

Key Native Ecosystem Plan for Queen Elizabeth Park

2014-17



greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao



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1. Key Native Ecosystem plans

New Zealand's indigenous biodiversity continues to decline nationally, and in the Wellington region. Major reasons for the decline are that native species are preyed on or outcompeted by invasive species and ecosystems and habitats are lost or degraded through human resource use and development. Active management to control threats is required to protect indigenous biodiversity. Regional councils have responsibility to maintain indigenous biodiversity, as well as to protect significant vegetation and habitats of threatened species, under the Resource Management Act 1991 (RMA).

Greater Wellington Regional Council's (GWRC's) vision for biodiversity is:

“The Wellington region contains a full range of naturally occurring habitats and ecosystems that are in a healthy functioning state and supporting indigenous biodiversity”

GWRC's Biodiversity Strategy 2011-2021¹ provides a common focus across the council's departments, and guides activities relating to biodiversity. One of its goals is: High value biodiversity areas are protected.

In order to achieve this vision and goal, the Key Native Ecosystem (KNE) programme seeks to protect some of the best examples of ecosystem types in the Wellington region by managing, reducing, or removing threats to their values. Sites with the highest biodiversity values have been identified and then prioritised for management. Active management of KNEs can involve control of ecological weeds and pest animals, fencing to exclude stock, restoration planting and helping landowners to legally protect these areas.

KNEs are managed in accordance with three-year KNE plans, such as this one, prepared for each area by the GWRC's Biodiversity department in collaboration with the landowners and other stakeholders. These plans outline the ecological values and threats specific to each KNE, set out objectives for biodiversity management, and prescribe the operational actions and budget required to work towards achieving the objectives.

Much of the work planned in KNEs will be carried out by GWRC staff or contractors engaged by GWRC. For example, the Biosecurity department carries out ecological weed and pest animal control to achieve the objectives set out in KNE plans.

GWRC also recognizes that working relationships between the management partners are critical for achieving the objectives for the KNE. Under the KNE programme, GWRC staff also work with landowners and volunteer community groups involved in protection or restoration work within KNEs.

KNE plans are reviewed regularly to ensure the activities undertaken to protect and restore the KNE are informed by experience and improved knowledge about the site.

2. Queen Elizabeth Park Key Native Ecosystem

This Key Native Ecosystem (KNE) is located in Queen Elizabeth Park (QE Park), between the towns of Raumati South and Paekakariki (see Appendix 1, Map 1). This is within the Foxton Ecological District². The entire park is designated as a Recreation Reserve under the Reserves Act 1977. The KNE includes three ecosystem types: a large coastal dune system, several wetlands, and a coastal forest remnant. The total combined area to be managed under this KNE Plan is 133 hectares.

Landowner and stakeholders

Greater Wellington Regional Council (GWRC) works in collaboration with landowners and other interested parties (management partners and stakeholders) where appropriate to achieve shared objectives for the site. In preparing this plan GWRC has sought input from landowners and relevant stakeholders, and will continue to involve them as the plan is implemented.

Landowner

QE Park is a Recreation Reserve owned by the Crown. The GWRC Parks department has the responsibility to manage the park under a Control and Management Agreement with the Department of Conservation

Management of QE Park as a whole is guided by the GWRC Parks Network Plan (PNP), and the Queen Elizabeth Park Sustainable Land Use Plan (SLUP). These plans guide the recreational and amenity uses of the park as well as identifying opportunities to protect biodiversity values. This KNE Plan is consistent with the wider objectives of these plans. The Biodiversity and Parks departments work collaboratively to efficiently deliver the activities identified in these plans.

Management partners and key stakeholders

The principal management partners to this plan are the GWRC Parks, Biodiversity and Biosecurity departments. GWRC Parks department manages all recreational infrastructure and access to QE Park, the GWRC Biodiversity department co-ordinates biodiversity management activities and biodiversity advice within the KNE and the GWRC Biosecurity department delivers pest control operations. Since 2001 the Parks Department has funded and guided community conservation work in the park, much of which has taken place in the KNE. This support will continue into the foreseeable future, and be integrated with the work provided for under this KNE Plan.

Convened by the Parks Department, the QEP Restoration Committee includes representatives of the Friends of Queen Elizabeth Park, the Raumati South Residents Association, the QEP Nursery volunteers and the Biodiversity and Parks Departments. Guided by the PNP, SLUP, site specific management plans (including this KNE Plan), this group's main purpose is to plan and monitor implementation of environmental restoration programmes in the park.

The implementation of the work programme is undertaken by members of all the groups identified above, along with community service workers and various other

volunteer groups (such as local schools and corporate groups) Over time the community has provided immeasurable assistance to GWRC through fundraising and restoration activities such as growing and planting native plants, weeding around plantings and trapping pests. As a result, large areas both within and outside the KNE boundaries of QE Park have been re-vegetated by the community. One member of the Friends of Queen Elizabeth Park has almost single-handedly been responsible for operating a substantial network of traps targeting the predators of native animals within the Park since 2008. Maintaining close working relationships with these groups will enable GWRC to not only coordinate and encourage volunteer assistance with practical onsite restoration activities but to also foster links with communities in the surrounding area.

The Kāpiti Coast District Council (KCDC) is implementing its Coastal Strategy 2006³, a 20-year framework to guide management of the Kāpiti coastline, which recognises the coast as an important ecosystem. The QEP KNE Plan is aligned with the broad guidelines set out in this strategy. There is the opportunity to work closely in the KNE with KCDC in terms of restorative action and the formation of access ways across the KNE.

Ngāti Toa Rangatira and Te Ati Awa Ki Whakarongotai both have Treaty of Waitangi claim processes underway involving the QEP area. Ngāti Toa, Te Ati Awa Ki Whakarongotai and Ngāti Raukawa are involved in policy and planning discussions about QE Park. The Parks department manages the GWRC-iwi relationship and there is potential to develop a partnership in the management of the KNE which would incorporate the Māori principles of kaitiakitanga (stewardship) and mauri (ecological integrity).

