

Key Native Ecosystem Operational Plan for Haywards Scenic Reserve

2025-2030



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1. Purpose

The purpose of this five-year Key Native Ecosystem (KNE) operational plan for Haywards Scenic Reserve KNE site is to:

- Identify the parties involved in preparing and delivering the operational plan
- Summarise the ecological values of the site and identify the threats to those values
- Outline the vision and objectives that guide management decision-making
- Describe the operational activities undertaken to improve ecological conditions (eg, ecological weed control), who will undertake the activities and the allocated budgets.

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. The KNE operational plan is aligned to key policy documents outlined in Appendix 1.

2. Haywards Scenic Reserve Key Native Ecosystem site

The Haywards Scenic Reserve KNE site is a 121ha lowland beech forest with podocarp-broadleaf forest remnants. The KNE site is located on the Hutt Valley's eastern hills overlooking Lower Hutt City (see Appendix 2, Map 1). To the north, east and south, the KNE site is bounded by Hutt City Council (HCC) reserve land. The western side of the KNE site is bounded by residential land.

The KNE site contains Haywards Eastern Hills Scenic Reserve and adjacent areas of regenerating native lowland beech forest. It is bisected by the Te Whiti Firebreak, and the Konini Firebreak forms the KNE site's eastern boundary. The KNE site is located within the Hutt Valley's forested eastern hill ranges providing linkages for wildlife between Upper Hutt and Wainuiomata.

The KNE site contains an important remnant of the regionally critically threatened kahikatea, pukatea forest and has a high diversity of plant species supporting populations of native birds, lizards and land snails.

3. Parties involved

There are several organisations, groups and individuals that play important roles in the care of the Haywards Scenic Reserve KNE site.

3.1. Landowner

HCC owns and administers all of the land contained within the KNE site boundary as a “Scenic Reserve” under the Reserves Act 1977. HCC manages the Haywards Scenic reserve in accordance with the HCC Bush Reserves Management Plan¹. The Haywards Scenic Reserve KNE site is identified in the HCC District Plan² as a “General Recreation” and “Passive Recreation” activity area, and “Significant Natural Resource Site” with specific rules associated.

3.2. Operational delivery

HCC and Greater Wellington are the main management partners and have worked collaboratively to manage the KNE site’s pest control operations for many years.

Within Greater Wellington, three teams are responsible for delivering the Haywards Scenic Reserve KNE operational plan.

- The Environment Restoration team leads the strategic planning, funding and coordination of biodiversity management activities and advice within the KNE site.
- The Pest Plants and Pest Animals teams coordinate and implement ecological weed and pest animal control measures at the KNE site with funding from the Environment Restoration team’s KNE programme budget.

HCC undertakes ecological weed control as part of track maintenance, manages recreational activities such as mountain biking and tramping, and provides the primary contact for community groups.

3.3. Stakeholders

There is an active community group who help maintain the scenic reserve’s track network, undertake pest plant control and replant native trees where needed. Several volunteers service some of the pest animal control network within the KNE site on a regular basis.

The majority of the KNE site is recognised by DOC as a Designated Ecological Site but they are not actively involved in management of the site.

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 Haywards Scenic Reserve KNE site.

Table 1: Designations at the Haywards Scenic Reserve KNE site

Designation level	Type of designation
National	Haywards Scenic Reserve KNE site is identified as a Scenic Reserve under the Reserves Act 1977
District	<p>The majority of the KNE site has been identified by DOC as a Designated Ecological Site:</p> <ul style="list-style-type: none"> • Eastern Hutt Hills Bush (1015) <p>The Haywards Scenic Reserve KNE site incorporates three Significant Natural Resource (SNR) sites identified in the HCC District Plan as:</p> <ul style="list-style-type: none"> • Eastern Hills Bush (SNR 12) • Haywards Scenic Reserve (SNR 16) • Wainuiomata West Bush (SNR 58)

4.2. Ecological significance

The Haywards Scenic Reserve 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
- Its **ecological context** is valuable at the landscape scale as it is part of an ecological corridor and provides core or seasonal habitat for nine threatened indigenous species.

Representativeness

The Singers and Rogers³ classification of pre-human forest vegetation indicates the KNE site would have comprised two ecosystem types: hard beech forest (MF20) and kahikatea, pukatea forest (WF8). The WF8 forest is considered Regionally Critically Threatened with only 1% of the original extent of this ecosystem/forest type remaining in the Wellington region. The MF20 forest is considered Regionally Not Threatened with 51% remaining⁴. Although the existing forest ecosystems are modified, much of the KNE site is still representative of the original ecosystem types (see Appendix 2, Map 2).

The Threatened Environment Classification system defines ecosystem and habitat threat categories nationally, based on percentage of indigenous cover remaining⁵. This system indicates that 1.7ha of the KNE site are classified as Acutely Threatened and 74ha of the KNE site are classified as At Risk because there is less than 10% and only 20-30% native vegetation cover remaining on these types of land in New Zealand, respectively⁶ (see Appendix 2, Map 3). The Acutely Threatened environments in the KNE site are found at the toes of the slopes of the western boundary and the At Risk environments are found throughout the KNE site with the majority on the lower to mid slopes of the western side of the KNE site.

Rarity/distinctiveness

New Zealand's national threat classification system⁷ lists two plant, one bird, one reptile, one invertebrate and four freshwater fish species recorded within the KNE site as Nationally Threatened or At Risk. The lizard species recorded within the KNE site is classified as Regionally Threatened/At Risk⁸. Nationally and regionally threatened species recorded within the KNE site are listed in Appendix 3.

The KNE site also has an especially high diversity of native land snails with 61 species of micro snails recorded⁹.

Ecological context

The KNE site has a high diversity of plant species supporting populations of native birds, lizards, and land-snails and provides linkages for native wildlife between Upper Hutt and Wainuiomata.

4.3. Ecological features

The lower slopes of the KNE site are located within the Wellington Ecological District, with the upper slopes within the Tararua Ecological District¹⁰. Both ecological districts are characterised by steep, strongly faulted hill ranges and have windy, wet and mild climates¹¹.

Flora

Over 100 plant species have been recorded within the KNE site, including 40 species of trees and shrubs, 20 species of fern, eight climbers and six orchid species¹². The KNE site contains a sizable area of podocarp-broadleaf forest consistent with the original MF20 and WF8 forest types immediately south of the Te Whiti Firebreak¹³. Here large rimu (*Dacrydium cupressinum*), miro (*Prumnopitys ferruginea*), tawhairaunui/hard beech (*Fuscospora truncata*) and pukatea emerge above a canopy of tawa (*Beilschmiedia tawa*), hīnau (*Elaeocarpus dentatus*) and māhoe (*Melicytus ramiflorus*). This area is considered to have the highest ecological value within the KNE site given the mature forest structure and the species present. Other flora of note in this area includes white climbing rata (*Metrosideros diffusa*), the nationally threatened ramarama (*Lophomyrtus bullata*) and several species of significance to iwi, including kōtukutuku (*Fuchsia excorticata*) and tōtara (*Podocarpus totara*)¹⁴.

The remainder of the KNE site is largely comprised of regenerating lowland forest containing hard beech, tawhairauriki/black beech (*Fuscospora solandri*), and maire

(*Mida salicifolia*) as canopy trees. Other species present include red matipo (*Myrsine australis*), tarata/lemonwood (*Pittosporum eugenioides*), mataī (*Prumnopitys taxifolia*), horoeka/lancewood (*Pseudopanax crassifolius*), ngaio (*Myoporum laetum*), heketara (*Olearia rani*), kōhūhū (*Pittosporum tenuifolium*) and kahikatea (*Dacrycarpus dacrydioides*). The drier slopes and ridgelines consist of kāmahi (*Weinmannia racemosa*), hinau, rewarewa/New Zealand honeysuckle (*Knightia excelsa*), northern rātā (*Metrosideros robusta*), mānuka (*Leptospermum scoparium*) and kānuka (*Kunzea robusta*).

