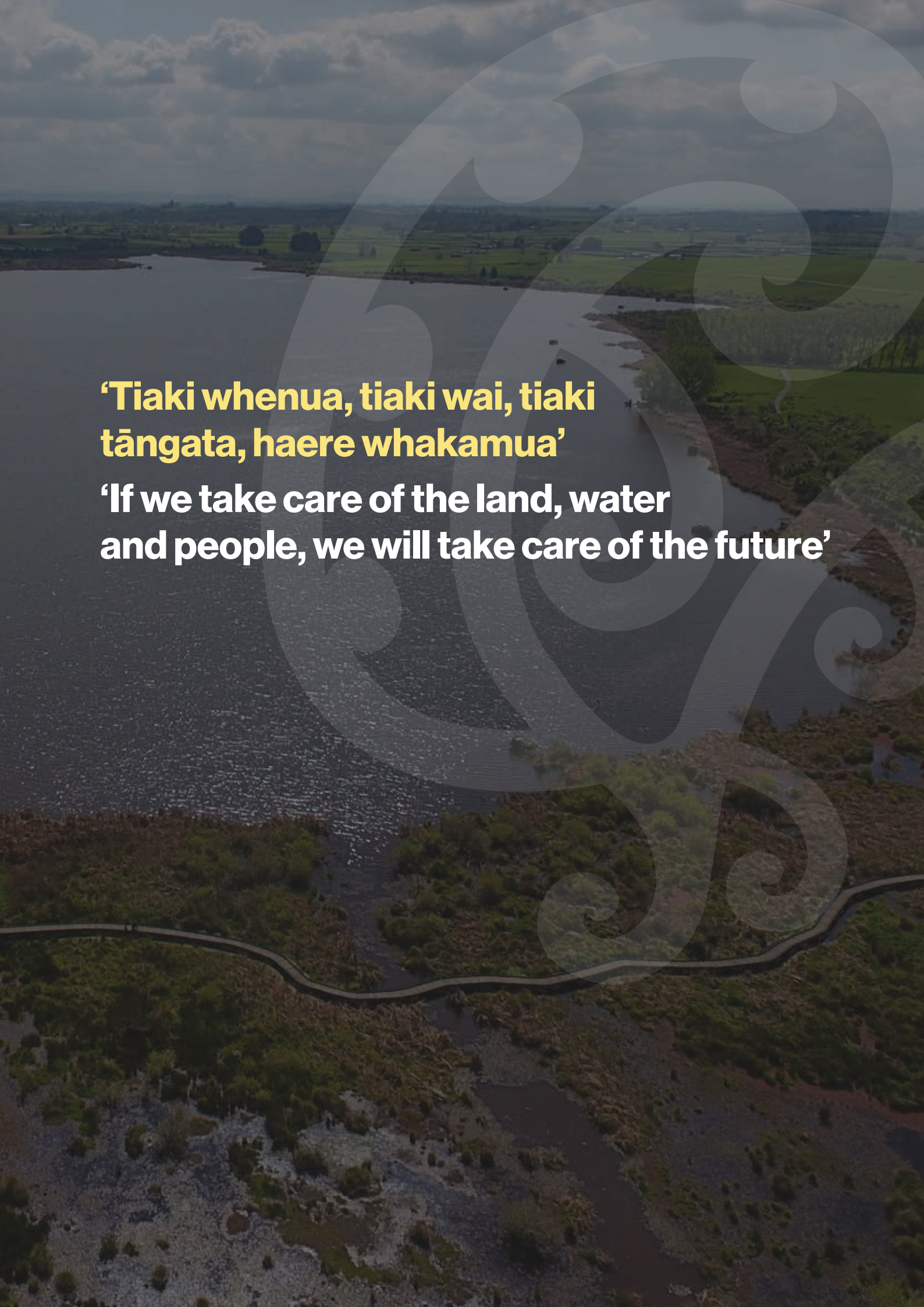
LAKE NGĀ ROTO
RESERVE MANAGEMENT PLAN

DRAFT FEBRUARY 2025

Waipā DISTRICT COUNCIL



‘Tiaki whenua, tiaki wai, tiaki tāngata, haere whakamua’

‘If we take care of the land, water and people, we will take care of the future’

He hirahira o Lake Ngā Roto : The importance of Lake Ngā Roto

Lake Ngā Roto, the largest peat lake in Waipā, is a taonga tuku iho where:

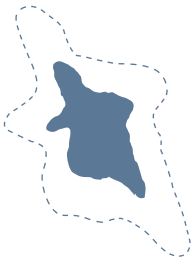
- Iwi and hapū, including current mana whenua Ngāti Apakura and Ngāti Hikairo, lived, raised families, sourced food, died and buried in the environs for centuries prior to European settlement. Mana whenua left the area after the Waikato Land Wars.
- Many Māori died during the Battle of Hingakākā and where Uenuku[1] was stored for safe keeping and later discovered and returned to iwi
- Mana whenua can maintain and share mātauranga Māori, fulfil roles as kaitiaki to care for wai Māori, wāhi tapu and the lake itself, as well as, pursuing traditional and contemporary activities
- There's a significant opportunity to improve water quality before it flows into the Waipā and Waikato Rivers and restore a peat lake habitat of national significance
- Numerous birds, including threatened species, either permanently or seasonally roost or transit along the Taiea te Taiao Maungatautari to Pirongia Ecological Corridor
- Volunteering can connect people to nature and each other
- Local clubs and event organisers provide sport and recreation opportunities for our community
- 50,000 plus people visit per annum to walk or cycle the lake circuit
- Locals and visitors can picnic, learn about the history and ecology of the environment and freedom camp

1 Uenuku, a carving of the god of the rainbow thought to date from about 1400, is a significant taonga for Waikato-Tainui

E Karanga Ake Nei : The Call to Action

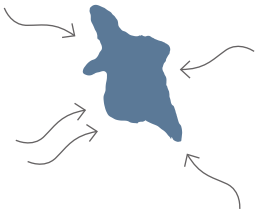
92%

92 percent of **Waikato's wetland extent has been lost** since 1840 making Waikato's peat lakes unique and important



Lake Ngā Roto's surface is now **60 percent smaller**[2] than its original size as a result of agricultural drainage activities in the early 1900's

Only **0.51 percent** of the 1,846 hectare catchment now **remains in vegetation**; almost all of the catchment is pastoral dairy farms and dry stock pasture



Vegetation clearance and agriculture has resulted in **nutrients, sediments and contaminants** flowing into and severely degrading the lake

Lake health has continued to **deteriorate** despite 30 plus years of lake margin restoration and some catchment restoration initiatives

Water quality is now **exceedingly poor** – the lake is hypertrophic[3] , below National Bottom Lines for 7 attributes and facing hysteresis[4]

There are **frequent algal blooms** dominated by blue-green algae

Native fish have mostly been replaced by **exotic pest fish**

Native submerged macrophytes (plants that grow in freshwater) have completely **disappeared**

Extreme health risk warnings about lake water contact are regularly issued by Health New Zealand Te Whatu Ora's Public Health Unit for the summer period

External and internal **nutrient, contaminant and sediment loads, pest fish and climate change effects** are predicted to **exacerbate issues** unless signficant action is taken

Tackling this challenge will **demand substantial resources**, navigating **unknown solutions**, and **aligning diverse** stakeholder **interests**

2 Reduced from 220 hectares to 89 hectares

3 Meaning it has excessively high levels of phosphorus and nitrogen

4 Meaning it has "flipped" into a suspended algae/phytoplankton-dominated state, and this self-perpetuating cycle of internal nutrient recycling will continue even if external sources of pollution are reduced

Mihi : Forward

(to be provided after public consultation)

Ngā Kaupapa – Contents

He hirahira o Lake Ngā Roto : The importance of Lake Ngā Roto 3

E Karanga Ake Nei : The Call to Action 4

Mihi : Forward 5

Structure of this Plan 8

Wāhanga Tuatahi : Kupu Whakataki
Section One : Reserve Management Plan Overview 9

Purpose of this plan 10
Process followed in developing this Plan 10
Land (and water) covered by this Plan 10
Planning context – what this Plan is and isn't 13

Wāhanga Tuarua : He Tirohanga Whānui o Lake Ngā Roto
Section Two : An Overview of Lake Ngā Roto 15

I ngā rā o mua he hokinga mahara I Looking back 16

Ko Lake Ngā Roto he taonga tuku iho I Lake Ngā Roto is a living treasure 20
Current state and causes 27
Key challenges and opportunities to restore Lake Ngā Roto 27
Future actions 29

Wāhanga Tuatōru : Te Ara Whakamua
Section Three : Moving Forward 33

Te whakakitenga I Vision 35

Ngā mātāpono I Management principles 35

Ngā whāinga me ngā kaupapa here I Objectives, policies and explanation 36

Wāhanga Tuawhā : Te Kōkiritanga
Section Four : Delivering the Vision 47

Development of Lake Ngā Roto zones 48

Management focus and expected outcomes 50

Monitoring and reporting 54

Wāhanga Tuarima : Ngā Kupu Māori
Section 5 : Glossary of Te Reo Māori used throughout this Plan 57

Glossary of te reo Māori used throughout this Plan 58

Wāhanga Tuaono : Rārangi Pukapuka
Section 6 : References 59

References 60

Appendices

Appendix 1 Process followed to review the Lake Ngā Roto Reserve Management Plan 2009 62

Appendix 2 Summary of key documents that guide decisions to protect and restore Lake Ngā Roto 63

Appendix 3 Ownership, administration and classification of land covered by this Plan 67

Appendix 4 Reserve acquisition and governance timeline 68

Appendix 5 Overview of Pā surrounding Lake Ngā Roto 69

Appendix 6 Lake Ngā Roto freshwater attribute targets and baselines 70

Appendix 7 Lake Ngā Roto nitrogen, phosphorous, E.coli and sediment risk areas 71

Appendix 8 Restoration planting plan 75

Structure of this Plan

01/ **Section one** outlines the purpose and scope of this Plan and the process that was followed to develop it.

02/ **Section two** provides contextual information about Lake Ngā Roto. It discusses the location of the reserve, its history and its many values. It outlines the importance of Lake Ngā Roto and highlights and explains the critical state of the lake's health and what is needed to protect and restore Lake Ngā Roto.

03/ **Section three** sets out the long-term vision for Lake Ngā Roto, principles that will guide all future decisions, and a framework for how the vision will be realised. Explanations for the goals and policies are provided to explain the rationale for the approach taken.

04/ **Section four** sets out the how each zone within the reserve will be developed, Council's management focus for the next 10 years, the desired long-term outcomes and how Council will measure and report on progress towards the vision.

05/ **Section five** contains a glossary.

06/ **Section six** captures the documents that have informed this Plan.

01/

Wāhanga Tuatahi : Kupu Whakataki

Section One : Reserve Management Plan Overview

Purpose of this plan

This Plan sets the long-term vision for Lake Ngā Roto and a framework to guide Waipā District Council's (Council) decisions and actions to achieve the vision. It is the overarching tool to achieve integrated management of the reserve, through conserving historical, archaeological, cultural, social and ecological values, while positively supporting a range of recreation values.

It also provides an opportunity to focus a broader discussion about the health of the freshwater within the Waikato and Waipā catchments specifically on to this taonga tuku iho (treasure handed down from our ancestors); to create a plan that will help drive critical actions in the lake, on reserve land and on privately owned land within Lake Ngā Roto's catchment to protect and restore the health and wellbeing of the lake and its margins.

To provide context for the management framework outlined in this Plan and to support greater understanding of what's needed going forward, this Plan also explains the history and importance of Lake Ngā Roto, its current ecological state and restoration initiatives to date, and the roles and responsibilities of all of the parties involved in protecting and restoring this regionally and nationally significant peat lake and surrounding wetlands.

Process followed in developing this Plan

Council worked with mana whenua representatives from Ngāti Apakura and Ngāti Hikairo, Waipā Peat Lake and Wetland Accord (Peat Lake Accord) partner organisations, lessees, Sport Waikato and landowners within the catchment to review the Lake Ngā Roto Reserve Management Plan 2009. The process followed to develop this Plan also provided for our communities to provide input and feedback in accordance with section 41 of the Reserves Act 1977. Key actions and timeframes are set out in Appendix 1. A Focus Group comprising representatives from iwi and partner organisations, two Councillors and a Pirongia Ward Committee member met throughout the project to discuss the process and the decisions relating to this Plan.

A wide range of legislation and policy documents and scientific reports (see references set out in Section 6 and the summary of key legislation and documents is included in Appendix 2) have informed the plan.

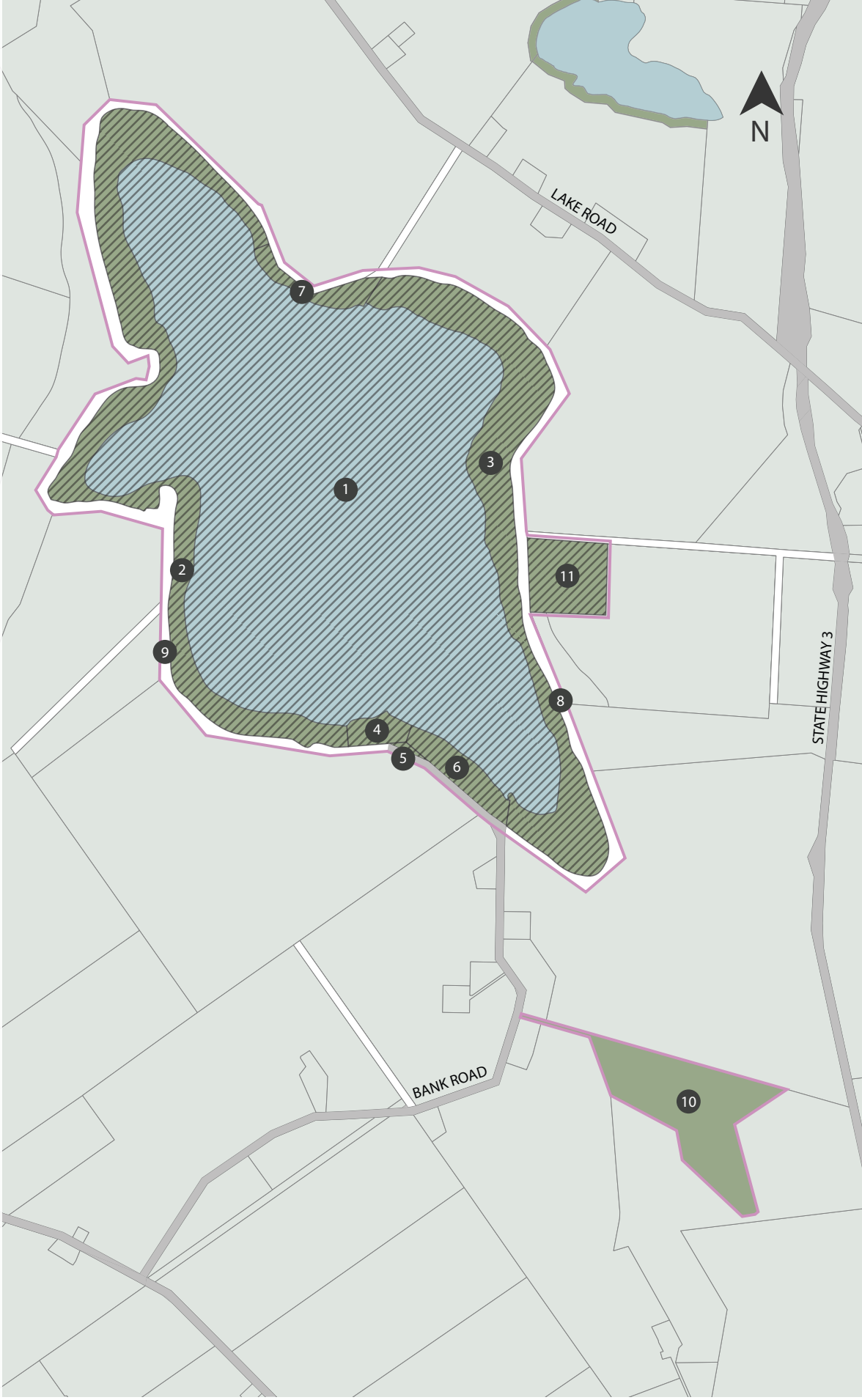
Land (and water) covered by this Plan

This Plan covers the eight land parcels classified as recreation reserves under the Reserves Act comprising the lake and large margins that were included in the Lake Ngā Roto Reserve Management Plan 2009, as well as the paper road encircling all but one of the land parcels and the land south of the lake that Council acquired in 2018 to retire from grazing and revegetate to improve the health of the lake (see Figure 1).

The almost 175 hectares has been primarily administered under the Reserves Act as a recreation reserve since the late seventies and early eighties (Appendix 3). The water body makes up fifty-one percent (89 hectares) of the Council-administered land covered by this Plan.

Over recent years Council has also been exploring with mana whenua and partner organisations how more land could be acquired to protect and restore the lake; with a focus on the southern sub-catchment. Any additional land acquired by Council, or transferred to Council to administer, to achieve the vision set out in this Plan will be administered in accordance with this Plan.

While this Plan doesn't cover approximately ninety percent of the land in Lake Ngā Roto's catchment, nor the lake inflows running through this land (see Figure 2), which are in private ownership, it does set out how Council intends to work with these landowners and partner organisations to achieve the vision for Lake Ngā Roto.



