Key Native Ecosystem Plan for Rewanui

2016-2019

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Contents

1. The Key Native Ecosystem programme

The Wellington region's native biodiversity has declined since people arrived and the ecosystems that support it face ongoing threats and pressures. 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).

Greater Wellington Regional Council's (GWRC) Biodiversity Strategy (2016)[1] sets a framework that guides how GWRC protects and manages biodiversity in the Wellington region to work towards the vision below.

GWRC's vision for biodiversity

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

The Strategy provides a common focus across the council's departments and guides activities relating to biodiversity under this overarching vision, which is underpinned by four operating principles and three strategic goals. Goal One drives the delivery of the Key Native Ecosystem (KNE) programme.

Goal One

Areas of high biodiversity value are protected or restored

The KNE programme is a non-regulatory voluntary programme that seeks to protect some of the best examples of original (pre-human) ecosystem types in the Wellington region by managing, reducing, or removing threats to their ecological values. Sites with the highest biodiversity values have been identified and prioritised for management. 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 i.e. 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.

KNE sites can be located on private or publically-owned land. However, land managed by the Department of Conservation (DOC) is generally excluded from this programme.

KNE sites are managed in accordance with three-year KNE plans such as this one prepared by the GWRC's Biodiversity department in collaboration with the landowners, tangata whenua and other partners. These plans outline the ecological values, threats, and management objectives for sites and describe operational activities such as ecological weed and pest animal control. KNE plans are reviewed regularly to ensure the activities undertaken to protect and restore the KNE site are informed by experience and improved knowledge about the site.

2. Rewanui Key Native Ecosystem site

The Rewanui KNE site (188ha) is located 21km east of Masterton in Rewanui Forest Park (formerly Rewanui Farm) on the Masterton-Castlepoint Road. It is owned by the Montfort Trimble Foundation[2]. See Appendix 1, Map 1 for the KNE boundary.

The KNE site contains mainly primary and regenerating native forest, though on the south-east facing hillslopes there is also retired farmland, alluvial terraces and gullies. Areas of mixed exotic forest with a secondary native forest understorey, and cut-over exotic forest with regenerating and planted secondary native forest make up the remainder.

The KNE site covers some of the largest, most well-protected and intact examples of the original tōtara-tītoki forest type thought to have occurred in this area, making it one of the most valuable examples of original indigenous forest remaining in the ecological district[3]. It is estimated that as little as 1.8% (or 2,200ha) of this forest type, most of it in a modified state, now remains in the region[4].

3. Landowners, management partners and stakeholders

GWRC works in collaboration with landowners, management partners and stakeholders where appropriate to achieve shared objectives for the site. GWRC also recognizes that effective working relationships are critical for achieving the management objectives for each KNE site. In preparing this plan GWRC has sought input from landowners, management partners and relevant stakeholders and will continue to involve them as the plan is implemented.

3.1. Landowners

The whole of the Rewanui Forest Park, which the Rewanui KNE site is part of, is owned by the Montfort Trimble Foundation (MTF), a charitable trust. MTF was set up in 2004 under government legislation and with cooperation from Masterton District Council (MDC). Land was purchased with funds from the will of Montfort Trimble, who died in 1940 and was an advocate of public afforestation and native forest conservation. An initial purchase of 127ha of exotic forestry north of Masterton soon led to the purchase of the 327ha Rewanui farm property. The MTF manages this land in accordance with their overall vision of growing trees for the educational, economic and aesthetic benefit of the public.

The purchase of the Rewanui farm property with its areas of native forest was based on the MTF's desire to protect and enhance native forest, as well as public afforestation.

3.2. Management partners

Management partners are those that fund or have an active role in the implementation of the KNE plan or the management of the site. The MTF landowners are management partners. Their management activities, conducted across the whole Rewanui Forest Park, align well with the biodiversity management objectives in this KNE plan. These management activities include the production and maintenance of exotic forest for economic purposes, conserving and enhancing existing native forest, and amenity planting and maintenance

Within GWRC, the management partners are the Biodiversity and Biosecurity departments. The Biodiversity department is the overarching lead department on the coordination of biodiversity management activities and advice within the KNE site. The Biosecurity department coordinates and carries out pest control activities.

3.3. Stakeholders

MDC is a stakeholder as they were appointed by the MTF after its inception to initially act on their behalf and in general oversee their activities. MDC are involved with appointing some of the committee members of MTF and supporting them in their plans and aspirations.

GWRC's Land Management department plans and advises on sustainable land use, soil conservation and water quality. Although not active within the KNE boundary, they have active Farm Environment Plans on several surrounding farms.

4. 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.

