

Key Native Ecosystem Operational Plan for Hutt Water Collection Area

2020-2025



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1. Purpose

The purpose of the five-year Key Native Ecosystem (KNE) Operational Plan for Hutt Water Collection Area KNE site is to:

- Identify the parties involved
- Summarise the ecological values and identify the threats to those values
- Outline the objectives to improve ecological condition
- Describe operational activities (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 (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)

Hutt and Wainuiomata/Orongorongo Water Collection Areas Management Plan

The Hutt Water Collection Area is set aside and managed under the Wellington Regional Water Board Act 1972 for water collection purposes. Management of the area is also

guided by the National Environmental Standards for Sources of Human Drinking Water (2008), drinking water standards, a water safety plan and a number of statutory and strategic plans. In 2016 an overarching management plan for the Hutt and Wainuiomata/Orongorongo Water Collection Areas⁴ was developed to outline goals, objectives and actions to guide and inform the management of the water collections areas and operational plans, such as this KNE operational plan. The water collection area management plan identifies five goals:

1. *Maximise the **quality** of raw water and minimise the extent of water treatment required*
2. *Manage threats to water **supply** to maintain volumes of raw water*
3. *Maintain and enhance the significant **ecosystem and biodiversity values** of the water collection areas*
4. *Maintain the **cultural heritage** values of the water collection areas, including managed **recreational access***
5. *Maintain **collaborative working relationships** between management agencies and with others to achieve water quality, supply and biodiversity objectives*

These goals are relevant to this KNE operational plan as the outcomes of biodiversity management are a key component in the delivery of the Water Collection Management Plan's objectives. Optimum water quality is achieved via healthy aquatic and terrestrial ecosystems, and managing the key threats to water quality and supply also supports biodiversity objectives. For example, maintaining low numbers of pest animals such as deer and goats reduces the risk of water contamination by protozoa such as cryptosporidium and giardia (which they can carry) and also reduces the loss of vegetation cover that can contribute to soil erosion, thereby threatening water quality.

Greater Wellington Biodiversity Strategy

The Greater Wellington Biodiversity Strategy⁵ (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

The Strategy provides a common focus across Greater Wellington's departments and guides activities relating to biodiversity. The Vision is underpinned by four operating principles and three strategic goals. Goal One drives the delivery of the KNE Programme.

Goal One
Areas of high biodiversity value are protected or restored

3. The Key Native Ecosystem Programme

The KNE Programme is a voluntary programme of work. There is no statutory obligation for Greater Wellington to do this work. Greater Wellington invites selected landowners to discuss whether they would like to be involved in the programme. When work is done on private land, 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.

The programme 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, 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.

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

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.

4. Hutt Water Collection Area Key Native Ecosystem site

The Hutt Water Collection Area KNE site (8,740 ha) is a large forested area containing several original (pre-human) forest types that are largely unchanged since the time of European settlement. The KNE site contains predominantly beech and broadleaf-podocarp forest. It is managed as a protected water supply area and as a result the site’s condition is very good compared to other areas of similar habitat in the region and it supports a wide range of rare and common forest bird species, including kākā (*Nestor*

meridionalis), kakariki/red and yellow crowned parakeet (*Cyanoramphus auriceps* and *C. novaezelandiae*).

The KNE site is located in the southern foothills of the Tararua Range approximately 13 km north-east of Upper Hutt City (see Appendix 1, Map 1). It encompasses the headwaters of Te Awa Kairangi/Hutt River including the catchments of the Eastern Hutt River, Western Hutt River and Kerekere Stream. The site adjoins the Tararua Forest Park to the north and east, and Kaitoke Regional Park KNE site to the south.

The KNE site is mountainous and rugged, broken by multiple streams and narrow, steep-sided ridges. The hilltops are extremely exposed to the north-west and the south and have a reputation for high winds, fog and sudden weather changes. Most of the site is relatively remote with only very limited vehicle access and no formed walking tracks. These characteristics and its proximity to Wellington's population make it an ideal and important site for water collection purposes.

5. Parties involved

5.1. Landowner and land managers

All land within the KNE site is owned by or vested in Greater Wellington and has been set aside for the purpose of harvesting source water for treatment and supply to the cities of Wellington, Porirua, Lower Hutt and Upper Hutt.

Wellington Water Limited (Wellington Water) manages the water supply in accordance with the Hutt and Wainuiomata/Orongorongo Water Collection Areas Management Plan⁶. This plan identifies the broad scale management required to protect biodiversity values of the site which play a role in providing quality source water (eg, a complete native forest structure). This KNE operational plan provides further detail of management activities being implemented to protect those biodiversity values. Wellington Water maintains water supply assets and the associated infrastructure within the site.

The Greater Wellington Biodiversity department manages the biodiversity values of the KNE site in accordance with the Hutt and Wainuiomata/Orongorongo Water Collection Areas Management Plan⁷, this KNE Operational Plan and the Service Level Agreement between Wellington Water and Greater Wellington Catchment Management Group.

The Greater Wellington Parks department maintains assets within the KNE site such as the access road, swing bridge and the hut in the Eastern Hutt River valley. These assets support both operational and recreational visitor activities.

5.2. Operational delivery

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

- The Biodiversity department is the overarching lead department on the longer term planning and coordination of biodiversity management activities and the provision of biodiversity management advice within the KNE site
- The Biosecurity department implements pest controls measures at the KNE site with funding provided by Wellington Water, and as planned by the Biodiversity department
- The Environmental Science department implements monitoring of possums at the KNE site with funding provided by Wellington Water, and as planned by the Biodiversity department. The Environmental Science department also carries out monitoring activities for Wellington Water directly and undertakes monitoring within the KNE site that contributes to DOC's Project Kākā: Tararua Nature Recovery project. These activities don't form part of this KNE Operational Plan, although information obtained through them can help guide biodiversity management decisions
- The Parks department's maintenance of the access road and swing bridge supports KNE site operational activities. The Parks department funds most of this maintenance with Wellington Water funding the balance.

All of the activities set out in this KNE operational plan are funded by Wellington Water and agreed through a service level agreement between Wellington Water and Greater Wellington⁸.

5.3. Mana whenua partners

Taranaki Whānui ki Te Upoko o Te Ika (Taranaki Whānui) and Ngāti Toa Rangatira (Ngāti Toa) are Greater Wellington's mana whenua partners in the Hutt Water Collection Area KNE site. Greater Wellington is committed to identifying ways in which kaitiakitanga can be strengthened by exploring opportunities on how mana whenua partners wish to be involved in the plan development or operational delivery of the KNE site.

Taranaki Whānui and Ngāti Toa both have an association with Te Awa Kairangi/Hutt River as outlined in the Statutory Acknowledgements from the respective Claims Settlement Acts for each iwi⁹.

Te Awa Kairangi/Hutt River which flows from within the KNE site holds significance to Taranaki Whānui and Ngāti Toa. Tables 1 and 2 below lists the values that it holds for our mana whenua partners as listed in the PNRP¹⁰.

Table 1: Taranaki Whānui sites of significance in Hutt Water Collection Area KNE site¹¹

Sites of significance	Mana whenua values
Te Awa Kairangi/Hutt River (Schedule B - Ngā Taonga Nui a Kiwa)	Ngā Mahi a ngā Tūpuna Te Mahi Kai Wāhi Whakarite Te Mana o te Tangata Te Manawaroa o Te Wai Te Mana o Te Wai Wāhi Mahara

Table 2: Ngāti Toa sites of significance in Hutt Water Collection Area KNE site¹²

Sites of significance	Mana whenua values
Te Awa Kairangi/Hutt River (Schedule B - Te Taonga Nui a Kiwa)	Ngā Mahi a ngā Tūpuna Te Mahi Kai Te Mana o Te Tangata Te Manawaroa o te Wai Te Mana o Te Wai

Greater Wellington recognises the value and importance of working with mana whenua in their roles as kaitiaki in areas within the KNE site. The KNE operational plan activities will:

- make a small but valuable contribution to the overall expected PNRP outcomes including the protection and restoration of native plant and animal populations in the headwaters of Te Awa Kairangi/Hutt River
- ensure people working in KNE sites understand the requirements of the Accidental Discovery Protocol

- endeavour to ensure that Taranaki Whānui and Ngāti Toa values for the site are protected

In addition, Greater Wellington will work on initiatives to achieve mutual benefit including the internship monitoring programme of the cultural health and wellbeing of KNE sites.