KEY:
LAND COVERED BY THIS PLAN

Land covered by this plan

CLASSIFICATION

Recreation Reserve

LAND OWNERSHIP / MANAGEMENT

Waipā District Council

Crown

Road Reserve - formed

Road Reserve - paper road

Other / PRIVATE

LAND PARCEL LEGAL DESCRIPTIONS:

1. Allot 481 Ngaroto PSH - 107.500 ha
2. Allot 461 Ngaroto PSH - 17.5000 ha
3. Allot 462 Ngaroto PSH - 16.0000 ha
4. Allot 454 Ngaroto PSH - 0.9156 ha
5. Allot 460 Ngaroto PSH - 0.1241 ha
6. Section 1 Block XIV Hamilton SD - 1.9273 ha
7. Section 2 Block XIV Hamilton SD - 1.5631 ha
8. Parcel ID 4586983 - 5.6393ha
9. Part Parcel ID 4604108 - 10.5836 ha
10. Lot 6 DP 526717 - 9.6792 ha
11. Allot 54A Mangapiko PSH - 3.5612 ha

SCALE
0 500m

Figure 1 Map showing extent of land covered by this Plan

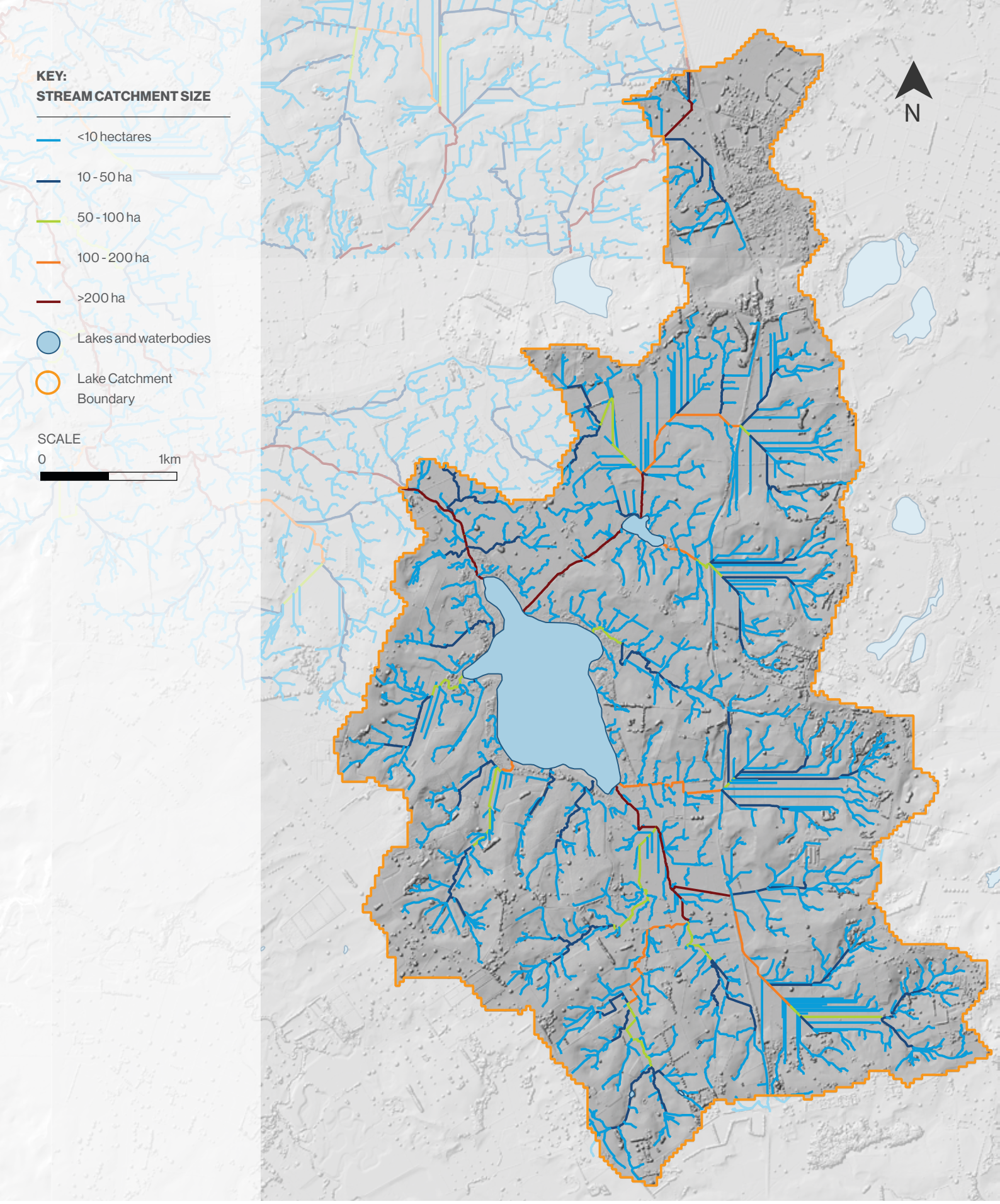


Figure 2 Map showing extent of Lake Ngā Roto's catchment and the stream catchment size [5]

5 Created by Environment Innovation and Strategy Ltd by using WRC Lidar and plotting using topographic wetness index

Planning context – what this Plan is and isn't

This Plan has been developed under the Reserves Act, which sets out the functions and powers of Council in managing the reserve and a range of policies in relation to the administration of reserves generally and more specifically for individual reserve classifications. In relation to management plans, the Act states:

- The management plan shall provide for and ensure the use, enjoyment, maintenance, protection, and preservation, as the case may require, and, to the extent the administering body's resources permit, the development, as appropriate, of the reserve for the purposes for which it is classified, and shall incorporate and ensure compliance with the principles set out in sections 17, 18, 19, 20, 21, 22 and 23, as the case may be, of this Act for a reserve of that classification (section 41(3))

- The administering body of any reserve shall keep its management plan under continuous review, so that, subject to subsection (3) of this section, the plan is adapted to changing circumstances or in accordance with increased knowledge (section 41(4))

This Plan directs Council actions on the land it administers in accordance with the Reserves Act and aims to inspire private landowners to take action to protect and restore Lake Ngā Roto on their land which is governed by the policies and rules set out in the Waikato Regional Policy Statement, Waikato Regional Plan and Waipā District Plan.

Importantly, the Waikato Regional Council (WRC) is progressing Plan Change 1 – Waikato and Waipā River Catchments which seeks to contribute to restoration and protection of lakes by reducing diffuse and point source discharges entering lake catchments; and implementing a tailored lake-by-lake approach over the next 10-years to improve the management of land use activities in lake catchments. For Lake Ngā Roto, this will likely include developing a Peat Lakes Freshwater Management Unit Action Plan and/or a Lake Ngā Roto Freshwater Management Action Plan to identify and prioritise in-lake actions and actions on privately owned land within the catchment required to achieve targets set for peat lake attributes. This Plan will hopefully inform WRC's position on these documents.

This Plan is a high-level policy and direction setting document rather than a detailed operational plan and/or concept plan. Funding for actions contained within, and enabled by, this Plan will be considered and confirmed through Council and WRC's Long Term Plan and Annual Plan. Alternative public and private funding sources will also be required to implement actions within desired timeframes.

The key statutory and planning documents that influence and are influenced by this Plan are set out in Figure 3.

This Plan doesn't duplicate rules and information that are provided in other policy documents or bylaws, but rather refers to where the relevant information can be found. For example, when referring to bylaws in this Plan, we reference the relevant current bylaw at the time of writing this Plan. It should be noted that bylaws are required to be reviewed on a regular basis and may be updated during the lifetime of this Plan. Please always check the council website for the most current version of the relevant bylaw.

Figure 3 Key statutory and planning documents that influence and are influenced by the RMP

National Impact

Te Tiriti o Waitangi/Treaty of Waitangi

Legislation:
- Reserves Act 1977
- Resource Management Act 2002
- Heritage New Zealand Pouhere Taonga Act 2014
- Local Government Act 2002
- Health and Safety at Work Act 2015
- Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010
- Ngā Wai o Maniapoto (Waipā River) Act 2012

National Policy Statements:
- NPS Freshwater Management
- NPS Indigenous Biodiversity

Region-wide Impact

Waikato Regional Policy Statement

Waikato Regional Plan

Waikato Regional Pest Mangagement Plan 2022 - 2032

Waikato Regional Shallow Lakes Management Plan

Freshwater Action Plans (proposed)

Waikato Mahere Whānui Long Term Plan

Iwi Management Plans

Te Ture Whaimana o Te Awa o Waikato, the Vision and Strategy for the Waikato River

District-wide Impact

Ahu Ake - Waipā Community Spatial Plan (in development)

Waipā District Plan

Waipā Long Term Plan

Waipā Parks Asset Management Plan

Waipā Bylaws:
- Public Places Bylaw 2023
- Dog Control Bylaw 2023

Environmental Strategy

Lake Ngā Roto specific

Hingakākā-Ngā Roto Iwi Management Plan 2006

Ngā Roto Biodiversity Assessment and Restoration Plan 2021-2031

Lake Ngā Roto Reserve Management Plan (this plan)

Lake Ngā Roto Concept Plan (proposed)

02/

Wāhanga Tuarua : He Tirohanga Whānui o Lake Ngā Roto

Section Two : An Overview of Lake Ngā Roto

I ngā rā o mua he hokinga mahara I Looking back

Geology and formation

Lake Ngā Roto was formed around 19,000 years ago after the Waikato River abandoned its course through the Hinuera Valley to the Firth of Thames and flowed into the Hamilton basin. Vast quantities of alluvial sands and gravels up to 80 metres thick in places were deposited in a broad fan that blocked the mouths of valleys creating lakes behind them.

As the climate warmed vegetation grew across the alluvial plains and around the lakes. Wet hollows and lake margins supported swamp forests and peat forming vegetation. As peat grew and expanded it encroached on the lake margins separating the lake from surface water inflows. Consequently, nutrients were limited, and lake water became acidic, supporting plants and animals which thrived in this peat lake environment.

More recent influences from Lake Taupo eruptions changed the landscape, felling and burying forest in volcanic ash and pumice and altering drainage patterns.

Mana whenua historic occupation

The area of Lake Ngā Roto is steeped in ancient history. It was one of the first areas to be settled post the migration of Māori inland from Kāwhia (circa 1400-1500AD). Over the following two to three hundred years, resident iwi, Ngāti Apakura, Ngāti Hikairo and Ngāti Puhiawe, resided permanently and seasonally on hilltop pā and human-made island pā. They cultivated their own food as well as using the nearby forest and lake as a food source and seasonally migrated to and from Kāwhia.

Each whānau, hapū or iwi would effectively have had its own catchment area which would have been rigorously monitored, maintained and protected.

The lakes and giant kahikatea forests were a rich veritable warehouse of medicine and staples of the Māori diet including tuna, karaka and other berries, edible rhizomes and all manner of forest and aquatic birdlife. Being near the vast Rukuhia, Mangakaware and Moanatuatua wetlands, Lake Ngā Roto was a kāinga or community of relatively plentiful means with many near and distantly related hapū sharing the rich abundance that area had to offer.

Some parts of the wetlands were navigable by canoe and others only by foot. Parts of swamps would have been fortified defensively or even as refuges by blocking access-ways or by natural traps such as quicksand or mud. They were also utilised as safe storage areas whereby tribal heirlooms such as carvings might be secreted away from prospective marauders.

It was from Taurangamirumiru Pā at Lake Ngā Roto that sisters Reitū and Reipae, two puhi ariki (women of high rank), migrated to the north and married well-known chiefs from Ngā Puhi, establishing important connections between Tainui and Ngā Puhi.

The late 1700's and early 1800's saw a period of turmoil and warfare that included raid and counter raid between tribal factions and inter-iwi conflicts with external iwi in the North Island. Because of another dispute at the end of this period a large force of Ngāti Toa warriors and allies, including iwi from Rotorua and Te Urewera believed to total 7,000 warriors, converged south of Lake Ngā Roto to engage in battle with 1,600 warriors from the Waikato, Tai Hau-a-uru and Maniapoto people of the Tainui confederation. This battle was to be known as the Battle of Hingakākā, said to have been named after the red cloaks made of kākā feathers worn by the fallen chiefs. The large loss of life and resulting tapu over the area influenced the settlement of the Lake Ngā Roto area for many years. During the battle, Uenuku, a revered taonga (treasure) of the Tainui people, was buried for safe keeping.

The iwi remained in occupation until the departure of Ngāti Hikairo to Kāwhia and Ngāti Apakura to the Taupō region because of the land wars and land confiscation from 1864.

Lake Ngā Roto today is a place of great significance for Ngāti Apakura and Ngāti Hikairo.

Human-induced land use changes affecting Lake Ngā Roto

Since 1864 the majority of land within Lake Ngā Roto's catchment has been converted to pastoral dairy farms and dry stock pasture. Figure 4 shows the current land use. The cumulative effects of the associated land management practices, which have included almost complete indigenous vegetation clearance, hydrological changes through drainage, regular tillage, high fertiliser use, shallow rooted pasture species selection, grazing practices such as high stocking rates and winter grazing of wet areas and effluent dispersal, have resulted in:

- significant lake size and depth reductions,
- water with high nutrient, sediment and bacteria loads entering the lake leading to nutrient levels above critical baselines,
- reduced groundwater levels and peatland shrinkage, and
- oxygen depletion.

These impacts have been devastating on Lake Ngā Roto's health and wellbeing.

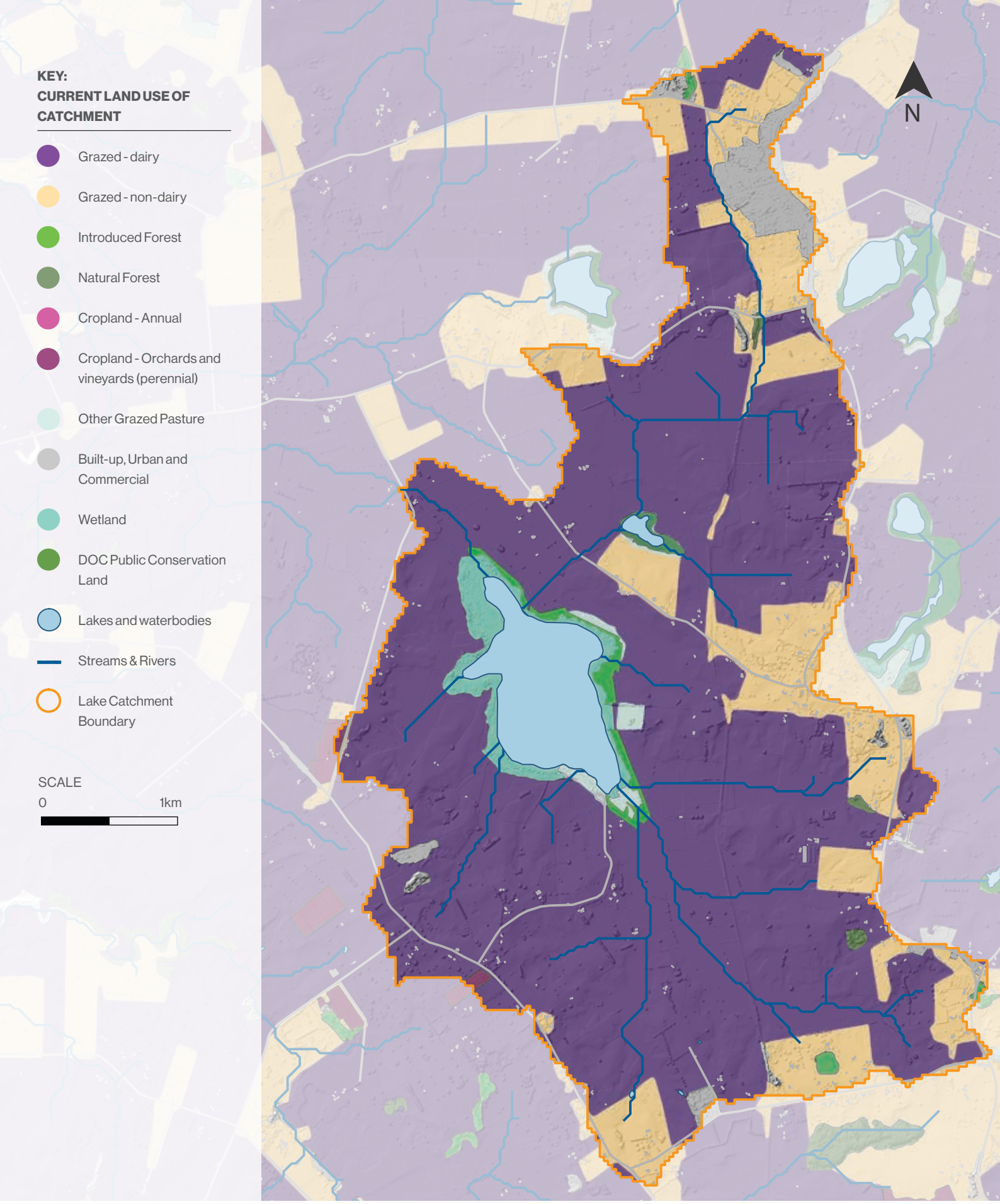


Figure 4 Current land use within Lake Ngā Roto's catchment [6]

6 Created by Environment Innovation and Strategy Ltd. Sources: Ministry for Environment LUCAS NZ Land Use Map, DOC Public Conservation Land

Reserve acquisition and historic management

Te Awamutu Borough Council initially administered a small area of Crown land adjoining Bank Road, allowing public access to Lake Ngā Roto. The Department of Lands and Survey managed the remaining Crown land, including the lakebed. In 1974, this land, and additional Crown land, was transferred to Waipā County Council administration. Classification and vesting conditions required that in addition to providing for recreation, areas of historic and archaeological significance would be preserved and wildlife habitat protected. The Council also sought control over the lake's waters to manage increasing recreational use. However, opposition from conservation groups led to the establishment of a collaborative advisory body for balanced lake management.

In 1979, a management plan for the lake was completed, and by 1982, the Waipa County Council was granted control of the foreshore, lakebed, and water. The following year they approved the Lake Ngā Roto Bylaws. Subsequent governance changes occurred in 1984 and 1989, including the reclassification of land and the transfer of management responsibilities to Waipā District Council following the Local Government Review. The management plan was reviewed in 2009 and in 2019 the Council acquired an additional land parcel (Lot 6 DP526717) to extend lake management efforts.

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 and the Ngā wai o Maniapoto (Waipā River) Act 2012 both require Council to ensure the highest level of recognition be given to the restoration and protection of the Waikato River and that a 'whole of river' approach be taken. These Acts apply to Lake Ngā Roto and its catchment.

A full timeline is set out in Appendix 4.

Restoration activities to date

Prior to 1989, the Waipā County Council erected boundary fences using the Government subsidised work schemes, controlled nuisance weeds, upgraded the foreshore/wharf (1991), erected a public toilet, maintained the foreshore in front of the clubhouse and controlled nuisance plants in the lake.

By 1994 concerns were being registered about degrading water quality and impacts on recreational activities, a loss of water bird habitat around the lake margins and management of the lake levels. In response to the issues raised and with the resource consent to operate the outlet weir due to expire in 1995, Council discussed the long-term preservation of Lake Ngā Roto with a range of agencies, iwi, landowners and interest groups and committed to a range of restoration initiatives [7].

Since then, Council together with its Peat Lake Accord partner organisations, adjoining landowners and volunteers, have undertaken a wide range of restoration initiatives, including:

- fencing the entire lake margin which ranges from 30 to 200 metres in width and undertaking significant revegetation and weed control (including more than five years of willow control),
- fencing inflows on private land,
- pest animal control focusing on stoats, feral cats and possums,
- pest fish removal in 2015,
- setting restrictions on power boat use and dog exercise to protect environmental values,
- installing treatment wetlands to filter out nutrients and sediment on reserve and private land on the eastern margin,
- preparing the Hingakākā-Ngā Roto Iwi Management Plan 2006, the Lake Ngā Roto Recreation Reserve Management Plan 2009, the Catchment Action Plan for Lake Ngā Roto June 2014, the Waikato Region Shallow Lakes Management Plan 2014 and the Biodiversity Assessment and Restoration Plan 2021,
- installing a diversion channel in 2016 to stop high nutrient water from Lake Ngā Rotoiti entering Lake Ngā Roto,
- stopping clearing drains on reserve land to enable sediments to settle and contaminants to be filtered prior to water entering the lake,
- replacing the weir installed in 1971 with a new weir and fish passage in 2017 to restore a more natural

7 The agreed initiatives included defining the reserve boundaries, incorporating the unformed Road Reserve around the lake perimeter into the reserve, treating sediment and nutrient inflows, removing grey and crack willow, restorative planting within the moist soil margins, recognising and protecting Pā within the reserve, constructing a lake circuit walking track, forming legal access to the eastern lake margins, and retaining other public access (formed and unformed).

lake water level regime,

- acquiring Lot 6 DP526717 in 2018 to retire the land from grazing and revegetate and exploring options to acquire land between this land parcel and the lake margin, and

- developing a lake quality monitoring and reporting programme.

More recently the Mangaotama Stream and Wetland Restoration Trust, made up of landowners passionate about restoring the stream and wetlands within the Mangaotama Stream catchment (which includes Lake Ngā Roto), have built on the work initiated by the Department of Conservation and Fonterra through the Living Waters Partnership. This has resulted in the development of Farm Environment Plans and a significant amount of riparian fencing, native planting, retiring farmland and the protection of several remnant Kahikatea stands on land within Lake Ngā Roto's catchment.

Additionally the Taiea te Taiao Maungatautari to Pirongia Ecological Corridor Project, involving mana whenua, landowners, other care groups, Council and WRC, industry (including Fonterra, DairyNZ and Open County), and other agencies (including QEII National Trust and the Department of Conservation), has also resulted in significant collaborative efforts to enhance riparian margins, create wetland habitats, reduce predator populations, and boost biodiversity between Maungatautari and Pirongia. Lake Ngā Roto is identified as an important 'stepping stone' site within this corridor.

Ko Lake Ngā Roto he taonga tuku iho I Lake Ngā Roto is a living treasure

Freshwater values

Freshwater values include the extent to which a freshwater body can support a healthy ecosystem (including water quality, water quantity, habitat, aquatic life and ecological processes), be used for recreation activities involving human contact, and provide critical habitats and conditions to support threatened species. It also includes natural form and character, its ability to provide mahinga kai (both in terms of kai that is safe to harvest and eat) and opportunities for customary practices to be exercised and tikanga and preferred methods to be able to be practiced.

Lake Ngā Roto is the largest of twenty peat lakes in Waipā (see Figure 5). It is part of the extensive and nationally important peat lake system in the Waikato region which plays a critical role in regulating water quality and hydrology in the region, supporting a diverse range of native flora and fauna and acting as important carbon sink. It has a constructed outflow into the Mangaotama Stream at the northern end of the lake, which then flows into the Waipā River after 12 kilometres and on into the Waikato River at Ngāruawāhia (see Figure 3). As identified in the draft Ahu Ake – Waipā Spatial Plan, the health and wellbeing of peat lakes like Lake Ngā Roto play an important role in the realisation of the vision for the Waikato River set out in Te Ture Whaimana o Te Awa o Waikato and empowered through settlement legislation.
The vision is:

> ***'A future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.'***

Lake Ngā Roto also offers a range of sailing, rowing and paddling opportunities and historically was an important source of kai including tuna and kukuraho for mana whenua.

