



# BIODIVERSITY

## 1 ACTIVITY OVERVIEW

- 1.1.1 Manawatū-Whanganui Regional Council (Horizons) has statutory obligations to maintain and sustainably manage the region's biodiversity under the Resource Management Act (1991). Horizons' strategy is set out in our One Plan and includes both regulatory and non-regulatory approaches. This item reports on the collective biodiversity activity of the implementation and science programmes. Other non-regulatory programmes, particularly the biosecurity and freshwater programmes, also contribute to biodiversity outcomes.
- 1.1.2 Allocating resources in a way that provides the greatest ecological benefit is a key challenge in biodiversity management. This has been a significant area of focus for the recent review of the biodiversity programme, which aimed to improve processes and subsequent biodiversity outcomes across the region, while working to bring Horizons closer to meeting requirements under the proposed **National Policy Statement for Indigenous Biodiversity (NPSIB)**.
- 1.1.3 National policy direction is changing with Central Government releasing the National Biodiversity Strategy, Te Mana o te Taiao, on 10 August 2020. The proposed NPSIB was delayed due to Central Government's Covid-19 response and release of the draft is now signalled for later in 2021. These documents will influence the way that Horizons manages biodiversity within the region.
- 1.1.4 An outcome of the review is that Council has resolved that work across the non-regulatory biodiversity programme supports the goal for the priority sites to "*maintain or restore the full range of the region's indigenous ecosystems to a healthy and functioning level*". The goal for the biodiversity partnerships programme is "*Empowering communities to engage with biodiversity*".
- 1.1.5 This September 2021 Environment Committee report presents information for the period 1 May 2021 to 30 June 2021 in the context of delivery of the programme. This includes an annual summary of the biodiversity monitoring and research activity completed in 2020-21. Biodiversity activity is presented regionally (where appropriate) and/or for each of the programmes that make up the Non-regulatory Biodiversity

Programme, integrating the implementation work of the Biodiversity Team and the activities of the Science & Innovation and Biosecurity teams. This report is arranged in the following sections:

- The regional activity update and progress against 2020-21 Annual Plan targets;
- The priority biodiversity sites programme, a site-led programme working with landowners to maintain and enhance priority sites on private land;
- The biodiversity partnerships programme, where projects extend beyond the boundary of a single landowner and/or involve community groups or external agencies; and
- Management of Tōtara Reserve, our regional park.

## 2 ANNUAL PLAN TARGETS

- 2.1.1 Progress against the Annual Plan targets for the 2020-21 year are shown in Table 1 below.
- 2.1.2 The Annual Plan targets for the priority sites programme are to add four new wetland sites and seven new bush remnant sites. This target was achieved. Work undertaken at these 11 sites is detailed in the priority sites section.
- 2.1.3 The biodiversity partnerships programme completed 18 projects towards an Annual Plan target of 12. Biodiversity partnerships programme also funded four school biodiversity events/activities.
- 2.1.4 Improvements at Tōtara Reserve have continued. An electrical upgrade of all powered sites at the campgrounds has been completed. The area where the poplar trees were removed has been replanted. The water supply upgrade to provide the campsites, caretaker's house and Camp Rangī Woods with potable water is well underway.

Table 1 Progress reporting for the Biodiversity Activity Annual Plan targets for 2020-21.

Long-term Plan Target	Target	Allocated	Completed or supported	% of target completed
<b>Protect/enhance priority habitat remnants</b>				
Additional top 100 wetlands actively managed	4	4	4	100%
Additional top 200 bush remnants actively managed	7	7	7	100%
<b>Support community involvement in biodiversity protection</b>				
Support existing community-based biodiversity improvement projects	12	18	18	150 %
<b>Tōtara Reserve Regional Park</b>				
Annual report on the management of Tōtara Reserve Regional Park for biodiversity and recreational values, including managing the camping facility.	1	-	1	100%
<b>Science &amp; Innovation - Biodiversity Long-term Plan targets for 2020-21.</b>				
Performance Measures for Levels of Service	Target 2020-21	Target achieved	Progress update	
Annual report on biodiversity monitoring and research activity.	1	1	This report provides a summary of biodiversity monitoring and research activity completed.	

### 3 PRIORITY SITES PROGRAMME

#### 3.1 Programme overview

- 3.1.1 The Priority Biodiversity Sites Programme is a habitat-focused programme with the objective “to restore and maintain the representative range of ecosystems to a healthy and functioning level”.
- 3.1.2 The programme has four main components:
- 1) Monitoring and reporting on the management level status of known sites in the region;
  - 2) Maintenance of the sites currently in the programme;
  - 3) Finding and assessing new sites for addition to the programme; and
  - 4) Addition of new sites to the programme.

## 3.2 Activity Update

### MANAGEMENT LEVEL STATUS OF KNOWN SITES

- 3.2.1 Horizons tracks the management level status of known sites using a management level index framework. In broad terms, the management levels are described as outlined below with each management level increase above management level 1, including the requirements of the management levels below that (e.g. a management level 2 site has both the requirements of management level 1 and management level 2).
- 3.2.2 The management levels are:
- 0.5: site may have received management from Horizons but has not been assessed;
  - 1: Rapid Ecological Assessment completed within the last 10 years,
  - 2: site has received Horizons' contribution to management;
  - 3: site receives ongoing management input from Horizons;
  - 4: site receives a higher level of management inputs;
  - 5: site receives significant inputs from stakeholders;
  - 6: site receives management inputs for all animal pests.
- 3.2.3 A summary of the management level index status for sites on the managed list, including the 11 new sites, is presented in Table 2. The number of sites that are considered part of the programme can be assessed by the number that have been assessed and received some support by Horizons e.g. management level 2 and above, or the number of sites considered to be actively managed (management level 3 and above). Due to the requirements for active management and ecological assessments within the last five years, sites that are management level 3 can reduce to management level 2 if management at the site is not considered sufficient or an ecological assessment has not been completed within the last five years.
- 3.2.4 Eleven new sites were added to the programme in 2021 (see below for more details), increasing the number of sites at management level 3 to a total of 77.

Table 2 Priority Sites Management Level Index Status (see text above for description of the management levels).

