Iwi, Hapu and Community Nursery within the Auckland Region. Prepared by Uru Whakaaro Ltd

Kaipatiki Environment Centre Project

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Acknowledgements
Staff and volunteers across the many Native Nurseries of Tāmaki
Auckland Council Bio Security – Jane O'Hagan

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1. INTRODUCTION

The lifeblood of restoration projects flows from knowledge held by the people running them and the nurseries that restock habitat. Founding restoration projects such as Tiritiri Matangi, Motutapu Restoration, Kaipātiki Project have sparked inspiration and shared know how.

In an effort to achieve on-going sustainability of nurseries operating in the Auckland Region greater understanding of who and how current nurseries' operate in the Auckland Region is required.

2. Purpose

The purpose of this work is to take stock of hapū and community nurseries in the Auckland Region, to establish:

• Who they are, where they are and what priorities are for growing plants.

• What is the current understanding of, and capacity to carry out, nursery best practice in terms of eco sourcing and biosecurity hygiene procedures?

• What potential is there to increase capacity over time.

•What connections exist between nurseries and the community (both in a local sense and in the wider context of nurseries similar to themselves).

OBJECTIVES:

• Establish current range of plants, extent of supply area along with biosecurity and eco sourcing capability of community and hapū nursery activity in the Auckland Region

• Enable such nurseries to begin forming a network to foster collaboration and support.

• Identify and clearly articulate synergies and points of difference with commercial nursery operations

3. Scope of works

• At least 20 community and hapu nurseries have been spoken with and / or visited, and the outcomes of those conversations and observations collated into a report with recommendations on current capacity and biosecurity / eco sourcing behaviour, future opportunities, barriers, capacity and support needed

• Hold at least one preliminary network meeting involving at least 10 of the newly contacted nurseries.

Exclusions from the first stage study include; Corrections Department, commercial, and insitu nurseries.

3. Biodiversity and Restoration across the Auckland Region

The Auckland region has an instantly recognisable, diverse natural environment made up of volcanic cones and craters, forest, streams, wetlands, estuaries and harbours, an intricate coastline including dunes and offshore islands supporting a rich diversity of plants and animals, some of which are found nowhere else in the world. This is the indigenous biodiversity that people rely on for many different social, cultural and economic reasons. Auckland Council Biodiversity Strategy July 2012

The Society for Ecological Restoration defines restoration as *'the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed.'*

Restoration is currently being under taken by multiply sized diverse entities across the Auckland Region. Nature space alone lists 102 projects or groups, Forest and Bird list 9 major projects. There are a growing number of community restoration networks within defined local board areas. Individual companies delivering public and private restoration work bring the number to 140+. Iwi, community groups, Companies contracted to undertake environmental mitigation for private subdivision- development, public works. All of these projects and groups undertake planting as a component of restoration activity. There are no current records on the make up of this plant supply from Iwi and community nurseries within the region.

What part do Iwi - Hapu and community nurseries play in restoration and 'building ecosystem reliance?

To achieved extensive quality restoration a combination of actions will be required such as provision for cultural inclusion, kaitiakitanga, Tangata whenua, genuine partnerships – manaakitanga, mātauranga māori ki taiao. collaboration of projects and groups with education.

Nurseries are able to do several things

- Provide a quantity of eco sourced species for the purpose of restoration
- Provide a diverse range of species
- Provide employment and volunteer opportunities for a range of ages to interact with nature in a nurturing role.
- Provide a range of knowledge on how to grow the diverse range required
- Act as an indicator of health.
- Often work with restoration planners on the logistics of plant supply

4. ECOLOGICAIL DISTRICTS

Nurseries across the Auckland Region are placed within 9 ecological districts (ED), which collectively contain up to 36 indigenous terrestrial and wetland ecosystems.

The following list is for the Department of Conservation conservancy, the Auckland Council has an additional inclusion of Ōtamatea ED

Ecological Districts include

Auckland Region – Auckland Council

- Rodney
- Ōtamatea crosses over the northern aspects of Rodney and Kaipara (not indicated on the DoC map)
- Kaipara
- Waitakere
- Tāmaki
- Rangitoto
- Inner gulf
- Huna
- Manukau
- Awhitu

Note the following are outside the Auckland Council Region but within the Department of Conservation Auckland Conservancy area.