The current health of the lake has significantly impacted these values.

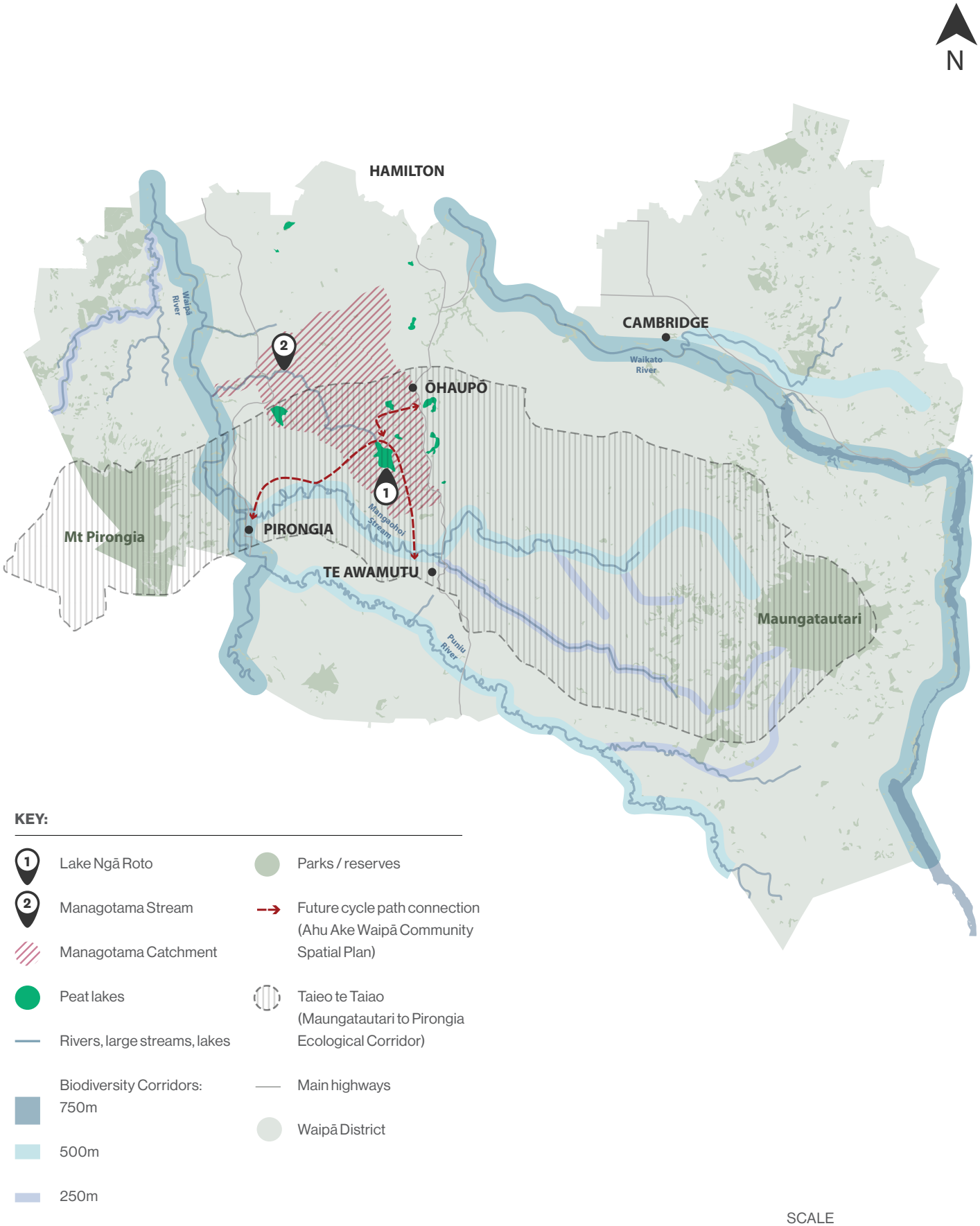


Figure 5 Open space network plan

Indigenous biodiversity values

Lake Ngā Roto also plays a vital role in the restoration of the district and region's indigenous biodiversity.

Historically, before human clearance of the land through the use of fire or industrial machinery, the Lake Ngā Roto and wider Mangaotama catchment was a series of interconnected wetlands with scattered kahikatea, pukatea and tawa forests (see Figure 6). As a result of vegetation clearance and drainage for agricultural purposes, these ancient habitats are now mostly only evident in the soil.

Located within the Waikato and Waipā river-lake-wetland system and the Taiea te Taiao Maungatautari to PIrongia Ecological Corridor, Lake Ngā Roto provides permanent habitat for some species, and temporary habitat for other species that use the lake seasonally in response to changing water levels elsewhere in the system. This role is particularly significant given that the Waikato region has lost around 92 percent of its wetlands since 1840; with 83,550 hectares of former peatland now used for intensive agriculture.

Large areas of Lake Ngā Roto's margins are identified as a Significant Natural Area of national significance in the Waipā District Plan. The margins feature a mix of exotic and native plant species, including raupō reedland, swamp meadow wetlands, kahikatea swamp, and regenerating mixed broadleaved forest. Though no threatened plant species are found at Lake Ngā Roto, it provides critical habitat for 54 bird species, including several that are nationally threatened. These include the Australasian bittern and black-billed gull (both nationally critical), caspian tern (nationally vulnerable), and several at-risk species such as the marsh and spotless crakes.

Historically, Lake Ngā Roto supported a range of native fish with shortfin eels and common bullies being the most common. By 2001, a few longfin eels (classified as "At Risk – Declining") were still present, but by 2009, both longfin eels and common smelt had disappeared from the lake. While inanga haven't been recorded in the lake, it is possible that they can migrate this far upstream in summer.

Lake Ngā Roto also supports a range of invertebrates and has the potential to provide habitat for native lizards, which are culturally significant to Ngāti Apakura and Ngāti Hikairo as kaitiaki of the lake and are depicted on pou at the southern entrance to the track.

Image: Interpretive signage at Lake Ngā Roto

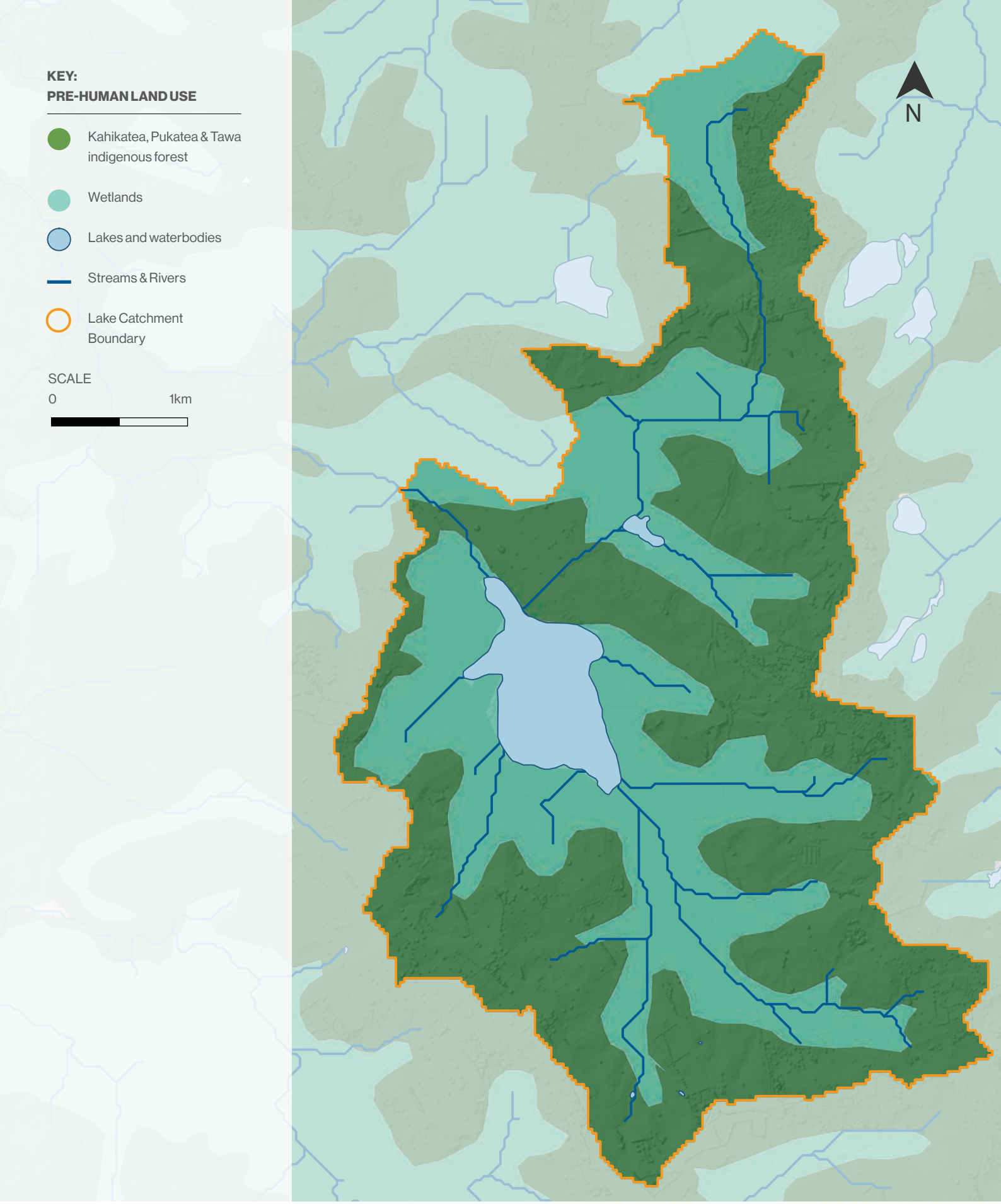


Figure 6 Lake Ngā Roto pre-human land use and vegetation cover [8]

8 Created by Environment Innovation and Strategy Ltd. Sources: Vegetation data from Potential Vegetation of New Zealand, Manaaki Whenua; Wetland data from Prediction of wetlands before humans arrived, Manaaki Whenua

Cultural, spiritual, historical, ancestral and archaeological values

Mana whenua believe it is the landscape that defines who they are and what makes them unique. Their world view is shaped by the concept 'We are of the whenua, the whenua is of us'. The whenua is a component of the taiao. The taiao is the realisation of the Atua (the guardians) and it is the Atua that caused the creation of the earth itself, the skies, oceans, rivers, streams, wetlands, swamps, lakes, the fish of both salt, and freshwater, the waters from the sky, the waters from deep underground, the forests and the wild foods of the ground. Atua of significance to Lake Ngā Roto include:

- Papatahuaroa (Papatūānuku; Mother Earth)
- Rangiawatea (Ranginui; Guardian of the skies and heavens)
- Wainui-ātea (Guardian of waters, including inland waters, rivers, lakes, streams and wetlands)
- Hine-i-te-repo (Guardian of wetlands and swamps)
- Hine-i-te-huhi (Guardian of wetlands and swamps)
- Ikatere (Guardian, son of Punga and grandchild of Tangaroa)
- Hine-te-kohu (Guardian of the mist and fog)
- Hine-iho-rangi (Guardian of rainwater)
- Parawhenuamea (Guardian of Freshwater)
- Tangaroa (Guardian of the Sea)
- Tāne Mahuta (Guardian of Forests)
- Haumiatiketike (Guardian of uncultivated foods)

For mana whenua, these atua are their creators, and their descendants are their tuākana. As teina, mana whenua have a responsibility to be the kaitiaki of their tuākana. Their tūpuna have lived, fought and died on this land, the land is part of their whakapapa, carved into the walls of their whare tupuna, and woven into their waiata and their karakia. When mana whenua look at a landscape, they see their past and their future. The significance of a landscape is not defined by its financial value; the significance of a landscape is defined by its history and its connection to whānau, hapū and iwi. Mana whenua do not own the whenua or the environment. They inherit the responsibility at birth to be kaitiaki for the past, current and future generations.

Mana whenua, as kaitiaki of Lake Ngā Roto, hold the responsibility of protecting and managing the natural and cultural resources of the area in accordance with tikanga and whakapapa. Their role involves ensuring the preservation of the reserve's biodiversity, ecosystems, and historical significance, while upholding the spiritual and cultural values associated with the land. Their responsibilities also include safeguarding wāhi tapu and maintaining the mauri of Lake Ngā Roto for future generations.

The island pā at Lake Ngā Roto are associated with Takupu-o-te rangi and his brothers-in-law Tūihu, and Tūtēngangana. These tūpuna are responsible for the construction of the island pā - Te Pūtere (Te Pūtete) and Te Moutere. They are further associated with the construction of Taurangamirumiru (Taurangamiromiro) to the west of Lake Ngā Roto. Taurangamirumiru was occupied by their collective descendants, including Horotakere (and his wife Parehaunui) and Rakamoana (along with his siblings, Reitū, Reipae and Parehaunui). Rakamoana's children (Puhiawe, Waikaha, Huritake) who are tūpuna of various Ngāti Hikairo hapū, and Tūtēngangana the ancestor of Ngāti Apakura continued the occupation - as did his grandson Tūāwhio and great-grandson Tamatātai.

The known pā sites around the margins of Lake Ngā Roto, the Hingakākā Battle Field area around Lake Ngā Roto, and other archaeological features such as pits are shown on Figure 7. Further details on these features are outlined in Appendix 5. There are three pā sites that are either entirely or partially within the reserve: the northern pā site (S15/9) is still partially farmed, the central pā (S15/7) is fenced off and protected, and the southern pā site (S15/5) located under the sailing clubhouse. The grazed northern pā site (S15/9) is currently on private land.

As a result of the Battle of Hingakākā, there is a high likelihood of kōiwi tangata (human remains of Māori origin) lying below the reserve.

Image Credit: Waka (canoe) discovered in Lake Ngā Roto in 1965, Te Awamutu Museum Collection (PH2670).

The ancient taonga Uenuku understood to date from circa 1400, was rediscovered in the swampy margins of Lake

KEY:
HINGAKĀKĀ BATTLE AREA AND PĀ

Pā:

1. Te Pūtere Pā (S15/7)
2. Te Moutere (S15/9)
3. Unnamed Pā (S15/5)
4. Unnamed Pā (S15/76)
5. Taurangamirumiru Pā (S15/8)

Other sites of significance within the Hingākakā Battle Area identified by Iwi Ngā Iwi Tōpu O Waipā:

- Hingākakā Battle Area
- A — Burial site (S15)
- B — Pā (S15)
- C — Battle Site (S15)
- D — Battle Site (S15)

SCALE
0 1km

Figure 7 Location of Hingakākā Battle Area and Pā

Ngā Roto in 1906 when the lake levels were lowered by more than two metres. Uenuku is a 2.7 metre tall carving that symbolises the guardian life force of the rainbow. It may have been carried into battle as a standard, and been lost or hidden during the battle, or hidden in the lake during the British invasion of 1863. Uenuku is a taonga of great significance for Ngāti Apakura, Ngati Hikairo, Ngāti Maniapoto and the Waikato-Tainui people. Other taonga have also been recovered from the lake including a waka tīwai and hoe (a paddle).

Four pou were installed at Lake Ngā Roto in 2016 to acknowledge the rediscovery of Uenuku. The pou are named "Te Paenga o Uenuku" the resting place of Uenuku and represent the resting place of Uenuku in the past and a possible home for Uenuku in the future. They are placed as close as possible to where Uenuku was found. The four pou and spaces between them represent seven Atua: Tāne-mahuta, Tangaroa, Tāwhiri-mātea, Tūmatauenga, Haumia-tiketike and Rūaumoko. The lizards that are painted at the top of the pou embody the gods, spirits or kaitiaki that protect the lake. The pou also have large scallop shapes carved out, which are referred to as "Kape Rua", with kōwhaiwhai patterns painted on them. These shapes and patterns symbolise parts of the lake and swamps that have dried out and acknowledges that Lake Ngā Roto was once a lot bigger than what it is now.

Image Credit: Pā tuna in Lake Ngā Roto that had two fences that funnelled the eels into a hīnaki (eel pot), Te Awamutu Museum Collection (PH3843/5)

Lake Ngā Roto provides mana whenua with opportunities to sustain their physical and spiritual relationship with wai and whenua Māori, to fulfil their kaitiaki responsibilities, to protect wāhi tapu, to restore taonga species such as tuna and plants species used in Rongoā Māori and weaving, to maintain and develop mātauranga Māori and to pursue traditional and contemporary activities.

Mana whenua seek the right to exercise their rangatiratanga concerning their responsibilities for land, the environment and the wellbeing of their people. Ngāti Hikairo and Ngāti Apakura maintain that by working in partnership with local and regional councils, relationships will be improved and policy and processes can then be developed to provide direction and guidance for both iwi, councils and landowners.

Recreation values

Lake Ngā Roto is a highly valued recreation destination for locals and visitors alike; a place where people can get active, compete, connect with nature and learn about the area's history, environmental values associated with peat lakes and conservation initiatives. Being only 10 minutes from Te Awamutu, 12 minutes from Ōhaupō and 28 minutes from Hamilton, Lake Ngā Roto is an easily accessible and safe destination.

More than 50,000 visitors annually currently enjoy the 5.9 kilometre accessible walking and cycling circuit, which features gentle gradients, boardwalks, and gravel paths through the lake's margins. The track is popular year-round and Waipā residents particularly value the ability to exercise their dogs on lead around the lake. Council has long-term plans to develop an off-road shared path connecting Lake Ngā Roto to Te Awamutu and Pirongia and in time this could be extended to Ohaupō. This together with population growth, will likely lead to increasing annual visitation.

The lake supports a range of water-based recreation, including sailing, rowing, game-bird hunting, and fishing. Many of these activities have been long standing, with Ngā Roto Sailing Club being an important regional sailing hub since the 1960s and Te Awamutu Rowing Club since the 1970s. These clubs, together with Waikato Thames Coromandel Youth Sailing Development Trust and Sailability Waikato, have clubroom and storage facilities on the reserve and there are boat ramps, jetties and pontoons to support water access.

The lake's scale, location, topography, wind conditions, ease of access and relative lack of competition for water space, together with the land-based facilities and opportunity to camp during events, make Lake Ngā Roto a highly valued venue to introduce people to water-based recreation, train and hold regattas. The water quality is however having a significant impact on these activities currently, with much of the summer period affected by health warnings that restrict water-based recreation.

Lake Ngā Roto is also valued as a place for community recreation and environmental events, informal picnicing and freedom camping.

Current state and causes

Lake Ngā Roto is in a severely degraded state. It is categorized as **hypertrophic**, meaning it has excessively high levels of phosphorus and nitrogen that result in harmful algal blooms and overall poor water quality. The lake exhibits high turbidity, low water transparency, and is now devoid of submerged vegetation (macrophytes). The loss of native plant life and an overabundance of algae have created a highly disturbed ecosystem that threatens both aquatic life, the health of the Waipā and Waikato Rivers and human health.

Despite nearly thirty years of restoration efforts by Peat Lake Accord partners, mana whenua and landowners within the catchment between 1995 and 2024, Lake Ngā Roto's freshwater conditions have worsened. During the summer periods between 2020 and 2024, cyanobacterial blooms exceeded safe recreational limits for many months. In 2022 this resulted in a complete reserve closure and a large-scale fish die-off which then lead to duck deaths due to botulism. The ecological health of the lake is now well below national environmental standards across a range of attributes (Appendix 6).

The key causes of this degradation are:

- **Nutrient loads above critical baselines:** Extensive vegetation clearance and the introduction of high-intensity farming practices have accelerated the flow of water and contaminants (nitrogen, phosphorus, sediment, and microbes) into the lake. Nutrient inputs, primarily from surrounding agriculture uses, have led to eutrophication, where nutrient overload fuels excessive algae growth, further degrading water quality. The lack of submerged aquatic macrophytes, coupled with invasive coarse fish disturbing sediments, have worsened water clarity and prevented the re-establishment of submerged vegetation.