The farmer operating within Queen Elizabeth Park is considered a stakeholder as the farm adjoins the KNE in many places. Other stakeholders who may be interested in the biodiversity management within the KNE are park user groups, including the Kāpiti Pony Club, Kāpiti Model Airplane Club, Stables on the Park and the Paekakariki Surf Club.

Raumati South-Paekakariki cycleway is planned to go through the western farmland and back dune area of the park. This project is supported by NZTA, KCDC and GWRC. This will involve upgrading existing tracks outside the KNE, and in some places the track will pass through the KNE.

Ecological values

Ecological values are a way to describe indigenous biodiversity found at a site, and what makes it special. These ecological values can be various components or attributes of ecosystems that determine an area's importance for the maintenance of regional biodiversity. Examples of values are the provision of important habitat for a threatened species, or particularly intact remnant vegetation typical of the ecosystem type. The ecological values of a site are used to prioritise allocation of resources to manage KNEs within the region.

Prior to human habitation the entire QE Park was a complex of ecosystem types. The foredunes would have been covered by complex communities of coastal grasses and shrubs. Duneland forest and scrub would have grown in the dunes landward of the

dynamic foredunes. Stands of wetland podocarp forest, mānuka forest and sedgeland/rushland wetlands would have inhabited the dune slack areas (depressions between dunes). A wide range of native birds, lizards, and fish would originally been part of these ecosystems. More information about the native plant and animal communities that originally occurred in the KNE can be found in the Queen Elizabeth Park Resource Statement (2007)⁴.

Much of the original indigenous vegetation in Queen Elizabeth Park has been lost due to human activities, and the remaining indigenous ecosystems are threatened by human activities, ecological weeds and pest animals. However, the diversity of the habitats still present within the KNE provides a valuable foundation from which to restore the types of ecosystems once common in the Foxton Ecological District.

Queen Elizabeth Park KNE has been identified as a priority for management because of the high ecological values it possesses. These include:

- The largest unmodified dune ecosystem in the Wellington Region⁵, a remnant of now rare dune forest, and estuarine and coastal wetland habitats.
- Threatened⁶ and rare (Naturally Uncommon)⁷ ecosystems, including ephemeral wetlands (Nationally Critical), active sand dunes (Nationally Endangered), stable sand dunes (Nationally Endangered), dune slacks (Nationally Endangered) and estuaries (Nationally Vulnerable).
- Land Environment New Zealand (LENZ) national environment classification has identified the entire QE Park including the KNE areas as being in the top two threatened land environment categories; Acutely Threatened and Chronically Threatened (see Appendix 2, Map 2).
- Threatened species, including four species of native freshwater fish, six species of native birds, and two species of native plants (see Appendix 2).
- The KNE's ecological context, being in close proximity to the Paekakariki Escarpment KNE and Mataihuka (Raumati Escarpment) Reserve. This allows for the mutually beneficial dispersal of seed and pollination of plants between sites. It is also likely that these sites, along with the Waterfall Road KNE, provide key stepping stones for native birds moving between Kāpiti Island and the Akatarawa Range.

The operational areas described in this plan relate to the three different ecosystem types being managed (see Appendix 1, Map 3). These are described below.

Foredunes and backdunes

The dune ecosystem includes dynamic foredune and stable foredune and backdune areas. The dynamic foredune environment is characterized by rapidly fluctuating temperatures and strong winds carrying abrasive sands and depositing salt spray on the dune faces. Native plants that naturally occur in foredunes have adapted to these conditions. Tough-leaved sand-binding plants such as spinifex (*Spinifex sericeus*), pīngao (*Ficinia spiralis*), shore bindweed (*Calystegia soldanella*) and New Zealand ice-plant (*Disphyma australe* subsp. *australe*) once thrived in this environment. However today, much of the dynamic foredune is dominated by exotic weeds.

The rest of the foredunes and backdunes are more stable and, moving inland, are increasingly sheltered from the erosive force of the wind. These stable foredune dune areas would have originally been covered by scrub associations such as sand coprosma (*Coprosma acerosa*), sand daphne (*Pimelea villosa*) and tauhinau (*Ozothamnus leptophylla*), and changing to dry forest and coastal forest further inland. Present native vegetation is characterized by patches of low-statured bracken (*Pteridium esculentum*), knobby club rush (*Ficinia nodosa*), and pōhuehue (*Muehlenbeckia complexa*), amongst associations of taupata (*Coprosma repens*), māhoe (*Meliccytus ramiflorus*) and kawakawa (*Macropiper excelsum*), with some ngaio (*Myoporum laetum*), kānuka (*Kunzea ericoides*), flax (*Phormium tenax*) and toe toe (*Cortaderia fulvida*). However current vegetation is dominated by ecological weeds.

Wetlands

The wetland areas in the KNE are not contiguous; they include the freshwater Poplar Avenue wetland (also known as Northern wetland) and its associated ephemeral wetland, MacKay's wetland, and the estuaries of Whareroa and Wainui streams. The original wetlands in the area would have included a variety of wetland plant associations: mature stands of podocarp dominated wetland forest, mānuka/coprosma/olearia scrub wetlands, ephemeral wetland turf communities, and sedgeland/rushland associations in the wettest areas.

The Poplar Avenue wetland is dominated by the sedges *Isolepis prolifer* and *Carex virgate*, and *Juncus* and *Baumea* species. Mānuka (*Leptospermum scoparium*) and tangle fern (*Gleichenia dicarpa*) form close associations in the wetland. Since 2010, the margins of the main wetland have been progressively planted with buffer species such as flax, toe toe, *Carex secta*, māhoe, taupata, ngaio, kānuka and kōhūhū (*Pittosporum tenuifolium*). Planting around the ephemeral wetland started several years prior to 2010.