The KNE site contains a well-developed understory of broadleaf species which include whauwhaupaku/five finger (*Pseudopanax arboreus*), rangiora/bushman's friend (*Brachyglottis repanda*), hangehange (*Geniostoma ligustrifolium* var. *ligustrifolium*), karamū (*Coprosma lucida*) and mamaku/black tree fern (*Cyathea medullaris*). Rengarenga/rock lily (*Arthropodium cirratum*), hook grass (*Uncinia* spp.), supplejack (*Ripogonum scandens*), kiekie (*Freycinetia banksii*) and various fern species are also present in the forest understorey. Nīkau palm (*Rhopalostylis sapida*) is common in the gullies¹⁵.

The upper slopes have been subject to fire damage and as a result are characterised by regenerating native scrub vegetation such as mānuka, wharariki/mountain flax (*Phormium cookianum*), kāpuka/broadleaf (*Griselinia littoralis*), five finger, hangehange and mamaku growing through dense gorse (*Ulex europaeus*).

Fauna

Birds

The Nationally Threatened karearea/New Zealand bush falcon (*Falco novaeseelandiae ferox*) is thought to be breeding locally, with regular reports of pairs sighted within the KNE site provided by local residents¹⁶. Other indigenous forest birds such as korimako/ bellbird (*Anthornis melanura*), pīwakawaka/New Zealand fantail (*Rhipidura fuliginosa*), tūi (*Prothemadera novaeseelandiae*), kererū/New Zealand pigeon (*Hemiphaga novaeseelandiae*), riroriro/grey warbler (*Gerygone igata*), miromiro/tomtit (*Petroica macrocephala*), tauhou/silvereye (*Zosterops lateralis*) and ruru/morepork (*Ninox novaeseelandiae*) are present within the KNE site^{17,18}.

Reptiles

The Nationally At Risk and Regionally Threatened barking gecko (*Naultinus punctatus*) has been recorded several times within the KNE site¹⁹, whilst the Nationally and Regionally At Risk ngahere gecko (*Mokopirirakau* “southern North Island”) is likely to be present within the KNE site as it has been recorded to the southeast of the site in the eastern Hutt hills²⁰.

Freshwater fish

The Nationally At Risk longfin eel (*Anguilla dieffenbachii*), inanga (*Galaxias mactulatus*), banded kōkopu (*Galaxias fasciatus*), giant kōkopu (*Galaxias argenteus*) and giant bully (*Gobiomorphus gobioides*), and the more common native shortfin eel (*Anguilla australis*), common bully (*Gobiomorphus cotidianus*), and yelloweye mullet (*Aldrichetta forsteri*) are present in the Waiwhetū Stream

downstream of the KNE site and may occur in the tributaries contained within the KNE site²¹.

Terrestrial invertebrates

The KNE site has a high diversity of native land snails. A survey undertaken in 2005 recorded 61 species with micro snails found to be especially numerous²². The Nationally At Risk land snail *Allodiscus pallidus*²³ was recorded during this survey. This diversity is unusually high and reflective of a healthy ecosystem.

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 key threats to the ecological values at each KNE site. Key threats to the Haywards Scenic Reserve KNE site are discussed below and all known threats to the KNE site are summarised in Appendix 4.

5.1. Key threats

The primary threats to the ecological values of the KNE site are from ecological weeds, pest animals and wildfire.

Ecological weeds have been controlled for many years within the KNE site. The targeted weeds include woody, climbing, ground-covering and non-local native species (see Appendix 5 for a list of ecological weeds recorded at the KNE site). The primary ecological weeds present within the KNE site that constitute the largest threat to the ecosystems are climbing asparagus (*Asparagus scandens*), Japanese honeysuckle (*Lonicera japonica*), Himalayan honeysuckle (*Leycesteria formosa*), jasmine (*Jasminum polyanthum*) and tradescantia (*Tradescantia fluminensis*). The KNE site has a large suburban fringe to the west and high visitor usage resulting in the reinvasion of significant numbers of weed species.

The priority pest animal threats within the KNE site are possums (*Trichosurus vulpecula*), rats (*Rattus* spp.), mustelids (*Mustela* spp.), red deer (*Cervus elaphus*) and fallow deer (*Dama dama*). These species are known to have the greatest impact on native forest regeneration, food resource availability and can prey on native birds and their eggs, and lizards. Red and fallow deer have become an increasing issue in Haywards Scenic Reserve and the surrounding hillside. Heavy browsing of favoured plant species by deer can eliminate individual native species from an area resulting in the loss of diversity and functionality of the original native forest ecosystem and prevent natural regeneration of native seedlings.

Additional pest animal threats within the KNE site include feral, stray and domestic cats (*Felis catus*) that are likely to prey on native birds and their eggs, and hedgehogs which prey on eggs and chicks of ground-nesting birds, lizards and snails. Pest animals are likely to reinvade from outside the KNE site and are likely to be an enduring threat to the biodiversity values within the KNE site.

Wildfires have historically affected the integrity of the KNE site since the arrival of the first European settlers to the Wellington Region²⁴. While firebreaks are in place, there is still a risk of fire causing damage to the KNE site given the prevalence of gorse in the landscape which is highly flammable.

The KNE site is an area of high recreational usage with an extensive network of multi-use tracks regularly used for tramping, dog walking, mountain biking and horse riding. The maintenance of the track structure has the potential to cause damage to native vegetation and cause sedimentation due to soil disturbance, and the recreation activities can impact native plant communities through the introduction and/ or spread of ecological weeds, and uncontrolled dogs can disturb or kill native fauna. Effective management of these tracks and associated threats is required to ensure they do not impact on the biodiversity values of the KNE site.

6. Vision and objectives

6.1. Vision

A thriving forest environment under effective and sustained management dominated by healthy native forest vegetation communities that are supporting thriving populations of native birds, land snails, reptiles and fish.

6.2. Objectives

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

The following objectives will guide the operational activities at the Haywards Scenic Reserve KNE site.

- 1. Maintain the ecological integrity of the existing high value remnant forest and facilitate the regeneration of the surrounding forest***
- 2. Protect populations of native bird, lizard and snail species***
- 3. Improve the habitat for native bird, lizard and snail species***
- 4. Improve the site's ability to support native fish species***

7. Operational activities

Operational activities are targeted to work towards the objectives listed above (Section 6). The broad approach to operational activities is described below, and specific actions, with budget figures attached, are set out in the operational delivery schedule in Section 9 (Table 2).

7.1. Ecological weed control

The aim of ecological weed control at the KNE site is to protect and expand the existing high-value native vegetation communities within the KNE site. Greater Wellington focuses on controlling climbing asparagus, which is widespread throughout the KNE site, with some areas dominated by heavy infestations that are out-competing the native understory vegetation. This activity will increase native plant dominance in the core forest and encourage native forest regeneration throughout the rest of the KNE site.

