

Vegetation of the Wellington Town Belt

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Over the brink

Wellington's Town Belt is a 400ha swathe of vegetation that partially encircles the city. No pre-European forest survived on the Town Belt as it did in gullies of the Wellington Botanic Gardens. The Town Belt's vegetation derives from a series of plantings spanning a period of 125 years, interspersed with some unassisted regeneration of native and exotic plants.

The original forest cover

Before human settlement Wellington's western peninsula carried a tall podocarp/broadleaf forest, rich in species and complex in structure. Rimu was the dominant emergent tree, reaching a height of 30-35 m above a dense canopy of broad-leaved trees such as tawa and hinau. Associated with rimu were epiphytic northern rata, tall trees that began their life as a seedling in the crook of a rimu branch and ended up as forest giants. Other tall canopy emergents present in Wellington's forests were kahikatea, pukatea, miro, matai, and totara. Their branches were festooned with perching lilies, hanging orchids, and epiphytic ferns and shrubs.

Between 2 and 15m there was a dense understorey of shade-tolerant shrubs, small trees and treeferns. Climbing plant stems abounded, weaving their way up toward the light. The forest floor was carpeted in ferns, mosses, small creeping herbs, clumps of sedges and grasses and rotting leaves and branches.

Today forests of this type are still to be seen at Otari- Wilton bush and a remnant clings on in the Botanic gardens.

Forest clearance - Mt Victoria - Mt Albert

When the first European settlers arrived in Wellington, Mt Victoria and Mt Albert were clear of tall forest and carried low coastal scrub cover, with mountain flax prominent, around their summits. Their forests must have been destroyed quite a time before 1840, for there is no evidence of remnant forest stands or standing tree stumps, which so characterised much of the Wellington landscape for 60-100 years after the arrival of the settlers.

Whether the forest was deliberately or accidentally cleared by Maori is unknown.

There has been a suggestion that perhaps Mt Victoria never carried tall forest and was always covered in low coastal scrub and native grasses. The presence of the grassland herb *Oreomyrrhis colensoi* near the summit of Mt Victoria has been offered as a supporting argument for this view. But this is not a view I am inclined to: Mt Victoria's soils are forest soils, and at an altitude of 196m, it is well within the limits of lowland forest. Even though the dry exposed ridge top has lost much of its topsoil, it still supports spectacular tree growth. *Oreomyrrhis* and matagouri (another openland species known to have grown on Mt Victoria) probably grew amongst the rocky outcrops near the summit before forest clearance.

Forest Clearance-Tinakori Hill and the south-western hills

In 1839 when Charles Heaphy first viewed Tinakori Hill, the slopes and summit were "densely timbered... the rata being conspicuous". Native gardens were present at the base of the hill. By the end of the 1870s the bush had gone and been replaced by pasture grasses. The slopes beneath Brooklyn and Vogeltown, the south western portion of the Town Belt, were clear of forest in 1840, as were the slopes on either side of Te Aro valley where local Maori had extensive potato gardens.

Devoid of trees

For nearly thirty years from the 1840s through to the 1870s cleared Town Belt land was used for grazing livestock. It was a struggle to retain pasture on the Town Belt soils. Bracken, manuka and tauhinu established readily in poor pasture and later were joined by gorse and broom that spread from hedge plantings.

The first plantings

Conifer plantations were successfully established in the early 1880s around Newtown Park, the northern end of Tinakori Hill and an area of Mt Victoria above Pirie and Ellis Streets. Holly was used for hedging at the boundaries of the Mt Victoria conifer plantings. Macrocarpa and radiata pine appear to be the most common species used, although bishop pine, corsican pine, and *Cryptomeria japonica* were also planted.

The planting decades

Between 1900 and 1920 large areas of the Town belt were planted up. These included Central Park, the slopes below Kelburn Park, the southern end of Tinakori hill, and the slopes above Oriental Bay. Although radiata pine and macrocarpa were still in favour, other species were also trialled. Gums and wattles, deciduous trees such as sweet chestnut and sycamore and native species like pohutukawa, karo and broadleaf were used extensively. An interesting mixture of native species growing on the central slopes of Tinakori Hill probably dates from this time. This planting includes: rimu, black beech, hybrid black-red beech, kawaka, tanekaha, mangao, and karaka.

The major conifer plantings were completed between 1920 and 1940. Pohutukawa was often planted at the edge of plantations, and blocks of gums were grown on the lower slopes of Tinakori Hill and Mt Victoria.

Between 1940 and 2000 mixed native plantings were undertaken at the southern end of the Town Belt around Macalister Park and Mt Albert.

Present-day vegetation of the Town Belt

In 2005 the four main vegetation types present on the Town belt were:

mature-over mature conifer plantations, dominated by radiata pine, macrocarpa and bishop pine.

- young forests and scrublands dominated by native broad-leaved species such as mahoe, ngaio, fivefinger and taupata
- gorse and broom shrublands
- grasslands, areas of mown grasslands and tall untended grasslands, dominated by perennial rye, Yorkshire fog and sweet vernal and an assortment of herbaceous weeds.

