Waikato Botanical Society

Newsletter

No: 50 July 2022

President's Report

Waikato Botanical Society President's Report for 2021-22.

I wish I could be here tonight instead of being locked away here at home. I had a positive RAT test on Friday night. A big thanks to the committee, especially Linda organising our AGM tonight, and for keeping things ticking along while I have been on my extended break down south. Thanks everyone for coming and supporting our most important event of the year. Special thanks to Leon Perrie for coming up from Wellington to talk to us about Ferns.

Linda does a lot of work for the Botanical Society – she is our secretary and organizes the evening talks and coordinates the threatened plant garden working bees.

Since our AGM in April last year we have had 9 evening talks which have been well attended both in person and in our virtual audience.

Monique, Moari, Mike and Antoinette have been the technology drivers of the Botanical Society with face- book and zooming our monthly talks. This has been a great way for our

distant members to keep in touch. Monique is not standing on the committee this coming year. We thank her for opening up our evening talks to our members who aren't able to attend in person.

Mike continues to track and administer our finances. All payments made from the Botanical Society bank account have to be approved by 2 people via internet banking. Mike and Antoinette are our 2 signatories. Mike will send out the subscription invoices soon so please pay your subs.

Thomas, our trip coordinator, works with us and Rotorua Botanical Society to build our trip program. Thomas and Susan and the boys have moved to Christchurch and Thomas was farewelled a few months ago. We will be looking for a trip coordinator to join the committee tonight. COVID and weather have disrupted our field trips with only 4 trips being run since April last year.

Lucy has been doing behind the scenes work on our scholarship proposal. Wyne keeps us on track with the way a committee should run. Catherine is on our committee and helps us all to keep all on track.

Dell ,who is not on the committee, coordinates a hardy group of souls to establish a native plant garden at St Joan's hospital in Fairfield.

So my many thanks to the committee for all the work that they did keeping the society and its president on track.

Thanks to those that have led trips and helped with our garden projects.

And finally to you, the membership, thanks for continuing to support the committee in our endeavours. It's been great to see you all at meetings and field trips.

I am happy to stand for president again this year but I am happy for some else to step up if they wish.

Kerry Jones 11 June 2022

Elected Committee Members 2022

President:	Kerry Jones	km8j1s@gmail.com
Secretary:	Linda Watson	watsonlinda092@gmail.com
Treasurer:	Mike Clearwater	mike.clearwater@waikato.ac.nz
Newsletter:	Linda Watson, Catherine Beard, Antoinette van der Weerden	
Facebook:	Moari West	

Committee members: Catherine Beard, Antoinette van der Weerden, Wyne Johns, Moari West, Lucy Roberts

AGM Guest speaker: Leon Perrie

Name changes among New Zealand ferns: the good, the bad, and the ugly?

June 13, 2022

I began my presentation by noting how taxonomists often attract the ire of general users of scientific names. Some taxonomic change presumably must be allowed because we still have much to learn about the evolutionary history of life. A key question, however, is how much taxonomic change is appropriate? And who decides this?

Fern and lycophyte taxonomy is in a particularly pronounced flux. For instance, the scheme prescribed by the international Pteridophyte Phylogeny Group would have New Zealand with no species of *Blechnum*, *Cyathea*, *Lycopodiella*, *Lycopodium*, and *Trichomanes*. I discussed my objections to this, given my personal opinion that it is important to minimise taxonomic changes while maintaining a taxonomy that still reflects evolutionary relationships (i.e., monophyly). These changes were not adopted for the recent Flora of New Zealand treatments.

I included examples of new and renamed species (e.g., New Zealand plants previously attributed to *Pteris comans* have been reclassified as *P. carsei* since they are distinct from 'true' *P. comans* in the Pacific islands), lumped and split genera (e.g., I prefer to lump *Doodia* into *Blechnum* since it involves far fewer name changes than splitting *Blechnum* to preserve *Doodia*. But splitting *Lastreopsis* to also recognise *Parapolystichum* is the solution that achieves a monophyletic classification with the fewest name changes), and nomenclatural options to minimise taxonomic changes (e.g., 'moving' the type of *Asplenium richardii* to preserve modern usage).

I concluded by noting that New Zealand's botanical taxonomists, unlike those in Australia, do not have a consensus approach to curating scientific names. Further, taxonomic changes are often adopted unhesitatingly. A different approach would be to evaluate whether they are really needed, given the inconvenience that change causes for general users.

During the talk, I mentioned the following resources:

- the just-completed Ferns and Lycophytes series for the Flora of New Zealand, freely available as webpages from https://www.nzflora.info and as pdfs from https://www.nzflora.info/publications.html
- draft photo guides for New Zealand's ferns and lycophytes, available as pdfs from Te Papa's website – search "Te Papa fern guides".
- https://inaturalist.nz – an excellent website for identifying plants, animals, and fungi.
- https://www.facebook.com/nzferns - for those on Facebook interested in news and tips about New Zealand's ferns.

Night Talks 2022

Venue : The Links, Fellowship Room, cnr. Te Aroha and River Rd
Time : 6.00-8.00
Dates : Every 3rd Monday February to December

Plenty of easy parking/Gold coin donation each night

February Night Talk

On Monday, February 21st we held our first online Zoom meeting. We were fortunate to have two Waikato University students, Tania Ng and Hannah Rogers to share their thesis studies with us.

Tania's thesis focuses around the physiology and use of stable isotopes to study mosses.
" My topic follows the same concept as using tree ring cores to tell us about past climate, but instead I will be using mosses. I will be doing the preliminary study to fine-tune the timeline of water bioavailability in Antarctica, through the use of oxygen isotopes.
Because of the simple physiology and slow growth of mosses, they are intimately linked to the environment, and stable isotope analysis of plant tissue would show a relationship between growth and external conditions."