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 3 below lists ecological designations at all or part of the Hutt Water Collection Area KNE site.

Table 3: Ecological designations at the Hutt Water Collection Area KNE site

Designation level	Type of designation
Regional	<p>Parts of the KNE site are scheduled in the PNRP¹³ as:</p> <ul style="list-style-type: none"> • River with outstanding indigenous ecosystem values (Schedule A1) - Te Awa Kairangi/Hutt River¹⁴ • Wetland with outstanding indigenous biodiversity values (Schedule A3) - Maymorn Wetlands¹⁵ • River with significant indigenous ecosystems (Schedule F1) - Te Awa Kairangi/Hutt River, and all tributaries above and including the Pakuratahi River¹⁶ <ul style="list-style-type: none"> ○ high macroinvertebrate community health ○ habitat for indigenous threatened/at risk fish species ○ habitat for six or more migratory indigenous fish species
Other	The entire KNE site is gazetted for water supply purposes.

6.2. Ecological significance

The Hutt Water Collection Area 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
- It contains high levels of ecosystem **diversity**, with several ecosystem types represented within its boundary
- Its **ecological context** is valuable at the landscape scale as it contains a variety of inter-connected habitats and provides core/seasonal habitat for threatened indigenous forest bird species

Representativeness

The vegetation types within the KNE site have remained largely unchanged since the time of European settlement so are highly representative of the original vegetation types¹⁷. The Singers and Rogers (2014)¹⁸ classification of pre-human forest vegetation indicates the KNE site would likely have comprised of eight different forest types with

red beech - podocarp forest (CLF9), red beech - silver beech forest (CLF10), and silver beech forest (CLF11-2) being the predominant types (see Appendix 1, Map 2).

The Threatened Environment Classification system¹⁹ indicates that most of the Eastern Hutt River terraces are in an environment type that is classified as At Risk. Nationally this type of environment has only 20-30% of its indigenous vegetation cover remaining (see Appendix 1, Map 3).

Rarity/distinctiveness

One of the forest types present; mountain beech, silver beech, montane podocarp forest (CDF7), is found nowhere else in the region. The area of this forest type in the KNE site remains in a relatively unmodified state, and is only minimally threatened by pest animals. While the forest type is very rare in the region, it is not threatened, with greater than 95% of its original extent remaining²⁰.

Wetlands are now considered an uncommon habitat type in the Wellington region with less than 3% of their original extent remaining²¹. There are four wetlands present within the KNE site and due to their remote location and inaccessibility they are some of the most intact wetlands in the region²². Two wetlands collectively constitute the Maymorn Wetlands that are scheduled as outstanding wetlands in the PNRP. One of the wetlands within the Maymorn Wetlands, known as the Maymorn Ridge bog, is an example of a domed bog which is considered a naturally uncommon ecosystem type with a national threat status of Endangered²³.

New Zealand's national threat classification system²⁴ lists 15 plant, seven bird, one lizard, five fish and one invertebrate species recorded within the KNE site as nationally Threatened or At Risk. Eight plant, seven bird and one lizard species present have also been listed as Regionally Threatened or At Risk. Nationally and regionally threatened species are listed in Appendices 2 and 3 respectively.

Diversity

The KNE site is a very ecological diverse area with eight different forest types, four wetlands, numerous major and minor watercourses, and sub-alpine and alpine floral associations present, making it a very ecologically diverse area.

Ecological context

Being one of the largest areas of original forest in the Wellington region, the KNE site is important for supporting large populations of native birds, including breeding habitat for Threatened and At-Risk species. The KNE site contains all of the headwaters of Te Awa Kairangi/Hutt River providing a rare opportunity to carry out management at a catchment scale. The KNE site connects and is contiguous with other large areas of similar habitat.

6.3. Ecological features

The KNE site lies within the Tararua ecological district²⁵ which is mainly characterised by:

- Steep, high, dissected hills and mountains, heavily faulted and broken by major rivers with steep hill slopes dropping to small river flats
- Triassic-Jurassic greywacke, argillite and bedded alternating greywacke and argillite geology, and steepland soils from shallow, stony and strongly leached greywacke to podzolised with low natural fertility
- Predominantly westerly winds with gale force strength common, low cloud covering the ranges for prolonged periods, and high rainfall

Vegetation communities and plants

Vegetation on the valley floors is dominated by a canopy of hīnau (*Elaeocarpus dentatus*) and kāmahi (*Weinmannia racemosa*) with emergent rimu (*Dacrydium cupressinum*) and Northern and Southern rātā (*Metrosideros robusta* and *M. umbellata*). At around 400 m above sea level (asl) red beech (*Fuscospora fusca*) enters the forest mix and begins to dominate. At around 800 m asl, red beech-silver beech (*Lophozonia menziesii*) forest is dominant, before silver beech dominates above 900 m asl. The treeline is at around 1,100 m asl.

Ridge-top sub-alpine plant communities are found near Renata and Alpha peaks on the KNE site's northern boundary. Stunted silver beech, leatherwood (*Olearia colensoi*) and *Dracophyllum filifolium* overtop snow tussock *Chionochloa flavescens*, snowberry species (*Gaultheria* spp.), cushion grasses and sundew species (*Drosera* spp).

Ridge-top elfin forest is present on the main ridge-lines from Renata to Elder, Hells Gate to Omega, and Maymorn to Pukeruru (see Appendix 1, Map 1). These areas are subject to cold winds, dense clouds, high rainfall and snow in winter. They have similar canopy dominants as in the ridge-top subalpine communities mentioned above, but mountain flax (*Phormium cookianum*), haumakaroa (*Raukawa simplex*), ferns, coprosmas and many other species are also found. Wet turf is also frequently present.

Snowgrass areas and fellfields are found above the alpine scrub belt on Mt Alpha and Mt Aston ridge tops, and on Quoin Ridge. Leatherwood, porcupine scrub (*Melicytus alpinus*) and *Dracophyllum* spp. are present. Snowgrass species include *Chionochloa flavescens* and *C. conspicua*, while other common species include mountain astelia (*Astelia cockaynei*), daisy species (*Celmisia* spp), mountain buttercup (*Ranunculus insignis*) and *Gaultheria* spp.

Although the general forest types have remained unchanged, their compositions have been significantly modified by the impacts of browsing feral goats (*Capra hircus*) and red deer (*Cervus elaphus*). No logging has occurred within the KNE site, but fires have altered the forest composition in patches.

Areas of vegetation identified as ecologically important include the alpine and sub-alpine plant associations described above, areas of tree fuchsia (*Fuchsia excorticata*)

forest located in gully heads around Quoin Ridge, Alpha peak, and on the Eastern slopes between Renata Forks and Hutt Forks, and areas of podocarp forest²⁶.

Other vegetation of ecological interest are the locations of past fires on Quoin and Marchant ridges. These areas have not yet recovered their original beech forest and so are of scientific interest as examples of unmodified natural succession.

Southern rātā, uncommon in the North Island, can be found on Maymorn Ridge and in the vicinity of Renata Hut and the old Dobson's Hut on Marchant Ridge. Northern rātā is plentiful.

There are four wetlands present within the KNE site. These are Phillips Stream marsh, upper Eastern Hutt fen, Maymorn Ridge marsh and Maymorn Ridge bog. The latter two together constitute Maymorn Wetland as scheduled under Greater Wellington's Proposed Natural Resources Plan (PNRP)²⁷ (see Appendix 1, Map 4).

Species

Birds

The KNE site is one of only a few areas within the Wellington region that all of the sixteen species of native forest bird that have survived naturally in the region can be found. Species that are found here that are uncommon in most of the region include kākā (*Nestor meridionalis*), kākārīki/red and yellow crowned parakeet (*Cyanoramphus auriceps* and *C. novaezealandiae*), pōpokatea/whitehead (*Mohoua novaeseelandiae*), tītipounamu/rifleman (*Acanthisitta chloris*) and kārearea/New Zealand falcon (*Falco novaeseelandiae*)²⁸. Appendix 4 contains a list of all the native bird species that have been recorded in the KNE site.

