

track on the right and in the stream bed are several tall straight kahikatea (*Dacrydium dacrydioides*). Their dark brown bark looks superficially like that of rimu, but it breaks into small plaques. The foliage of kahikatea, NZ's tallest tree, is of tiny leaves, flat in the juvenile tree and close pressed onto branchlets in mature trees.



Kahikatea: bark, left and foliage, above.

Site 9: Log hauler Site

THIS area was cleared and used as a hauler site for storing and loading logs. Around the edges many stages in forest regeneration can be seen with canopies of manuka (*Leptospermum scoparium*) and kanuka supporting regeneration of many forest trees. The isolated trees in the centre of the clearing are kanuka. Note many young totara on the west side and kahikatea to the south and east.

This short tour has introduced you to 10 native tree species - all of which have distinctive bark and leaf features as well as varying usefulness as timber species.

Please pass this pamphlet on to a friend - or return it to the box if you have no further use for it.

This pamphlet was prepared for the David Johnstone Pukemokemoke Bush Trust by staff and students of the Centre for Biodiversity and Ecology Research, Dept of Biological Sciences, University of Waikato, in particular by Lisette Collins, Catherine Beard, Barry O'Brien and Warwick Silvester.

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Production by J & L Crawford, Bankwood Publications, Hamilton.

The Loop Track and its trees

Pukemokemoke Bush



The kawakawa leaf has been chosen as the logo for Pukemokemoke because of its abundance in the reserve and for its cultural significance to local Maori as a medicinal plant.

How to get there

From Hamilton drive north on the Gordonton Rd, past Gordonton village, then turn right on the Whitikahu road towards Tauhei. After 10km see a hill and quarry on the left. The bush on the hill is the Pukemokemoke reserve. See notice to bush reserve and driveway leading off to the left.

Information Sheet No. 1

THE LOOP TRACK and a little bit of history

THIS bush reserve is a small (40ha) remnant of the lowland forest that once covered much of the North Island. It was given to the nation by David Johnstone, a former owner of the Orini Downs Station, of which it used to be a part. Mr Johnstone wished that young people could see and enjoy the forest that used to be part of his childhood and the reserve is now administered by the David Johnstone Bush Trust.

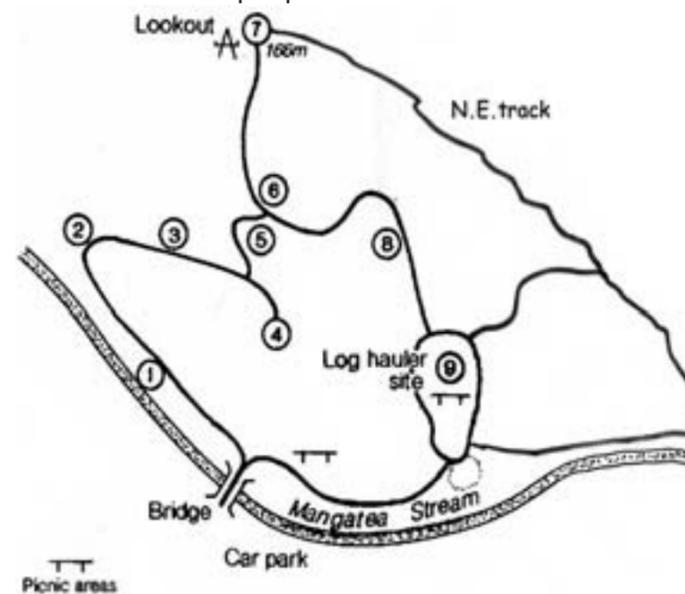
Over 300 native plant species are found in the Bush and notably nine of the 20 native conifers and 63 of the c. 180 ferns are found here.

This pamphlet guides you round the loop track and introduces you to the common trees which include six conifers (cone bearing trees) and five flowering trees. But first a few words about how to behave and be safe in the bush.