4.1. Ecological designations

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

Table 1: Designations at the Rewanui KNE site

Designation level	Type of designation
Regional	Parts of the KNE site are scheduled under GWRC's proposed Natural Resources Plan (PNRP) as: • A river with significant indigenous biodiversity values for threatened or at risk fish species: Whareama River and all tributaries (Schedule F1c)
District	Most of the KNE site is listed in DOC's Eastern Wairarapa Ecological District Recommended Areas for Protection: • Rewanui and Rorokoko Gorge Bush (RAP16)[5]

4.2. Ecological significance

The Rewanui KNE site is considered to be of regional significance/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, and has a high species diversity
- Its **ecological context** is valuable at the landscape scale as it contains a significantly large area of primary and secondary native forest, occupies a wide altitudinal range and is in a wider landscape of large albeit scattered areas of remnant and regenerating native forest

Representativeness

The Threatened Environment Classification[6] indicates approximately a quarter of the KNE site is ranked as Acutely Threatened, having less than 10% of its indigenous vegetation cover remaining on a national scale[7]. The remainder of the site is listed as Critically Underprotected, with no more than 30% of its indigenous vegetation cover remaining on a national scale, and only 10% of that protected. See Appendix 1, Map 2.

The Singers and Rogers (2014)[8] classification of pre-human forest vegetation indicates the site would have comprised podocarp/broadleaved forest dominated by tōtara (*Podocarpus totara*) and tītoki (*Alectryon excelsus*) (MF1 forest type), with the main ecosystem drivers being temperature and moisture. The Wellington region is thought to have contained over 122,000ha of this forest type prior to human habitation, but now as little as 2,200ha or 2% remain in the region, all of which is in a modified state[9]. The KNE site is considered one of the largest and most intact albeit modified examples of the original tōtara-tītoki forest cover in the region.

Rarity/distinctiveness

The KNE site provides important seasonal or core habitat for threatened species and is known to support a number of plants and animals listed in New Zealand's national threat classification system[10], being two plant, one bird and one gecko species. The KNE site also contains four regionally-threatened plant species, and several locally uncommon plant species[11] thereby making it important regionally and locally for rare or distinctive plant species. See Appendix 2 for nationally threatened species and Appendix 3 for regionally threatened plant species.

Ecological context

The KNE site is one of the largest and most intact areas of remnant and regenerating forest in the Eastern Wairarapa Ecological District[12]. It forms a valuable part of a mosaic of native forest in this area of the eastern Wairarapa hill country along with forest at nearby Kahuiti, Rorokoko, Sulphur Wells, Tinui Taipos and Rewa Bush Conservation Area.

4.3. Ecological features

For ease of description and management, the site has been divided into two operational areas, A and B. See Appendix 1, Map 3.

Habitats and vegetation

Seven orchid species have been recorded (including *Pterostylis banksii* and *Earina autumnalis*), along with thirty-four fern, and sixty-four dicotyledonous tree and shrub species[13].

The forest canopy of the remnant and regenerating forest is today dominated by rewarewa (*Knightia excelsa*), kānuka (*Kunzea ericoides*), ngaio (*Myoporum laetum*) and tītoki. The area was historically logged for trees such as tōtara and mātai (*Prumnopitys taxifolia*) but occasional specimens of these species are still present along with other emergent species such as rimu (*Dacrydium cupressinum*), kahikatea (*Dacrycarpus dacrydioides*), hīnau (*Elaeocarpus dentatus*), tawa (*Beilschemeidia tawa*) and pukatea (*Laurelia novae-zelandiae*).

Subcanopy species include lacebark or houhere (*Hoheria sexstylosa*), kōwhai (*Sophora microphylla*), tarata (*Pittosporum eugenioides*), māhoe (*Melicytus ramiflorus*), ribbonwood or mānatu (*Plagianthus regius*), five-finger or whauwhaupaku (*Pseudopanax arboreus*), kaikōmako (*Pennantia corymbosa*) and pōkākā (*Elaeocarpus hookeianus*).

Within part of operational area A the under-story is still being grazed and as a result contains higher densities of unpalatable species such as ongaonga (*Urtica ferox*). In the areas retired from grazing the understory is regenerating into a more diverse species mix with kawakawa (*Piper excelsum*), māhoe (*Melicytus ramiflorus*) and poroporo (*Solanum laciniatum* and *S. aviculare*) being more prevalent.

Species

Plants[14]

The KNE site contains two threatened plant species, the mistletoe *Tupeia antarctica* and poroporo or *Solanum aviuclare*. The threat status for both is At Risk-Declining. There are three regionally-threatened plant species: *Botrychium biforme* (parsley fern; gradual decline), *Myosotis spathulata* (data deficient) and another mistletoe *Ileostylus micranthus* (gradual decline). *Tupeia antarctica* is additionally ranked regionally as critical.

Several species found here are locally uncommon such as small maidenhair fern (*Adiantum diaphanum*), small-leaved milk tree (*Streblus heterophyllus*), *Coprosma rubra* and *Fuchsia perscandens*. The KNE site is also notable for two naturally-occurring native hybrids; a *Myrsine divaricata x Myrsine australis* hybrid and a *Coprosma propinqua x Coprosma robusta* hybrid.

