Smith's Bush 2023 Guide

By Sacha O'Reilly
(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)

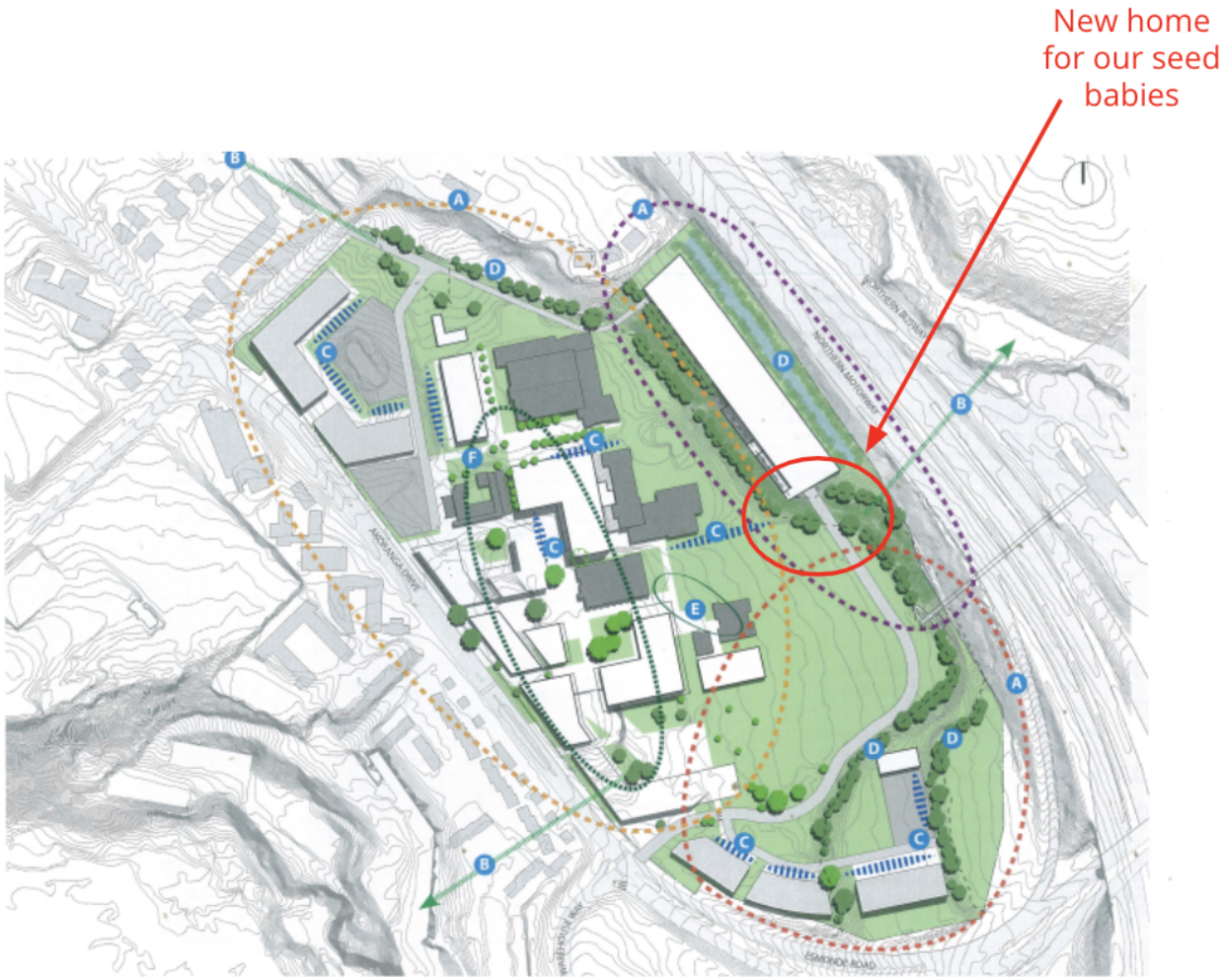
- Laurelia novae zelandiae (pukatea)
- Leptospermum scoparium (manuka)
- Leucopogon fasciculatus (mingimingi)
- Litsea calicaris (mangeao)
- Melicope simplex (poataniwha)
- Melicytus ramiflorus (mahoe)
- Metrosideros excelsa (pohutukawa)
- Myrsine australis (mapou / red matipo)
- Phyllocladus trichomanoides (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 my 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)

