

History of kauri in Otari-Wilton's Bush

Rodney Lewington¹ and Carol West²

INTRODUCTION

The Otari Open-Air Native Plant Museum was officially opened in 1926 and at that time two kauri saplings were planted at Banks Entrance (Fig. 1). In 1930 some kauri were planted in what was the Chapman Garden, now adjacent to the Information Centre. Small groups of kauri are now growing in the formal garden area and a few grow on the ridge below the electricity pylon adjacent to the Kirk Path.



Figure 1. The Mayor and Mayoress of Wellington, Charles and Rosina Norwood, planting a kauri at the opening day of the Otari Native Plant Museum, Wilton, Wellington, 12 October 1926. Alexander Turnbull Library, Wellington, New Zealand, Reference Number PAColl-6304-56.

However, a feature of Otari-Wilton's Bush is the grove of kauri on gently sloping land above and to the west of the Flax Clearing. The typical pyramidal crowns of kauri "rickers" that characterise the Kauri Grove can

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1. 4 Highbury Crescent, Highbury, Wellington 6012. E-mail: rodnejl@clear.net.nz
 2. 9 Mamari Street, Rongotai, Wellington 6022.

be seen easily from the western end of the Cockayne Lawn. We decided to record the growth of Otari's kauri and during 2010 we measured and mapped the roughly 160 trees that have survived from plantings in 1929–1933, 1939, 1954 and 1957. Although our original interest was in the Kauri Grove, we extended our measurement and mapping to all kauri known from Otari-Wilton's Bush. In order to be able to interpret the measurement data that we gathered, which will be reported elsewhere, we explore here the history of the Kauri Grove and other plantings at Otari.

One of us (RL) examined the planting records in the files and gardeners' diaries held at Otari-Wilton's Bush and extracted all information relating to kauri within Otari. The details below bring together the record of planting since the first kauri trees were established in 1926.

THE KAURI GROVE: 1926 TO 1939

In 1928 the Wellington City Council agreed to a recommendation "...that a crop of potatoes be planted to clear an area where it is intended to plant a Kauri forest later on."³ In his 1932 report⁴ on the scheme for the Open-Air Museum, recording progress to the end of 1931, Cockayne noted that the ground had been prepared and a few kauri had already been planted.

The initial planting of the kauri above what is now the Flax Clearing was between 1929 and 1933. At that time some beeches (*Nothofagus* spp.) were also planted at the edges of the pasture. In 1929, W.A. (Bert) Cowan, a Forest Service employee, provided Leonard Cockayne with "less than 100 kauri" from north-east of Riverhead Forest, north of Auckland (Lewington 2010). It seems probable that the planting recorded in 1933 by the then curator, Andrew McKay, was of the trees provided by Cowan.⁵ A note book held with the gardeners' diaries indicates that McKay attached numbered labels, which have not been re-found, to 20 kauri on the 3rd August 1933, and at the same time to 24 beech trees (ten *N. menziesii*, ten *N. solandri* var. *cliffortioides* and four *N. fusca*). These were of varying age. Stan Reid recalled that some gap-filling was done in this area from 1930 to 1933. The source of the plants is not recorded and they too may have been some of those provided by Cowan.

3. Reserve Committee of the Wellington City Council, 11 June 1928.

4. Cockayne, L. 1932. *A Scheme for the Development and Arrangement for the Otari Open-Air Native Plant Museum. And Other Matters Connected Therewith*. Wellington City Council.

5. McKay, A. *Otari Gardeners' Diary*, 26 July 1933, and a note book with entries for 3 August 1933.

Margaret Martin (1938) recorded "... below the Cockayne Heights, there is a kauri forest in foundation... Below this is a beech forest, which begins to grow in spite of the ravages of hares".

Further kauri were planted by McKay and his staff in August 1939.⁶ "These, together with some *Phormium*, came from the Plant Research Bureau".

These initial plantings of the Kauri Grove were on a grassed ridge above the Flax Clearing. The planting was to serve two purposes. It was to be the North Auckland plant association recommended by McKenzie & Cockayne (1927) in the initial "Scheme" that set out the proposals for the Open-Air Native Plant Museum. Cockayne also hoped that it would demonstrate that native trees could be easily grown and he hoped to show that they could be a commercially viable source of timber.

