

1.2 Historical Outline

This section outlines key elements of the history of Otari Native Botanic Garden, from early known records up to the preparation of this management plan. It is evident that there is much more to be researched, particularly the time leading up to acquisition of the area as a reserve in 1904. A more thorough investigation would presumably refine the history recorded here.

Pre-1847 Traditional occupation rights over the Otari area are claimed by Ngati Tama, an iwi which migrated from Taranaki about the same time as the migration of Te Ati Awa in 1821. Te Kaeaea, their chieftain, lived at their Kaiwharawhara Pa at the mouth of the Kaiwharawhara Stream. A trail wound through the forest from Thorndon, crossed the Kaiwharawhara Stream near the current lower picnic site in Otari, headed up the spur that is now Chartwell and continued on to Makara. This section of the Kaiwharawhara Stream was then known as Te Mahanga. The track linked Ngati Tama settlements at Makara and Kaiwharawhara. Note that The Maori Historical Information Base for the Wellington City Council Area (Barnes & Associates, 1990) does not list any site of significance within Otari.

European settlers recorded gardens on north-facing slopes in the vicinity of Otari in the 1840s (probably on what became “Kaiwarrawarra” Section No.1) and “a Maori and his wife [who caught kaka in a clearing across the stream] living in a whare near Wilton’s Bush”¹ in the 1850s. This may have been the Maori known as Otere Hepapa, subsequently described as living “at the foot of the Wadestown Hill where the two creeks of Wilton’s Bush join to form the Kaiwharawhara Stream” and where, in about 1843, he was raising pigs for the immigrant market.² Otere Hepapa befriended Henry Burling who had arrived in Wellington in 1842 with his large family. Hepapa offered him land and Burling built a wattle and daub cottage “on a rise at the back to Wilton’s Bush” where he lived for five or so years and gained the title “Otere Henare”. Neither of these men’s houses are accurately located.

Colonisation by the New Zealand Company occurred first in Port Nicholson and Nelson. Land was subdivided into 1,100 sections, each section comprising one town acre and 100 country acres. Priority of choice was determined by drawing lots. The Company sought to preserve Maori society in the course of colonisation, by apportioning one tenth of the colonised area to the chiefly families of local tribes, thus giving them a chance of retaining the same relative superiority of position they had in pre-colonisation times. These Native Reserves were also allocated by drawing lots for priority of choice.

The first sales went through in 1839. Only 43 of the country lots allocated to Maori were formally taken up.³ Maori continued to cultivate what in many cases had become settlers’ properties. Te Kaeaea moved his people from Kaiwharawhara to Heretaunga as settlers plundered his clearings and their cattle trampled his cultivations.⁴

The situation became difficult. In 1844 an effort was made by the Spain Commission to guarantee Maori their pa, wahi tapu and cultivation areas, but those areas were not well defined. Governor Grey had Te Kaeaea and his people forcibly removed from Heretaunga in 1846. McCleverty was employed to settle the impasse and by 1847 he had designated further Native Reserve land as compensation for loss of cultivations on the land allocated to, but not necessarily occupied by, European settlers.

Otari Native Reserve 1847 McCleverty allocated a previously unsurveyed block of 500 acres (202 hectares) “at Kaiwharawhara” to the families of the local pa. He awarded by deed 167 acres of the 500 acre block to the Natives of Ohariu and Makara (Ngati Tama), 134 acres to the Natives of Pipitea and 200 acres to the Kaiwharawhara Natives (Ngati Tama) (plus section No 4 purchased on their account).⁵

1. Albert Kilmister, Kilmister Reminiscences 1932, Alexander Turnbull Library.

2. *The Henry Burling Saga 1801–1911*. R.M.L. in Otaki Historical Society Journal Vol. 8.

3. J. Pyatt, *The McCleverty Commission, 1846–1847* Research Essay VUW

4. WAI 474 #1.1 Ngati Tama Claim to Waitangi Tribunal

5. Deeds No. 9, 10, 11.

This latter hapu had been cultivating an unoccupied section on the other side of the stream – “Kaiwarrawarra” Section No.1 (which a few years later would be taken up by Maxton).⁶ Figure 1 shows these areas in relation to the current boundary of Otari Native Botanic Garden. The 500 acre block was called Otari Native Reserve. It was the custom to name such reserves after local landmarks. The 359m height on the modern 1:50000 topographical map on the west of the Te Wharangi ridge was an early survey point, named Otari. In Maori, Otari can mean “the place of snares”. Otari was also the name of the peak on Tinakori Ridge known by settlers as Wireless Station Hill.

6. McCleverty's Interim Report, 1848

Henry Burling had to relinquish his house and land (which is understood to have been in the “Pipitea” block). He was not compensated, although his neighbour, James Smith, received 75 pounds.

Statistics show that the decline of the Maori population around Wellington was rapid during the 1850s. Some returned to Taranaki, others moved to fertile land in the Hutt Valley. Between 1842 and 1861 the Maori population at Kaiwharawhara pa halved and at Pipitea pa it had dropped from 134 to five.³ In 1860 Kemp remarked that there were no Maori cultivations around the outskirts of Wellington at all – most Maori were leasing good cultivation land from settlers in the Hutt Valley.

See note 3 above

Crown Grants 1171 and 1172 reveal that the land owned by “Ohariu Natives” was auctioned in 1856, Lot II going to William Bowler and the remaining Lots to William Shaw.

In 1859, Samuel Maxton formally took up his Crown Grant country section No. 1 in Kaiwarrawarra District on the flanks of Tinakori Hill. It is likely that he had already been farming the land, and indeed several fires had raged out of control across this area in 1851. At this time living off the land in the upper Kaiwharawhara offered more than sheep meat. Through the 1860s pigeon, kaka, tui and weka were shot in great numbers and there were wild pigs and cattle to hunt.

Maxton sold his 108 acres (43 hectares) to Job Wilton in 1860. The Wiltons cleared and farmed most of their land which stretched almost to the top of Tinakori Hill, but fenced off an area of 17 acres (7 hectares) of forest near their homestead. Job Wilton was happy for picnickers to enjoy the stream and views and bush walks and, with easy road access from 1877, the area became a popular leisure-time destination for town folk. One member of the family was always at home during weekends and the bush was patrolled to make sure any picnic fires had been extinguished. The entire area in forest on both sides of the Kaiwharawhara Stream, became known as “Wilton’s Bush”.

The “Kaiwharawhara Natives” leased their 200 acres (81 hectares) in 1862 to three settlers – Bidmead, Norris and Walker. Whether they developed the land is not known, but in 1877 before their lease expired 50 acres (20 hectares) of the block were sold to John Kilmister. The rest was leased the following year to Henry Brown. One of the conditions of the lease was that the land be “laid down in English grasses” and have a “good, sufficient fence”. By now the Maori owners had returned to Taranaki. It appears Brown sub-leased or re-leased the land in 1890 to John Witton for a seven-year term.⁷