Management level	Bush sites		Wetland sites		All sites	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
6	1	1	0	0	1	1
5	1	1	2	2	3	3
4	7	7	3	3	10	10
3	38	45	14	18	52	63
<b>Sub-total for Level 3+</b>	<b>47</b>	<b>54</b>	<b>19</b>	<b>23</b>	<b>66</b>	<b>77</b>
2	100	100	52	51	152	151
<b>Sub-total for Level 2+</b>	<b>147</b>	<b>154</b>	<b>71</b>	<b>74</b>	<b>218</b>	<b>228</b>
1	348	350	66	69	414	419
0.5	4	4	6	6	10	10
<b>Total</b>	<b>499</b>	<b>508</b>	<b>143</b>	<b>149</b>	<b>642</b>	<b>657</b>

- 3.2.5 Management actions in the 2020-21 year were prioritised to fit the available budget through a process that is focused first on adding the 11 new sites to meet the Annual Plan target, then on the 66 sites at Management Level 3 and above.
- 3.2.6 The process for allocating the budget included all of these sites having full site summaries and management prescriptions prepared. These documents:
- Identify ecological integrity targets,
  - Identify pressures required to be managed to meet targets; and
  - Develop prescriptions and indicative cost information to reduce pressures to required levels over a five-year period.
- 3.2.7 Costings are based on prescriptions designed to restore ecosystem function and viability, not to maximise populations of charismatic species or ensure the persistence of threatened species. Where charismatic or threatened species are present, it may be appropriate to provide additional management in collaboration with the **Department of Conservation (DOC)**.
- 3.2.8 Thirty of the 66 sites that are management level 3 or above received maintenance control in the current financial year. Twenty-six of these received funding from the priority sites programme and a further four from other programmes e.g. the icon site (3 sites) and regional park programmes (1).
- 3.2.9 In addition to the maintenance sites, 11 new sites received management and were added as management level 3 and above (Map 1). The new sites and the completed work are described in Table 3 below.

3.2.10 Many of the critically endangered habitats that Horizons biodiversity staff assist with managing are threatened by invasive pests that would over time entirely change the ecosystem by smothering mature trees (e.g. **old man's beard (OMB)** ) or choking ground-level plants preventing regeneration (e.g. field horsetail and *tradescantia*). To help with long-term control of these pest plants, the biodiversity team is working with the pest plant team to increase the use of biological control agents. In 2020-21 the biodiversity team invested in the propagation of old man's beard gall mites, *tradescantia* rust and field horsetail weevils for release at or near priority sites.

Table 3 2021 New wetland and bush priority sites under management.

	Type	Name	District	Short Description
1	Bush	Man260 Near Kimbolton	Manawatū	5 ha of tawa, podocarp forest – deer fenced to exclude feral deer with Horizons assistance in December 2020. Landowners retired an additional 1 ha of pasture and Horizons provided plants to replant this area in June 2021.
2	Bush	Rang187a North of Taihape	Rangitīkei	40 ha of kahikatea, tōtara and matai forest that the landowner had fenced off 20 years ago. Horizons contractors carried out ground control of the old man's beard in early May 2021. One of the old man's beard plants controlled was more than 34 years old (B. Lowry, Massey University, counted the rings on the stump).
3	Bush	Rang253, North of Taihape	Rangitīkei	13 ha of kahikatea, tōtara and matai forest that were grazed. Horizons Land and Biodiversity teams worked together with the landowner to get the forest deer-fenced. The forest is now protected from grazing by stock and feral deer.
4	Bush	<b>Horo194,</b> Kōputaroa	Horowhenua	0.3 ha kahikatea forest, containing one of the three remaining populations of giant snail <i>Powelliphanta traversi koputaroa</i> . Landowner has retired and fenced off additional land adjacent to the forest remnant and Horizons have replanted this to extend snail habitat. Rodent monitoring has been carried out and additional possum bait stations installed. Horizons is running traps to control hedgehogs, which are snail predator, at this site.
5	Bush	Horo109, Kōputaroa	Horowhenua	5 ha swamp mosaic containing remnant population of giant snails <i>Powelliphanta traversi koputaroa</i> . Horizons has carried out weed control, and replanted this area with species that provide good snail habitat. Rodent monitoring has been completed and additional possum bait stations installed. Horizons is running traps to control hedgehogs at this site.
6	Bush	Whan20, Fordell	Whanganui	7 ha kahikatea, pukatea forest. Horizons assisted the landowner with deer fencing this critically endangered forest remnant.
7	Bush	Man169, Feilding	Manawatū	4 ha of tōtara, titoki forest. Horizons contractors have controlled <i>tradescantia</i> and karaka at this site. Karaka is not native to our Region.