Reptiles

Ngahere gecko (*Mokopirirakau* "southern North Island") is the only lizard species that has been recorded in the KNE site. However, it is likely that barking geckos (*Naultinus punctatus*) and northern grass skinks (*Oligosoma polychroma*) are also present, as these species have been recorded within 600 m of the KNE site²⁹.

Fish and koura/freshwater crayfish

Ten species of native fish have been recorded in the KNE site³⁰. However, the large weir at Kaitoke, at the lower extent of the KNE site, appears to restrict the range of all but two of these species, the shortjaw kōkopu (*Galaxias postvectis*) and kōaro (*G. brevipinnis*) to the lower reaches of Te Awa Kairangi/Hutt River.

Kōura/freshwater crayfish (*Paranephrops planifrons*) are known to be present.

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 threats to the ecological values at each KNE site.

7.1. Key threats

Pest animals, ecological weeds and human activities all have the potential to adversely impact the ecological values of the Hutt Water Collection Area KNE site. These threats also threaten the quality of the water that is sourced from the KNE site. The most significant threats come from pest animals, in particular possums (*Trichosurus vulpecula*), feral goats, red deer, rats (*Rattus* spp.) and stoats (*Mustela erminea*).

Possums are kept to very low numbers across the KNE site through regular aerial control operations. This management is required because possums, if left uncontrolled will over-browse the canopy until plant species can no longer recover. Possums will feed on a large range of plant species, however preferred species in the KNE site include northern and southern rātā and tree fuchsia. Ongoing control of possums is required at regular intervals as they will reinvade from surrounding areas where they are not controlled. Without this management possum numbers would increase to levels that will affect the vitality of the forest canopy and understory.

Feral goats, red deer and pigs are all present in moderate numbers in the KNE site and are inhibiting regeneration of the forest understory and contributing to risks of water contamination. Over many decades feral goats and red deer have significantly modified the forest composition. Species palatable to goats and deer have declined and in some cases are now rare. It is likely that some very palatable plant species have become locally extinct. The feeding behaviour of feral pigs (ie, rooting up the forest floor in search of roots and invertebrates) disturbs the soil causing sediment run off into watercourses.

Rats and stoats are also present in moderate numbers. Populations are reduced to low densities by aerial possum control operations, but numbers of both bounce back to pre-control levels within eighteen months of operations. The rat population density normally sits at between 15% and 50% Tracking Tunnel Index (TTI) and the mustelid density at between 10% and 35% TTI. These species are likely to be impacting native bird, invertebrate and lizard populations.

Whilst the large (approximately seven metres high) weir located on Te Awa Kairangi/Hutt River within the KNE site is an important part of the water supply infrastructure, it appears to prevent the passage of most native fish species to very large areas of potential habitat. Seven species of native fish recorded below the weir have not been recorded in any other part of Te Awa Kairangi/Hutt River catchment above the weir. It appears the weir is too high and steep for most native fish species to climb.

The KNE site is notable for having very few and only small infestations of ecological weeds. However, these infestations will spread if left uncontrolled, so still pose a key threat to the integrity of the native forest.

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 4

presents a summary of all known threats to the Hutt Water Collection Area 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 operational activities. The operational delivery schedule (Table 5) lists the operational activities that are taken to target specific threats. A map of operational areas can be found in Appendix 1 (see Map 5).

Table 4: Summary of all threats to ecological values present at the Hutt Water Collection Area 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. The key ground covering ecological weed species present is lotus (<i>Lotus pendunculatus</i>)	D
EW-2	Woody ecological weeds displace native vegetation, inhibit indigenous regeneration, and alter vegetation structure and composition. Key woody ecological weed species present are buddleia (<i>Buddleja davidii</i>), gorse (<i>Ulex europaeus</i>) and Himalayan honeysuckle (<i>Leycesteria formosa</i>)	A, B, C, D
Pest animals		
PA-1	Possums (<i>Trichosurus vulpecula</i>) browse palatable canopy vegetation until it can no longer recover ^{31,32} . This destroys the forest's structure, diversity and function. Possums may also prey on native birds and invertebrates ³³	Entire KNE site
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 ^{34,35}	Entire KNE site
PA-3*	Mustelids (stoats ^{36,37} (<i>Mustela erminea</i>), ferrets ^{38,39} (<i>M. furo</i>) and weasels ^{40,41} (<i>M. nivalis</i>)) prey on native birds, lizards and invertebrates, reducing their breeding success and potentially causing local extinctions	Entire KNE site
PA-4*	Hedgehogs (<i>Erinaceus europaeus</i>) prey on native invertebrates ⁴² , lizards ⁴³ and the eggs ⁴⁴ and chicks of ground-nesting birds ⁴⁵	Entire KNE site
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 ^{46,47}	Entire KNE site
PA-6*	Pest cats (<i>Felis catus</i>) prey on native birds ⁴⁸ , lizards ⁴⁹ and invertebrates ⁵⁰ , reducing native fauna breeding success and potentially causing local extinctions ⁵¹	Entire KNE site
PA-7	Red deer (<i>Cervus elaphus</i>) browse the forest understory and can significantly change vegetation composition by preferential browsing and preventing regeneration ^{52,53,54}	Entire KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
PA-8	Feral pigs (<i>Sus scrofa</i>) root up the soil and eat roots, invertebrates, seeds and native plants preventing forest regeneration ⁵⁵	Entire KNE site
PA-9	Goats (<i>Capra hircus</i>) browsing affects the composition and biomass of native vegetation in the understory tiers of forest habitats, preventing regeneration of the most palatable understory species and reducing species diversity ⁵⁶	Entire KNE site
PA-10*	Rabbits (<i>Oryctolagus cuniculus</i>) graze on palatable native vegetation and prevent natural regeneration in some environments ⁵⁷	Forest margins
PA-11*	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 ⁵⁸	Entire KNE site
PA-*12*	Brown trout (<i>Salmo trutta</i>) and rainbow trout (<i>Oncorhynchus mykiss</i>) prey on native fish and compete with them for food resources ⁵⁹	Entire KNE site
PA-13*	Eastern rosella (<i>Platycercus eximius</i>) parakeets are known to out-compete native red-crowned parakeets for nest-sites and are a vector of avian diseases. The continued presence of eastern rosella in the KNE site could limit the ability of red crowned parakeets to establish functional populations ^{60,61}	Entire KNE site
Human activities		
HA-1	Recreational use such as hunting and tramping can cause damage and disturbance of the native ecosystem, and introduce ecological weeds through the carriage of seeds and plant fragments on clothing, equipment and dogs	Entire KNE site
HA-2	Operational activities such as road and track maintenance, the installation of structures, pest control and ecological monitoring can cause damage to native vegetation, and the accidental introduction of weeds through the carriage of seeds and plant fragments on machinery, equipment and clothing	Entire KNE site
HA-3	Fire can be destructive to native flora and fauna and create conditions for pest plant invasion	Entire KNE site
HA-4*	A large barrier to native fish passage is present in the main river course within the KNE site preventing or restricting the access of most native fish species to most of the habitat within the KNE site and preventing migrating fish from completing their life-cycle	At the lower end of Te Awa Kairangi/Hutt River within the KNE site
Other threats		
OT-1*	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 uncoventanted, having no protection status	Entire KNE site

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

8. Vision and objectives

8.1. Vision

The Hutt Water Collection Area KNE site remains representative of the forest ecosystem originally present and is regenerating and flourishing. It supports diverse and successfully breeding populations of native birds, lizards, invertebrates and fish, and provides core habitat for the expansion of native species in the surrounding districts. The KNE site provides an excellent and resilient source of clean water for public supply.

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 Hutt Water Collection Area KNE site.

- 1. Maintain the strong native integrity of the forest ecosystem**
- 2. Protect and improve forest regeneration and forest canopy condition**
- 3. Protect and increase the abundance of vulnerable, uncommon and threatened native plant species**
- 4. Protect the native fauna**
- 5. Maintain the high condition of wetlands present**
- 6. Prevent any loss or degradation of native habitat**

9. Operational activities

Operational activities are targeted to work towards the objectives above (Section 8) by responding to the threats outlined in Section 7. 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 (Table 5).