The Greater Wellington Pest Plants team undertakes targeted grid searches to identify and treat climbing asparagus primarily in Operational Area A and secondarily in Operational Area B (see Appendix 2, Map 4). To aid in systematic and thorough searching, the operational areas have been further divided into management units for the Pest Plants team to work through (see Appendix 2, Map 5). This also aids the identification of control areas with other management partners and stakeholders. This grid search and control approach started within the mature core forest areas that lie immediately south of Te Whiti firebreak (which is the highest biodiversity value area) in Operational Area A in 2015. The grid searches will expand out from the core forest during the five years of this plan sweeping north to south within Operational Area A, and south to north within Operational Area B. This is aimed at initially protecting the highest value biodiversity area and radiating out from there. During grid searches for climbing asparagus, other priority 1 weed species, as listed in Appendix 5 (eg, Japanese honeysuckle, jasmine, banana passionfruit and tradescantia) will be controlled if observed.

HCC undertakes ecological weed control as part of its maintenance of the firebreaks and main tracks in the KNE site (eg, Te Whiti Riser mountain bike track). Generally, this weed control is undertaken within 1-2m either side of these tracks/firebreaks on an annual basis. HCC responds to public requests for weed control and has identified several key weed species that it specifically targets for control across the district. Pine trees within the KNE site have previously been controlled through ring-barking and poison application. HCC will monitor the progress of the pine control within the KNE site.

7.2. Pest animal control

The aim of pest animal control at the KNE site is to reduce the browsing pressure on native vegetation and reduce predation pressures on native forest birds, reptiles and land snails that inhabit the KNE site. The reduction in pest animals will help provide safer nesting habitat and refuge for native birds, facilitate regeneration of the native forest and also provide an increased abundance of food resources for native fauna. Pest animal control will be specifically targeted at controlling pests

that pose the biggest threats to native fauna and flora at the KNE site. These are possums, rats, mustelids, red and fallow deer, and hedgehogs.

A network of Pelifeed bait stations was installed in Operational Area A in 2015 and was extended to Operational Area B in 2016 to run along the Te Whiti Riser mountain bike track, and the north and north eastern boundaries of the KNE site (see Appendix 2, Map 6). The Greater Wellington Pest Animals team and several volunteers service the bait stations with an anticoagulant bait on a three-monthly basis. Additional services are undertaken by volunteers on an ad-hoc basis. This control method is known to keep possums and rats to low densities. The bait station network is continuous with a large bait station network bordering the KNE site to the south-east. The servicing of those bait-stations is funded by HCC targeting possums and rats and helps to prevent incursions into the KNE site.

In 2024 HCC also installed a network of AT220 traps in the Eastern Hills that borders on the East boundary of the KNE site. HCC will service and maintain this network as-needed for the foreseeable future.

A network of DOC 200 kill-traps were installed in 2016 at the location of roughly every second bait station within the KNE site boundary to target mustelids and hedgehogs, (see Appendix 2, Map 6). These kill-traps are usually baited with dehydrated rabbit meat and serviced on a three-monthly basis by the Greater Wellington Pest Animals team and several volunteers. This service will continue for the life of this plan. Additional services are undertaken by volunteers on an ad-hoc basis.

Greater Wellington supports the volunteers with training and provision of bait and gear. The Pest Animals team undertakes an annual health and safety and maintenance audit of the pest animal network to check the condition of the infrastructure and identify any health and safety risks to users.

Deer control will be undertaken annually within the KNE site as an addition to a wider deer control operation that HCC funds in the Eastern Hutt Hills. Deer control will focus on the parts of the KNE site where tracking and browsing of native plants has been observed. Professional hunters are contracted by Greater Wellington to hunt the targeted areas and shoot all wild deer observed, if safe to do so. Four hunting days have been allocated per annum for within Hayward's Scenic Reserve KNE site. The hunters are required to remove carcasses of shot deer from water courses but, they do not recover venison for consumption. The control operations are focused in higher risk areas, often closer to residential properties and walking tracks.

7.3. Land snail protection

Over 61 species of land snails have been recorded within the KNE site^{25,26} including some rare species, with the most recent survey undertaken in 2023. The findings noted that the high diversity of land snails within the area reflected a healthy ecosystem and suggested a stronghold in the region²⁷.

The recent survey results show a decline in species abundance in some of the surveyed areas from the results of the 2005/06 survey. As the dynamics of leaf-litter dwelling snail communities is not well understood, it cannot be determined if this is a result of ecological pressures or natural fluctuations in abundances²⁸.

During 2025/26, the Environment Restoration Advisor for the site will investigate engaging a consultant to advise on actions that can be done to protect the native land snails present at the KNE site such as managing specific threats or habitat enhancements that can be undertaken.

7.4. Assessing fish passage

Several threatened native fish species have been recorded in the Waiwhetū Stream downstream of the Haywards Scenic Reserve KNE site. However, there is no recorded information as to whether migratory fish have access to the tributaries which are located within the KNE site.

In the first year of this plan the Environment Restoration Advisor for the KNE site will arrange for an assessment of potential barriers to fish migration within the KNE site. This assessment will be undertaken using the National Institute of Water and Atmospheric Research (NIWA) Fish Passage Assessment Survey mobile application based on the New Zealand Fish Passage Guidelines²⁹. The results of this survey and any remediation recommendations will be discussed with HCC. Where structures are identified as a barrier to fish passage, ways of alleviating the barriers will be explored and implemented if possible.

7.5. Photopoint monitoring

Several fixed photopoints have been installed at the KNE site by the Greater Wellington Environment Restoration Advisor in areas where climbing asparagus control has been undertaken. Photos will be taken at the photopoints annually to monitor the success of the control work and to assess the regeneration rate of native vegetation.

8. Future opportunities

There are some opportunities available within the KNE site for HCC, Greater Wellington, volunteers and/or other agencies to explore to add value to biodiversity management of the site in the future.

8.1. Intensification of pest animal network

The pest animal network could be intensified with more traps and bait stations, and additional servicing of the pest animal network between current service intervals in an effort to further reduce the pressure on native plants and animals present in the KNE.

8.2. Threatened plant species monitoring and protection

Targeted surveying and monitoring of threatened plant species (eg, ramarama) could be undertaken to inform if populations present in the KNE site are increasing or decreasing, whether they are experiencing specific threats (eg, myrtle rust spread), and to determine whether specific protections (eg, targeted weeding around plants) are required to protect plants and enhance recruitment.

8.3. Revegetation

Areas where climbing asparagus and other ecological weed species have been controlled are often open and vulnerable to re-invasion by ecological weed species. Revegetation planting of native species in these areas would encourage native forest regeneration and reduce the proliferation of ecological weeds across the site.

Revegetation could also include supplementing existing firebreaks by planting firebreak margins in fire resistant native species. These native plants would act as a secondary "green firebreak" to complement the existing system by reducing the intensity of fire at the firebreak edges.

9. Operational delivery schedule

The operational delivery schedule shows the actions planned to achieve the stated objectives for the Haywards Scenic Reserve KNE site, and their timing and cost over the five-year period from 1 July 2025 to 30 June 2030. The budgets for years 2026/27 to 2029/30 are indicative only and subject to change. Operational areas (see Appendix 2, Map 4) are also subject to change according to operational needs over the course of the operational plan.

