

# St Johns Bush Guide

## What to see in St Johns Bush

St Johns Bush, directly below St John's College can be reached from any one of three entrances. The main entrance with sign boards is located on the Worcester Road – Ripon Crescent corner where there is usually parking available. Other signposted entrances are available off Gowing Drive beside No 131, and St Johns Road at No 282, both on bus routes.



***St Johns Bush showing pathways in orange and boundary in blue***  
*Image prepared by Sue La Roche on Auckland Council 2017 GeoMap base*

Scanning the QR code at the Worcester Road entrance sign will access the online St Johns Bush Trail Guide to inform visitors as they walk around the bush.

The metaled pathways on easy grades, usually in good condition, can be easily covered in less than two hours, including for time to look at native trees etc.

## St Johns Bush History

There are many interesting features to be seen in this regenerating bush, originally planted by Bishop Selwyn, his wife Sarah, St John's College staff and students up to 175 years ago.





The area where St Johns Bush is located was originally part of Bishop Selwyn's 1840s land purchase of 538 hectares for St John's College and farmland. It was initially very exposed, covered only in bracken fern with no shelter from wind.

The area had been cleared by early Māori for gardens because it faced north and had good volcanic soils, but had been abandoned during the 1820's musket raids by northern Māori. From 1846 Bishop Selwyn built on the present College site where students and staff were expected to care for the land. The Bishop's wife, Sarah Selwyn, described how in 1846 staff and the students had planted thousands of trees, mainly ngaio as wind breaks for other species.<sup>1</sup> The large kauri (number 19) would have been planted around this time. Strangely, there are no ngaio remaining in St Johns Bush at present.

After local residents led by Margie Hatrick-Smith and Toni Millar campaigned against the possibility of the bush below the College being sold for subdivision, St Johns Bush was purchased by Auckland City Council from St John's College Trust Board in December 2000. The original purchase of 3 hectares was followed by a further 1.09 hectares in 2004.

These purchases were arranged by Councillor Scott Milne, Chair of the Recreation and Events Committee at the time.<sup>2</sup>

Among the common species of fauna and flora, you may be lucky to see the following:

-  • The North Island kaka, a native New Zealand parrot, sometimes stops off in St Johns Bush on the way to the Whangaparaoa Peninsula in the north from the Waitakere ranges in the west. Kaka love to eat the berries, seeds and nectar from the mature trees in the bush as well as the resin from the pines. You may also see kaka on the bush floor, eating the grubs and invertebrates from fallen, rotten logs.
-  • The stream and wetland system in St Johns Bush contains native kokopu fish. Kokopu do not have scales, can live more than 20 years and can grow over 20cm in length.
-  • Watch out for the deadly death cap and fly agaric fungi under the oak and pine trees in autumn. Fly agaric are the classic looking poisonous toadstools that have a bright red cap with white spots. However, death caps look very similar to edible field mushrooms and are actually one of the most poisonous of all known toadstools.
-  • New Zealand's native giant centipede is very common in St Johns Bush if you know where to look. It can easily be 20cm long and is a vicious predator, using its pincers to inject poison into insects, snails and worms. Be careful around rotting logs, leaves and other damp places as the centipedes can give you a nasty pinch if you get too close!

*Entrance sign board at Worcester Road – Ripon Crescent corner*

## Insects and Birds

The bush and its tree cover provide habitat for native birds including **kererū**, **riroriro** (grey warbler), **tauhou** (silveryeye), **tūī**, and **pīwakawaka** (fantail) that will often follow you around in the bush. Occasionally **kākā** have been seen.<sup>3</sup>

Native fish including banded **kōkopu** may be seen in the pools near the lower end of the bush and it is suggested **tuna** (eels), have been seen here. Kōkopu and eels spend part of their life at sea before returning to their spawning ground in this creek.