Tania was the recipient of the 2021 Botanical Society Graduate prize.
Tania Ng – Moss : A proxy for past water environment

For my Masters project I will be using oxygen stable isotopes to understand how moss reflects its environment.

As mosses lack stomata and a true root and vascular system (Fig. 1), they rely on diffusion of water and nutrients mainly through their leaves and cannot regulate water uptake/loss. This links them intimately with the environment. The stable oxygen isotope of organic matter will reflect the dominant conditions for cellulose synthesis over one or more growing seasons.

Stable oxygen isotopes exist naturally as ^{16}O, ^{17}O, and ^{18}O in known concentrations in the atmosphere, with ^{16}O being the most abundant and ^{17}O being the least. Due to the different atomic masses of each isotope, they behave and diffuse at different rates, known as fractionation, allowing us to apply them to eco-physiological studies and mathematically calculate the conditions at which they fractionated.

My aim is to use oxygen isotopes to understand the ratios at which $\delta^{18}O$ is fixed in moss tissue, and the factors that might influence cellulose synthesis. To do this, I looked at how different oxygen isotope partition as the moss dries. Ideally, it should follow Rayleigh's distillation which describes the different ratios of $^{18}O/^{16}O$ in a hydrological system. This would allow us to treat mosses like the hydrological system and provides us with a fractionation process that occurs within the moss leaves.

Next, I measured photosynthetic and transpiration rates, and the oxygen isotope composition during these processes (Fig. 2). The results from the photosynthesis test indicated a slow growth as maximum carbon assimilation was 2 mol m^{-2} s^{-1}. The results from the transpiration tests indicated there were mechanisms regulating water loss. However, the transpiration tests were performed on the giant moss, *Dawsonia superba* which has scale-like features that close in response to water loss and prevents full desiccation (a feature not observed in peat mosses).

Lastly, I will grow *Sphagnum* sp. in a sealed container and water it with water containing different oxygen isotopes compositions (Fig. 3). After a few months of growing, I will harvest the new growth and dry and send away for oxygen isotope analysis of moss cellulose. I will compare the oxygen isotope of moss cellulose to the water oxygen isotope to understand the fractionation processes that occur during cellulose synthesis.

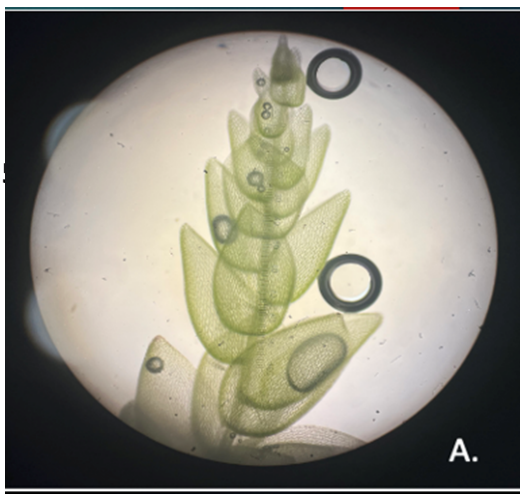


Figure 1. Microscope image of Sphagnum sp. leaves. The leaves of sphagnum are one cell layer thick and lacking stomata. The plant relies on diffusion of water

and nutrients mainly through the leaves and have no mechanisms to regulate water movement.
Magnification: 100x

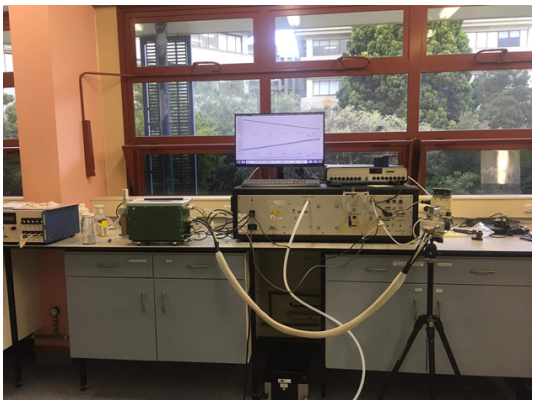


Figure 2. Equipment used to measure moss drying and photosynthetic and transpiration rates. The LiCor controls and measures parameters such as CO_2 concentration, humidity, air flow, temperature and light levels in the IRGA chamber where the sample is in. The output from the IRGA is attached to the LGR where the stable oxygen isotope composition of the water vapour is measured every second.

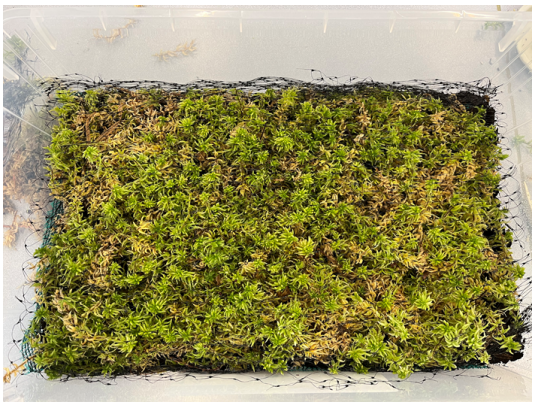


Figure 3. Sphagnum sp. growing in a sealed container. Sphagnum is watered with labelled oxygen water and the new growth will be harvested and dried for oxygen isotope composition analysis.

Hannah Rogers
Here are a few sentences about Hannah's thesis:

"Less than 2% of Hamilton City supports indigenous vegetation. As a part of the Nature in the City Strategy1, Hamilton City Council endeavours to reach 10% indigenous vegetation cover by 2050. In support of this policy, the main objective of my thesis is to prioritise possible restoration sites in the city using ecological criteria. At the site-specific scale, an assessment of three kahikatea remnant case studies indicates appropriate restoration techniques."