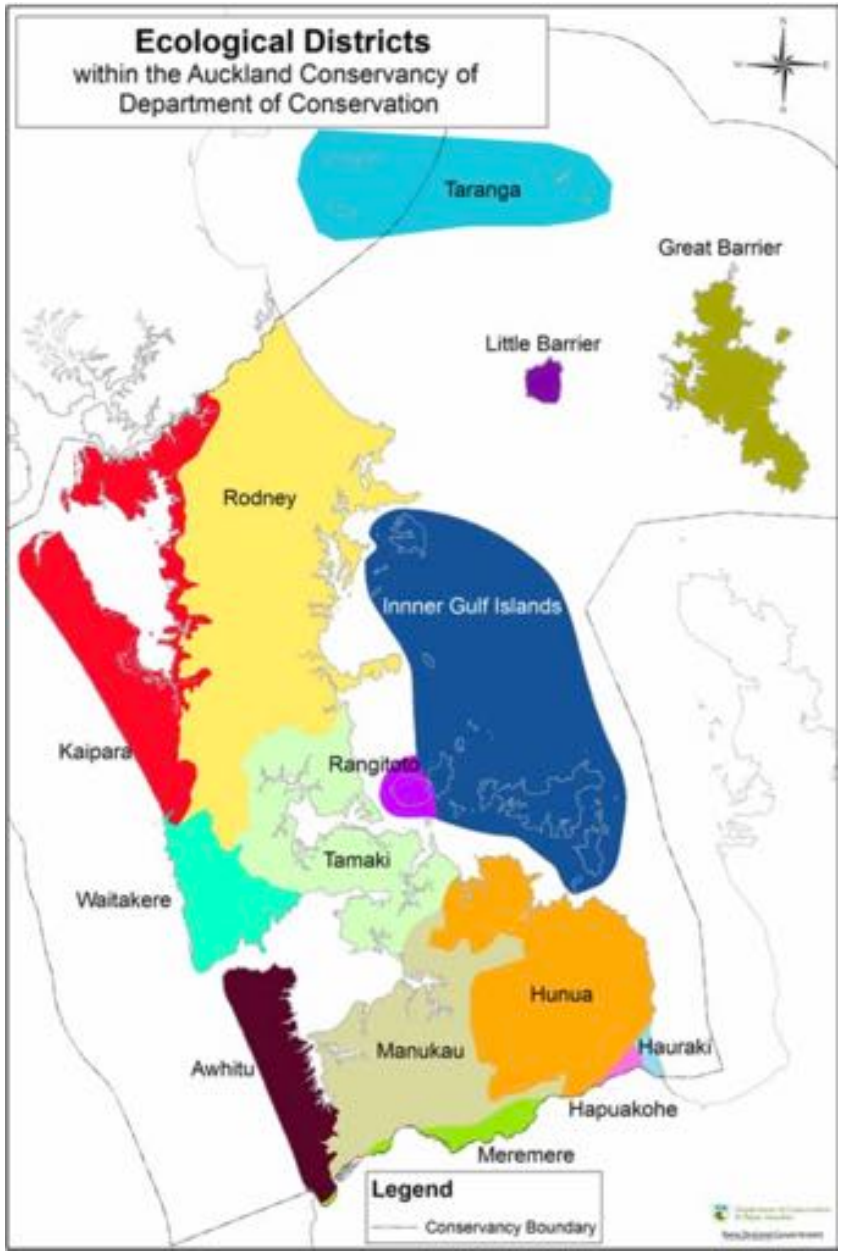
Meremere, Hapuakohe and Hauraki

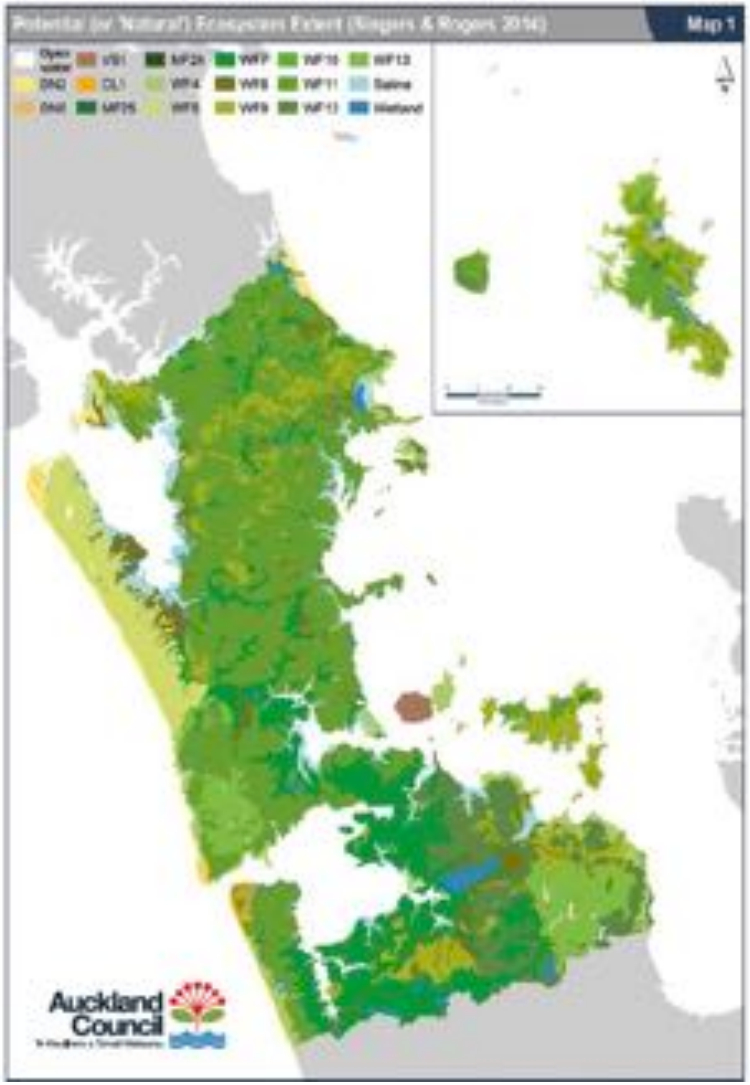
Ecosystem categories include (number of types)

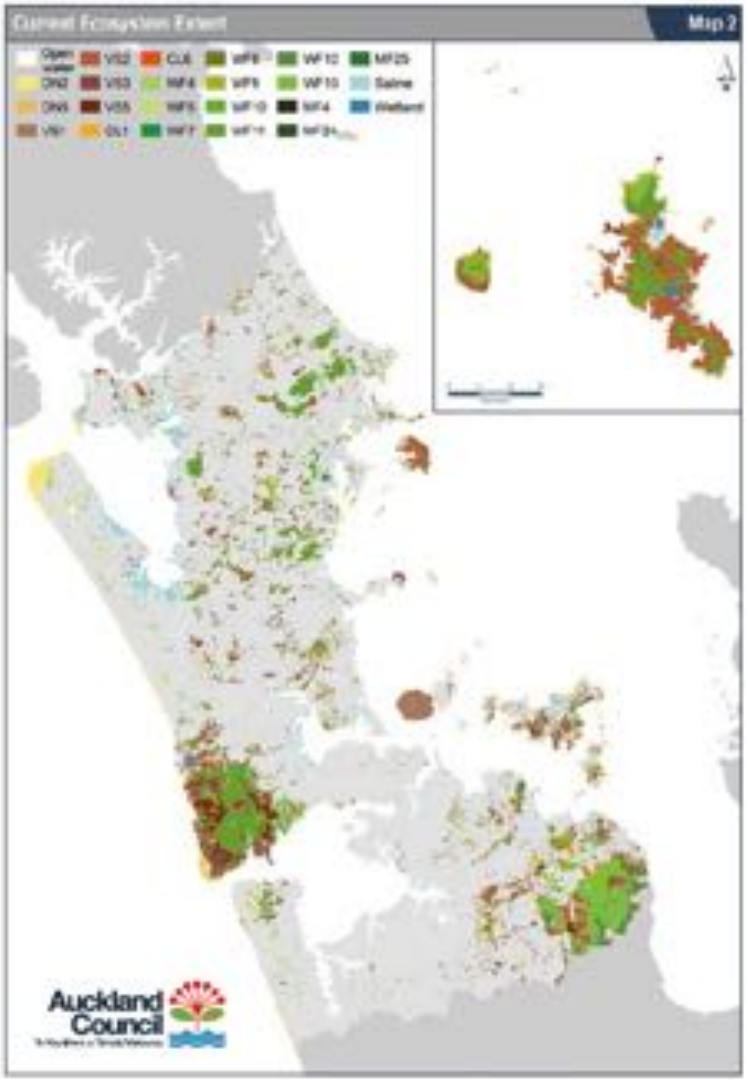
- Forest Ecosystems (12)
- Cliff ecosystems (2)
- Regenerating ecosystems (4)
- Wetland ecosystems (9)
- Coastal saline ecosystems (4)
- Dune ecosystems (2)
- Anthropogenic ecosystems (1)