Then there are insects and arthropods such as New Zealand's large centipede, **hura** (giant centipede), which can grow up to 20cm in length.<sup>4</sup> **Wētā** are common in St Johns Bush indicating that their main predators, rats, are under control. You will note the various rat and possum traps maintained by volunteers as you walk around the bush. Thirty-six different Lichen species have been identified in St Johns Bush<sup>5</sup> and you will often see many fascinating fungi.<sup>6</sup>

## Native Trees in St Johns Bush

Celebrated Auckland botanist Ewen Cameron, in a paper published in the Auckland Botanical Society Journal No 55 in 2000, described St Johns Bush as follows:<sup>3</sup>

### “Gully Forest

Native species dominate the canopy and under storey. The commonest canopy species include:

**Māhoe** (*Melicytus ramiflorus*), **kānuka** (*Kunzea ericoides*), **karaka** (*Corynocarpus laevigatus*),  
**Lacebark** (*Hoheria populnea*), **kohekohe** (*Dysoxylum spectabile*),

**Pigeonwood** (*Hedycarya arborea*), tree privet and on the margins:

**Pōhutukawa** and **pūriri**.

**Ponga** (*Cyathea dealbata*) is abundant throughout and two other tree fern species (*Cyathea medullaris* & *Dicksonia squarrosa*) are also present.

**Māpou** (*Myrsine australis*), **hangehange** (*Geniostoma rupestre*) are common in the understorey. Ferns dominate the ground cover especially near the streams.

**Bamboo sedge** (*Gahnia lacera*) and a variety of smaller sedge species (*Carex* spp. & *Uncinia uncinata*) are also common.

Regeneration of many native species is locally prolific, karaka, kohekohe and pigeonwood seedlings are especially common. To see such abundance of kohekohe regeneration is now unusual on the mainland because this is an "ice cream" species to the Australian possum. Abundant seedlings and the healthy canopies of kohekohe indicate that possum numbers are low.

Two weed species locally form extensive patches: *Plectranthus* (*Plectranthus ciliatus*) and wandering willie (*Tradescantia fluminensis*).

### Vascular Flora of the Bush

[Vascular in this context refers to all trees, ferns and plants]

The 2000 survey records a total of 164 vascular plant species for the St Johns Bush some of these will have been planted.

Fifty four percent are native species and native ferns are a high component of the total. Native trees and shrubs (32 spp.) are also well represented.

There are two splendid specimens of pukatea (*Laurelia novae-zelandiae*) in the western gully; the largest is 78.2cm in diameter, the other 61.0cm and about 16 metres tall.”

