Mamaku Point
CONSERVATION RESERVE

ANNUAL OPERATIONS REPORT
November 2022

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Executive Summary

The twelve months to November 2022 have been another busy period within the Reserve.

Over the last year we have:

- completed the construction and fit-out of the new 24-person bunkhouse
- undertaken initial maintenance on the 15,000 native trees that were planted over the 18 hectares of coastal faces in August 2021
- commenced construction of a new access road to the school camp facility
- facilitated the establishment of two fabulous PurePod accommodation units within the Reserve
- witnessed the rehabilitation of the first yellow-eyed penguins through the new recovery centre
- suppressed the worst rat insurgence we've experienced to date (common across the island)
- introduced a variety of new high- and low-tech biosecurity tools to our pest control toolkit

These projects are all outlined in greater detail later in this report.

The challenges around Covid-19 were still being felt at the beginning of the year, with volunteers being few and far between, and Covid-19 also caused several school groups to postpone their camps. Fortunately, most schools have been able to re-book between October and December.

We're still fortunate to have an extremely dedicated on-the-ground biosecurity team in Antony Simpson and Ernie Mason, and now also Matt Hare. They are ably supported by Eddie and Miley (Ant's fox terrier team). Together with Ange Simpson looking after the camp and our much-valued volunteers and financial supporters, they have all enabled us to maintain the predator-controlled status of the reserve and progress our key projects and objectives.

Introduction

Mamaku Point Conservation Reserve is a located on the north-eastern coastline of Rakiura Stewart Island, Aotearoa New Zealand. This special bioreserve makes up most of a 174-hectare headland and is enclosed by a 2.1km long ecologically engineered predator-proof fence to inhibit the movement of non-native mammals from the surrounding area.

Our vision is that Mamaku Point Conservation Reserve is and remains a healthy, predator free, and self-sustaining indigenous ecosystem, where visitors and school groups can experience nature at its best.

Our primary focus is to conserve and enhance the health and diversity of native flora and fauna within the Reserve, by ensuring that the biosecurity is maintained, and by re-introducing and protecting endangered native species not currently found within the Reserve. Our secondary objective is to facilitate education, eco-tourism, research, and public awareness of the importance of restoring and conserving our native flora and fauna.

Within the sanctuary we undertake significant pest control, with an extensive grid of protection in place, including monitoring of the fence security, monitoring of traps & bait-lines, and trail-cam video surveillance.

Mamaku Point school camp facility

Mamaku Point is managed by the Mamaku Point Conservation Trust, an incorporated charitable trust and registered charity, which is focused on:

- maintaining and enhancing biodiversity within the reserve.
- making the reserve accessible by the public for conservation education and eco- tourism activities; and
- working toward the financial and environmental sustainability of the reserve's operations.

Supporters

Responsibility for the day-to-day operation of the reserve rests with General Manager Antony Simpson, and Biosecurity Rangers Ernie Mason and Matt Hare, supported by many advisers and volunteers who give their time generously, working toward the achievement of the Trust's objectives.

We would like to acknowledge and thank the following people for their contributions over the last year:

- Phillip Smith and Prof. Phil Seddon for their sage advice, and time, as Trustees.
- The biosecurity team in Antony Simpson, Ernie Mason, and Matt Hare.
- Ange Simpson for looking after the camp and PurePods.
- Rachel Thompson, for her time and perseverance as Funding Manager.
- Roy Thompson for the many hours he spends ensuring the smooth operation of the Trust and Reserve.
- The team at DOC Rakiura for their continued support.
- SIRCET for their advice, information sharing and for their help organizing the lizard talk with Trent Bell in Oban on the 27th of October.
- Bridget Carter for her help installing and monitoring the ground temperature loggers.

The Trust also received invaluable support this year from several financial supporters, who have been critical to progressing the objectives of the Trust and the individual projects ongoing within the reserve, and to whom we cannot give enough thanks, specifically:

- **Environment South**, who granted $4,072 toward tree maintenance, herbicide and weed matting, and a further $20,000 to enable the Trust to employ an additional biosecurity ranger (Matt Hare) to share the biosecurity workload alongside Ant and Ernie and allow increased focus on biosecurity upgrades.