Optimal Ecological Restoration Sites in Hamilton City

- Under Hamilton City Council's Nature in the City Strategy, another 886 hectares of indigenous vegetation would need to be restored by 2050 to achieve the 10% goal.

- The peatlands, alluvial plains and hills are all under-represented by Hamilton City's current indigenous vegetation cover. Gullies are sufficiently represented but provide unique restoration opportunities and should not be excluded from future restoration projects.

- The prioritisation assessment of Hamilton City's gullies and reserves suggests that restoring Kirikiriroa and Mangaonua gullies, Hamilton Gardens, Hammond Park and Minogue park could provide the greatest biodiversity rewards.

- An analysis of three kahikatea remnants in Hamilton City demonstrated how site characteristics could guide the selection of restoration techniques. For example, Hillcrest Park and Grove Park support low diversity and are missing key ground cover and shrub tiers. Therefore, planting natives in the understory and extending their buffer could improve their condition markedly. In contrast, Totara Park hosts an abundance of troublesome weeds but also supports treasured native plants and has a high water table. Hence, Totara Park requires a careful manipulation restoration technique.

- Reaching 10% indigenous vegetation cover in Hamilton City by 2050 is an ambitious target, requiring effective collaboration between individuals, organisations and communities. Existing restoration projects across the city are demonstrating that it is possible!

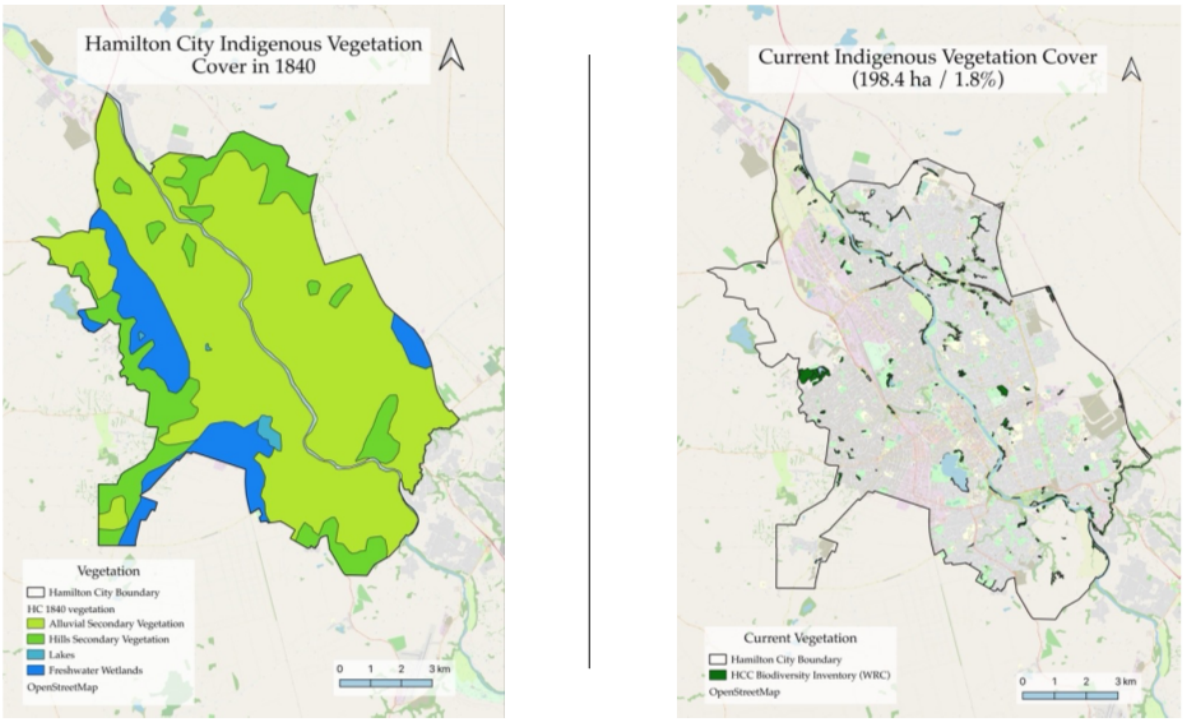


Figure 1. The map on the left represents the historical indigenous vegetation in Hamilton City prior to European settlement in 1840 (Leathwick *et al*., 1995). About 87% of the city was secondary indigenous vegetation, and approximately 13% was wetlands. Comparably, the map on the right is based on WRC's Biodiversity Inventory (WRC, 2021), illustrating Hamilton City's 198 hectares (1.8% of the city) that is dominated by indigenous vegetation today.