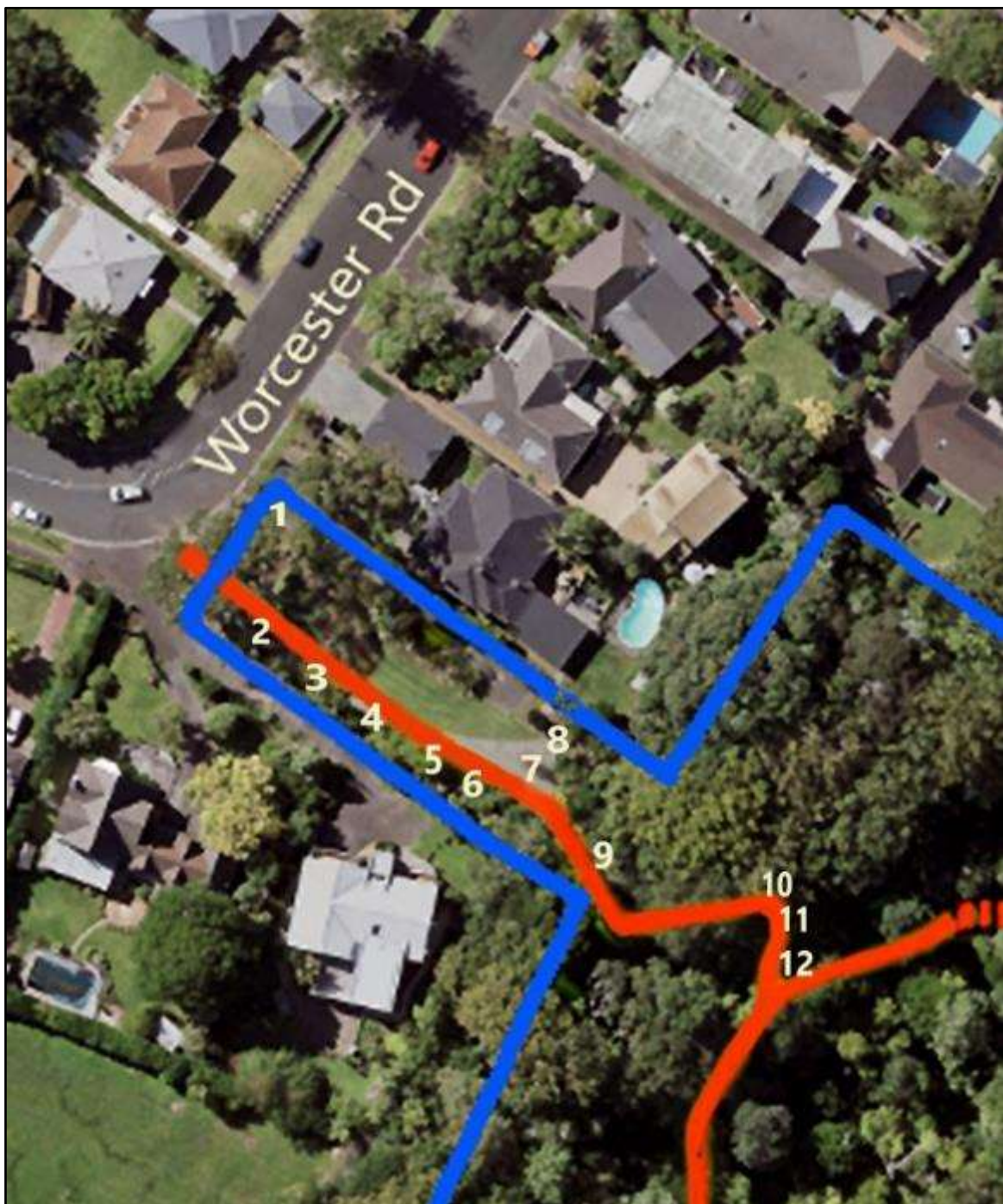
## The Uses of Native Trees

New Zealand's native trees are such an important feature for us all to appreciate. However native trees are more than just attractive shrubs or trees to identify. They have had many uses, not least to Māori who have used them to cure ailments and for other uses. Te Rongoā is traditional Māori medicine using native plants. These traditional medicine methods have been scientifically investigated with several of the chemicals involved being identified for their healing properties. However, there are very many aspects and specialist learning involved to practice rongoā. The novice should not attempt to use these methods without expert advice. Recommended publications are listed in the reference information.<sup>7,8</sup>

There are many excellent publications on the New Zealand forest trees, birds, insects and fungi.<sup>6,9</sup>

The locations of each plant or tree described are indicated on the enlarged maps of each section of the reserve, and by the number on a stake beside each tree. Many of these trees are located around the Worcester Road – Rippon Crescent entrance area. The examples shown in following pages are just a few that should be easy to recognise. You will find seedlings and other examples of the trees pictured as you walk around the bush.

## Worcester Road – Rippon Crescent Entrance and Pathway





### 1 Titoki (*Alectryon excelsus*)

Titoki is a fairly common tree that can grow to 9 metres in height. Small purple flowers in spring produce red berries with black seeds that take a year to mature. The example pictured at the front of the entrance is one of a number to be seen in the bush.

Māori extracted oil from seeds in a flax bag by pounding with a club.

The oil was used to anoint the body and applied to sores, wounds, painful breasts, sore eyes, bruises and painful joints. The red pulp from the berries was used to relieve blood spitting caused by tuberculosis. A soft cloth soaked in oil was used for baby's naval inflammation. The fruit and seeds are attractive to birds and possums.



### 2 Nīkau Palm (*Rhopalostylis sapida*)

Nīkau is New Zealand's only native palm, growing up to 15 metres in height. It flowers between November and April forming fruit in large clusters off the main trunk. Kererū (native pigeons) have a great liking for the fruit and help to distribute the seed.

Māori found many uses for nīkau. The bases of the inner leaves and the young flower clusters were eaten raw or cooked. Food was wrapped in the leaves for cooking, and the old fibrous leaves were used for kete (baskets), weaving, floor mats, and as waterproof thatch for buildings. The inner pith has a mild laxative quality, taken as a drink to treat diarrhoea and dysentery.



### 3 Māhoe (*Melicytus ramiflorus*) or Whiteywood

Māhoe is a relatively fast growing tree that can reach up to 10 metres in height. Flowers in late spring have a strong, pleasant fragrance producing small violet coloured berries favoured by kererū and tūī.