7. Survey Map WD 846 shows land leased to Brown and later to Witton and land conveyed to Kilmister.

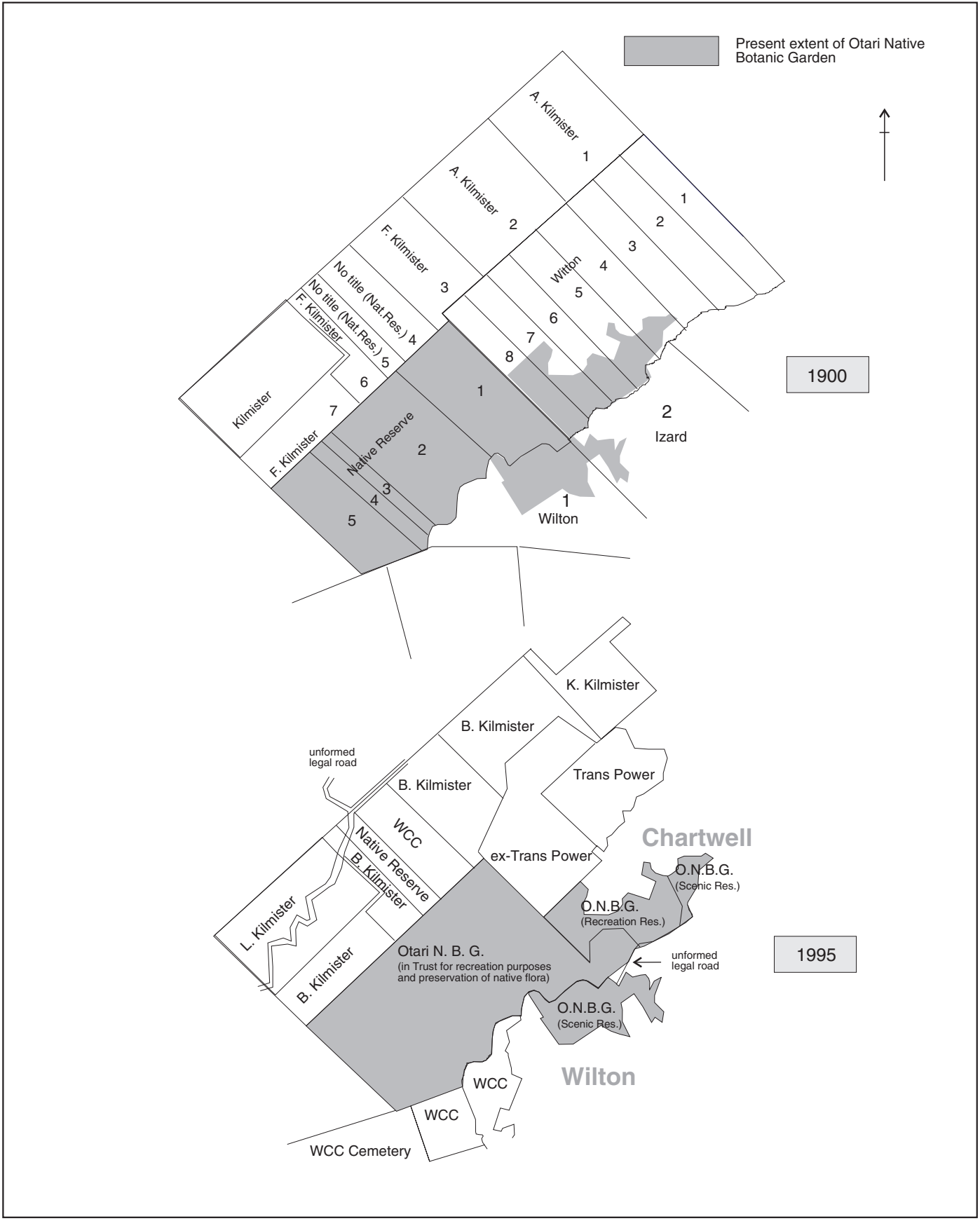
Samuel Woodward took up a 14-year lease on “Pipitea Natives” land⁸ in 1874. This must have been relinquished early, for the son of one of the Maori owners, Hare Piti (Harry Pitt), took up a formal lease of Lot I of this block in 1879⁹. At the time it was in heavy bush. Next door, John Witton purchased the Ohariu Natives’ block in 1876 and soon had his property cleared of forest. (The property was passed to Thomas Witton in 1891 and remained in the family until subdivided in the 1960s and 1980s.) Confusion between the names of neighbours Witton and Wilton continues today.

8. 1874 Report of Commissioner of Native Reserves

9. Survey Map WD 336 shows the area surveyed in 1876 and approved in 1879.



Figure 1 Changes in Land Tenure 1847–1995. Maps are not to scale. Upper map shows relationship of Native Reserve granted in 1847 to the Country Sections surveyed in 1840. By the turn of the century most of the Ngati Tama land had been subdivided and cleared. Pipitea Native Reserve had been leased but not sold. The suburbs of Wilton and Chartwell (see following page) were developed in 1906 and 1970s respectively. Note that maps reflect current knowledge and may change with further research.



When the lease over the Kaiwharawhara Natives' Reserve expired, parts of the land were sold to Arthur Kilmister, parts to Frederick Kilmister and the Otari 4 and 5 blocks left in Maori ownership. (Note that the Otari 4 block was purchased by Council in 1984.) Survey maps show that by this stage the original Kilmister land was being grazed, and both flanks of what is now Chartwell were also cleared of bush. Fires on J. Kilmister's property had obviously continued down the spurs into the Pipitea Native Reserve below ¹⁰.

10. WD 1482 shows approved subdivision of Lts 1-7 of Otari A.

The Heighton family built a whare on the edge of the bush clearing probably developed by Hare Piti. Apparently they lived there for fifteen years, initially at least, in a hut built of ponga logs plugged with clay. (The dates have not been ascertained for this resume, but may be from 1880 onwards.)¹¹ Their track from the Kaiwharawhara Stream up the spur to a well and their whare, is now the red/yellow trail to the Flax Clearing.

11. References in M. Alington *Unquiet Earth: A History of the Bolton St Cemetery*, Wellington City Council and Ministry of Works & Developments 1978, and notes of Allan Wilton (from Wilton Family archives).

Otari Scenic Reserve 1906 By the turn of the century the almost total demise of natural vegetation around Wellington city was concerning many residents. Otari, or "Wilton's Bush" as both the forested sides of this stretch of the Kaiwharawhara Stream had become known, was also a popular recreation area, even though only the area on the true right was actually owned by the Wilton family. When it was realised in 1902 that the "Pipitea Natives" of Otari Native Reserve were keen to sell their block, a delegation of prominent citizens approached the Minister of Lands, asking him to take steps to preserve this forested area. The response was favourable, with the Minister expressing the hope that Job Wilton would also ensure his forest remained protected. Wilton assured the Minister this was also his desire.

The matter was forwarded to the Department of Lands and Survey in 1903 and also soundly endorsed by the Scenery Preservation Commission. The Department then enquired if Wellington City Council would match the Government's vote of 500 pounds to purchase the land. Early in 1904, one of the Councillors moved that Council itself acquire the land. The most suitable mechanism available was the Public Works Act.

When it became clear later that year there would be legal difficulties with this method of Council achieving ownership, the appropriate government department was requested to issue a proclamation and approve the expenditure of 500 pounds. The Department of Tourist and Health Resorts responded in September.¹² About this time administration of reserves became the responsibility of the Department of Lands and Survey. In 1905 the Council contributed its share of 500 pounds.

12. Town Clerk's Office 19 October 1904 response to Councillor Barber No. 1041; Scenery Preservation Commission Minute Book April 1904–Nov. 1905; newspaper clippings from 1902 (Scenery Preservation) and opening of Otari Open-Air Native Plant Museum, 1926.

The reserve was finally gazetted in August 1906 as a Scenic Reserve under the Scenery Preservation Act 1903. The Native Land Court awarded compensation for the 135 3/4 acres amounting to approximately 882 pounds plus interest. This was finally paid to the Public Trustee in 1907 and distributed to the hapu concerned.¹³

Shortly after the reserve was gazetted, the Wittons made available the steep gully slopes covered with scrubby bush adjacent to the reserve. The Department of Lands and Survey purchased this additional seven and a half acre (three hectare) area in 1907 and added it to the reserve. It is interesting to note that the 1904 survey map indicates that Wilton's Bush itself was "a proposed reserve" probably in response to the Minister's request that Job Wilton also ensure protection of his forest remnant. The Council would have to wait twenty years for legal protection to eventuate.

13. Register of Reserves, Wellington Land District; Maori Land Court Minute Books 13 and 14, Ikaroa District.

In 1902 Job Wilton and his family created the Wilton Estate Company with the intention of auctioning off a subdivision of the farm. The sale went through in 1906, but to a syndicate of Turnbull, Watkins and Williams, who themselves subdivided the farm (apart from the homestead which Job Wilton continued to live in). It is understood that the intention to maintain the forest area intact was part of the agreement.



c. 1896, Alexander Turnbull Library 49735 1/2

Dray Road to Wilton's Homestead 1896. This is still used for vehicle access and part of the Circular Walk. The gate was a few metres away from the current footbridge from the lower picnic area. Many of the trees on the right hand skyline can still be recognised. The fence to the right was to contain Witton's stock but this was not the boundary to his property. His forested land beyond the fence was incorporated into Otari Scenic Reserve in 1907.