- **Invasive Species:** Invasive flora and fauna, including introduced macrophytes and benthivorous invasive fish species such as koi carp, have disrupted the lake's natural balance through outcompeting native species, excreting nutrients and/or re-suspending sediments. This has led to increased turbidity and impaired ecological functioning.

- **Climate Change:** Climate change has intensified the situation, with increased storm events and flooding leading to greater nutrient inflow (via the Birch Effect[9]). Warmer temperatures are also likely to have exacerbated algal blooms, which have further reduced oxygen levels and harmed aquatic life.

- **Hysteresis and Negative Feedback Loops:** Lake Ngā Roto is facing hysteresis, meaning it has "flipped" into a suspended algae/phytoplankton-dominated state, and this self-perpetuating cycle of internal nutrient recycling, via wind and pest fish induced sediment disturbance and anoxia-mediated release of phosphorous from redox-sensitive lake sediments, will continue for a long-time even if external sources of pollution are reduced. These feedback loops create a vicious cycle, further reducing water clarity and preventing macrophyte recovery.

Without substantial, coordinated, sustained catchment-scale initiatives to address these causes, alongside extensive in-lake remediation, conditions are likely to worsen, and the ecological health of Lake Ngā Roto will remain in critical decline. Polluted water will continue to flow into the Waipā and Waikato Rivers, native flora and fauna won't be able to reestablish and there will likely be longer periods where the lake is not available for sailing, rowing and paddling and reduced amenity for other visitors to the reserve.

Key challenges and opportunities to restore Lake Ngā Roto

Majority of catchment outside of Council's control

A key challenge to sufficiently reducing the nutrient, sediment and contaminant loads entering the lake is that the majority of the catchment lies outside of Council's control. The challenges associated with creating a new rule framework over private farmland to protect and restore freshwater have been highlighted through the lengthy Waikato Regional Plan Change 1: Waikato and Waipā River Catchment (PC1) process and the debate over the National Policy Statement Freshwater 2020 (NPS-FM 2020). At this stage, WRC is committed to progressing PC1. Through this process, WRC will be required under sections 61(2)(a)(i), 66(2)(C)(i), and 74(2)(b)(i) of the Resource Management Act 1991 to have regard to this Plan. WRC may also through the the Regional Plan outline non-regulatory methods such as specifying the role of WRC in assisting the implementation of this Plan.

In addition to working with WRC on the review of the Waikato Regional Plan, continued collaboration with stakeholders and farmers within the catchment will be crucial. Initiatives such as the Mangaotama Stream and Wetland Trust highlight the willingness of many farmers to be part of the solution and to change historic farm management practices to slow and improve the quality of water leaving their farm. It is critical that farmers at a minimum continue to implement best practices such as

9 The Birch Effect refers to the rapid increase in soil microbial activity and nutrient mineralization, particularly nitrogen and carbon, following the rewetting of dry soils.

planted and fenced wide riparian margins, peak-runoff-control/check dams, sediment traps, wetlands and detention bunds as well as undertaking nutrient budgeting, managing effluent and retiring and planting up large areas of low-lying land and land further up the catchment. In time, land use changes away from large scale dairy farming may be required to achieve the vision for Lake Ngā Roto.

The size of the 'freshwater' problem in the Waikato Region

The WRC's State of the Environment report identified the Waikato region's shallow lakes are under pressure from a combination of factors and it will be challenging to meet the NPS-FM 2020 bottom lines in most Waikato D band lakes (of which Lake Ngā Roto is one), while maintaining current land use. Resourcing constraints will require Council and WRC to prioritise efforts and may potentially lead to delays in initiatives such as developing a lake-specific action plan and put pressure on existing monitoring and private landowner support programmes.

Developing extensions to Lake Ngā Roto

The current reserve boundaries do not account for the topography, substrate type, or hydrological processes of the area and restrict potential restoration actions. While Council has recently acquired land, there remains significant areas of low-lying or swampy land being part of the old lakebed that are not protected and planted and in many areas are still being farmed.

While agricultural use of the peat substrates has in the past been seen as legitimate and justifiable, it is clearly a finite resource and current land use practices are not sustainable given the inevitability of peat oxidation and surface settlement. Draining and converting peat substrates into pasture induces peat oxidation and surface settlement. As settlement continues, and the lake becomes 'perched' flooding from the lake will become more frequent and water will pond for longer periods. Agricultural production from these areas will diminish and this will influence land values.

Extending Lake Ngā Roto's margins, either through acquisition or through landowners voluntarily retiring and planting up these areas, presents a significant opportunity to improve Lake Ngā Roto's lake health and surrounding habitat through increasing the lake's buffer and reducing the risks associated with the lake becoming perched.

While funding is a significant challenge, Council's District Plan provides incentives to landowners to protect, plant and/or sell land to Council through Environment Benefit Lots. There are also opportunities to seek external funding and there may be future opportunities to fund acquisitions and restoration initiatives through carbon credit schemes.

Adjoining landowners desire to improve drainage

Many landowners within the catchment want Council to lower the lake level during winter and maintain drains within the reserve so that water can flow easily from farms to Lake Ngā Roto and on into the Mangaotama Stream. They also want to explore how to remove sediment from the lake. They believe this will reduce the extent and duration of floods and improve pastures. In addition to flooding concerns, many landowners are frustrated that they aren't receiving the level of service they expect in return for paying a drainage rate to the WRC to manage drainage in the Ōhaupō/Ngā Roto Drainage District.

Under the Reserves Act, Council must prioritise maintaining the integrity of the reserve's values and the science to date is that maintaining the current weir height and not allowing water with high nutrient loads to flow freely into Lake Ngā Roto is the best course of action for Council to achieve this. Further research and evaluation on lake height and inflows and discussions with WRC about the management of Ōhaupō/Ngā Roto Drainage District are required.

Imperfect science and shortfalls in data

Managing the lake's restoration is complicated by shortfalls in data and the limitations in current scientific understanding. Imperfect data and science means that there are uncertainties about the best methods to address the eutrophication and sedimentation issues facing Lake Ngā Roto. An ongoing comprehensive monitoring programme and collaborative research initiatives between local councils, iwi, scientists, and landowners will help identify, implement and evaluate restoration actions.

Initiatives, such as the Lakes380 project and the Mangaotama Ōhaupō to Waipā River Catchment Restoration Project, will provide important learnings and insights that can be applied to Lake Ngā Roto.

Solutions need to consider a range of values and interests

Effective restoration requires balancing multiple, and sometimes conflicting, values, including cultural, recreational, ecological, and economic interests. Lake Ngā Roto holds cultural significance for mana whenua, and

Image: Lake Ngā Roto inflow on adjoining farmland

their perspectives must be integrated into any restoration efforts. This is particularly important for in-lake actions, with dredging unlikely to ever be supported by mana whenua because the uncertainties of where the Battle of Hingakākā occurred and what will be found in terms of koiwi and taonga. Private landowners within Lake Ngā Roto's catchment may be impacted economically by some solutions affecting their land. A holistic and staged approach that accounts for these diverse values and interests will provide the best opportunity for successful restoration.

Climate change

Climate change will continue to be a critical issue for Lake Ngā Roto as it is likely to exacerbate many of the key causes of lake's poor health. The specific effects of climate change on Lake Ngā Roto and the best ways to mitigate these adverse effects need further investigation.

New and innovative solutions and funding models

The scale of the freshwater problem in Aotearoa/New Zealand and the desire to retain a strong agricultural sector means that there is a lot of research going into new and innovative solutions that may be applicable to Lake Ngā Roto.

Funding from carbon credit schemes, alongside public-private partnerships, may also in the future support large-scale initiatives like wetland re-establishment, nutrient filtering through constructed wetlands, and reforestation of large areas within Lake Ngā Roto's catchment.

Future actions

Significant, sustained and collaborative measures are required to restore and preserve the balance between water, the environment and people and avoid leaving a legacy of degradation for future generations to deal with.

The Biodiversity Assessment and Restoration Plan 2021 outlines land-based restoration actions on the land Council administers that will need ongoing Council funding and the growth of a volunteer base to implement. Council is committed to working with mana whenua, partners and adjoining landowners to extend the width of the land that is protected and restored around the lake margins and in the southern catchment.

WRC is progressing Waikato Regional Plan Change 1 – Waikato and Waipā River Catchments and through this will clarify objectives, limits and targets and prioritise actions. While this is being progressed, WRC's ongoing monitoring and reporting, research, and financial and technical support to farmers are essential. A review of the current drainage levy is also critical to address landowners' expectations and concerns about drainage levels of service.

We need farmers in the catchment to continue to develop and implement Freshwater Farm Plans and take actions to widen, fence and replant lake inflows, install water treatment devices, retire and plant peat land adjoining the lake and large areas further up the catchment, and farm in a way that reduces nitrogen, phosphorous, sediment and microbial pathogen losses from their land.

And we need to work with and learn from partners such as mana whenua, Waikato University, Manaaki Whenua Landcare Research, and Cawthron Institute to continue to extend the wetland margin, review past management actions and investigate new and innovative approaches and approaches that combine western science and mātauranga Māori.

The key roles and responsibilities of all those involved in achieving the vision for Lake Ngā Roto are set out in Table 1 below.

While reversing more than 150 years of modification and damage will take time, key parties must work together in unity, at pace and with a clear aspirational vision driving all actions.

Table 1. Roles of key parties involved in administering and restoring Lake Ngā Roto

Organisation/group	Role
Mana whenua	Mana whenua, being Ngāti Apakura and Ngāti Hikairo, hold customary rights and interests in the land. Participate in decision-making regarding the conservation and protection of historic places, archaeological sites and wāhi tapu as they relate to Lake Ngā Roto. Work in partnership with local and regional councils to identify, implement and monitor restoration actions that are informed by matauranga Māori and tikanga and based on strong relationships.
Waipā District Council	Lead organisation for the restoration of the terrestrial indigenous biodiversity of the reserve land surrounding the lake. Owns and/or administers land in accordance with the Reserves Act and Local Government Act and is responsible for preparing and implementing the reserve management plan and approving concessions such as leases and research permits. Delegate of the Minister of Conservation as set out in the Instrument of Delegation for Territorial Authorities 2013. Owns and controls the outlet weir. Ensures land within the lake's catchment is administered in accordance with the Waipā District Plan and develops and enforces bylaws that apply to Lake Ngā Roto.
Waikato Regional Council	Lead organisation for the restoration of the lake's health and wellbeing. Mandated by Section 66(1) of the Resource Management Act 1991 to develop and review regional plans in accordance with national policy statements and through these plans set the direction and rules to protect and restore Lake Ngā Roto's freshwater. Responsible for managing the Ōhaupō/Ngā Roto Drainage (4016) District and setting drainage rates on all properties within this District. WRC has, however, signalled its aspiration to transfer the drainage district back to Waipā District Council. Leads the monitoring and reporting programme for Lake Ngā Roto's lake health.
Department of Conservation Te Papa Atawhai	Administers the adjoining Lake Ngarotoiti and has played a key role in the Living Waters programme and the Mangaotama Stream and Wetland Trust.
NZ Landcare Trust/Ngā Matapopore Whenua	Grassroots organisation that supports communities in beneficial land and water management practices to make a tangible difference in the future of New Zealand's waterways. Previously lead through the Ngā Roto Catchment Action Plan 2014 and is now the lead agency for Taieo te Taiao Maungatautari to PIrongia Ecological Corridor.

Waipā Peat Lakes and Wetland Accord	Established in 2005, the objectives of the collaboration of Council, WRC, mana whenua, Department of Conservation, New Zealand Landcare Trust, National Wetlands Trust under this accord are: • promote the sustainable use and conservation of lake and wetland resources by developing and implementing relevant local management projects, regional and national policies and action plans, and international conventions, • encourage restoration of degraded lakes, wetlands and associated species that are in an unfavourable conservation status, through the application of sound environmental management and research, • maintain an overview of the status of lake and wetland resources by developing, promoting and coordinating assessment and monitoring programmes and disseminating the results, • develop a regional network of experts for the transfer of know-how, research and information through effective partnerships with likeminded organisations, and • raise awareness of the functions and values of lakes and wetlands through
Waikato River Authority	Set the primary direction to achieve the restoration and protection of the health and wellbeing of the Waikato River for future generations Promote an integrated, holistic, and co-ordinated approach to the implementation of the Te Ture Whaimana o Te Awa o Waikato - the Vision and Strategy and the management of the Waikato River Fund rehabilitation initiatives for the Waikato River in its role as trustee for the Waikato River Clean-up Trust.
Land Air Water Aotearoa (LAWA)	Connects people with the environment and supports local communities find the balance between using natural resources and maintaining their quality and availability by sharing environmental data and information. Partnership between the Te Uru Kahika - Regional and Unitary Councils Aotearoa, Cawthron Institute, the Ministry for the Environment, the Department of Conservation, Stats NZ and has been supported by the Tindall Foundation and Massey University.
Te Whatu Ora Waikato	Responsible for informing the public of health warnings associated with Lake Ngā Roto's water quality and monitoring health issues associated with use of Lake Ngā Roto.
Landowners within the lake's catchment	Responsible for preparing and implementing Farm Freshwater Plans and making decisions on their land use which have the ability to positively contribute to achieving the vision for Lake Ngā Roto.
Lessees	Responsible for developing and maintaining their assets and managing their activities in way that postively contributes to achieving the vision for Lake Ngā Roto and ensuring the health and safety of their members and programme participants.
Volunteers	Ability to positively contribute to achieving the vision for Lake Ngā Roto through planting, weeding and releasing, pest control and participation in citizen science projects.

03/

Wāhanga Tuatōru : Te Ara Whakamua

Section Three : Moving Forward

This section sets a 30-year vision for Lake Ngā Roto – a timeframe that considers what we want Lake Ngā Roto to be like within a generation and which enables an ambitious future state to be imagined with timeframes that enable everyone involved to plan and make provision for.

The principles are intended to guide how everyone involved in Lake Ngā Roto work together and make decisions to deliver successful actions. The objectives and policies bring focus to how the vision will be achieved across the range of reserve values through Council's actions.

Te whakakitenga I Vision

Kia whakaora anō te mana me te mauri o Lake Ngā Roto

The life-sustaining capacity of Lake Ngā Roto is brought back to life and protected and the wāhi tapu status acknowledged so that the Waikato and Waipā rivers, indigenous species, mana whenua and communities can flourish.

Ngā mātāpono I Management principles

The following principles guide the future management of Lake Ngā Roto and apply to all parts of the reserve:

Taonga tuku iho	Acknowledging Lake Ngā Roto is a living treasure
Kaitiakitanga	The responsibility to care for and protect the health and wellbeing of Lake Ngā Roto and the life within
Wairuatanga/Mauri	Acknowledging and understanding the existence of mauri and a spiritual dimension to Lake Ngā Roto requires attention and nourishment and putting in place systems, processes and programmes to enable this to occur
Mana whenua	Enabling and empowering iwi and hapū to exercise mana whenua and kaitiakitanga in respect of their ancestral lands and waters
Ahi kaa	Acknowledging that tangata whenua who have always lived on their tūrangawaewae, their tribal lands, are repositories of tribal history, genealogy, traditions and customs
Whanaungatanga	Maintaining relationships between and amongst iwi, hapū, Council, stakeholders and the community built on mutual respect and acceptance of each other's interests and values
Manaakitanga	Encouraging behaviour and activities that are mana enhancing toward others including generosity, care, respect and reciprocity
Mahi ngātahi, mahi pono me te mahi tika	Sharing knowledge and working in good faith, with respect and collaboratively together
Kotahitanga	Pursuing a unity of purpose and direction
Tiakina te Taiao	Integrated, adaptive management that takes a whole of catchment approach focused long-term resilience and that uses research and monitoring to review the course of action at key milestones

Whāinga Tuatahi : Kia whakaora anō te mauri me te mana o Lake Ngā Roto

Objective One : The health and wellbeing of Lake Ngā Roto's freshwater is restored

Kaupapa here : Policies

1.1 Work collaboratively with mana whenua, Peat Lake Accord partners, landowners within the catchment, and the community to achieve the vision for Lake Ngā Roto.

1.2 Reclassify the land parcels classified as recreation reserve to scenic reserve and gazette and classify all other land parcels covered by this Plan as scenic reserve to confirm the priority for future management is the protection and restoration of the ecological and cultural values of Lake Ngā Roto.

1.3 Protect and restore wider buffer zones around the lake and the wetland area in the southern catchment through acquisition and encouraging adjoining landowners to retire, fence, and renaturalise adjoining low-lying areas.

1.4 Maintain the existing outlet weir, the Lake Ngarotoiti diversion channel and sediment traps in a functioning state unless there is strong evidence that a different lake level regime will improve lake health.

1.5 Prohibit drainage activity (including the dredging and vegetation removal of historic drains) within the land administered by Council, which may adversely affect lake levels, lake water quality or ground water levels unless there is strong evidence that a different approach will improve lake health.

1.6 Investigate with WRC the potential transfer of management for the Ōhaupō/Ngā Roto Drainage District (4016) to Council and/or changes to the current drainage rate levies to manage drainage expectations on farms within the catchment.

1.7 Protect and restore the margin of raupō along the lake edge in the Main Arrival Zone to prevent erosion and provide important nesting and feeding habitat.

1.8 Promote best practice farm management actions such as limited drainage within 200 metres of Lake Ngā Roto, fencing of waterways, installation of constructed wetlands and significant native revegetation on private land within Lake Ngā Roto's catchment to substantially reduce or eliminate contaminants, nutrients and sediment passing from private land into the reserve; with a focus on high nutrient, Escherichia coli (E.coli) and sediment risk areas in the catchment (see Appendix 7).

1.9 Encourage Peat Lake Accord partners and entities such as Fonterra, Dairy NZ and the Waikato River Authority to provide advice, financial support and other incentives to landowners within Lake Ngā Roto's catchment to speed up the transition to sustainable land use practices and the construction and maintenance of interventions such as swales, dams, sediment traps, wetlands and detention bunds to reduce or eliminate contaminants, nutrients and sediment passing from private land into the reserve.

1.10 Support significant controls on land use and drainage within Lake Ngā Roto's catchment to avoid excessive peat settlement and peat loss and to substantially reduce or eliminate contaminants, nutrients and sediment passing from private land into the reserve.

1.11 Support WRC and research-focused organisations to understand and communicate the ideal lake depth and size and management actions to restore lake health and create long-term resilience.

1.12 Support WRC to lead a programme of in-lake actions such as pest fish and plant eradication and control, sediment management and macrophyte re-establishment to improve lake health.

1.13 Support WRC to continue its current research, monitoring and reporting programme to advise on lake health and identify management actions that will contribute to an improvement in water quality and general in-lake conditions and protect visitors to Lake Ngā Roto through timely health warnings.

1.14 Work with Peat Lake Accord partners and other key stakeholders to understand and communicate the causes and impacts of peat subsidence and carbon loss and mitigation opportunities and benefits.

1.15 Raise our community's awareness of the lake's health and the critical need for restoration action funding through onsite and web-based information, open days, working with lessees and event organisers, volunteering programmes and regular reporting to Council.

1.16 Enable a range of programmes and facilities to address and manage disease, pest and pathogen incursions that may negatively impact lake health.

1.17 Ensure indigenous freshwater species can freely move up, down and between water bodies through regular maintenance of the existing outlet weir fish passage and developing other passages if required.

1.18 Prohibit the taking of any indigenous fauna, including short and long finned eel, for any commercial purpose.

He kupu whakamaarama I Explanation

The Reserves Act sets out that Scenic Reserves are for:

" (a) the purpose of protecting and preserving in perpetuity for their intrinsic worth and for the benefit, enjoyment, and use of the public, suitable areas possessing such qualities of scenic interest, beauty, or natural features or landscape that their protection and preservation are desirable in the public interest:

(b) the purpose of providing, in appropriate circumstances, suitable areas which by development and the introduction of flora, whether indigenous or exotic, will become of such scenic interest or beauty that their development, protection, and preservation are desirable in the public interest"

Lake Ngā Roto is a natural feature and landscape that is significant regionally and locally and which will increase in importance through conservation efforts to restore the lake and its margins. The change in classification supports Council's primary focus set out in this Plan – the protection and restoration of Lake Ngā Roto. The public will still have freedom of entry and access to the reserve, visitor infrastructure can still be developed and activities requiring leases, licences and other approvals that support public use and enjoyment of the reserve may still be granted.