- **WWF New Zealand in partnership with the Tindall Foundation**, who granted $12,000 toward a lizard survey.
- **Aotearoa Gaming Trust**, who granted $8,000 toward mattresses and bunkhouse materials.
- **Community Trust South**, who granted $5,000 toward mattresses and decking materials.
- **Pacific Development & Conservation Trust**, who granted $4,480 toward improved public access to the reserve by replacing the opening mechanisms on the pedestrian gates, replacing the handles on the vehicle access gate through the predator proof fence and adding pin-pad entry to Lee Bay.
- **Lottery Environment and Heritage Committee**, who granted $17,117 toward upgrades to the two coastal ends of the predator proof fence, and the purchase of the thermal imaging camera and the live capture trap from The Cacophony Project.

New pin pad entry at Lee Bay

Volunteer group

Lawrence Lions Club volunteers

- **Stout Trust** (managed by Perpetual Guardian), who granting $15,000 toward materials to reconstruct degraded steps on the steepest section of the track connecting the school camp to Frenchman's Beach.
- **Estate of Noel Bulman**, who granted $5,000 to general purposes (the Trust plans to erect a memorial seat in a scenic spot in the future).
- **Southland District Council Community Partnership Fund**, who granted $1,000 toward the cost of the new access road.

Finally, the Trust would also like to acknowledge and thank the many businesses, volunteers and individuals who contributed to our projects this year, including:

- **Myell Smith from My Electrician** in Queenstown, who has enthusiastically volunteered his time and materials for the electrical work on the new bunkhouse, the lodge, and the soon-to-be constructed new storage shed for the Yellow-eyed Penguin Trust recovery centre.
- **PurePods** for partnering with Mamaku Point Conservation Trust to bring the PurePod accommodation units to the Reserve.
- **Nick Hubbard and his PurePod construction team** for building such fantastic structures.
- Thank you to **Geoff Booth** for gifting the BASF Selontra rodent bait.
- Thanks to **James, Dani and Kim from NZSIP**; **Jarad Voorkamp from JV roofing Ltd** and **Antony and Ernie** who put in many long hours of work towards the completion of the new bunkhouse.
- **Campbell Leckie and Bridget Carter** for involving MPCT in the Predator Free Rakiura journey and for applying for funding on behalf of all the relevant community groups.
- **Lawrence Lions Club** who undertook a working bee clearing vegetation along the inside of the fence.
- **Trent Bell formerly of Wildlands**, SIT student **Daron Titus** and volunteers for help with the lizard investigation.
- **Suz and Michael Turner and family** - for donating a freezer to the Yellow-eyed Penguin Trust and all their volunteer work.
- **Jesse Bythell** for her work with QEII.

Biodiversity

Objectives

The Trust's primary objective is to conserve and enhance the health and diversity of the native flora and fauna within the reserve.

Strategies

The Trust's 2022 flora strategies were to protect existing native flora, continue the control and removal of invasive non-native flora including gorse, macrocarpa, Darwin's barberry, gunnera, Chilian flame creeper and eucalypts, and to assist the rewilding of those areas that were previously cleared for farm grazing.

The Trust's 2022 fauna strategies were to protect existing native fauna, continue the control and removal of invasive non-native pests including cats, rats, possums, and deer, and to seek opportunities to re-establish other absent native species.

Highlights

Our biodiversity highlights this year included:

- Continuing to assess the feasibility of the reserve as a breeding habitat for tuatara (see below for more detail).
- Maintenance clearing around the 15000 native seedlings across 18 hectares planting project.
- Last season 8 yellow-eyed penguins | hoiho were rehabbed at the recovery centre within the reserve. One of the females that was underweight last season has been confirmed as breeding this season, which is very exciting. (See below for more detail).
- The return of at least three breeding pairs of Fiordland crested penguins again.
- In October 2021 Ian Davidson-Watts visited the reserve to investigate if there are any bats present. He recorded six long tailed bats along the fence line and circa 12 on Lee Bay Road beside our kiwi clearings. He's keen to do more work on establishing the size and health of our bat population.
- The Otago University researchers undertook research on stag beetles within the reserve in February. Stag beetle caches were discovered - although it is hard to tell if this is recent predation.
- Research on lizard abundance, the number of species present and habitat assessment within the reserve, undertaken by Trent Bell from Wildlands and SIT student Daron Titus. With help from Funding from WWF New Zealand and the Tindal Foundation.

- The fungi foray that came in 2021 have sent through a few images and we have also discovered some interesting fungi species throughout the reserve ourselves.




YELLOW-EYED PENGUINS

In 2020 we started working with the Department of Conservation and Sue Murray from the Yellow-eyed Penguin Trust to explore the feasibility of establishing a recovery centre for yellow-eyed penguins | hoiho within the reserve, and we're excited that the decision was subsequently made to go ahead with this initiative, which the Yellow-eyed Penguin Trust announced in their Nov 21 newsletter.