The MacKay's wetland is a complex of naturally wet areas and sites that have been excavated to create further wetland habitat. The nationally rare native grass, *Amphibromus fluitans* has been recorded here as well as other uncommon species such as bamboo sedge (*Eleocharis sphacelata*), the watermeal *Wolffia australiana*, the buttercup *Ranunculus amphitrichus*, the milfoil *Myriophyllum pterocarpa* and other turf plants. A significant amount of native planting has been carried out over the last ten years to restore and enlarge the wetland habitat and link the wetland to the forest remnant. For a comprehensive list of plantings see *Restoration and revegetation sites in QE Park 2009*⁸.

The estuaries of the Whareroa and Wainui streams are amongst a small number of estuaries along the Kāpiti Coast that are in relatively good condition, although land use practices in the Whareroa catchment are affecting water quality in stream. The Wainui Stream has a mostly forested catchment and therefore has better water quality and supports better freshwater fish populations than the Whareroa Stream. These estuaries and streams provide habitat for various native fish species including giant kōkopu (*Galaxias argenteus*), inanga (*G. maculatus*) and longfin eel (*Anguilla dieffenbachia*).

Forest Remnant

The remnant forest is an example of the coastal broadleaf/podocarp forest type that was once widespread in the Foxton Ecological District. Although the site has been strongly impacted by human activities and invaded by exotic species this remnant is still dominated by mature kahikatea (*Dacrydium dacrydioides*) and pukatea (*Laurelia novae-zelandiae*). Fewer numbers of the other canopy species swamp maire (*Syzygium maire*), matai (*Prumnopitys taxifolia*) and tawa (*Beilschmiedia tawa*) are also present at the site. Understorey species include māhoe, kānuka, kawakawa and kaikōmako (*Pennantia corymbosa*).

Key threats to ecological values at the site

Ecological values can be threatened by human activities, and by introduced animals and plants, that change the natural balance of native ecosystems. The key to protecting and restoring biodiversity as part of the KNE programme is to manage the threats to the ecological values at the site.

Ecological weeds, pest animals and human activities are all impacting or have the potential to impact Queen Elizabeth Park KNE. The most significant threats come from a large suite of ecological weed species and predatory and browsing pest animals.

Ecological weeds are present throughout the KNE and will out-compete native species for space if allowed to. Many introduced plant species thrive and multiply very successfully in the coastal environment. They continuously threaten to tip the balance of the native ecosystem towards further degradation and away from recovery. Infestations of some species such as boneseed (*Chrysanthemoides monilifera*), pampas (*Cortaderia selloana*), boxthorn (*Lycium ferocissimum*), boobialla (*Myoporum insulare*) and karo (*Pittosporum crassifolium*) were far denser before intensive control of these species commenced in 2003. However other species such as blackberry (*Rubus fruticosus*) and marram grass (*Ammophila arenaria*) are still widespread and very dense across large areas. These have caused significant habitat modification.

Mustelids (weasels (*Mustela nivalis*), stoats (*M. erminea*) and ferrets (*M. furo*)), rats (*Rattus norvegicus* and *R. rattus*), hedgehogs (*Erinaceus europaeus*), possums (*Trichosurus vulpecula*) and feral cats are all present within the KNE and are likely to be preying on native birds, lizards and invertebrates, inhibiting the recovery of these fauna. Domestic cats and dogs also pose a threat to native animals. Some native species such as little penguin (*Eudyptula minor*) are at particular risk from uncontrolled dogs.

Rabbits (*Oryctolagus cuniculus cuniculus*), possums and rats are impacting native plant regeneration and hampering the efforts of the community to revegetate areas of the KNE. Rabbits are present in large numbers in some dune areas and feed on native seedlings and plants that have been planted to supplement natural regeneration. Possums and rats are present in lower numbers but their browsing of native foliage, flowers and fruits is also likely to be impacting regeneration in this sensitive environment.

The table below shows the identified threats at the site, which operational areas of the KNE they affect, and how the threats impact on ecological values. The codes alongside

each threat correspond to activities listed in the Operational Plan (Table 2), and are used to ensure that actions taken are targeted to specific threats. A map showing operational areas can be found in Appendix 2 (Map 3).

Table 1: Key threats to ecological values present at Queen Elizabeth Park KNE.

Threat code	Threat and impact on biodiversity in the KNE	Operational area/location in KNE
Ecological weeds		
EW-1	Ecological weeds such as boneseed, boobialla, boxthorn, karo, pampas, arum lily (<i>Zantedeschia aethiopica</i>), brush wattle (<i>Paraserianthes lophanta</i>), sweet cherry (<i>Prunus avium</i>), convolvulus (<i>Convolvulus arvensis</i>), elderberry (<i>Sambucus nigra</i>), evergreen buckthorn (<i>Rhamnus alaternus</i>), Japanese honeysuckle (<i>Lonicera japonica</i>), willow (<i>Salix</i> spp.), Cape ivy (<i>Senecio angulatus</i>) and German ivy (<i>Senecio mikanioides</i>) have infested most areas of the KNE. Together they are outcompeting native plant species for habitat.	Whole KNE
EW-2*	Blackberry (<i>Rubus fruticosus</i>) and gorse (<i>Ulex europaeus</i>) are widespread throughout the KNE and forming dense monoculture swards in large parts of the backdunes. These species are out-competing native plant species.	Whole KNE
EW-3*	Marram grass and non-native ice-plant (<i>Carpobrotus edulis</i>) are widespread and forming dense monoculture swards through most of the foredunes. These species are out-competing native plant species and causing dune de-stabilisation and collapse.	Foredunes
Pest animals		
PA-1	Possums and rodents are present in low and moderate levels respectively. These species browse on native vegetation, inhibiting regeneration and eliminating some palatable plant species.	Whole KNE
PA-2	Possums, rats, mustelids, cats and hedgehogs can be found throughout the KNE and prey on native shorebirds, forest birds, lizards and invertebrates.	Whole KNE
PA-3	Rabbits are present at varying infestation levels throughout the dunes. Rabbit browsing damages planted and self-regenerating native plants, inhibiting regeneration and eliminating some palatable plant species.	Foredunes and backdunes
PA-4*	Uncontrolled domestic cats and dogs from nearby residential areas may prey on native shorebirds, forest birds, lizards and invertebrates.	Foredunes, backdunes and Poplar Ave wetland
Human activities		
HA-1*	Recreational park users, including walkers, cyclists, horse riders and graziers, and vehicles may unintentionally damage or disturb plant and animal communities such as sensitive dune plants and ground nesting birds.	Whole KNE

