

Key Native Ecosystem Operational Plan for Omahu

2022-2027



Contents

1. Purpose	1
2. Policy Context	1
3. The Key Native Ecosystem Programme	3
4. Omaha Key Native Ecosystem site	4
5. Parties involved	5
6. Ecological values	6
7. Threats to ecological values at the KNE site	8
8. Vision and objectives	9
9. Operational activities	10
10. Operational delivery schedule	12
11. Funding contributions	13
Appendix 1: Site maps	14
Appendix 2: Nationally threatened species list	18
Appendix 3: Regionally threatened plant species list	19
Appendix 4: Threat table	20
Appendix 5: Ecological weed species	22
Appendix 6: Revegetation plant list	23
References	24

1. Purpose

The purpose of this five-year Key Native Ecosystem (KNE) Operational Plan for Omahu KNE site is to:

- Identify the parties involved
- Summarise the ecological values and identify the threats to those values
- Outline the vision and objectives to guide management decision-making
- Describe operational activities to improve ecological condition (eg, ecological weed control) that will be undertaken, who will undertake the activities and the allocated budget

KNE Operational Plans are reviewed every five years to ensure the activities undertaken to protect and restore the KNE site are informed by experience and improved knowledge about the site.

This KNE Operational Plan is aligned to key policy documents that are outlined below (in Section 2).

2. Policy Context

Regional councils have responsibility for maintaining indigenous biodiversity, as well as protecting significant vegetation and habitats of threatened species, under the Resource Management Act 1991 (RMA)¹.

Plans and Strategies that guide the delivery of the KNE Programme are:

Greater Wellington Long Term Plan

The Long Term Plan (2018-2028)² outlines the long term direction of the Greater Wellington Regional Council (Greater Wellington) and includes information on all our major projects, activities and programmes for the next 10 years and how they will be paid for. This document outlines that Greater Wellington will actively manage selected high value biodiversity sites. Most of this work is undertaken as part of the KNE Programme.

Proposed Natural Resources Plan

The Proposed Natural Resources Plan for the Wellington Region (PNRP)³ provides the high level strategic framework which sets out how Greater Wellington, Mana whenua partners and the community work together and includes

- Guiding Principles that underpin the overall management approach of the plan (eg, Kaitiakitanga)
- Sites with significant indigenous biodiversity values
- Sites of significance to mana whenua (refer Schedules B, C, Schedule D)

Greater Wellington Regional Pest Management Plan 2019-2039

The KNE programme is an important driver for managing many of the pests that are prioritised in this KNE Operational Plan. Without active management of KNE sites, many native plants and animals in these ecosystems would struggle to thrive. The KNE programme aims to provide protection to maintain or restore the ecological function of these ecosystems as well as the native plants and animals they support. This is done mainly by managing threats such as harmful pests or introduced plants and animals.

Greater Wellington Biodiversity Strategy

The Greater Wellington Biodiversity Strategy⁴ (the Strategy) is an internal document that sets a framework that guides how Greater Wellington protects and manages biodiversity in the Wellington region to work towards the Vision.

Vision

Healthy ecosystems thrive in the Wellington region and provide habitat for native biodiversity

Principles

Use best practice work with others Lead by example partner with mana whenua

Goal One

Areas of high biodiversity value are protected or restored

3. The Key Native Ecosystem Programme

The KNE Programme is a non-regulatory programme. The programme seeks to protect some of the best examples of original (pre-human) ecosystem types in the Wellington region. Sites with the highest biodiversity values have been identified and prioritised for management.

KNE sites are managed in accordance with five-year KNE plans prepared by Greater Wellington's Biodiversity department. Greater Wellington works with the landowners, mana whenua and other operational delivery providers to achieve mutually beneficial goals.

KNE sites can be located on private or publicly owned land. Any work undertaken on private land as part of this programme, it is at the discretion of landowners, and their involvement in the programme is entirely voluntary. Involvement may just mean allowing work to be undertaken on that land. Land managed by the Department of Conservation (DOC) is generally excluded from this programme.

Sites are identified as of high biodiversity value for the purposes of the KNE Programme by applying the four ecological significance criteria described below.

Representativeness	Rarity/ distinctiveness	Diversity	Ecological context
The extent to which ecosystems and habitats represent those that were once typical in the region but are no longer common place	Whether ecosystems contain Threatened/At Risk species, or species at their geographic limit, or whether rare or uncommon ecosystems are present	The levels of natural ecosystem diversity present, ie, two or more original ecosystem types present	Whether the site provides important core habitat, has high species diversity, or includes an ecosystem identified as a national priority for protection

A site must be identified as ecologically significant using the above criteria and be considered "sustainable" for management in order to be considered for inclusion in the KNE Programme. "Sustainable" for the purposes of the KNE Programme is defined as: a site where the key ecological processes remain intact or continue to influence the site and resilience of the ecosystem is likely under some realistic level of management.

4. Omahu Key Native Ecosystem site

The Omahu KNE site (27 ha) is located 12 kilometres southeast of Masterton on the Taueru River and distributed across three sheep and beef farms, with the majority of the KNE site on Omahu Farm (see Appendix 1, Map 1). The KNE site includes a regionally significant oxbow wetland (9 ha) with native flaxland and shrubland vegetation, and remnant podocarps at the north-east end of the site. The remainder of the KNE site is riparian and alluvial terrace and hillslope habitat along the true-right side of a 1.5km stretch of the Taueru River. The forest along this section of the Taueru River contains remnants of regionally-rare totara, tītoki forest ecosystem and contains good examples of primary and regenerating podocarp and broadleaved forest.