1906, Alexander Turnbull Library C2459

Otari Scenic Reserve Gate 1906. The lady stands at a gate separating Otari Scenic Reserve from part of Witton's property which in 1907 became part of Otari Scenic Reserve. The track had provided horse and foot access to the Heighton's whare, leading off the Wilton's dray road and crossing the Kaiwharawhara Stream, then sidling up the spur to what is now the Flax Clearing. The large rewarewa at the right is still standing, not far beyond the present footbridge on the Circular Track, on the true left.

With subdivision the forest owned by Wilton became the property of Martin Chapman, son of Henry Chapman (Wellington's first judge) and a lawyer himself. The 17 acres (6.8 hectares) he purchased included some flat, cleared land. Although he excavated a house site, he never built. His gardener "Old Mac" (James MacDonald) lived in a small whare on the property. Chapman was happy to let visitors use the tracks he made and share the pleasures of the forest and exotic flowering shrubs he planted. The property became known locally as "Chapman's Gardens".

By 1915 the Department of Lands and Survey decided a Board was required to manage Otari Scenic Reserve. The seven-member Board was chaired by the Commissioner of Crown Lands for the Wellington District and included the Council's Reserves Committee Chairman, L. Cockayne, M. Chapman, B. Molineaux, W. Morris and L. Tripp.

Lack of funds for the Board proved a continual frustration, so a year later the Department suggested the reserve be vested in Wellington City Council. This was agreed to by the Council on the condition that it own rather than merely administer the reserve.

Acquisition by Wellington City Council 1918 It took another year for the situation to be settled, with the issue of who was going to pay the caretaker's salary proving the final catalyst. In January 1918 the existing reservation for scenic purposes was cancelled and a Certificate of Title issued under s62 of the Reserves and Land Disposal and Public Bodies Empowering Act 1917. Otari thus became a reserve "in Trust for Recreation purposes and for the preservation of Native Flora."

During the early 1920s Otari's popularity grew, and the Council responded with improved road and track access, carparking, bridging of the stream, relinquishment of grazing leases within the reserve boundaries and possum control. There were even suggestions of a band rotunda.

Acquisition of Chapman's Gardens (Wilton's Bush) 1925 Martin Chapman, the then owner of Wilton's Bush and former Board member of the Otari Scenic Reserve Board, died in 1924. His main beneficiary and brother, Sir Frederick Chapman, asked that the Trustees of the Will offer his brother's 6.8 hectares of land and the small cottage on it to the Council as an addition to Otari Scenic Reserve. A very reasonable price was negotiated, with settlement delayed until 1925. The acquisition of the five to five and a half hectares of mature forest ensured the permanent protection of the last sizeable remnant of podocarp – northern rata forest on the Wellington Peninsula.

The property included other remnants of the Wilton's lifestyle: a lime kiln constructed about 1890 (fed with oyster shells from Lyall Bay) which has since been buried by track construction; the sawpit site where the Wilton's milled totara for their six-bedroom homestead; and the cow and horse paddock which were later to become the Wilton Bowling Club greens.¹⁴

14. Notes from article researched by David McGill, 1980 (*Evening Post*).

A caretaker's residence was erected near the Banks Entrance in 1926. This house is currently occupied by the Curator of the Botanic Gardens of Wellington.

Otari Open-Air Native Plant Museum 1926 During the 1920s the germ of an idea began to grow amongst citizens interested in indigenous vegetation. This was to create a collection of indigenous plants within easy reach of the city that could be enjoyed by the public and provide material for study. The idea was discussed intermittently by the New Zealand Institute of Horticulture. Then public interest was fired by an article in the Daily Press by the City's Director of Parks and Reserves, J.G. MacKenzie, who promoted the Otari Reserve as a logical site.



Alexander Turnbull Library C21348

Kauri Planting on Opening Day 1926. Mrs Norwood plants a young kauri several metres inside the Banks Entrance on the opening day.

The Institute of Horticulture responded to the stimulus in 1926 with a formal proposal to the Council's Reserves Committee, presented by its Honorary Botanist, Dr Leonard Cockayne. The proposal submitted was accepted in its entirety and published in all the Wellington daily papers.

Otari Open-Air Native Plant Museum was officially opened by the Mayor, C.J.B. Norwood, on the 12th October 1926. By this time, with the purchase of the Chapman Estate, the reserve had grown to 143 acres (approximately 58 hectares). About half that area was forested, the other half in pasture or reverting to native vegetation.

Dr Cockayne was appointed Honorary Botanist to the Wellington City Council and effectively became the Director of the Plant Museum under the control of Director of Parks and Reserves, J.G. MacKenzie. Assisting Dr Cockayne with scientific guidance and development of the collections were the botanists B.C. Aston and Mrs M.M. Martin on a gratuitous basis. A. MacKay was employed as Officer-in-Charge of the Museum and resided on-site.

Dr Cockayne introduced possum control in 1928 and began collecting plants in earnest. His report of work in hand dated 1931 describes the Alpine Garden as already having 300 species, several other specialist beds being developed and planting of forest species well underway. The rockery around the caretaker's residence had been established and a nursery area provided.

Cockayne set very clear guidelines for Otari in "A Scheme for the Development and Arrangement of the Otari Open-Air Plant Museum..." which was published in 1932 (see Section 1.3.2 for details).

The first serious botanical study of the natural vegetation was undertaken by Stan Reid for an MSc thesis completed in 1934 (see Section 1.4.1 for details of this study).

Dr Cockayne died in 1934. However, the momentum he had given the Museum was not lost. In 1937 the Native Plant Preservation Society asked that Otari become the headquarters for the Society's propagation and planting work. The Council was supportive and an Advisory Committee was established which included three members from Council, to assist in carrying out the objectives of the Society.

Throughout the 1930s and 1940s the cultivated area continued to expand and public facilities were improved. Public toilets had been provided in 1929. The wooden seat at the lookout near Cockayne's grave which overlooks the reserve, was presented to Otari in 1932 by Her Excellency Lady Bledisloe, wife of Lord Bledisloe, then Governor General of New Zealand. More seats were provided at the request of the Wilton's Bush Residents Association in 1945.

Hares were becoming a problem in Otari in the late 1930s. New plantings were suffering and collections had to be protected with wire netting.

Walter Brockie Appointed Curator 1947 The special role of Otari continued to be recognised by Council with the appointment of a curator, Walter Brockie, early in 1947. The following summer Brockie added 264 species to the collection. Further donations by other collectors boosted Otari's cultivated beds. Brockie retired in 1962. The rock garden and the impressive number of alpine plants in the collection were probably the most significant contributions he made to the plant collections.

Otari Gardens 1949 Council resolved to change the name in 1949 from Otari Open-Air Native Plant Museum to Otari Gardens (at Councillor Gilmer's initiative).

Wilton Memorial Gate 1952 In 1949, a granddaughter of Job and Ellen Wilton approached Council with a proposal to erect memorial gates at the entrance to Otari Gardens which had once formed the access road to the Wilton homestead. By 1952 the gates on Wilton Road were completed, funded by the family and designed and built by Council. A Wilton family gathering was held for their opening, and Mayor Sir Robert Macalister officiated.

Cockayne Memorial Also in 1952 another memorial was put in place – a large rock bearing an inscription was placed over the graves of Dr Cockayne and his wife Maud. The graves overlook the Kaiwharawhara Stream with a view to the north across to the mature forest of Bledisloe Gorge. It is a site of contemplation and a natural vantage point for views across the reserve. Visitors will read on the inscription Dr Cockayne's own words "Will our descendents prize this unique heritage from the dim past and preserve these sanctuaries intact?".

The 1950s seemed to be a period where fire was a constant threat, probably because neighbouring properties were reverting to gorse and owners were trying to control it with burnoffs.