It is important to note that not all threats identified in Section 7 can be adequately addressed. This can be for a number of reasons including financial, legal, or capacity restrictions.

9.1. Ecological weed control

The aim of ecological weed control is to maintain the strong native integrity of the forest ecosystem and to improve the regeneration of native forest in the areas currently inhabited by ecological weeds. Infestations of ecological weeds within the KNE site are being contained and the density of weeds within them is being reduced. Containing and controlling the infestations is stopping them spreading through open areas such as river flats and slips, and then into the forest.

As there are currently only a small number of ecological weed infestations present in the KNE site and these infestations are not large, all infestations are controlled annually. Control is undertaken prior to weed plants setting seed which prevents new weed seeds being dispersed. The current weed seed bank will reduce over time as existing weed seeds germinate and the resulting plants are controlled before they produce further seeds. It is hoped that this approach will lead to all current infestations being eliminated from the KNE site within five to ten years.

Ecological weed species that are present, and therefore controlled, are buddleia (operational area A), gorse (operational areas B, C and D), Himalayan honeysuckle (operational area B) and lotus (isolated areas within operational area C), (see Appendix 1, Map 5). Lotus may already have been eliminated but searches for lotus plants in the vicinity of historic observations are undertaken to confirm or effect the elimination of this species. The gorse control undertaken in operational area C is on the forest edges in the vicinity of the Eastern Hutt access road. This is undertaken in addition to weed control undertaken by the Parks department on the edges of the road as part of the asset maintenance programme that the Parks department implements. Apart from this work on the road edges undertaken by the Parks department, all ecological weed control work is undertaken by the Biosecurity department.

9.2. Pest animal control

The aim of pest animal control is to maintain the strong native integrity of the forest ecosystem and protect and improve regeneration of the forest and the condition of the forest canopy. It also serves to protect and increase the abundance of vulnerable, uncommon and threatened native plant species and protect the native fauna of the KNE site. It also helps to maintain the high condition of wetlands present. These aims are worked towards by reducing the impacts imposed on the native forest by mammalian browsers, such as possums, deer, goats and pigs. Controlling possums and pigs also reduces predation by these species on native birds and invertebrates.

Possum control by aerially-sown 1080

Possums are controlled across the whole KNE site to keep the overall possum population density below 5% residual trap catch (RTC). Research has shown that possum populations above this level impact forest regeneration and vitality. Control is achieved by undertaking regular possum control operations using aerially-sown 1080 (sodium fluoroacetate). The last aerial possum control operation was carried out in August 2014.

The results of possum monitoring undertaken in the KNE site as part of the Project Kākā: Tararua Nature Recovery project have shown that the possum population in the KNE site is increasing and is now likely to be above 5% RTC. In response to this finding, an aerial 1080 operation is planned to be undertaken in the winter of 2021. Most of the planning of the operation will be undertaken in the second half of the 2020-21 financial year, while the operation itself will be delivered early in the 2021-22 financial year. It is anticipated that timing the operation in winter will pose the least disruption to Wellington Water's water supply activities.

Possum population monitoring

Possum population monitoring will be conducted following the control operation to gain confirmation that the operation has been successful. In the past, possum population information has been gained from the Project Kākā: Tararua Nature Recovery project. However, as that project finished in 2020, possum monitoring following the control operation and all future possum monitoring will be undertaken specifically for the purpose of KNE site and water supply management, and will be funded by Wellington Water. The Greater Wellington Biodiversity department will procure all monitoring operations via the Greater Wellington Environmental Science department.

Past monitoring results have shown that the possum population is likely to approach 5% RTC again about five to six years after the previous operation. Therefore it is anticipated that the next operation will be required in 2026 or 2027. Possum monitoring will be undertaken in late 2025 to confirm whether an operation is required in 2026 or can be delayed until 2027.

Limited rat and mustelid control

Monitoring of rat and mustelid (ferret, stoat and weasel) populations following past possum control operations has shown that as well as controlling possums, these operations also control rat and mustelid populations to very low levels. However this control is short lived, with populations returning to pre-control levels within eighteen months⁶². It is hoped that native plants and animals will receive some benefit from these periods of reduced threats. No additional targeted rat or mustelid control is undertaken in the KNE site.

Ungulate control

Culling of feral goats, pigs and deer is undertaken annually. Areas of the KNE site most frequented by the different species are focused on using a combination of ground and aerial hunting. The annual budget allocated to this work currently allows for about 24 days of ground based hunting combined with about eight hours of aerial hunting and helicopter support; ie, ferrying hunters in and out of remote parts of the site. The aim of the culling operations is to reduce and keep populations to a level at which a professional hunter can find and destroy no more than one animal per eight hours of

hunting on foot, or two animals per one hour of hunting from a helicopter, or 5 animals per one hour of hunting from a helicopter using thermal imaging equipment. It is considered that populations below these levels will have negligible impacts on native plant regeneration and survival.

9.3. Operational support

The maintenance of some of the assets within the KNE site (ie, the access road and the swing bridge) undertaken by the Parks department supports some of the KNE operational activities. Maintenance of the road allows easy access into part of the KNE site for the purpose of undertaking operational activities, and the swing bridge provides field operatives with a safe crossing of the Eastern Hutt River when the river is running high.

9.4. Environmental Protocols

Greater Wellington and Wellington Water undertake operational activities at the KNE site. In doing so, best practice methods are used and the following procedures are followed to help prevent the loss or degradation of native habitat as a result of the potential impacts of human activities.

Environmental care

Greater Wellington and Wellington Water operational staff follow procedures to identify and avoid damage to biodiversity values such as plant and animal communities. Procedures may include undertaking assessments of environmental effects of planned works. This limits the risks to these values that could occur as a result of carrying out the construction and maintenance of assets, and when permitting the use of the KNE site by other users.

Biosecurity guidelines⁶³ are used by all Greater Wellington and Wellington Water personnel when entering and working in the KNE site. These guidelines involve checking for and removing seeds and plant fragments from vehicles, equipment and clothing before entering the site, and ensuring construction material is free of weed material.

Instructional information on how to avoid introducing ecological weeds and damage to ecological values is included in the conditions contained in permits issued to visiting researchers and private hunters, and is articulated to other visitors whenever possible.

Research and the collection of natural materials

Research activities and the collection of native plants and animals in the KNE site is managed by a permit system run by the Environmental Science department. The system aims to prevent adverse impacts on native flora and fauna occurring as a result of these activities.

Fire risk

To reduce the risk of uncontrolled fires occurring in the KNE site, the Hutt and Wainuiomata/Orongorongo Water Collection Area Management Plan⁶⁴ identifies that open fires and camping are not permitted. This policy is communicated to users through the Hutt Water Collection Area information brochure and on signage.

10. Operational delivery schedule

The operational delivery schedule shows the actions planned to achieve the stated objectives for the Hutt Water Collection Area KNE site, and their timing and cost over the five-year period from 1 July 2020 to 30 June 2025. The budget for years 2021/22 to 2024/25 are indicative only and subject to change. Most costs are inflation adjusted, those that aren't reflect that it is expected that these activities will cost less to undertake over time. A map of operational areas can be found in Appendix 1 (see Map 5).