Antony built this wonderful recovery enclosure (see below), and the first 8 underweight penguins were rehabilitated during their moult in March. Now Antony, with Matt Hare, are in the process of helping the Yellow-eyed Penguin Trust build a storage shed to house their equipment. This should be completed by the end of summer '23. A big thank you to Suz and Mike Turner for donating the new freezer to house more fish for the penguins. We are looking forward to having Trudi Webster from the Yellow-eyed Penguin Trust returning for this season's moult between March and April 2023. Next step is to complete the 'soft release' area at Frenchman's beach.


TUATARA

As mentioned previously, the Trust is interested in the potential to establish Tuatara within the reserve, as there is a pressing need to find new habitats for tuatara in the face of climate change.

With funding from Pierre and Ziba de Weck the Trust was fortunate to be able to purchase 9 ground temperature data loggers last year, which Bridget Carter has kindly installed in three potential tuatara habitat locations around the reserve, so that we can assess the viability of these areas as breeding habitats. The data from monitoring these should be available by the end of the year.

Project: Preliminary monitoring to assess soil temperature for a potential tuatara translocation.

Three temperature data loggers have been installed at each of three sites within the Mamaku Point Conservation Reserve in 2022. The Trust identified three sites to assess within the Reserve: Nathan's Island, a site near Bob's Cove and a clearing near Lee Bay. Three loggers were installed at the clearing near Lee Bay on 23rd January 2022, three on Nathan's Island on 23rd March 2022 and three at the headland of Bob's Cove on 23rd March 2022). Each waterproof HOBO Pendant Data Logger, set to record temperatures for an approximately 12-month duration, were dug down approximately 50mm deep into the soil, tied to a non-perishable cord connected to a stainless-steel peg with bright marker triangle. GPS locations, distance above sea level and photos of each peg site were recorded. Flagging tape was secured on nearby shrub / tree to help relocate the pegs in future. Loggers will be retrieved in January and March 2023 with an intermediate check of logging of one logger per site planned in summer 2023. Thank you to Assistant Research Fellow Anne Besson of the University of Otago and tuatara ecologist Scott Jarvie of Otago Regional Council who have provided helpful advice, to Ant and Ernie for providing help and access to sites.

Temperature logger inserted into ground on Nathans Island

Flora

There was an abundance of berries this year with the hot dry summer and the Orchards were out in force as well. We came across this beautiful specimen of dendrobium cunninghamii or bamboo orchard, which was around 3 meters long and was almost hanging to the ground (see below left). Aside from the dry conditions putting a strain on our new coastal seedlings, the other downside to the dry year was that the ground was so hard that we didn't see many Kiwis around, they most likely stuck to the streams further in the bush and beaches.




Native planting

The Trust continues to plant the area around the camp, to maintain the seedlings in Lee Bay and on the Billion trees planting area. With help from Environment South, we now have weed mats to keep the weeds down around some of the trees. Next step is to plant around the new road leading to the camp.

In February this year Erica Walley did an inspection for the Ministry for Primary Industries One Billion Trees project, with the result that after several years of hard work the Mamaku Point Conservation Trust has successfully completed the ecological restoration planting project, apart from ongoing maintenance.

A quick summery of the project – we hand raised most of the plants at our nursery from seedlings collected on the reserve. It took 5 hours to airlift the plants to the site. Then in September 2021, planters from Native Solutions worked alongside volunteers and SIRCET to plant 15,000 stems across 18 hectares, over 9 days.