Birds

New Zealand falcon or kārearea (*Falco novaeseelandiae*) were recorded in 2008 and 2009[15]. The KNE site provides seasonal or core habitat for this species, which is classified as Threatened Nationally-Vulnerable. The KNE site provides seasonal or core habitat for a range of more common forest birds including tūī (*Prosthemadera novaeseelandiae*), bellbird (*Anthornis melanura*), fantail or pīwakawaka (*Rhipidua fulginosa*), morepork (*Ninox novaeseelandiae*), silvereye (*Zosterops lateralis*), kererū (*Hemiphaga novaeseelandiae*), grey warbler (*Gerygone igata*) and Australasian harrier (*Circus approximans*).

Reptiles

The KNE site is core habitat for the threatened barking gecko (*Naultinus punctatus*; threat status At Risk-Declining). It also contains Raukawa gecko (*Woodworthia maculata*) and northern grass skink (*Oligosoma polychroma*). While not recorded onsite the ngahere gecko (*Mokopirirakau* 'southern North Island') may also be present given it has been recorded in other similar areas in the Wairarapa[16].

Mammals

There are records of NZ long-tailed bat (*Chalinolobus tuberculatus*) less than 10km away at the Sulphur Wells KNE site and Bowlands Farm, both of which have similar forest types to the Rewanui KNE site. Although no survey records exist, as the KNE site contains suitable habitat for this species, they could be present.

5. 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 threats to the ecological values at each KNE site.

5.1. Key threats

The Rewanui KNE site has been modified over time by selective logging, fire, clearance of surrounding vegetation, pest animals and stock grazing. Today the primary threats to the KNE site are considered to be pest animals, and to a lesser extent pest plants, stock grazing, public access and changing land use.

Pest animals such as possums (*Trichosurus vulpecula*), mustelids (*Mustela* spp.), rodents (rats (*Rattus rattus* and *R. norvegicus*) and mice (*Mus musculus*)), hedgehogs (*Erinaceus europaeus*) and feral cats (*Felis catus*) are present and are damaging native vegetation and/or preying on native animals. Red deer (*Cervus* elaphus), fallow deer (*Dama dama*) and pigs (*Sus scrofa*) are present across the landscape and can impact ecological values or functions in the KNE site.

Possum numbers are currently low due to control work undertaken by OSPRI under their TBfree New Zealand programme. Other pest animals such as rats were at high densities prior to control commencing in 2006 but the last monitoring event in 2011 showed numbers were at acceptable levels under the current control regime[17].

While a threat, pest plants are currently considered a relatively minor issue. A weed survey undertaken in 2006[18] showed low densities of ecological weeds in the forest areas. Species present included sweet briar (*Rosa rubiginosa*), elderberry (*Sambucus nigra*), common barberry (*Berberis glaucocarpa*), cotoneaster (*Cotoneaster glaucophyllus*) and broom (*Cystisus scoparius*). Patches of the invasive climber old man's beard (*Clematis vitalba*) are scattered in areas of road reserve on the eastern edge of the KNE site in operational area B. Several species present around the old Rewanui homestead (near operational area A) such as holly (*Ilex aquifolium*) and periwinkle (*Vinca major*) are localised to that area. To fulfill one of MTF's objectives around providing viable timber sources for the public good, various native and exotic species are being planted and trialed in operational areas A and B. Some exotic species may have the potential to become problem weeds in the future. Furthermore, some native species eg, pūriri (*Vitex lucens*) and karaka (*Corynocarpus laevigatus*) are not naturally present in the local environment and their presence could alter existing forest composition if allowed to seed and spread

Prior to being purchased by the MTF the wider Forest Park was a working farm. As part of their long term plans significant areas are still maintained for grazing and cropping because leasing these areas is a valuable source of income. The areas of forest inside the KNE site boundary have been fenced and retired from grazing apart from a small corner on the eastern extremity of operational area A, which will likely be retired by MTF in the future[19]. Stock incursions into protected areas are a minor but ongoing threat.

The Forest Park contains areas of mature and developing exotic forestry adjacent to the KNE site boundary. MTF are committed to minimising impacts through best practice harvesting techniques. However, harvesting of these forestry stands could still have an adverse impact on native biodiversity values of the KNE site. This could occur through track creation and forest removal exposing bare soil to erosion and subsequently increasing silt loads in waterways. Other known impacts from forestry practices include native animals using exotic forest as habitat being displaced, and secondary native vegetation under harvested forestry being severely damaged. Forestry machinery can also harbour ecological weed fragments and seeds from other harvesting operations that may spread into new sites, including into the KNE site.

While the key threats discussed in this section are recognised as the most significant, a number of other threats to the KNE site's values have also been identified. Table 2 presents a summary of all known threats to the Rewanui KNE site (including those discussed above), detailing which operational areas they affect, how each threat impacts on ecological values, and whether they will be addressed by management activities.

The codes alongside each threat correspond to activities listed in the operational plan (Table 3), and are used to ensure that actions taken are targeted to specific threats. A map of operational areas can be found in Appendix 1, Map 3.