Not currently included in restoration activities

- Geothermal ecosystems (1)
- Cave ecosystems (1)







Potential ecosystem types to be restored across the Auckland Region, these ecosystem types can guide plant selection.

5. NURSERIES

A nursery for the purpose of this report is defined as an area used to grow native plants for the Auckland Region and where any profits are returned for the economic benefit of the community it services. The majority of nurseries are not for profit, charitable or social enterprise models. In a few cases private nurseries run at the owners expense for the purpose of gifting plants to private and public projects.

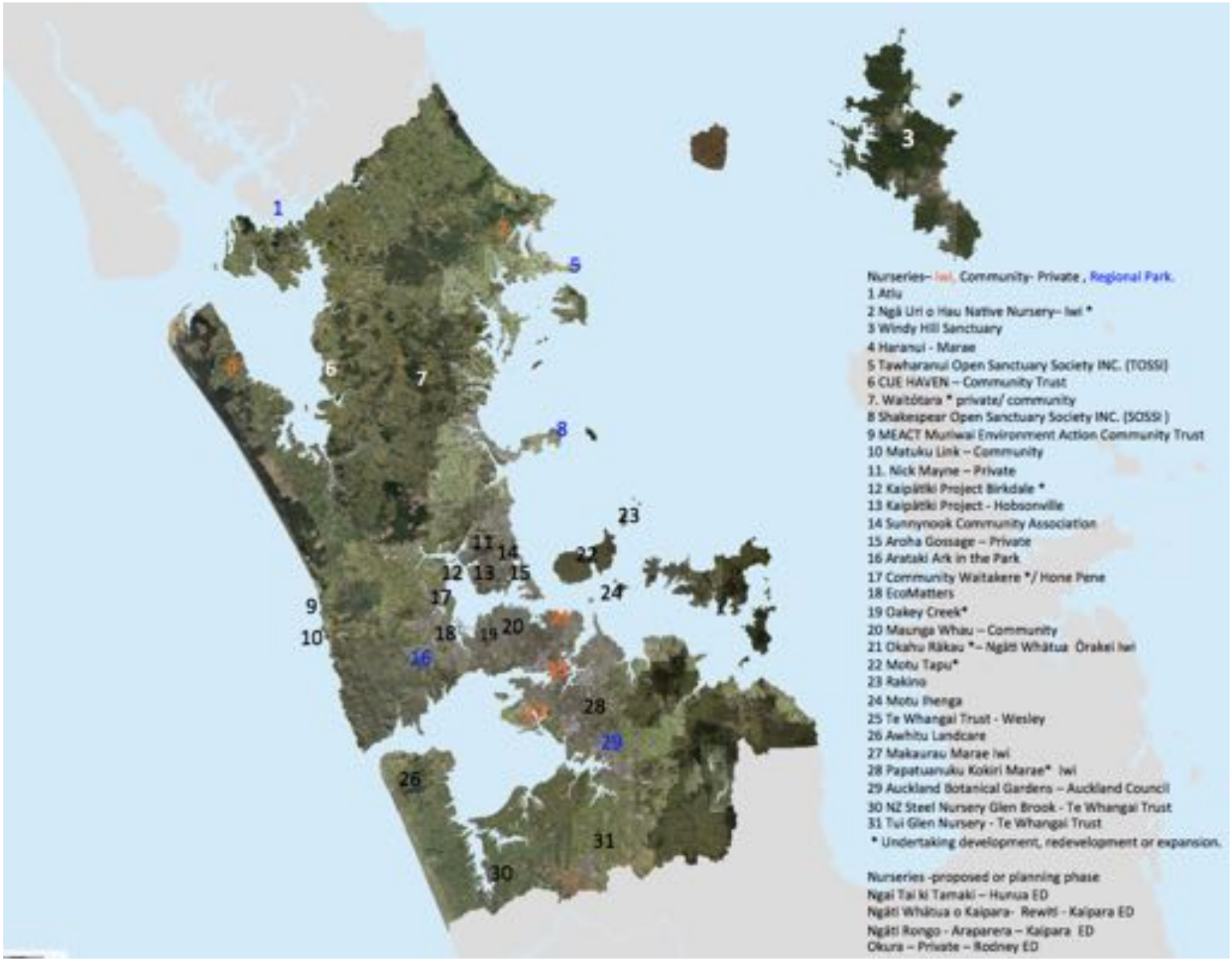
Corrections while not for profit for the purpose of supplying the community market ,where not included in this first stage research.

Types of nurseries

- Regional Council Parks
- Private
- Community project funded, Project specific
- Community project funded and contract growing / pre ordered and sales.
- Hybrid nurseries within the Community
- School based nurseries these maybe independent or part of a national Trees for survival Programme
- Backyard growers coordinated through local restoration networks/ projects to be returned to public space following season.
- Educational and research e.g. Rakau Takaro
- Commercial Nurseries known to support through advisory or growing on lines such as Nga Rakau and Scrubs Growers.