Raymond Mole Appointed Curator 1962 Brockie's successor as Curator was Raymond Mole who managed Otari for almost 30 years. During this time he was awarded the Loder Cup in recognition of his substantial contribution to horticulture. His role also expanded to include other Wellington reserves although he concentrated his efforts at Otari, developing specialist beds including flax and hebe cultivars. He developed the Wild Garden following the Wahine Storm and promoted the educational potential of Otari generally. Curator Raymond Mole retired in 1991.

Chartwell Acquisitions In 1967 a major subdivision of land owned by Witton and Archibald descendants commenced, creating the suburb of Chartwell. Council received two areas of bush overlooking Kaiwharawhara Stream, of 6.5 hectares and 1.8 hectares, as reserves contribution (although it took until 1980 for a satisfactory settlement). In 1969 a flat section beside Wilton's Bush Road of 0.5 hectares was purchased outright by Council.

Fencing Stock from adjacent rural properties made frequent incursions into the forest. In 1967, Council fenced the top boundary from Johnston's Hill, and improvement in the forest vegetation was observed.

In April 1968 Wellington was hit by the "Wahine Storm", a deep cyclonic storm that moved down from the tropics. It passed to the east of Cook Strait, bringing with it very severe southerly winds – the strongest winds ever recorded in New Zealand. Otari's forest was badly damaged. There were immediate losses of hinau, rimu and rata, especially in the mature forest beside Wilton Road. As a result the Wild Garden was created under the opened canopy. Ongoing losses continue as a result of canopy weakening and crown damage.

Outer Town Belt Further threat to Otari's forests came from Council proposals in the early 1970s, first to create a North West Connector road which would cut across part of Otari, and then plans to establish landfill sites north and west of the ridge above Otari, using the new connector road for access. Council began acquiring about 920 hectares of adjacent land for this purpose. Vigorous opposition to the scheme by scientists and local residents ensued. At the same time planning studies suggested linking clusters of reserves into an "Outer Town Belt". The southern cluster comprised Otari, Johnston Hill and Karori Cemetery.

By the early 1980s the landfill sites had still not been developed and the Council began negotiating the exchange of the designated land for land on the urban side of the ridge. As a result about 200 hectares adjoining the southern cluster of reserves was acquired as public land and for an "Outer Town Belt".

Curtis Acquisition 1970 In 1970 Council purchased 1.5 hectares of land from the Curtis family. This area below Churchill Drive lies adjacent to the area of forest originally owned by Job Wilton.

Management Plan 1980 A second management plan prepared by Council in 1980 reaffirmed Cockayne's original objectives and also recognised changing recreation and educational trends. Subsequently, the building now known as the Visitor Centre was built in 1980, providing a small lecture room that is also used as an information centre, library, toilets, storage, workshop and offices.

Reserves Act Status 1982 Council resolved in 1980 that areas added since the original acquisition of 1918 should be brought under the Reserves Act 1977. In November 1982 10.5 hectares were gazetted as scenic reserve under Section 19(1) (b) of the Act. (This included 262 m² of non-Otari land which was intended for leasing to the Wilton Bowling Club. A further gazette notice in 1989 rectified this error.) Note that the 57.7 hectares acquired "in Trust for Recreation purposes and for the preservation of Native Flora" and the 6.5 hectares of the Chartwell subdivision vested in Council as Recreation Reserve were already subject to the Reserves Act 1977 (refer to Appendix II).

Curator of The Botanic Gardens of Wellington Appointed 1991 In February 1991, Council appointed one curator for all its Botanic Gardens, the position being held by Mike Oates with Otari as only one of his wider responsibilities. Day-to-day operations at Otari are managed by a supervisor.

Three small adjacent areas of bush in Wilton Bush Road associated with Iazard Park were in 1992 considered to be more appropriately placed under Otari management. Change of tenure is still underway. These areas include the strip between Churchill Drive and Wilton Bush Road where various beech species have been planted.

Plant Records Computerised 1992 The all-important plant records were computerised in 1992.

Otari Native Botanic Garden 1993 Another name change occurred in 1991 (formally gazetted in September 1993). The new name “Otari Native Botanic Garden” was thought to define the role of the reserve more clearly, especially for visitors to the city.

Major Possum Control Programme 1993 By the 1990s, the possum population has built up to an estimated 12 possums per hectare. A major possum poisoning programme was undertaken in 1993 and by 1995 significant recovery of the vegetation was evident.

Waitangi Tribunal Claims Two claims lodged under the Treaty of Waitangi Act 1975 and the Treaty of Waitangi Amendment Act 1985 may have implications for Otari Native Botanic Garden.

WAI 145 is lodged by the Wellington Tenth Trust and seeks the return of the lands allocated as Native Reserves to their ownership, although more recently the claimants have shifted the emphasis of their claim towards the policies of the Crown which have denied them joint management or ownership of those lands.

WAI 474 is lodged on behalf of Ngati Tama and the descendants of Te Kaeaea. It claims the claimants have been or are likely to be prejudicially affected by acts, policies and omissions of the Crown dating back to 1839 and asks that the Crown pay Ngati Tama compensation in full for the return of land held by the Crown, the loss of land and the subsequent use and enjoyment thereof. This claim has since been amalgamated with claim WAI 145 above.

Rouse Acquisition 1994 The most recent addition to Otari Native Botanic Garden, in 1994, was 0.1 hectares of regenerating bush alongside the previous Curtis acquisition below Churchill Drive, purchased from Mrs K. Rouse.

1.3 The Role of Dr Leonard Cockayne

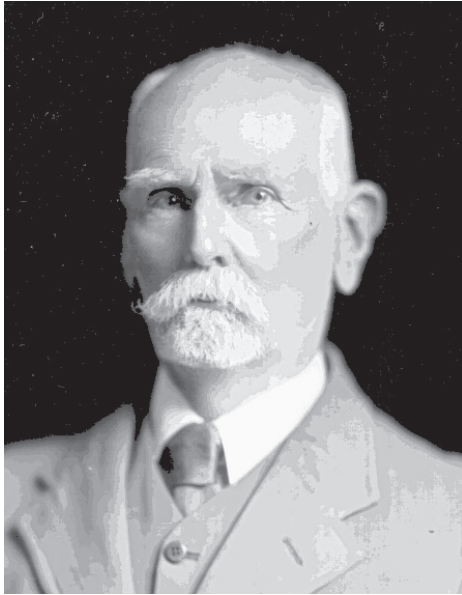
1.3.1 Dr Leonard Cockayne 1855–1934

Otari Native Botanic Garden crystallises not just the botanical history of the New Zealand floristic region, but the life and work of one of the world’s leading plant ecologists.

Cockayne started life in England but emigrated in 1876, first to Australia, and then to New Zealand, where he taught for several years. A legacy allowed him to pursue his main interest – a large, experimental garden near Christchurch.

Ecology was a new science in 1900 but Cockayne was already an ecologist, waiting for the term to be adopted by botanists. At 42 he published his first scientific paper. Encouraged by visiting botanist Dr Ritter von Goebel, he extended his interest in ecology and began to travel widely throughout New Zealand.

Cockayne led the way in ecology, not just in New Zealand but in the world. Described as “the most provocative influence in New Zealand botany”, he was also heralded as “playing the most conspicuous part in the development of modern field botany in the



Alexander Turnbull Library F18377 1/1
Dr Leonard Cockayne, 1928

British Empire during the first third of the twentieth century”. He divided the country into botanical districts, recording “virgin” vegetation associations and studying the succession of plant associations after disturbances. Cockayne was particularly interested in wild hybrids and became a pioneer in the modern field of experimental taxonomy.

Vigorous campaigning for reserves and protection from introduced animals brought support from local bodies and government departments. His prolific publishing both in scientific circles and for the lay reader gave his ideas a high profile, helping them become assimilated quickly into botanical teaching. The late Dr Lucy Moore, botanist, wrote: “Many of his ideas are now so familiar that it is easy to forget that they originated in his fertile brain.”