The draft Ahu Ake – Waipā Spatial Plan highlights that peat lakes, such as Lake Ngā Roto, are at risk and emphasises the need for urgent action in alignment with Te Ture Whaimana. It is critical that external nutrient, contaminant and sediment loads are significantly reduced prior to entering the reserve through extending the physical buffer around the lake, slowing and filtering inflows, changing current agricultural practices and potentially in the longer-term transitioning from dairy grazed pastoral dairy farms and drystock pasture to land uses which are more suited to achieving the vision for Lake Ngā Roto, restoring large scale wetlands and 'recloaking' large areas of the catchment with indigenous forests.

Council's position on the current lake height (34.34m Moturiki Datum) that is set through control of the weir, and prohibiting drainage activities within the reserve, is based on evidence that these actions will improve the lake health. It is important that the effects of these decisions and that lessons learnt from other lakes are evaluated to guide future decisions related to lake size, depth and inflow and outflow management. At the time of preparing this Plan, there was insufficient information to form a position on these matters.

In-lake restoration initiatives to reduce the effects of 'legacy' internal nutrient, contaminant and sediment loads and pest fish and plants and programmes to protect the lake from new biosecurity risks are also going to be essential to achieve the vision for Lake Ngā Roto. The policies recognise that WRC is the organisation responsible for leading these actions which may include aeration or water circulation systems, sediment removal, phosphorous inactivation, planting native vegetation and pest fish removal. The evidence is clear that while these actions may lead to immediate improvements in water quality, they must be coupled with a significant reduction of external nutrients to ensure long-lasting water quality improvements.

In addition to improving lake health, the restoration of taonga species such as tuna require actions to support fish passage and increase species abundance and health.

The Ōhaupō/Ngā Roto Drainage District was established under the Land Drainage Act 1908 and managed by Waipa County Council under the LGA 1974 until 1989. As part of local authority restructuring in 1989 responsibility for land drainage board (s) was transferred to WRC. WRC has indicated that their preference is to transfer the drainage responsibilities back to the Council because the drainage district is effectively controlled by Council. Further discussions between WRC and Council are required prior to a decision being made on this suggestion and/or changes to the drainage rate levies.

Whāinga Tuatahi : Kia whakaora anō te mauri me te mana o Lake Ngā Roto

Objective Two : Lake Ngā Roto has a thriving terrestrial ecosystem that enhances Waipā's indigenous biodiversity

Kaupapa here : Policies

2.1 Implement the Lake Ngā Roto Restoration Plan 2021 – 2031 as per the planting plan in Appendix 8 with a focus on:

a. protecting restoration planting through a comprehensive releasing programme, herbaceous weed control and supplementary planting,
b. eradicating priority weeds that can alter ecosytems, and those that are currently at low density and can easily be eradicated,
c. continuing the willow control programme,
d. confirming the animal pest control programme's goals, approach and monitoring and reporting requirements and implementing the agreed programme,
e. working with mana whenua to develop pā harakeke, restoring kukuraho and rākau rongoā for cultural harvest
f. retiring and immediately revegetating the recently acquired southern block (Lot 6 DP526717) in kahikatea forest and the eastern boundary area that is currently farmed (Allot 462 Ngaroto PSH), and
g. revegetating the swamp forest and swamp margin zones

2.2 Maintain viewshafts from the lake circuit track to the lake and beyond from the southern board walk, the centre of the eastern margin (viewshaft to Taurangamirumiru Pā), the northern lake end and the Main Arrival Zone (see Figure 8 in section 4).

2.3 Where confirmed to not provide bat habitat, progressively remove exotic trees, particularly those in shelterbelts, and replace with native trees.

2.4 Actively support pest eradication and control initiatives undertaken by organisations, landowners and volunteers outside of the reserve.

2.5 Work with mana whenua and partner organisations to explore introduction and/or reintroduction of

native fauna species such as mokomoko (geckos and skinks).

2.6 Work with partner organisations to grow the volunteer base actively involved in restoring Lake Ngā Roto's indigenous biodiversity.

2.7 Explore options to enable individuals and organisations to easily contribute funding to restoration initiatives.

2.8 Promote greater public awareness and understanding of ecological values of Lake Ngā Roto through use of activations and interpretations such as signs, displays, guided walks, field days, online information and volunteering events.

2.9 Utilise education programmes and enforcement to increase compliance with Dog Control Bylaw rules to reduce the negative impacts of dogs off lead on Lake Ngā Roto's native flora and fauna.

2.10 Encourage visitors to remain on the lake circuit track to protect Lake Ngā Roto's native flora and fauna.

He kupu whakamaarama I Explanation

These policies focus on restoring and enhancing the terrestrial ecosystem at Lake Ngā Roto to improve indigenous biodiversity in Waipā. They confirm the prioritisation of actions outlined in the Lake Ngā Roto Restoration Plan 2021–2031. While it is critical that Council protect historic investment in planting and weed control, it must also get on with retiring, fencing and planting all of the land it owns as quickly as possible. This will require external funding and creating a strong volunteer base.

One important consideration when revegetating the lake margins is the retention of key viewshafts to enable lake circuit track users to visually connect with the lake. Educating these track users to ensure compliance with dog control measures and off-track rules will help protect native flora and fauna such as the banded rail and marsh crake.

Pest animal control on the reserve and within a halo around the reserve is critical to reduce predation pressure, particularly on bird species. Currently the main pests requiring control are feral cats, hedgehogs, rats, mice, possums and mustelids and trapping and monitoring is only undertaken by a volunteer. Council needs to determine its pest control objectives and build on current efforts to create a strategic and sustainable pest control regime.

Whāinga Tuatoru: Ka tū ngā mana whenua

Objective Three: Mana whenua's connections with Lake Ngā Roto are recognised and provided for and mātauranga Māori and tikanga are integrated into the governance and management of Lake Ngā Roto

Kaupapa here : Policies

3.1 Acknowledge the spiritual, ancestral, cultural, customary and historical interests in Lake Ngā Roto and the wāhi tapu status of Lake Ngā Roto resulting from the Battle of Hingakākā.

3.2 Restore the traditional name of the lake and surrounds through undertaking the necessary Reserves Act requirements to change the name of all the land covered by this Plan to 'Wairoto'.

3.3 Enable mana whenua to exercise their kaitiakitanga over this taonga tuku iho, to identify, protect, enhance and interpret significant values, features and viewshafts and to have a living connection with Lake Ngā Roto through:

a. partnering with mana whenua to understand, value and apply mātauranga Māori, tikanga and intergenerational knowledge and world views held by mana whenua,
b. partnering with mana whenua in decision-making regarding the conservation and protection of historic places, archaeological sites and wāhi tapu as they relate to Lake Ngā Roto,
c. extending the reserve boundary through acquisition (including the use of the Waipā District Plan's environment benefit lot provisions) to legally protect Te Moutere Pā (S15/9),
d. pā preservation in accordance with mana whenua's preferences,
e. planting plants for Rongoā Māori or traditional cultural harvest,
f. undertaking restoration actions targeted at increasing the abundance of culturally significant kawau (shag) species and mokomoko (lizards),
g. enabling cultural activities such as wānanga, hui and events and cultural harvest through agreements with mana whenua,
h. working with mana whenua to understand when cultural practices such as rāhui may be

required to protect the health and wellbeing of the lake and reserve visitors,

i. involving mana whenua, particularly rangatahi, in conservation initiatives,
j. seeking input on proposals for use or developments,
k. working with mana whenua and Peat Lake Accord partners to identify and monitor mauri indicators to inform future monitoring programmes,
l. sharing the history of the area through Te Ara Wai: Journeys, on-site interpretation, and cultural infrastructure such as pou,
m. the use of te reo Māori in signage, and
n. incorporating Māori design into new reserve developments.

3.4 Ensure development work carried out on or adjacent to the archaeological sites is sympathetic to their historical context and carried out in liaison with mana whenua and Heritage New Zealand Pouhere Taonga.

3.5 Prohibit scattering or burying of ashes anywhere on the reserve.

He kupu whakamaarama I Explanation

Wairoto has been identified by mana whenua as the traditional name for the lake, with Ngā Roto the term being used for the many lakes that existed in the area. Actions to confirm and increase the usage of the correct name are important ways to accurately reflect the area's history and restore the mana of Lake Ngā Roto.

Exercising kaitiakitanga is deeply important to mana whenua as it embodies their role as guardians of the land, waterways, and natural resources. It reflects a responsibility passed down through generations, rooted in tikanga and whakapapa, to protect the mauri of the environment. Kaitiakitanga allows mana whenua to maintain and strengthen their cultural and spiritual connections to their ancestral lands, ensuring that ecosystems are sustained for future generations. By exercising kaitiakitanga, mana whenua can integrate mātauranga Māori into environmental management, promote biodiversity, protect significant cultural sites, and uphold their rights and obligations as custodians of their natural heritage. It also fosters the ability to actively participate in decision-making processes, ensuring that development aligns with both environmental sustainability and cultural preservation.

Policies promoting the sharing of history through interpretive signage, using te reo Māori, and incorporating Māori design in developments are aimed at supporting a strong Māori identity and informing visitors of the significance of Lake Ngā Roto to mana whenua.

The scattering of ashes in the area is prohibited in recognition of the wāhi tapu status of Lake Ngā Roto.

Whāinga Tuawhā: Kia maha ngā āheinga whakamahi mō ngā kaiwhakamahi puta noa

Objective Four: Recreational opportunities are enhanced for a range of users where they do not compromise Lake Ngā Roto's values or impact other reserve users

Kaupapa here : Policies

4.1 Develop a concept plan for the Main Arrival Zone (see section 4) to guide the development of lessee and Council infrastructure and planting to create a distinctive entrance, enable approved activities, enhance the recreation, amenity and natural values, and protect, restore and share the values that are significant to mana whenua.

4.2 Extend and upgrade the lake circuit track to create a fully accessible off-road circuit track that is sufficiently wide to provide for safe passage for cyclists and pedestrians, with viewshafts to the lake and seating and which in the future connects to cycleways to neighbouring areas such as Pirongia, Te Awamutu and Ōhaupō.

4.3 Consider developing a track through the Wetland Zone (see section 4) either as part of the Te Awamutu to Pirongia (via Lake Ngā Roto) Cycleway and/or to increase recreation opportunities and enable conservation activities if additional land is acquired.

4.4 Provide dog access for exercise and conservation in accordance with Council's Dog Control Bylaw 2023 and actively work towards greater compliance with these rules.

4.5 Extend the 'rubbish-free' approach, that is, require all visitors, event organisers and lessees to take all rubbish away with them.

4.6 Provide clear positive guidance and way-finding information to assist public enjoyment and provide interpretative information in a way that avoids detracting from the 'natural' amenity of Lake Ngā Roto.

4.7 Notify all recreation users of any health warnings related to the lake health to protect human and dog health and educate lake users to identify harmful algal blooms and avoid contact recreation and protect animals from water contact.

4.8 Keep Council's Algal Bloom Response Plan under continuous review and act in accordance with this Plan to protect public health and safety and reduce the effects of algal blooms.

4.9 Facilitate safe year-round non-motorised recreation on the lake through the management of lake depth, prioritising actions to improve the water quality, the granting of leases for necessary land-based facilities, the provision of infrastructure to support water access and event approvals for regattas.

4.10 Prohibit the use of power boats other than those used in association with managing yachting, rowing, waka paddling events; for erecting and managing hunting stands prior to and during the hunting season, or for management and safety purposes.

4.11 Consider the following for all future reserve developments:

a. the scenic reserve classification,
b. the concept plan, relevant specialist assessments and/or mana whenua's feedback,
c. the impact the location and design of infrastructure has on the natural, cultural, landscape and amenity values of a reserve,
d. opportunities to work with mana whenua to identify any spiritual, ancestral, cultural, customary, social, mahinga kai and historical values that could be acknowledged, protected and/or restored in the development,
e. opportunities to share facilities to reduce the site coverage and visual amenity effects associated with facilities and increase the financial sustainability of maintaining community-owned facilities,
f. the impacts of climate change,
g. minimising the opportunities for vandalism and crime including using Crime Prevention Through Environmental Design principles, and
h. universal design and how people of all ages and abilities use, access and enjoy the reserve.

4.12 Require lessees involved in water-based recreation to have operating policies and procedures outlining how they will:

a. prevent ecological degradation through launching boats at designated areas and ensuring best practice biosecurity measures are implemented,
b. work with mana whenua to better understand and share their spiritual, ancestral, cultural, customary and historical values associated with Lake Ngā Roto and develop operating practices that recognise these values,
c. contribute to achieving the vision for Lake Ngā Roto,
d. adhere to health warnings and provide the necessary infrastructure to mitigate risks associated with the lake's water quality, and
e. adopt travel demand management approaches for events to reduce the impact of private vehicle parking Lake Ngā Roto and other reserve visitors.

4.13 Ensure a consistent approach is taken to assessing new activities requiring authorisation[10], including;

a. compatibility with the scenic reserve classification,
b. compatibility with Lake Ngā Roto's values and

10 Activities will need to be authorised if they require authorisation or a permit under the Reserves Act 1977 or a Council bylaw. This includes activities which: are events that attract more than 100 people or requires parking and road controls and/or consents; require exclusive use of a reserve or an area of a reserve such as a temporary or permanent building or structure to be built or installed; change the physical environment; are commercial in nature, are for private gain or financial reward; create an interest in land in favour of a third party, such as a lease, licence or an easement; or involve the taking of specimens, taking or killing of fauna and/or the introduction of flora, fauna or biological control organisms.

where applicable specific management or development intentions,

c. consideration of the capacity of Lake Ngā Roto to accommodate the activity, and potential impacts on the environment and other reserve users, and
d. mana whenua's views on the proposal.

4.14 Support events which enable our communities to connect with and learn about Lake Ngā Roto and/or get active.

4.15 Support concessions (mobile trading permits, leases and licences) for commercial activities that assists in the public use and enjoyment of Lake Ngā Roto such as a café, mobile food and beverage vendor and/or recreation equipment hire where they don't negatively impact authorised activities nor the general character and amenity of Lake Ngā Roto[11].

4.16 Enable contained[12] and conventional[13] camping within the Main Arrival Zone (see Section 4), for persons involved in or associated with approved events for periods not exceeding five consecutive days.

4.17 Provide for contained camping in vehicles with a self-containment certificate for a maximum of 10 vehicles in the main carpark at the reserve entrance for a maximum of two consecutive nights.

4.18 Prohibit smoking and vaping and take an education approach to encouraging compliance.

4.19 Issue permits to licenced game bird hunters to carry firearms within Lake Ngā Roto during the game bird hunting season and minimise risks and other adverse effects on other reserve visitors from game bird hunting by:

a. working with Fish and Game to organise an annual pre-season meeting with permit holders to outline it's a privilege to hunt at Lake Ngā Roto and the expectations and responsibilities that go with this privilege,
b. working with Fish and Game to advise other reserve visitors of the duck shooting season and alternative options during this period if they, or their dogs, will be disturbed by the sound of gunfire,
c. requesting that Fish and Game continue their compliance work during the hunting season and working with them and the NZ Police on any complaints or incidents,
d. working with Fish and Game on any specific maimai complaints, and
e. exploring new restrictions on other reserve visitors during the open season and/or restrictions on the number of permits and/or maimais.

4.20 Prohibit the use of Remotely Piloted Aircraft Systems (drones) except for use in reserve management by Council or authorized persons, emergency management or as part of an approved concession.

4.21 Promote and enforce Council's Public Places Bylaw's resident only light vehicle access night time restrictions on Bank Road to reduce the risk to Lake Ngā Roto's visitors and reserve values from anti-social driving behaviours.

11 The concessionaire will be responsible for ensuring that they fully comply with any statutory requirements, the District Plan and any relevant bylaws.

12 Contained camping refers to self-contained motor homes and camper vans that require self-containment certification

13 Conventional camping refers to any tent, caravan or other vehicle that does not need to be certified as a self contained unit.

He kupu whakamaarama I Explanation

The policies under this objective aim to enhance approved recreational opportunities at Lake Ngā Roto while preserving the reserve's values and providing for use and enjoyment and health and safety of all users. They provide for the continuation of current activities but with new requirements that recognise the privilege of being able to recreate at Lake Ngā Roto and the importance of everyone working together to achieve the vision for Lake Ngā Roto and enhance the visitor experience. They also provide for potential new activities and developments that align with the vision for Lake Ngā Roto.

Developing a concept plan for the Main Arrival Zone will enable a focused discussion on how to support, manage and enhance activities in this area and provide clear guidance for future developments. The reserve's accessibility will be improved through upgraded tracks, including a fully accessible lake circuit and potential wetland pathways, promoting both recreation and conservation.

04/

Wāhanga Tuawhā : Te Kōkiritanga

Section Four : Delivering the Vision

Development of Lake Ngā Roto zones

Within Lake Ngā Roto there are a range of zones aimed at protecting and restoring lake health and culturally significant sites and providing high quality facilities to support visitation and recreation. Table 2 outlines the desired experience, the activities provided for and the level of development for each zone. Roads and pathways support entry to and movement through the reserve.

Table 2. Lake Ngā Roto's Visitor Zones

Zone	Desired Experience	Activities and level/nature of development
Main Arrival	Visitors feel welcomed to Lake Ngā Roto, understand that Lake Ngā Roto is significant to mana whenua and have a sense of respect and connection to Lake Ngā Roto and each other. Visitors know where to park and can easily and safely access key destinations such as the lake circuit track, toilets and picnic facilities. Visitors can learn about Lake Ngā Roto's history, natural values, mana whenua's connections and actions being taken to protect and restore Lake Ngā Roto. Visitors are made aware of any health warnings or risks that may affect their visit.	Activities include water-based recreation activities and storage, parking, walking and cycling, dog exercise, picnicing, events and event-related camping, freedom camping and fishing. A landscaped open space (with shade trees, screen planting along boundary and lake margin planting) with high quality infrastructure to support day and overnight visitors and sport, recreation and education activities such as carpark, toilets, picnicking facilities, clubrooms and storage, and café or mobile vendor(s).
Lake	Sailors, rowers and paddlers can safely utilise the lake year-round. Approved parties can safely and easily undertake monitoring and research on the lake.	Activities include rowing, sailing and paddling, in-lake restoration activities and lake monitoring. Infrastructure limited to that required for monitoring programme, the weir, in-lake restoration initiatives and infrastructure to support recreational water access.
Restored Lake Margins	Visitors of all ages and abilities can safely get active, come together, experience a thriving peat lake habitat and/or find respite while circumnavigating the lake by foot or bike. Visitors can learn about Lake Ngā Roto's history, natural values, mana whenua's connections and actions being taken to protect and restore Lake Ngā Roto. Visitors have places they can stop and rest and views to the lake and important sites.	Activities limited to on-track pedestrian and cyclist access, cultural harvesting and approved restoration initiatives. A thriving revegetated peat lake margin habitat with infrastructure limited to the lake circuit track, interpretation and way-finding signage and seating.
Pā	To protect these significant archaeological sites, only mana whenua and approved contractors and researchers can access Pā. The management of these sites will enable mana whenua to experience them as they deem appropriate.	Activities limited to cultural, research and maintenance activities. Pā sites maintained to enable archaeological features to be visible unless an alternative management approach is agreed to by mana whenua and Heritage New Zealand Pouhere Taonga.

	Wetlands	If a track is developed through here in the future, visitors of all ages and abilities can safely navigate through a restored wetland habitat and understand its importance to improving the mauri of Lake Ngā Roto.	Activities limited to on-track pedestrian and cyclist access, cultural harvesting and approved restoration initiatives. A thriving revegetated wetland habitat with infrastructure limited to the lake circuit track, interpretation and way-finding signage and seating.
	Access and Pathways	Emphasis is on safe and enjoyable circulation by foot and bike to most parts of Lake Ngā Roto (excluding pā and some wetland areas) that is accessible and usable by everyone, regardless of age, size, or ability. Access and pathways provide an opportunity for people to learn about Lake Ngā Roto.	Activities limited to vehicle access off Bank Road to the internal park road and on-track pedestrian and cyclist access. Infrastructure is limited to a sealed vehicle access road with adjoining swales, and a track network that consists of boardwalk and metalled tracks.

