Greater Wellington
Te Pane Matua Taiao

RECLOTHING PAPATŪĀNUKU

Focusing restoration efforts in parks

DRAFT Toitū Te Whenua Parks Network Plan 2020-30

The Draft Toitū Te Whenua Parks Network Plan 2020-30 has six goals which set the overall direction for work in parks. Three of these are core and ongoing for parks; managing natural values, recreation experiences, and heritage and landscape. The other three overlap and are of particular focus for the next ten years; working with mana whenua, climate change and sustainability and 'the way we work'.

The Plan name and vision expresses Greater Wellington's responsibility to the land, environment and people as custodian; Whatungarongaro te tangata, toitū te whenua, as people disappear from sight, the land remains. This whakatauki speaks to the importance and permanence of land. As humans we rely on the land and we must think long-term to see the big picture and ensure health of the land for itself and its people.

Draft Plan policies identify the primacy of achieving conservation and recreation benefits for parks over other land uses which have fewer benefits. Actions in the Plan identify works to restore and support environmental health across parks. In particular, the key opportunity to progressively restore the approximate 2000 hectares of public park land currently grazed by stock in four regional parks. These are Belmont, Queen Elizabeth (QEP), East Harbour, Baring Head / Ōrua-pouanui, and a small area in Kaitoke. To get broader scale restoration underway phasing out grazing activities is proposed. To help guide priorities, Greater Wellington scientists have identified high level overarching restoration priorities and mapped these in the draft Plan.

Most of these parks are classified as recreation reserves so it is important that public recreation activity and facility needs are considered before larger scale restoration works get underway. Some areas of park managed via grazing licences have been closed to the public for a number of years. To identify recreation facility needs and guide restoration work, the development of detailed master plans and for some parks, restoration plans are proposed. At Battle Hill Farm Forest Park, some further restoration is proposed, but small scale farming will continue here because sustainable farming education activities are part of this park's purpose.

Why restore native vegetation?

Expand habitat for native species

To enable native birds and other species to survive and thrive they need somewhere to live and breed. Park land mostly devoid of vegetation offers little habitat value and tends to favour introduced species which are more adapted to these altered environments. Bringing back the bush for native birds, insects and other species supports biodiversity and over time, strengthens the resilience of natural ecosystems.

Connecting areas of remnant habitat both within parks and beyond park boundaries provides essential corridors, allowing birds and other species to move between areas for feeding and breeding. This means working at a catchment level with others. Refer to the draft Plan for actions about improving habitat in parks.

Climate change action

Climate change impacts the region's indigenous biodiversity, primary industries, biosecurity, fresh water security, economy and population health and wellbeing. Flooding, storm surges, wildfires and inundation from rising ground water levels are all pressures that are magnified by climate change. Coastal, low-lying and flood-prone communities and infrastructure are already being impacted and other communities and the economy are vulnerable. Communities and the economy will be progressively affected with the majority of the population living on the coast or on the floodplains of major rivers. Transformational change must take place to reduce greenhouse gas emissions, while also adapting to the impacts of climate change. Greater Wellington declared a climate emergency in 2019 and adopted a Corporate Carbon Neutrality Action Plan and a Regional Climate Emergency Action Plan. These are collectively referred to as the "Greater Wellington Climate Emergency Response". These plans include a target to reduce corporate carbon emissions to net zero by 2030, and improve infrastructure and environmental resilience.

Greater Wellington has a leadership role in parks as part of the regional transition to a low emissions economy. Guided by mātauranga Māori in our work natural solutions can be advanced. Plan proposals for land use change from farming activities to restoration of indigenous vegetation support this transition process. Restoring and enhancing wetlands is also important. With less than three percent of original wetlands left in the region, restoring and enhancing wetlands in parks is important as they make a significant contribution to increasing sequestration rates. Climate change is due to increase weather extremes (floods, torrential rain, and drought) in the parks. Parks with healthy ecosystems have higher resilience to these weather extremes, and act as natural buffers and carbon stores.

Carbon farming comprises of growing of vegetation, quantifying the carbon dioxide sequestered during the vegetation's growth into tonnes of carbon dioxide (CO_2) per hectare, and then selling the rights to each tonne of sequestered carbon. One tonne of sequestered CO_2 is termed a New Zealand Unit (NZU). The MPI administered Emissions Trading Scheme (ETS) and Permanent Forestry Sink Initiative (PFSI) are programmes that enable private landowners to receive NZU's through the creation of eligible forests. NZUs can be claimed from the date the forest on the eligible land meets these specifications.