Cockayne moved to Wellington in 1914. He became President of the New Zealand Institute for two years in 1918, Honorary Botanist to the New Zealand Forest Service from 1923 and Honorary Botanist to the Wellington City Council.

In New Zealand, Cockayne was awarded the Hector and the Hutton medals for research in botany. From Australia he was awarded the Mueller Memorial Medal. Finland, Britain, America and Sweden gave him honorary membership to their botanical societies. Later in life he was awarded the prestigious Darwin Medal by the Royal Society, being the first southern hemisphere scientist to receive it. Two years later he was made a Companion of the Order of St Michael and St George (C.M.G.) – a rare distinction for a scientist.

Cockayne shared his practical horticultural experience with native plants at every opportunity. Late in life, with his eyesight failing, Cockayne found an ideal outlet for his enthusiasm for using native plants in gardens and public open spaces. Prepared jointly with J.G. MacKenzie, Director of Parks and Reserves for Wellington City Council, his Scheme for an Open-Air Native Plant Museum at Otari (MacKenzie & Cockayne, 1927) was immediately accepted.

1.3.2 Cockayne’s Scheme for Otari Open-Air Native Plant Museum

Cockayne directed the philosophy and development of Otari and set it on the path to being New Zealand’s primary collection of native plants. It was a symbol of everything he believed in – the conservation of primeval New Zealand, advocating the use of

native plants in horticultural settings and teaching New Zealanders about ecological groupings of native vegetation. The outline below of his scheme for an Open-Air Plant Museum is abridged from his 1927 and 1932 publications (see references for details):

(a) The Flora A collection shall be made of all the New Zealand species possible to cultivate in the Museum. The species will be arranged as far as practical according to their families. As well as species, the hybrids between such will be cultivated, and their presence in cultivation will be of the greatest moment for the plant-classifier and the student of evolution.

(b) The Vegetation Examples shall be artificially produced of various types of the primitive vegetation of New Zealand – to cite a few – kauri forest, southern-beech forest, tall and low tussock-grassland, and subalpine scrubs of different kinds.

(c) Restoration of the Forest The forest of the Museum shall be brought back as far as possible to its original form, both as to its structure and composition. The forest in the vicinity of the Bledisloe Gorge is virtually of a primeval character, and it seems best to let it severely alone.

(d) Horticulture The use of indigenous plants for horticultural purposes shall be illustrated in various ways for the information of those desirous of using such plants in their gardens.

1.3.3 Cockayne's Path Names

One of Cockayne's contributions to the vision of an Open-Air Museum, was to name paths and certain features after eminent botanists. "It has been decided that such names, with but few exceptions, shall be those of the botanists who, by their researches, have brought about the present knowledge of the flora and vegetation of New Zealand, so that the history of our botany from the first voyage of Captain Cook up to the present time may be chronicled in the Museum," wrote Cockayne in 1932.

This was not simply an exercise of applying a name to a stretch of track. Cockayne applied a bit of whimsical symbolism to his scheme. Darwin's name, for example, is given to a large rock mass that interrupts the flow of the Kaiwharawhara Stream. Cockayne liked to dwell on the analogy of Darwin having changed the course of biological thought in the same way the rock forced the water to change course.

Another example is the Hooker Path which becomes the Cheeseman Path at a bridge. Cheeseman in real life had carried on the role in systematic botany after Hooker. Significantly, another path originates at the bridge – the Kirk Path, giving recognition of Kirk's work in the same field, pre-dating Cheeseman.

A copy of an undated map found in Dr Lucy Moore's archives features a great many more names than Cockayne's original list. Some of those were used by Brockie, but few of any of these early names have survived into current day usage. Much of the development of New Zealand's botanical science is captured in these names and their interpretation would be a valuable contribution to the botanic garden. See Appendix 1A for the list of Cockayne's path names recalled by Stan Reid, and Figure 6a (page 31) for the main paths with these names.

I.4 Development of the Plant Collections and Forest Management 1926–1995

When Otari Open-air Native Plant Museum was officially opened in 1926 a kauri was planted just inside Banks Entrance. Several other trees were planted at the same time – probably the kahikatea beside the nursery and the totara in the present **Gymnosperm Collection**.

A report on work achieved in 1931 (in Cockayne, 1932) describes several cultivated areas established by Dr Cockayne. These were:

- the **Hebe Collection** (instigated when the New Zealand Institute of Horticulture became the international registration authority of the genus *Hebe* for the International Society for Horticultural Science)
- the beginnings of the **Olearia, Carmichaelia, Pittosporum, Senecio and Grass Collections**
- **Asplenium Collection** gifted by Mrs Martin (including 150 distinct hybrids)
- the **Gresley Lukin Alpine Garden** at the Solander Entrance on Wilton Bush Road
- an area near to this representing **Otira Gorge Scrub Forest** and one of **Nothofagus Forest**.

Ground preparation for a **Kauri Grove** and a **North Auckland Coastal Forest** was begun. The **Kowhai Border** (now removed) was planted and around the caretaker's residence a large rockery was started. The **Pittosporum Border** had been started by Cockayne, but was not named the Pittosporum Border until the early 1980s.

Additional tracks were made through the forest. Cockayne intended planting 50 young rimu into the forest “so as to eventually become a grove about two acres in extent.” Stan Reid's 1934 thesis on Otari notes that rimu and nikau palms had been planted in the forest but the numbers and positions were not recorded.

The **Kauri Grove** was developed during the 1930s, close to what is now called the Flax Clearing, on a spur reverting from pasture to native bush. Occasional akeake mark the old hedge along the northern margin of the intended kauri forest. Storms shortly after planting the kauri damaged many of the juveniles, however, and subsequent invasion by local native plants suppressed their growth. This also made maintenance difficult and later on Ray Mole made a decision to let nature take its course. Today many of the kauri are still there and can be seen looking across the valley from the Lady Bledisloe Lookout.

The **Flax Clearing** – an open, grassy spur – has plantings of flax, toetoe, pohutukawa and *Olearia paniculata*.

The original **New Zealand Gymnosperm Collection** was begun by Cockayne towards the bottom of this grassy spur. A few specimens of *Libocedrus plumosa*, kauri, *Phyllocladus* spp, totara, kahikatea, *Halocarpus kirkii*, *Ackama rosaeifolia*, taraire and more recently planted rimu persist. Native regrowth was vigorous here and the **Gymnosperm Collection** was continued near the current Visitor Centre building.

The **Rock Garden**, complete with fish pond, was commenced in 1948 under Brockie's direction. The huge boulders were shifted into position with winch and tackle. Prior to its construction flowering cherries (from Chapman's gardens) grew on the site. The Gresley Lukin Alpine Garden at the Solander Entrance was abandoned in favour of the new Rock Garden. Some of Brockie's original plantings are still growing here. A rock mulch was introduced in 1990 for water retention, to keep the soil cool and to make it look more natural.