KEY:
LAKE NGĀ ROTO'S VISITOR ZONES

- Reserve Management Plan Scope
- Main Arrival Zone
- Lake Zone
- Restored Lake Margin Zone
- Pā Zone
- Wetland Zone
- Wetland Zone (potential)
- Access and Pathway Zone
- Main entry point, car park and toilet
- Secondary entry point, car park and public boat ramps
- key viewshafts

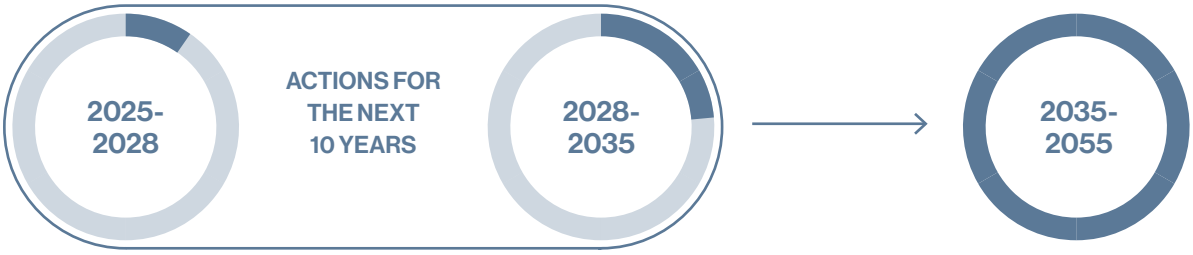
SCALE
0 500m

Figure 8 Map showing Lake Ngā Roto's Visitor Zones, key entry points and viewshafts

Management focus and expected outcomes

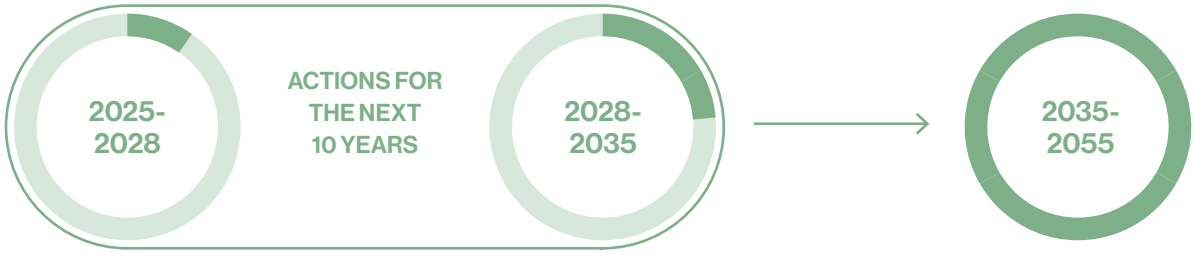
Council's priorities for each objective for the next 10 years are set out in the tables below, together with a description of the desired outcome by 2055. Business as usual activities, such as maintenance, asset renewals, processing concession requests and monitoring and reporting, are not identified as these actions are assumed to continue.

Whāinga Tuatahi : Kia whakaora anō te mauri me te mana o Lake Ngā Roto
Objective One : The health and wellbeing of Lake Ngā Roto's freshwater is restored



ACTIONS IN THE NEXT 3 YEARS	ACTIONS OVER FOLLOWING 7 YEARS	WHAT WE WILL SEE IN 30 YEARS
Explore opportunities to extend lake margins through acquisitions and on farm actions.	Work with WRC to review the success of the current weir, diversion channel and reserve drainage approach and determine the long-term ideal lake size and depth and inflows.	The mana and the mauri of Lake Ngā Roto is restored.
Classify and reclassify the land covered by this Plan in accordance with Policy 1.2.	Support WRC to undertake in-lake restoration actions identified in their action plan(s).	Lake Ngā Roto reaches at least national bottom lines across attributes identified and measured by WRC and contact recreation is possible year round every year.
Support WRC to finalise Plan Change 1 and develop an action plan for Lake Ngā Roto that amongst other things outlines and prioritises in-lake actions.	Investigate and provide for additional indigenous freshwater species passage between water bodies if required.	The level of water in Lake Ngā Roto sustains life-supporting ecological processes and habitats, protects ecosystem health, and safeguards natural character values.
Investigate with WRC the potential transfer of management for the Ōhaupō/Ngā Roto Drainage District (4016) to Council and/or changes to the current drainage rate levies to manage drainage expectations on farms within the catchment.	Work with Peat Lake Accord partners to keep mana whenua and the wider community updated on changes to Lake Ngā Roto's health and wellbeing.	Peat subsidence around the edge of the reserve is halted.
Work with partner organisations to support farmers within the catchment to develop and implement Farm Freshwater Plans to make measurable reductions in nutrient, sediment and contaminants flowing off their farms.	Work with Peat Lake Accord partners and other organisations to achieve significant native revegetation on private land within Lake Ngā Roto's catchment.	A range of native fish, including tuna, in numbers and health that support mahinga kai.
	Work with Peat Lake Accord partners and other key stakeholders such as Manaaki Whenua Landcare Research to understand and communicate the causes and impacts of peat subsidence and carbon loss and mitigation opportunities and benefits.	A range of native birds in high abundance that either live permanently, temporarily or transit through Lake Ngā Roto.

Whāinga Tuarua : Kia whakahokia a Tane Whakapiripiri ki a Papatūānuku
Objective Two : Lake Ngā Roto is a successful, thriving indigenous ecosystem that enhances Waipā's biodiversity



ACTIONS IN THE NEXT 3 YEARS

Undertake a comprehensive releasing programme, herbaceous weed control and supplementary planting for existing restoration areas.

Continue the willow control programme and priority weed eradication programme.

Explore funding sources to retire and revegetate the recently acquired southern block (Lot 6 DP526717) in kahikatea forest and the eastern boundary area that is currently farmed by the adjoining landowner (Allot 462 Ngaroto PSH).

Develop a pest control programme.

ACTIONS OVER FOLLOWING 7 YEARS

Revegetate the swamp forest and swamp margin zones.

Retire and revegetate the recently acquired southern block (Lot 6 DP526717) in kahikatea forest and the eastern boundary area that is currently farmed by the adjoining landowner (Allot 462 Ngaroto PSH).

Implement the pest control programme.

Support and grow the volunteer base.

Build a sustainable volunteer base to support the delivery of the restoration plan and pest control programme.

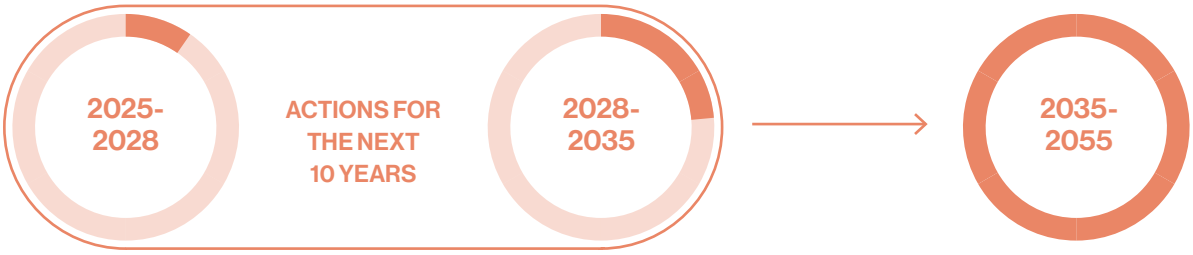
WHAT WE WILL SEE IN 30 YEARS

A mature, thriving, extensive, connected and resilient wetland and forest ecosystem (comprising swamp meadow, swamp marginal shrubland, swamp forest and podocarp/ broadleaf forest) that cleanses water, enriches soil and provides habitat for a vast array of indigenous species which benefits Lake Ngā Roto, the Waipā and Waikato Rivers and the Taieo te Taiao Maungataurati to Pirongia Ecological Corridor.

A co-ordinated halo of pest animal and weed control on private land adjoining the reserve to reduce the likelihood of incursions into Lake Ngā Roto.

Highly valued cultural plantings actively maintained and utilised by mana whenua.

Whāinga Tuatoru : Ka tū ngā Mana Whenua
Objective Three : Mana whenua's connections with Lake Ngā Roto are recognised and provided for and mātauranga Māori and tikanga are integrated into the governance and management of Lake Ngā Roto



ACTIONS IN THE NEXT 3 YEARS

Partner with mana whenua to explore opportunities to progress acquistions to extend the reserve boundaries and the development of the concept plan and in-lake restoration plan.

Work with mana whenua to formally change the name to Wairoto and update promotion and interpretation collateral to reflect the name change and provide further information on the significance of Lake Ngā Roto.

Pā harakeke and rongoā rākau sites are planted and maintained in partnership with mana whenua.

ACTIONS OVER FOLLOWING 7 YEARS

Partner with mana whenua to enable and encourage cultural activities at Lake Ngā Roto and explore opportunities to involve and employ mana whenua in conservation initiatives.

Explore restoration actions targeted at increasing the abundance of culturally significant kawau (shag) species and mokomoko (lizards).

WHAT WE WILL SEE IN 30 YEARS

Kaitiakitanga of Lake Ngā Roto is affirmed.

The traditional name Wairoto is restored.

Mana whenua are active partners in Lake Ngā Roto's management and decisions are informed by mātauranga Māori and te ao Māori.

The significance of Lake Ngā Roto to mana whenua and the interconnections of all things – spiritual and physical – within the Lake Ngā Roto ecosytem is widely understood and actions by councils, lessees and landowners reflect this understanding.

Mana whenua have a living presence at Lake Ngā Roto through conservation initiatives, cultural activities and recreation.

Mahinga kai areas are restored and access is provided for iwi and hapū to gather traditional kai.

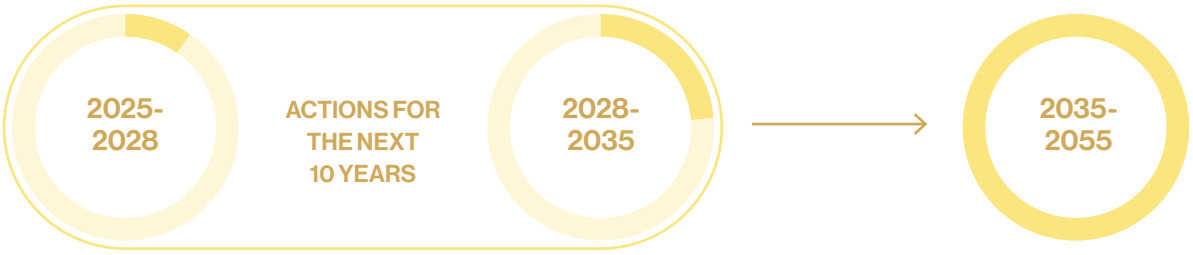
Wāhi tapu and wāhi tūpuna are protected for future generations

Mana whenua advice is sought on all accidental discoveries of archaeological sites[14] on and around Lake Ngā Roto.

Mana whenua wellbeing is improved through improvements to the wellbeing of Lake Ngā Roto.

14 Evidence of archaeological sites can include shell midden, oven stones, charcoal, modified soils, bone, ditches and banks, pits, Māori tools or artefacts, waka and kōiwi.

Whāinga Tuawhā : Kia maha ngā āheinga whakamahi mō ngā kaiwhakamahi puta noa
Objective Four : Recreational opportunities are enhanced for a range of users where they do not compromise the reserve values or impact other reserve users



ACTIONS IN THE NEXT 3 YEARS

Amend signage in relation to freedom camping to align with Policy 4.16 and encourage compliance activities over the summer period.

Promote Lake Ngā Roto as a smoke-free and rubbish-free reserve.

Encourage compliance with resident only light vehicle access nighttime restrictions on Bank Road.

Work with lessees and mana whenua to grant new leases to existing lessees and develop operating procedures in accordance with Policy 4.11.

Work with Auckland/Waikato Fish and Game to implement Policy 4.19.

ACTIONS OVER FOLLOWING 7 YEARS

Prepare and implement a concept plan for the Main Arrival Zone in line with Policy 4.1.

Support lessees to develop their facilities in accordance with the concept plan for the Main Arrival Zone.

Extend and upgrade the lake circuit track to create a fully accessible off-road circuit track.

WHAT WE WILL SEE IN 30 YEARS

A highly valued destination for safe and accessible recreation opportunities year round that supports whaioranga (health) and tourism.

A lake circuit shared use track network that is connected to Te Awamutu, Pirongia and Ōhaupō that is accessible for people of all ages and abilities.

High quality facilities that support approved activities at Lake Ngā Roto.

High levels of compliance with dogs on lead and off-track activity rules around the lake circuit.

Monitoring and reporting

To enable adaptive management to achieve the vision for Lake Ngā Roto we need to monitor and report on progress towards the objectives set out in this Plan. The table below sets out what will be measured. The text in italics identifies indicators that would be useful to measure if resourcing becomes available in the future.

WRC currently undertakes the lake health monitoring and Council is responsible for all the other monitoring.

Council will report against these measures in its activity management plans on a three yearly basis, and more regularly at the Peat Lakes Accord meetings.

Objective	What will be monitored
Objective One: The health and wellbeing of Lake Ngā Roto's freshwater is restored	Freshwater attributes against targets set by WRC, including: • Level of Nutrient Enrichment (Lake Trophic Level Index TLI) • Cyanobacterial recreational limit exceedance • Microbiological faecal levels (Escherichia coli) • Lake Submerged Plant Index • Phytoplankton biovolume and relative abundance • Water clarity (Sechhi depth) • Water temperature and dissolved oxygen profiles Number of days per annum that health warnings recommending no contact recreation are in place per annum. *Percentage of farms within the catchment that have approved Farm Freshwater Plans.* *Water quality leaving farms* *Outflow water quality* *Pest fish v native fish abundance* *Healthy tuna at numbers that support kai harvesting*
Objective Two: Lake Ngā Roto is a successful, thriving indigenous ecosystem that enhances Waipā's biodiversity	Change in landcover/land use and drainage management Percentage of reserve land that has established native vegetation Maps and numbers of weed species recording during weed surveillance *Pest control monitoring* *Native bird abundance*

Objective Three: Mana whenua's connections with Lake Ngā Roto are recognised and provided for and matauranga Māori and tikanga are integrated into the governance and management of Lake Ngā Roto	Usage of Te Ara Wai Journeys[15] website. Number of cultural activities that occur per annum Percentage of development proposals and concession requests that mana whenua's input and/or feedback is sought on *Mana whenua satisfaction with management of Lake Ngā Roto's water quality, conservation and protection of historic places, archaeological sites and wāhi tapu (sacred sites)* *Tuna stocks* *Monitoring and research are informed by mātauranga Māori and mana whenua are involved in the programme*
Objective Four: Recreational opportunities are enhanced for a range of users where they do not compromise the reserve's values or impact other reserve users	Lake circuit track counts Annual lessee reports on how they have met Policy 4.12 requirements *Measures to reduce ecological degradation* *Initiatives to better understand, share and respect mana whenua's spiritual, ancestral, cultural, customary and historical values* *Club contribution to achieving the vision for Lake Ngā Roto* *Adherence to health warnings and measures to mitigate risks to members and participants* *Measures to reduce impacts of larger events on the reserve and other reserve users* *3 yearly visitor satisfaction surveys*

15 Number of individual Te Ara Wai Journeys App sessions.

05/

Wāhanga Tuarima : Ngā Kupu Māori

Section 5 : Glossary of Te Reo Māori used throughout this Plan

Glossary of te reo Māori used throughout this Plan

awa	river
hapū	sub-tribe
iwi	tribe
kaitiaki	stewards
kaitiakitanga	stewardship
mana	prestige, authority, control, power, influence, status, spiritual power, charisma - mana is a supernatural force in a person, place or object
mana whenua	indigenous people (Māori) who have historic and territorial rights over the land. In this Plan it refers to iwi and hapū (Māori tribal groups) who have these rights in Lake Ngā Roto
mātauranga Māori	the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices
mauri	life force
roto	lake
tapu	sacredness
taonga tuku iho	treasure passed down
tikanga	correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention
tuna	freshwater eel
tūpuna	ancestors
wāhanga	section
wāhi tapu	sacred area/place
wai	water
wai tapu	sacred waters
whakapapa	genealogy, lineage, descent, ancestry
whenua	land
tūakana	elder brother/sister
teina	younger brother/sister
whare tūpuna	ancestral house
waiata	song
karakia	incantations/invocations
wāhi tupuna	landscapes and places that embody the relationship of mana whenua and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga
taonga	treasured possession or object

06/

Wāhanga Tuaono : Rārangi Pukapuka

Section 6 : References

References

Catchment Action Plan for Lake Ngā Roto, June 2015

Draft Ahu Ake – Waipā Community Spatial Plan, Waipā District Council

Environment Aotearoa 2022, Ministry for the Environment

Guidelines for landowners in peat lake catchments – current best management practices for farming sustainably to protect the peat lakes; Waikato Regional Council

Hingakaka-Ngā Roto Iwi Management Plan 2006

Lake Nga Roto Biodiversity Assessment and Restoration Plan 2021-2031

Lake Ngā Roto Reserve Management Plan 2009

Lehmann, M. K., Hamilton, D. P., Muraoka, K., Tempero, G. W., Collier, K. J., Hicks, B. J. 2017. Waikato Shallow Lakes Modelling. ERI Report 94. Environmental Research Institute, University of Waikato, Hamilton, New Zealand

National Policy Statement Freshwater Management

National Policy Statement Indigenous Biodiversity

Ngā wai o Maniapoto (Waipā River) Act 2012

Shallow lakes restoration review: A literature review; Waikato Regional Council Technical Report 2018/13

State of the environment monitoring Waikato lake water quality, Waikato Regional Council Technical Report 2021/26

Te Ture Whaimana o Te Awa o Waikato – Vision & Strategy for the Waikato River

Waikato Region Shallow Lakes Management Plan: Volume 1, 2014

Waikato Region Shallow Lakes Management Plan: Volume 2, 2014

Waikato Regional Plan, Waikato Regional Council

Waikato Regional Policy Statement, Waikato Regional Council

Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

Waikato – Waipā River Restoration Strategy – Te Rautaki Tāmata i Ngā Awa o Waikato me Waipā, Waikato Regional Council

Waipā District Peat Lakes and Wetlands Booklets; Waikato Regional Council and Peat Lakes Accord

Waipā District Plan, Waipā District Council

Waikato Regional Council Policy Series 2019/14 Land Drainage Management Plan 2019

Appendices

Appendix 1 Process followed to review the Lake Ngā Roto Reserve Management Plan 2009

5 Jun 2024	Council endorsed review of the RMP
27 Jun - 28 Jul 2024	Notified intent to review RMP (48 submissions)
Jun - Dec 2024	Pre-drafting engagement with mana whenua and key stakeholders
Aug - Dec 2024	Drafting
4 Feb 2025 *(tbc)*	Council endorsed draft RMP for consultation
Feb - Apr 2025 *(tbc)*	Notify draft (x submissions)
May 2025 *(tbc)*	Hearing and deliberations
Jul 2025 *(tbc)*	Council adopted the new RMP

Appendix 2 Summary of key documents that guide decisions to protect and restore Lake Ngā Roto

Te Tiriti o Waitangi I The Treaty of Waitangi

.Te Tiriti o Waitangi / the Treaty of Waitangi (Te Tiriti) is the founding document of New Zealand.

Section 4 of the Conservation Act 1987, which references the Reserves Act in its First Schedule, contains an obligation to give effect to the principles of the Te Tiriti.

In performing functions and duties under the Reserves Act, the Council must also interpret the Reserves Act to give effect to the principles of Te Tiriti. The principles of Te Tiriti likely to be most relevant in making decisions on the management of Lake Ngā Roto are:

- Partnership – the mutual duties to act towards each other reasonably and in good faith are the core of the Treaty partnership.
- Informed decision making – being well-informed of mana whenua's interests and views. Early consultation is a means to achieve informed decision-making.
- Active protection – this involves the active protection of Māori interests retained under Te Tiriti.

It includes the promise to protect te tino rangatiratanga (sovereignty and self-determination) and taonga (treasures).