Threat code	Threat and impact on biodiversity in the KNE	Operational area/location in KNE
HA-2*	Dumping of garden waste in or near the KNE by the public, including nearby property owners, can cause the spread of pest plants and increase the presence of rats in the KNE.	Foredunes, backdunes and Poplar Ave wetland
Other threats		
OT-1*	The present marram-dominated dune profile lacks resilience to storm surges and sea level rise. This presents a risk of collapse of the dune systems and loss of habitat for native flora and fauna.	Foredunes
OT-2*	Loss of existing populations of threatened native species resulting in loss of plant community structure and ecosystem functionality.	Whole KNE
OT-3	Lack of safe nesting sites for little penguin in the dunes due to predators (including dogs) meaning penguins are unable to nest successfully.	Foredunes and backdunes

***Threats marked with an asterisk are not addressed by actions in the Operational Plan. Not all threats can be adequately addressed. Threats might not be managed for a number of reasons including financial, legal, or capacity restrictions. However, in order to manage the KNE as a whole, it is important to be aware of all threats to ecological values.**

3. Objectives and management activities

Objectives help to ensure that management activities carried out are actually contributing to improving the ecological condition of the site.

Objectives

The following objectives will guide the management activities at Queen Elizabeth Park KNE.

1. To increase native plant dominance
2. To increase native plant regeneration
3. To increase abundance of threatened plants
4. To reintroduce plant species to the site
5. To increase populations of native animal species
6. To raise community awareness of the ecological values of the KNE
7. To engage the community in management of the KNE

Management activities

Management activities are targeted to work towards the objectives above by responding to the threats outlined in Table 1. The management activities are described briefly below, and specific actions, with budget figures attached, are set out in the Operational Plan (Table 2).

Ecological weed control

Ecological weed control within the KNE is prescribed by the Queen Elizabeth Park Pest Plant Control Plan (2011-17). This plan identifies the large suite of ecological weed species present and the level of threat, distribution and abundance of each species. The Pest Plant Control Plan has been implemented within the dunes and Poplar Avenue wetland since 2011. This work will continue and will be extended into the forest remnant and MacKay's wetlands. The key elements of the works are periodic wide scale searches for and control of woody weeds, and control of discrete infestations of exotic climbers and groundcovers.

Pest animal control

The GWRC Biosecurity department carries out a regional possum and predator control programme (RPPCP)⁹ that includes the KNE areas and other parts of QE Park. This landscape-level baiting and trapping operation contributes to the objectives of this plan by reducing the impact of possums and rats within the KNE. The programme provides a good level of possum control and is likely to provide some level of rat control within the KNE. Some additional bait stations will be installed within the KNE to provide a greater level of rat control and therefore better protection for native animal species.

The current predator control regime operated by Friends of Queen Elizabeth Park consists of a network of predator traps spread throughout the KNE which are regularly baited and set (see Appendix 1, Map 4). This regime aims to protect native species' populations and allow them to successfully reproduce. Native species most likely to benefit are birds, lizards and invertebrates. Monitoring of rat, mustelid, hedgehog and mouse populations will be carried out periodically to inform management decisions.

Rabbit control will be focused on areas being actively revegetated through the planting of native plants. Controlling rabbits in these areas will protect the plantings from browsing damage and, when combined with possum and rat control, allow natural regeneration to occur.

Revegetation

The objectives of carrying out active revegetation are to establish buffer areas around key sites such as the Poplar Avenue wetland and the forest remnant, increase the diversity and extent of native plant communities, provide habitat for native fauna and to restore native plant cover to areas where ecological weeds have been removed. The variable conditions of the sites present challenges for plant survival so adaptive management in regards to plant selection and species survival will be needed. To date most of the park revegetation work has been funded by the GWRC Parks department and guided by site specific restoration plans. In future the Parks Department will lead planning of this work, in consultation with the Restoration Committee. Biodiversity staff will provide advice on planting throughout the park, and assist in future development of restoration plans.

Poplar Avenue wetland

Revegetation at the Poplar Avenue wetland has been underway for many years, made possible through a high level of support and fundraising by the Raumati South

Residents' Association. A revegetation plan for the site¹⁰ was produced in 2009 and will continue to be used as a guide in the completion of revegetation of the whole site.

Forest remnant and MacKay's wetland

Revegetation work has been taking place at this site since 1999. The Friends of Queen Elizabeth Park in conjunction with the GWRC Parks department and corporate volunteer groups will continue to focus their planting efforts in this area. They will also plant other areas of QE Park outside of the KNE. Planting at the forest remnant aims to build the size and complexity of the forest remnant by planting climax species amongst previous edge plantings. Planting at MacKay's wetland aims to connect and build resilience of previous wetland plantings by filling in gaps between the previously planted areas.

Foredunes

Friends of Queen Elizabeth Park and GWRC Parks department may also plant areas of the foredune. This will be carried out within the guidelines of the five-year dune restoration plan, prepared in 2010¹¹. Sprayed areas of marram will be replanted with native dune species, in particular spinifex and pīngao, which capture wind-blown sand, form lower dune profiles, and stabilize the dunes.