Table 5: Five-year operational plan for the Hutt Water Collection Area KNE site

Objective	Activity	Operational area	Action	Intended outcome	Implementing party	Timetable and resourcing				
						2020/21	2021/22	2022/23	2023/24	2024/25
1, 2	Ecological weed control	A and B	Control all buddleia plants on the true right of the Eastern Hutt River approximately 500m downstream of the hut, and all gorse plants on the true right of the Eastern Hutt River near the eastern end of the "Gut Buster" track prior to them seeding	Buddleia and gorse are eradicated from these areas within ten years	Greater Wellington Biosecurity department	\$500	\$500	\$500	\$500	\$500
1, 2	Ecological weed control	C	Control all gorse and Himalayan honeysuckle plants on the true left of the Eastern Hutt River from the Hutt Forks upstream to about 500 metres north of the foot bridge prior to them seeding	Gorse and Himalayan honeysuckle are eradicated from this area within eight years	Greater Wellington Biosecurity department	\$1,958	\$2,017	\$2,078	\$2,139	\$2,202

Objective	Activity	Operational area	Action	Intended outcome	Implementing party	Timetable and resourcing				
						2020/21	2021/22	2022/23	2023/24	2024/25
1, 2	Ecological weed control	D	Control all gorse and lotus plants on the bush margin in the vicinity of the Eastern Hutt access road prior to them seeding (additional to the Parks department's roadside spraying programme)	Lotus is eradicated from this area within five years and gorse is continuously suppressed	Greater Wellington Biosecurity department	\$500	\$500	\$500	\$500	\$500
1, 2, 3, 4, 5	Pest animal control	Entire KNE site	Control possums by undertaking an aerial 1080 operation. <ul style="list-style-type: none"> Operational planning to begin in October 2020 Sowing of pre-feed and toxic bait to be undertaken in April-May 2021 	Possum population is maintained to below 5% RTC	Greater Wellington Biosecurity & Biodiversity department	\$114,300	\$169,100	--	--	--
1, 2, 3, 4, 5	Pest animal control	Entire KNE site	Monitor the possum population following the aerial 1080 operation to assess its effectiveness	Scientific data is obtained to inform and validate operational decisions	Greater Wellington Biodiversity and Environmental Science departments	--	\$32,640	--	--	--

Objective	Activity	Operational area	Action	Intended outcome	Implementing party	Timetable and resourcing				
						2020/21	2021/22	2022/23	2023/24	2024/25
1, 2, 3, 5	Pest animal control	Entire KNE site	Control feral goats and deer, targeting preferred habitat	Operation results average: < 1 animal culled per hunter-day, < 2 animals culled per helicopter-hunting hour, < 5 animals per culled helicopter-hunting hour with thermal imaging equipment	Greater Wellington Biosecurity department	\$27,968	\$28,528	\$29,099	\$29,680	\$30,274
1, 2, 3, 4, 5	Pest animal control	Entire KNE site	Control feral pigs, targeting preferred habitat	Operation results average less than 1 animal culled per hunter-day	Greater Wellington Biosecurity department	\$4,488	\$4,578	\$4,669	\$4,763	\$4,858
1, 2, 3, 4, 5	Asset maintenance	Eastern Hutt	Maintain the Eastern Hutt access road and the Eastern Hutt River swing bridge	Vehicle access to the Eastern Hutt River and a safe crossing of the Eastern Hutt River during high water flow are maintained	Greater Wellington Parks department	*	*	*	*	*

Objective	Activity	Operational area	Action	Intended outcome	Implementing party	Timetable and resourcing				
						2020/21	2021/22	2022/23	2023/24	2024/25
6	Environmental protocols	Entire KNE site	Adhere to Greater Wellington and Wellington Water best practice guidelines and policies aimed at protecting the natural environment while undertaking operational activities and managing recreational and commercial activities in the KNE site, including: <ul style="list-style-type: none"> • assessment of environmental effects procedures • pest plant biosecurity guidelines • research and natural material collection permitting system • fire ban policy 	Minimal impacts are imposed on biodiversity values by operational, recreational and commercial activities	Greater Wellington Parks, Biodiversity, Biosecurity & Environmental Science departments, and Wellington Water Limited	Nil (staff time only)	Nil (staff time only)	Nil (staff time only)	Nil (staff time only)	Nil (staff time only)
Totals						\$149,714	\$237,863	\$36,846	\$37,582	\$38,334

*It is not possible at this time to quantify the amount of funding attributable to this activity from the total amount allocated to the maintenance of all assets within the KNE site which serve a mix of purposes

11. Funding contributions

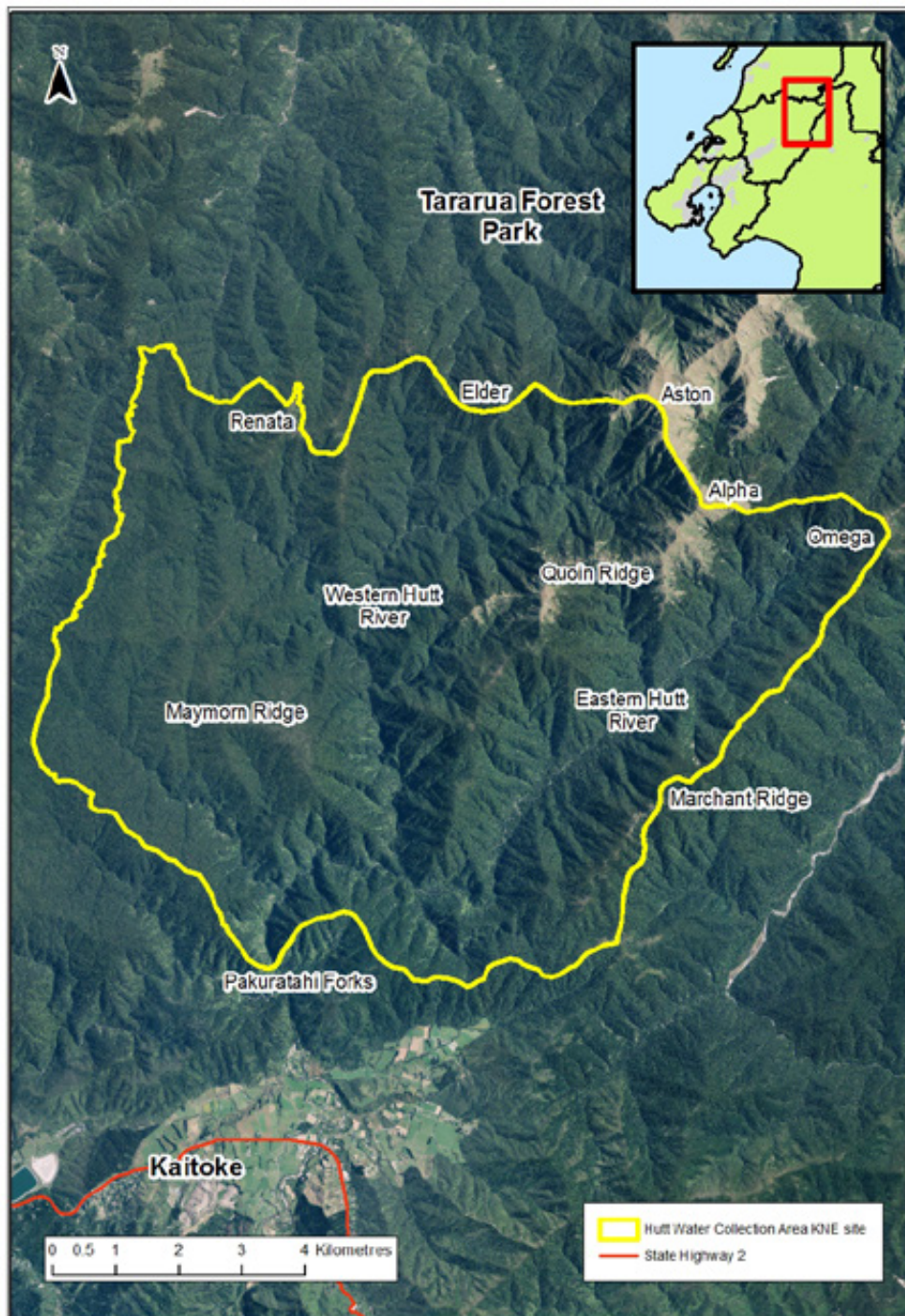
11.1. Budget allocated by Wellington Water Limited