METHODOLOGY

A list from Auckland Council of known nurseries where reviewed, word of month and internet searches, advertising on Facebook and newsletters within existing networks. Visits were undertaken for some nurseries with many discussions via email correspondence phone calls, individual meetings and hui.



Nurseries across the Auckland Region

NURSERIES OF THE AUCKLAND REGION

(For a full list see nursery contact list Appendix 1)

There are many ways that nurseries across the region could be categorised and under each system something of the nature of the nursery is often lost, categories include;

- Ownership, Iwi, Community, Council, private (sole operator)- for community purpose, incorporated societies, trusts and schools.
- Kaupapa or purpose which may be project specific, mixed project specific and with sales for sustainability. Contract growing, off the shelf sales, education and training for employment, (NZQA) industry professional development and public workshops, sales, employment health and cultural well-being. Organic, or non-chemical growing on only or from seed collection to planting out.
- Ecological District provision – within which region does the nursery contribute to biodiversity out comes
- By size in Land, range 1/8a, to 2 ha.
- Capacity to produce plants, range is 200 plants – 850,000 plants and growing- biodiversity capacity building.
- Human resourcing
    - 1 person - private owner
    - Staff only (range 1 to 14)
    - Staff managed (1to 2) with volunteers most consistently recorded in hours (up to 5000 hours per annum).
    - Volunteers only range from 5 to 1000+ per annum (records are often combined for nursery and restoration activities)

For the purpose of this report nurseries have been listed by ownership with information on the other areas where available.

Numbering after the name relates to map location reference.

Iwi

1. Nga Uri o Hau - Te Ari (2) –grows plants for Rodney, Otamatea and Kaipara ED for sale and community project donations. Both permanent and seasonal staff creates employment and training, no volunteers. Collaborates with other nurseries. Currently growing 850,000 plants most grown for community riparian restoration around the Kaipara through the work of Integrated Kaipara Habour Management Group on both public and private waterways. Supplies large number environmental mitigation works at Te Ari. (Site visit undertaken) Aware of biosecurity issues, no wash stations at the time of visit, limited signage. No website or FB

Ngā Uri o Hau Nursery at Te Ari Pt. Photo Source: Integrated Kaipara Harbour Management Group and Uru Whakaaro ltd.

2. Ōkahu Rākau (20) - Tāmaki ED Ngāti Whātua Ōrakei based on the Whenua Rangatira set up in 2004 primarily to support the restoration of Whenua Rangatira via Ko *te Pukaki* restoration project. Supply increased and diversified over time to include public landscape projects with the purpose of biodiversity inclusion. Public landscape projects through out Tāmaki such as the redevelopment of Waterfront Auckland, mix commercial projects, community restoration and donation (all not for profit). Ōkahu Rākau collaborates with other nurseries, sources own seed and has onsite propagation. The nursery operates as part of a wider environmental team. Designs and resource consent have been undertaken to develop a new nursery at Pourewa. (Site visit undertaken) Whai Maia Website Ōkahu Rākau Nursery page, also part of Ko te Pukaki FB page

3. Papatuanuku Kokiri Marae – Mangere (28) multiply environmental and social programmes running. Zero waste, mara kai leadership for wider community. marae representatives expressed concerns and interest in the continuity of mātauranga māori, rongoā and cultural provision through nursery development. Mātauranga māori in relation to nurseries to be discussed as part of follow up and site visit. FB page for Marae.

4. Makaurau Marae (27) Tamaki ED. Nursery based at Makaurau Marae set up to supply plants to a Water Care environmental mitigation project, 15 + years ago. Grows native plants for local restoration along the Oruarangi Awa, one nursery manager, potential to provide local employment and nursery education.

Community - Mainland

Within Regional Parks

1. Ātiu Regional Park – (1) Kaipara / Otamatea ED. Purpose to enhance water quality in the gulleys/valleys at Ātiu, ultimately improving the health of the Kaipara Harbour. The nursery grows 30,000 each year for Ātiu with limited sales of excess to the season usually these are contingency plants if anything goes wrong (e.g. myrtle rust outbreak), so they are not grown specifically for selling on. They have also given away to local community. Managed by Conservation Volunteers exemplar Health and Safety model and training plan. Face book (FB)
2. Arataki (16)– Waitakere ED- Arc in the park site. High bio security standards, grown for planting in Regional Park network.
3. Shakespear Open Sanctuary Society Inc.- SOSSI (8) Whangaparaoa. Not For Profit Organisation. Primary purpose community planting for SOSSI project/ site specific. Nursery has given excess to community groups such as UHEN- Greenhive who in turn potted on and redistributed to private back yards to grow on and bring back to public restoration sites in winter. FB Auckland Botanical gardens (ABG) support regional park nurseries – no sales, plants planted within park. TOSSI – ABG visit each year to help maintain standards (good volunteer nursery to visit) & SOSSI at Shakespeare Park.

Other regional parks send in seeds for Auckland Botanical Gardens to grow – often have 5 yr. plan.

4. Tāwharanui Open Sanctuary Society Inc. – TOSSI (5) Rodney ED Project site-specific nursery to aid the restoration project within predator fence. Seeds can are send to Auckland Botanical gardens protocols mean seeds come with no soil, leaves & sticks. Seeds are sprayed with meths & water for Myrtle rust disease. FB

Volunteers potting plants at TOSSI photo credit; TOSSI

Nurseries within public and private space.

1. CUE Haven (6) - Araparera – Kaipara ED. An incredible programme grown from the love of sharing nature for peace and well being. The nursery is project specific and winding down phase with the primary revegetation planting now completed. The nursery grows on about 500 a year this is set to decrease with a focus now on second stage canopy species seedlings come from Scrubs Growers Nursery who also support the project with ecological advise. Seeds are collected sent to Nga Rakau back to Scrubs and on to Cue Haven to be potted on by volunteers. (200,000 grown since the start of the project,) This is an example of multiple nurseries working together to enble community project. Bio security signage is up for KDB, as everyone visiting that day was aware it wasn't talked about. (Site visit undertaken) Website and FB.