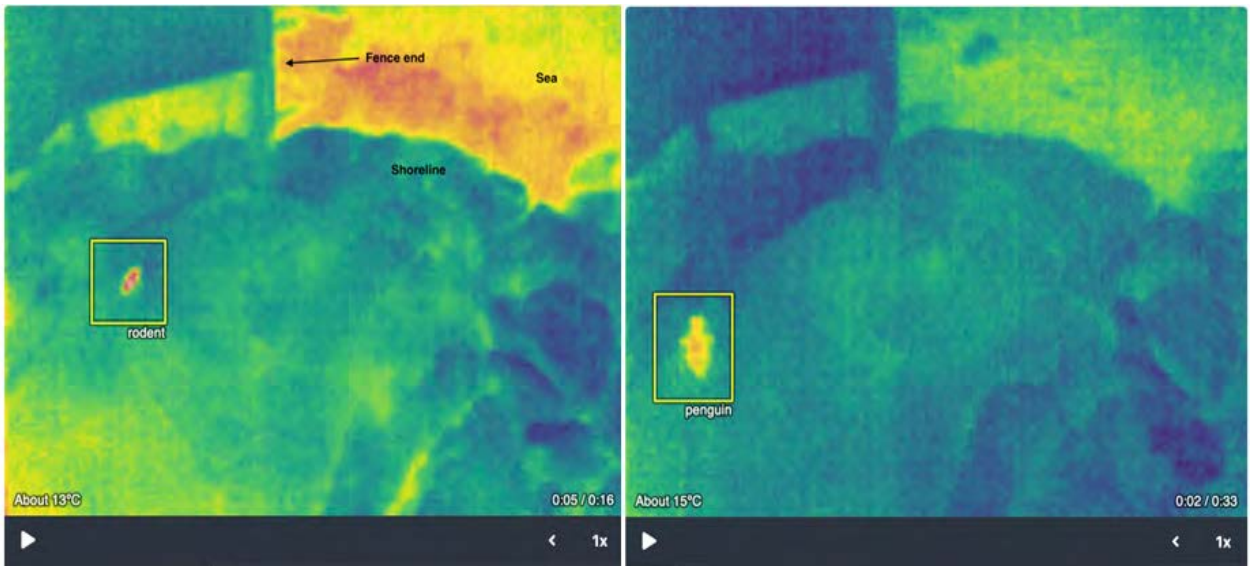
The plants are looking very healthy in most areas, despite a very dry year. We are now stomping and clearing the long grass down around the plants and spraying around the stems in the wetter, shaded areas. Moving forward we plan to infill any gaps with Rimu, Rata and Miro once the colonizing species take hold.

Thank you once again to everyone who pitched in. We couldn't have done it without help from Steve Black, Rosie Bowman, Maggie, SIRCET, TREK and many other volunteers, Suz Turner and family, Ernie and especially Ange, Tai and Antony Simpson.

BIOSECURITY

The ongoing control of non-native mammals is critical to the health of both flora and fauna within the reserve, and is enforced through a strategy involving three lines of defence:

- The first line of defence is provided by the biosecurity fence. However, as the fence terminates at the high tide mark at each end it is possible for mammals to swim/walk around the fence ends at low tide.
- The second line of defence is provided by fenced cells on the reserve side of each end of the fence. These cells act to contain any rats, cats and possums making it around the fence ends with a high density and diversity of traps within a small space.
- The third line of defence is provided by trapping and baiting throughout the property and immediately outside the biosecurity fence.
- In addition to the three lines of defence, we have also historically trapped and baited for cats, rats and possums outside the biosecurity fence to minimise the pressure on the fence in the first instance. Overlaying the three-lines of defence biosecurity strategy, the Trust maintains the following priorities:
- A zero-tolerance policy in respect to cats within the reserve. Should cats be sighted, or any sign of cats be detected, the animal(s) will be found and destroyed as a priority.
- Ongoing rat and possum baiting within the reserve.
- In respect to our biosecurity activities, highs and lows have included:
- In July we added a second Cacophony Project thermal camera, equipped with artificial intelligence (AI), to our arsenal of biosecurity weapons. The camera purchased for Lee Bay in 2021 was found to be an invaluable asset, with a few tweaks, and now we have the same capability to monitor the Horseshoe Bay end of our predator proof fence. This camera has proven effective at identifying creatures exploring the area between the fence end and low tide mark, some of whom are unwelcome, such as the rat identified on the left below, but others are very welcome like the little blue penguin identified on the right below:



Over the course of this year, we've experienced several incursions into the reserve by feral cats. Cats are notoriously difficult to remove from bush reserves like Mamaku Point, so it is a credit to Antony and his fox terrier team that there is now no evidence of cats within the reserve at the time of this report.

