

Smith's Bush 2023 Guide

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(2022 Smith's Bush team captain)

Kia ora Smith's Bush group of 2023!

This document has been constructed just for you! It will detail what we have done in 2022, the future plan for our seeds, as well tips and recommendations for ways to expand the project in 2023 and beyond.



The 2022 Smith's Bush team 😊

Location

Just in case you are not familiar with this area, here is Smith's Bush in relation to the AUT's north campus.



Project purpose

- . Contribute to AUT's goal of increasing biodiversity and sustainability
- . Expand wildlife corridor from Smith's Bush to AUT North
- . Enhance AUT North's ecosystem eg. attract birds, bees and insects – vital for plant life to thrive

Planting done so far (2022 update)

Total planting for the year (as of April 2022)
= 96 native trees

City campus

No new planting only replacement planting this year.

North campus

24 trees planted beside bus walkway

9 Kauri

3 Taraire

3 Rimu

3 Tanekaha

3 Rewarewa

3 Makamaka

22 trees planted at AE

9 ti kouka

3 Matai

3 Maire tawhake

3 Pukatea

3 Kawaka

1 Kauri

12 trees planted below car park 7

3 Elingamita

3 Coastal Maire

3 Tawapou

3 Ewekuri

South campus

26 trees planted beside the south creek, motorway side of car park one.

8 Kahikatea

6 Pukatea

6 Maire tawhake

3 Porokaiwhiri

3 Kowhai

3 trees planted at front of campus opposite car yards

3 Wharangi

9 trees planted on motorway boundary

3 Kawaka

3 Tawapou

3 Turepo

Native seeds

Here is a list of native seeds that should be available for collection in March/April. The ones that are highlighted represent the plants that are likely to be found in Smith's Bush.

- *Agates australis*
- *Aristotelia serrata*
- *Beilschmiedia taraire* (taraire):
- *Coprosma areolate*:
- *Coprosma grandifolia* (kanono)
- *Coprosma lucida* (shining karamu):
- *Coprosma propinqua* (mingimingi)
- *Coprosma rhamnoides*
- *Coprosma rigida*
- *Coprosma robusta* (karamu)
- *Coprosma spathulata*
- *Coprosma tenuicaulis* (swamp coprosma)
- *Cordyline australis* (cabbage tree / ti kouka)
- *Cordyline banksii* (bush cabbage tree)
- *Dacrycapus dacrydioides* (kahikatea)
- *Dacrydium cupressinum* (rimu)
- *Elaeocarpus dentatus* (hinau)
- *Elaeocarpus hookerianus* (pokaka)
- *Geniostoma ligustrifolium* (hangehange)
- *Hebe stricta* (koromiko)
- *Hoheria sexstylosa* (lacebark / hohere)
- *Kunzea species* (kanuka)

