVE AND INSET: *Nothofagus solanderi* var. *cliffortioides* is a fast-growing, densely-leaved mountain beech, specimens of which have flourished in the Arboretum for over 50 years near the Oak Collection.