Table 2: Five-year operational delivery schedule for the Haywards Scenic Reserve KNE site

Objective	Activity	Operational area	Intended 5-year outcome	Implementing party	Timetable and resourcing where allocated				
					2025/26	2026/27	2027/28	2028/29	2029/30
1	Ecological weed control: Systematic survey for all ecological weeds, and herbicide control of climbing asparagus and other priority 1 ecological weeds in the KNE site Prioritising the work areas with core forest in Operational Area A and working out to surrounding work areas	A & B	An expansion of the core high value forest area and overall increase in dominance of native forest plant communities	Greater Wellington Pest Plants team and community volunteers	\$15,160	\$15,920	\$16,720	\$17,560	\$18,440
1	Ecological weed control/track maintenance: Weed control immediately either side of the main tracks and firebreaks on a quarterly basis and ad hoc responses to public reports	1-2m either side of main tracks	Reinvasion of ecological weeds along main tracks and firebreaks is prevented	Hutt City Council	\$*	\$*	\$*	\$*	\$*

Objective	Activity	Operational area	Intended 5-year outcome	Implementing party	Timetable and resourcing where allocated				
					2025/26	2026/27	2027/28	2028/29	2029/30
1,2,3	Pest animal control: Service bait stations and DOC 200 kill-traps quarterly to control possums, rats, mustelids and hedgehogs (with additional ad-hoc services by volunteers)	A & B	An increase in abundance of native forest birds, lizards and land snails	Greater Wellington Pest Animals team and community volunteers	\$3,370	\$3,620	\$3,890	\$4,180	\$4,500
1,2,3	Pest animal control: Provide bait and gear to volunteers for servicing the pest animal network	A & B	Volunteers are well supported to fully service the pest animal network	Greater Wellington Pest Animals team	\$2,200	\$2,370	\$2,550	\$2,740	\$2,940
1,2,3	Pest animal control: Annual maintenance service and safety audit of bait station and trap network to ensure safe and effective operation	A & B	Fully functioning pest animal network	Greater Wellington Pest Animals team	\$2,360	\$2,530	\$2,720	\$2,930	\$3,150
1	Pest animal control: Control deer once a year by shooting – four hunting days allocated	Determined annually	Forest understorey continues to regenerate naturally	Greater Wellington Pest Animals team	\$2,480	\$2,670	\$2,870	\$3,090	\$3,320
2,3	Land snail protection: Investigate engaging a consultant to advise on actions to protect populations of native land snails and enhance their habitat	A & B	Awareness of prime habitat requirements of native land snails present	Environment Restoration Advisor	Advisor time*	-	-	-	-

Objective	Activity	Operational area	Intended 5-year outcome	Implementing party	Timetable and resourcing where allocated				
					2025/26	2026/27	2027/28	2028/29	2029/30
4	Fish passage assessment: Assess barriers to fish migration, provide recommendations for remediation and implement if funding is available	A & B	Native fish habitat and linkages are supported	Environment Restoration Advisor and Fish Passage Team	Advisor time*	-	-	-	-
1	Photopoint monitoring: Take photos at photopoint locations to monitor effectiveness of weed control and monitor regeneration of native vegetation	A & B	Success of control work and changes in vegetation are observed and recorded	Environment Restoration Advisor	Advisor time	Advisor time	Advisor time	Advisor time	Advisor time
Totals					\$25,570	\$27,110	\$28,750	\$30,500	\$32,350

*Any associated costs are not yet determined

10. Funding contributions

10.1. Budget allocated by Greater Wellington

The budgets for the years 2026/27 to 2029/30 are indicative only and subject to change.

Table 3: Greater Wellington allocated budget for the Haywards Scenic Reserve KNE site

Management activity	Timetable and resourcing				
	2025/26	2026/27	2027/28	2028/29	2029/30
Ecological weed control	\$7,580	\$7,960	\$8,360	\$8,780	\$9,220
Pest animal control	\$5,220	\$5,620	\$6,040	\$6,500	\$6,990
Total	\$12,800	\$13,580	\$14,400	\$15,280	\$16,210

10.2. Budget allocated by Hutt City Council

The budget is subject to confirmation through Hutt City Council long-term planning process.

Table 4: Hutt City Council allocated budget for the Haywards Scenic Reserve KNE site

Management activity	Timetable and resourcing				
	2025/26	2026/27	2027/28	2028/29	2029/30
Ecological weed control	\$7,580	\$7,960	\$8,360	\$8,780	\$9,220
Pest animal control	\$5,190	\$5,580	\$6,000	\$6,450	\$6,940
Total	\$12,770	\$13,540	\$14,360	\$15,230	\$16,160

Appendix 1: Policy context and the Key Native Ecosystem programme

Policy context

Under the Resource Management Act 1991 (RMA)³⁰ regional councils have responsibility for maintaining indigenous biodiversity, as well as protecting significant vegetation and habitats of threatened species.

Funding for the KNE programme is allocated under the Greater Wellington Long Term Plan (2021-2031)³¹ and is managed in accordance with the Greater Wellington Biodiversity Strategy³². This sets a framework for how Greater Wellington protects and manages biodiversity in the Wellington region. Goal One of the Biodiversity Strategy – “*Areas of high biodiversity value are protected or restored*” – drives the delivery of the KNE programme.

Other important drivers for the KNE programme include the Natural Resources Plan for the Wellington Region (NRP)³³, the Regional Pest Management Plan 2019-2039³⁴.

Key Native Ecosystem programme

The KNE programme is a non-regulatory programme. The programme seeks to protect some of the best examples of original (pre-human) ecosystem types in the Wellington region. Greater Wellington has identified sites with the highest biodiversity values and prioritized them for management³⁵.

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

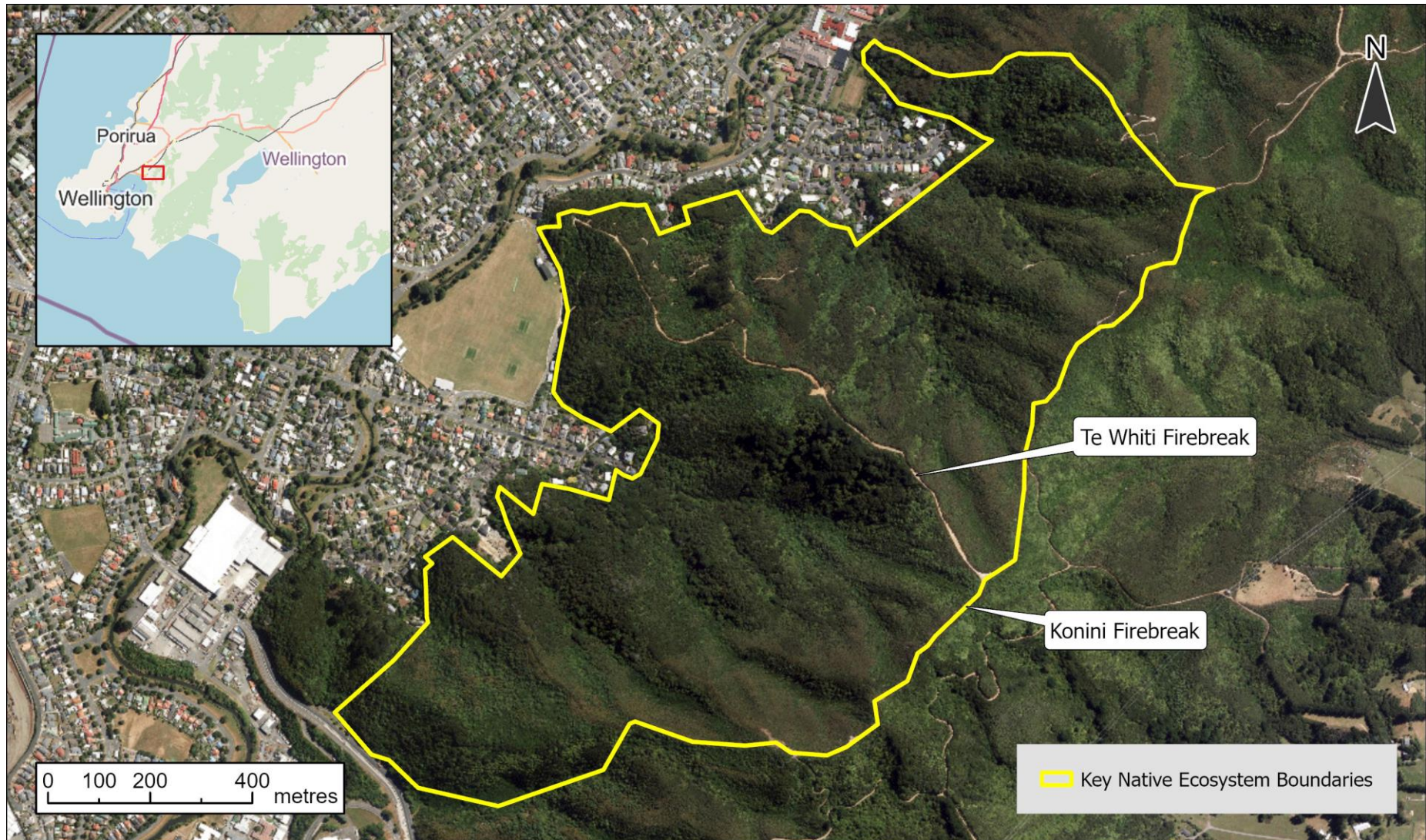
KNE sites can be located on private or publicly owned land. Any work undertaken on private land as part of this programme is at the discretion of landowners and their involvement in the programme is entirely voluntary. Involvement may just mean allowing work to be undertaken on that land. Land managed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