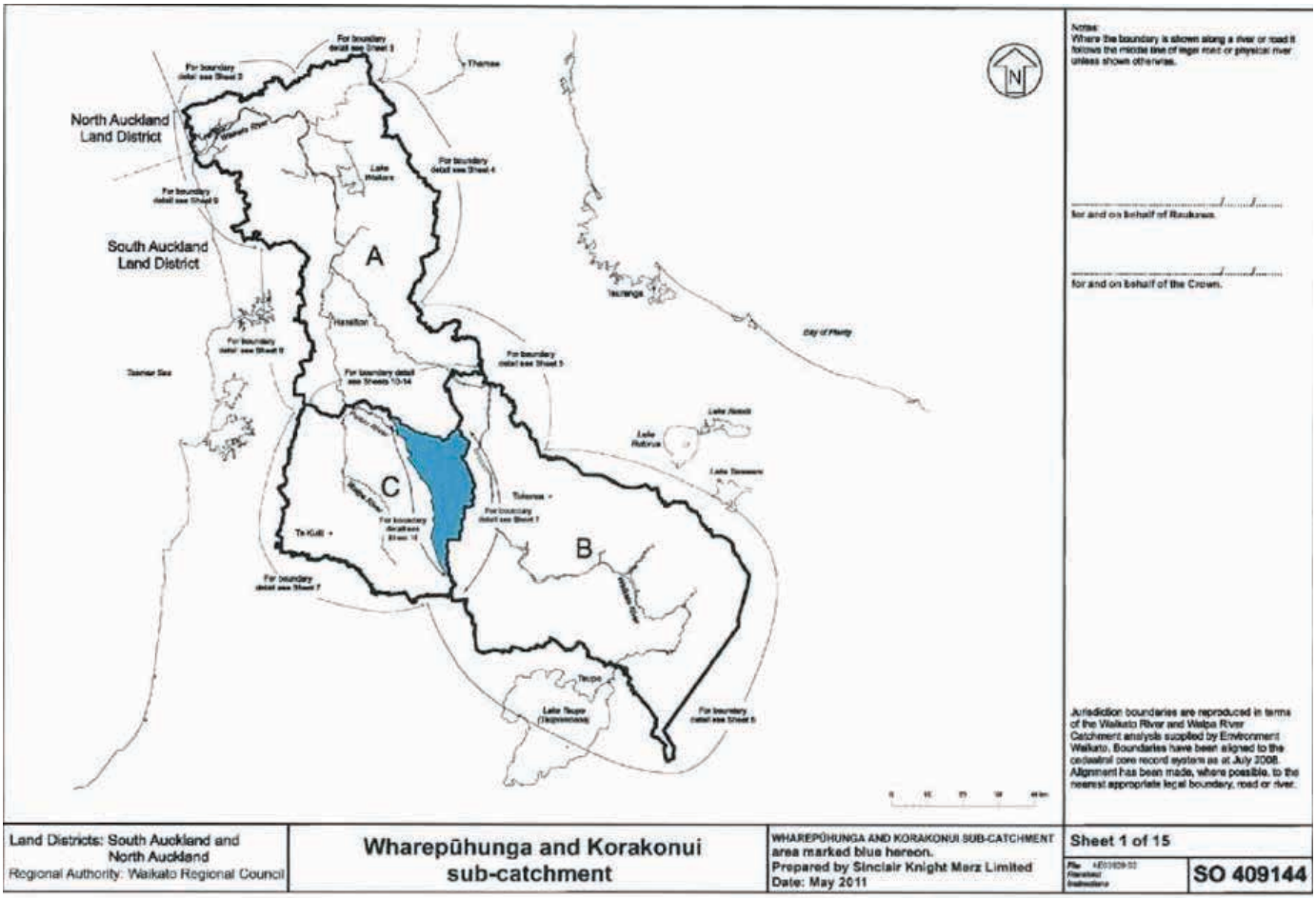
Mana whenua continue to maintain a presence and relationship with their ancestral sites and landscapes of significance. This relationship also extends to the taonga, and sites where historic events occurred, often within the boundaries of reserves. One way to give practical effect to the principles of Te Tiriti is to enable iwi or hapū to reconnect to their ancestral lands. The LGA also contains obligations to Māori, including to facilitate Māori participation in Council decision-making processes.

There are three treaty settlements related to the Waikato and Waipā Rivers and their catchments.

These are Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010 and Ngā wai o Maniapoto (Waipā River) Act 2012. These acts established the Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato (Vision and Strategy) as the primary direction setting document for the Waikato and Waipā Rivers. The Vision and Strategy prevails over any inconsistencies in a national policy statement or New Zealand coastal policy statement and is deemed to be part of the Waikato Regional Policy Statement. The Vision and Strategy states that the Waikato and Waipā Rivers are degraded and require, amongst other things, restoration and protection. At the time of writing this Plan, Te Ture Whaimana was also under review.

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 applies to the Waikato River and its catchment, described in the legislation as:

1. The body of water known as the Waikato River flowing continuously or intermittently from the Huka Falls to the mouth of the Waikato River shown as located within the areas marked 'A' and 'B' on SO plan 409144, and
2. All tributaries, streams and watercourses flowing into the part of the Waikato River described in subparagraph (i), to the extent to which they are within the areas marked 'A' and 'B' on SO plan 409144, and
3. Lakes and wetlands within the areas marked 'A' and 'B' on SO plan 409144, and
4. The beds and banks of the water bodies described in subparagraphs (i) to (iii).



Lake Ngā Roto is within area A (refer to map insert above).

Reserves Act 1977

The purposes of the Reserves Act are:

- providing for the preservation and management of reserves for the benefit and enjoyment of the public;
- ensuring, as far as possible, the survival of all indigenous species of flora and fauna;
- ensuring, as far as possible, the preservation of access for the public;
- providing for the preservation of representative samples of all classes of natural ecosystems and landscape; and
- promoting the protection of the natural character of the coastal environment and the margins of lakes and rivers.

The objectives of the Act are:

- emphasise retention of open space for outdoor recreation;
- maximise freedom of access to reserves for all people, rather than just a few;
- encourage multiple use of reserve land and facilities when feasible and appropriate; and
- facilitate greater involvement of the public in reserves administration and decision making.

The policies in this document should be read in conjunction with the Reserves Act.

Local Government Act 2002

The Local Government Act 2002 (LGA) is the primary legislation enabling and governing Waipā District Council as a local authority. It states the purpose of local government, provides a framework and powers for local authorities to decide which activities they undertake and the manner in which they will undertake them. It also promotes the accountability of local authorities to their communities; provides for local authorities to play a broad role in promoting the social, economic, environmental, and cultural wellbeing of their communities, taking a

sustainable development approach.

The long-term plan and annual plans, local bylaws, asset management plans and development of Council policy are all undertaken in accordance with the LGA.

The LGA also contains obligations to Māori, including to facilitate Māori participation in council decision-making processes.

Resource Management Act 1991

The Resource Management Act 1991 (RMA) is the main piece of legislation that regulates the management of Aotearoa New Zealand's land, air and water, including the use, development and protection of these. The RMA provides councils with specific powers, functions and duties in giving effect to the purpose of the RMA. The RMA applies to all land from a regulatory perspective such as a requirement for a resource consent where the council is undertaking works on a park.

National Policy Statement Freshwater Management 2020

This policy statement sets regulations for managing New Zealand's freshwater resources, prioritising the health and well-being of freshwater ecosystems. It emphasizes the protection of wetlands and streams, including those connected to peat lakes, by mandating actions that safeguard water quality and ecosystem function. For a peat lake reserve, this would include strict controls on activities that could lead to nutrient runoff, pollution, or water extraction that might degrade the unique hydrology of peat lakes.

National Policy Statement Indigenous Biodiversity 2023

This policy statement focuses on protecting and enhancing indigenous biodiversity, particularly in areas like wetlands that are home to threatened species and ecosystems. For a peat lake reserve, the policy would guide actions to prevent habitat destruction, promote native species regeneration, and control invasive species. Management would need to ensure that the biodiversity of the peat lake's flora and fauna is preserved and enhanced in accordance with ecological significance assessments outlined in the policy.

Waikato Regional Policy Statement (WRPS) and Waikato Regional Plan (WRP)

The WRPS provides overarching objectives, policies, and methods for sustainable management of the natural and physical resources in the Waikato region. The WRP translates the high-level objectives of the WRPS into detailed rules, regulations, and action plans that directly manage natural resources. Specifically, it covers how activities in the Waipā District that affect peat lakes are controlled.

They seek to prevent further degradation of these lakes and preserve peatland and wetland by regulating activities in surrounding agricultural land and encouraging restoration projects.

Plan Change 1 – Waikato and Waipā River Catchments (PC1), prepared in accordance with Te Ture Whaimana o te Awa o Waikato (the vision and strategy for the Waikato River), establishes a regulatory framework for managing diffuse discharges (N, P, sediment and microbial pathogens) from farming activities in the Waikato and Waipā River catchments. The plan change sets 80-year water quality targets for peat lakes in the freshwater management unit and encourages implementation of tailored lake-by-lake approaches via development of Lake Catchment Plans (building on the Shallow Lakes Management Plan established in 2015) over the next 10-years.

PC1 also directs WRC to work with stakeholders to develop and implement sub-catchment scale plans to identify issues/causes, investigate impacts of diffuse discharges, develop adaptive management and mitigation approaches, align works and services to reduce contaminants, support research, coordinate funding of mitigation works and utilise public funds to support edge of field mitigations where they provide significant public benefit.

At the time of writing this Plan, PC1 appeals had been heard and WRC was awaiting a decision from the Environment Court. The sections of the Operative Regional Plan relating to freshwater were being reviewed with a new plan intended to be notified in 2027. The PC1 provisions will be brought through into the new plan and through this process there may be some review to the PC1 provisions to align with the new National Policy Statement Freshwater Management. There will be an opportunity for tangata whenua, sector and community engagement on the new regional plan prior to notification.

DRAFT Ahu Ake Waipā Community Spatial Plan

Acting as a blueprint for the Waipā District for the next 30 years, this document highlights the importance of the Lake Ngā Roto and the other peat lakes and the need to protect and restore their health and wellbeing at a landscape scale. In relation to Lake Ngā Roto specifically, it directs the growth of Ōhaupō away from its catchment,

promotes improving shared paths to it from towns and villages, highlights necessary changes to historic rural drainage regimes, and identifies the ability for revegetation to contribute to a carbon offset programme. It notes that increased pace of funding for biodiversity improvements for peat lakes and land acquisition and on farm actions will be required.

Waipā District Council's Long Term Plan (LTP)

Council's strategic direction consists of a vision, community outcomes and guiding principles. This direction is outlined in the Council's LTP and is used to inform the ten year work programme for Lake Ngā Roto and other parks and reserves which is also set through the LTP. The LTP is reviewed every three years and always involves public consultation.

Waipā District Plan

The Waipā District Plan sets a framework for the development and management of resources in the district. It establishes objectives and policies for managing the environmental effects of development in accordance with the Resource Management Act 1991. It defines the various zones (residential, rural, business, open space, etc.) and the rules for activities and land uses. In this way the District Plan has a very strong influence over all activities that occur in the district. The plan also provides for environment benefit lots as an incentive to widen the buffer around Lake Ngā Roto and identifies and sets rules related to SNAs.

Bylaws

Council uses bylaws to make rules about a range of behaviours and activities on parks to help ensure public safety and enjoyment of parks by all who want to use them. At the time of writing this management plan, bylaws have been adopted that cover a range of behaviours and activities on Lake Ngā Roto including:

- Consumption of alcohol (through the provision for temporary bans if deemed necessary)
- Access for people with dogs or other animals
- Vehicle access (during night-time hours and in certain areas within the reserve at all times)
- Antisocial and nuisance behaviour
- Display of signs
- Trading and events

Where a bylaw exists, the reserve management plan will defer to the bylaw and not develop separate policy that could potentially conflict with a bylaw.

Most bylaws simply require compliance with specified rules for the activity, however, some such as the Public Places Bylaw may require a prior approval for specific activities.

Over time, Council may amend these bylaws or create new bylaws that are relevant to Lake Ngā Roto. The development and review of bylaws is a statutory process and always involves public consultation.

Waipā Parks Activity Management Plan (AMP)

The AMP provide details about the network of parks and are used as the basis of work programmes and budgets included in the LTP. Specifically, they provide the following information:

- description of the activity and the assets needed to undertake the activity,
- the level of service Council will provide to the community over the ten-year period from when the plan was prepared,
- performance measures used to monitor whether the activity is delivering the level of service we set out to achieve,
- how the activity will be funded,
- details of any new project or expenditure planned for the next ten years, and
- assumptions used in preparing the plan and the uncertainties and risks involved in undertaking the activities.

Ngā Roto Biodiversity Assessment and Restoration Plan 2022

Council commissioned Singers Ecological to undertake a biodiversity assessment and prepare a restoration plan to provide a stocktake of where the restoration process has got to in 2021, identify what key challenges remain, and the priorities going forward. The plan resulted in the planting plan in Appendix 8 for the land the currently comprising Lake Ngā Roto

Appendix 3 Ownership, administration and classification of land covered by this Plan

	LEGAL DESCRIPTION	AREA (ha)		ADMINISTERING BODY	LAND STATUS
1	Allot 481 Ngaroto PSH	107.500	Crown	WDC Appointed to control and manage (gazette notice 1984 p.853)	Recreation Reserve (gazette notice 1984 p.853)
2	Allot 461 Ngaroto PSH	17.500	WDC	WDC Vested (gazette 1957 p.97)	Recreation Reserve (gazette notice 1979 p.462)
3	Allot 462 Ngaroto PSH	16.000	WDC	WDC Vested (gazette 1957 p.97)	Recreation Reserve (gazette notice 1979 p.462)
4	Allot 454 Ngaroto PSH	0.9156	WDC	WDC Vested (gazette notice 1974 p.328)	Recreation Reserve (gazette notice 1979 p.462)
5	Allot 460 Ngaroto PSH	0.1241	WDC	WDC Vested (gazette notice 1974 p.328)	Recreation Reserve (gazette notice 1979 p.462)
6	Section 1 Block XIV Hamilton SD	1.9273	WDC	WDC Vested (gazette notice 1974 p.328)	Recreation Reserve (gazette notice 1979 p.462)
7	Section 2 Block XIV Hamilton SD	1.5631	WDC	WDC Vested (gazette notice 1974 p.328)	Recreation Reserve (gazette notice 1979 p.462)
8	Parcel ID 4586983	5.6393	WDC	WDC	Unformed legal road
9	Part Parcel ID 4604108	10.5836	WDC	WDC	Unformed legal road
10	Lot 6 DP 526717	9.6792	WDC	WDC Acquired in 2018 and transferred in 2019	Fee simple under Local Government Act
11	Allot 54A Mangapiko PSH	3.5612	Crown	WDC Vested (gazette notice 1974 p.328)	Recreation Reserve (gazette notice 1979 p.462)

Appendix 4 Reserve acquisition and governance timeline

Pre-1974	The Te Awamutu Borough Council administered a small portion of Crown land adjoining Bank Road as a public domain. This land parcel provided public access to the lake. The bed of the lake and remaining Crown land inside the paper road, was administered by the Department of Lands and Survey.
1974	The Te Awamutu Borough relinquished control of the Domain land and the Minister of Lands declared the land to be a reserve, pursuant to Section 42(4) of the Reserves and Domains Act 1953. The reserve was then vested with the Waipā County Council. The Minister also approved the setting apart for recreation purposes, 34.0ha of Crown land adjoining the lakebed. Vesting conditions required Council to ensure that the areas of historic and archaeological significance were preserved, and that wildlife habitat associated with the lake was protected as far as possible. Waipā County Council accepted the vesting and conditions in a letter to the Commissioner dated 7 May 1974, and agreed to prepare a management plan, acceptable to the Department of Lands and Survey, Wildlife Division of the Department of Internal Affairs and the NZ Historic Places Trust. The Waipā County Council then approached the Marine Division, Ministry of Transport to gain control of the waters of Lake Ngā Roto to manage a growing use of the lake for sailing and rowing. Both the Auckland Acclimatisation Society and the Wildlife Division of the Department of Internal Affairs objected to this proposal. Both agencies stated the lake was a significant wetland and water bird habitat, and promoting recreational use would not in their view, recognise the lake's ecological significance. They suggested the bed of the lake be classified a Government Purpose Reserve (Wildlife Management) and management responsibilities be retained by the Crown. This matter was resolved by Waipā County Council agreeing to: "...Provide an advisory body to which such matters as public relations promotion, appointment of inspectors under a proposed bylaw and the integration of the many other aspects of management can be referred to expert opinion. It was felt that the cooperation of this committee would give full weight to the balanced use of the lake with the Acclimatisation Society's aims being protected while controlling public usage of the facilities already established". Both the Acclimatisation Society and the Wildlife Division of the Department of Internal Affairs would be represented on the Committee.
1979	A Management Plan was completed and approved by the Waipā County Council.
1982	Waipā County Council was granted control of the foreshore, lake bed and water, for a period of 21 years by an Order in Council under the Harbours Act 1950.
1983	The Lake Ngā Roto Bylaws were promoted and approved.
1984	The Crown classified the Allot 481 Ngaroto PSH which includes the lake bed recreation reserve and appointed Waipā County Council to control and manage the parcel.
1989	Local Government Review transferred responsibility for the management of the Lake Reserve to the Waipā District Council.
1991	Resource Management Act 1991 was enacted. The Order in Council made under the Harbours Act 1950 to control boating use was subsequently repealed, and responsibility for managing surface water activities now rests with WRC.
2009	The Management Plan was reviewed and a new Reserve Management Plan adopted.
2010	Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 ena.cted
2012	Ngā wai o Maniapoto (Waipā River) Act 2012 enacted.
2019	Council acquired Lot 6 DP526717

Appendix 5 Overview of Pā surrounding Lake Ngā Roto

Te Pūtere Pā (S15/7)

This is another island mound, 0.4ha in area, some 2.0m above the lake level. Test excavations by the Waikato Archaeological Group suggested a long and continuous occupation, with ash, charcoal, shell and oven stones to 1.8m. There was a line of posts about 5.0m apart along the lake frontage suggesting a fence or taiapa, but no palisade fortification. The circuit track was diverted around the western most extremity of this island Pā and a barrier rail was installedto protect the Pā's sensitivities from walking or cycling damage.

Te Moutere Pā (S15/9)

This Pā site is largely situated on privately owned land, partially within unformed road and partially within reserve. This was a human-made island built on the peat substrate some 200m from the original shoreline. The materials used to construct the mound were excavated from the surrounding hill sides, which still show signs of quarrying. Oven and grinding stones were believed to have been carried from Te Rore, 10km north west. The Pā was not fortified, but again a fence or taiapa stood around the perimeter in 1920.

Excavations by the Waikato Archaeological Group, revealed 25 layers of ash, charcoal, sands, clays and living floors covering approximately 2.0m of peat. Evidence suggests this Pa pre-dates the others and that the lake was manipulated (raised) for defensive purposes. Resulting levels were higher than the other natural mounds that were later used for Pā.

Unnamed Pā (S15/5)

A natural mound, likely to have been an island some 2.0m above the lake where the Sailing Club House now stands. Deposits of ash, charcoal and stone to 0.5 – 1.0m, suggest a long period of settlement. An interesting feature of this Pā were underwater palisades possibly to impede the approach of canoes. These have since been removed to prevent damage to recreational craft. A few metres south of the Pā was a site local people referred to as the "canoe harbour" further emphasising the long use of the lake and its importance in supplying food and materials.

Turangamirumiru Pā (S15/8)

This Pā is 100m west of the lake straddling a north south orientated ridge line. It consisted of 12 or more whare sites, terracing, ditches and pits. Early signs of cultivation on the northern slopes (varying shades of grass colour) together with the Pā's physical features have largely been destroyed by farming. This Pā was mentioned by Kelly's in his book "Tainui" as the gathering place of the Waikato Tribes before the battle of Hingakaka in 1807. In "Nga Iwi O Tainui: The Traditional History of the Tainui People", Nga koorero tuku iho a nga tuupuna, Pei Te Hurinui Jones wrote about Tauranga-mirumiru, home to twin sisters, Reituu and Reipae who became known for their beauty, to the extent of the Far North. 5 Marital alliances were formed between the twins and Ngāpuhi chiefs. Occupying around 0.7ha, this Pā is significant in Māori history; likely a place of refuge from colonial war and not a defensive Pā.