Sunday volunteers at CUE Haven 2018

2. Kaipātiki Project Nursery – (12) Tāmaki ED. Kaipātiki first supported nurseries in schools with one in the Glenfield College, then established the current Birkdale site which was ¼ the current size. Kaipātiki secured funds to build shade houses and run education programmes in both Windy Ridge Primary and Birkdale North Primary. The nursery at Birkdale is now 20 years old set up originally for planting back into the Witherford Scenic Reserve. The nursery has grown over the fence and into the reserve to support Eskdale Reserve Network. The nursery has also been a source of plants to support numerous restoration projects such as Tuff Crater, Le Roys Bush, private landowners under taking restoration along streams. Many of these projects and supply are on going. The nursery supports both employment and volunteers in education programmes. Volunteering happen 2 times per week and by appointment for groups. Has the capacity to hold 20,000 plants contract pre orders required to maintain nursery sustainability. Along with Hobsonville site Kaipātiki currently grows 105 species
3. Kaipatiki Project – (13) Tamaki ED, Hobsonville established in February 2011 for the restoration of the Hobsonville Coastal Walkway moved to the present location in Engine Bay a few years later, a satellite nursery to the main nursery in Birkdale. Weekly nursery volunteer mornings are held on a Wednesdays. Engine Bay operates without power, has limited shelter, no kitchen or bathroom facilities all of which limit the length of day volunteers can be present and the ability to work in all weather for long. Hobsonville Land Company has been a long term supporter. Sponsored this year by local Lions who built volunteer shelter. Plants also grown to support Upper Harbour Ecological Network - UHEN
   Both Birkdale and Hobsonville sites are managed as one nursery. High diversity with most some in low numbers, specialise growing is great for diversity but hard for budget continuity. (Site visits) Website and FB

Kaipātiki volunteers at Engine Bay Nursery

Kaipātiki Nursery at Birkdale

4. Maunga Whau Restoration Group, (20) Tāmaki ED. The nursery is part of an old council work depot and has been used for many years. Run with 5 volunteers 300 plants per year go towards restoration on Maunga Whau no plant sales. Volunteer mornings are shared between nursery and work on the Maunga. No Website or FB
5. Friends of Oakley Creek Te Auaunga (19) Tamaki ED – Currently using the Unitec Nursery facilities but looking at moving locations. Grown for project specific plantings. Website and FB
6. Te Whangai Trust – Tāmaki and Manukau on the cusp of Awhitu ED. Social enterprise multiply site nursery, some outside the Auckland Region a model for social, educational and economic enterprise. 3 sites within the Auckland region Wesley (25) NZ steel (30) Tūī Glen (31) Website and FB
7. Sunnynook Community Association (14) Tāmaki ED, Transferring excess natives from backyards within the community to grow on for restoration. Coordinator - Tabitha Becroft is knowledgeable in biosecurity issues and plant growing but no formal framework in place. No website or FB
8. Matuku Link, (10) Waitakere ED plants grown by volunteers for the wetland restoration adjacent. All plants grown are project specific, no sales.
   Previous nursery had to be moved due to KDB, signs and protocols for KDB only up at entrance to wetland and not nursery due to difficulty with residential property also onsite. Nursery has in ground growing beds for Harakeke which is a practical space saving way to grow plants that can be lifted and put into neighbouring projects. (Visit undertaken) Website and FB

Sunday Volunteering at Matuku link

New shade house at Matuku Link

9. MeACT - Muriwai Environmental Action Community Trust (9) –Waitakere ED border with Kaipara ED, Muriwai new nursery under construction, organisation established in 2011, aim to grow about 1000 plants per year. Nursery will be project specific. Website and FB

10. Ecomatters (18) – Waitakere ED sponsor and donation based not currently for sale, local community project supported. Currently growing 5000 plants each year for local streams with some gifted to the community/ volunteers. Often have excess seedlings would welcome collaboration and sharing of knowledge in nursery how too. Nursery is part of an extensive range of leading environmental projects delivered in the west Auckland region. (Visit under taken) Website and FB

11. Waitakere Community Trust (17) Tāmaki ED aiming to support existing history of nursery provision in Te Atatu. Hone Pene along with brother Graham have grow nplants through their Recovery First programme. Hone Pene has been holding this space and providing for social and economic community outcomes. No Website and FB

12. Awhitu Landcare Nursery (26) Awhitu ED growing for the Awhitu peninsular landholders, contract growing, seed sourcing, highly skilled with good systems in place. The location is challenging to get volunteers to. Only nursery growing Pingao for sand dune restoration. Currently growing 12,000 to 15,000 plants per annum (Correspondence and attendance at hui) Website and FB

Awhitu Landcare Nursery photo credit: Awhitu Land Care.

Private nurseries growing for community restoration currently self funded.

1. Aroha Gossage, Tamaki Ed based grows both Tāmaki ED and Rodney ED (Pakiri sourced) Private nursery in Northcote, Northshore. 100% funded at owners expense. Plants given by donation, Aroha 's passion for growing plants has been handed down from her mother Tilly who set up a whanau based nursery in Pakiri. Aroha undertakes all of the work including seed harvest to final size. No paid staff no additional volunteers, not wanting to expand size or seek funding or expand structure to include more people. Would like to have more information on propagating a wider range of species and some small help towards potting mix or selling a few plants to buy potting mix. (Visit under taken)

Aroha Gossage's nursery, private land on the edge of Tuff Crater.

2. Nick Mayne, Tāmaki and Rodney ED, located in Unsworth Heights 100% funded at owners expense plants donated to local reserve restoration projects, promotes sharing through plant and seed swapping to make up holistic plants lists for neighbouring restoration project (no monetary exchange). (Visited previously to research) Nicholas attended hui.