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

Representativeness	Rarity/ distinctiveness	Diversity	Ecological context
The extent to which ecosystems and habitats represent those that were once typical in the region but are no longer commonplace	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 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.

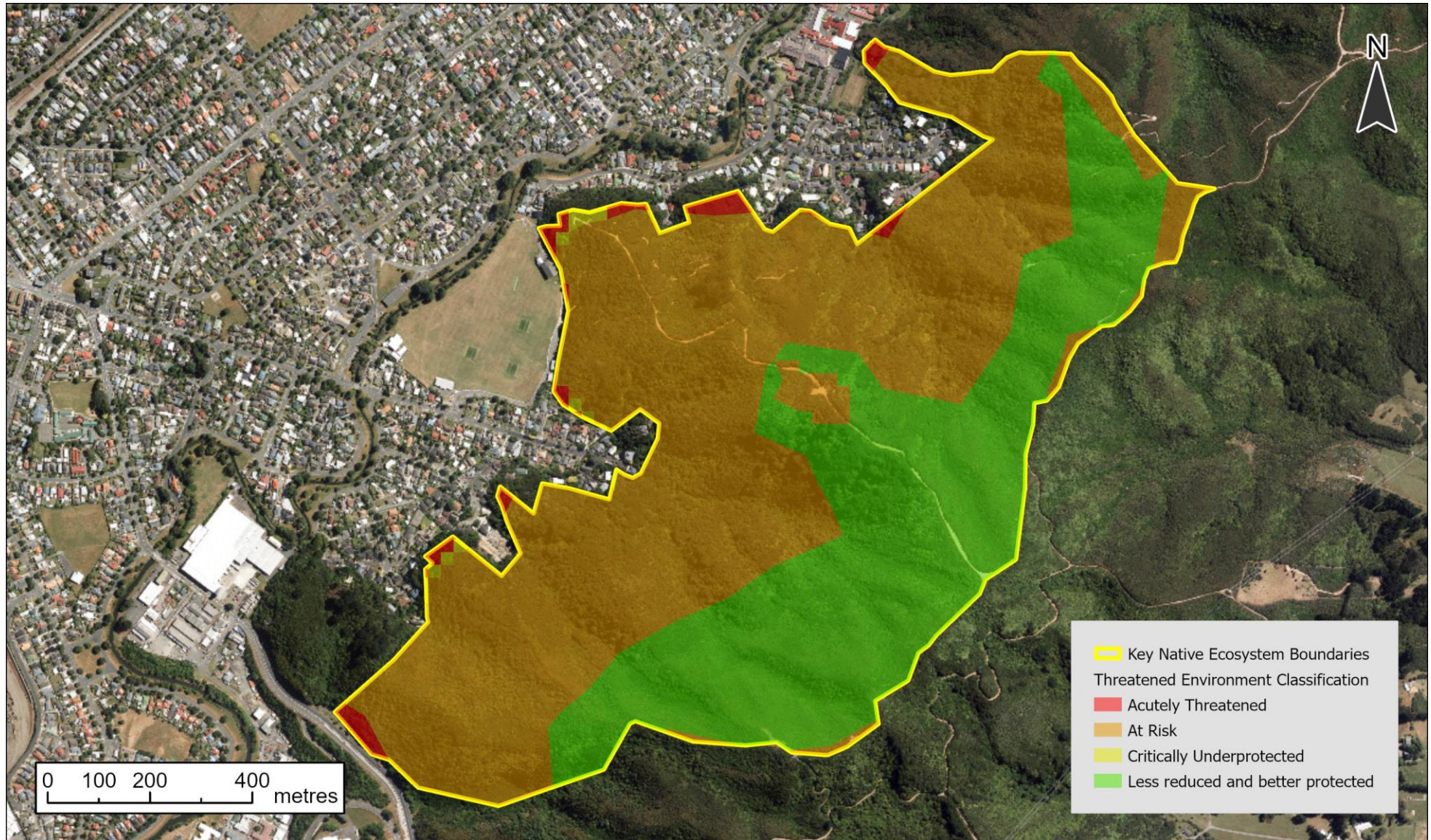
Appendix 2: Haywards Scenic Reserve KNE site maps



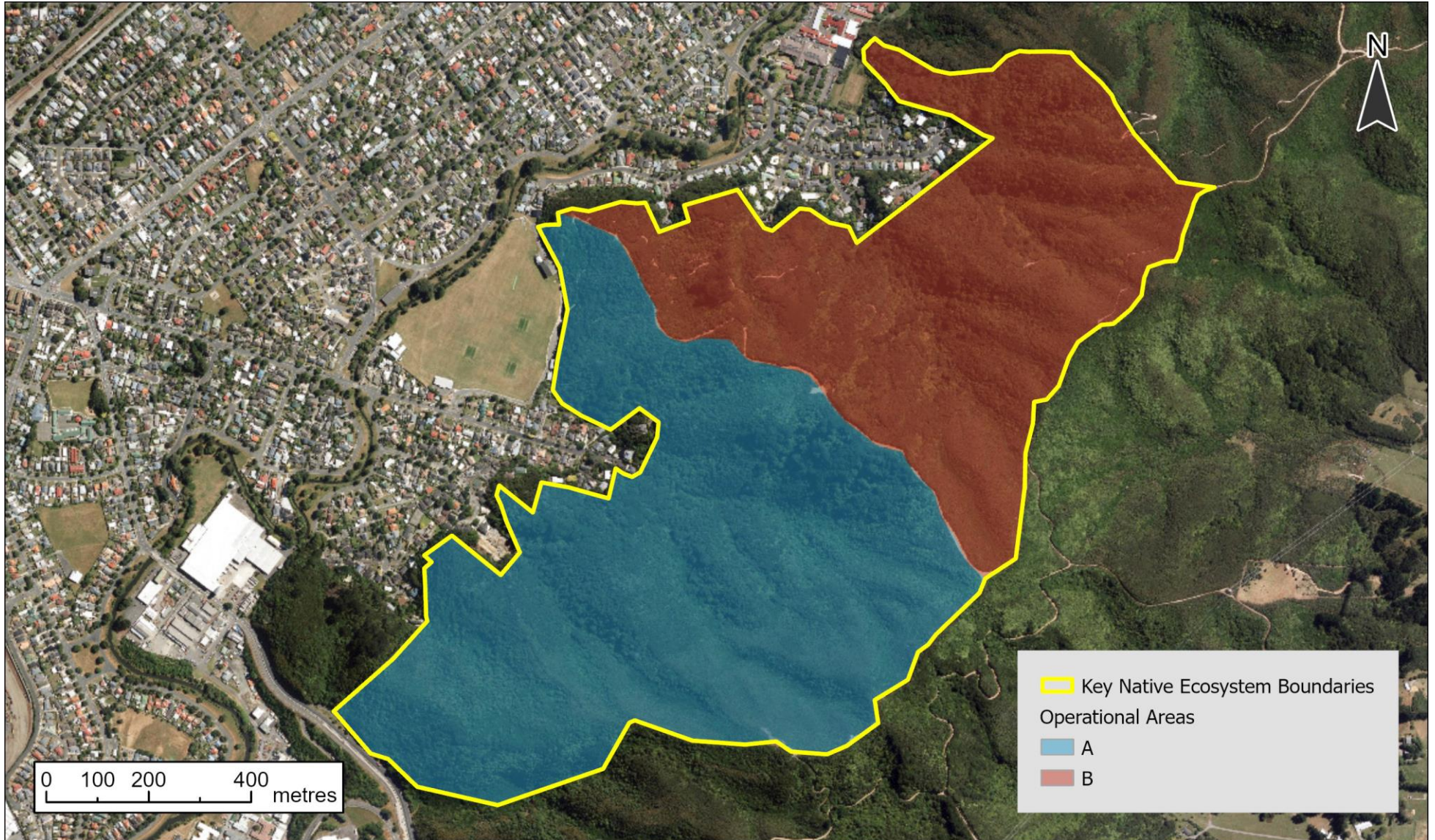
Map 1: The boundary and main firebreaks of Haywards Scenic Reserve KNE site