The Parks department is undertaking trials to test a range of planting methods in several dune areas that have been retired from farming. The results of these trials will be used to inform future revegetation work.

Community engagement

Friends of Queen Elizabeth Park and Raumati South Residents Association have already been major contributors to biodiversity management in the KNE through their voluntary labour and advocacy. GWRC will continue to support these groups in the continuation of their current projects as well as the development of appropriate new initiatives that the groups may propose.

As noted above, the QEP Restoration Committee is the key means of involving the community in park restoration activities, including in the KNE. This group will continue to explore opportunities to further raise community awareness of the KNE and encourage more people to contribute and to advocate for its protection.

Other activities

Constructed nesting boxes for little penguins will be installed at appropriate locations within the foredunes and backdunes. A member of Friends of Queen Elizabeth Park has constructed a number of nesting boxes and these will be placed in locations where little penguins are likely to use them. The nesting boxes will provide birds that are attempting to nest and their young a greater level of protection from dogs. It is hoped that the little penguin population can be increased through greater breeding success and adult survival. GWRC Parks and Biodiversity departments will work together on an appropriate communications plan to ensure people with dogs keep them restrained near nesting sites.

4. Operational plan

The operational plan shows the actions planned to achieve the stated objectives for Queen Elizabeth Park KNE, and their timing and cost over the three-year period from 1 July 2014 to 30 June 2017. The budget for the 2015/16 and 2016/17 years are indicative only and subject to change as a result of the 2015-25 Long Term Plan process. A map showing operational areas can be found in Appendix 2 (Map 3).

Table 2: Three-year operational plan for Queen Elizabeth Park KNE.

Objective	Threat	Activity	Operational area/location in KNE	Delivery	Description/detail	Target	Timetable and resourcing		
							2014/15	2015/16	2016/17
1,2,3	EW-1	Ecological weed control	Whole KNE	GWRC Biosecurity department	Control ecological weeds according to the Queen Elizabeth Park Pest Plant Control Plan ¹²	Reduction in distribution and abundance of ecological weeds	\$28,000	\$30,000	\$30,000
1,2,3,5	PA-1	Pest animal control	Whole KNE	GWRC Biosecurity department	Control possums and rats	Possums < 5% RTC* Rats < 10% TTI**	Nil†	Nil†	Nil†
5	PA-2	Pest animal control	Whole KNE	GWRC Biosecurity department	Control predators (mustelids and hedgehogs)	All traps checked and maintained at monthly intervals	\$1,000	\$1,000	\$1,000
5	PA-1 PA-2	Predator monitoring	Backdunes	GWRC Environmental Science department	Monitor predator populations (rats, mustelids, hedgehogs) using tracking tunnels	Complete scheduled monitors	\$3,100	\$3,100	\$3,100
1,2,3	PA-3	Pest animal control	Foredunes & backdunes	GWRC Biosecurity department	Control rabbits where they are impacting native plantings and natural plant regeneration	<3 on McLean Scale	\$3,000	\$3,000	\$3,000
1,2,3,4		Revegetation	Poplar Ave wetland	GWRC Parks department	Plant native pioneer plants at sites that have little native vegetation cover	90% survival rate of planted seedlings 2 years after planting	\$6,000	\$4,000	\$4,000

Objective	Threat	Activity	Operational area/location in KNE	Delivery	Description/detail	Target	Timetable and resourcing		
							2014/15	2015/16	2016/17
1,2,3,4		Revegetation	Forest remnant, MacKay's wetland, Foredunes & Backdunes	GWRC Parks department	Plant native pioneer plants at sites that have little native vegetation cover	90% success rate of planted species after 1 year	Nil [†]	Nil [†]	Nil [†]
6,7		Community engagement	Whole KNE	GWRC Parks, Biodiversity & Biosecurity departments.	Support and encourage community involvement in biodiversity management	All community groups involved in biodiversity management are supported effectively	Funded by GWRC Parks	Funded by GWRC Parks	Funded by GWRC Parks
6,7		Community engagement	Whole KNE	GWRC Parks and Biodiversity departments & QEP Restoration Committee	Raise community awareness of the values of the KNE and its management	KNE promoted in local media	Nil	Nil	Nil
5	OT-3	Other activities	Foredunes	GWRC Parks and Biodiversity departments & Friends of Queen Elizabeth Park	Install nesting boxes for little penguins Develop and implement suitable community awareness programme	Increase in distribution/abundance of penguins	Nil	Nil	Nil
							\$41,100	\$41,100	\$41,100

* RTC = Residual Trap Catch. The control regime has been created to control possums to this level but monitoring will not be undertaken. Experience in the use of this control method indicates this target will be met.

** TTI = Tracking Tunnel Index. The control regime has been created to control rats to this level but monitoring will not be undertaken. Experience in the use of this control method indicates this target will be met.

[†]The resources required for this activity cannot be defined at this time. This work is part of the Regional Possum Predator Control Programme.

[‡]The resources required for this activity cannot be defined at this time. This work is funded by the GWRC Parks department.