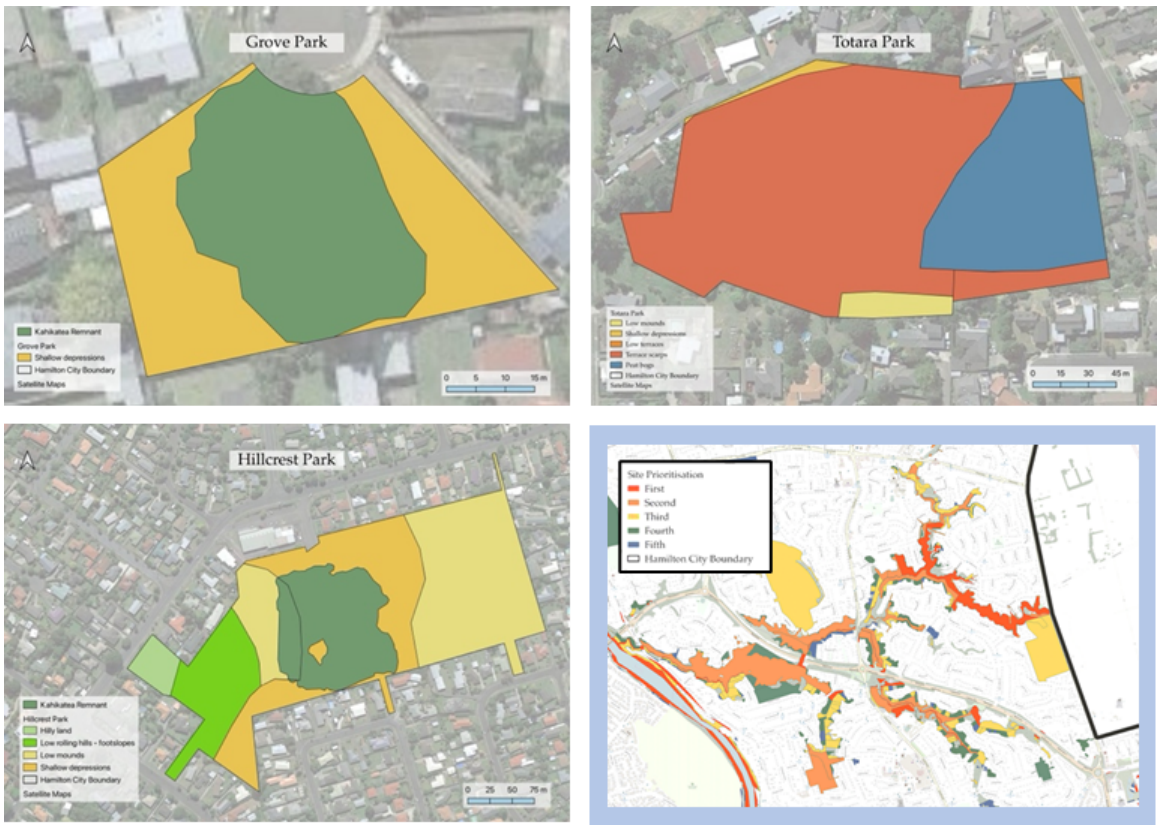


Figure 2. Planting zone maps for the three kahikatea remnants assessed in this study, from top left: Grove Park, Totara Park and Hillcrest Park. The last image was taken from the prioritisation assessment, demonstrating Kirikiriroa gully's (northeast of Hamilton City) ecologically valuable sites (see legend for the five prioritisation categories).

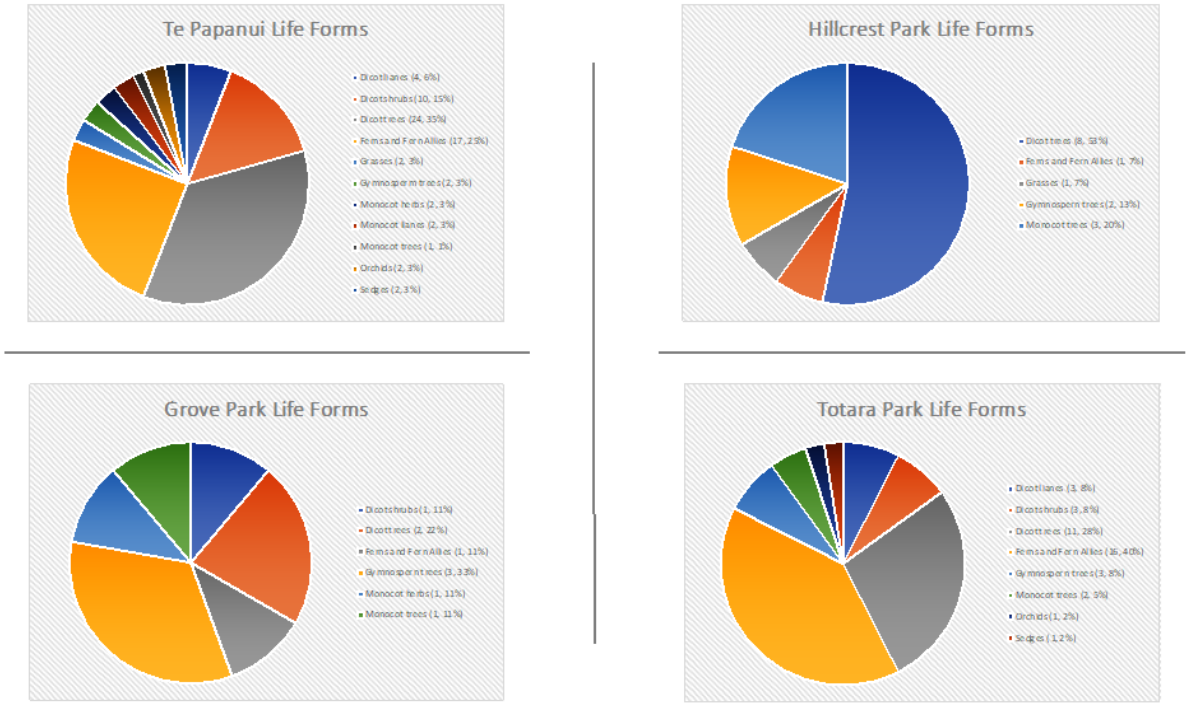


Figure 3. The life form analysis of Te Papanui (as a reference site) and the three case studies (Hillcrest Park, Grove Park and Totara Park). The results are based on research-grade iNaturalist NZ data. Te Papanui hosts the most life forms as the city's most ecologically intact kahikatea remnant. Hillcrest Park and Grove Park are missing essential life forms, including shrubs and lianes. Totara Park supports the most life forms of the three case studies, including orchids, sedges, lianes and shrubs, which were not found in Hillcrest Park or Grove Park.