Coastal erosion at Queen Elizabeth Park (QEP) has been significant and is resulting in a number of roads, trails and facilities being removed or relocated inland.

Freshwater quality

Restoring park land grazed by stock offers the benefit of increasing the health and quality of freshwater streams, wetlands, rivers and inlets. Farming activities make ongoing contributions to the sediment load in water catchments, especially on steeper slopes. Stock access to any waterway and overland flow path through grazed paddocks is one of the main routes for E. coli (from stock dung) to enter waterways. Macroalgae blooms occur when there is excess phosphorus and nitrogen in waterways. Macroalgae blooms have a range of adverse effects including, reducing light for desirable species, smothering shellfish beds and other desirable species, and depleting sediment oxygen.

Restoring headwaters of streams, such as much of Belmont Regional Park has downstream benefits across large catchments, local streams through residential areas and ultimately our harbours.

A lack of vegetation, particularly streamside (riparian) can reduce fish spawning habitat, and cause streambank erosion resulting in increased sedimentation of waterways and affect the functioning of aquatic species. Riparian planting is an effective method to mitigate sediment, pathogens and excess nutrients. Actions in the draft parks management plan support Greater Wellington's Whaitua programme, see www.gw.govt.nz/assets/Whaitua/Porirua

Community advocacy, interests and recreation experiences

In public consultation to develop the draft Plan we asked what people valued about parks and what they thought the issues and opportunities were. In feedback many told us that they highly value the natural environment of parks. People were concerned about the impacts of pest plants and animals on biodiversity, gaps in fish passage and gaps in habitat for native species. A petition was received for peat wetland restoration in QEP. Concerns were raised about areas of park being closed to the public to allow for grazing activities and the impact of this activity on the environment and park recreation experiences, e.g. many fences, gates, stock poo on tracks. Others said they liked seeing farm animals. Overall, people feel strongly about their parks and public feedback indicated there was significant support for reducing impacts and undertaking more restoration work. Some suggested that we should utilise and support volunteers more.

We listened. The 'Way we work' goal in the draft Plan identifies Greater Wellington's intention to better support and enable partner and community conservation and recreation work in parks. There are many different ways to manage park land and undertake restoration work in parks. Working together, drawing on the wealth of knowledge, expertise and enthusiasm of mana whenua partners, park groups and others in the broader community to combine resources makes good sense. The draft Plan identifies a range of actions to support restoration work such as establishment of community collaboration groups to guide and support restoration work. We know that this can work well; see the case studies below.

Less than 3% of the regions wetlands remain and they are important habitat, natural filters and great places to listen to frogs and watch birdlife. Greater Wellington wants to showcase best practice in land care and wetland restoration.

Some wetlands are 'seepages' and seasonal. To spot them, look for the different grasses and areas in gullies that still show green grass in the summer like this one in Belmont Regional Park.

Less stock will mean less investment of funds in fences and gates and cleaner streams.

Reducing the threat of fire

Modern landscapes, like those in our regional parks, that are still in native bush do not readily burn. However, there are also extensive areas of regional parks that have been transformed through logging and clearance for agriculture. These areas tend to be more open and drier, with a seasonal abundance of fine fuels (e.g. grasses and exotic shrubs) that can support the ignition of fire. Whilst lightning strikes are common sources of ignition, fires started by people can also occur. Overall fire threat for the region is predicted to increase in some areas and periods of drought become more frequent and longer as a result of climate change. In other areas rainfall is predicted to be higher, but overall rainfall patterns are changing, resulting in drier climates.

Fire threat can be actively managed to protect lives, property and maturing native vegetation. The development of fire 'tactical response plans' is proposed for all parks in the draft Plan. However, the most effective way to minimise the threat of fire is to return the vegetation of parks to their natural states. This takes time so other measures are used to reduce annual fire threat. 'Green fire breaks' can be planted using non-flammable native species. Vegetation fire breaks can be cut and maintained on the perimeter of parks and around important assets. Seasonal fuel loads can be reduced in key places. Where park masterplans identify maintenance of areas of open landscapes, vegetation can be kept under control through grass cutting (or hay baling), recreation related horse grazing or stock grazing where it has low impact.

Speeding up the natural recovery of forests through restoration plantings, or most commonly, a combination of natural regeneration and restoration plantings reduces fire threat. This includes planting taller canopy tree species that will eventually take over from the exotics. Highly inflammable exotic vegetation such as gorse is not removed in some places because it supports natural native species regeneration (acting as a nitrogen fixing 'nursery species'). This includes southern Belmont Regional Park and Parangarahu Lakes, East Harbour Regional Park. Other fire threat reduction activities include park rules about use of fire, education activities, and work with park neighbours on fire breaks, access tracks, fire emergency response plans and maintenance of appropriate equipment. Within and beyond parks, a network of firebreaks can help reduce the impact of fire.