5. Parties involved

There are many organisations, groups and individuals that play important roles in the care of the KNE site.

5.1. Landowner

The KNE site is located on private land owned by three landowners (see Appendix 1, Map 2). All are supportive of the activities and objectives detailed within this KNE plan.

Most of the KNE site (~16.5 ha) is on the Omahu property owned and run by the Omahu Farm Partnership. They are interested in protection and enhancement of the KNE site, particularly the wetland. They play an active role in implementing the plan as their farming and business commitments allow. They do small amounts of restoration planting and maintain stock exclusion fencing around the wetland.

Rob and Kirsty Gardiner own most of the north-eastern area (5.3 ha) of the KNE site. Their property is currently being leased to the Omahu Farm Partnership. The Gardiners are supportive of biodiversity management work.

James Deans (Katatane Farm) owns the north-eastern corner (2.1 ha) of the KNE site and is supportive of the work. He and Rob Gardiner are undertaking native restoration planting on the river terrace which benefits the KNE site.

5.2. Operational delivery

Within Greater Wellington, three departments are responsible for delivering the KNE operational plan.

- The Biodiversity department is the overarching lead department for Greater Wellington on the longer term planning and coordination of biodiversity management activities and advice within the KNE site. The Biodiversity department's KNE budget funds the Biosecurity department to coordinate and carry out pest control activities.
- The Biosecurity department coordinates and implements pest control measures at the KNE site.
- The Land Management department plans and provides advice on sustainable land use, soil conservation and water quality with their funding for parts of the KNE site covered by a Greater Wellington Farm Environment Plan.

All landowners have participated in intermittent native planting work in the past and plan to continue those efforts as time and resources allow.

6. Ecological values

This section describes the various ecological components and attributes that make the KNE site important. These factors determine the site's value at a regional scale and how managing it contributes to the maintenance of regional biodiversity.

6.1. Ecological designations

Table 1, below, lists ecological designations at all or part of the Omaha KNE site.

Table 1: Designations at the Omaha KNE site

Designation level	Type of designation
Regional	Part of the Omaha KNE site is designated under the GWRC Proposed Natural Resources Plan (PNRP) as a Significant Natural wetland (Schedule F): <ul style="list-style-type: none"> • Otahoua Swamp
Other	Parts of the Omaha KNE site are designated as a DOC Recommended Area for Protection (RAP), and as DOC Designated Ecological Sites. <ul style="list-style-type: none"> • Omaha Bush (Designated Ecological Site) • Otahoua Swamp (Designated Ecological Site) • Otahoua Swamp (RAP)

6.2. Ecological significance

The Omaha KNE site is considered to be of regional importance because:

- It contains highly **representative** ecosystems that were once typical or commonplace in the region
- It contains ecological features that are **rare or distinctive** in the region

Representativeness

The Singers and Rogers⁵ classification of pre-human forest vegetation indicates that most of the KNE site would likely have been comprised of tōtara, tītoki (MF1) forest, of which only 4.1% of the original extent remains in the Wellington region⁶. Several mature tōtara are present on site and regeneration MF1 forest persists along the Taueru river margin. The wetland portion of the site was likely a swamp mosaic of flaxland (WL18), raupo reedland (WL19) and *Coprosma*, twiggy tree daisy scrubland (WL20) and these ecosystems are still well represented within the KNE site.

The Threatened Environment Classification system⁷ defines ecosystem and habitat threat categories nationally based on percentage indigenous cover remaining. Land in the Omaha KNE site in the highest threat category: Category 1. This means there is less than 10% of original cover of indigenous vegetation remaining on these types of land in New Zealand.

Rarity/distinctiveness

The wetland, Otahoua Swamp, is one of the largest and most intact examples of freshwater wetland remaining on the riparian flats in the Eastern Wairarapa ecological district⁸. Wetlands are now considered an uncommon habitat type in the Wellington Region with less than 3% remaining of their original extent⁹.

New Zealand's national threat classification system¹⁰ lists two plant and one bird species as nationally 'Threatened' or 'At Risk' within the KNE site. Two plant and two birds species present have also been listed as regionally 'Threatened'. Nationally threatened species are listed in Appendix 2 and regionally threatened species in Appendix 3.

6.3. Ecological features

Vegetation communities and plants

Today the forest is a mix of remnant and regenerating podocarp and broadleaved species. Tōtara (*Podocarpus totara*) and tītoki (*Alectryon excelsus*) are the dominant species, with kōwhai (*Sophora microphylla* and *S. tetraptera*) and occasional kahikatea (*Dacrycarpus dacrydioides*), rōhutu (*Lophomyrtus obcordata*), poataniwha (*Melicope simplex*) and weeping mātipō (*Myrsine divaricata*). Several specimens of weeping mātipō host the leafless, dwarf mistletoe *Korthalsella lindsayi*. Tāwa (*Beilschmiedia tawa*), mātai (*Prumnopitys taxifolia*), māire (*Nestegis* spp.), kōhūhū (*Pittosporum tenuifolium*), *Fuchsia perscandens* and the fern kiōkiō (*Blechnum triangularifolium*) are present but uncommon.

The wetland vegetation community remains largely intact, and species include flax (*Phormium tenax*), swamp coprosma, (*Coprosma tenuicaulis*), mingimingi (*Coprosoma propinqua*), raupō (*Typha orientalis*), wīwī (*Juncus edgarae*) and various *Carex* species (eg, *Carex germinata*, *C. secta* and *C. virgata*). The wetland is fed by three small natural springs along the western edge. In large flood events the Taueru River inundates the wetland¹¹.