5. Funding summary

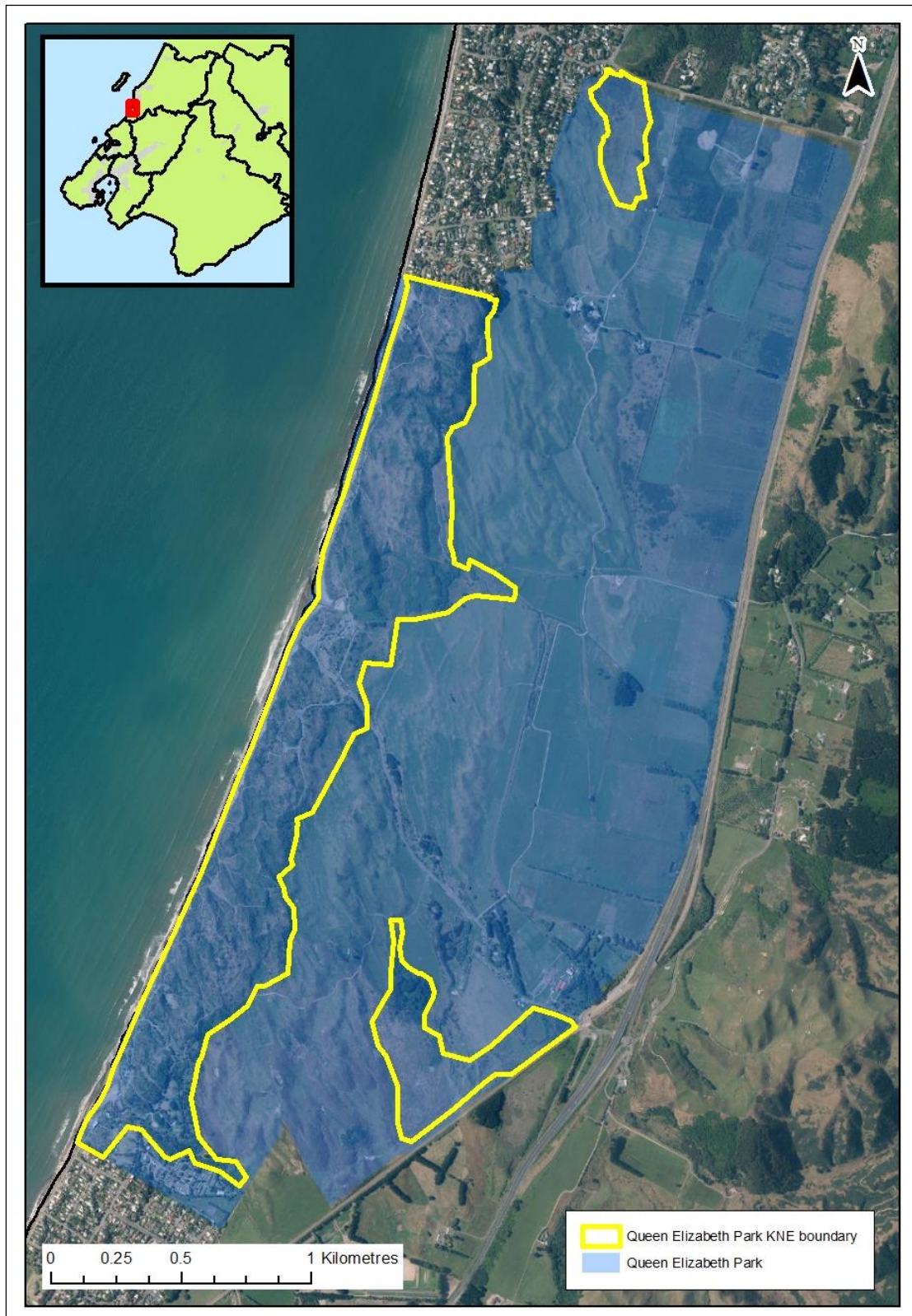
GWRC budget

The budget for the 2015/16 and 2016/17 years are indicative only and subject to change as a result of the 2015-25 Long Term Plan process.

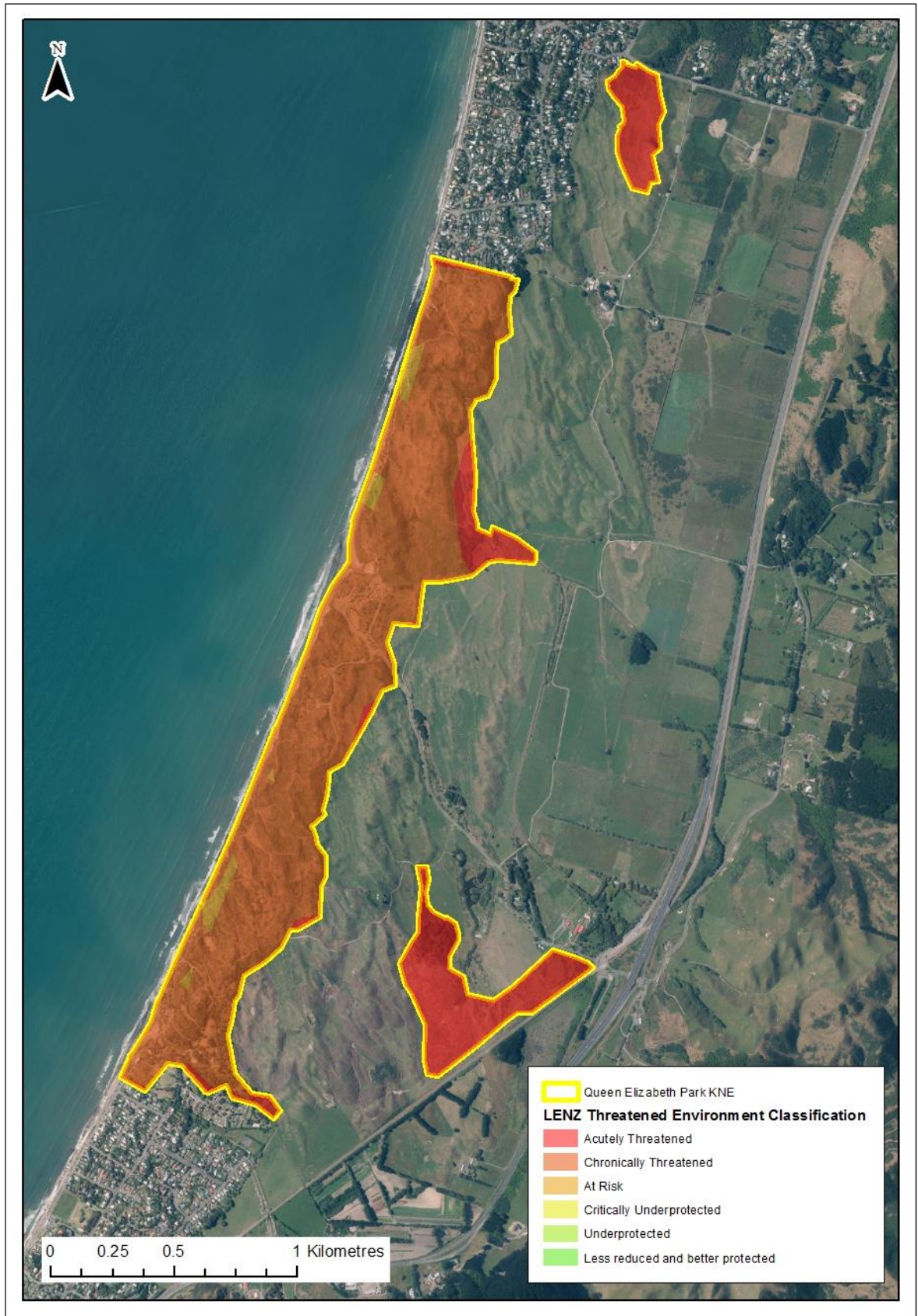
Table 3: GWRC allocated budget for Queen Elizabeth Park KNE.