The conifer plantations

Conifers dominate on Mt Victoria and Tinakori Hill and range in age from 60 to 120 years old.

The youngest plantings dating from the late 1980s are on the lower slopes of Mt Albert. The tallest stands reach 25m in height, but canopies around 20m are more common for the mature stands. Most of the ridge and upper slope stands have very little in the way of understorey vegetation. It is only in damp gullies and the lower slopes of Mt Tinakori that shade-tolerant native species like mahoe, rangiora, karamu, fivefinger, and shining spleenwort fern flourish under the dense conifer canopy.

Broadleaved shrublands and forest

Mahoe shrublands and low forest are scattered throughout the Town Belt. They occupy shaded slopes and gullies. These areas have resulted from natural regeneration in the main. They are species-poor and simple in structure, consisting of canopy trees (ranging in height from 5- 8m) and a low understorey of ferns and seedlings. Toward the southern end of the Town Belt, where the coastal influence is strongest, ngaio and taupata are common canopy associates with mahoe.

Gorse and broom shrublands

Gorse shrublands often with Scotch broom as a canopy associate are common on the southern end of the Town Belt and on the summit ridge of Tinakori Hill. Some of the taller stands (2- 2.5m high) are being invaded by native broadleaved species like mahoe and taupata, and in time will give way to broadleaved forest if kept free of fire. Other stands, low in stature (1- 2m in height), and nearly impenetrable, contain vigorous plants of gorse, boneseed, broom and holly-leaved senecio.

Grasslands

Quite a large proportion of the Town Belt is given over to well-tended sports fields and mown walking paths. Fescue, browntop and white clover dominate these highly managed grasslands. Alongside the mown strips and at the edges of some of the conifer plantations are areas of rank grasslands, untended areas dominated by perennial rye, Yorkshire fog and sweet vernal and an assortment of herbaceous weeds. In time, broom and gorse will invade these rank grasslands.

Native Plants on the Town belt

During a 1991 survey of the Town Belt, 169 native plants were recorded. Eighteen of these species are deliberate introductions, as they are not known to grow naturally around the Wellington region. Amongst these 18, karo, lacebark, pohutukawa and ralph's karo have been particularly successful for they are seeding freely into regenerating shrublands.

Naturalised plants on the Town belt

A naturalised plant is an introduced plant (not native to New Zealand) that is reproducing unaided on the Town belt. About 240 species fall into this category. Most of them are species of open and disturbed habitats, found in the grasslands and on the margins of the forest stands; few naturalised plants penetrate into the forest interior.

Weeds of the Town Belt

Some of the plants growing on the Town belt have the potential to create problems for those charged with managing the vegetation or people walking along the many tracks. Amongst these are:

- Prickly plants, capable of forming dense obstructive growths, for example, gorse, blackberry, eleagnus and holly;
- High climbing vines that can choke out desired plants, including,

- old man's beard, pohuehue, banana passionfruit, bindweed, and ivy;
- Poisonous plants, such as hemlock, castor oil plant and Jerusalem cherry.

The storms of 2004

Two ferocious storms during 2004 wreaked havoc upon the mature plantations on the western side of the Town belt, especially on Tinakori hill and the slopes below Vogeltown. For safety reasons the few trees left standing on some slopes were cleared and for the first time in the memory of most people, parts of the Town belt are bare of vegetation.

Future trends

More natives

The Town Belt has had its own management plan since 1994. One of the key policies in the plan is that the cover of native vegetation will be significantly increased. In the mid 1990s around 90 hectares or a fifth of the total Town belt area was in native vegetation. The aim is to progressively expand the native cover to 254 hectares, or 60% of the Town belt. At the present planting rate of 2 hectares a year, the change will not be completed in my lifetime. Most of the conversion of conifer to native vegetation is to take place on the moist southeast-facing slopes of Tinakori Hill. The management plan recommends that the drier slopes of Mt Victoria should retain much of its conifer and mixed conifer-eucalypt cover.

Bring back mature forest species

Tall tree species such as kahikatea, rimu, miro, hinau, tawa, and northern rata, that were common in the original Wellington forests are notably absent or very rare on the Town belt. Another policy recommendation in the management plan is that these species be used for enrichment planting of native stands. In winter 2005 thousands of northern rata seedlings were planted on Tinakori Hill - a first attempt to re-establish rata forest in Wellington. But if the native forest is to be self-perpetuating, then tens of thousands of seedlings of rimu, hinau, tawa, titoki, miro, matai, totara, kahikatea, pukatea, fuchsia, kohekohe and nikau need to be planted out also.

Matagouri anyone?

Matagouri or Wild Irishman is a prickly native shrub. Although quite common in the dry tussocklands and riverbeds of the South Island, it is extremely rare in the North Island and is no longer to be found growing on Mt Victoria. This plant lacks the popular appeal of northern rata, but as a member of Wellington's native flora is as deserving of reintroduction to the Town Belt as northern rata.