Species

Birds

A single spotless crane (*Porzana tabuensis*) was recorded in 2017¹². In 2021 an environmental DNA (eDNA) survey confirmed the presence of spotless crane and indicated that black shag (*Phalacrocorax carbo*) are at least occasionally present within the wetland. The site would provide ideal habitat for Australasian bittern (*Botaurus poiciloptilus*) but no records exist to date^{13,14}.

The KNE site is important for a range of more common native bird species, including kererū (*Hemiphaga novaeseelandiae*), tūi (*Prothemadera novaeseelandiae*), bellbird (*Anthornis melanura*), kingfisher (*Halcyon sancta*), paradise shelduck (*Tadorna variegata*), grey warbler (*Gerygone igata*), harrier hawk (*Circus approximans*), shining cuckoo (*Chrysococcyx lucidus*), pukekō (*Porphyrio porphyrio*), fantail (*Rhipidura fuliginosa*) and white-faced heron (*Egretta novaehollandiae*)¹⁵.

Fish and aquatic macrofauna

Shortfin eel (*Anguilla australis*) and koura (*Paranephrops planifrons*) were recorded in the wetland in 2017¹⁶. A 2021 eDNA survey confirmed the presence of shortfin eel.

7. Threats to ecological values at the KNE site

Ecological values can be threatened by human activities, and by introduced animals and plants that change ecosystem dynamics. The key to protecting and restoring biodiversity as part of the KNE Programme is to manage key threats to the ecological values at each KNE site. Appendix 4 presents a summary of all known threats to the Omaha KNE site.

7.1. Key threats

The KNE site has been modified by native forest clearance, selective logging, planting and natural spread of exotic plant species, and by cattle and sheep grazing, which continues in some areas. The main threats to the ecological values of Omaha KNE site are ecological weeds and introduced predators and browsers.

Ecological weeds can outcompete and smother indigenous species, preventing native regeneration. Across the KNE site there are significant infestations of old man's beard (*Clematis vitalba*), along with spindle tree (*Euonymus europaeus*) and elderberry (*Sambucus nigra*), and at least one infestation of periwinkle (*Vinca major*). In the wetland, crack willow (*Salix fragilis*) is the main threat as it can colonise large areas and affect wetland structure and function if uncontrolled.

Pest animals of concern in the KNE site include possums (*Trichosurus vulpecula*), rats (*Rattus spp.*), mustelids (*Mustela spp.*), feral cats (*Felis catus*), hedgehogs (*Erinaceus europaeus*), rabbits (*Oryctolagus cuniculus*), and hares (*Lepus europaeus*). These species reduce native biodiversity and ecosystem health by browsing native vegetation or preying on native fauna.

Sheep and cattle grazing continues in some areas of the KNE, hampering native regeneration. Previously grazed areas produce thin forest margins that are more prone to environmental stress and ecological invasion.

8. Vision and objectives

8.1. Vision

Thriving and ecologically diverse wetland system, strongly interconnected with regenerating native forest along the Tauweru river.

8.2. Objectives

Objectives help to ensure that operational activities carried out are actually contributing to improvements in the ecological condition of the site.

The following objectives will guide the operational activities at the Omahu KNE site.

- 1. Protect the distinct wetland ecosystem mosaic and enhance it by increasing native plant survival and succession***
- 2. Protect and enhance habitat for native wetland bird populations***
- 3. Enhance the forest regeneration processes to promote ecological diversity***

9. Operational activities

Operational activities are targeted to work towards the objectives above (Section 8). The broad approach to operational activities is described briefly below, and specific actions, with budget figures attached, are set out in the operational delivery schedule (Section 10, Table 4).

9.1. Ecological weed control

The aim of ecological weed control is to maintain the native biodiversity values and facilitate more natural functioning of the native ecosystem by limiting the impacts of exotic plant species.

Crack willow control is carried out annually in the wetland area. This involves ongoing surveillance and follow-up treatment using spraying and stump treatment. Crack willow was first treated in the wetland in 2012 by aerial spraying and re-growth has been treated with knapsack herbicide spraying and cut and paste operations every two to three years since. The ability of crack willow to colonise and modify large areas of this habitat makes it a high priority for control.

The invasive climber old man's beard is controlled throughout the KNE site. Large vines are cut and stump-treated with herbicide gel. Smaller vines and seedlings are sprayed with herbicide. Ongoing surveillance and follow up control will be done to maintain controlled areas as reinvasion by wind-borne seed is likely.

Elderberry, periwinkle, spindle tree, barberry and hawthorn control is carried out around the wetland, and the Deans and Gardiner properties by either cutting and treating or spraying with herbicide. Further work on woody weed control in the remainder of the KNE site will be dependent on good progress being made on controlling these priority species in these areas.

9.2. Pest animal control

The aim of pest animal control is to improve native ecosystem function and regeneration. Pest control in support of ecosystem function includes reducing non-native herbivory to promote native forest regeneration. Non-native predator control improves survival of native animal populations.

A multi-species pest animal control network was installed around the wetland in 2013 and expanded in 2015 and 2017 (see Appendix 1, Map 4). This network consists of 19 control sites with a Sentry bait station, a DOC250 trap and a Timms trap at each location. The pest animal control network is checked monthly.