Below is a link to the recording of February's night talk.
https://drive.google.com/file/d/12RpS4QTVtj0v_S-4wVtFq_12rV2-3teJ/view?usp=sharing

Lake Whangape Water Quality and Habitat Enhancement Project (LWP).

Lucy Roberts Monday 21st March 2022

My talk to the Waikato Botanical Society in March was about the Lake Whangape Water Quality and Habitat Enhancement Project (LWP). I am currently a Weed Technical Advisor for the Department of Conservation (DOC) based out of DOC Kirikiriroa Hamilton office. My role involves providing advice on weed management both internally to DOC and externally to DOCs partners.

One of the projects I am involved in is providing weed management advice for the Lake Whangape Water Quality and Habitat Enhancement Project. Lake Whangape is located 13 km north-west of Huntly within the Meremere Ecological District. It is the second largest of eight riverine lakes associated with the lower Waikato River. To ensure the lake maintains a minimum water level a rock rubble weir was constructed in 1999, at the Whangape stream outlet.

Slide 1: Map of Location of Lake Whangape

Average Depth in metres (m)	Maximum depth in metres (m)	Lake surface in square kilometres (km^2)	Catchment area in kilometres squared (km^2)	Length of shoreline in kilometres (km)
1.5m	3.5m	14 km^2	310 km^2	29km

Figure 1 : Whangape Lake Measurements: (Champion et al 2001).

The land tenure of the lake and associated wetlands is predominantly public conservation land (PCL) administered by the Department of Conservation (DOC). The PCL is designated as a Government Purpose Reserve: Lake Whangape Wildlife Management Reserve (1330.37 ha) and the Awaroa Swamp Wildlife Management Reserve (355.72 ha).

Lake Whangape is located within the rohe of Waikato Tainui iwi. The wildlife management reserves are designated co-management sites under the Waikato Tainui Raupatu Claims (Waikato River) Settlement Act 2010. This acknowledges the history and significance of Lake Whangape, its connection to the Waikato River and to the people of Waikato Tainui, Ngaa Muka Development Trust (NMDT) and Waahi Whaanui Trust (WWT).

Flora / Vegetation

The flora and vegetation of the lake and catchment was first described by botanist Thomas Kirk in 1871.

By the 1930's the native vegetation described above was cleared making way for a predominantly pastoral farming land use of dairy / drystock (Dean-Speirs *et al* 2014) in the catchment.

Botanist Thomas Kirk described the submerged lake vegetation as diverse native flora. Water quality and vegetation has changed over the last thirty years. The native macrophyte vegetation became dominated by exotics. Then due to increased sediment in the catchment and on adjacent land, the macrophyte vegetation within the lake collapsed resulting in the lake becoming hypertrophic, with regular algal blooms (Dean-Speirs *et al* 2014).

Crack willow (*Salix fragilis*) dominates the shoreline of the lake. Unfortunately, other invasive weed species are now present e.g., grey willow (*Salix cinerea*), Royal fern (*Osmunda regalis*), Parrots feather (*Myriophyllum aquaticum)* and Alligator weed (*Alternanthera philoxeroides*) impacting on the conservation values of the Lake.

Slide 2: Awaroa Swamp and Tikotiko Arm, Lake Whangape

Conservation values:
(Left) Awaroa Swamp Wildlife Management Reserve and
(Right) Tikotiko arm

Conservation and Biodiversity Values

Despite the change in vegetation in the catchment, in and around the lake and the decline in lake water quality Lake Whangape still has important conservation and ecological values. Conservation values include high quality ecosystems and habitats (Kahikatea Forest, lake shoreline turf communities), threatened flora, fauna, and fish including:

Lake Whangape Management:

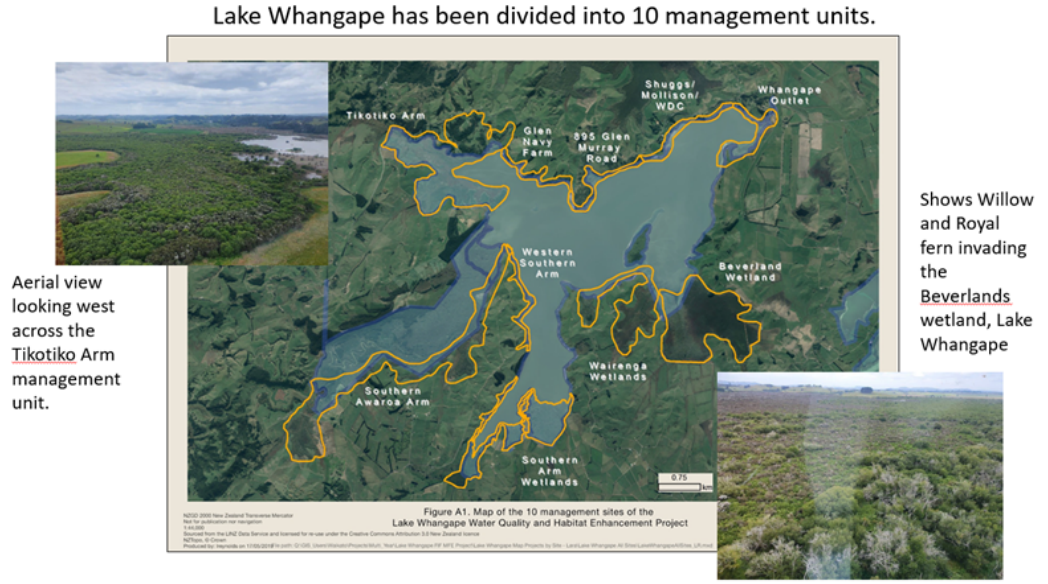
Briefly the Lake Whangape management issues include clearance of vegetation in the catchment, hydrological modification, riparian management in the catchment, non-source point agricultural discharge in the catchment and the impacts of pest animals and fish and invasive weeds. (Dean-Speirs et al 2014).