Table 2: Summary of all threats to ecological values present at the Rewanui 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 weed species include periwinkle (*Vinca major*) and pampas (*Cortaderia selloana*)	Entire KNE site
EW-2	Woody weed species displace native vegetation, inhibit indigenous regeneration, and alter vegetation structure and composition. Key woody weed species include common barberry (*Berberis glaucocarpa*), elderberry (*Sambucus nigra*), cotoneaster (*Cotoneaster glaucophyllus*), broom (*Cystisus scoparius*) and sweet briar (*Rosa rubiginosa*)	Entire KNE site
EW-3	Climbing weeds smother and displace native vegetation often causing canopy collapse, inhibit indigenous regeneration, and alter vegetation structure and composition. Key climbing weed species include old man's beard (*Clematis vitalba*)	Entire KNE site
Pest animals		
PA-1	Possums (*Trichosurus vulpecula*) browse palatable canopy vegetation until it can no longer recover[20,21]. This destroys the forest's structure, diversity and function. Possums may also prey on native birds[22] and invertebrates	Entire KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
PA-2	Rats (*Rattus* 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[23,24]	Entire KNE site
PA-3	Mustelids (stoats[25,26] (*Mustela erminea*), ferrets[27,28] (*M. furo*) and weasels[29,30] (*M. nivalis*)) prey on native birds, lizards and invertebrates, reducing their breeding success and potentially causing local extinctions	Entire KNE site
PA-4	Feral and domestic cats (*Felis catus*) prey on native birds[31], lizards[32] and invertebrates[33], reducing native fauna breeding success and potentially causing local extinctions[34]	Entire KNE site
PA-5	Hedgehogs (*Erinaceus europaeus*) prey on native invertebrates[35], lizards[36] and the eggs[37] and chicks of ground-nesting birds[38]	Entire KNE site
PA-6*	House mice (*Mus musculus*) 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 birds' eggs and nestlings[39,40]	Entire KNE site
PA-7*	Rabbits (*Oryctolagus cuniculus*) and hares (*Lepus europaeus*) graze on palatable native vegetation and prevent natural regeneration in some environments[41]. Both hares and rabbits can penetrate into forest areas to browse native seedlings	Entire KNE site
PA-8*	Red deer (*Cervus elaphus)* and fallow deer (*Dama dama*) browse the forest understory and can significantly change vegetation composition by preferential browsing and preventing regeneration[42,43,44]	Entire KNE site
PA-9*	Feral pigs (*Sus scrofa*) root up the soil and eat roots, invertebrates, seeds and native plants preventing forest regeneration[45]	Entire KNE site
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[46]	Area A
HA-2*	Recreational use such as tramping, mountain biking and horse riding can cause damage and disturbance of the native ecosystem. It can also disturb native fauna and introduce ecological weeds	Entire KNE site
HA-3*	Harvesting of plantation forestry on adjoining land parcels to the KNE site have the potential to cause habitat loss or degradation, disturb native wildlife, damage boundary fencing and increase sediment load in watercourses via surface run-off during harvesting operations	Entire KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
HA-4*	Poor water quality affects a range of species in waterways. High nutrient levels and contaminants within watercourses are often caused by upstream land management practices and pollution events including development practices, forestry and agricultural practices, road run-off and storm water entering the watercourse, and septic tank leakages	Entire KNE site
Other threats		
OT-1*	Edge effects affect forest remnants by changing environmental conditions (e.g. soil moisture or temperature levels), changing physical environment (e.g. different plant assemblages compared to the interior) and changing species interactions (e.g. increased predation by invasive species) [47,48,49]	Entire KNE site

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

6. Management objectives

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

The following objectives will guide the management activities at the Rewanui KNE site.

1. **To improve the structure* and function† of native plant communities**
2. **To improve the habitat for native birds**

* The living and non-living physical features of an ecosystem. This includes the size, shape, complexity, condition and the diversity of species and habitats within the ecosystem.
† The biological processes that occur in an ecosystem. This includes seed dispersal, natural regeneration and the provision of food and habitat for animals.

7. Management activities

Management activities are targeted to work towards the objectives above (Section 6) by responding to the threats outlined in Section 5. The broad approach to management activities is described briefly below, and specific actions with budget figures attached are set out in the operational plan (Table 3).

It is important to note that not all threats identified in Section 5 can be adequately addressed. This can be for a number of reasons including financial, legal, or capacity restrictions.

7.1. Ecological weed control

The aim of weed control is to reduce the density and distribution of ecological weeds so to improve the structure and function of native plant communities. Weed control operations will focus on the ecological weed species across the KNE site known to be impacting on these factors, namely elderberry, sweet briar, common barberry and old man's beard.

Various weed control work has been done by MTF in the past and will continue to be ongoing. This work aligns well with the biodiversity management objectives in this plan.

Following on from the 2006 weed survey, GWRC completed a woody weed control programme in 2007/08 targeting elderberry and sweet briar across the property. The sites where this control work was previously undertaken will be revisited annually, initially for re-survey for woody weeds and subsequently for control where weeds are identified. Areas likely to have weed incursions across both operational areas will also be targeted for survey and control. GWRC's Biosecurity department will undertake this work on an annual basis and will continue to target elderberry, sweet briar, common barberry plus additional species where found including cotoneaster, pampas and broom as resources allow. If other previously unrecorded or new species are found during this work their control will be prioritised according to their perceived threat level to the KNE site's values.