Nicholas Mayne's nursery Photo credit: N. Mayne

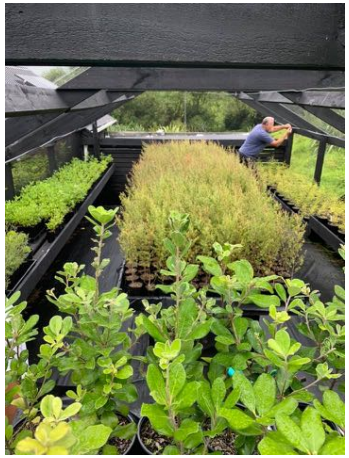
3. Waitōtara Sustainable Living – Upper Waiwera area. Rodney ED situated on the private property of Robyn and Blair Dyer. The nursery is currently under construction, seed harvesting for the first season underway, aim to grow 5000 plants for local projects in public and private space to restore, protect and enhance streams feeding into the Waiwera River catchment currently putting in systems for pest management. Will be part of a wider community education programme on public and private land. Health and safety, seed banking already started. All contributors are currently unpaid and owner funded with an aim that the nursery will create a small income towards covering costs for the free sustainable living education currently offered.

Community – Island Based

1. Windy Hill Sanctuary (3) Great Barrier ED – Community nursery started in Oct 2018 supported by Auckland Council, donations and volunteers. Project specific nursery over multiple land blocks on Aotea - Great Barrier. Website and FB

2. Rakino Island Nursery (23) Inner Gulf Islands ED founded in 2015 not for profit nursery run by volunteers with funding from Auckland Council, for the purpose of supplying to restoration on Rakino Island. They hold community nursery working bees. Site visit still to be undertaken. FB page





Rakino Island Nursery photo credit: Rakino Island Nursery

3. Motu Tapu Restoration Trust (22) Inner Gulf Islands ED , established in 1994, 'work provides opportunities for people of all ages to engage in and be actively involved in conservation and to better understand and appreciate heritage values through the restoration of Motutapu'. The nursery produces plants specifically for the project, run by staff and volunteers. No sales all funded by donation and sponsor based. Issues include cost of water supply infrastructure and continuity of nursery processes. Restoration challengers include extensive slip area and coastal cliff areas the nursery is looking at expanding plant supply for this specislist area of restoration. Expanding the growing capacity along side growing staff /volunteer knowledge. Expressed an interest in holding an education workshop series similar to the 'Nursery Bites' at Kaipātiki. Education to enrich existing propagation and general knowledge around nursery processes, to support and supplement long-term volunteer knowledge contributions. (Visit undertaken) Website and FB



Motutapu Nursery, Hardstand area, propagation sheds and under cover potting on areas for volunteers.

4. Motuihe Restoration Trust (24) Inner Gulf Islands ED, established 2000 situated on Te Motu a Ihenga. Plants have been grown on site since 1993 by Ronnie Harrison, with a nursery later being established that has seen 440,000 planted since 2000. volunteer management and implementation. High level in understanding of bio security requirements and council guidelines, the volunteer nursery supplies plants to onsite restoration project. No plant sales. (visited previously to this research) FB and website

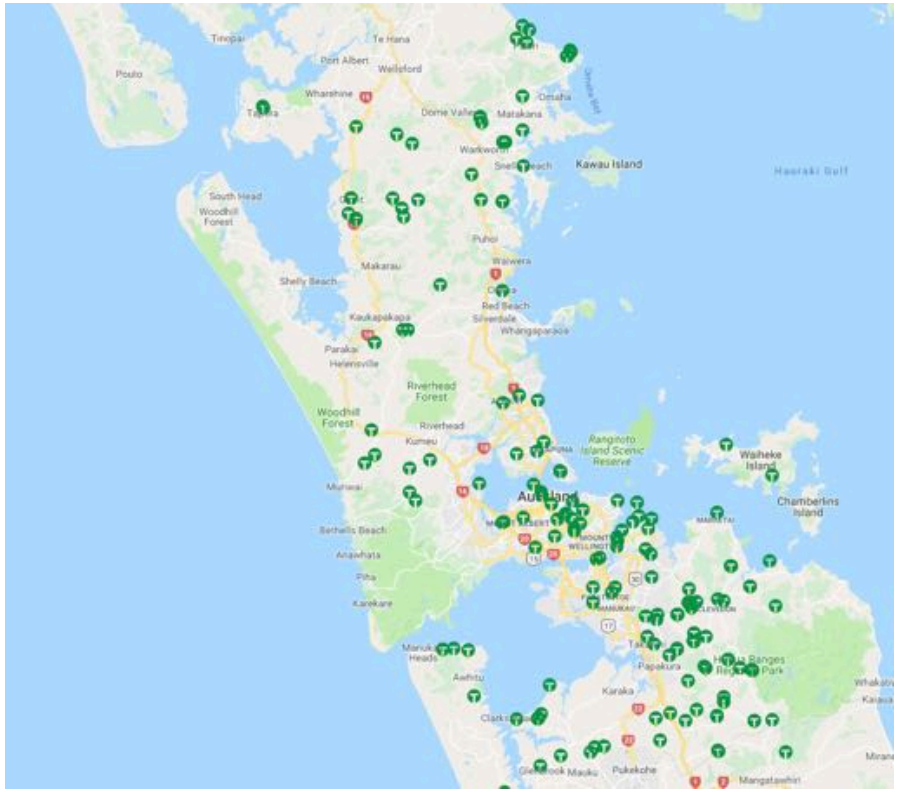
Nurseries in planning / under construction

5. Kaipara – Araparara - investagation
6. Kaipara – Rewiti – 2x Planning
7. Waikōpua- Ngai Tai – Planning – feasibility completed.
8. School programmes

Nurseries planning to expand or redevelop

- Okahu Rakau Orakei – planning and consent work for development of Pourewa site
- Te Ari annual capacity expansion planning in place.
- Kaipātiki Project – site redevelopment

Further follow up required



Trees for Survival distribution of schools across Auckland Region.


Trees for survival growing unit at Ahuroa School.