Safety & Etiquette

- This bush has had a lot of animal traffic in the past as can be seen by the bare understorey - please stay on the track.
- Please leave the plants for others to enjoy - fallen leaves are best for identification.
- Please don't litter.
- Some of the steps are slippery - don't walk on the edges of steps!

Read the noticeboard and to get to the start of the track, cross the bridge, then follow the path to the left marked summit. The map shows the sites identified in this pamphlet.



As you enter the track note the large amount of mahoe (also called whitey wood) and several small leaved shrubs. Walk along the flat part of the track until you see some large trees with beautiful red/purple hammered bark. We will concentrate on identifying the major tree species and will look at their bark and leaf characters.

Site One: Matai Grove

AT Site One you are under a canopy of three of New Zealand's important tree species. Two, matai and totara, are conifers; i.e. they have cones not flowers. These large trees are easily distinguished by their bark and by fallen leaves. Matai (*Prumnopitys taxifolia*) has a most attractive bark, breaking off in circles and leaving red, purple and brown patches as if hammered. The leaves are feathery and soft. Matai was used as a timber tree and produces a beautiful red/brown wood highly valued as flooring and furniture wood.



Matai bark, left, and foliage, above.

Totara (*Podocarpus totara*) has a trunk with a most distinctive appearance, best described as stringy, with long strands of grey, furrowed bark. The leaves are 1-2 cm long and quite sharp. Totara wood was highly prized for posts and house piles because it resists decay in the soil for 50 or more years. It is even more highly sought after now for carving and was the most predominant timber for the construction of waka (canoes).



Matai and totara are called softwoods because of their ease of working while the third tree here is tawa (*Beilschmedia tawa*), a hardwood.



Totara: foliage, top, and bark, below.

Tawa is one of our commonest trees, the bark is a flat grey/green and undistinctive compared with the two conifers we have seen. The foliage is a light grey/green, leaves are up to 10cm long with undulating margins - green on top and grey beneath - and as you look into the canopy they give a smoky appearance.



Tawa: Bark, above and foliage, right.

Note the number of tawa seedlings on this part of the track. Tawa produces a hard, light-coloured, strong wood, used for flooring, also for dowels and handles.

Move along the track turning right, and note a number of totara and tawa trees on both sides of the track. The small stream on the left produces a distinct moist microclimate, with many tree ferns and the NZ palm, nikau. Site two is reached as the track approaches the stream and turns hard right.

Site 2: Kanuka canopy

THE canopy at this site is of kanuka (*Kunzea ericoides*). The trunks are slender and tall with bark coming off in long flat flakes. The foliage is very fine and sparse. This small clump of kanuka represents a stage in the regeneration of this forest, as kanuka are short-lived trees which colonise sites after disturbance (logging in this case) and produce a sheltered nursery for other trees to establish. This colonisation is facilitated by the slow opening of the canopy as the kanuka age (as at this site) letting in light for the young seedlings. Is there evidence as to which species will finally become canopy here?



Kanuka foliage

The track now turns hard right and proceeds up hill through kanuka trees up to 20cm diameter. After walking about 50m uphill note the beautiful trunk of a matai tree close to the track on the right and beyond here note the canopy changes most dramatically.



Beech: bark, left and foliage, above.

Kauri (*Agathus australis*), New Zealand's largest tree, is close to its natural southern limit here at Pukemokemoke. The bark of kauri is smooth with only a few grey lichens, and flakes off in saucer to dinner plate sized flakes leaving an interesting mosaic of brown and red plaques. Long drip lines of kauri gum can often be seen dribbling from the trunk. Kauri has produced enormous amounts of superior timber, perfect for boat building, furniture and finishing work.



Kauri: Bark, left, and foliage, above.

Now walk up to the track junction and turn right to the kauri grove.

Site 4: Kauri Grove

KAURI GROVE - Several large kauri at this site show the potential of this species. The branches shed naturally and trees may have a clean parallel trunk to 20m and as much as 3m in diameter. Note the mound of leaf and bark litter that forms around the base of the tree and the beads of gum that ooze from every small branch or leaf-drop wound.