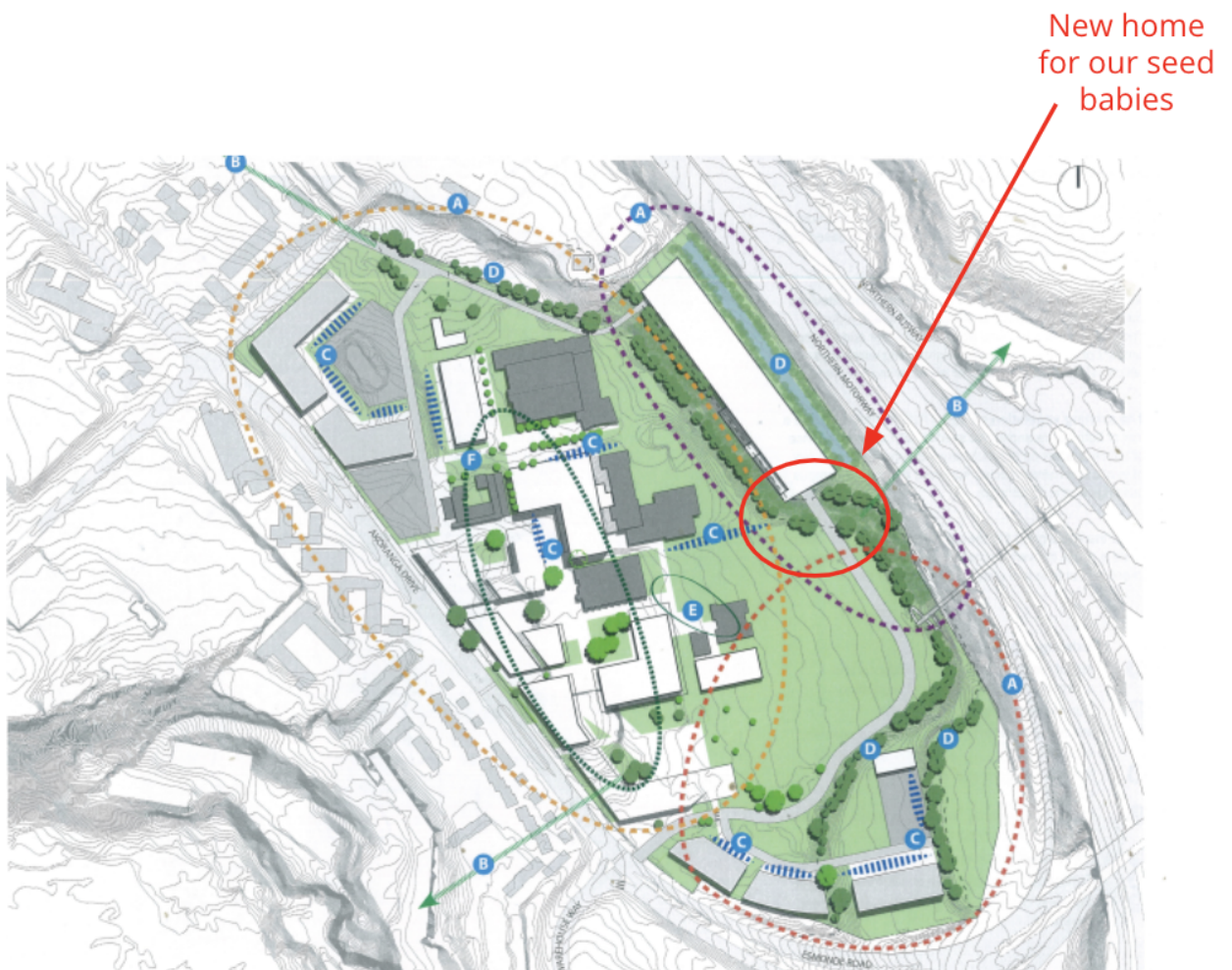
- *Laurelia novae zelandiae* (pukatea)
- *Leptospermum scoparium* (manuka)
- *Leucopogon fasciculatus* (mingimingi)
- *Litsea calicaris* (mangeao)
- *Melicope simplex* (poataniwha)
- *Melicytus ramiflorus* (mahoe)
- *Metrosideros excelsa* (pohutukawa)
- *Myrsine australis* (mapou / red matipo)
- *Phyllocladus trichomanoides* (tanekaha)
- *Plagianthus regius* (ribbonwood / manatu)
- *Podocarpus totara* (totara)
- *Prumnopitys ferruginea* (miro)
- *Prumnopitys taxifolia* (matai)
- *Pseudopanax arboreus* (five finger)
- *Rhabdothamnus solandri* (taurepo)
- *Rhopalostylis sapida* (nikau)
- *Schefflera digitata* (pate / patate)
- *Sophora microphylla* + *Sophora Tetraptera* (kowhai)
- *Vitex lucens* (puriri)
- *Weinmannia racemosa* (kamahi)

Our future plan

This is the location on campus that we have chosen to plant our 2022 seeds.

Reasons for choosing this space:

- Currently unused
- Sheltered environment
- All of our seeds could be planted here together (creating a “mini Smith’s Bush” on campus)