Management activity	Timetable and resourcing		
	2014/15	2015/16	2016/17
Pest plant control	\$28,000	\$30,000	\$30,000
Pest animal control	\$4,000	\$4,000	\$4,000
Revegetation	\$6,000	\$4,000	\$4,000
Monitoring	\$3,100	\$3,100	\$3,100
Total	\$41,100	\$41,100	\$41,100

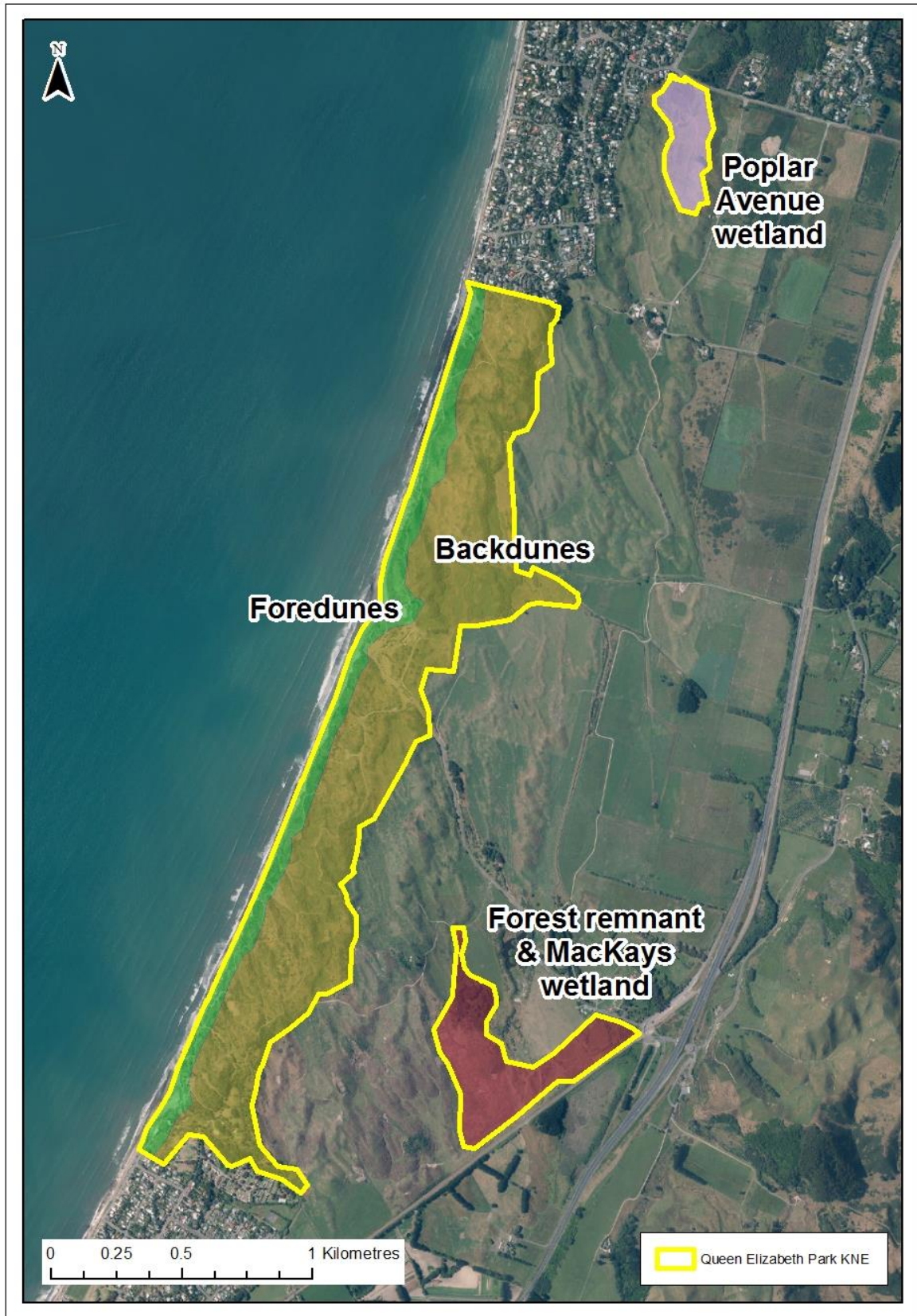
Appendix 1: Site maps



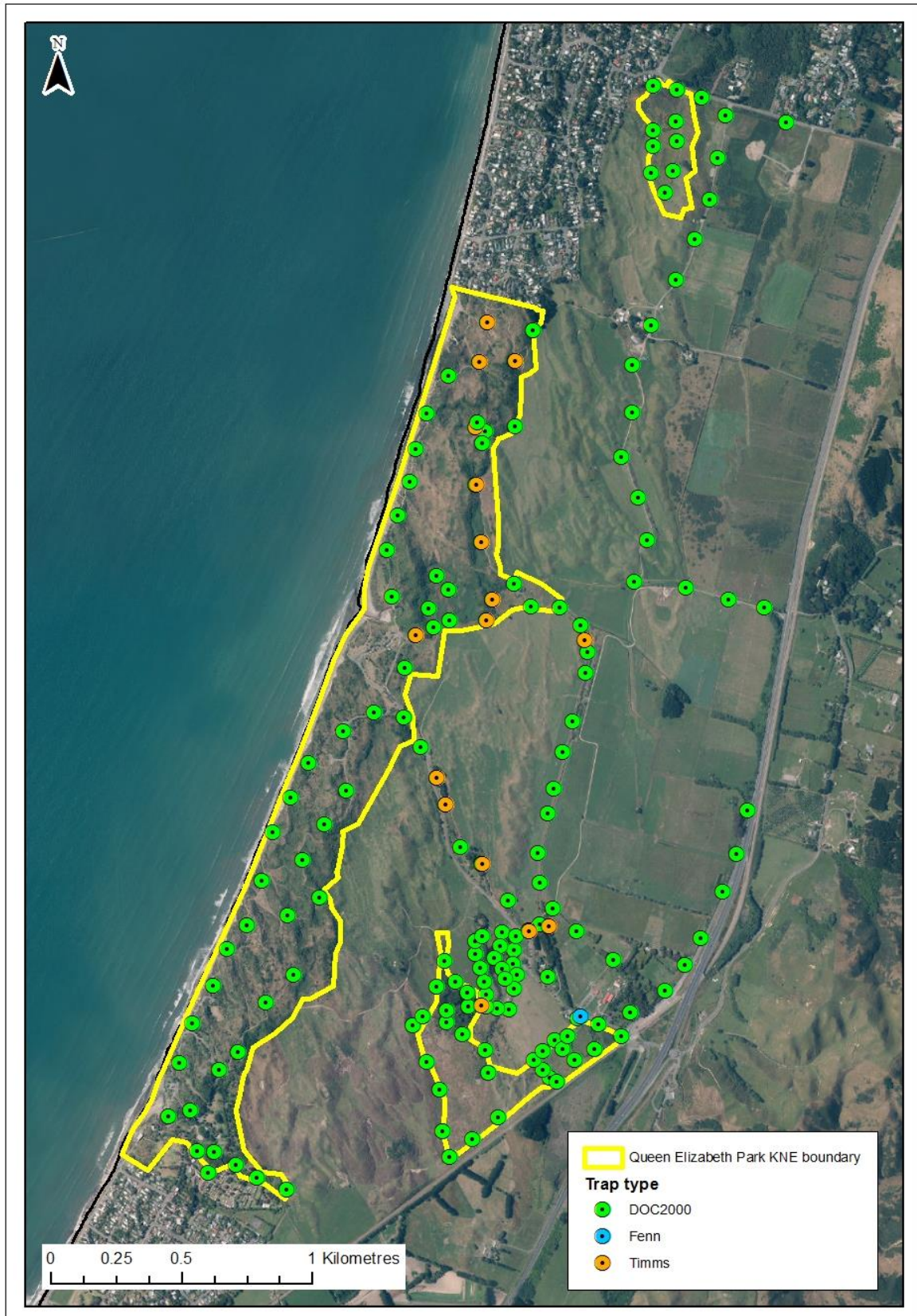
Map 1: Queen Elizabeth Park KNE and Queen Elizabeth Park boundaries.



Map 2: Threatened environments in Queen Elizabeth Park KNE.



Map 3: Operational areas in Queen Elizabeth Park KNE.



Map 4: Pest animal control in Queen Elizabeth Park KNE.

Appendix 2: Threatened species list

The New Zealand Threat Classification System lists extant species according to their threat of extinction. The status of each species group (birds, plants, reptiles, etc.) is assessed over a three-year cycle¹³. 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 species that are known to live within the KNE.

Table 4: Threatened species at Queen Elizabeth Park KNE.

Scientific name	Common name	Threat status	Source
Plants (vascular)¹⁴			