Greater Wellington carries out possum and mustelid control every 1-2 years in the wider landscape around the KNE site under its Regional Possum Predator Control Programme (RPPCP)¹⁷. This control reduces the reinvasion of possums into the KNE site and maintains some of the biodiversity gains made by the previous control programme in the area; OSPRI's Tbfree New Zealand programme¹⁸.

Fallow deer, rabbits, hares and feral cats are controlled by the landowners with Greater Wellington providing advice if required.

9.3. Revegetation

The aim of revegetation work is to increase the extent of native vegetation cover, provide food sources and habitat for native fauna, and reduce the risk of weed reinvasion. A large native planting programme was undertaken in 2006, 2013 and 2014 around the southern and western edges of the wetland on the Omahu property.

The work was jointly funded by the landowner and Greater Wellington's Biodiversity and Land Management departments. Species planted included kahikatea, karamu (*Coprosma robusta*), kānuka (*Kunzea ericoides*), ngaio (*Myoporum laetum*) and akeake (*Dodonaea viscosa*).

A small programme of enrichment planting is being carried out each year on the Omahu property around the wetland edges. Planting is performed by the GWRC Biosecurity team.

All landowners plan to continue their own planting of native species in areas of their land within the KNE site boundary and supply their own plants.

Below are the details of the revegetation work that will be undertaken in the Omahu KNE site. Plant species to be used are listed and the table identifies numbers of plants that will be used and all costs associated with the planting programme.

Table 2: Summary of revegetation planting at the Omahu KNE site

Operational area	Timing (year and month)	Total number of plants	Management requirements
Wetland margins	2022-2026	~100 per year	Planting performed by GW Biosecurity Team
Forest margins	2022-2026	~50 per year	Planting performed by private landowners

Appendix 6 provides a plant list for the revegetation.

10. Operational delivery schedule

The operational delivery schedule shows the actions planned to achieve the stated objectives for the Omahu KNE site, and their annual costs. The budget is subject to change and adjusted for inflation in accordance with the Long Term Plan. Maps of the operational areas can be found in Appendix 1 (see Appendix 1, Map 3).

Table 3: Five-year operational plan for the Omahu KNE site

Objective	Activity	Operational area	Intended 5-year outcome	Implementing party	Annual funding
1,2,3	Ecological weed control – general	Entire KNE	Reduce weed species distribution and eliminate large individuals	GW Biosecurity – Pest Plants	\$2,000
1,2	Ecological weed control – crack willow	Wetland	Eliminate all willows in wetland and prevent reestablishment	GW Biosecurity – Pest Plants	\$1,000
1,2,3	Pest animal control – trapping & bait stations	Entire KNE	Reduction and suppression of pest animal populations below ecologically significant levels	GW Biosecurity – Pest Animals	\$5,500
2,4	Revegetation	Wetland periphery	Rebuild forest cover and reinforce degraded forest and wetland margins.	GW Biosecurity – Pest Plants	\$750

11. Funding contributions

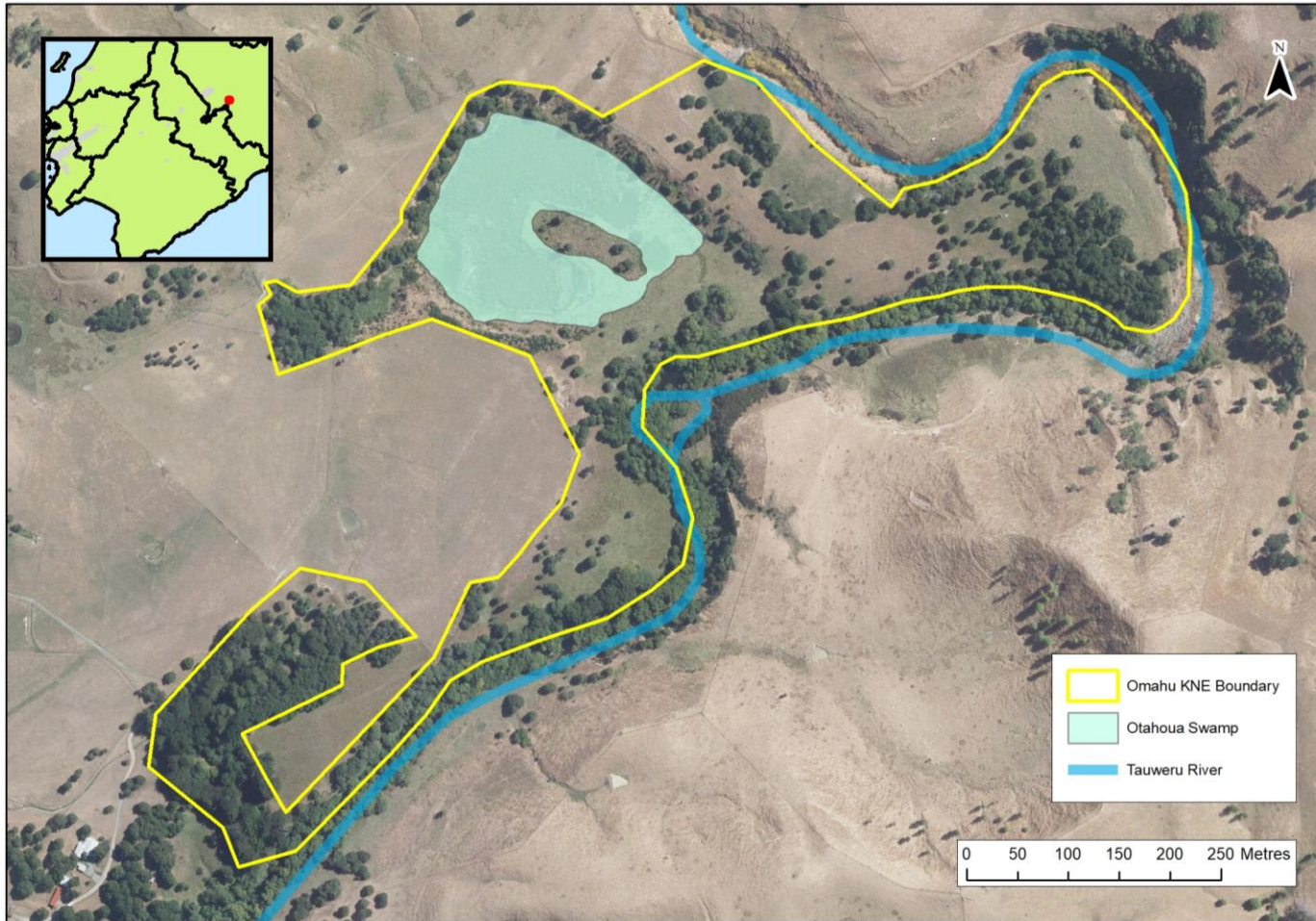
11.1. Budget allocated by Greater Wellington