Survey and control work will be carried out on old man's beard in operational area B (See Appendix 1, Map 3 for operational areas) by the Biosecurity department annually.

Ecological weeds identified at the Rewanui homestead such as periwinkle near operational area A will be monitored by GWRC's Biodiversity and Biosecurity departments. If they are found to be spreading into high value areas within the KNE site these weed species will be contained.

7.2. Pest animal control

Pest animal control is considered critical to protecting the identified values present and achieving the two objectives for this KNE site.

A best practice multi-species approach to animal pest control[50] is currently in place with a network of 78 control locations across the KNE site (See Appendix 1, Map 4 for pest animal control locations). Each control location contains a Sentry bait-station, DOC250 kill-trap and a Timms kill-trap targeting possums, mustelids, feral cats, rodents and hedgehogs. The control locations are serviced on a monthly basis by GWRC's Biosecurity department.

MTF employ a contractor in spring and summer to service additional Philproof bait stations containing Pindone bait for possum and rodent control across the KNE site and this is expected to be ongoing.

MTF and its farm lessee control feral deer and pigs by shooting on an ad hoc basis.

8. Operational plan

The operational plan shows the actions planned to achieve the stated objectives for the Rewanui KNE site, and their timing and cost over the three-year period from 1 July 2016 to 30 June 2019. The budget for the 2017/18 and 2018/19 years are indicative only and subject to change.

Table 4: Three-year operational plan for the Rewanui KNE site

Objective	Threat	Activity	Operational area	Delivery	Description/detail	Target	Timetable and resourcing		
							2016/17	2017/18	2018/19
1, 2	EW-1 EW-2 EW-3	Ecological weed control	Entire KNE site	GWRC Biosecurity department	Targeted woody weed survey and control across the entire KNE site, prioritising previous control sites Targeted survey and control of old man's beard in operational area A and B Monitoring (and control if necessary) of ecological pest plants at Rewanui homestead	Reduction in the distribution and frequency of identified ecological weed species	$2,000	$2,000	$2,000
1, 2	PA-1 – 5	Pest animal control	Entire KNE site	GWRC Biosecurity department	Service bait station and predator kill-trap network on a monthly basis	Possums <5% RTC* Rats <10% TTI**	$7,500	$7,500	$7,500
						Total	**$9,500**	**$9,500**	**$9,500**