Māori boiled the leaves to make a liquid that was used to bathe parts of the body affected by rheumatism. Boiled leaves were used to bandage skin surfaces with scabies and to cover stomach wounds. The inner bark was frayed and applied over burns. Māhoe charcoal was used for gunpowder and the black juice made from berries was used for tattooing.



#### 4 Tī kōuka (*Cordyline australis*) or Cabbage tree

Tī kōuka, the cabbage tree is the world's largest member of the lily family. They can grow up to 20 metres in height, flowering from mid-spring.

Māori used cabbage trees as a food, fibre and medicine. The root, inner branched leaves and heart are all edible as good sources of starch and sugar. The leaves were woven into baskets, sandals, rope, rain capes and other items. An infusion made from the leaves was used to cure diarrhoea and dysentery.

Tī kōuka, since they are generally long-lived, were also planted to mark trails, boundaries, urupā (cemeteries) and births.

Early European settlers used the fire resistant trunk to make chimneys for their huts. They also brewed beer from the root.



#### 5 Karamū (*Coprosma robusta*)

Karamū is a common tree or shrub with many related coprosma species that can grow up to 6 metres in height. Large clusters of orange berries are attractive for birds to eat.

Karamū was important to Māori. The tōhunga would use a wand of green karamū in a cleansing ceremony for infants and baptisms. Leaves were boiled and the liquid drunk for kidney problems. Scraped off outer bark, when boiled with water was used for stomach ache and to stop vomiting. Leaves were used to line hāngi pits. Early settlers roasted and ground the seed to make coprosma coffee and the leaves were used as a substitute for China tea.



#### 6 Harakeke (*Phormium tenax*) or Flax

Harakeke is unique to New Zealand and is one of our most ancient plant species. Harakeke flowers are an abundant food resource for tūi, kākā and other native birds.

For Māori the leaves had many uses particularly in spiritual healing. The blanched base of the leaf or root was beaten to a pulp, heated or roasted and applied hot to abscesses, tumours or swollen joints.

The gum from the base of the leaves was applied to burns, wounds and old sores. It was taken internally for diarrhoea. Māori used harakeke for many special forms of weaving such as for clothing, matting, kete (baskets) and sandals. Flax fibre was New Zealand's largest export industry in the 19<sup>th</sup> century.





## 7 Kahikatea (*Dacrycarpus dacrydioides*)

Kahikatea is New Zealand's tallest indigenous tree that can grow to a height of 55 metres, often in swampy land with trunks of up to 2 metres in diameter.

Kahikatea berries, that Māori called 'koroī', were used as a food source and served at feasts. Traditionally they were eaten raw. The bark was used in a lotion to apply to bruises. An infusion of chips in boiling water was used for skin diseases. For urinary and other internal complaints, a decoction of the leaves was taken. Kahikatea has a long straight grain which makes it good for structures and boat building, but it did not have the lasting qualities of other timbers such as tōtara and kauri. Since the timber was clean without odours, it was extensively used for making butter boxes to export butter in refrigerated ships from the 1880s.



## 8 Rātā, Northern Rātā (*Metrosideros robusta*)

Rātā can grow into one of New Zealand tallest flowering trees at up to 30 metres. Rātā are similar to pōhutukawa producing brilliant red flowers between November and January. Rātā trees may start as epiphytes on a host tree often a rimu, eventually sending roots into the soil below to form their own tree when the host dies. Rātā can also grow from the ground, but normally with a short trunk.

Māori used a lotion made from the bark for ringworm, aches and pains, and for wounds. When the bark was crushed and boiled, the liquid was applied to bruises and taken internally for colds. The nectar was used for sore throats. Young leaves were chewed for toothache. Unfortunately, possums have a liking for rātā and can kill a tree within three years.



## 9 Karo (*Pittosporum crassifolium*)

Karo is a common tree growing up 10 metres tall. It has small dark red flowers in early spring. Birds are attracted to the nectar and sticky fruit, spreading the sticky black seeds widely. Leaves are grey-green and covered on the underside with fine white hairs. The example shown is at the end of the concrete entrance path on the left.

Māori crushed the seeds to treat sore throats and for hair loss.