The annual budget is indicative only and subject to change.

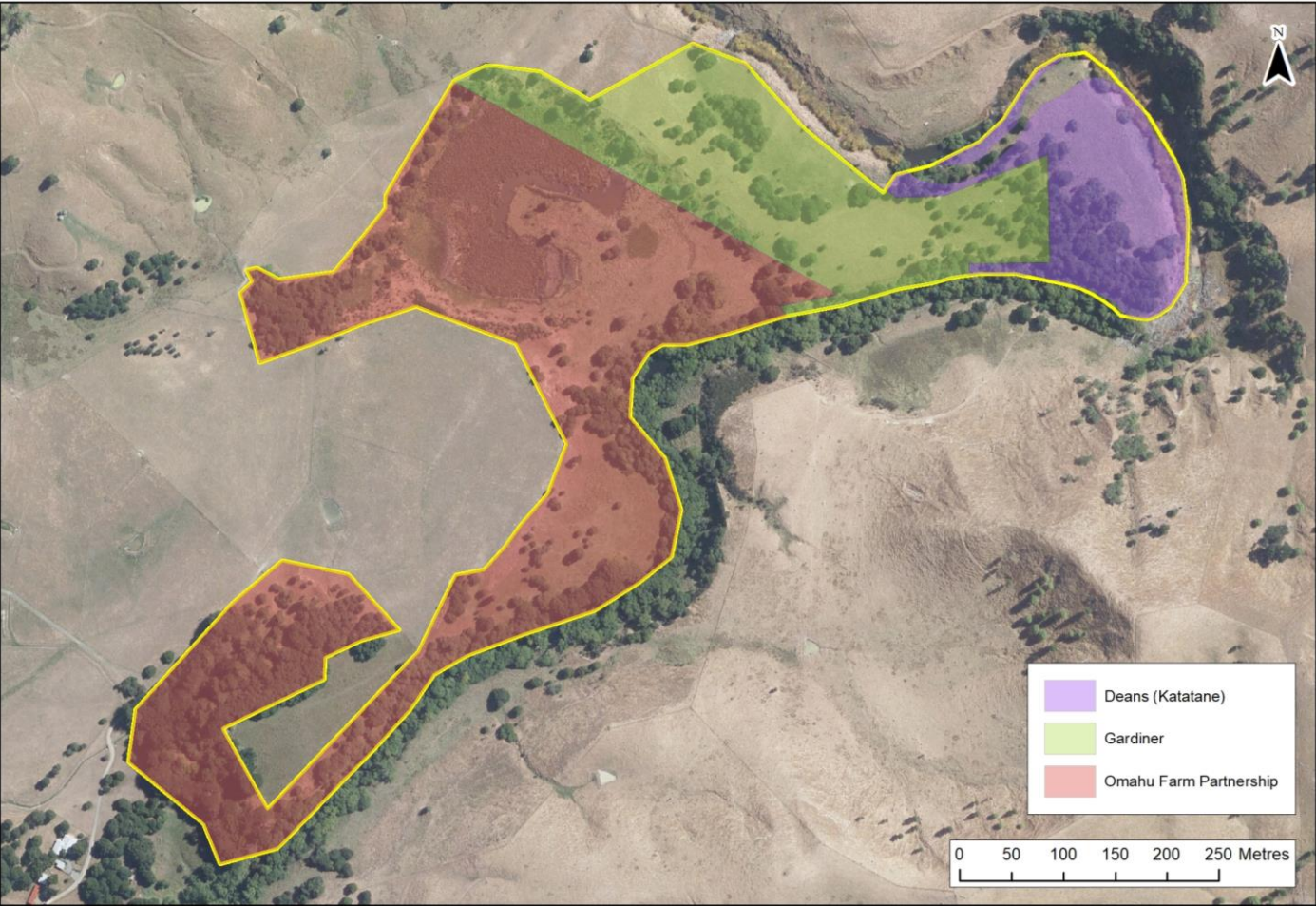
Table 4: Greater Wellington allocated budget for the Omahu KNE site

Management activity	Budget
Ecological weed control	\$3,000
Pest animal control	\$5,500
Revegetation	\$750
Total	\$9,250