THE KAURI GROVE: 1940 TO 1960

When Walter Brockie became manager/curator of Otari in June 1947, he prepared a report of the situation and the extent to which the Cockayne/McKenzie "Scheme" had been, and in his opinion could be, implemented. Reporting on the Kauri Grove, Brockie noted that "most of the trees had been retarded in their growth owing to their being repeatedly trampled by sheep and cattle. A few of them growing close to the forest margins, where the ground appears to be moister, have grown quite well and these are now six to ten feet in height. If adequate protection can be given, it would be worthwhile to plant more kauri, especially where the trees are growing satisfactorily."⁷ It appears that at this time the kauri and adjacent beech trees were still growing in pasture land.

In July 1948, Brockie recorded the damage that had been done by farm animals and hares and his diary entries suggest that he would like to scrap the project and grow other species.⁸ However, in 1954, Brockie and his

6. McKay, A. *Otari Gardeners' Diary*, 8 May and 7 September 1939.

7. Typescript report signed W. B. Brockie. Held with the Otari Gardeners' Diaries. Written about October 1947. Presumably a report to the Reserve Committee of the Wellington City Council.

8. Memorandum from W.B. Brockie, 1 July 1948. "Saw planted kauris, some of which had grown very little: Those planted closer to the bush and sheltered by manukas have made better growth, but the land here appears to be unsuitable for them. Hedges of *Shawia* [*Olearia*] *paniculata* in this area are stultified and these with another hedge of broadleaf which fulfils no apparent useful or ornamental purpose would be better removed. Informal groups of flax and *Daulhonnia cunninghamii* [possibly *Danthonia cunninghamii* = *Chionochloa conspicua* subsp. *cunninghamii*] appear satisfactory and the area should lend itself to this form of planting, which might include groups of toetoe, cabbage trees and perhaps pohutukawas".

assistant, Mr Everett, planted about 100 seven year old kauri in the existing Kauri Grove.⁹ In 1957 they planted more kauri in a depression to the south west of the original area.¹⁰

Up to this time, wandering stock, sheep and cattle were a problem, and in the earlier part of this period hares and possums were also recorded as damaging planted and regenerating species. Gorse continued to invade the area and much time and effort was expended in grubbing, cutting and burning this.

THE KAURI GROVE 1960 TO 2010

In the mid 1960s the area was shut up and left to pass through a regeneration stage under gorse so that, in 1970, Cowan "...found it too difficult to penetrate the Kauri area due to dense growth of gorse, or judge the height of the trees". In 1995 Cowan was able to report that "... most of the gorse had been replaced by NZ species with a high, dense canopy excluding almost all sunlight". He concluded that the kauri were regenerating but appears to be unaware of the planting that had been done during the 1950s (see Lewington 2010).

In 2002, all kauri in the Kauri Grove were numbered and measured by Bill Winstanley and John Waugh. Winstanley noted "Quite possibly no more than 20 to 51 of the original planting survived"¹¹ (We assume that Winstanley is referring to the 1930-1939 plantings.)

In 2010 approximately 160 kauri trees are growing in the Kauri Grove. Some of these are now substantial with the largest having a diameter at breast height (dbh) of >50 cm whereas some remain small with dbh of as little as 1.3 cm.

KAURI OUTSIDE THE KAURI GROVE

There are six well grown kauri trees in the bush on the ridge to the west of the Kirk Path below the power pylon. The date these were planted is not known although it seems probable that they were part of the 1929–1933 planting by McKay.

There are several trees to the north of the Information Centre. The larger of these were planted in 1930 in what was then the Chapman Garden. Others have been planted and/or transplanted in the last 15 years.

9. Brockie, W.B. *Otari Gardeners' Diaries*, 3, 5 and 6 August 1954.

10. Brockie, W.B. *Otari Gardeners' Diaries*, 28 August, 18-20 September 1957.

11. Winstanley, W. Notes with the work sheets of the 2002 kauri measurements, deposited in the Otari curator's files.

There are five well grown kauri trees alongside the track in the formal garden above the junction with the start of the nature trail. Six are recorded in the Otari records as being re-planted by Ray Mole in October 1963¹². They were then about 2 m high. It seems probable that these were some of the 24 kauri planted by Brockie "... in shrub garden east of the rock garden lawn" in September 1958¹³. There are now no kauri in the area to the east of the lawn. Of the six transplanted by Mole, five are thriving. The "... sixth one was removed about 10 years ago [i.e. late 1990s] as it was dying of *Armillaria*" (E. Burton pers. comm.).