Nurseries in Schools

Trees for Survival Programme founded by Rotary has been running for 25 years connecting school students with restoration of farmland and riparian streams. Operating in 133 New Zealand schools they have planted over 1.5 million with 70,000 now going into the Auckland region annually. For the Auckland Region seeds are contract sourced from every ecological district with Nga Rakau contracted to propagate and then seedlings are sent to schools for growing on. Nurseries in school are designed to be simple stand-alone growing stands with moveable shade curtains. They take up minimal space and can be easily placed to utilise a possibly unused space.

5. ECO SOURCING / ECOSYSTEMS

Kaipātiki Nursery- Direct seeding processing workshops with Okahu Rakau Crew.

Staff and key volunteers from all nurseries were aware of why eco sourcing is a requirement of ecological restoration work and that there is a stronger call to hold records of where and when seeds were collected if plants are to be on sold. There is a lack of clarity around eco sourcing to ecosystem types, where this mattered or when on the edge of two eco districts. Only a limited understanding as to which species eco sourcing would be more essential for preservation of gene pool diversity. There are no protocols for harvest on public reserves or about permission required and from whom, no written biosecurity precautions for harvest in kauri forested areas for example. A dominate response being 'we just use common sense' This seems to be an area that would benefit for clear guidelines and 'how to' type resources. A standardised collection of electronic records for eco -sourcing would aid in building a biodiversity picture of what is being selected for (and therefore missed) in the Auckland Region. An electronic recording such as used for pest control results.

7. BIOSECURITY

Signage Kaipātiki Project Nursery Birkdale

While all nurseries were aware of biosecurity issues such as Kauri Die Back and Myrtle Rust not all had measures in place to prevent disease spread. Some had posters to raise awareness but no further action. A few had shoe wash stations in place. The highest care biosecurity procedure and implementation were island nurseries at entry points such at the ferry entry and exist.

No nurseries on the mainland had bio security measures in place when checking suppliers e.g. potting mix deliveries

Most reused plastic pots or Pb bags with a quick wash, no protocols for clean or quarantine areas between returning to nursery and volunteer availability to clean. Risk of cross contamination high at all mainland nurseries.
All nurseries had within close proximity weed seed sources that may be air borne or bird dispersed. Weeds that were not only nursery common potted plant type weeds but revegetation and forest dwelling type weeds, Tree and Chinese privet ,Woolly night shade, moth plant and pampus for example.

Pest Management
Kauri Die Back as stated above, all nurseries aware and often had signage up. However less than 10% had any precautions or wash stations in place.

Skinks, many people were unclear in identification between a Cooper and rainbow sink.

Ants had been previously monitored at Ōkahu Rākau Nursery and both Ōkahu Rākau and Kaipātiki Nursery would welcome this monitoring again.

Myrtle Rust
Extensive education and awareness had been shared with nurseries most had never seen it other than photos.

The only nursery with the ability to quarantine associated with the nurseries researched was the Auckland Botanical Gardens others had an area separate in space but not a structure or ability to separate the current water run off

8. NURSERY INFRASTRUCTURE

Nurseries are an evolving part of restoration either capacity expanding, improving systems, upgrading propagation, refitting to requirements donated shade and tunnel houses. The range of structures varies from propagation in garages to potting on in converted milking sheds (Te Ari and CUE Haven) with added on shade houses to portable shade tables. This makes hygiene is some instances difficult to control in most cases the awareness around raising this standard is there but difficulty may come in resourcing these changes beyond ad hock. See Bio-security regarding quarantine areas.

9. VOLUNTEERS AND EDUCATION

While this report didn't include an analysis of volunteers in the project scope they are very much the part of the powerhouse that keep community nurseries going. One of the outcomes has been the desire for nursery staff and volunteers to connect more with other nurseries and to learn through shared education programmes. The level of knowledge varied greatly between nurseries.

Having nurseries that are children inclusive outside of the existing Trees for Survival models was raised a few times.

Ecomatters – West Auckland

Windy Hill Scantuary - Aotea

Nicholas Mayne – Unsworth Heights.

10. IWI, HAPU AND COMMUNITY NURSERY HUI.
Held at Kaipātiki Project 17 Lauderdale Rd, Birkdale:
Saturday 8 December 2018, 9.30 to 12.30

Our goals

- *To understand what contribution Iwi- Hapu and Community nurseries are making to Auckland's biodiversity looking at who is growing which species, where and for what purpose.*
- *Better understanding of who would like support- advise or what type of help going forward.*
- *Grow a picture of who is able to share knowledge and/ or resources?*

We looked at different areas of nursery production and organisational structures and what people were interested to share or gain more knowledge about.

What are people most interested in knowing more about;

- How to set up a new nursery
- Development of an existing nursery
- Infrastructure design to achieve hygiene and growing conditions required for good health.
- Propagation skills vs. out sourcing propagation
- Seed collection, sourcing, storage treatments records and notification of when things are ready for harvest.
- Pest management animals, disease, cultural control methods.
- Water, methods and costs.
- Understanding the wider market, project specific and/ or growing to sell
- Short-term nurseries project specific.
- Education programmes staff and volunteer up skilling
- Volunteers how to attract them, retain them and education programmes for long-term volunteers.
- Marketing, admin, tracking systems, IT funding.
- Social enterprise aspects of native plant nurseries. What opportunities to be sustainable with sales.
- Procurement processes – how can we sell our plants to fund our projects

Specific feed back from hui

- Interest in setting up nurseries and attending how to workshops
- Involving our tamariki from an early age
- Hard work by passionate people.
- Finding good seed sources
- Education Potting mix types and sourcing
- Good to learn the diversity of how nurseries are run (more field trips to other nurseries)
- How to inspire the next generation continuity of knowledge especially around difficult to grow or rarer species.
- Good to " hear our stories 'we are not alone' in growing and needing support.
- Tips on community engagement investment how to get people to isolated places – isolated projects.
- Interested in training and workshops to stay current.
- Look at the network and hui as a source of inspiration.
- Wanting to understand when and for what species is seed sourcing rules important
- Up skilling and scaffolded learning
- Connecting of people using plants too. (Informal small community nurseries)
- Whenua, Rongoa – whakapapa
- Cultural restoration
- Sharing rare plant growing techniques and where is appropriate to restore them
- Share where to get and/ or actual supplies mulch trays seeds potting mix
- Understanding potting mix
- Access to a variety of plants from enhancement species and for different locations e.g. coastal, salt, forest, wetland etc..