- Our network of Celium remote trap monitoring nodes remains a key tool in helping us maintain a cost-effective biosecurity network. SIRCET and DOC are now using the same system, running off our hub signal, so this is a good collaborative initiative.
- A small number of possums have made it around the fence end at Lee Bay and Horseshoe Bay, and possibly via a vehicle that was parked too close to the fence – this is something to consider when the pedestrian gate access track goes in near the camp. Thanks to Ant and his fox terrier team these have been quickly identified and dealt with.
- We are trialling a reduction of traps set on the outside of the fence for two months at present. The traps have been left in position while we decide whether this strategy will work. Our reasoning behind this is that the rats can only get into the reserve at the fence ends, so we want to maximize our time preventing incursions at the fence ends, in the cells and tracking down anything that does gain access to the reserve, rather than using valuable hours trapping along the outside of the 2.1km fence.
- The combination of an intensive network of rat traps around the fence ends, coupled with the network of bait stations and traps within the reserve, remains effective at suppressing rat numbers within the reserve. Higher levels of rat activity were detected within the reserve over winter this year, which isn't surprising considering the numbers of rats being reported in broad day light outside the fence in all locations. Several other trapping groups on the island have also experience this increase.
- We currently have significant challenges around all three species of rats. This provides an excellent opportunity to test control tools, including potentially new techniques like norbormide, and the impact of techniques against all three species simultaneously in a fenced sanctuary environment. The new bait we are trialling at present is Selontra, manufactured by BASF. It seems to be working extremely well at this stage, but more trials and time are required to ensure this is the case. Selontra® is a soft Bait that combines exceptionally rapid and efficient control of rats. Unlike first and second-generation anticoagulants, its active ingredient is neither persistent or bio accumulative. It is rapidly metabolised by rats and breaks down quickly in the environment.
- The Predator Free Rakiura project is growing in momentum and Mamaku Point Conservation Trust is fully supportive. Their aim is to remove six predators from Rakiura / Stewart Island, the surrounding islands and rock stacks to create a nature haven for community and nature to thrive. They are currently putting a joint application in to the PF2050 fund with several other relevant community groups, including MPCT, SIRCET, The Rakiura Māori Lands Trust, Titi Islands, and the Forest Life Force Restoration Trust. This will ensure we all work collaboratively to make Predator free Rakiura a reality. This would be hugely beneficial to the Reserve if this project is successful. They aren't intending to include deer so we will always have the added benefit in protecting native plant species.
- We are in the process of numbering all the bait stations and traps with printed and barcoded stock tags and the Trap.nz app or a similar system to help us better track bait up-take. This, combined with the work being done to thoroughly clear the bait-lines of vegetation, should hopefully mean that conservation volunteers can also help check the bait-lines in the future.
- Over the last twelve months no more deer have made it into the reserve, which is extremely timely considering all the new seedlings on the coastal faces.

EDUCATION

OBJECTIVES

The Trust's second objective is to facilitate education, research, and public awareness of the importance of restoring and conserving native flora and fauna.

STRATEGIES

The Trust's strategy in respect to youth education is to proactively encourage the return of school and youth groups to the reserve, so that young people can gain first-hand experience and knowledge in respect to the biodiversity of our natural environment free of non-native mammals, and hopefully acquire a lifelong passion for the conservation of the natural environment. The Trust supports such groups by making the reserve and accommodation facilities accessible to them at minimal cost.

The Trust's strategy in respect to scientific and academic research is to proactively seek out those tertiary institutions, Government agencies and NGO's who are involved in researching methods of restoring and protecting the biodiversity of New Zealand's natural environment. The Trust supports and assists selected researchers by making the reserve accessible to them and by making the accommodation facilities available to them at a relatively low cost.

The Trust seeks to open the reserve to the local community, domestic visitors, and foreign tourists to promote a greater awareness and understanding of the biodiversity of our natural environment when freed of non-native mammals.

HIGHLIGHTS

During the year we completed the new 24-person bunkhouse at the camp (see below), replacing an old structure which dated from the '70s. The replacement of old sleeping facilities with the new highly insulated bunkhouse will be extremely energy efficient.

We were thrilled to be able to welcome 9 schools to the camp this year:

- Queenstown Primary school for a 5th consecutive year;
- John McGlashan College for a 4th consecutive year. Due to McGlashan purchasing its own camp in Te Anau, this is sadly the last year they will be visiting and they will be missed!;
- Tahuna Normal Intermediate for a 3rd consecutive year, with their highlight being that everyone who came on the camp this year experienced a kiwi up close and personal at the camp.
- St Pauls College from Hamilton visited for a service trip in October - a huge thanks to them for their volunteer hours;
- Girl Guides enjoyed their first visit in October and are bringing a second group of girls in January 2023. It's wonderful to see children from all over the country visiting the reserve including from Invercargill/Southland, Lake Tekapo, Napier, Wanganui, Auckland, Christchurch, Waikato, Wellington, Queenstown, New Plymouth, Tauranga, Palmerston North;
- Te Wharekura o Arowhenua from Invercargill are due to visit in December;
- Maniototo Area School is due in November;
- Steiner school from Dunedin are due to visit in November;
- Halfmoon Bay school are due in December for a night's sleep over.