It is often used for hedges or shelter planting because it is very resilient to wind and salt spray.



## 10 Oak Tree (*Quercus robur*)

Although native vegetation is now dominant in St Johns Bush, there remain some large exotic trees from original plantings of 170 years ago. These are often closer to the private St John's College grounds. The many branched oak tree pictured has shed its leaves for winter. Other exotics which may be seen include *Pinus pinaster*, *Pinus radiata*, *macrocapa*, sycamore and magnolia.

Bishop Selwyn planted many oaks in the St Johns region, most of them now very large trees.



## 11 Tōtara (*Podocarpus totara*)

The tall tōtara tree in the picture, a particularly straight specimen, can grow up to 30 metres in height with a trunk of 2 metres in diameter. Leaves are narrow and sharply pointed. Māori referred to tōtara as '*Rākau Rangatira*', a chiefly tree, as its timber was prized above all others for its carving properties and for making large waka (canoes) capable of carrying up to 100 warriors.

Māori used the smoke from burning tōtara to treat hakahaki, a skin complaint and paipai, venereal disease in women. [The crew of Captain Cook's ships were responsible for introducing venereal diseases to New Zealand] When the inner bark was boiled with mānuka and kept in a closed bottle for a week, it was used to treat fever.

Tōtara is hard, usually straight-grained and very resistant to rot, especially its heartwood, often used for fence posts, floor pilings and railway sleepers.



## 12 Ponga (*Cyathea dealbata*) or Silver fern

Ponga can grow up to 10 metres in height. They are distinguished by the silver-white undersides to the fronds. The silver fern leaf symbol is used by many New Zealand sports teams and Air New Zealand aircraft.

Māori used ponga pith, the pulpy heart of the trunk, as a poultice to treat running or seeping wounds and boils, as its antiseptic properties made it suitable for this use. Young fronds were boiled and the extracted juice applied to boils, acting to draw out the infection. Gum from the ponga tree was given by mouth to expel worms from the gastrointestinal tract. The trunks were also used to build whare (house) walls and making fortifications.

Ponga trunks are popular for modern landscaping.



## Southern Pathway



### 13 Pukatea (*Laurelia novae-zelandiae*)



Pukatea can grow to a height of 35 metres, producing large plank-buttressed roots. This large and tall example shown is just beyond the path junction.

Pukatea produce toothed leaves and small green flowers in mid spring and small green flask shaped fruit with hairs that enable them to spread in the wind.



Māori used pukatea to treat toothache by soaking the inner bark in hot water and applying it to the tooth and as a general pain killer. The outer layer of bark when boiled with water was used to treat tuberculosis.

The timber is used for boatbuilding and Māori used it for figureheads on canoes.

## 14 Kawakawa (*Piper excelsum*)

Kawakawa can be seen close to the paths in many places. It has heart shaped leaves, often full of holes caused by the Kawakawa Looper Moth (*Cleora scriptaria*). The orange fruit catkins forming in January-February are sweet to eat and favoured by kererū and tūi.

Kawakawa is one of the most important herbs in traditional herbal Māori medicine.

A decoction made from the leaves was used to treat cuts, wounds, skin infections and relieve toothache. A branch of kawakawa was used to welcome guests to the Marae. A wreath of kawakawa leaves on the head was worn at a tangi.



## 15 Hangehange (*Geniostoma ligustrifolium*)

Hangehange is a common shrub that can grow up to 3 metres in height. The tiny greenish flowers appearing in late spring are highly perfumed.

Māori used the bark to make an infusion for gastro-intestinal diseases and stomach ache. The leaves were used as a poultice for boils. The bark when beaten, made a black dye. It was also used for children's sores and itchy skin. Hanghange leaves were used as flavouring by wrapping around food to be cooked in a hangi oven.



## 16 Kānuka (*Kunzea robusta*)

There are many large kānuka trees in St Johns Bush. Mānuka and kānuka are often confused; mānuka leaves are prickly, while kānuka leaves are soft.

Kānuka can grow up to 18 metres in height with bark that peels into long strips. The white or pale pink flowers look similar to mānuka, both being valuable for honey.