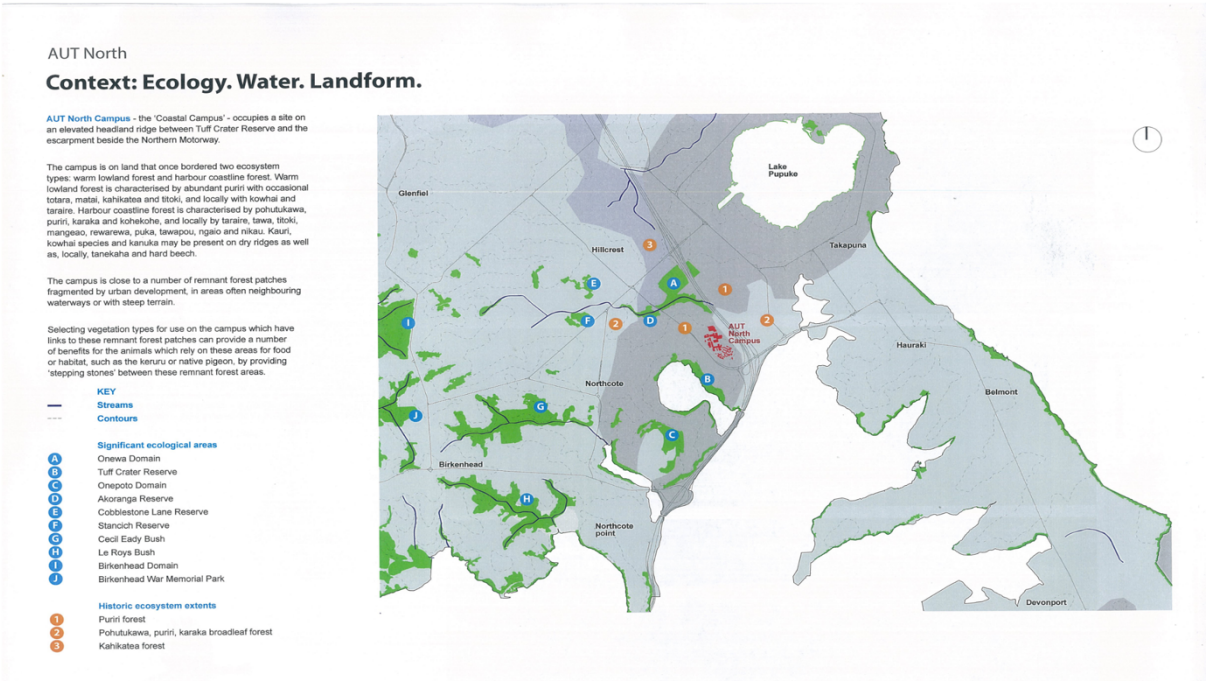
Propagation: Place the capsules in paper bag in a warm dry place until the fine red seed is released. Sift out the seed and lightly sprinkle over a firm smooth bed of seed raising mix. Do not cover but water well. The seedlings will come up in one to four weeks depending on the temperature.