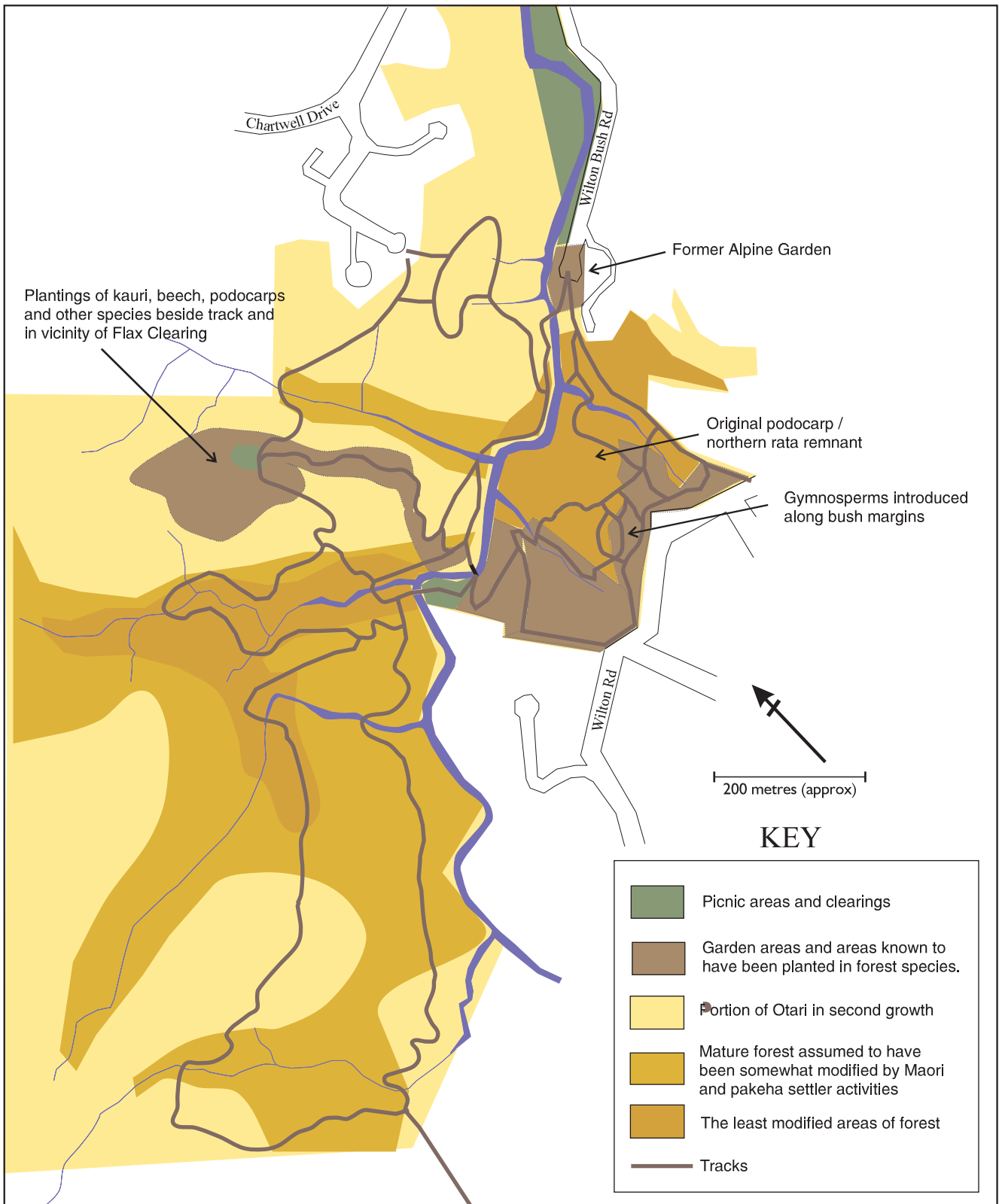


Figure 2 Vegetation Modifications Information is generated from Stan Reid's 1934 map, early survey plans and Otari work diaries.

In 1947, Walter Brockie, who was then the Curator at Otari, proposed plantings of 200 rimu and 100 each of miro, matai, kahikatea and totara be planted annually for the following five years through the forest to replenish podocarps. His actual recorded plantings include 43 rimu and 50 kahikatea (it is not clear where) and 100 totara on the banks north and south of the Troup Picnic Area in 1948 and 100 rimu in the bush below Wilton Road in 1950.

Willow, plane, cherry, sycamore, gum and walnut trees were removed from the reserve during this period.

The **Fernery** was developed in the early 1960s. Preparation of the man-made beds of river sand and peat, edged with ponga logs, took several years to complete. Planting began in the 1970s using species from the surrounding bush, private collectors and the Wildlife Service.

In the early 1960s a number of karo and ngaio trees formed a grove near Cockayne's grave. The karo were transplanted to form the hedge between Otari and Wilton School. The gaps were filled with native grasses and in 1980 the space was formally developed into a **Grass and Sedge Collection**.

A **Pomaderris Collection** was started in 1975, fitted in around other plants.

The **Main Cultivar Border** alongside the lawn was begun after the 1968 Wahine storm, under Raymond Mole's supervision. A cultivar is a variant within a species which is bred or selected to emphasise a particular feature. Most of the plants were obtained from garden centres and the Wellington City Council nursery at Berhampore. The golden totaras, a *Pseudopanax* hybrid and some cultivars of *Corynocarpus*, *Pittosporum* and *Griselinia* were already present. The north-facing extension of the cultivar bed was started in the late 1970s.

A **Flax Cultivar Collection** was developed between 1975 and 1980. Prior to that the border had held *Coprosma* species and hybrids.

The Wahine Storm also resulted in the establishment of the **Wild Garden** where the worst storm damage was sustained, opening up the canopy. Garden areas were created by adding soil to the forest floor rather than digging it in, to avoid root disturbance. The Wild Garden mainly consists of tree and shrub species from other parts of New Zealand that grow well under a forest canopy.

In the mid-1970s the area between Wilton Bush Road and Churchill Drive dominated by gorse, broom, pines and macrocarpas was cleared, sprayed, tracked and developed. The five types of *Nothofagus* which occur in New Zealand are represented by some 500 specimens. (Note this land, once part of Icard Park, is managed as part of Otari but is not yet formally gazetted as such.)

The **Dracophyllum Garden** was started in the late 1970s. Chatham Island forget-me-nots make a dramatic ground cover here.

The **Olearia Border** was moved from its original site in 1989 because of problems caused by unsuitable soil, replacing the Hebe Cultivar Collection. Their performance has improved as a result of the change.

The **Hebe Cultivar Collection** was moved closer to the main cultivar border. They had suffered from mildew in the old site and the new site had more sun and air movement. *Hebe* 'Otari Delight' and *Hebe* 'Mauve Fingers' are two Otari-bred cultivars.