Individual kauri have been planted in the 38° garden, most by transplanting. These are of varying ages. The Otari database records suggest that these arrived at Otari between 1990 and 2008, with the most recent two being planted in 2010.

PLANTING SUMMARY

In 1929 to 1933 some 100 kauri saplings of varying ages were planted in the pasture above what is now known as the Flax Clearing. Many of these did not survive, in part because of grazing by hares, sheep and cattle. An unspecified number of additional trees were planted in 1939 in the same area. In 1954 more than 100 seven year old kauri were additionally planted in the Kauri Grove. In 1957 additional kauri were planted in the depression to the south west of the original planting. In the mid 1960s the attempt to control gorse ceased. Over the next 20 years the gorse grew and finally was overcome by regenerating native bush and kauri.

Many kauri were planted in other parts of Otari-Wilton's Bush, the first in 1926 and the last in 2010.



Figure 2. Kauri seedling from Otari garden area, May 2010, Te Papa herbarium registration WELT SP089241.

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12. Mole, R. *Otari Gardeners' Diary*, 2–4 October 1963. "Transplanted 6 kauris to new position."
 13. Brockie, W.R. *Otari Gardeners' Diary*, 5 September 1958.

ARE KAURI REGENERATING IN OTARI?

There have been reports that kauri are regenerating in Otari. Certainly seedlings have grown in the garden area of Otari (Fig. 2). The information now available suggests that some seed may be germinating, but that in the Kauri Grove there are no surviving trees that grew from seed. Others have reported that kauri have been grown from seed in gardens in the vicinity of Otari (E. Burton pers. comm.; Steward et al. 2003).

Cowan's opinion when he visited in 1995 was that kauri were regenerating. He based this on the fact that there were many kauri saplings about 2 m high in the Kauri Grove. Apparently he was not aware of the 1954 and 1957 plantings. Bill Winstanley expressed doubts that these saplings were derived from *in situ* regeneration¹⁴ and discussed the possibility of coring or cutting down several trees to establish their age.

This suggestion followed the publication of a press release dated 11 April 2002 in the Evening Post, *inter alia*. This clearly stated that kauri were regenerating in the Kauri Grove.¹⁵ In this statement it appears that these authors too were not aware that kauri had been planted in the area in 1957.

Notes written by an Otari host between January and December 2002 record seedlings found in the Kauri Grove and that seeds collected from these trees were germinating in the nursery.¹⁶

Steward et al. (2003) documented the growth of cotyledonary seedlings beneath planted kauri in Otari. They state that although many cotyledonary seedlings were found beneath planted kauri, no established seedlings were found in Otari. They did see four well established seedlings in private gardens close to Otari. These were growing immediately beneath semi mature open-grown kauri trees.

Ring counts from discs from three small-diameter specimens taken from the Kauri Grove indicated that they started life in 1945, 1948 and 1952: "Most likely from planted stock."¹⁷ These would probably have been from

14. E-mail from Bill Winstanley to Tony Williams and Jane Wright, 16 April 2002. Held in the Otari files.

15. *Wild kauri growing at Otari-Wilton Bush reserve*, The Evening Post and press release, dated 11 April 2002, from the Wellington City Council, Council Communications.

16. Hand-written notes from the Otari files.

17. E-mail from Greg Steward to Bill Winstanley and Jane Wright, 20 May 2002. Kauri #31, with a diameter (at the base) of 22 mm and dbh of 13 mm was aged 50 years. Kauri #77 had a diameter of 60 mm (at the base) and was aged about 50. Kauri # 91, with a diameter of 26 mm (at the base) and dbh of 11 mm was aged 54. Mapping of the planting suggests that all these trees were planted by Brockie and Everett in late 1950.

the 1954 or 1957 plantings. An extensive search of the Kauri Grove during 2010 revealed no seedling kauri.

The evidence that kauri has regenerated in the Kauri Grove area of Otari-Wilton's Bush is not conclusive but leans towards the view that although seedlings have grown, they have not survived for long, and no regeneration has occurred in the Kauri Grove.

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