<i>Amphibromus fluitans</i>	Water brome	Nationally Endangered	GWRC 2007 ¹⁵
<i>Coprosma acerosa</i>	Sand coprosma	Declining	GWRC 2007
Birds¹⁶			
<i>Anthus novaeseelandiae</i>	New Zealand pipit	Declining	http://ebird.org/content/newzealand/ (accessed 22/01/2014)
<i>Haematopus unicolor</i>	Variable oystercatcher	Recovering	http://ebird.org/content/newzealand/ (accessed 22/01/2014)
<i>Hydropogon caspia</i>	Caspian tern	Nationally Vulnerable	http://ebird.org/content/newzealand/ (accessed 22/01/2014)
<i>Larus novaehollandiae</i>	Red-billed gull	Nationally Vulnerable	http://ebird.org/content/newzealand/ (accessed 22/01/2014)
<i>Phalacrocorax carbo</i>	Black shag	Naturally Uncommon	http://ebird.org/content/newzealand/ (accessed 22/01/2014)
<i>Sterna striata</i>	White-fronted tern	Declining	http://ebird.org/content/newzealand/ (accessed 22/01/2014)
Freshwater fish¹⁷			
<i>Anguilla dieffenbachia</i>	Longfin eel	Declining	GWRC 2007
<i>Cheimarrichthys fosteri</i>	Torrentfish	Declining	GWRC 2007
<i>Galaxias argenteus</i>	Giant kōkopu	Declining	GWRC 2007
<i>Gobiomorphus huttoni</i>	Redfin bully	Declining	GWRC 2007

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