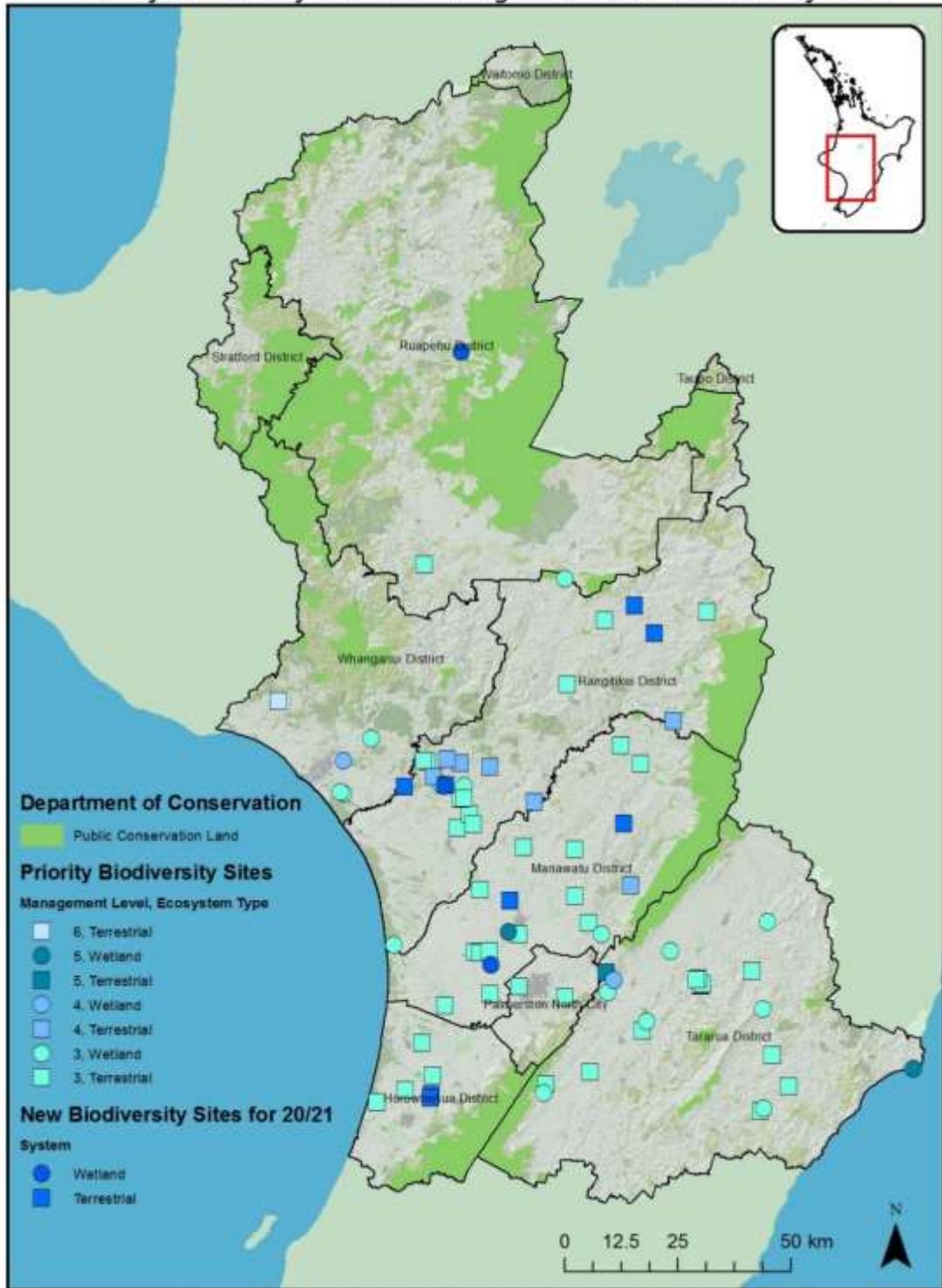


	Type	Name	District	Short Description
1	Wetland	Rang61W, Marton	Rangitīkei	2 ha sphagnum mossfield. Horizons assisted with fencing this wetland to exclude stock.
2	Wetland	Rang205, Marton	Rangitīkei	5 ha kahikatea forest surrounding 0.6 ha sphagnum mossfield. Horizons assisted with fencing to exclude stock and control weeds.
3	Wetland	Man210, Kairanga	Manawatū	10 ha kahikatea, tawa, titoki forest and oxbow lagoon. Horizons staff carried out old man's beard control in May 2021.
4	Wetland	Rua37W, Owhango	Ruapehu	12 ha wetland mosaic (sedgeland, reedland and fernland). Horizons contractors carried out weed control at this site.



Photo 1 Deer fencing to protect critically endangered tawa, titoki, podocarp forest from feral deer; newly retired adjacent land prior to replanting in foreground.

Priority Biodiversity Sites and Management Levels as at 10 May 2021



Map created by M Hasenbank (Natural Resources and Partnership Group) - 10/05/2021

Map 1 Priority Biodiversity Sites at management level 3 and above, 2020 - 2021.



## IDENTIFYING AND ASSESSING SITES

- 3.2.11 An important component of the programme is identifying new sites to be added each year. **Rapid Ecological Assessments (REAs)** involve visiting a site to collect inventory data on the ecosystem types present and the threats that would need to be managed if the site were included in the priority sites programme. As well as increasing our knowledge of remaining biodiversity in the region, REAs identify sites that are eligible for management in the following year. As the habitat at a site can change over time (for example, due to new pests arriving or management interventions) REAs are repeated every 5 years for priority sites on the managed list.
- 3.2.12 Work to identify potential sites for management has focused on a subset of regionally critically endangered ecosystems, based on four factors: predicted remaining habitat, extent of habitat decline, area of remaining habitat in the conservation estate, and proportion of remaining habitat outside the conservation estate. This subset contains many hundreds of forested sites. Determining which are likely to have the highest ecological values and are most suitable for management has proved challenging. Thirty-five REAs were completed at new sites during the 2020-21 year.
- 3.2.13 To better support Horizons' work toward the goal "to *restore and maintain the representative range of ecosystems to a healthy and functioning level*" a project has been developed to identify approximately 50 representative high-value sites within the region to target for management over the next five years. Site selection will aim to ensure the full range of ecosystems within the Horizons region are identified for management. Site selection will target high priority ecosystems i.e., rare and threatened, while ecosystems that are not represented within the conservation estate or are not reported as under management by DOC, will be prioritised. This work also recognises the addition of larger and/or more complex sites that include multiple ecosystems. This work will span two financial years with part one (a geospatial layer identifying the initial 50 sites) delivered early in the 2021-22 year. This will be reported as a static map once completed. Part two, due for completion by December 2021, includes further details on identified sites and suggestions of other sites that could be prioritised for management if the first is not available to the programme.
- 3.2.14 Alongside the project above, a set of ecosystem factsheets are under development for all ecosystem types mapped under the potential ecosystem mapping project. These include: a description and the diagnostic features of each ecosystem; example sites for ecosystems where appropriate; regional and national distribution; likely effects of prior human-induced activities; and, in some instances, an outline of potential threats specific to an ecosystem. These factsheets will assist Horizons staff in identifying specific ecosystems and will be made available as a resource for communities connecting with biodiversity. Draft factsheets were completed in June 2021 and will be used by staff before being finalised in the 2021-22 financial year.

### Reports produced

Daly, E., Bocker, E., Moore, S., and Roygard, J. (2020). [Biodiversity – Priority Sites Update](#). Report No 20-157 to the Horizons Regional Council Strategy and Policy Committee, 10 November 2020.