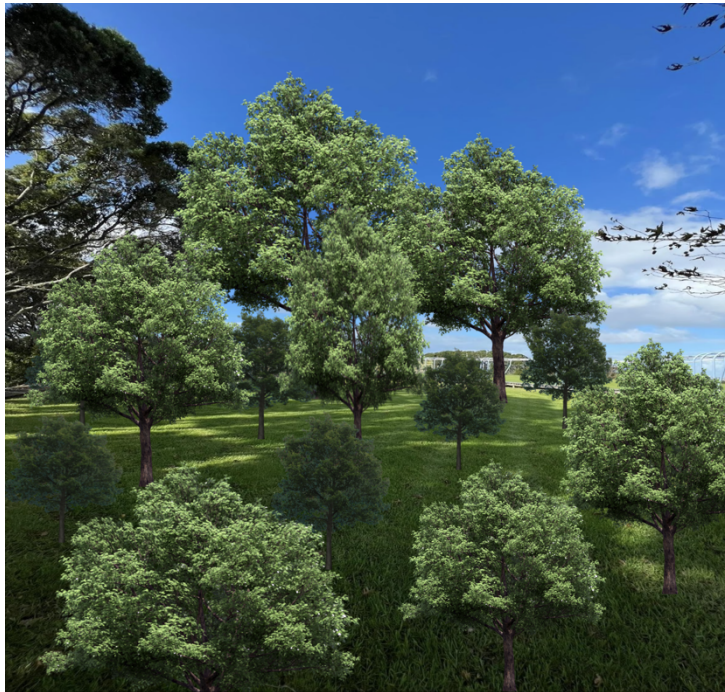


View facing campus



View facing the motorway

Future vision



Note: These are obviously not the actual trees. The figure is just to provide an insight of what this area may look like one day.

Resources

Seed calendar & propagation tips

The 2021 Smith's Bush team created a document on when to collect a wide range of seeds, as well as their individual propagation processes.

Example:

Leptospermum scoparium (manuka)

Propagation: Place the capsules in paper bag in a warm dry place until the fine red seed is released. Sift out the seed and lightly sprinkle over a firm smooth bed of seed raising mix. Do not cover but water well. The seedlings will come up in one to four weeks depending on the temperature.



Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec

Note: ask Niven for the full resource

Jasmax grounds design plan

This resource, created by Jasmax Architects, details the framework for future planting at AUT. This is what we used to help identify where we would plant our seeds!

AUT North

Context: Ecology. Water. Landform.

AUT North Campus - the 'Coastal Campus' - occupies a site on an elevated headland ridge between Tuff Crater Reserve and the escarpment beside the Northern Motorway.

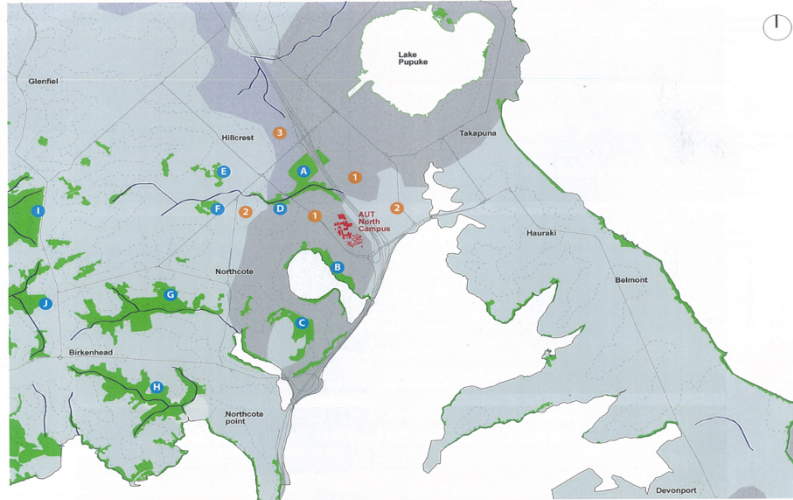
The campus is on land that once bordered two ecosystem types: warm lowland forest and harbour coastline forest. Warm lowland forest is characterised by abundant puriri with occasional totara, matai, kahikatea and tōtōki, and locally with kowhai and taraire. Harbour coastline forest is characterised by pohutukawa, puriri, karaka and kohikohi, and locally by taraire, tawa, tōtōki, mangleo, rewarewa, puka, tawapou, ngāio and nīkau. Kauri, kowhai species and kanuka may be present on dry ridges as well as, locally, tanekaha and hard beech.

The campus is close to a number of remnant forest patches fragmented by urban development, in areas often neighbouring waterways or with steep terrain.

Selecting vegetation types for use on the campus which have links to these remnant forest patches can provide a number of benefits for the animals which rely on these areas for food or habitat, such as the kereru or native pigeon, by providing 'stepping stones' between these remnant forest areas.

- KEY**
- Streams
 - - - Contours
- Significant ecological areas**
- A Onewa Domain
 - B Tuff Crater Reserve
 - C Onepoto Domain
 - D Akoranga Reserve
 - E Cobblestone Lane Reserve
 - F Stanich Reserve
 - G Cecil Eady Bush
 - H Le Roys Bush
 - I Birkenhead Domain
 - J Birkenhead War Memorial Park

- Historic ecosystem extents**
- 1 Puriri forest
 - 2 Pohutukawa, puriri, karaka broadleaf forest
 - 3 Kahikatea forest



Water has helped shape the landform on which AUT North Campus is located, from the old coastal edge to the ephemeral watercourses which shed rainwater into the surrounding catchments.