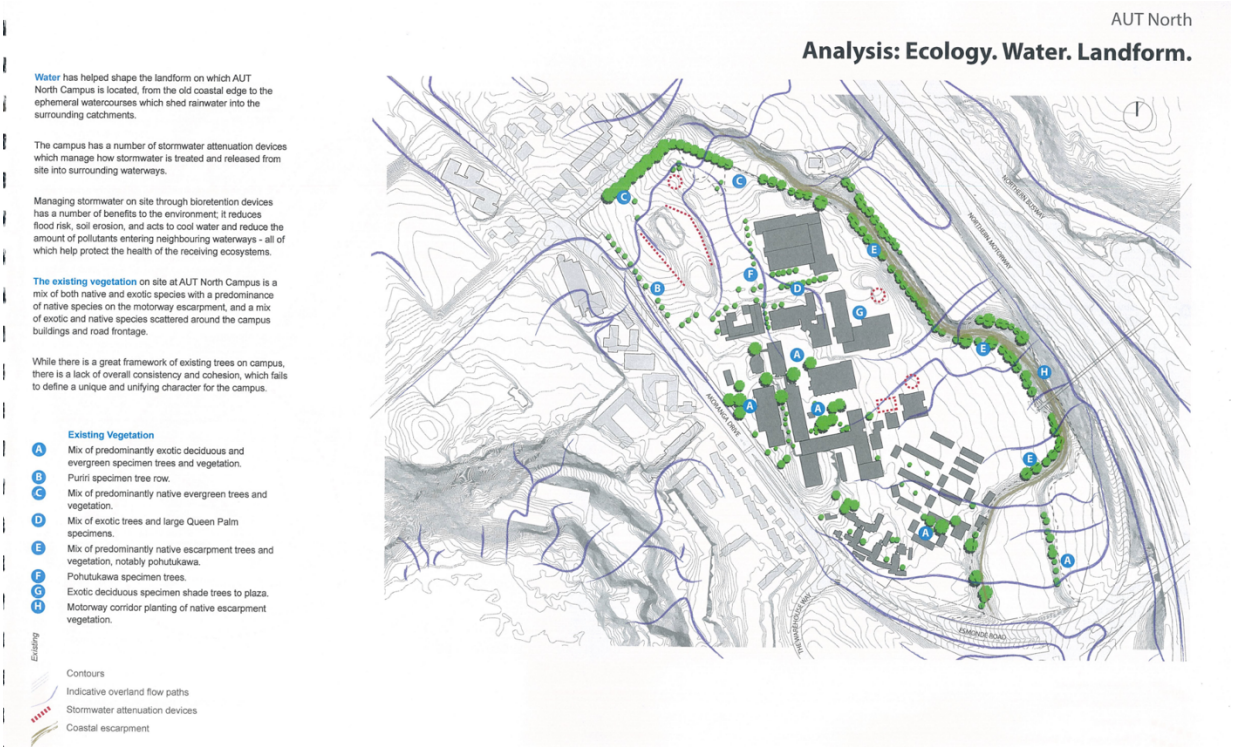
Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec