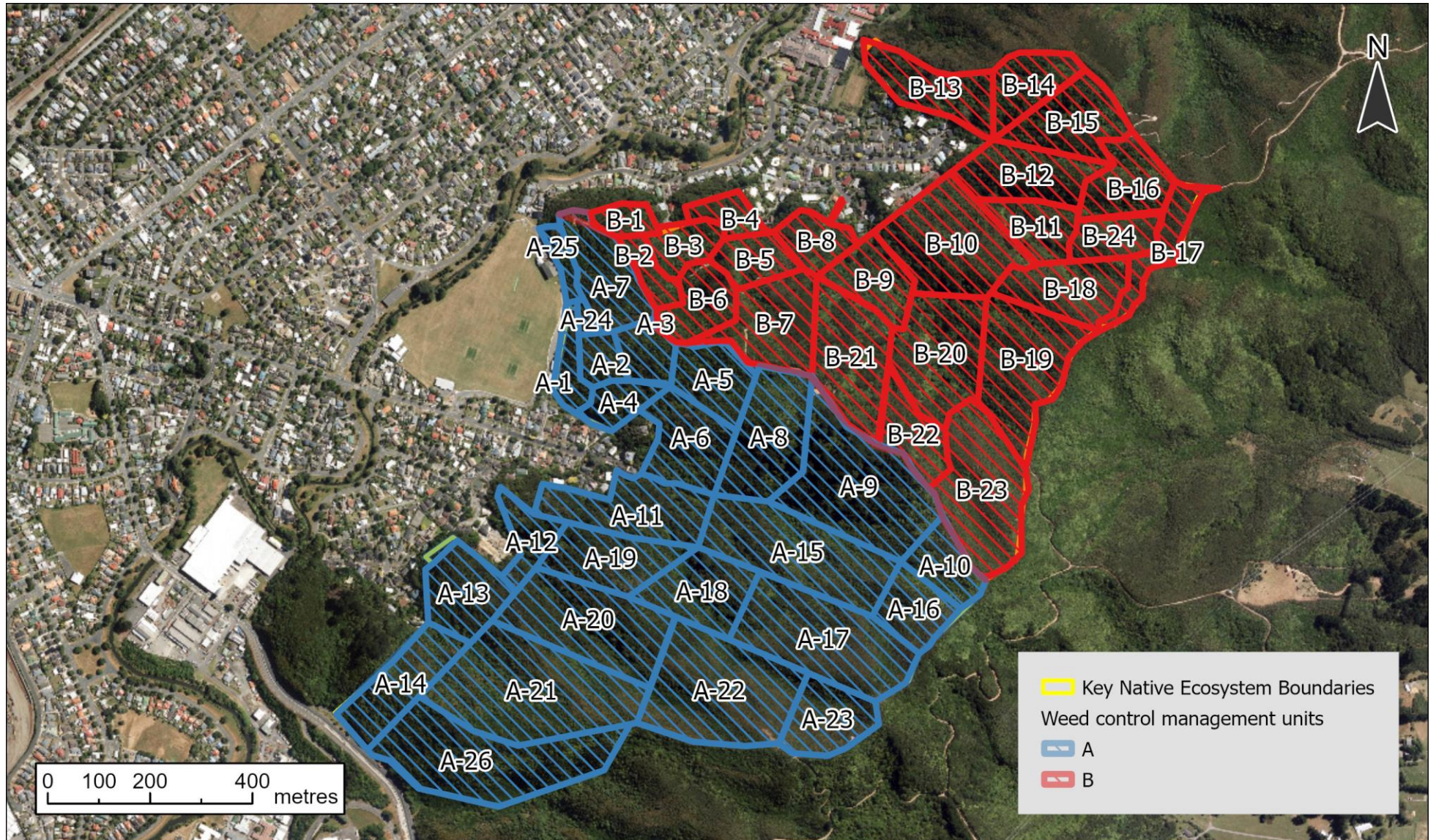
Map 2: Singers and Rogers current forest cover classifications for the Haywards Scenic Reserve KNE site