The campus has a number of stormwater attenuation devices which manage how stormwater is treated and released from site into surrounding waterways.

Managing stormwater on site through bioretention devices has a number of benefits to the environment. It reduces flood risk, soil erosion, and acts to cool water and reduce the amount of pollutants entering neighbouring waterways - all of which help protect the health of the receiving ecosystems.

The existing vegetation on site at AUT North Campus is a mix of both native and exotic species with a predominance of native species on the motorway escarpment, and a mix of exotic and native species scattered around the campus buildings and road frontage.

While there is a great framework of existing trees on campus, there is a lack of overall consistency and cohesion, which fails to define a unique and unifying character for the campus.

- Existing Vegetation**
- A Mix of predominantly exotic deciduous and evergreen specimen trees and vegetation.
 - B Puriri specimen tree row.
 - C Mix of predominantly native evergreen trees and vegetation.
 - D Mix of exotic trees and large Queen Palm specimens.
 - E Mix of predominantly native escarpment trees and vegetation, notably pohutukawa.
 - F Pohutukawa specimen trees.
 - G Exotic deciduous specimen shade trees to plaza.
 - H Motorway corridor planting of native escarpment vegetation.

- Existing**
- Contours
 - Indicative overland flow paths
 - Stormwater attenuation devices
 - Coastal escarpment



AUT North

Analysis: Ecology. Water. Landform.

AUT North

Design Response

Plant palette

Appropriate planting will help shape the unique identity of the site as the 'Coastal Campus', while contributing to the health of surrounding ecosystems.

Four broad planting zones have been identified to shape plant selection within the site, the goal being the creation of areas with identifiable and consistent character.

Three ecosystem zones based on the local and regional ecological context will define the upper terrace, the escarpment and the lower terrace areas, while a zone for hardy exotic streetscape planting has been identified for areas with a more urban street character, where native species may not be appropriate.

A Context appropriate planting

Native plants that naturally occur in neighbouring ecosystems are better adapted to local conditions and are more likely to survive.

B Habitat corridors

Planting native species on site will create 'stepping stones' for birds between larger remnant patches of native vegetation which helps maintain ecosystem health.

C Water treatment

AUT North is an elevated site which discharges into a number of different catchments. The use of bioretention devices will ensure that water is treated on site and the quality and quantity of water leaving site is at pre-development levels.

D Landform

Planting will work to accentuate the natural and modified landforms on site and will help embed the built environment in the landscape.

E Productive Landscape

An orchard and vegetable garden are to be incorporated into the area adjacent building AJ, to be used as an educational resource.

F Pedestrian Streetscape Planting

Exotic tree species can be used where seasonal variation is an advantage e.g. deciduous trees provide shade in summer while allowing light through in winter.



AUT Jasmx AUT LANDSCAPE FRAMEWORK MAY 2018 / REVISED

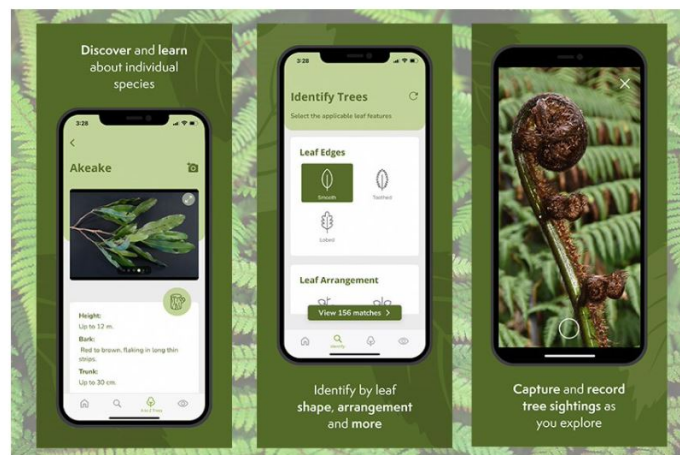


Note: ask Niven for full copy of the resource.

NZ Trees app

This app was created by AUT students, as way to identify native plants. It was super useful when trying to identify trees on the bush walk. Asks you a series of questions eg. leaves or flowers look like, and uses that to help identify the tree!