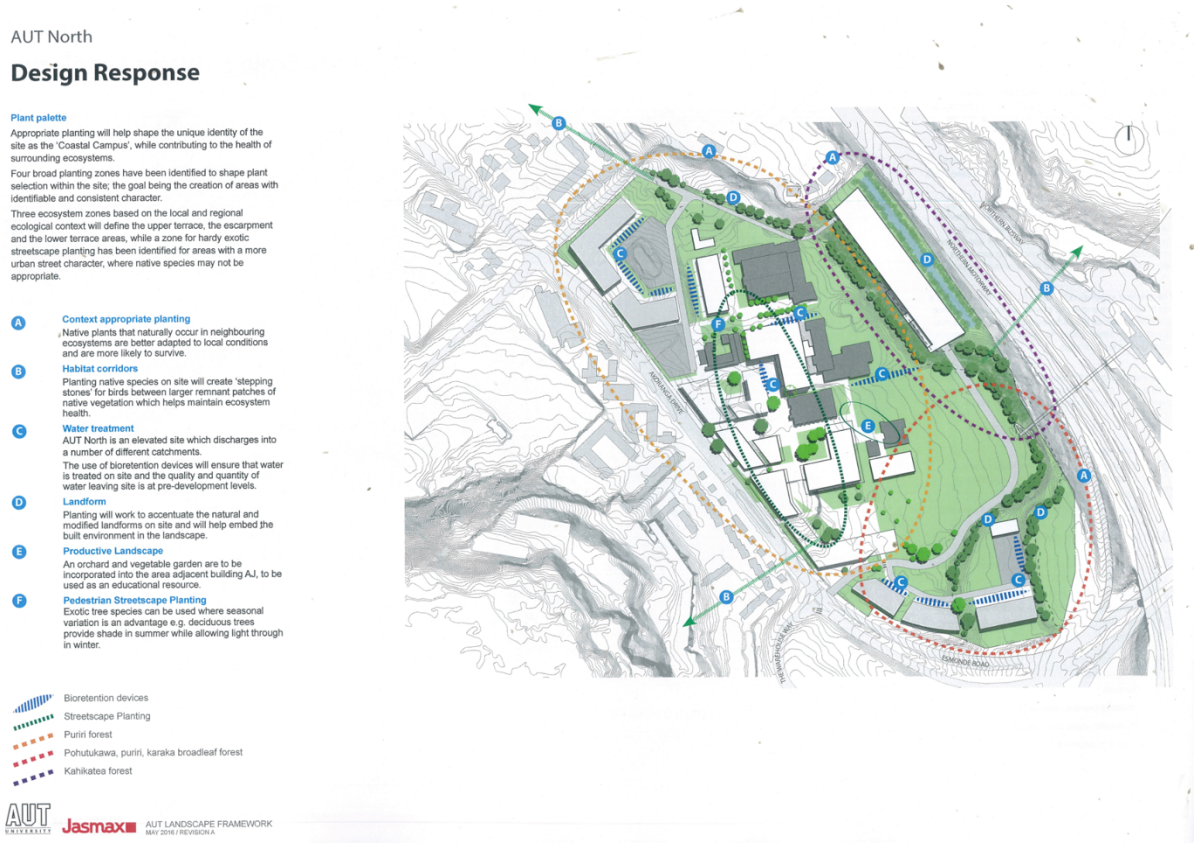
Note: ask Niven for the full resource

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!





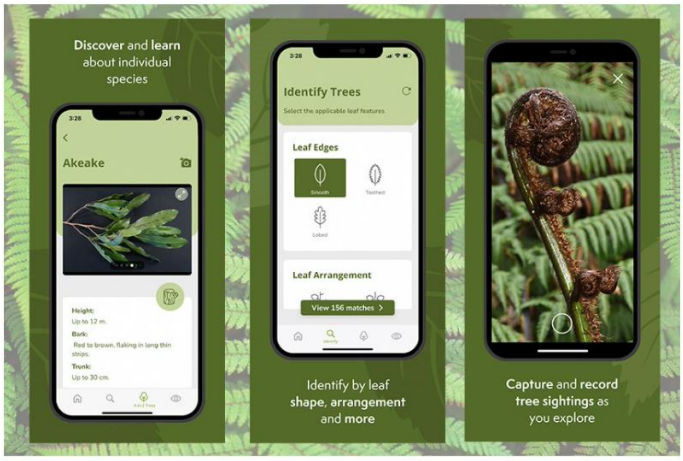


Note: ask Niven for full copy of the resource.

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!

Bendle P. (n.d). [Photo of a flowering manuka tree]. Nightsky Cottage. https://www.nightskycottage.co.nz/what-is-manuka.html

Best, E. (1905). Maori medical lore. Notes on sickness and disease among the maori people of new zealand, and their treatment of the sick; together with some account of various beliefs, superstitions and rites pertaining to sickness, and the treatment thereof, as collected from the tuhoe tribe. Part I.—(Continued). *The Journal of the Polynesian Society*, *14*(1 (53), 1-23.