Feed back from visits, interviews, conversations and individual meetings
Only two nurseries in the Auckland Region are growing rare plant species, both in numbers that can locally increase population wellbeing but regionally below a point at which they would impact the status of each species. More work is required to understand rare species needs when growing in nurseries and the maintenance required within planting sites to establish post nursery.
Kaipātiki growing both *Epilobium* sp. and Para Para but without continuity of care through understanding the maintenance practices of contractors across urban landscapes survival rates in public space will remain a threat.
Research into the nursery propagation care of threatened and endangered species with a research piece on establishment in natural species through restoration is recommended.

11. ISSUES AND OPPORTUNTIES

Issues	Action under way	Restriction	Opportunities/ further work required.	Who might be able to assist
1. Currently no comprehensive New Zealand nursery standard,	Initial workshops held, initial pilot nurseries identified by NZPPI. New proposed biosecurity scheme being headed up by NZ Plant Propagators Inc.	Cost to upgrade systems, different methods of delivery to restoration organic, chemical free programmes	Advice and guidance	Aim to hold a second Hui with NZPPI present to workshop together.
2. No clear picture of what species and quantity are being grown for the Auckland Region.	First stage networking to know what nurseries are out there		Undertake further research gather data.	Work with Auckland Council, Biosecurity and Biodiversity
3. Lack of continuity planning between supply and forecasted restoration goals.	Identification of who holds this information and identifying the gaps.			
3. Mātauranga Maori, Education continuity of skill and propagation knowledge	Looking at what the current programmes are available		Education programme development, openness of nursery industry to share.	
4. Cost of growing difficult to grow species, long term or small run lines of plants. Set up infrastructure for new standards.	How might a nursery network be able to share, collaborate on supply and resources?	KP were particularly invited as reps for the community sector, Derek Craig pointed out that there where probably 50+ community & 80+ school nurseries in Auckland alone plus NZ Tree Crops Assoc members in the hundreds who would find audit costs & proposed nursery standards unworkable. This was noted and wil be followed up by NZPPI. DC correspondence		
5. Plant supply can't always be met by any one Iwi/ community nursery	Networking between nurseries that have plant schedules filled.	Lead in times, expertise for harder to grow species.		
6. Lack of forward notice for plant growing time, often results in projects tailoring their planting to availability rather than refined to site requirements for diversity.			Increase the understanding amongst those responsible for ordering plants the lead in for ordering. Greater communications between projects to find sites that would most benefit (ecologically) from the surplus species as a priority over funding requirements.	

12. RECOMMENDATIONS

Nursery research on going

- On going visits to existing nurseries no able to be visited in first stage of research.
- Expand range of nurseries to include corrections in Paremoremo, and commercial nurseries that support or are part of the chain of supply with growing on lines e.g. Nga Rakau,
- Another nursery hui with bi annual hui going forward in combination with education workshops.

Celebrate and communicate the differences

- Acknowledgement of the diverse range of nursery types and purpose.
- Set up and maintain social media communication page e.g. Facebook for Nursery staff/ volunteers

Biosecurity

- Increase the provision for cleaning stations and signage at Nurseries
- Circulate the process for monitoring, Ants and skinks
- Circulate information around myrtle rust and the current best practice for notification and reducing risk.
- Work with nursery medium suppliers to understand, origin of materials, disease prevention reduce risk of contamination
- Registration app for disease distribution within the areas nurseries located.
- Information to be circulated as part of a Nursery information pack for new and existing nurseries.

Education

- Information pack for nurseries including, networking, biosecurity, ecosourcing, health and safety.
- Taylor a series of nursery workshops both basic and advanced. For setting up and understanding the needs of the biodiversity requirements across Auckland Region.
- Run workshops available for children and youth to be part of e.g. Tree for Survival expanded model.
- Research into rare species, difficult and long term slow to propagate species this to be accompanied by protocols for care post restoration planting
- Nursery 'road show' where a volunteer/ workshop group with coordinator will visit nurseries during a volunteer session to work along side and share what they know with a possible 8 nurseries per year. Funding for promotion and coordination time travel/ transport.

Provision for biodiversity within the Auckland Region

- Undertake an audit of plants required including, number of species and estimate of diversity between species.
- Accurate number of plants being grown over the next few years to understand the needs across the region.

Monitoring

- Nursery water run off, assistance to establish monitoring points, frequency, and what to monitor for.
- Diversity of eco sourced species by ecological district / ecosystem type. Being grown by nurseries in conjunction with Auckland Council Biodiversity team. Electronic collection point of eco sourcing records such as undertaken for regional pest control results.
- Pest free programmes monitor and record on eco tract and or catchIT.

Volunteers (feed back from paid and volunteer staff)

- Provide for methods to share information and gatherings.
- Improve methods of recording knowledge of long-term volunteers.

Organisational Sustainability

Along with those mentioned above which may lead to improvements in growing delivery, knowledge and health

- Gain understanding of Council procurement processes
- Strengthen relationship between nurseries and biodiversity contractors to help improve sustainability

REFERENCES

Indigenous terrestrial and wetland ecosystems of Auckland 2017 – Auckland Council
Auckland Regional Pest Management Plan 2019 - 2029
Auckland Council's Indigenous Biodiversity Strategy July 2012
Eco sourcing Code of Practice and Ethics Ferkins, C 2002
Ecosourcing Protecting local biodiversity. Auckland Council publication.
How do we restore New Zealand's biological heritage by 2050? - David A. Norton, Laura M. Young, Andrea E. Byrom, Bruce D. Clarkson, Phil O'B. Lyver, Matt S. McGlone and Nick W. Waipara

WEBSITES

Auckland Council www.aucklandcouncil.govt.nz

Nature Space www.naturespace.org.nz

New Zealand Plant Conservation Network www.nzpcn.org.nz

Department of Conservation www.doc.govt.nz