A collaborative project was set up in 2018 involving the Department of Conservation (DOC), Waikato Regional Council (WRC), Waikato Tainui (WT), Ngaa Muka Development Trust (NMDT), Waahi Whaanui Trust (WWT), local landowners and community. LWP is a five-year project (2018 – 2023) funded by the Ministry of the Environment (MfE) Freshwater Improvement Fund and the Waikato River Authority (WRA), with further contributions from each of the partners.

The overall aim of the project is to restore the health of Lake Whangape, through a collaborative approach and specific workstreams. Over the five-year period of the plan each partner organisation is responsible for delivering a particular work stream:

- DOC: Restoration of the lake margins and associated wetlands through fencing, environmental weed control, planting site preparation and restoration planting.WRC: Improvement of the lake water quality through on farm catchment projects with landowners; and accelerated alligator weed containment.

- WT: The development and implementation of a Kaitiaki Monitoring Framework; and ensuring Maatauranga Maaori is woven through each of the workstreams.



Slide 3: showing the location of the 10 management units for the Lake Whangape Water Quality and Habitat Enhancement Project (Source DOC Five Year Plan 2017).

I explained my role which was to identify the weed species present, prioritise the weeds to be managed, identify the appropriate control methods for the weeds. This was done through a combination of site assessments, literature of previous reports, and discussions with DOC and regional council experts. Some of the weeds prioritised for management included (*Alternanthera philoxeroides*), Yellow Flag iris (*Iris pseudacorus*), Moth plant (*Araujia hortorum*) and Golden Dodder (*Cuscuta campestris*).

Slide 4: showing Golden Dodder (*Cuscuta campestris*).

I also gave a brief update on the DOC and Waikato Regional Councils work streams showing examples of the restoration planting, fencing, weed and catchment intervention work that has been achieved to date.

Acknowledgements for the talk:

DOC staff based at Waikato District including those previously involved in the project: David Havell, Paul Cashmore, Kerry Bodmin, Richard Gribble, Alaine Holdom, Zoe Lunnis, Olivia Petrie, Chris Annandale, Person Tukua and Nigel Binks.

Waikato Regional Council Staff: Natasha Grainger, Paula Reeves and Craig Purvis

References for this article:

Champion, P. D., S. M. Beadel, & R. M. Dugdale. 2001. Turf communities of Lake Whangape and some potential management techniques. Science for Conservation 186. New Zealand Department of Conservation.

Dean-Speirs, T & Neilson, K. 2014. Waikato Region Shallow Lakes Management Plan: Volume 2. Shallow lakes resource statement: Current status and future management recommendations. Waikato Regional Council Report

Department of Conservation and Waikato Regional Council Staff (DOC&WRC 2017) MfE Improvement Fund Application – Lake Whangape Five Year Plan 2018-2023.

Reynolds, L. & Reeves, P. 2019: Project Plan for Weed Control and Planting at Lake Whangape 2018-2024. Department of Conservation Internal Report.

Thank you Lucy for a wonderful talk. There is a lot of interest now to visit Lake Whangape. Below is the link to the recording of Lucy's talk from last week.
Enjoy!
https://drive.google.com/file/d/13YIUmAwltSeLKf2WGAAEfCLwhslBJ2je/view?usp=sharing

Waikato Ecological Restoration Trust

Catherine Smith Monday 16 May 2022

The WERT nursery began in 2010 as The Tamahere Gully Care Nursery at Tamahere and then moved to the present site at Mystery Creek in 2017. The trust is managed by Jan Simmons, the Chair of the Trust and the Nursery Manager, and five trustees.
The nursery has a strong philosophy. It is primarily a community nursery with the workers all volunteers. All plants are eco sourced and are planted back into the Waikato Area.
The grants policy means plants are only available to incorporated societies or trusts.

The nursery has a relationship with the Mystery Creek Field days e.g. tenancy, pay, rent and a liaison to plant the gully and surrounding areas on the site. A 1500 plant payment for free power and water !
It also has a relationship with other nurseries sharing and exchanging a cooperative attitude and knowledge of seed collection and Waikato flora.

The Nursery produces a range of plants, approx. 75 species, and thus increases the biodiversity of plantings in the Waikato.

An important guideline of the nursery is to eco-source all seeds. The New Zealand Plant Conservation Network website (NZPCN) describes eco-sourcing as the propagation of native plants from local areas and the planting of them back within the same geographic area.

Reliable collection sites are carefully sought out, seed is collected, records kept of specific sites, and seed stored and planted.

Emerging seedlings

Seedling House

Managing the nursery is an important task. There can be 25,000 plants growing in the nursery at any one time. Factors such as watering, nutrients, light, protection, position and pruning must all be given consideration. Not to mention the weeding and potting !

Potters at work

Nursery Plants

Stocktaking takes place in early February and ordering of plants is usually completed by the end of March. There are basically never enough plants to fulfil orders.

Some of the volunteer potters and weeders who were at the meeting spoke of the social benefits of working at the nursery and the educational benefits of sharing ideas

A big thankyou to Catherine Smith for a wonderful glimpse into the Waikato Ecological Restoration Trust Nursery.

2022 Talks

Monday, July 18

Members are invited to give a 5-10 minute talk on a botanical topic of their choice. Please contact Kerry Jones if you would like to participate. We had a wonderful evening last year and I'm sure it will be another success.

Monday, August 15

Wayne Bennett from Forest Flora

Monday, September 19

Jim Dahm will speak on the general Coastcare work undertaken by Waikato Regional Council and the ecological and geomorphic principles that guide the work, in particular the Nukuhakari site.