Each entry includes the plant's te reo Māori name, and if known, examples of use of the plant, including rongoā (traditional Māori healing).



Available for both Android and Apple OS, the updated version includes more than double the amount of native tree species than the previous version, launched in 2018, with improved functionality and photography.

Our seeds

Kohekohe

- Scientific name: *Didymocheton spectabilis*
- Commonly known as “New Zealand Mahogany”
- Fast growing – up to 15m tall, trunk 1m in diameter
- Subtropical/tropical genus (*Dyoxylum*) – only one in NZ
- Found in North Island in lowland, coastal forests
- Orchid-like flowers blossom in early winter
- Used by Māori to treat coughs, fevers and skin issues (Best, 1905)

Why do we want kohekohe on campus?

- Endemic – contribute to AUT’s goal of increasing native species
- Provides food for native birds eg. tui and bellbird, kōkako, hihi and kererū

(New Zealand Plant Conservation Network, n.d.)



Kahikatea

- The tallest native tree in New Zealand. It is found throughout New Zealand and tolerates cold and grows in wet lowland forests.
- Kahikatea is a relatively slow growing tree, reaching 40-60 metres in height over 600 years.
- This tree is relatively disease resistant and not susceptible to insect or fungal attack.
- Kahikatea is one of the easiest native trees to grow in the open and is usually planted for habitat and wetland restoration
- We want the Kahikatea on campus to contribute to AUT’s goal of increasing native species



Our seeds

Rasp Fern cuttings



- **Scientific name:** *Blechnum parrisiae* (recently changed from *Doodia australis*)
- **Maori Name:** Pukupuku
- Native New Zealand Fern
- Constarst of three different shades (attractive fern)
- Grows best in light shade & moist soil
- Can grow in most environments (very hardy fern)
- Spores on the underside of the fern leaf drop into the soil and then grow new fern plants (hence why the ferns are planted by placing down on the soil, as pictured to the right)
- **We want the Rasp Fern on campus to contribute to AUT's goal of increasing native species**

Fun Fact: There are 194 native species of fern in New Zealand

Manuka

- **Scientific name:** *Leptospermum scoparium*
(Daniels et al., 2016)
- **Native to New Zealand** and commonly referred to as the Tea Tree. (Norton and Miller, 2000)
- **Not related to the Kanuka although look identical**
- One of the most widespread shrubs native to New Zealand. (Stephens et al., 2005)
- Bees love the manuka flower
- **Many health benefits in manuka honey**
(Sampath-Kumar et al., 2010) (Weston et al., 1999)
- **Bring more diversity to the plant life at AUT and pretty flowers!**



(Bendle, n.d)

Semester progress

Kohekohe progress



Week 1



Week 11

Kahikatea progress



Week 1



Week 11

Semester progress

Fern progress



Week 1



Week 11

Manuka progress



Week 1



Week 11

Future recommendations

Here are some future recommendations for expanding the project. I realise the project brief for your group is... well... very brief. Here are some ideas that I have thought of that you could carry out this semester to expand this project.

Recommendations:

1. Plant our 2022 seeds (assuming they are big enough).
2. Locate the native trees on campus prior to the bush walk, in order to see what we have and what we may need more of.
3. Collect quantitative data eg. by measuring the physical growth of your seeds that are likely to germinate within the semester time frame (eg. kohekohe).
4. Create infographics for each tree. These could link to the QR code project = scan the QR code at the tree and it will take you to the infographic.
5. Help with the maintenance of native trees on campus (eg. repotting, planting).
6. Create content for the social media group around the importance of biodiversity and sustainability. Could also include some information about native trees and what kinds and where to find them on campus.
7. Create a native tree campus map.

Tips

Here are some tips I thought would be useful to pass on, from what I have learnt in 2022.

Tips:

1. Come up with your plan for your project's direction before you go on your bush walk.
2. Find out what trees are needed on campus, prior to the bush walk.
3. Research the potential seeds you are aiming to find, prior to the bush walk, so that you have a base level of understanding around what you are looking for and why.
4. Research how long the seeds you are collecting are going to take to germinate.
5. Keep up the group comms (!!) and meet regularly, if possible. Team work makes the dream work!

References

Here are some references that we used that you may find helpful!

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Good luck 2023
team!

You've got this!

Let's keep this
legacy going!