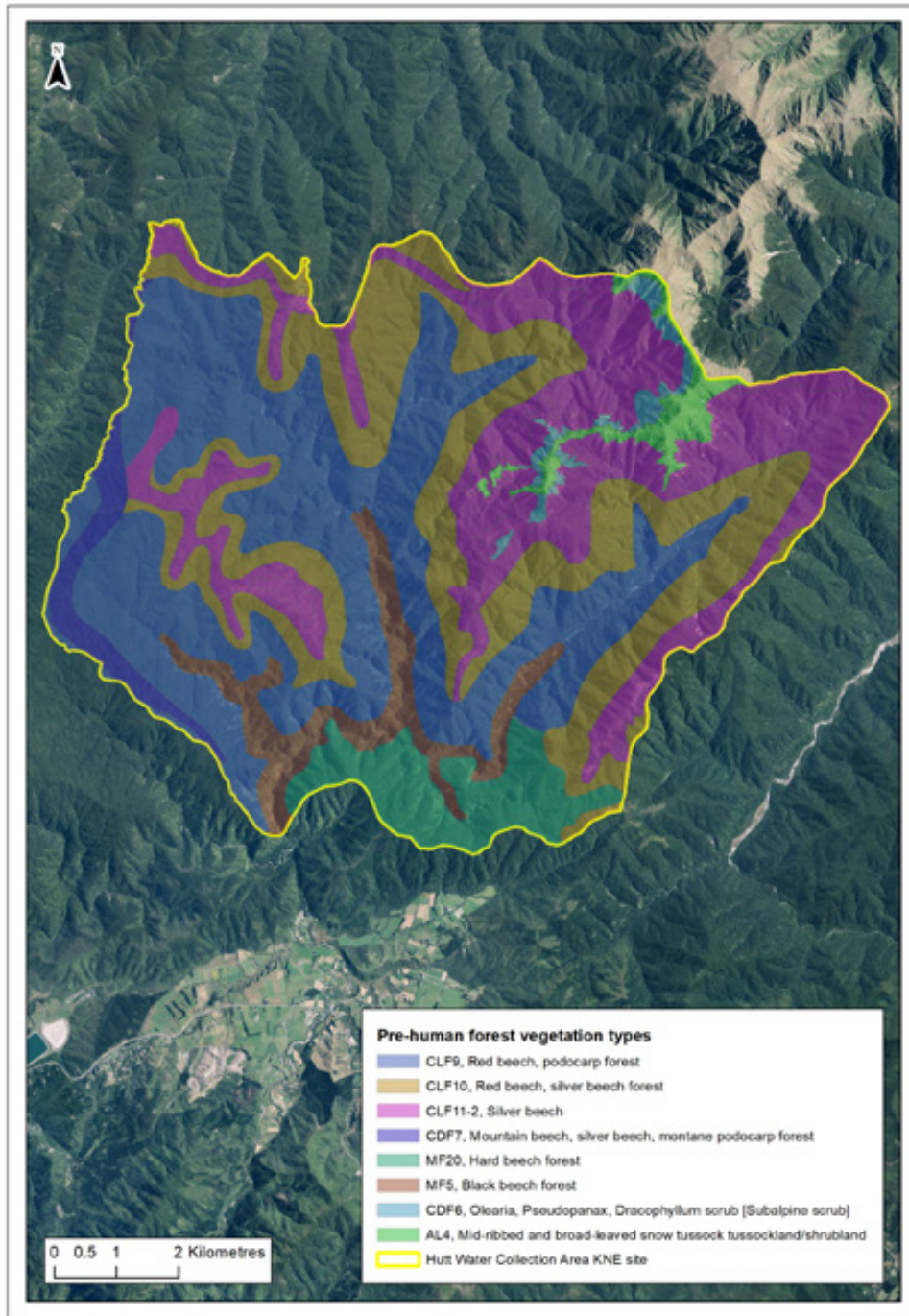
All costs of biodiversity management activities in the Hutt Water Collection Area KNE site are met by Wellington Water. Apart from the cost for possum monitoring, the budget has been set in line with the Service Level Agreement between Wellington Water and Greater Wellington Regional Council Catchment Management Group⁶⁵. The possum monitoring cost was agreed to subsequent to the finalisation of the Service Level Agreement. Table 6 summarises budget allocations for the five years covered by this plan. The budgets for years 2021/22 to 2024/25 are subject to change and confirmation through Wellington Water's planning processes.

Table 6: Wellington Water Limited allocated budget for the Hutt Water Collection Area KNE site

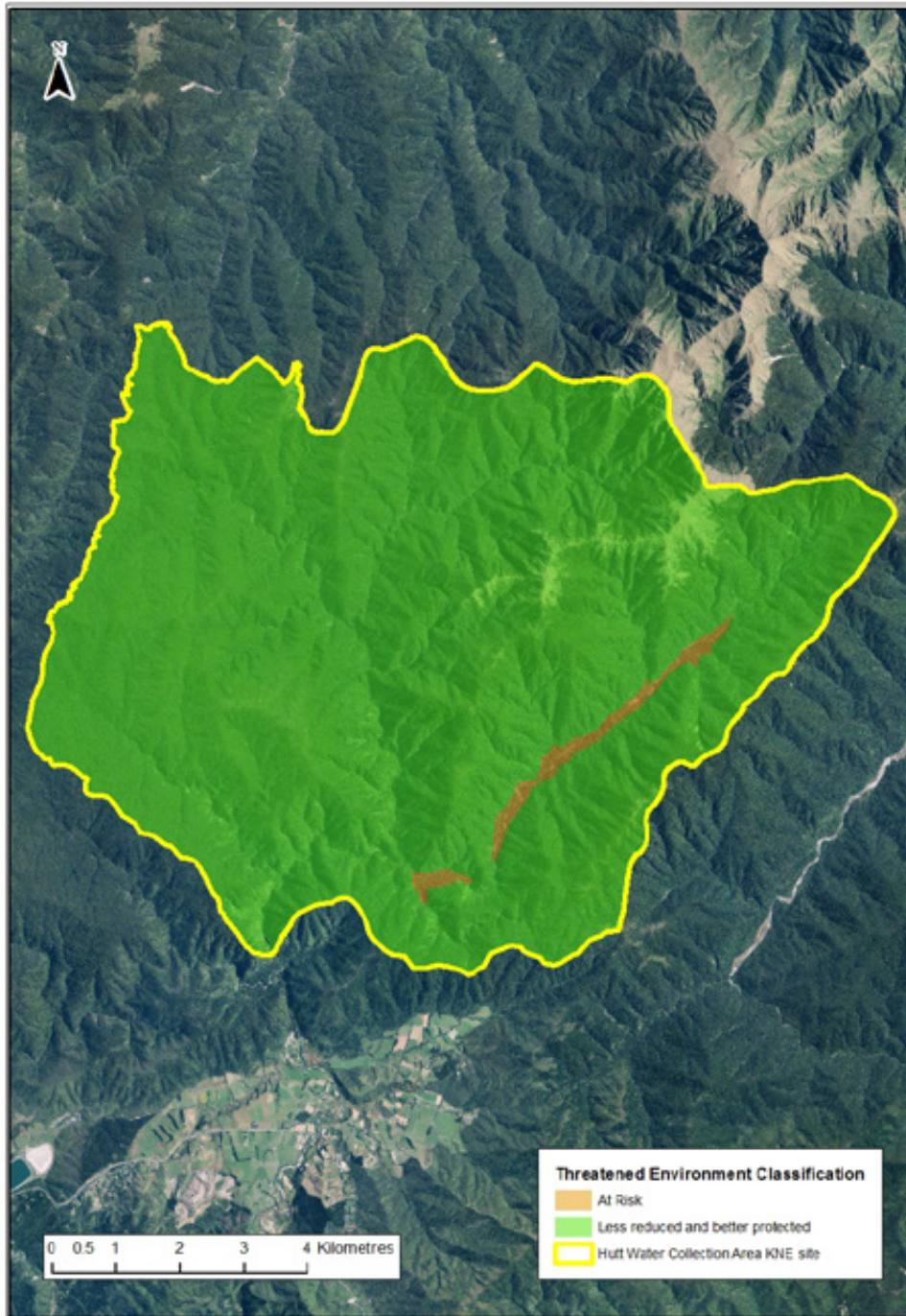
Management activity	Timetable and resourcing				
	2020/21	2021/22	2022/23	2023/24	2024/25
Ecological weed control	\$2,958	\$3,017	\$3,078	\$3,139	\$3,202
Possum control	\$114,300	\$169,100	--	--	--
Possum monitoring	--	\$32,640	--	--	--
Feral ungulate control	\$32,456	\$33,106	\$33,768	\$34,443	\$35,132
Total	\$149,714	\$237,863	\$36,846	\$37,582	\$38,334