Monday , October 17th

Kerry Jones talks about his Te Anau expedition

Monday, November 21st TBA

December get together …date to be announced

Please keep a note on our Facebook page (www.waikatobotsoc.org.nz) or our emails for possible changes on speakers.

Waikato Botanical Society Monthly Walks

In this section we normally have write ups for trips that we have done in the past 6 months.

Unfortunately COVID and unsuitable weather has caused most of the recent planned trips to be cancelled.

These were :

January 2022 Kauaeranga Valley.

February 2022 Tawarau

March 2022 Hillary Hope Reserve

June 2022 Waharoa

We will look at rescheduling most of these trips next year. Originally Thomas was going to lead this but he and the family have moved to Christchurch. We would now like someone to put their hand up and lead the Kauaeranga Valley trip early next year. This could be a weekend trip or a 3 day trip at Anniversary weekend.

Hopefully we will be able to run most of the planned trips for the rest of the year starting with a trip that I will be leading to Pakoka Scenic Reserve on 23 July.

Waikato Botanical Society Trip to WERT Nursery and Arnold's Kahikatea Stand

Saturday, May 28 2022

Led by Catherine Smith, Annette Arnold and Linda Watson

A group of keen Botanical Society members met at the Waikato Ecological Restoration Nursery on the last Saturday of May. Catherine and Annette were there to meet us and show us around. Firstly we had a look at the planting they had undertaken in the gully below the nursery site. We then toured the potting shed where the volunteers work, the storage shed where all the pots are kept and the special fridge where all collected seeds are kept. Catherine explained with a colour coded map how the eco-sourced seeds were documented carefully and after germinating and grown to a reasonable size are generally planted in the area from whence they came.

Catherine explaining different locations in the Waikato where seeds are collected

And then out to the plant department. It was fascinating to look at the trays of germinating seeds (some undercover to prevent mice and birds from feeding on them.) The rows and rows of potted plants in all stages were obviously carefully looked after and tended until they were ready to be sold.

We were all impressed with the quantity and quality of native plants looked after by Volunteer help for the purpose of replanting many Waikato sites.

We then set off to the Arnold's property at West Rd, Ohaupo.

Annette explained that there were 2 pockets of regenerating bush. The first we walked through had been fenced before the Arnolds purchased the property in 2004. We looked up to an impressive stand of kahikatea, one in particular we thought may well be hundreds of years old.

Walking towards the fenced pocket of bush

Old Kahikatea with large *Elaeocarpus hookerianus (Pokaka) growing behind*

The old kahikatea is approx. 60m tall and believed to be the 2nd largest in the Waipa district.

Twisted trunk of large kahikatea with exposed root

We all asked the question, " What spared this particular tree from being cut down ?" Maybe the twist in the trunk as shown in the photo below.

Walking underneath the canopy of tall trees we noticed tawa, pukatea, coprosma, kowhai, pittosporum, matai, red matipo, mahoe, ribbonwood and titoki seedlings naturally growing.
Annette mentioned she had inherited with the bush a thick undergrowth of privet which she has successfully cleared.
Bird life was present. Tui were heard and Piwakawaka flitting round. Annette had had kaka visiting recently

Annette explaining about the bush understory

Newly planted area

Regenerating

The newly planted area (above) was a result of lockdown! Kahikatea planted with plants from the WERT nursery where Annette volunteers.
We headed over to the second bush area. This area was only fenced from stock in 2018. The Arnold's planted approx. 618 trees in the understory in 2018, 400 in 2019 and have since planted every year. They set traps for rats etc and check traps every week.
Dominant in the canopy are large old Pukatea. The seed is harvested and sent to WERT nursery.
Without the stock browsing underneath there is evidence of regrowth although grass and weeds are evident. It is hoped that this will decrease as the understory plantings mature.

Regrowth on trunk of Pukatea with Pokaka next to it.

Weeds strangling newly planted trees

It was great to be, once again, on a botanical expedition with like minded people, enjoying the outdoors on a beautiful sunny day. A big thank you to our hosts Catherine Smith and Annette Arnold.

Written by Linda Watson

Waikato Botanical Society Trip Program June to December 2022

Notes for participants

- Please let the trip leader know if you are coming or if not coming anymore
- All trips require sturdy footwear and appropriate outdoor clothing
- Most trips run over a day so bring enough food and water for the trip
- Feel free to bring plant identification books
- It is recommended you bring a hand lens to aid in plant identification
- Please ask questions – the experts are keen to help .

Pakoka Scenic Reserve

Saturday 23 th July - Pakoka Scenic Reserve

Leader: Kerry Jones. 027 747 0733 / km8j1s@gmail.com
Meet: Countdown Dinsdale at 8:45 or Te Mata School, Te Mata Road at 9:30. (Te Mata Road runs south from State Highway 23 (Hamilton - Raglan) about 8 kms before you get to Raglan - signposted for Wairenga / Bridal Veil Falls)
Grade: Should be reasonably easy – may be the odd scramble

Reserve is administered by DOC is 48 hectares in size and is less than 1 km from Aotea Harbour. Altitude runs from 20 m to 120 m above sea level. Expect coastal forest.
Opportunity to call in at Wairenga / Bridal Veil Falls on the way home.