The best medium-long term defence against fire is restored native vegetation which is naturally non-flammable. Kaitoke Regional Park.

Planning for restoration

Approximately 2,000 hectares of park land will become available for restoration, recreation and community uses as the grazing licences are phased out. There is a wealth of existing in formation to inform restoration planning, in particular Resource Statements for parks, Key Native Ecosystem Plans, information about original vegetation and research collated via Whaitua and other programme work. The draft Plan provides policy guidance and maps overarching priorities. In some areas of park restoration plans have been developed for sub-catchments such as Hill Road, Belmont. Within the Porirua Whaitua catchments priorities for restoration are based on waterway sediment and E.coli reduction and expansion of existing areas of native vegetation. These areas provide important seed source for spreading by the wind and birds.

Queen Elizabeth Park nursery where thousands of trees are grown each year to help restore the park.

People's recreation activity needs are an important consideration because the parks proposed for larger scale restoration works are all classified as recreation reserves under the Reserves Act. Recreation facilities and in particular trail networks which best meet people's needs must be defined before large scale restoration gets underway. The draft Plan identifies that master planning will be undertaken for Belmont and Queen Elizabeth Parks in liaison with mana whenua partners and community through engagement processes and with the support of a community reference group for each park. In other parks restoration plans will guide work.

Masterplans developed will provide a blueprint to guide long term restoration and recreation work in these parks and ensure a strategic, long term approach based on science, research and community needs for parks. It will explore possibilities for adaptive reuses of farming related buildings and infrastructure such as park cottages, wool sheds and other buildings. It is possible that these facilities can be used to support restoration efforts, e.g. growing plants, bases for volunteers, community learning about conservation or cottages on the park providing revenue to support restoration work. Masterplans will identify areas for maintenance of open space, vistas and wetland restoration.

"The future of life on earth depends on our ability to take action. Many individuals are doing what they can, but real success can only come if there's a change in our societies and our economics and in our politics. I've been lucky in my lifetime to see some of the greatest spectacles that the natural world has to offer. Surely we have a responsibility to leave for future generations a planet that is healthy, inhabitable by all species" David Attenborough.

Battle Hill bush restoration. Explore this area near the campground.

The Huharua Harbour Park, Tauranga special masterplan was created with the input from mana whenua, community and stakeholders. Case sudy image courtesy of Geoff Canham consulting.

Restoration options
There are many different ways to undertake restoration work and mostly commonly both 'passive' and 'active' restoration methods are used in combination.

Passive restoration involves letting nature take its course to restore itself to a new equilibrium. Often pest plant and animal work takes place to minimise the impacts of invasive species and support native vegetation regrowth. Passive restoration can be 'kick started' with native vegetation pocket plantings. Then birds, wind and rain can spread seeds for more regrowth.

Active restoration work sees thousands of volunteers and paid professionals out in parks planting native vegetation. Restoration work, along with pest plant and animal maintenance is now a common recreation activity. Land is usually restored by a combination of passive and active restoration.

Active restoration can be achieved in many ways.
It includes:

- pocket plantings
- mass plantings
- exotic plantings as temporary shelter while natives establish
- passive restoration supported by regular plantings and pest plant management works
- bird perches to encourage seed spreading
- aerial seed bombing
- drone distribution
- mechanical machine planting
- blocking of drains/ streams to re-establish wetlands
- fish passage works to support stream health
- mowing to suppress weeds and support regenerating plants
- distribution of logs and tree branches in open areas to capture seed spread and create pocket shelter
- use of the Australian 'Bradley method' focusing on enlarging and working from healthy bush remnants outwards

He waka eke noa / we're all in this together, moving forward

A lot can be achieved by working together. Greater Wellington extends an invitation to you to join your local park friends group, restoration or recreation group, or start up a new group and get involved in parks restoration and recreation work or planting days. There are many benefits and its rewarding to see the plants you have planted grown and mature.

Fifteen years ago Greater Wellington made the important decision to cease livestock grazing at Parangarahu Lakes, part of East Harbour Regional Park. Since then native vegetation is gradually coming back via plot planting. There have not been any fires. The park is co-managed with mana whenua, Port Nicholson Block Trust/ Taranaki Whānui, who regularly undertake restoration plantings. MIRO (Mainland Island Restoration Organisation) also work extensively in the park trapping pest animals and supporting restoration work.