## BIOLOGICAL DATA PROJECT

- 3.2.15 Within the **Natural Resources & Partnerships (NRP)** Group a large amount of time and resources is spent collecting biological data i.e., data that is biotic in nature and deals primarily with living organisms rather than physical (abiotic) measures. For example, biological data can include information on species presence/absence, distribution, and/or abundance. Additionally, this data often has a spatial element. Biological data is collected across a number of work areas within NRP but this project largely focuses on the data that is collected in the biodiversity, freshwater biomonitoring, lakes, and coast & estuaries work areas.
- 3.2.16 Horizons has several databases that store this biological data. As programmes and data needs have grown, the gap between the Horizons databases and current data needs has widened greatly. Biological data collected through time that is unable to be entered or stored in current databases remains in various Excel spreadsheets, reports or on paper forms. The demand for information and knowledge is expected to increase over time and a functional database is essential to support informed decision making, accurate environmental reporting and to enable implementation of current and future legislation from Central Government (National Policy Statement for Freshwater Management and the proposed National Policy Statement for Indigenous Biodiversity).
- 3.2.17 The biological data project, initiated in the 2019-2020 financial year, sought to investigate potential options for managing biological data to replace systems that are no longer fit for purpose. The proposed solution is expected to have a lifespan of 3-7 years, when a sector-wide solution is likely to be available.
- 3.2.18 KiECO, an out of the box software solution, was purchased in June. KiECO is used by multiple councils in NZ, including Northland, Hawke's Bay, Southland and Auckland. The use of KiECO will allow Horizons to align data systems with other councils, putting us in a good position for future requirements for the proposed National Policy Statement for Indigenous Biodiversity and other transformations in biological data. The vendor has an interest in continuous improvement, and ongoing improvements are available to all customers. Key features of KiECO include:
- Spatial function, which gives the ability to visually locate sites and links to other GIS systems.
  - Taxonomic management
  - Functionality for dealing with historic changes
  - Easy to interrogate data quickly
  - Ability to review summaries of data
- 3.2.19 A programme to prioritise and manage data migration into KiECO is the next step in this process. Options for data migration are being explored.





Table 4 Council has approved the following as Biodiversity Partnerships icon projects and targeted rate funding allocations for the 2020-21 year:

Icon projects	2020-21 FY (excluding GST)	Status at 30 June 2021
Te Āpiti Manawatu Gorge	\$244,856	Completed, noting some work was deferred to the following year.
Kia Whārite	\$150,000	Completed
Pūkaha Mt Bruce	\$37,292	Completed
Bushy Park Tarapurui	\$20,000	Completed
Targeted rate projects	2020-21 FY (excluding GST)	Status at 30 June 2021
Rangitīkei Environment Group (REG)	\$95,000	Completed, awaiting annual report
Waiterere Beach Community Project	\$7,000	Completed
<b>Total</b>	<b>\$554,148</b>	

Table 5 Biodiversity Grant projects in the 2020-21 financial year.

Partnership Projects	2020-21 FY (excluding GST)	Status at 30 June 2021
Manawatū Estuary	\$25,000	Completed
Turitea Reserve	\$20,000	Weed control completed
Tawata Eco-sanctuary	\$15,000	Goat control completed
Te Pōtae o Awarua Predator Control	\$15,000	Completed
Cape Turnagain	\$10,000	Completed
Awahuri Forest – Kitchener Park	\$8,000	Completed
Kahuterawa Stream	\$8,000	Completed
Ahimate Reserve	\$5,000	Completed
Massey Hill	\$3,500	Completed
Weedbusters	\$23,000	Completed
Betty Tripe Reserve planting	\$10,000	Completed
Tangimoana Coastcare field trip	\$500	Completed
<b>Total</b>	<b>\$143,000</b>	

4.2.3 The new [Kanorau Koiora Taketake - Indigenous Biodiversity Community Grant](#) was developed in place of the community grant programme, which no longer exists. Council increased funding for the new contestable fund to \$260,000 per year through the Long-term Plan. This new approach to allocating funding for biodiversity projects required some projects that regularly received funding from Horizons to apply for funding where they may not have previously had to do so.

4.2.4 Applications for the Kanorau Koiora Taketake - Indigenous Biodiversity Community Grant closed on 4 June 2021. This contestable fund is for community-led projects that support connections between nature and people, and work to restore and protect



indigenous biodiversity. These connections include projects that support the regeneration and continuation of mātauranga Māori. Community-led projects includes those led by private landowners, individuals, Māori land trusts, not-for-profit organisations, umbrella groups and whānau/hapū/iwi.

- 4.2.5 The Kanorau Koiora Taketake - Indigenous Biodiversity Community Grant was advertised widely in social media, local papers and radio stations. At the time of closing on 4 June 2021, 36 applications had been received with 7 from Horowhenua district, 6 from Ruapehu, 7 from Rangitikei, 8 from Whanganui, 3 from Tararua, and 5 in total from Manawatū and Palmerston North.
- 4.2.6 An internal panel has assessed applications and provided information to the Council-appointed panel. The projected timeline was for applicants to be notified of decisions in August with projects able to begin following that.
- 4.2.7 Projects listed in Table 5 were funded through money now allocated to Kanorau Koiora Taketake - the Indigenous Biodiversity Community Grant, and will not automatically receive funding in the future.

#### **Reports produced**

Daly, E., and Roygard, J. (2020). [Biodiversity Partnerships Projects](#). Report No 20-100 to the Horizons Regional Council Strategy and Policy Committee, 11 August 2020.

Horizons Regional Council. (2021). [Kanorau Koiora Taketake – Indigenous Biodiversity Community Grants Guidelines](#). Guidelines prepared for contestable fund, May 2021.

### **4.3 Project Updates – 2020-21**

This section provides updates on the activity of the projects funded in 2020-21. The first five projects listed (Te Āpiti Manawatū Gorge, Kia Kia Whārite, Pūkaha Mt Bruce, Bushy Park Tarapurui and the Manawatū Estuary) are funded annually as icon sites.

#### **TE ĀPITI MANAWATŪ GORGE**

- 4.3.1 Te Āpiti Manawatū Gorge Governance Group met on 10 June 2021 and the budget was approved for the coming year. The next meeting is scheduled for 9 December 2021.
- 4.3.2 Horizons completed our fifth year of managing the weed control at this site and the contractor has provided an annual report. Only low levels of old man's beard regeneration were noted at previously treated sites this season and control was undertaken on the northern side of the Manawatū River. The contractor has controlled the densest areas of infestation and has also started to treat banana passionfruit, another transformer weed. The February aerial survey allowed the contract team to find previously unseen weed infestations as the weeds emerge through the canopy.