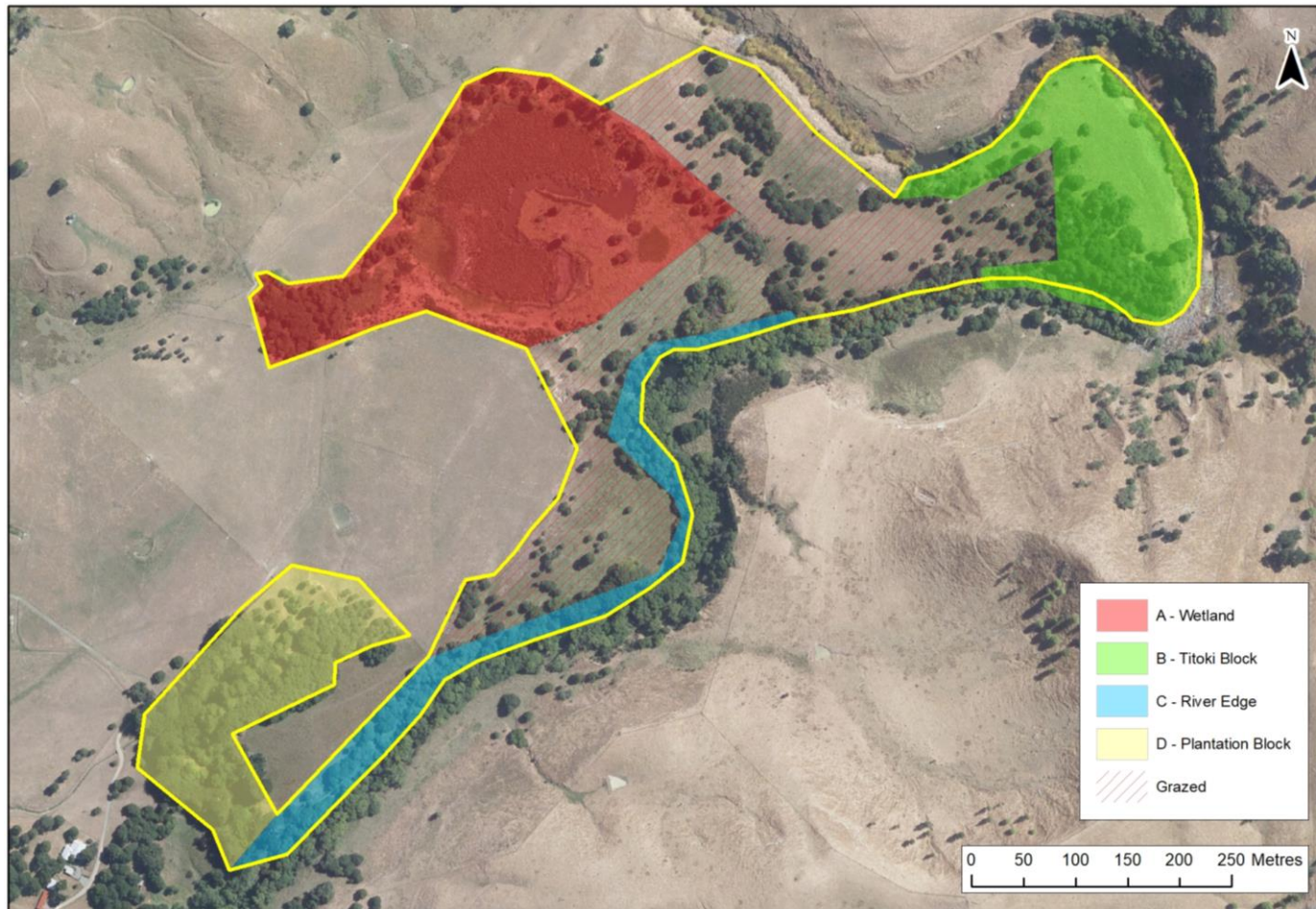
Appendix 1: Site maps



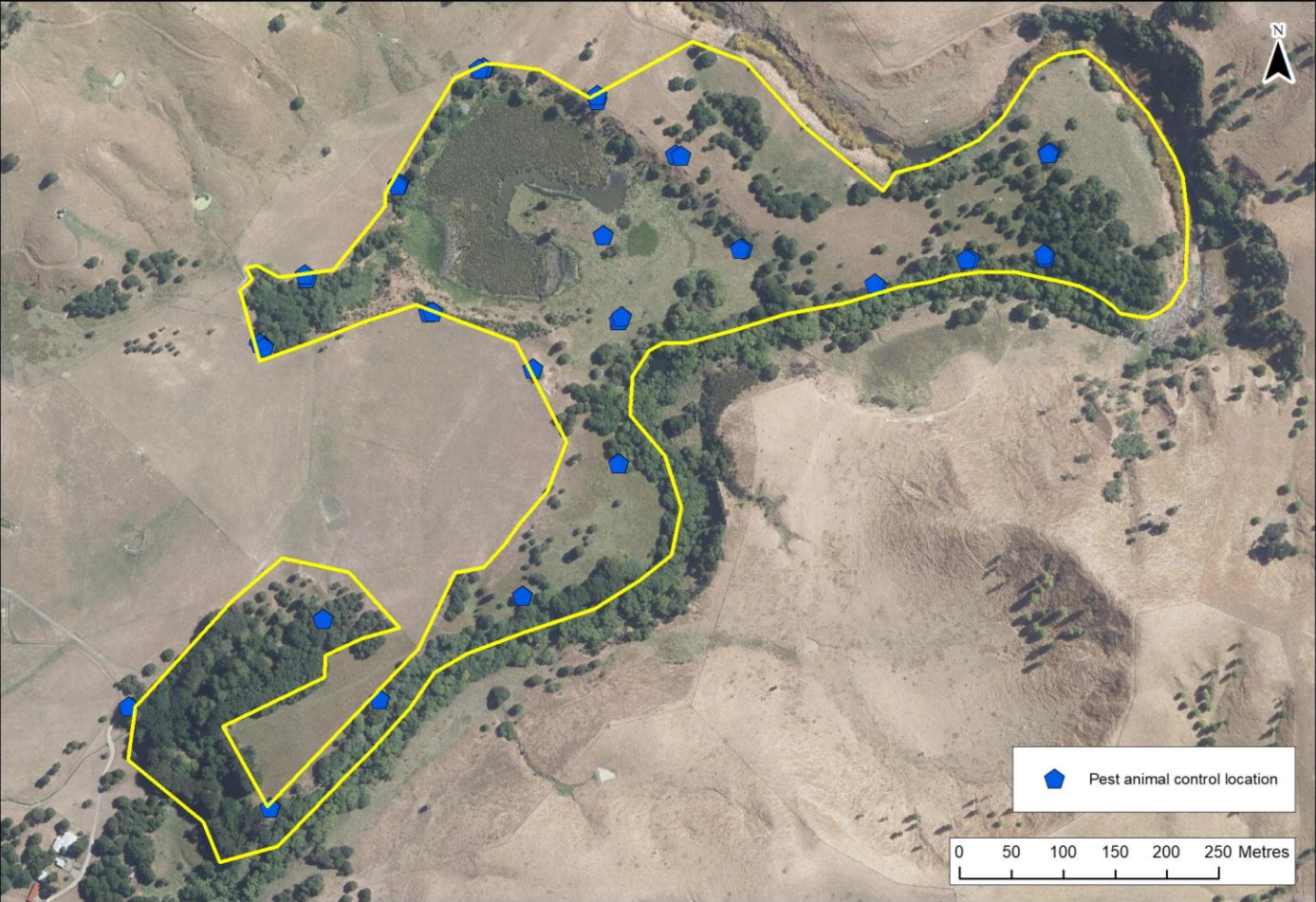
Map 1: The Omahu KNE site boundary, Otahoua swamp wetland, and Tauweru river



Map 2: Land ownership for the Omahu KNE site



Map 3: Weed control operational areas and grazing status in the Omahu KNE site



Map 4: Pest animal control locations in the Omahu KNE site

Appendix 2: Nationally threatened species list

The New Zealand Threat Classification System lists species according to their threat of extinction. The status of each species group (plants, reptiles, etc.) is assessed over a five-year cycle^{19,20,21}. Species are regarded as Threatened if they are classified as Nationally Critical, Nationally Endangered or Nationally Vulnerable. They are regarded as At Risk if they are classified as Declining, Recovering, Relict or Naturally Uncommon. The following table lists Threatened and At Risk species that are resident in, or regular visitors to, the Omaha KNE site.

Table 5: Threatened and At Risk species at the Omaha KNE site