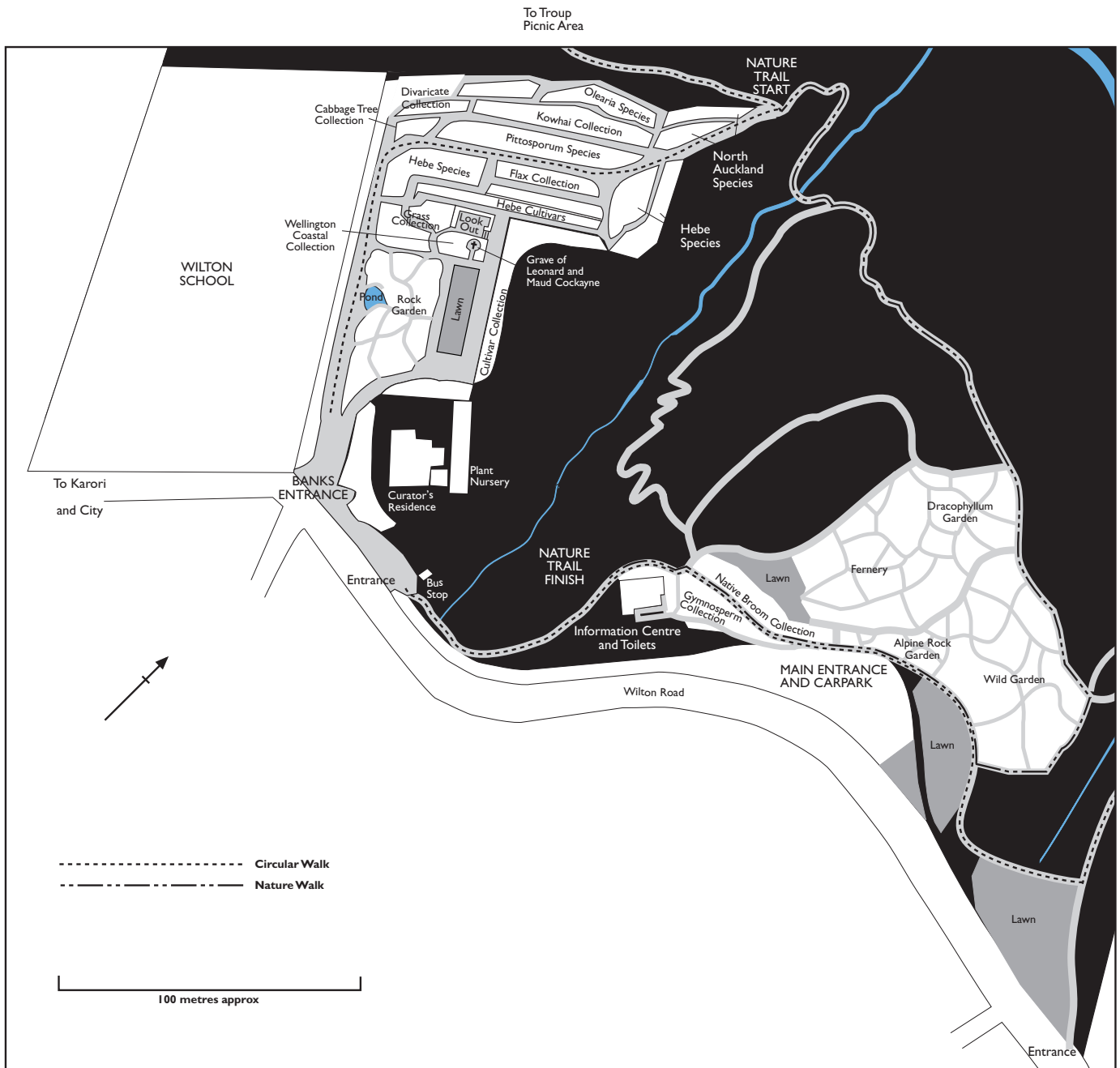


Figure 3 Location of Major Native Plant Collections in the Garden Area

The former **Olearia** garden was turned into a **new Hebe Species Border**. Although there was already a Hebe species collection, the huge number of species in this genus simply demanded that more space be made available. The **old Hebe Species Border**, dating back to Cockayne's days, included many species obtained from botanist Norman Potts in the 1960s and 1970s, as well as other collectors and staff collection trips.

Raymond Mole developed a colourful collection of **Leptospermum Cultivars**. Over the years, problems with scale insects forced this collection to be abandoned. It was replaced with a **Divaricate Border** about 1985.

What is now the **Volcanic Plateau Section** with alpine species was first developed into an **Alpine Bog Garden** but the work required to maintain it was too great. The alpine gardens in this area are shaded from the heat of the afternoon sun, and an artificially prepared substrate ensures adequate drainage.

An **Asteraceae Collection** was begun in 1992.

The **Kowhai Border** adjacent to Wilton School was removed in 1994 because of *Armillaria mellea* infection. The bed will be left fallow for all remaining woody root material to break down before being replanted. A **Clematis Collection** was also started in 1994.

Currently several new collections are being formed. These are: a **Marlborough Collection**, a **Pseudopanax Collection** and a **Juvenile/Adult Collection**. A **Coprosma Collection** and a **Threatened Species Collection** are also planned.

A list of current plant collections is contained in Appendix 1B.

The total number of plant accessions at the beginning of 1995 was 3,530 (data is updated on a six-monthly basis).

There are currently 874 taxa represented in the Otari plant collections – approximately one third of the 2,449 indigenous higher plant taxa listed by Druce (1992). “Taxa” in this case are species, sub-species and varieties. A number of these species are represented by several variants from around New Zealand. Of the 319 taxa (determinate and indeterminate) listed in the 1995 New Zealand Botanical Society Threatened Plant List, 87 (or approximately one quarter) are represented at Otari.

Detailed records of plant accessions and movements have always been kept. The Otari archives record the development of the plant collections and also introductions into the forest area. These records are thus of considerable scientific value.

1.5 The Forest Area

1.5.1 The Forest

Records of pre-European and early European settlement vegetation are sketchy. Botanical studies suggest the forest on the north-western flanks of the Te Wharangi Ridge was young when European settlers arrived. At that time Maori clearings were recorded on the true right of the Kaiwharawhara Stream and a track led up a spur on the true left.

As soon as European settlement began, podocarps were felled for milling prior to broadscale land clearance for pasture. It is understood that even Job Wilton’s “protected” patch of forest probably lost some totara for housing timber (a sawpit found within the reserve was used for this purpose).

It is not known what timber was removed from the Native Reserve prior to clearance. However, it was the custom for Maori to remove timber to sell as firewood to the settlers, and nikau was particularly popular in this respect. Cockayne later noted an overall depletion of nikau in gullies. Even as late as the 1940s, hinau was being felled in Otari for use as boundary fence posts. As well as land clearance fires on the higher ridges, there were accidental fires. Some fires occurred around the turn of the century in the bush in the “Pipitea Native” block which was to become Otari Scenic Reserve, with newspaper articles declaring that “the best part of the bush is being destroyed”.

The first botanical survey of Otari was undertaken by Stan Reid for a thesis produced in 1934. He recognised four broad vegetation zones and tried to determine the reasons for them. The four zones were:

- (1) High up the valley on western hill slopes exposed to frequent, strong salt-laden winds from the north and the south, Reid recognised a *coastal forest association*

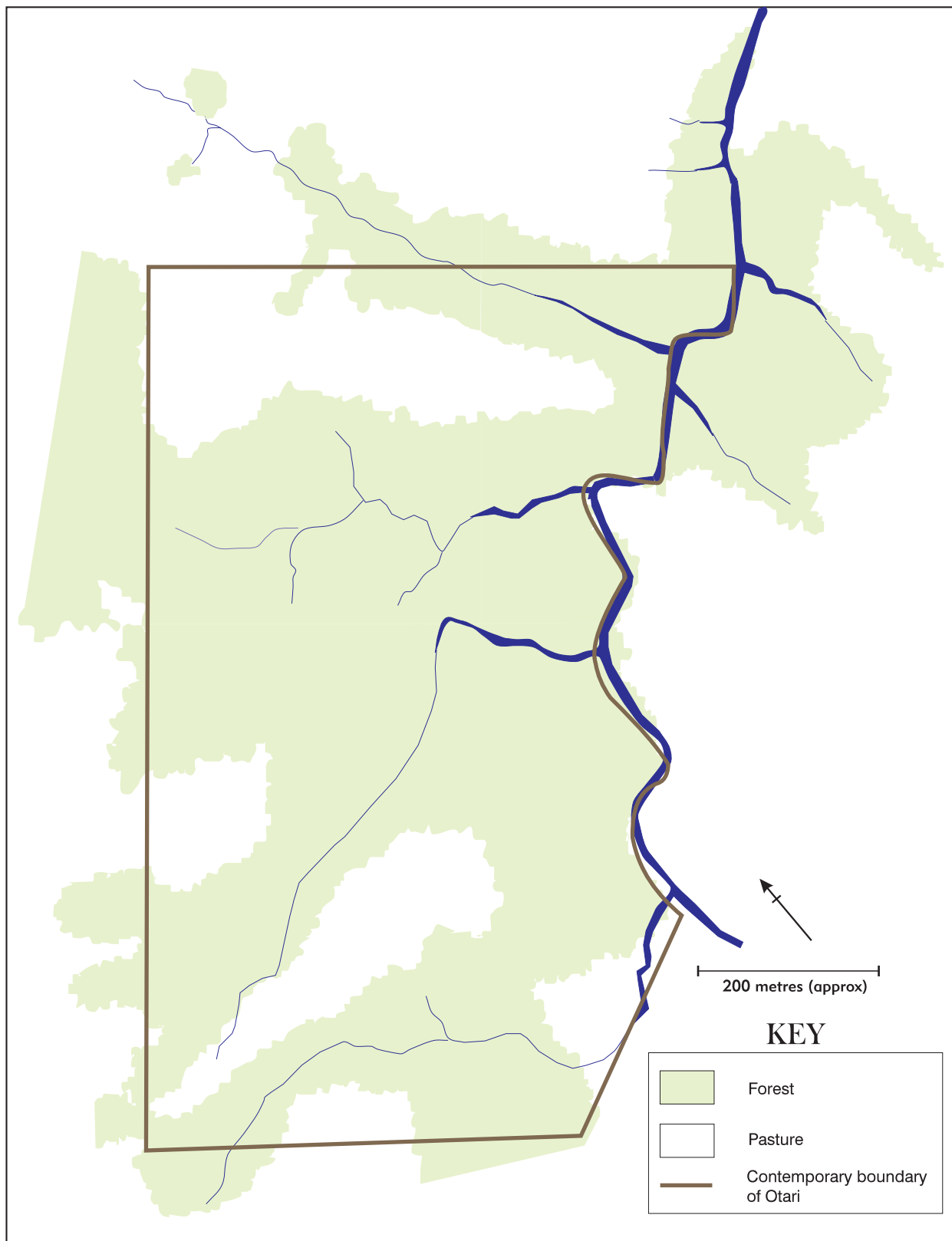


Figure 4a Forest Cover 1904 Changes in forest cover spanning 88 years. The 1904 map is adapted from the survey plan for the proposed scenic reserve and shows the extent of land clearance. Grazing continued until 1919.