- 4.3.3 Horizons have been through a procurement process to secure a weed control contract for Te Āpiti for the next three years. At the time of writing, the contract was being finalised with the preferred supplier.
- 4.3.4 Waka Kotahi (NZTA) has initiated pest management on the northern side of Te Āpiti to offset impacts from the construction of Te Ahu a Turanga. Contractors have set up a bait station network for possums and rats in the northern Te Āpiti area and are part-way through deploying stoat traps in this area. The rat and possum poison Double Tap will be put out in these stations in August, to reduce possum and rat densities prior to the forest bird breeding season.
- 4.3.5 DOC continues to lead pest animal control on the southern side of Te Āpiti. Two fills of the existing bait station network using the possum and rat poison Double Tap were completed during the year and an additional 351ha bait station network has been installed, ready for predator control in the coming bird breeding season.
- 4.3.6 In July 2021 DOC completed a rodent monitor at Te Āpiti. On the northern side, which had not yet received rat control, rats tracked 41% of tunnels and mice 0%. On the southern side, rats tracked 12% of tunnels and mice 40%. Low mice numbers are often experienced in areas with no rat control, as rats prey on and compete for food with mice.
- 4.3.7 Additional mustelid traps have been deployed around the perimeter of Te Āpiti to reduce the invasion of mustelids into the pest control area. The Horizons Regional Response Team will support this project by delivering an extra fill in bait stations that surround Te Āpiti, to further reduce possum numbers.
- 4.3.8 Text and images for new signage for Te Āpiti Manawatu Gorge have been prepared and are being reviewed by iwi. This new signage will be installed at both entrances to the east and west carparks describing the biodiversity and track maps at both entrances, as well as bird identification signs along the length of the track, and plant and wetland information at Te Waho o te Kurī Ferry Reserve.
- 4.3.9 Horizons have purchased four pedestrian counters to count and report in real time the numbers of pedestrians and their direction of travel at the Tawa Loop, Ballance Loop, Upper Gorge Track and on the main Manawatu Gorge Track just past the Tawa Loop. We are working with DOC to arrange their installation before the busy summer period.

## KIA WHĀRITE

- 4.3.10 Predator trapping has continued in the Rētāruke, Manganui o te Ao and Whanganui River Catchments for whio (blue duck) protection and in the Waimarino area for North Island brown kiwi protection. The project is contributing to the Kia Whārite project, which covers 180,000 ha, in collaboration with DOC. Horizons' activity for this year was contracted and has been completed. Predator numbers to date are in Table 6 below.

Table 6 Kia Whārite trap catch results for the 2020 – 2021 year

Species Caught	Number
Cats	36

Ferrets	3
Hedgehogs	354
Rats	3,478
Stoats	190
Weasels	150
<b>Total</b>	<b>4,211</b>

- 4.3.11 More than 580 goats were shot as part of ground and aerial goat control operations in the Waimarino area.
- 4.3.12 DOC is undertaking a review of the Manganui o te Ao whio security site to refine the requirements for ongoing protection and enhancement of this taonga species. The review to date has continued funding for next year, with consideration of DOC's ongoing funding of the project not yet finalised. An update will be provided to Council following the review.
- 4.3.13 DOC Whanganui reported that it had serviced 800 stoat boxes for the year and had monitored the Manganui o te Ao River, finding 32 pairs of whio and 15 singles. This is a stable result compared to previous surveys, and three pairs hatched a total of 11 ducklings.

## PŪKAHA MOUNT BRUCE

- 4.3.14 Pūkaha Mount Bruce is a community project involving Horizons, Greater Wellington, DOC, iwi, and local landowners. The 942 ha reserve straddles the boundary of the Horizons and Greater Wellington regions just south of Eketahuna. Pūkaha has thriving wild kokako, kiwi and kaka populations, native lizards, longfin eels, and other special inhabitants. The forest itself is a dense lowland podocarp remnant of Seventy Mile Bush. Pūkaha is managed as a "mainland island" without predator-proof fencing, which means pest control in and around the reserve is essential to protect its vulnerable wildlife.
- 4.3.15 Horizons Regional Response Team services perimeter mustelid traps every two weeks and continues the landscape-scale possum control operations. The budget for trap servicing this year is \$27,292. Trap catch data is presented below (Table 7).

Table 7 Pūkaha trap catch results for the 2020 - 2021 year.

	Jul – Sept	Oct-Dec	Jan-Mar	Apr - June	Annual total
Stoats	6	1	5	9	21
Weasels	1	0	1	0	2
Ferrets	4	0	16	8	28
Rats	45	30	31	28	134
Hedgehogs	20	24	67	37	148

Cats	15	0	22	48	85
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- 4.3.16 The Biodiversity team, alongside DOC, manages environmental pest plants within the reserve and the buffer. DOC funded an aerial survey to locate old man's beard sites in the area. Horizons spends \$10,000 annually on pest plant work at this site and our contracted weed control team has completed its work for the season, removing much of the OMB on the adjacent farmland. This ongoing effort by Horizons, and continued work by DOC inside the reserve, will reduce OMB to a low infestation.

### **BUSHY PARK TARAPURUHI**

- 4.3.17 Horizons contributes \$20,000 per year to support activities at Bushy Park Tarapuruhi, near Whanganui. This year our funds helped with predator monitoring, weed control within the sanctuary, mouse control, and work on the predator-proof fence and gates.
- 4.3.18 The motor on the outer gates at the entrance to Bushy Park Tarapuruhi failed in January. Volunteers manually opened and closed the gates (and chased away a cat that entered the gate cell) during busy periods until the motor was repaired. Horizons' funds helped with an upgrade of the gate motors to prevent this problem recurring.
- 4.3.19 A translocation of pōpokotea (whitehead) birds into Bushy Park Tarapuruhi is planned for next year. The application for a wildlife permit to carry out this work is being finalised.
- 4.3.20 A translocation of titipounamu (rifleman) birds into Bushy Park Tarapuruhi is also planned and consultation with hapū at the potential source site is about to begin.
- 4.3.21 In June 2021, Horizons staff assisted Bushy Park volunteers with the revegetation of an area inside the predator-proof fence that had been grazed until recently.
- 4.3.22 The Bushy Park Tarapuruhi halo project is underway to protect native species beyond the fence. Contractors funded through the DOC Community Fund carry out monthly trap checks across the 600 ha halo area and Horizons Regional Response Team carries out annual possum control in this area. The objective of the halo project is to allow Bushy Park Tarapuruhi to function as a nucleus to restore the wider environment.