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

9. Funding contributions

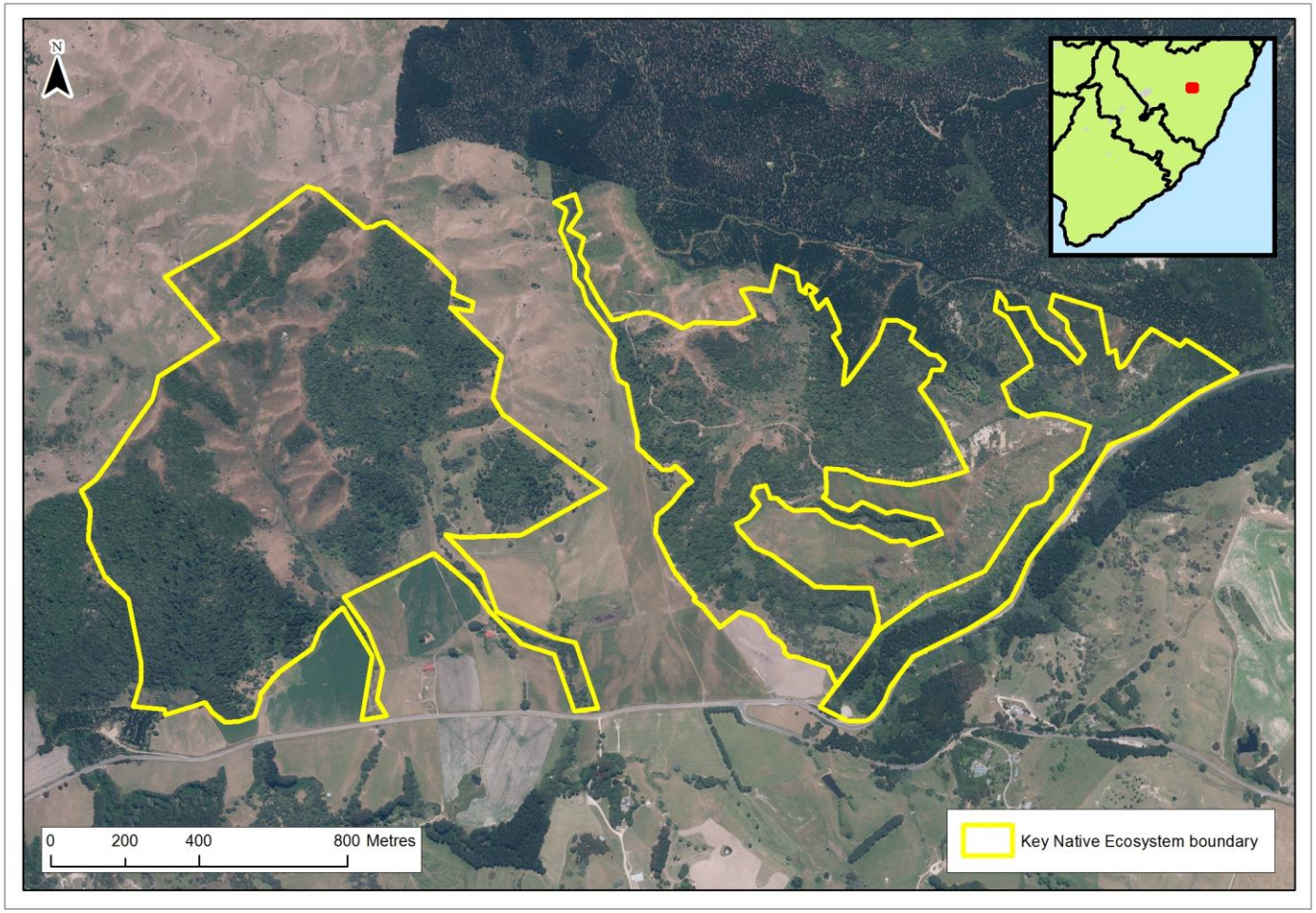
9.1. Budget allocated by GWRC

The budget for the 2017/18 and 2018/19 years are indicative only and subject to change.

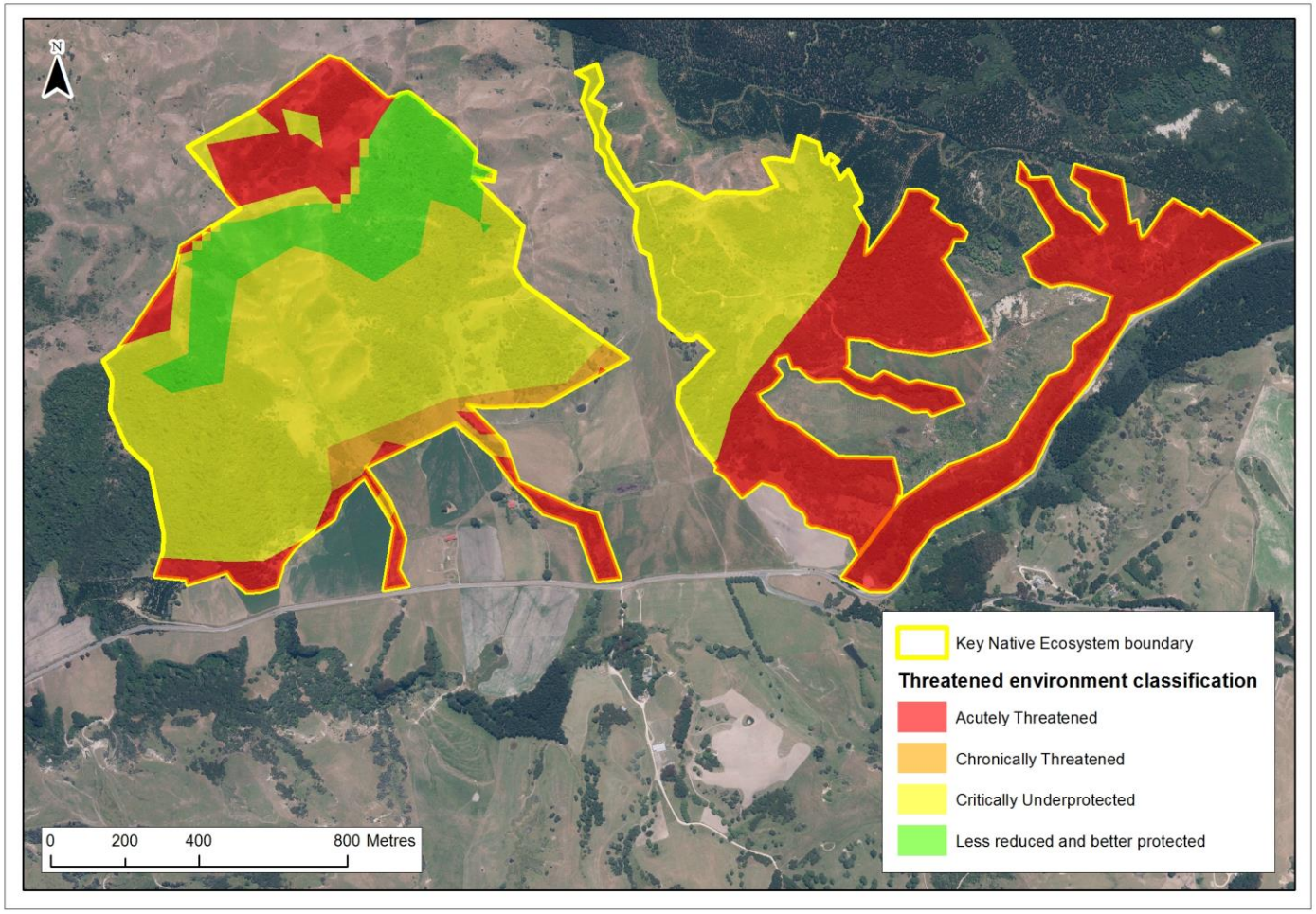
Table 5: GWRC allocated budget for the Rewanui KNE site