Robbie Bennetts QEII Covenant

Sunday 21 st August –

Leader: Catherine Beard. 027 536 6928 / cbeard@doc.govt.nz
Meet: From Hamilton the journey is around 40 mins by car. We'll carpool from the Landcare carpark (Waikato University Gate 10 off Silverdale Road), meeting at 9am. Please let Catherine know if you'd like to join the trip (she will also supply directions for those travelling separately)
Grade: Easy

Members may recall a talk that Robbie Bennett and Melissa Sinton gave to the bot soc recently about the QEII National Trust. Robbie has since invited Bot Soc members to check out the block of bush at his place, not far from the Waipa River, south-west of Ngaruawahia. Robbie has been looking after the bush block (including pest control, exclusion of livestock and planting) for 30 years or so, along with another hectare or so that has been retired and planted more recently. There is also a small wetland at the western end. The main block of bush is around a hectare in size, likely between 130 – 150 years old, and is a nice example of lowland Waikato forest.
Our aim for the day will be to have a wander through the block and create a full plant species list. A good opportunity for those who'd like to hone their skills on identification of Waikato forest plants. The terrain is easy going, and Robbie has kindly offered access to the house for lunch, toilet etc, and parking is available on the driveway or roadside.

Homunga Bay, Waihi (Combined with Rotorua Botanical Society)

Sunday 4 September–

Leaders: Graeme Jane & Gael Donaghy 07 5703123 / gtjane@kinect.co.nz
Meet: Barry Road junction with SH 25, northern outskirts of Waihi (becomes Golden Valley Road, and signposted to Golden Valley Road) at 10 am.
Grade: moderate

A little used rough coastal track to Orokawa Bay and for the adventurous a through walk to Waihi Beach. Coastal cliffs, lowland puriri forest, regenerating forest and scrub, and steep rocky shores with odd small beaches. From Orokawa Bay to Waihi there is a well-formed track that is often very busy.

Te Kopia Forest, Paeroa Range (with Rotorua Botanical Society)

Saturday 24 September –

Leader: Jacqui Bond 021 1259 273 / supajac@yahoo.com
Meet: 8:15 am Rotorua Council carpark or 9 am at the gate at the end of Handcock Road, off SH 5 (between Waiotapu and Mihi).
Grade: Moderate-Hard

This forest is in the Paeroa Range sandwiched between Reporoa and Waikite Valley and often not explored due to difficulty in accessing the reserve which is surrounded by private land or cliffs! With permission from the Handcock's we can access this part of the range which is private land from SH 5.
This mixed broadleaf/podocarp reserve goes from 600-1000 m and still contains rare species such as Peraxilla tetrapetala and Dactylanthus. We will explore streams, the regenerating bush of old skid sites and mature forests; while not walking on maintained tracks, old forestry roads and high numbers of deer make the going relatively easy.

Taupiri Scientific Reserve (Combined with Auckland Botanical Society)

Saturday 29 th October –

Leader: Kerry Jones. 027 747 0733 / km8j1s@gmail.com
Meet: Hillary Park, Chedworth Ave Hamilton @ 8:30am or Taco Bell at Taupiri Services - just off the Expressway @ 9:00
Grade: mostly Medium / some Harder climbing and steep descents. The beginning of the track is quite muddy so good boots recommended. Bring a rubbish bag to put your boots in afterwards. There is also some gorse to push through so long sleeves and either trousers or puttees / gaiters recommended.
The new Huntly Bypass now goes right past the Taupiri Scientific Reserve (664 ha in size). Most of you will have driven past the reserve and like me have wondered what it is like there. We will be entering the reserve from the end of Old Road and having a look along the ridge (lots of tanekaha)and then head down to have a look at the wetland and then if we have time we will climb up to the high point of 231 metres. There are kauri in the reserve so please make sure that your boots are squeaky clean. I will bring some trigene.

Taupo Reserves and some geothermal sites (with Rotorua Botanical Society)

Saturday 5 November –

Leader: Chris Bycroft 027 498 5513 / chris.bycroft@wildlands.co.nz (email preferred)
Meet: The carpark Rotorua at 8 am, or in Taupo (to be advised).
Grade: Easy
The aim is to visit several reserves in and around Taupo. We will pay a visit to part of a geothermal area near State Highway 1 and see if we can see any orchids of interest. If time allows, we will look at some geothermal ferns and other species alongside Otumuheke Stream. We should see some plants of *Cyclosorus interruptus,* the geothermal form of *Christella dentata* and *Hypolepis dicksonioides.*

December - TBC

Endangered Plant Garden

Gate 8, Outside School of Science and Technology

June 11, 2022 Update by Linda Watson
The endangered plant garden at Waikato University has been a bit neglected over the last few months.
It is in need of some weeding, clearing, pruning of larger trees e.g. Kowhai, and possibly more mulching. Unfortunately we have lost a few plants.
Please keep an eye out for a working bee date !


Overgrown canopy trees


Spectacular display of fungi


Very dry area needs re-planting

St Joan's Rest-home Update

by Dell Hood

The native planting project in a formerly weed infested overgrown garden strip along the rear boundary of St Joan's private hospital in Peachgrove Road suffered major weed invasion during the prolonged period when concern for their highly vulnerable residents and patients kept us away for very much longer than the official lock down periods. However we have since the last BotSoc meeting had two further sessions there, clearing out the invasive weeds and doing some infill planting in the gaps. There were a few gaps which may have been in areas which had been less closely planted, as the remainder of the plants have done remarkably well despite unplanned neglect and summer drought. Annual weeds are thriving only in the areas without "canopy closure" but the serious invasives are well established under the canopy. Moth plant and an ornamental solanum continue to creep over the wall from properties behind the boundary wall.

A smaller area planted last winter is also doing reasonably well but there are some gaps to be filled and the legacy of its previous long standing weed infested state has predictably produced a vigorous new crop which the native shrubs are as yet too small to suppress.

Thank you to the members who have volunteered their time to help. It is amazing how much even a small group can achieve in a couple of hours. More dates for weeding will be circulated soon and anyone is welcome, even if you just want to come and have a look. We do not have any contact with the premises or its staff to help keep them safe.

Kowhai, Clianthus,Coprosma growing well

A gap where canopy has not been established