### **MANAWATŪ ESTUARY**

- 4.3.23 Horizons has been exploring opportunities to have operational plans prepared for the 558 ha estuary site. The Manawatū Estuary Management Plan requires the production of plans for weeds, pest animals, flora and habitat management. Horizons engaged with iwi/hapū, Horowhenua District Council and DOC about undertaking this work. Council allocated resourcing of \$62,000 for this activity via a carry-forward of funds from the 2019-20 year. This additional project has not advanced to a point where a plan was completed within the financial year.
- 4.3.24 Horizons increased the annual allocation of funding for biodiversity enhancement at the site from \$8,000 per annum to \$25,000 this financial year.

- 4.3.25 The additional funding was used in a joint restoration project with Horowhenua District Council. Works completed included weed control and replanting in the dune areas. The weed work included periwinkle control and removal and mulching of previously controlled silver poplars. The funding also allowed the purchase of pīngao and *Spinifex* plants, which were planted in the dunes at community planting days in July and August 2021.
- 4.3.26 Horizons monthly checks of the DOC 200 series traps targeting mustelids continued through the year, except for April and May due to staff illness. Trap catch data is presented below.

Table 8 Manawatū Estuary trap catch data for the 2020-2021 year.

	Jul – Sep	Oct – Dec	Jan - Mar	June	Year to date
Stoats	17	8	3	4	32
Weasels	0	0	0	0	0
Ferrets	0	0	0	1	1
Rats	13	7	4	3	27
Hedgehogs	0	0	17	7	24
Other	1	0	0	0	1

- 4.3.27 Horizons attended and contributed to the six-monthly Manawatū Estuary Management Team meetings in September 2020 and March 2021. These meetings are an opportunity for the statutory agencies working at the Estuary (DOC, Horowhenua District Council and Horizons) to meet with iwi/hapū, local community groups and other interested parties to share information about research and management at Manawatū Estuary.

### **RANGĪTIKEI ENVIRONMENT GROUP (REG)**

- 4.3.28 Rangitikei residents pay a targeted rate to Horizons for old man’s beard control in their district, which is carried out by the **Rangitikei Environment Group (REG)**.
- 4.3.29 REG completed its planned old man’s beard control work in the Rangitikei District in late April and we are awaiting an annual report on the work completed.
- 4.3.30 REG are now in a partnership with the **Rangitikei River Catchment Care Group (RRCC)**, which has received approximately \$1.5 million funding from the **Ministry of Primary Industries (MPI)**, to be spent over three years on control of old man’s beard in the Rangitikei River Catchment. Horizons staff have been coordinating with this project.



## WAITARERE BEACH COMMUNITY PROJECT

- 4.3.31 The Waitarere Beach community pays a targeted rate to Horizons for the purposes of controlling exotic plants and restoring native plants on the dunes.
- 4.3.32 Horizons contractors have controlled lupins, acacia and yucca at Waitarere Beach during this reporting period. This work is complete for the year.

## TURITEA RESERVE

- 4.3.33 Turitea Reserve is a significant area of lowland forest. Palmerston North City Council and Horizons have been working together to control and monitor pests at this site since 2005.
- 4.3.34 Horizons contributed \$20,000, primarily for weed control, to the project last year. Aerial surveys for old man's beard and wilding conifers and ground control were completed using these funds.
- 4.3.35 Thirty-nine toutouwai (North Island robins) from Bushy Park Tarapurui were relocated to Turitea Reserve in April 2021. Toutouwai were locally extinct in the Manawatū but the extensive predator control carried out at Turitea is enabling their return. Latest monitoring (August 2021) of the radio-tagged birds suggests that they are doing well.

## TAWHATA MAINLAND ISLAND

- 4.3.36 This financial year Horizons contributed \$15,000 towards the Tawhata project for goat control in Ruapehu district, and treated the bait station network for possums as part of our **possum control programme (PCO)** when our contractor treated that particular PCO this year. Previously, Horizons funded Tawhata Trust with \$50,000 to treat the possums and goats on its land as part of a project to return the forested area to a sanctuary for Kōkako. However, the trust has now opted in to the Horizons possum control operation and the area has been treated for possums by the Horizons programme.

## TE PŌTAE O AWARUA PREDATOR CONTROL

- 4.3.37 Horizons' funding supports the Aorangi Awarua Trust with the costs of servicing remote predator trap lines on their lands east of Taihape and the Ruahine Whio Protection Trust volunteers servicing and maintaining more than 800 traps on public land in the Northern Ruahine range.
- 4.3.38 Servicing these predator traps protects whio and North Island Eastern brown kiwi populations in the area. Northern Ruahine trap checks were carried out in October, November and December 2020, and January, February, March and May 2021.

- 4.3.39 The Ruahine Whio Protection Trust engaged a contractor who worked alongside a small team of volunteers to clear several overgrown traplines in the Northern Ruahine for 10 days in May 2021. This work is important for volunteer safety in these remote areas.