Management activity	Timetable and resourcing		
	2016/17	2017/18	2018/19
Pest animal control	$7,500	$7,500	$7,500
Pest plant control	$2,000	$2,000	$2,000
Total	**$9,500**	**$9,500**	**$9,500**

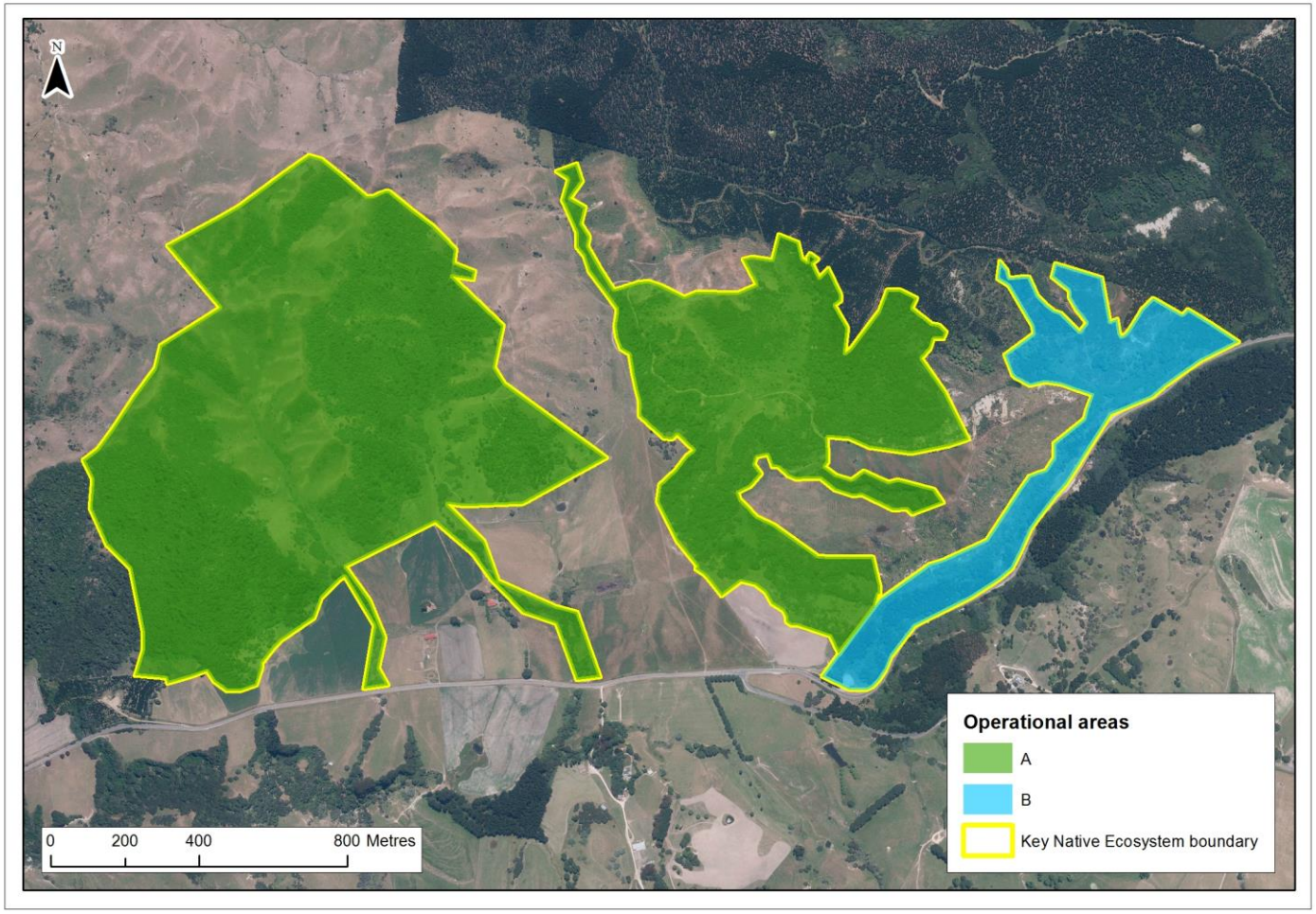
Appendix 1: Site maps



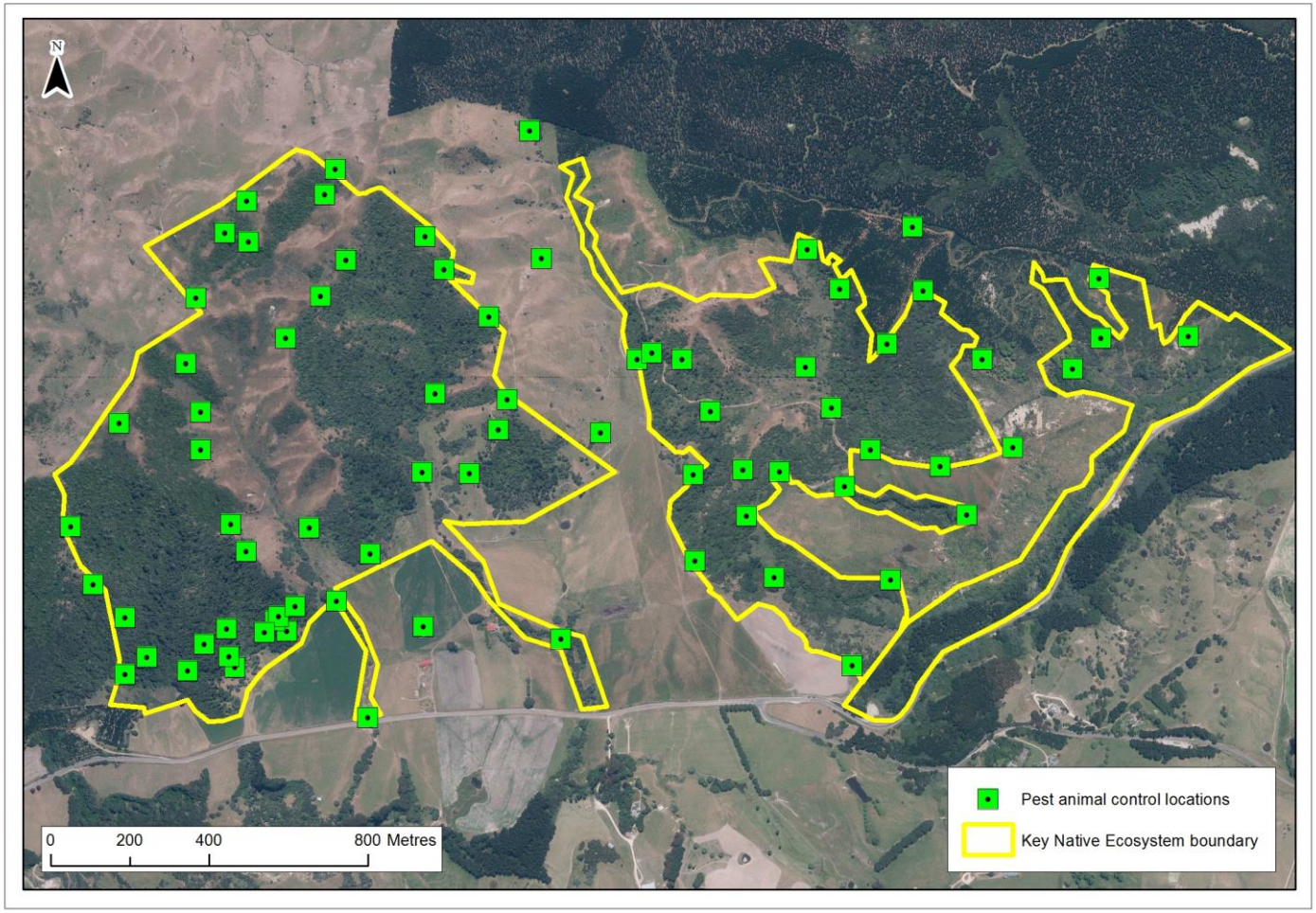
Map 1: The Rewanui KNE site boundary



Map 2: Land Environment New Zealand threat classifications for the Rewanui KNE site



Map 3: Operational areas in the Rewanui KNE site



Map 4: Pest animal control undertaken by GWRC in the Rewanui 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 three-year cycle[51], with the exception of birds which are assessed on a five-year cycle[52]. 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 Rewanui KNE site.

Table 7: Threatened and At Risk species at the Rewanui KNE site.

Scientific name	Common name	Threat status	Observation
Plants(vascular)[53]			
Solanum aviculare	Poroporo	At Risk - Declining	Enright et al. 2014[54]
Tupeia antarctica	White mistletoe; pirita	At Risk - Declining	Enright et al. 2014
Birds[55]			
Falco novaezeelandiae	NZ falcon; kārearea	Nationally Vulnerable	Fea et al 2011[56]
Reptiles[57]			
Naultinus punctatus	Barking gecko	At Risk - Declining	Fea et al. 2011

Appendix 3: Regionally threatened plant species list

The following table lists regionally threatened species that have been recorded in the Rewanui KNE site. Native plant species have been identified in the Plant Conservation Strategy, Wellington Conservancy 2004-2010[58].

Table 8: Regionally threatened plant species recorded in the Rewanui KNE site

Scientific name	Common name	Threat status	Observation
Plants			
Botrychium biforme	Fine-leaved parsley fern	Gradual decline	Enright et al. 2014[59]
Ileostylus micranthus	Green mistletoe; pirita	Gradual decline	Enright et al. 2014
Myosotis spathulata	N/A	Data deficient	Enright et al. 2014
Tupeia antarctica	White mistletoe; pirita	Regionally critical	Enright et al. 2014

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