Scientific name	Common name	Threat status	Observation
Plants (vascular) ²²			
<i>Lophomyrtus obcordata</i>	Rōhutu	Threatened – Nationally Critical	Enright et al 2013
<i>Ranunculus macropus</i>	Swamp buttercup	At Risk – Data Deficient	Enright et al 2013 ²³
Birds ²⁴			
<i>Porzana tabuensis</i>	Spotless crane	At Risk – Declining	Spearpoint. GW 2017. ²⁵

Appendix 3: Regionally threatened plant species list

The following table lists regionally threatened species that have been recorded in the Omahu KNE site.

Table 6: Regionally threatened species recorded in the Omahu KNE site

Scientific name	Common name	Threat status	Observation
Plants ²⁶			
<i>Korthalsella lindsayi</i>	Leafless or dwarf mistletoe	Regionally sparse	Sawyer et al 1998 ²⁷
<i>Ranunculus macropus</i>	Swamp buttercup	At Risk – Data Deficient	Enright et al 2013
Birds ²⁸			
<i>Hemiphaga novaeseelandiae</i>	New Zealand pigeon; kereru	At Risk – Recovering	French. Pers obsv. 2021
<i>Porzana tabuensis</i>	Spotless crane	Threatened – Endangered	Spearpoint. Greater Wellington 2017.