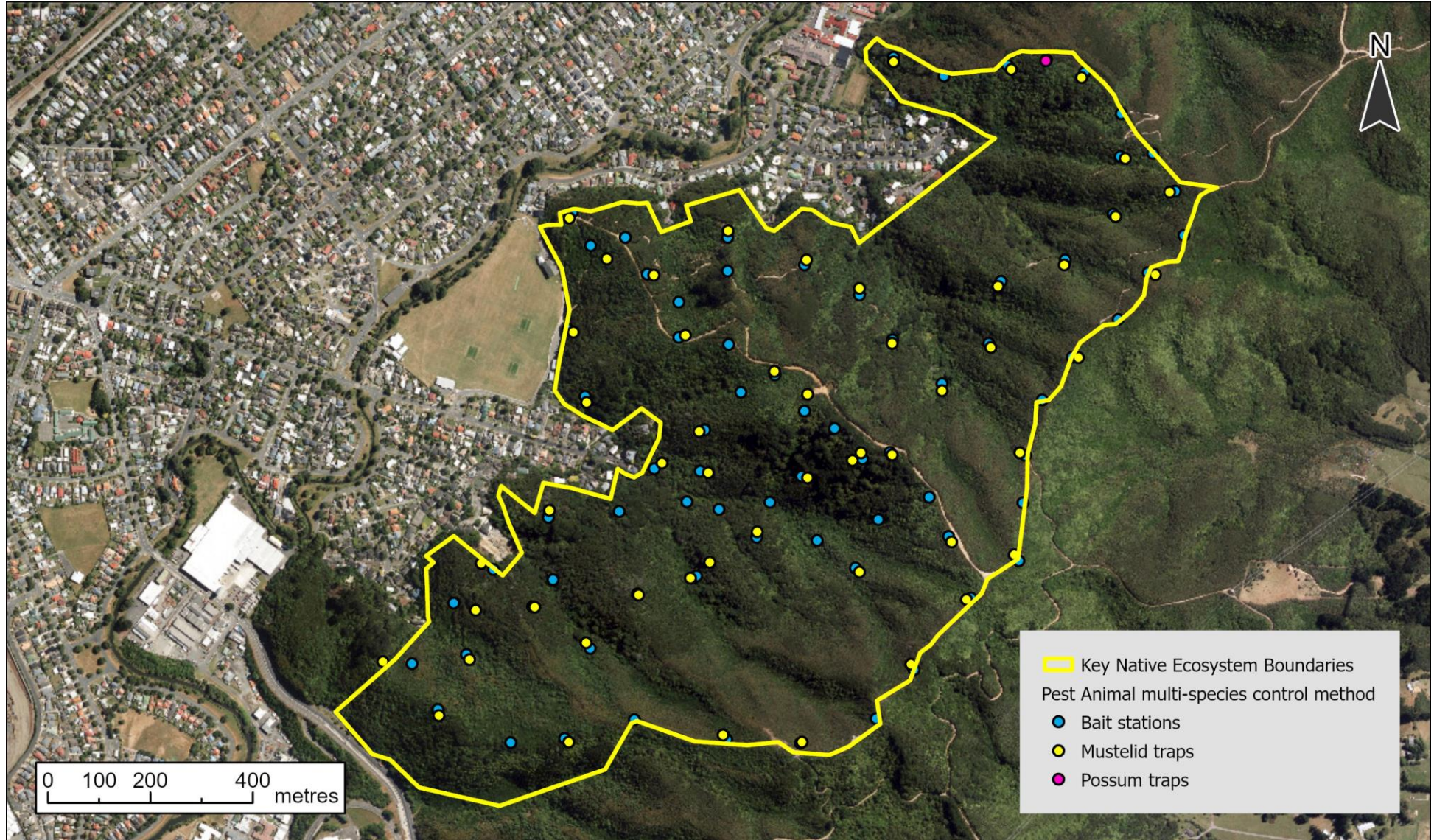
Map 3: LENZ threatened environment classifications in the Haywards Scenic Reserve KNE site



Map 4: Ecological weed control operational areas in the Haywards Scenic Reserve KNE site



Map 5: Ecological weed control management units in the Haywards Scenic Reserve KNE site



Map 6: Pest animal control sites in the Haywards Scenic Reserve KNE site

Appendix 3: Nationally and regionally threatened species list

The following table lists nationally and regionally Threatened and At Risk species that are resident in, or regular visitors to, the Haywards Scenic Reserve KNE site.

The New Zealand Threat Classification System (NZTCS) lists species nationally according to their threat of extinction. The status of each species group (plants, reptiles, etc) is assessed over a five-year cycle³⁶. Species are regarded as Threatened if they are classified as Nationally Critical, Nationally Endangered or Nationally Vulnerable³⁷. They are regarded as At Risk if they are classified as Declining, Recovering, Relict or Naturally Uncommon.

A limited set of taxonomic groups have also been assigned a regional threat status. The regional threat status methodology was developed by a collaborative group comprising representatives from DOC, regional councils and a local authority. The resulting regional threat listing methodology leverages off the NZTCS, but applies a species population threshold adjusted to the regional land area under consideration (relative to the national land area) for species that are not nationally threatened. The assigned regional threat status cannot be lower than that of the national threat status, but can be higher, (eg, a Nationally Vulnerable species could be assessed as being Regionally Critical). Other assessments made in the regional threat listing process include identifying populations that are national strongholds and the use of regional qualifiers, such as natural or historic range limits.

Table 5: Nationally and regionally threatened species present at the Haywards Scenic Reserve KNE site

Scientific name	Common name	National threat status	Regional threat status	Observation
Plants (vascular) – National ³⁸ and Regional ³⁹ Threat Status				
<i>Lophomyrtus bullata</i>	Ramarama	Threatened – Nationally Critical	-	iNaturalist 2019 ⁴⁰
Birds – National ⁴¹ and Regional ⁴² Threat Status				
<i>Falco novaeseelandiae ferox</i>	New Zealand bush falcon, kārearea	Threatened – Nationally Increasing	-	Bell 2014 ⁴³

Scientific name	Common name	National threat status	Regional threat status	Observation
Reptiles – National ⁴⁴ and Regional ⁴⁵ Threat Status				
<i>Naultinus punctatus</i>	Barking gecko	At Risk – Declining	Threatened – Vulnerable	Department of Conservation 2014 ⁴⁶
Freshwater fish – National ⁴⁷ and Regional ⁴⁸ Threat Status				
<i>Anguilla dieffenbachii</i>	Longfin eel	At Risk – Declining	Regionally Declining	NIWA 2019 ⁴⁹
<i>Galaxias argenteus</i>	Giant kōkopu	At Risk – Declining	Regionally Vulnerable	NIWA 2019
<i>Galaxias mactulatus</i>	Īnanga	At Risk – Declining	Regionally Declining	NIWA 2019
<i>Gobiomorphus gobioides</i>	Giant bully	At Risk – Naturally uncommon	Regionally Declining	NIWA 2019
Terrestrial Invertebrates – National Threat Status				
<i>Allodiscus pallidus</i>	Land snail	At Risk – Naturally uncommon	-	Roscoe, 2005 ⁵⁰ (also recorded on iNaturalist)

Appendix 4: Threat table

The following table presents a summary of all known threats to the Haywards Scenic Reserve KNE site including those discussed in section 5.

Table 6: Threats to the Haywards Scenic Reserve KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
Ecological weeds (EW)		
EW-1	Ground covering ecological weeds smother and displace native vegetation, inhibit indigenous regeneration, and alter vegetation structure and composition. Key ground covering ecological weed species for control in the KNE site include tradescantia (<i>Tradescantia flumensis</i>), arum lily (<i>Zantedeschia aethiopica</i>) and African club moss (<i>Selaginella kraussiana</i>) (see full list in Appendix 5).	Entire KNE site
EW-2	Woody weed species displace native vegetation, inhibit indigenous regeneration, and alter vegetation structure and composition. Key woody ecological weed species for control in the KNE site include sycamore (<i>Acer pseudoplatanus</i>), radiata pine (<i>Pinus radiata</i>) and blackberry (<i>Rubus fruticosus</i> agg.) (see full list in Appendix 5).	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 ecological weed species for control in the KNE site include climbing asparagus (<i>Asparagus scandens</i>), Japanese honeysuckle (<i>Lonicera japonica</i>) and Himalayan honeysuckle (<i>Leycesteria formosa</i>) (see full list in Appendix 5).	Entire KNE site
EW-4	Non-local native tree species can displace locally-native vegetation. Key weed species include karaka (<i>Corynocarpus laevigatus</i>), lacebark (<i>Hoheria populnea</i>) and puriri (<i>Vitex lucens</i>) (see full list in Appendix 5).	Entire KNE site
Pest animals (PA)		
PA-1	Possoms (<i>Trichosurus vulpecula</i>) browse palatable canopy vegetation until it can no longer recover ^{51,52} . This destroys the forest's structure, diversity and function. Possoms may also prey on native birds and invertebrates ⁵³ .	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 ^{54,55} .	Entire KNE site
PA-3	Mustelids (stoats ^{56,57} (<i>Mustela erminea</i>), ferrets ^{58,59} (<i>M. furo</i>) and weasels ^{60,61} (<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 ⁶² , lizards ⁶³ and the eggs ⁶⁴ and chicks of ground-nesting birds ⁶⁵ .	Entire KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
PA-5	Feral red deer (<i>Cervus elaphus</i>) and fallow deer (<i>Dama dama</i>) browse the forest understory and can significantly change vegetation composition by preferential browsing and preventing regeneration ^{66,67,68} .	Entire KNE site
PA-6*	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 ^{69,70} .	Entire KNE site
PA-7*	Pest and domestic cats (<i>Felis catus</i>) prey on native birds ⁷¹ , lizards ⁷² and invertebrates ⁷³ , reducing native fauna breeding success and potentially causing local extinctions ⁷⁴ .	Entire KNE site
PA-8*	Rabbits (<i>Oryctolagus cuniculus</i>) ⁷⁵ and hares (<i>Lepus europaeus</i>) ⁷⁶ graze on palatable native vegetation and prevent natural regeneration in some environments.	Entire KNE site
PA-9*	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 ⁷⁷ .	Entire KNE site
PA-10*	Feral pigs (<i>Sus scrofa</i>) root up the soil and eat roots, invertebrates, seeds and native plants preventing forest regeneration ⁷⁸ .	Entire KNE site
PA-11*	Feral 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 ⁷⁹ .	Entire KNE site
Human activities (HA)		
HA-1	Structures in waterways and the water quality of the Waiwhetū Stream may prevent migration of aquatic species. This could result in loss of aquatic species from within the KNE site.	Streams in the KNE site
HA-2*	Garden waste dumping often leads to ecological weed invasions into natural areas. Common weed species introduced at this KNE site include tradescantia (<i>Tradescantia flumensis</i>), plectranthus (<i>Plectranthus ciliatus</i>) and agapanthus (<i>Agapanthus praecox</i>).	Western KNE site boundary (urban sections)
HA-3*	Encroachment of residential gardens into the KNE site from urban areas causes habitat loss and introduces ecological weeds.	Western KNE site boundary (urban sections)
HA-4*	Recreational use and track creation can cause damage and disturbance of the native ecosystem. It is also likely to disturb native fauna and introduce ecological weeds.	Along tracks within the KNE site
HA-5*	Dogs (<i>Canis lupus familiaris</i>), if uncontrolled or unleashed can disturb or kill nesting birds and chicks, and lizards, particularly in close proximity to walking tracks ⁸⁰ .	Entire KNE site