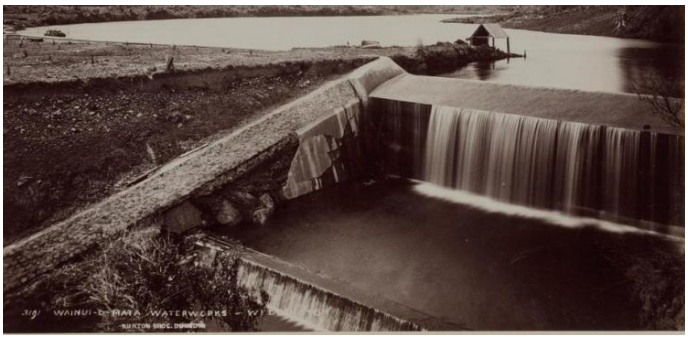
Key ingredients of successful restoration projects – case studies

Here we explore some case studies from within the regional park network and beyond.

Wainuiomata Recreation Area and water collection area

The Wainuiomata and Orongorongo drinking water catchments in Wellington contain one of the largest areas of unlogged lowland podocarp forest in the lower North Island and are regarded as being nationally representative of this forest type. The Lower Dam (pictured) was completed in 1884. Timber was harvested from some parts of the of the lower Wainuiomata catchment until the late 1900's in the area now known as the Wainuiomata Recreation Area, part of the regional park network. Stock grazing ceased in the mid 1940's and the native vegetation has come back. Kanuka and ferns returned first, self-seeded by winds and birds, followed by rewarewa, rātā and kāmahi which established amongst the low scrub in much the same way that gorse acts now as a 'nursery' shelter species.

Over time many birds returned including silvereye and blackbird. However from the 1920s to the 1980s deer, goats and possums became common and had a significant impact on many plants. Tree fuchsia, tutu and raukawa disappeared first then rātā and kāmahi came under threat. To save the forest from pest animals, from 1990 to 2005, focused efforts were made to reduce animal numbers and browsing impacts. Plants regrew and other shrubs established under them. Struggling rātā and kāmahi trees began flourishing again. By 2020, 110 years after grazing ceased, the forest trees and shrubs are flourishing with lots of flowers and fruit. Possum numbers are kept low by poisoning operations. In the year after each operation birds become more common because rats and stoats are also killed. In 2007, weeds including willow and holly were removed and the lower dam lake was reformed with wetland establishing around it. Several prominent trees have emerged including black beech, rewarewa, northern rātā, kānuka, kāmahi and hīnau.
This passive restoration approach, allowing the bush to come back naturally, supported by pest plant and animal interventions proves that low cost solutions work and take time. They are an effective long term solution for bringing the bush back and enabling biodiversity to thrive.



Lower Dam, Wainuiomata Reservoir, 1888

Lower Dam, Wainuiomata (Reservoir) Regional Park, 2019

Parangarahu Lakes, East Harbour Regional Park - Wellington

The Parangarahu Lakes (Lake Kōhangatera and Lake Kōhangapiripiri, also known as the Pencarrow Lakes) is approximately 471 ha and part of the East Harbour Regional Park co-managed with mana whenua, Port Nicholson Block Settlement Trust (PBNST). The park, located on the Pencarrow headland at the entrance of Wellington Harbour is protected as Conservation Covenants and managed as scientific reserve, recreation reserve, Māori reservation and historic reserve.

The Lakes contain Gollans wetland and Cameron's wetland which are extensive ecosystems; largely intact and support a wide variety of native aquatic plants, fish and birds. The areas of coastal cliff, coastal platform and shingle beaches are important for breeding shorebirds, reptiles and rare cushion plants. There are remnant forest patches and throughout the park native vegetation is regenerating passively, supported by an annual planting programme and ongoing pest plant and animal reduction work.

Lake Kōhangapiripiri (2004) is fed by Camerons Creek from the north and enclosed by the shingle beach to the south.

Lake Kōhangapiripiri 2019 where passive restoration supported by planting plots since 2007 by MIRO (with Greater Wellington and Taranki Whānau support). The process of allowing the bush to restore naturally has been supported by pest plant and animal work and a fire management plan is in place.

The vegetation of the park has been highly modified by 150+ years of burning and stock grazing. Greater Wellington made the decision to cease stock grazing in 2004 so that restoration of native vegetation could take place. The park is now regenerating primarily with gorse, mānuka and tauhinu. Remnants of native forest in the north-eastern area provide a useful seed source. Regeneration of a wide range of native species is occurring in sheltered gullies.