Kānuka was important to Māori who used its properties in a similar way to mānuka. An infusion of the leaves was used as a drink for kidney and bladder problems, to reduce coughing in adults and fever in children. A decoction made from the bark was used for diarrhoea and dysentery. When the seeds were chewed, they were a cure for stomach complaints. A poultice of crushed and boiled seeds healed an open wound. The wood is very hard and used for wharf piles and tool handles. It is valued as hot-burning firewood.





### 17 Karaka (*Corynocarpus laevigatus*)

Karaka can grow up to 15 meters in height. The flowers are small and greenish but the large orange fruit produced in summer and autumn are important food for birds. The seeds were an important food source for Māori, but poisonous until baked and sun dried. Karaka trees were planted around villages for shade. Wound healing was promoted by placing the shiny upper surface of leaves over wounds.



### 18 Pūriri (*Vitex lucens*)

Pūriri can grow up to 20 metres in height with trunks 1.5 metres diameter often with widely spreading branches as pictured. The attractive red-pink curved tubular flowers appear from early winter forming bright red berries liked by native birds.



Pūriri was widely used by Māori in pre-European times. It was used for palisades in fighting pā and the wood was made into weapons and implements. Berries were taken as a laxative, and the water from the boiled leaves was used to treat cuts and sores, easing sore throats and also for bathing sprains and sore backs.

Due to the timber's rot and borer-resistant properties, there are still many pūriri fence posts 60 to 100 years old. Because the wood is exceptionally hard, a special staple was necessary to attach fencing wire to pūriri posts.

### 19 Kauri (*Agathis australis*)



This lone kauri would have been planted in the gully, probably 170 years ago. Kauri can grow up to 50 metres in height with very large trunk diameters. The largest, at 8.54 metres was measured near Thames in 1890 before being burnt. Kauri, one of the most ancient world trees, may live for over 2,000 years.

Māori used fresh kauri gum for chewing. Soot from burning heartwood mixed with shark oil was used to paint canoes and as a black pigment for tattooing. For waka (canoe) building, kauri was highly prized as it also was for carving.

Because it was such a valuable timber for many European activities, forests were widely exploited from the 1800s. Kauri resin was also valuable for many uses such as making varnish.

## 20 Porokaiwhiri (*Hedycarya arborea*) or Pigeonwood

Porokaiwhiri more commonly known as pidgeonwood is a tree that can grow up to 12 metres in height. The large trunk of the example shown, is on the south side of the stairway above the creek. The thick leathery leaves have a shallow serrated edge. The bright orange berries are eagerly consumed by birds, particularly kererū, hence the name pidgeonwood. Birds often leave easily recognised orange droppings on the ground where they have been feeding in the tree above.

As a medicine, Māori used it in vapour baths and the wood was used to make flutes and as a mouthpiece for shell trumpets.



## 21 Kohekohe (*Dysoxylum spectabile*)

There are many large kohekohe growing in St Johns Bush. The examples shown are in a grove of kohekohe near the stairway above the creek. They can grow into a tree up to 15 metres in height with a 1 metre diameter trunk. Kohekohe are unusual because the white flowers and fruit grow directly from the trunk, a feature normally associated with tropical trees. Flowering can be seen in May or June.

Māori boiled the bark in water and used it as a tonic. Leaves were used as a decoction for urinary complaints and the vapour was inhaled for colds. The white gum was applied to scalds and burns. Young shoots were chewed and swallowed for dysentery.

Kohekohe was often called NZ Mahogany because the timber has a grain that polishes up to a fine red colour.



## 22 Mamaku (*Cyathea medullaris*)

Mamaku or Black Tree fern can grow to 20 metres in height. They are distinguished by their black trunk and black fronds arching upwards from the crown.

Māori cooked the tender shoots as food. The baked inner stems when dried in the sun were a favourite dish. Long slices of the pith were cooked in a hangi oven.

Young fronds were used as a poultice for sore eyes, swollen feet, and inflamed breasts.

The gum was also used for boils and diarrhoea. A tonic was formed by boiling the fronds, it was used to aid the discharge of the placenta.

The trunks were used for whare and food store construction.