## **CAPE TURNAGAIN**

- 4.3.40 Cape Turnagain is a significant natural landscape on the East Coast north of Herbertville. It covers 121 hectares and is home to many rare and threatened plants and animals, some of which are found nowhere else. Most of it is protected by a QEII covenant. This site requires ongoing pest control to protect vulnerable plant and fauna.
- 4.3.41 In 2018, QEII National Trust, with Horizons, successfully applied for Lotteries Commission funding to embark on a three-year protection project and this was the third and final year of the project. Horizons has contributed \$10,000 per year and Biodiversity staff time. The total project budget across the three years was \$144,000.
- 4.3.42 Work includes contracted goat, possum, rat, cat, and mustelid control, pest plant control (specifically pampas and marram), population monitoring of the nationally critical "Cape Turnagain" day-flying moth (*Notoreas perornata*), revegetation planting of the sand daphne the moth lives on, and community engagement with Weber School and Herbertville residents.
- 4.3.43 Trapping and baiting occurred monthly and pest plant work is seasonal, mostly during summer. Horizons has increased the number of possum bait stations around the perimeter. Monitoring protocols were established at the beginning and will be run again at the end to measure what has been achieved.
- 4.3.44 Camera traps have been operating in the area. All of the cats observed on camera have subsequently been caught. Cat control at this site is important to protect ground nesting shorebirds, lizards and threatened invertebrates. Full details of trap catches are in

4.3.45 Table 9.

Table 9 Cape Turnagain trap catch data for the 2020 – 2021 year

	Aug - Sept	Oct - Dec	Jan -March	Year to date
Ferrets	2	0	2	4
Stoats	0	0	0	0
Weasels	0	0	3	3
Rats	1	2	3	6
Cats	2	1	11	14
Hedgehogs	1	5	10	16
Mice	0	0	0	0
Birds	1	0	0	1
Possums	0	0	0	0
Rabbits	0	0	0	0
<b>Total</b>	<b>7</b>	<b>8</b>	<b>29</b>	<b>44</b>

## AWAHURI FOREST – KITCHENER PARK

- 4.3.46 Awahuri Forest-Kitchener Park is a Manawatū District Council reserve with strategic importance for the future walkway network and recreational opportunities in and around Feilding. It is also a wetland forest remnant of kahikatea pukatea forest – an ecosystem now considered critically endangered.
- 4.3.47 This year Horizons provided advice on ecological matters to the **Awahuri Forest-Kitchener Park Trust (AWFKPT)** and \$8,000 of funding for revegetation planting and pest plant control in the 14 ha reserve.
- 4.3.48 Samples of the giant grass that has invaded the park from its source on the banks of the Makino Stream were confirmed as *Phragmites karka* (common reed). MPI has since agreed to undertake a national review and risk assessment of *Phragmites karka*. Horizons has assisted with pest plant team staff providing advice to the Trust.
- 4.3.49 The AWFKPT has secured a three-year grant from the MPI Partnership Fund for restoring large areas of the forest. Most of the work involves willow removal and replacement with native species; MPI will provide just over half of the almost \$360,000 total cost. In preparation for the planting, the Trust has contracted an experienced collector to provide eco-sourced seed to the nurseries growing the plants. Willow control has been undertaken in the areas earmarked for planting in the 2022 winter.

## KAHUTERAWA BIODIVERSITY RESTORATION

- 4.3.50 The Kahuterawa Biodiversity Restoration project is a joint project between Massey University, the New Zealand Defence Force, Keebles Trust and Horizons. The project focus is on enhancing the biodiversity values of the Kahuterawa Stream, from the SH57 bridge at Linton to the confluence with the Manawatū River.

- 4.3.51 Horizons contributed \$8,000 to the project this year, as did Massey and the Defence Force. Horizons organised contractors who carried out weed control, planting of eco-sourced plants and releasing, as well as trackside vegetation management at this site.

### **AHIMATE MANAWATŪ RIVER URBAN RESTORATION PROJECT**

- 4.3.52 The Te Motu o Poutua project, an extension to Ahimate Park (aka Anzac Park), is progressing. Horizons is one of the stakeholders in this project alongside iwi, **Palmerston North City Council (PNCC)** and the community. The site is situated at the old Higgins metal crushing area below the recycling centre at the end of Maxwell's Line.
- 4.3.53 Horizons contributed \$5,000 for contractors to carry out weed control and release native plants around Ahimate Park.

### **MASSEY HILL**

- 4.3.54 PNCC, Ferguson Hall, Massey University and Horizons have been working on the Massey Hill project since 2006.
- 4.3.55 Horizons contributed contractor services for weed control to the value of \$2,190. The contractors controlled banana passionfruit, woolly nightshade, tutsan and old man's beard at this site.

### **WEEDBUSTERS PALMERSTON NORTH**

- 4.3.56 This programme involves responding to reports from the public of pest plants in the Palmerston North City Council and Feilding urban area. The programme covers contractors visiting sites to carry out weed control in response to public information. It also includes advice and information on other plants and herbicide treatment options.
- 4.3.57 Biodiversity staff responded to 153 Weedbusters enquiries in 2021-21 with old man's beard, banana passionfruit and ivy the most common species reported.

### **COMMUNITY ENGAGEMENT**

- 4.3.58 Horizons supported the Coastal Restoration Trust NZ conference held in Whanganui in March 2021. The conference brought together experts and community groups from all over the New Zealand. Fieldtrips to Koitiata, Castlecliff and Whanganui River were included.
- 4.3.59 Horizons staff worked with local Coastcare groups to organise a fieldtrip to Tangimoana in June 2021 to keep the energy and ideas for coastal restoration in our region progressing. Horizons providing funding for a bus to transport participants from Whanganui to Tangimoana and Horizons biodiversity staff met with local Coastcare groups for the day.
- 4.3.60 Horizons provided assistance to Makuri School (Taranua district), Kimbolton School (Manawatū) and Mosston School (Whanganui) with revegetation projects on school grounds. Ōhau School (Horowhenua) received assistance for a trapping programme in its bush block.



## **SEEKING GOVERNMENT FUNDING**

- 4.3.61 During the 2020-21 year Horizons made a range of applications to Central Government for funding from the Jobs for Nature fund. These applications, to provide employment opportunities with biodiversity enhancement outcomes, included Iwi Environmental Management Plans, Regional Biodiversity enhancement, Kia Whārite expansion, and supported two projects proposed by the Uenuku Charitable Trust for the Pōkākā Eco-sanctuary Trust in Ruapehu District.
- 4.3.62 Staff engaged with the Department of Conservation and some iwi regarding DOC's "Kaimahi for Nature" funding, which has an allocation of approximately \$11 million for work in the region. Staff have sought clarity about the regional council role and process around funding distribution from DOC, and have worked to support further discussion with iwi/hapū and the formation of the alliance structures that will enable projects to be determined and rolled out.
- 4.3.63 Aorangi Whanau Trust were successful in their Jobs for Nature funding bid. The Trust received \$477,500 of funding for a three-year project planting mahoe and punga and carrying out predator control along the Whanganui Awa near Jerusalem.
- 4.3.64 Aorangi Awarua Trust were also successful. They received \$996,480 for a three-year project carrying out predator control and extending and maintain the track network and huts on their lands in the North East Ruahine. It is estimated this project will create 19.95 fulltime jobs.