A landscape restoration strategy has been in place since 2004, aiming to re-cloak the hills with native vegetation. Since 2007 active restoration plots have been planted by MIRO (with PBNST/ Taranki Whānau and Greater Wellington support) with the aim to provide a number of seed sources for birds to actively spread, aiding natural regeneration progress. With the help of mown fire breaks park tracks, there has been no fire at the Parangarahu Lakes since grazing activities ceased and passive regeneration processes started.

Gorse and pasture grasses which currently dominate much of the hillsides provide shelter for native species such as mānuka, kānuka and tauhinu. The gorse will eventually succumb to being overgrown by native trees. In some areas māhoe, tree ferns and coastal tree daisy are now naturally regenerating.

Pest animal control is undertaken by Greater Wellington staff and volunteers. Ground-based shooting targets goats, feral cats, and rabbits and hares whilst, a network of kill-traps is used to target mustelids, rats, hedgehogs and possums. Ecological weed control has been successful in reducing large infestations of gorse, lupin, marram, yellow-flag iris and boneseed to protect and enhance the natural native ecosystems.

The Parangarahu Lakes are significant habitats for many bird species and also considered a significant mainland lizard site for the region.

A key restoration lesson learnt from the Parangarahu Lakes experience has been to include recreation facilities and experience planning early in the planning process. The trails at the Lakes are based on the old farm track network, very steep and some don't connect well. The draft Plan identifies two new connecting tracks to improve access and recreation experience. In other parks master planning is proposed to consider recreation experience and facilities as part of restoration planning.

Pirirakau Hapu and Western Bay of Plenty District Council (WBOPDC), Huharua Park
Case study and images courtesy of Geoff Canham Consulting

Huharua Park near Tauranga city has seen a dramatic transformation in recent years due to the collaborative efforts of mana whenua, council and the community. The park is part of Tauranga Moana's Regional Park network and features rich cultural heritage, including defensive trenching and sacred areas. Local iwi, Pirirakau hapu advocated for many years for the protection of the Ongarahu Pa site and through this gained the support of council and community to begin a redevelopment project.

The land is jointly owned by two councils; WBOPDC as lead agency and Tauranga City Council, but the park has been cooperatively designed, managed, funded, developed and maintained with mana whenua.

The key works to redevelop and restore the park started in 2006 and finished in 2009. On one occasion community groups and schools planted over 8000 tress in just an hour. This included Pirirakau Hapu hosting an episode of 'DIY Marae' at the park where they reconstructed the Ongarahu Pa palisades and erected Waharoa and Atea features on the Ongarahu Pa. Collaborative planning meant the nature, style and form of recreation facilities were shaped by the people who would be using them. The Omokoroa-Tauranga cycle trail now passes through the park providing great access to the park. It has become a destination with features such as sacred trees and revealed archaeology, restored native habitat bringing birds, lizards and making the park a much more attractive place to picnic, play and spend time.

Site of Huharua Harbour Park, and the aerial view prior to orchard removal and other park developments.

Kopurererua Valley - Tauranga

Case study and images courtesy of Geoff Canham Consulting

Through a partnership with mana whenua and Tauranga City Council, a previously forgotten valley has been turned into a restored natural environment. The Kopurererua Valley is now an outstanding example of how natural planting can be introduced into a degraded urban setting. The park development covers 364 ha in a valley approximately parallel to Cameron Road.

The hapu of Ngai Tamarawaho developed a vision for the park in 1999 that has seen it transformed in less than 20 years. Previously the park and valley was degraded, weedy, with limited public access, disaffected neighbours and many criminal

activities. It was intensively farmed and flooding was common.
The Kopurererua Valley solution saw all of these issues addressed and one of the most dramatic inner-city park turnarounds achieved in New Zealand. The solution involved a sustainable land management approach with natural flood management through new wetlands, restored swamps and recreation facilities.
The project is now known as an excellent example of mana whenua-community-council partnership of iwi leading the visioning process and business leaders partnering to implement, supported by council. The revitalised park has 12 km of shared trails, an entranceway to the city with large stands of kahikatea trees and entrance sculptures, extensive native plantings to enhance views, wetlands and aquatic life, passive and active recreational areas including trails, picnic facilities, and nature play areas. The collaborative restoration project has been profiled internationally.

The grand entrance into the Ongarahu Pa, Huharua Park, Pirirakau Hapu and Western Bay of Plenty District Council. Photo courtesy of Geoff Canham consulting.