Threat code	Threat and impact on biodiversity in the KNE site	Operational area/location
Other threats		
OT-1*	Small forest remnants are affected by environmental impacts on their edges such as changing environmental conditions (eg. soil moisture or temperature levels), changing physical environment (eg, different plant assemblages compared to the interior) and changing species interactions (eg, increased predation by invasive species) ^{81,82} .	KNE site boundary
OT-2*	Fire causes habitat loss and creates conditions suitable for ecological weed invasion.	Entire KNE site

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

Appendix 5: Ecological weed species

The following table lists key ecological weed species that have been recorded in the Haywards Scenic Reserve KNE site.

The distribution and density of individual species is recorded. Three levels of distribution (localised, patchy and widespread) and density (sparse, abundant and dense) are used to describe these aspects of infestations of each species.

Table 7: Ecological weed species recorded in the Haywards Scenic Reserve KNE site

Scientific name	Common name	Priority	Weed type
<i>Akebia quinata</i>	Chocolate vine, five leaf akebia	1	Climber
<i>Asparagus aethiopicus</i>	Bushy asparagus	1	Ground cover
<i>Asparagus scandens</i>	Climbing asparagus	1	Climber
<i>Bomarea</i> sp.	Bomarea	1	Ground cover
<i>Clematis vitalba</i>	Old man's beard	1	Climber
<i>Delairea odorata</i>	German ivy	1	Climber
<i>Dipogon lignosus</i>	Mile-a-minute vine	1	Climber
<i>Euonymus japonicus</i>	Japanese spindle tree	1	Woody
<i>Hedera helix</i> subsp. <i>helix</i>	Ivy	1	Climber
<i>Hedychium gardnerianum</i>	Kahili ginger	1	Ground cover
<i>Jasminum polyanthum</i>	Jasmine	1	Climber
<i>Leycesteria formosa</i>	Himalayan honeysuckle	1	Climber
<i>Lonicera japonica</i>	Japanese honeysuckle	1	Climber
<i>Pandorea pandorana</i>	Wonga wonga vine	1	Climber
<i>Passiflora tripartita</i> var. <i>mollissima</i>	Banana passionfruit	1	Climber
<i>Pseudopanax</i> sp.*	<i>Pseudopanax</i> hybrids	1	Woody
<i>Tradescantia fluminensis</i>	Tradescantia	1	Ground cover
<i>Acacia ulicifolia</i>	Prickly Moses	2	Woody
<i>Acer pseudoplatanus</i>	Sycamore	2	Woody
<i>Buddleja davidii</i>	Buddleia	2	Woody
<i>Chrysanthemoides monilifera</i>	Boneseed	2	Woody
<i>Convolvulus arvensis</i>	Convolvulus	2	Climber
<i>Cortaderia selloana</i>	Pampas	2	Ground cover
<i>Cotoneaster glaucophylla</i>	Cotoneaster	2	Woody
<i>Crataegus monogyna</i>	Hawthorn	2	Woody
<i>Crocasmia ×crocosmiiflora</i>	Montbretia	2	Ground cover
<i>Ehrharta erecta</i>	Veldt grass	2	Ground cover

Scientific name	Common name	Priority	Weed type
<i>Elaeagnus ×reflexa</i>	Elaeagnus	2	Woody
<i>Galeobdolon luteum</i>	Aluminium plant (artillery plant)	2	Ground cover
<i>Helichrysum petiolare</i>	Licorice plant	2	Woody
<i>Ilex aquifolium</i>	Holly	2	Woody
<i>Iris foetidissima</i>	Stinking iris	2	Ground cover
<i>Ligustrum lucidum</i>	Tree privet	2	Woody
<i>Nephrolepis cordifolia</i>	Tuber ladder fern	2	Ground cover
<i>Plectranthus ciliatus</i>	Plectranthus	2	Ground cover
<i>Rubus</i> sp. (<i>R. fruticosus</i> agg.)	Blackberry	2	Woody
<i>Sambucus nigra</i>	Elderberry	2	Woody
<i>Selaginella kraussiana</i>	African clubmoss, selaginella	2	Ground cover
<i>Syzygium smithii</i>	Lillypilly, monkey apple	2	Woody
<i>Tropaeolum majus</i>	Nasturtium	2	Ground cover
<i>Zantedeschia aethiopica</i>	Arum lily	2	Ground cover
<i>Acacia longifolia</i>	Sydney golden wattle	3	Woody
<i>Agapanthus praecox</i>	Agapanthus	3	Ground cover
<i>Allium triquetrum</i>	Onion weed	3	Ground cover
<i>Cytisus scoparius</i>	Broom	3	Woody
<i>Erica lusitanica</i>	Spanish heath	3	Woody
<i>Erigeron karvinskianus</i>	Mexican daisy	3	Ground cover
<i>Genista monspessulana</i>	Montpellier broom	3	Woody
<i>Vinca major</i>	Periwinkle	3	Ground cover
<i>Chamaecytisus palmensis</i>	Tree lucerne	4	Woody
<i>Corynocarpus laevigatus</i> *	Karaka	4	Woody
<i>Foeniculum vulgare</i>	Fennel	4	Ground cover
<i>Hoheria populnea</i>	Lacebark	4	Woody
<i>Pinus radiata</i>	Radiata pine	4	Woody
<i>Solanum nigrum</i>	Black nightshade	4	Ground cover
<i>Ulex europaeus</i>	Gorse	4	Woody
<i>Vitex lucens</i>	Pūriri	4	Woody

* Denotes a New Zealand native plant that is not local to the KNE site.

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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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