Back to the track junction and you are in a group of large rimu trees (*Dacrydium cupressinum*). Rimu bark is very dark red/brown flaking off in large elongated flakes about 50cm long.



Rimu: bark, left, and foliage, above.

The foliage consists of tiny leaves on drooping branchlets giving the tree its distinctive soft, dark-green appearance. Rimu is New Zealand's perfect furniture soft wood timber being easily worked, strong, durable and with a complex and lustrous deep-red grain.

Walk up to where the track turns on itself to the big totara.

Site 5: Totara Turn

YOU can see the potential of one of our larger conifers here. These two totara trees are over 3m in circumference which is nearly 1m in diameter. Millions of fence posts and battens, as well as other uses, have been made from totara over the last 150 years, many are still around and in use.

As you climb up this track you look into the distinctive pendulous foliage of large rimu ahead and to your right.

The track continues to the crossroads where you are in the kawakawa grove.

Site 6: Regeneration Ridge

REGENERATION Ridge - At the crossroads and on up the track to the lookout you are in an area of active regeneration. The area has been well trampled and eaten by stock in the past but the overstorey of manuka and kanuka are giving way to other species.

While kawakawa, mahoe and mapau are the commonest species there are numerous seedlings of plants that will become large trees. Identify kohekohe, titoki, nikau, tawa and totara close to the track.



Kawakawa foliage

Note the very large totara (3.7m in circumference 1.2m diameter) out to the right.

Move on up along the regeneration ridge onto the clearing to the lookout.

Site 7: Lookout (166m)

FROM the top of the viewing platform you have an uninterrupted view of the central Waikato valley.



Starting on your hard right you see the Hakarimata Range with Taupiri mountain and the gap through which the Waikato River flows. Round to Mt Pirongia at 959m, the highest in the Waikato, and 50 km from where you stand here at 166m. Then almost due south to the distinctive cone of Kakepuku (449m), to the very distant Rangitoto Range over 70 km away and the massive Maungatautari Mountain.

Out to your left in the far distance are the Mamaku and Kaimai Ranges with many peaks above 1000m and in the foreground the peaks of Maungakawa (495m) Pukemoremore (340m) and Sanitorium Hill (383m).

Looking to the north as you walk back through the clearing note a variety of species are spreading up into this recent clearcut. They include the exotic weeds of gorse and pampas, as well as the aggressive native shrubs ake ake, manuka, kanuka, hangehange, mahoe, kawakawa and bracken. Which ones will win the battle?

Back at the kawakawa grove junction, take the track to the log hauler site and walk down through more tanekaha and kanuka trees and proceed on down to the point the track hits the stream.

Site 8: The Valley

THE Valley - Just before you cross the stream you will see two large trees with smooth cream coloured bark. These are pukatea trees (*Laurelia novae-zealandiae*), with large plank buttress roots which support them in the wet valley-bottom soils where they are commonly found.

Their leaves are 2-5cm, almost round with coarse blunt teeth on their margin. In young pukatea seedlings nearby you can see the leaves and the distinctive square branchlets.

Behind the pukatea on the left is a large rimu, clothed in kiekie, with a basal diameter of one metre. Vines of supplejack screen the rimu. A little further down the



Pukatea foliage

Site 3: Kauri/tanekaha forest

The canopy changes dramatically and the first indications are the dense understorey of mingi mingi and other shrubs and the distinctive trunks of many tanekaha (*Phyllocladus trichomanoides*) trees. These first trees are around 40cm diameter, with smooth bark, covered in grey blotches of lichen and with distinctive ridges girdling the trunk, representing old branch scars. Tanekaha leaves are very distinctive and are actually flattened stems, shaped like celery leaves.



Tanekaha: foliage, above, and bark, left

This ridge once had a number of native hard beech trees, but they have all succumbed to what was probably a root disease. Since 2005 all but one of the large beech trees have died.