## Eastern Pathway to St Johns Road



### 23 Tarangārara (*Gahnia lacera*) Bamboo sedge, Cutty Grass



Tarangārara is an open, grassy plant, described as a bambusiform sedge. Seeds are glossy and black, hanging from weeping flower stems that extend beyond leaf area. Leaves are sharp above, below and on the edges, and have a straw-coloured mid-vein. Tarangārara grows in a clump, gradually expanding out. Māori used the stems of Tarangārara as darts for games.

## 24 Kamu (*Uncinia uncinata*) hook grass or hook sedge

Kamu is the bane of those who go tramping when the seeds stick to clothing and especially bare legs!

It is a green native sedge found throughout New Zealand in forest and scrub. The leaves are ribbed and arched and the seeds are dark brown. It is the commonest *Uncinata* in New Zealand grows in forest and scrub and occasionally in bogs and swamp margins.

An alternative Māori name for this plant is matau a Māui (Māui's hook), a reference to the fabled Māui learning from his mother about the effectiveness of a barbed hook for bird spearing. Māui is also credited in some Māori mythology with inventing the much more efficient barbed fishhook.



## 25 Hohere (*Hoheria populnea*) or Lacebark

Hohere is a fast growing native that can reach 10 metres in height. The fibrous inner bark has a lacy texture, hence the name Lacebark. Nectar for birds from white scented flowers is produced from January to March.

Māori used strips of the inner bark for decorative weaving, making kete and head bands. An infusion from the bark was used for colds. After the bark was soaked in cold water for two days to form a jelly, old people used it to treat sore eyes. The exuding liquid of the inner bark, when mixed with finely cut butts of flax leaves, was applied to burns.



## 26 Māpou (*Myrsine australis*) or Red Matipo

Māpou can be a shrub or small tree up to 6 metres in height. It has bright red twigs bearing wavy yellow-green leaves 3 to 6cm long with an undulating edge. It flowers in clusters during mid-summer producing black fruit that are eaten by birds.

In Māori tradition māpou is regarded as a 'rākau tapu' (sacred tree), and its main use historically was ceremonial when a twig was dipped by a Tōhunga in sacred water and sprinkled onto people or objects for cleansing such as baptisms, tangi and for planting kūmara. The leaves were boiled and the liquid was taken for tooth ache.



## References

### St Johns Bush Guide

1. Davidson Allan K. 1993: *Selwyn's Legacy*. College of St John the Evangelist
2. *Public Ownership of St Johns Bush Grows*, Auckland City Council Press release 29 July 2004
3. Cameron E. K., 2000: *St Johns College Bush Meadowbank Auckland*, Auckland. Botanical Society Journal No 55: 29-34
4. Auckland Council, *AKL Paths St Johns Bush*  
<https://www.aucklandcouncil.govt.nz/parks-recreation/get-outdoors/aklpaths/Pages/path-detail.aspx?ItemId=298> (Sourced 7-9-2021)
5. Ford, M. 2000: *New records for St Johns College bush Meadowbank, Auckland*. Auckland Botanical Society Journal No 75: 117 - 122
6. Kerr, S. 2020: *A Field Guide to New Zealand Fungi*  
<https://www.kaimaibush.co.nz/fungi/fungi-books.html>
7. Brooker S.G., Cambie, R.C., Cooper R.C. 1987: *New Zealand Medicinal Plants*, Reed Books (Professor Con Cambie's approval to use information is gratefully acknowledged).
8. Williams P. M. E. 1996: *te Rongoa Māori - Māori Medicine*. Raupo Book Penguin Group
9. Dawson J., Lucas R. 2000: *Nature Guide to the New Zealand Forest*. Godwit Book, Random House
10. Wikipedia – Wikipedia, the free on-line encyclopaedia provides excellent information about most New Zealand trees. (Wikipedia Information has been used frequently to describe trees)
11. Landcare Research's Māori plant use is another reliable source of information  
<https://Māoriplantuse.landcareresearch.co.nz/WebForms/default.aspx>

## Acknowledgements

**Dr Peter Buchanan;** I am very grateful for Peter's helpful comments and text corrections which formed the pattern for the other reserve guides.

**Ewen Cameron** is thanked for his comments and permission to use part of his paper on St Johns Bush.

**Auckland Council Archives** has provided historical information.

**Sarah Powrie, Glenys Griffiths and Sherrill Rhind;** I am very grateful to these ladies for their reviews of this section.

*John La Roche, voluntary author, 2022*