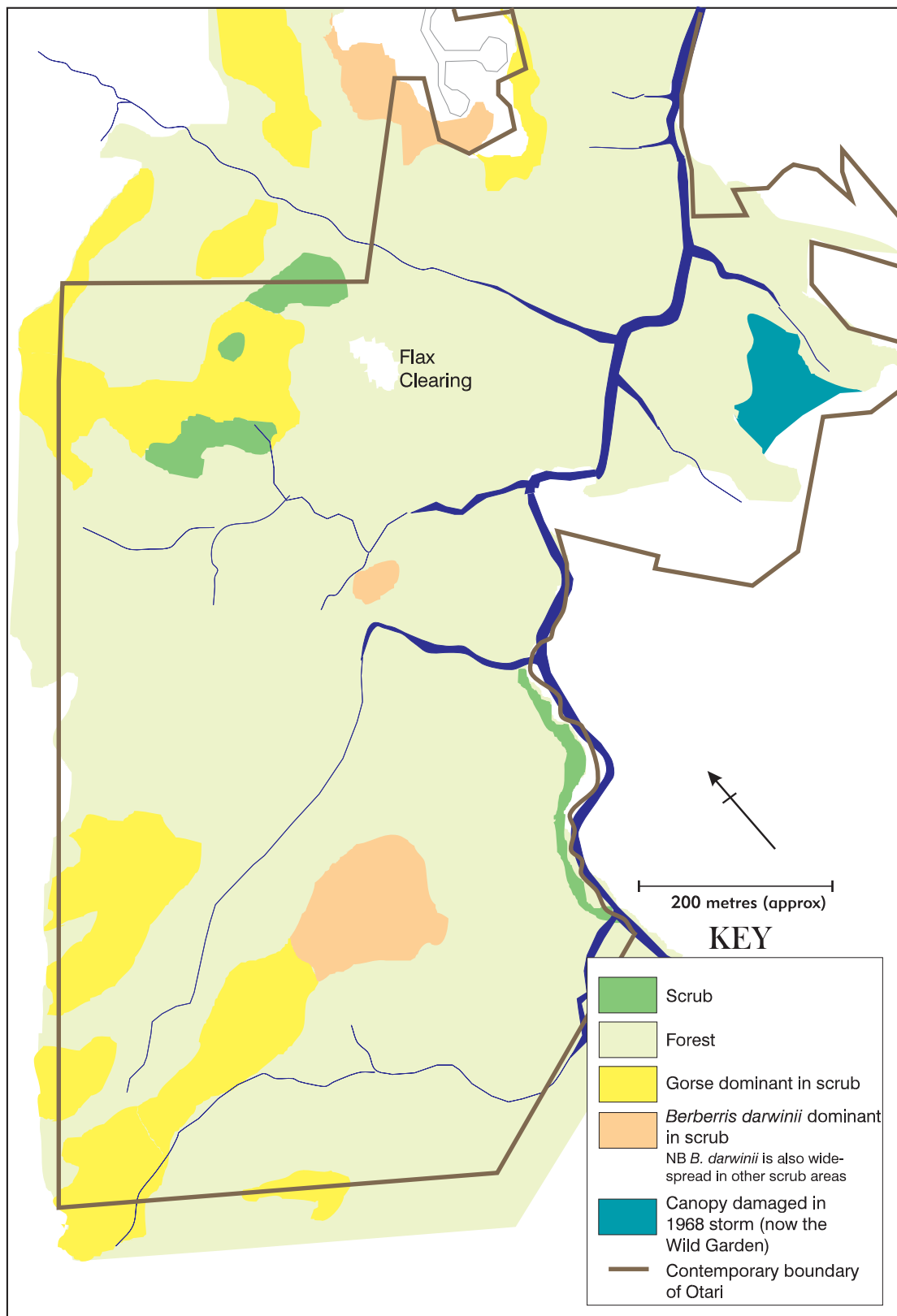


Figure 4b Forest Cover 1992 The 1992 map is adapted from a vegetation survey by Y. Marjot and shows extensive reversion. Differences in baselines between Figure 4a and 4b contrast the accuracy of early ground surveys with modern aerial photography.

predominantly of kohekohe, but also with karaka and pigeonwood. He considered this to be induced following some previous disturbance. Where there had been recent clearance, an association of coastal shrubs was an initial successional sere in revegetation.

- (2) The other main factor influencing vegetation associations in this valley is frost (for example, kohekohe and kawakawa are only common above the frost level of the valley floor). Thus the lower valley, originally sheltered from strong winds, has the predominantly *podocarp/northern rata/tawa rainforest* association typical of much of early Wellington's inland forest at this altitude. Pukatea and hinau are present in the most sheltered parts of this forest. The north-facing remnant of mature forest beside the main gardens has more light-tolerant species than the steep, shaded podocarp forest patches in gullies the other side of the stream.
- (3) Between these two extremes of forest type, Reid recognised a *semi-coastal association* across much of the reserve where tawa and kohekohe are found in more or less similar volumes in the canopy, and rimu, rewarewa, matai and hinau are thinly scattered.
- (4) Across the stream from the mature rimu-rata forest was a steep area of forest Reid regarded as **intermediate between rain forest and the semi-coastal forest** which contained many shade-tolerant species.

In 1934 Reid noted that kohekohe was increasing and displacing tawa-dominated canopies. He reasoned that clearance of surrounding, protecting forest effected an increase in the coastal influence of the climate here, inducing kohekohe associations.

His study concentrated on the successional phases following land clearance. It was then, in the thirties, that he noted Darwin's barberry beginning to creep into the area and warned of this aggressive threat to revegetation of the hillsides. Darwin's barberry is now a major component of reversion. Reid was also aware that rimu was not regenerating in the reserve.

Studies undertaken fifty years later by Reid himself (in 1982), and sixty years later by Yvonne Marjot (in 1992), show that kohekohe has continued to increase at the expense of tawa, and that rimu is not regenerating. With the loss of many hinau during and subsequent to the 1968 Wahine Storm, this means that there is an overall decline of the species and a change in forest structure, allowing kohekohe and karaka to spread.

Reid suggests the main reason for high hinau and rimu mortality from storm events is the change in wind characteristics through the Kaiwharawhara catchment brought about by construction of playing fields upstream and general loss of protective forest from the surrounding hills. Trees grown in relative shelter are now exposed to gusts they have not been built to withstand.

A significant aspect of forest regeneration is the absence of juvenile podocarps, even within mature areas. This was first noted by Brockie in his 1947 report. He felt although low seed viability (caused perhaps by conditions resulting from land clearance) and low bird numbers might contribute, the absence of young seedling trees was "inexplicable". As noted in the previous section, Brockie set about replenishing the forest with juvenile podocarps (known areas of planting are noted in Figure 2).

1.5.2 Wildlife

Bird life greatly diminished with the loss of mature forest in the catchment and with intense hunting of kaka, kereru (New Zealand pigeon) and tui last century. Huia were present here until the middle of last century. Sir James Allen, our High Commissioner

in London in the 1920s, visited Otari and was reputed to have commented, “Talking of our native birds, where are they?”. Brockie made diary entries of kereru sightings in the 1940s which suggests numbers were very low then. They are not currently believed