Unnamed Pā (S15/76)

Originally thought to be a headland jutting out into the lake, this Pā is flanked by a stand of mature trees. As is the case with Taurangamirumiru, S15/76 is wholly located on private property. Situated on the west side of Bank Road, 100m from the reserve. It has largely been destroyed although traces of charcoal and stone chips are still evident.

Appendix 6 Lake Ngā Roto freshwater attribute targets and baselines

At the time of writing this Plan, the National Policy Statement Freshwater Management set out attributes to measure restoration of freshwater values and PC1 identified Peat Lake Freshwater Management Unit targets for each attribute. These and the state of Lake Ngā Roto at the time of drafting this Plan are recorded here so progress can measured when this Plan is reviewed.

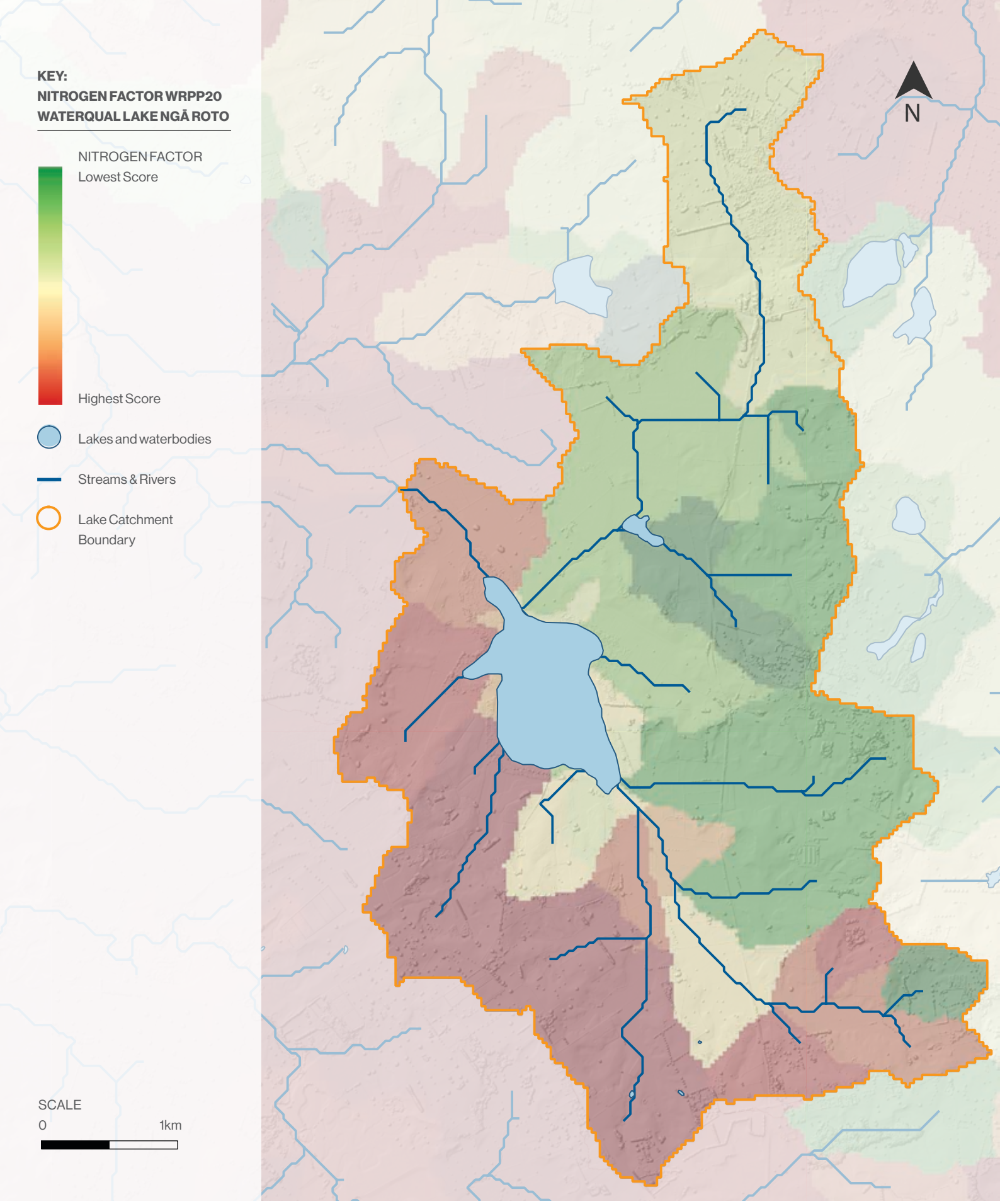
Value	Attribute	Target[16]	Lake Ngā Roto[17]	Importance
Ecosystem health (trophic state)	Annual Median Chlorophyll -a (mg/m3)	12	54	Measures trophic status of a lake which provides an indication of how much gorwth or productive occures in a lake, with productivity directly related to the availability of nutrients.
Ecosystem health (trophic state)	Annual Maximum Chlorophyll[18] -a (mg/m3)	60	390	As above.
Ecosystem health	Annual Median Ammonia (mg NH4-N/L)	0.24	0.01 (A band)	Affects survival of some species.
Ecosystem health	Annual Maximum Ammonia (mg NH4-N/L)	0.40	0.610 (B band)	As above.
Ecosystem health	Annual Median Nitrogen (mg/m3)	750	1950 (D band)	Excessive algal/plant growth impacts ecological communities.
Ecosystem health (aquatic life)	Annual Maximum Nitrogen (mg/m3)	50	Not available.	As above.
Human health for recreation Mahinga kai	95th percentile (E.coli/100mL)	540	162.5 (A band)	Risk of infection/illness from contact/ingestion.
Human health for recreation Mahinga kai	80th percentile Cyanobacteria[19] (biovolume mm3/L)	1.8	1.118	Toxic algae, makes people sick. Risks include respiratory, irrigation, allergy symptoms.
Human health for recreation	Clarity (m)	1	0.66	Affects people's safety (ability to see obstacles in water) and desire to swim.
Ecosystem health (aquatic life)	Phytoplankton[20] median (mg CHLA m-3)	n/a	54.000 (D band)	Excessive algal/plant growth impacts ecological communities
Ecosystem health (aquatic life)	Phytoplankton maximum (mg CHLA m-3)	n/a	390.000 (D band)	Excessive algal/plant growth impacts ecological communities
Ecosystem health (aquatic life)	Total phosphorous median (mg L-1)	n/a	0.098 (D band)	Excessive algal/plant growth impacts ecological communities
Ecosystem health (aquatic life)	Lake Submerged Plant (Native Condition Index)	n/a	0.000 (D band)	
Ecosystem health (water quality)	Lake-bottom dissolved oxygen	n/a	0.90 (D band)	

16 Target set in the Waikato Regional Council Plan Change 1 Table 3.11-1(d) Peat Lake FMU 80 year target (by 2096) unless the lake is already of better water quality in which case the target is to not decline.
17 Monitoring results provided by WRC.
18 Photosynthetic pigment found in plants and algae, including phytoplankton
.19 Floating bacteria that can photosynthesise lake true algae. Some species produce toxins.
20 Microscopic alage and cyanobacteria that drift or float in the water column.

Appendix 7 Lake Ngā Roto nitrogen, phosphorous, E.coli and sediment risk areas

(Source: Waikato Prioritisation Framework[21])

21 Waikato Prioritisation Framework combines multiple sourced spatial model data and applies geospatial analysis techniques to derive prioritisation rankings (scores) for managing soil conservation and water quality, at multiple scales across the Waikato region. The hydrological and land use framework provides the 'base' on which multiple spatial model data are imposed for the various spatial analyses to create the outputs used for prioritisation. The WPF provides for spatial analysis at multiple scales. This is enabled by the contiguous hydrological framework on which the spatial analysis is based. To provide the flexibility WRC require for decision making and mitigation implementation, the finest scale units (reach-watersheds) which have an average area of about 26 ha, can be aggregated into WRC defined sub-catchments and management zones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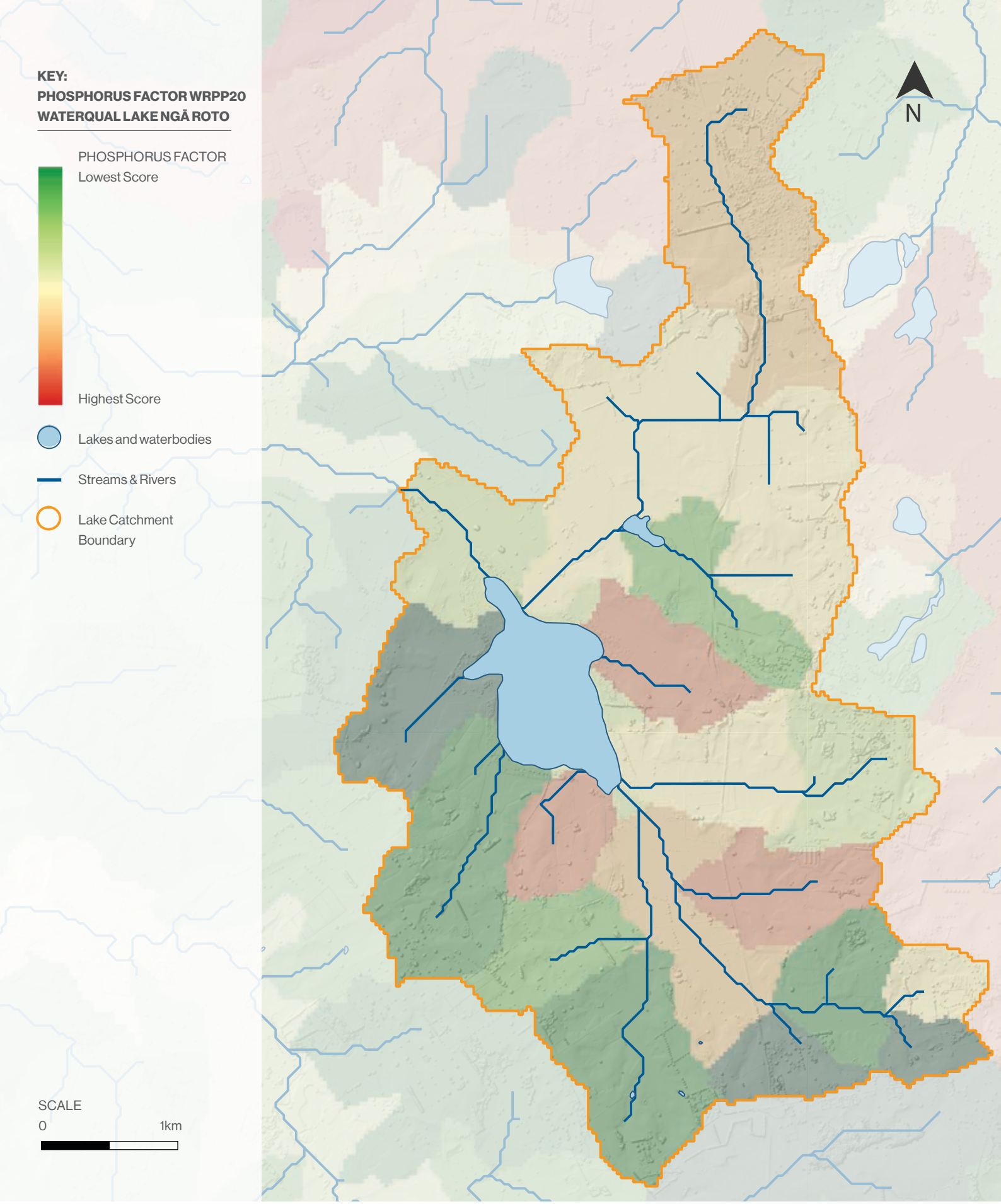
WATERQUAL LAKE NGĀ ROTO
NITROGEN FACTOR
Lowest Score
Highest Score
Lakes and waterbodies
Streams & Rivers
Lake Catchment
Boundary
N
SCALE
0
1km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WATERQUAL LAKE NGĀ ROTO
PHOSPHORUS FACTOR
Lowest Score
Highest Score
Lakes and waterbodies
Streams & Rivers
Lake Catchment
Boundary
N
SCALE
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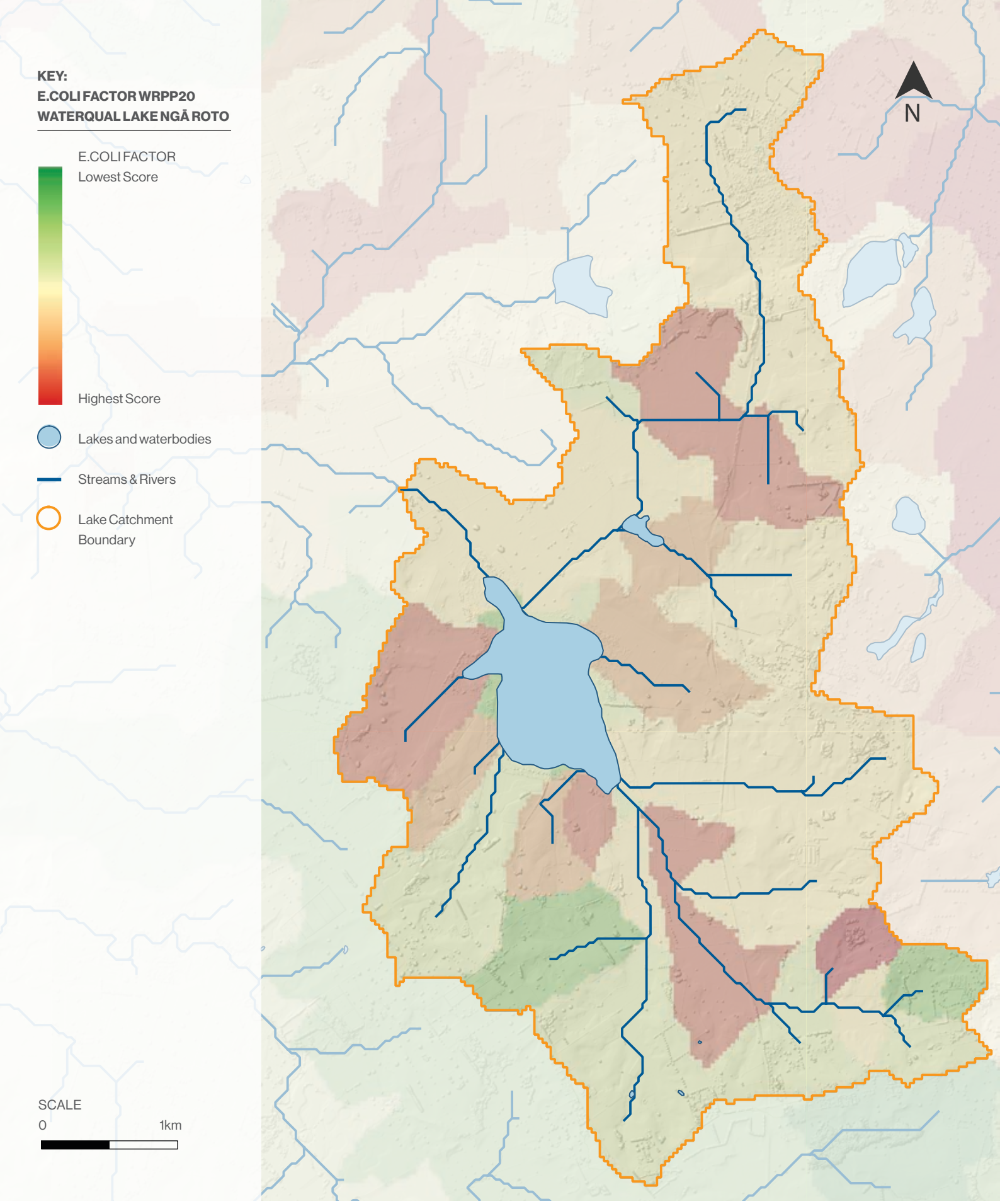
1km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WATERQUAL LAKE NGĀ ROTO
E.COLI FACTOR
Lowest Score
Highest Score
Lakes and waterbodies
Streams & Rivers
Lake Catchment
Boundary
N
SCALE
0
1km

Appendix 8 Restoration planting plan

(Source: Ngā Roto Biodiversity Assessment and Restoration Plan 2022)

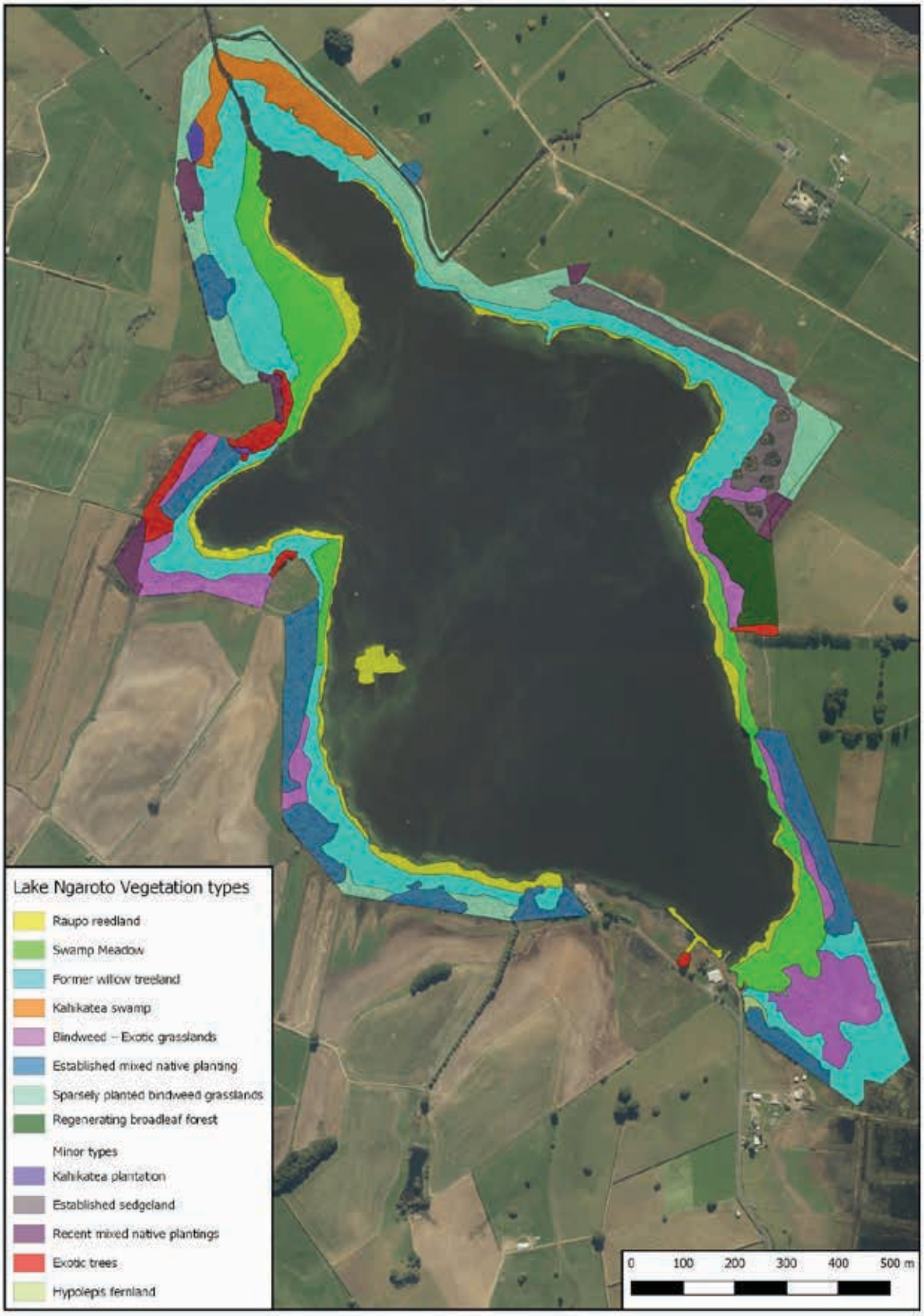

Figure 2: Vegetation Map of Ngā Roto, 61.1 ha of vegetation mapped. Areas of pasture/mown grass, and water are not included on this map.

Waipā
DISTRICT COUNCIL