Brockerhoff E.G ., Shaw W.B., Hock B., Kimberley M., Paul T., Quinn J., & Pawson S. (2008). Re-examination of recent loss of indigenous cover in New Zealand and the relative contributions of different land uses.*New Zealand Journal of Ecology, Volume 32*(1). 115-126. Stable URL: http://www.jstor.com/stable/24058109

Daniels B.J., Prijic G., Meidinger S., Loomes K.M., Stephens J.M., Schlothauer R.C., Furkert D.P., & Brimble M.A. (2016).Isolation, Structural Elucidation, and Synthesis of Lepteridine From Mānuka (Leptospermum scoparium) Honey. *Journal of Agricultural and Food Chemistry, Volume 64*(24), 5079-5084. DOI: 10.1021/acs.jafc.6b01596

Jasmax (2016, May).Context : Ecology. Water. Landform.

Norton D.A. (1998). Indigenous Biodiversity Conservation and Plantation Forestry: Options for the future. *NZ Forestry.* https://www.researchgate.net/profile/David-Norton-8/publication/260388964_Indigenous_Biodiversity_Conservation_and_Plantation_Forestry_Options_for_the_future/links/55b135cc08ae9289a084cb99/Indigenous-Biodiversity-Conservation-and-Plantation-Forestry-Options-for-the-future.pdf

Norton D.A., & Miller C.J. (2000). Some issues and options for the conservation of native biodiversity in rural New Zealand. *Ecological Management & Restoration Volume 1*(1). https://onlinelibrary.wiley.com/doi/pdf/10.1046/j.1442-8903.2000.00005.x?casa_token=uKsIb3zhajcAAAAA:lgUMkn5jlzrWnXT8F5R-iA0GHSWypA9tNVx_aBZD3dbH4MHJBR4Ub1rZnVYwHditwbDp09QkzXS35Tl7

Sampath-Kumar K.P., Bhowmiki D., Chiranjib., Biswajit & Chandira M.R. (2010). Medicinal uses and health benefits of Honey: An Overview. *Journal of Chemical and Pharmaceutical Research, volume 2*(1). 385-395. https://renevanmaarsseveen.nl/wp-content/uploads/overig4/Medical%20use%20and%20health%20benefits%20of%20honey%20-%20J.%20Chem.%20Pharm.%20Res.,2010,%202(1)%20385-395.pdf

Stephens J.M.C., Molan P.C. & Clarkson B.T. (2005) A review of Leptospermumscoparium (Myrtaceae) in New Zealand, *New Zealand Journal of Botany, 43*(2), 431-449. DOI: 10.1080/0028825X.2005.9512966

New Zealand Plant Conservation Network. (n.d.). https://www.nzpcn.org.nz/flora/species/didymocheton-spectabilis/

Weston R.J., Mitchell K.R., & Allen K.L, (1999). Antibacterial phenolic components of New Zealand manuka honey, *Food Chemistry, Volume 64*(3), 295-301.https://doi.org/10.1016/S0308-8146(98)00100-9.

Zari M.P. (2018). The importance of urban biodiversity – an ecosystem services approach. *Biodiversity International Journal, volume 2*(4). https://d1wqtxts1xzle7.cloudfront.net/57205894/BIJ-02-00087-with-cover-page-v2.pdf?Expires=1654078953&Signature=Fwto8yk~cBjNzK-th-a~zJZYC8ioXEotaSVELpDkZSU5co26c~WQLrZQdMDlXRYD2F87bP5yrzuqJAUHhvmJqrNNvdeuw9VRQ1NAxij~V6LKd70vow2ziZCjQwpvTpD85A75fsyZFTi6uHczJ79XHrZndukabHHk9lvsmWrvksWHr3xv86u6Rkw48zuM-nspxz8BsJS6HXjr6kKFL0TqkEYYc6u50QpBVH0by2ADcJoeZvC9dKko4079aE~bPkz8I0QmyMqTQ6TT45N8uqYBVZX3T8bn72qzf72tLR7bzWfRX-dfdD--dcXTs9I9ZN13EOXU5PqPVFFG0ioE1WCRGw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Good luck 2023 team!

You've got this!

Let's keep this legacy going!