Appendix 4: Threat table

Table 7: Threats to the Omahu KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
Ecological weeds		
EW-1	Ground covering ecological weeds smother and displace native vegetation, inhibit indigenous regeneration, and alter vegetation structure and composition. Key ground covering ecological weed species for control include periwinkle (<i>Vinca major</i>) and stinking iris (<i>Iris foetidissima</i>) (see full list in Appendix 4)	Entire KNE
EW-2	Woody weed species displace native vegetation, inhibit indigenous regeneration, and alter vegetation structure and composition. Crack willow (<i>Salix fragilis</i>) is the most significant woody ecological weed species within the KNE site but other problem species include spindle tree (<i>Euonymus japonica</i>), elderberry (<i>Sambucus nigra</i>) and hawthorn (<i>Crataegus monogyna</i>). (see full list in Appendix 4)	Entire KNE
EW-3	Climbing weeds smother and displace native vegetation often causing canopy collapse, inhibit indigenous regeneration, and alter vegetation structure and composition. Key climbing ecological weed species include old man's beard (<i>Clematis vitalba</i>) (see full list in Appendix 4)	Entire KNE
Pest animals		
PA-1	Possums (<i>Trichosurus vulpecula</i>) browse palatable canopy vegetation until it can no longer recover ^{29,30} . This destroys the forest's structure, diversity and function. Possums may also prey on native birds and invertebrates ³¹	Entire KNE
PA-2	Rats (<i>Rattus</i> spp.) browse native fruit, seeds and vegetation. They compete with native fauna for food and can reduce forest regeneration. They also prey on invertebrates, lizards and native birds ^{32,33}	Entire KNE
PA-3	Mustelids (stoats ^{34,35} (<i>Mustela erminea</i>), ferrets ^{36,37} (<i>M. furo</i>) and weasels ^{38,39} (<i>M. nivalis</i>)) prey on native birds, lizards and invertebrates, reducing their breeding success and potentially causing local extinctions	Entire KNE
PA-4	Hedgehogs (<i>Erinaceus europaeus</i>) prey on native invertebrates ⁴⁰ , lizards ⁴¹ and the eggs ⁴² and chicks of ground-nesting birds ⁴³	Entire KNE
PA-5*	House mice (<i>Mus musculus</i>) browse native fruit, seeds and vegetation, and prey on invertebrates. They compete with native fauna for food and can reduce forest regeneration. They also prey on invertebrates, lizards and small eggs and nestlings ^{44,45}	Entire KNE
PA-6	Pest and domestic cats (<i>Felis catus</i>) prey on native birds ⁴⁶ , lizards ⁴⁷ and invertebrates ⁴⁸ , reducing native fauna breeding success and potentially causing local extinctions ⁴⁹	Entire KNE

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
PA-7*	Rabbits (<i>Oryctolagus cuniculus</i>) and hares (<i>Lepus europaeus</i>) graze on palatable native vegetation and prevent natural regeneration in some environments ⁵⁰ . Rabbits are particularly damaging in sand dune environments where they graze native binding plants and restoration plantings. In drier times hares especially, will penetrate into wetland forest areas browsing and reducing regenerating native seedlings	Entire KNE
PA-8*	Wasps (<i>Vespula</i> spp.) adversely impact native invertebrates and birds through predation and competition for food resources. They also affect nutrient cycles in beech forests ⁵¹	Entire KNE
PA-9*	Red deer (<i>Cervus elaphus</i>) and fallow deer (<i>Dama dama</i>) browse the forest understory and can significantly change vegetation composition by preferential browsing and preventing regeneration ^{52,53,54}	Entire KNE
Human activities		
HA-1*	Agricultural practices, particularly grazing livestock can result in pugging soils, grazing native vegetation inhibiting regeneration, wildlife disturbance and increasing nutrient content of soils and watercourses ⁵⁵	Entire KNE
Other threats		
OT-1	Small forest remnants are affected by environmental impacts on their edges such as changing environmental conditions (eg, soil moisture or temperature levels), changing physical environment (eg, different plant assemblages compared to the interior) and changing species interactions (eg, increased predation by invasive species) ^{56,57}	Entire KNE
OT-2*	A lack of legal protection can leave a site at risk of future development or destruction and resources invested in the site may be wasted. Part of this KNE site is private property and unconsented, having no protection status	Entire KNE

*Threats marked with an asterisk are not addressed by actions in the operational delivery schedule

Appendix 5: Ecological weed species

The following table lists key ecological weed species that have been recorded in the Omahu KNE site. The list is based on initial observations by initial ecosystem assessment and ongoing feedback from GWRC Biosecurity Pest Plant team members.

Table 8: Ecological weed species recorded in the Omahu KNE site

Scientific name	Common name	Level of Distribution	Management Aim
<i>Berberis glaucocarpa</i>	Common barberry	Localized and sparse	Eradication
<i>Clematis vitalba</i>	Old man's beard	Localized and common	Localized eradication
<i>Crataegus monogyna</i>	Hawthorn	Localized and sparse	Suppression
<i>Euonymus japonica</i>	Spindle tree	Localized and sparse	Eradication
<i>Hypericum androsaemum</i>	Tutsan	Localized and sparse	Suppression
<i>Iris foetidissima</i>	Stinking iris	Localized and sparse	Eradication
<i>Salix fragilis</i>	Crack willow	Widespread and common outside of wetland area	Suppression
<i>Sambucus nigra</i>	Elderberry	Localized and sparse	Suppression
<i>Vinca major</i>	Periwinkle	Localized and sparse	Eradication

Appendix 6: Revegetation plant list

Plants from the following table will be used in any revegetation planting as per Section 9.3.

Table 9: Revegetation plant list for use within the Omahu KNE site

Scientific name	Common name	Operational area
<i>Austroderia toetoe</i>	Toetoe	<i>Wetland edges</i>
<i>Coprosma robusta</i>	Karamu	<i>Wetland edges</i>
<i>Cordyline australis</i>	Cabbage Tree	<i>Wetland edges</i>
<i>Dodonea viscosa</i>	Akeake	<i>Wetland edges</i>
<i>Leptospermum scoparium</i>	Manuka	<i>Wetland edges</i>
<i>Myoporum laetum</i>	Ngaio	<i>Wetland edges</i>
<i>Phormium tenax</i>	Flax	<i>Wetland edges</i>

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- ¹ New Zealand legislation. 1991. Resource Management Act 1991.
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- ³ Proposed Natural Resources Plan for the Wellington Region. 2019.
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