## **5 TŌTARA RESERVE REGIONAL PARK MANAGEMENT**

### **5.1 Programme Overview**

- 5.1.1 Tōtara Reserve Regional Park is focused on providing visitors with enjoyable biodiversity and recreational experiences. The work includes plant and animal pest control, flood protection, walking tracks, and campground management and maintenance. Tōtara Reserve is one of the last and best remaining examples of lowland forest ecosystems in the Pohangina Valley and is as an important site under the Biodiversity Priority Sites Programme.
- 5.1.2 This item is the annual report on activities at Tōtara Reserve for the 2020-21 year.

### **5.2 Activity Update**

#### **REMOVAL OF POPLARS**

- 5.2.1 Council approved the removal of poplars at Tōtara Reserve in July 2020. Felling of poplars bordering the stopbank at the Kererū Campground was completed two weeks before Christmas.
- 5.2.2 Replanting this area is planned to be a multi-year project. Stage 1, this financial year, involved Newbury and Awahou schools assisting with planting 1,500 trees in the area

adjacent to the Kererū campground. Members of the Tōtara Reserve Advisory Group also assisted with planting.



Photo 2 Newbury schools students help mulch the trees they've planted at Tōtara Reserve

## PEST ANIMAL CONTROL

- 5.2.3 Horizons' Annual Plan provided additional funding to substantially upgrade animal pest control programme for the reserve. Pest control operations to date have targeted possums and rats.
- 5.2.4 The pest control targets are to reduce possum abundance to less than 5% **residual trap catch (RTC)** and rat abundance to less 10%, to enhance the reserve's biodiversity and amenity values.
- 5.2.5 Horizons Regional Response Team installed 651 bait stations to create a possum and rat control network across the Tōtara Reserve including 60 wooden tunnel stations designed to stop visitors accessing the bait near the buildings and campgrounds.
- 5.2.6 A new toxin called Double Tap, which is less persistent in the environment than brodifacoum, was trialled. Bait stations were filled in November 2020 and again in April 2021.
- 5.2.7 This trial will help evaluate the performance of the toxin alongside wider trials within the Horizons Possum Control Programme, to assess its appropriateness for various applications and cost-effectiveness.
- 5.2.8 Chewcards were used to monitor rat and possum abundance before and after the pest control. October 2020 monitoring found that possums had marked 6.7% of chew cards and rats had marked 82.2%. June 2021 monitoring found possums had marked 20.0% of chew cards (an increase) and rats had marked 41.1%.

- 5.2.9 Trial results found issues with palatability and mould with the Double Tap baits. These results suggest that Double Tap baits may not achieve the results needed for possum control over the wider PCO programme.
- 5.2.10 Predator traps for mustelids have been ordered and when delivered will be deployed into the reserve on a 500 x 200 metre grid and around the perimeter. Once deployed they will be checked 12 times each year.

## **PEST PLANT CONTROL**

- 5.2.11 Pest plant management within Tōtara Reserve has primarily been managed by the biodiversity team as part of the Regional Park work programme. However, the surrounding area is managed at a landscape level by the biosecurity plants programme. A buffer area around the reserve has been identified and is also managed. Manawatū District Council is a significant stakeholder in pest plant control along roadsides adjacent to the reserve.
- 5.2.12 In March 2021 Horizons staff and Awahou school students released a biocontrol beetle to assist with control of the pest plant *Tradescantia*. The school returned to the site to monitor the beetles two weeks after the release and were delighted to find 10 beetles in 10 minutes, and many beetle eggs.
- 5.2.13 The annual programme of weed control at Tōtara Reserve was completed. The contractor revisited previous treatment sites and surveyed for other incursions of pest plants.
- 5.2.14 A Tōtara Reserve Weed Management Plan (Adrienne Meys and Nick Singers, 2006) was developed in 2006 and provided direction for weed control from 2006-20. A review of pest plant management at Tōtara Reserve was undertaken this year. The primary outcome of this review is a recommendation to resurvey the entire reserve and some of the buffer area for weeds. A copy of the report will be made available once it is finalised.

## **COMMUNICATION**

- 5.2.15 Staff are working on several aspects of improving communication about the work at the site, including a regular update to the Advisory Group, on-site signage about activities and further information through social media and Horizons' website.

## **CAPITAL PROJECTS**

- 5.2.16 A capex allocation of \$157,930 for the 2020-21 year enabled completion of the platform with safety rails around the septic system inspection and work on water storage and treatment upgrades to provide potable drinking water is well underway. Horizons engaged Pattle Delamore Partners (PDP) Ltd to draw up plans and scope of works, and to tender the work. However, the only response to the tender was unaffordable so Horizons is working with PDP Ltd to project manage the installation of an approved water treatment system before the next camping season, with installation work spreading across two financial years.

- 5.2.17 A website booking and payment system for the campgrounds is being developed to make booking and paying for camping sites easier for visitors. This will be in place for the next camping season.
- 5.2.18 An electrical upgrade at the powered camping sites has been completed.

### **CAMPGROUND**

- 5.2.19 Poplar removal prevented the Kererū campground opening at Labour Weekend, while the Kahikatea Campground was able to operate all season. Although the season was delayed until just before Christmas, numbers of campers to the end of January were 5,660 adult nights, and 3,003 child nights for the season, which is only slightly below the level budgeted for the period.

### **TŌTARA RESERVE ADVISORY GROUP**

- 5.2.20 The development of Terms of Reference for the group and a strategy for Tōtara Reserve are tasks to be undertaken once the priority work of poplar removal and remediation of the site are completed, along with water supply upgrades and other health and safety actions.

#### **Reports produced**

Clapcott, L. (2021). *Pest Plant Review and Recommendations for Tōtara Reserve*. Draft completed, a link to the final document will be provided once finalised.

Hurley, D., and Smillie, R. (2020). *Pest Control Programme for Tōtara Reserve*. Horizons Regional Council Report, 2020.

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