Appendix 1: Site maps

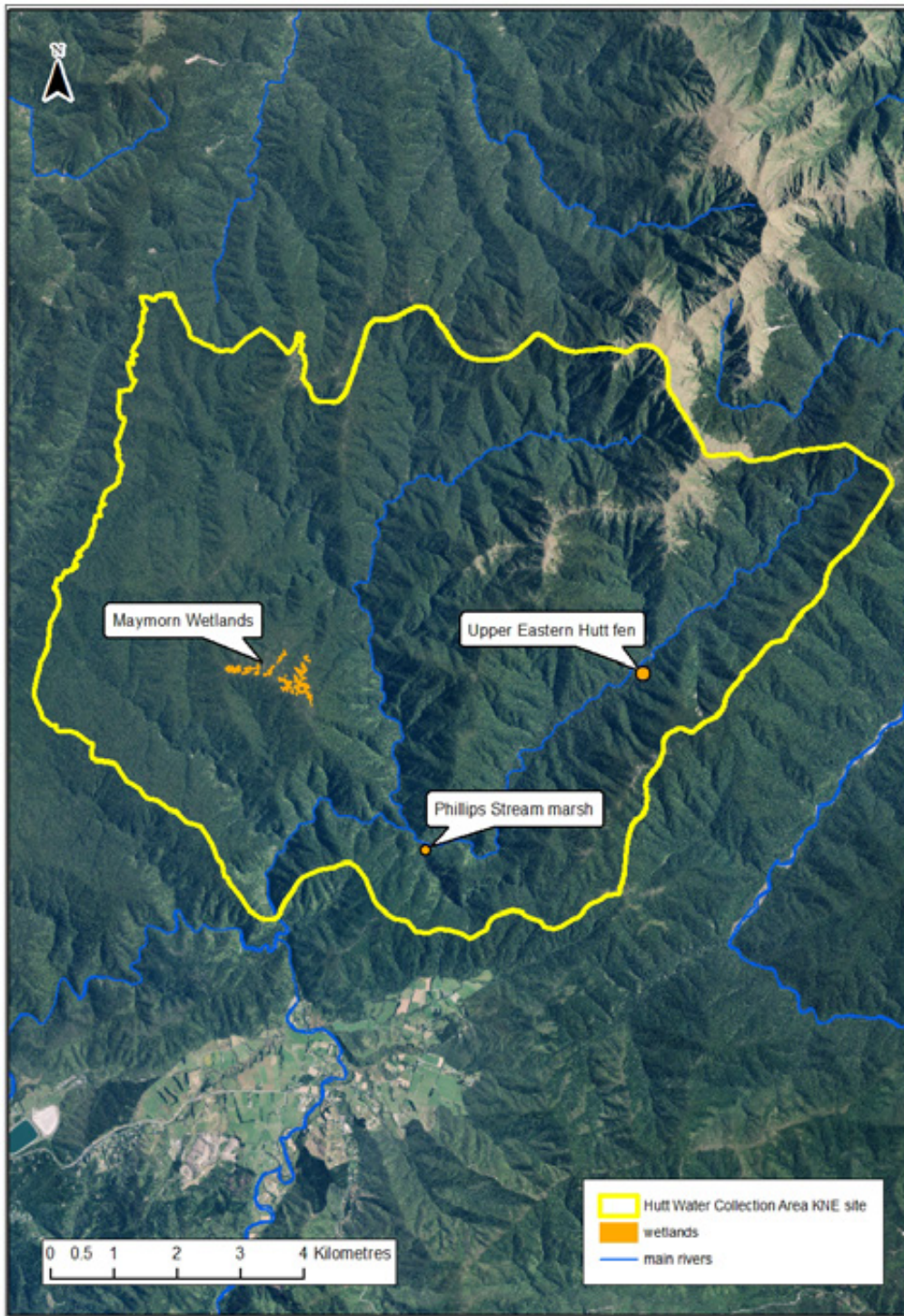




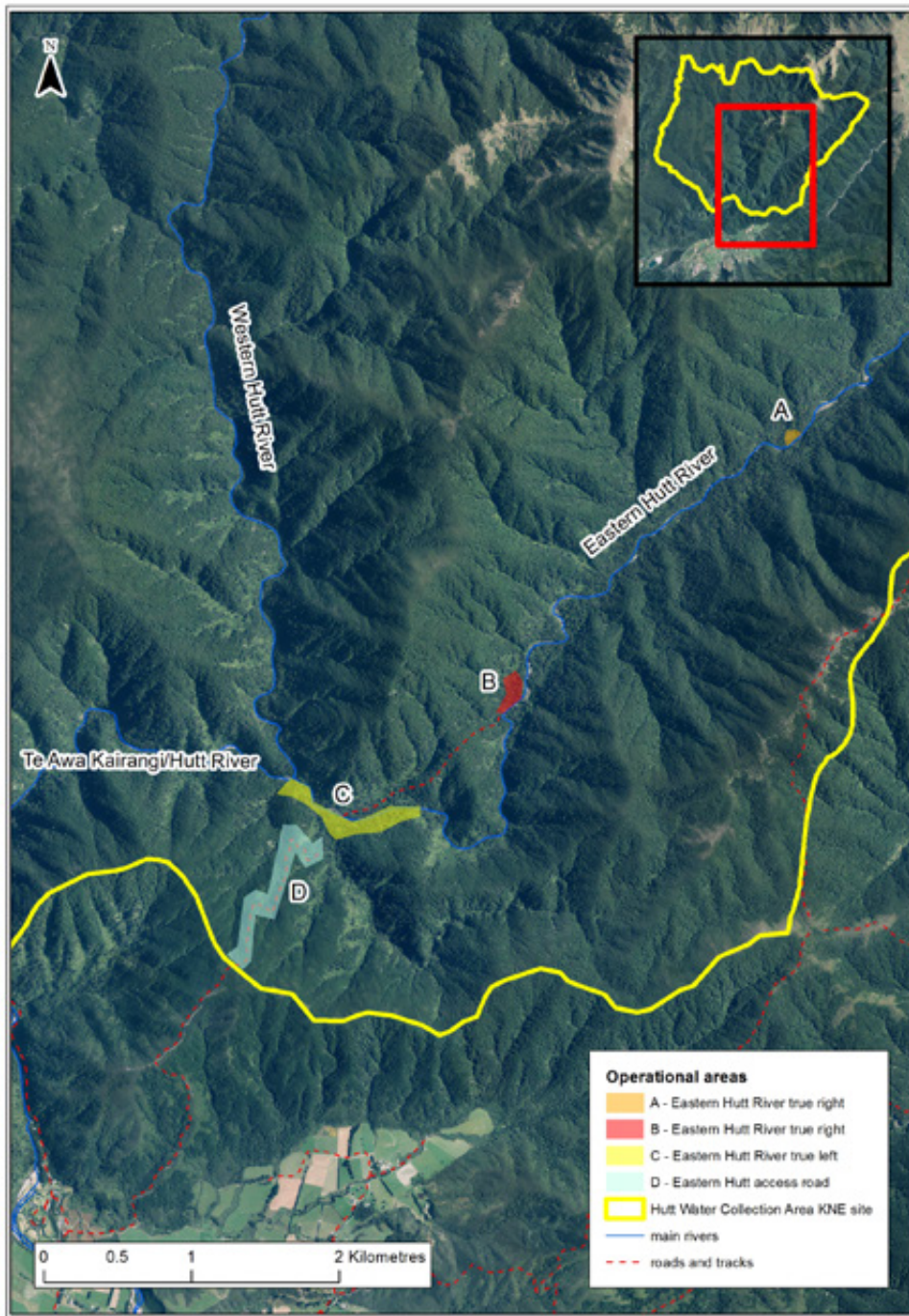
Map 2: Singers and Rogers classification of pre-human forest vegetation types for the Hutt Water Collection Area KNE site



Map 3: Land Environment New Zealand threat classifications for the Hutt Water Collection Area KNE site



Map 4: Wetlands in the Hutt Water Collection Area KNE site. Maymorn Wetlands are scheduled as an outstanding wetland in the proposed Natural Resources Plan



Map 5: Operational areas for ecological weed control in the Hutt Water Collection Area 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 cycle⁶⁶. 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 Hutt Water Collection Area KNE site.

Table 7: Threatened and At Risk species at the Hutt Water Collection Area KNE site

Scientific name	Common name	Threat status	Observation
Plants(vascular) ⁶⁷			
<i>Brachyglottis kirkii</i> var. <i>kirkii</i>	Kirk's daisy	At Risk - Declining	GWRC 2008 ⁶⁸
<i>Kunzea robusta</i>	Kānuka	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Leptospermum scoparium</i>	Mānuka	At Risk – Declining (myrtle rust)	GWRC 2008
<i>Lophomyrtus bullata</i>	Ramarama	Threatened – Nationally Critical (myrtle rust)	GWRC 2008
<i>Lophomyrtus obcordata</i>	Rohutu	Threatened – Nationally Critical (myrtle rust)	GWRC 2008
<i>Metrosideros colensoi</i>	Rātā	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Metrosideros diffusa</i>	White climbing rātā	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Metrosideros fulgens</i>	Scarlet rātā	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Metrosideros perforata</i>	Climbing rātā	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Metrosideros robusta</i>	Northern rātā	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Metrosideros umbellata</i>	Southern rātā	Threatened - Nationally Vulnerable (myrtle rust)	GWRC 2008
<i>Neomyrtus pedunculata</i>	Rohutu	Threatened – Nationally Critical (myrtle rust)	GWRC 2008
<i>Pterostylis tasmanica</i>	Plumed greenhood	Threatened - Nationally Vulnerable	GWRC 2008
<i>Syzygium maire</i>	Swamp maire	Threatened – Nationally Critical (myrtle rust)	GWRC 2008
<i>Tupeia antarctica</i>	White mistletoe	At Risk - Declining	Crisp P. 2021 ⁶⁹

Scientific name	Common name	Threat status	Observation
Birds ⁷⁰			
<i>Acanthisitta chloris</i>	Rifleman	At Risk - Declining	McArthur 2021 ⁷¹
<i>Cyanoramphus novaezelandiae</i>	Red-crowned parakeet	At Risk - Relict	McArthur 2021
<i>Eudynamys taitensis</i>	Long-tailed cuckoo	At Risk - Naturally Uncommon	McArthur 2021
<i>Falco novaeseelandiae</i>	New Zealand falcon	At Risk - Recovering	McArthur 2021
<i>Mohoua albicilla</i>	Whitehead	At Risk - Declining	McArthur 2021
<i>Nestor meridionalis</i>	Kākā	At Risk - Recovering	McArthur 2021
<i>Phalacrocorax carbo</i>	Black shag	At Risk - Naturally Uncommon	McArthur 2021
Reptiles ⁷²			
<i>Mokopirirakau</i> "southern North Island"	Ngahere gecko	At Risk - Declining	GWRC Reptile distribution database (accessed 2020)
Freshwater fish ⁷³			
<i>Anguilla dieffenbachii</i>	Longfin eel	At Risk - Declining	GWRC 2008 ⁷⁴
<i>Galaxias brevipinnis</i>	Kōaro	At Risk - Declining	GWRC 2008
<i>Galaxias divergens</i>	Dwarf galaxias	At Risk - Declining	GWRC 2008
<i>Gobiomorphus hubbsi</i>	Bluegill bully	At Risk - Declining	GWRC 2008
<i>Gobiomorphus huttoni</i>	Redfin bully	At Risk - Declining	GWRC 2008
Invertebrates ⁷⁵			
<i>Paranephrops planifrons</i>	Northern kōura	At Risk - Declining	GWRC 2008

Appendix 3: Regionally threatened plant species list

The following table lists regionally Threatened and At Risk species that have been recorded in the Hutt Water Collection Area KNE site.

Table 8: Threatened and At Risk species in the Hutt Water Collection Area KNE site

Scientific name	Common name	Threat status	Observation
Plants ⁷⁶			
<i>Brachyglottis kirkii</i> var. <i>kirkii</i>	Kirk's daisy	Threatened - Endangered	GWRC 2008 ⁷⁷
<i>Korthalsella lindsayi</i>	Leafless mistletoe	At Risk - Naturally uncommon	GWRC 2008
<i>Lycopodiella lateralis</i>	--	Threatened - Critical	Crisp P. 2021 ⁷⁸
<i>Peraxilla colensoi</i>	Scarlet mistletoe	Threatened - Critical	GWRC 2008
<i>Peraxilla tetrapetala</i>	Red mistletoe	Threatened - Critical	GWRC 2008
<i>Pimelea gnidia</i>	Pimelea	Threatened - Critical	GWRC 2008
<i>Pterostylis tasmanica</i>	Plumed greenhood	At Risk - Extirpated	GWRC 2008
<i>Schizaea australis</i>	Southern comb fern	Threatened - Critical	Crisp P. 2021
<i>Tupeia antarctica</i>	White mistletoe	Threatened - Critical	Crisp P. 2021
Birds ⁷⁹			
<i>Acanthisitta chloris</i>	Rifleman	At Risk - Declining	McArthur N. 2021 ⁸⁰
<i>Cyanoramphus auriceps</i>	Yellow-crowned parakeet	Regionally Endangered	McArthur N. 2021
<i>Cyanoramphus novaezelandiae</i>	Red-crowned parakeet	At Risk - Recovering	McArthur N. 2021
<i>Eudynamis taitensis</i>	Long-tailed cuckoo	At Risk - Naturally Uncommon	McArthur N. 2021
<i>Falco novaeseelandiae</i>	New Zealand falcon	Regionally Critical	McArthur N. 2021
<i>Hemiphaga novaeseelandiae</i>	New Zealand pigeon	At Risk - Recovering	McArthur N. 2021
<i>Nestor meridionalis</i>	Kākā	At Risk - Recovering	McArthur N. 2021
Reptiles ⁸¹			
<i>Mokopirirakau</i> 'southern North Island'	Ngahere gecko	At Risk - Declining	GWRC Reptile distribution database (accessed 2020)

Appendix 4: Threat table

The following table lists the native bird species that have been recorded in the Hutt Water Collection Area KNE site.

Table 9: Native bird species recorded in the Hutt Water Collection Area KNE site⁸²

Scientific name	Common name	Maori name
<i>Acanthisitta chloris</i>	Rifleman	Tītīpounamu
<i>Anthornis melanura</i>	Bellbird	Korimako
<i>Chrysococcyx lucidus</i>	Shining cuckoo	Pīpiwharauoa
<i>Circus approximans</i>	Swamp harrier	Kāhu
<i>Cyanoramphus auriceps</i>	Yellow-crowned parakeet	Kākāriki
<i>Cyanoramphus novaeseelandiae</i>	Red-crowned parakeet	Kākāriki
<i>Eudynamis taitensis</i>	Long-tailed cuckoo	Koekoeā
<i>Falco novaeseelandiae</i>	New Zealand falcon	Kārearea
<i>Gerygone igata</i>	Grey warbler	Riroriro
<i>Hemiphaga novaeseelandiae</i>	New Zealand pigeon	Kererū
<i>Hirundo neoxena</i>	Welcome swallow	Warou
<i>Larus dominicanus</i>	Black-backed gull	Karoro
<i>Mohoua albicilla</i>	Whitehead	Pōpokatea
<i>Nestor meridionalis</i>	Kākā	Kākā
<i>Ninox novaeseelandiae</i>	Morepork	Ruru
<i>Petroica macrocephala</i>	Tomtit	Miromiro
<i>Prosthemadera novaeseelandiae</i>	Tūī	Tūī
<i>Rhipidura fuliginosa</i>	New Zealand fantail	Pīwakawaka
<i>Tadorna variegata</i>	Paradise shelduck	Pūtangitangi
<i>Todiramphus sanctus</i>	New Zealand kingfisher	Kōtare
<i>Vanellus miles</i>	Spur winged plover	--
<i>Zosterops lateralis</i>	Silvereye	Tauhou

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Greater Wellington Regional Council:

Wellington office
PO Box 11646
Manners Street
Wellington 6142

T 04 384 5708
F 04 385 6960

Upper Hutt office
PO Box 40847
Upper Hutt 5018

T 04 526 4133
F 04 526 4171

Masterton office
PO Box 41
Masterton 5840

T 06 378 2484
F 06 378 2146

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info@gw.govt.nz
www.gw.govt.nz

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