Unfortunately, Lochiel school had to cancel at the start of the year due to covid and they were unable to re-book later on. St Gerard's school from Alexandra (who also postponed due to covid) are unfortunately coming to the island at the same time as another school already booked with us.

During 2022 approximately 711 people visited the reserve, including 9 school camp groups, casual visitors and kiwi spotting tourists guided by Ulva's Guided Walks. These number don't include PurePod guests. This number is much lower than would have been the case without postponements and cancelations caused by Covid-19 at the beginning of the year. We also had the camp occupied for two months while the PurePods builders were on site.

PurePods

This is next level "glamping": two luxury cabins in secluded areas on Mamaku Point Reserve have recently been built within the predator proof fence. PurePods aim to offer visitors a sense of adventure and going off-grid in style. It is not until guests' book that they get directions to the cabin's exact location – this is part of the exploration and why they are drawn to visit New Zealand and Rakiura. The cabins include all you need– a bed, toilet, cooking hob and fridge, all solar powered. PurePods are geared for couples seeking a romantic getaway. The Rakiura-based cabins – named Hananui and Tokoeka – are two of nine throughout the country.

SUSTAINABILITY

OBJECTIVES

The Trust's third major objective is to work toward environmental and financial sustainability in all aspects of its operation.

STRATEGIES

The Trust's environmental sustainability strategy is to apply best-practice energy use in its operations, including minimising the use of non-renewable energy, which is particularly challenging on Stewart Island, given that the local electricity supply remains 100% non- renewable and the Island receives relatively low sunshine hours. The funding of solar panels may be a consideration in the future to reduce the burning of wood. The Trust aims to minimise the generation of non-recyclable waste and to ensure that the environment within the reserve is as pristine as possible.

During 2022 our environmental sustainability activity has focused on these areas:

1. Cementing the energy and water efficiency plans put in place previously:
2. The continued removal of defunct plant, equipment, fencing, and rubbish left over from the days when the property was an operating farm, which is now almost complete.

The biosecurity of a privately-owned conservation reserve such as Mamaku Point is always vulnerable to uncertainty of funding, so the Trust unashamedly strives for financial sustainability. The Trust therefore looks for financial contributions from visitors to the reserve and proactively seek grants and other donations toward its biodiversity and education objectives. The Trust aims to be financially self-sustaining by 2025.

HIGHLIGHTS

PUREPODS

The Trust has leased two small sites in Lee Bay to PurePods for the next 30 years, and the annual lease fees will provide an important contribution toward the cost of maintaining the Reserve into the future.

CARBON CREDITS

The Trust planted 18 hectares in native trees with the support of the Ministry for Primary Industries Billion Trees program in 2021. This land has now been registered with NZ's ETS program and the resulting carbon credits will provide an important contribution toward the cost of maintaining the Reserve into the future.

SCHOOL CAMPS

At this early stage we are anticipating at least 12 school camps in 2023, this income from which will also provide an important contribution toward the cost of maintaining the Reserve into the future.

KIWI SPOTTING TOURS

Ulva's Guided Walks continues to have a steady stream of visitors, with 249 people joining their kiwi spotting tours between January and August 2022.

GRANTS

The Trust has been fortunate to have received $91,669 in grants and donations toward specific projects from external donors and funding partners over the last 12 months. The shortfall between the total costs of maintaining the reserve and the grants, donations and other income received was donated by Earnslaw Family Trust. The Trust is grateful for the support of the organizations acknowledged in the Introduction section. Without the support of these organisations, achievement of the objectives outlined in this report would not be possible, so a huge thank you from all reserve residents and stakeholders.

FUTURE FUNDING PRIORITIES

Biosecurity

1. biosecurity labour, bait and lure costs
2. additional trail cameras to identify pest incursions and assess kiwi population
3. fence additions such as access hatches and a new vehicle gate
4. vegetation clearing equipment

School camp

1. connection of the school camp to the sewer network and decommissioning of the old septic tank system
2. resurfacing camp footpaths
3. conservation educational resources
4. repainting the school camp buildings
5. An upgrade of the ablutions block

Conservation

1. hiring a part-time translocation specialist
2. materials for walking and biosecurity track upgrades along the fence, at Frenchman's Beach and along biosecurity lines 12 and 13, including signage
3. removal of the old farm fences throughout the property

Sustainability

1. installation of solar panels to reducing reliance on the Island's diesel-generated electricity, and the use of firewood for heating
2. debt funding to allow the Trust to purchase 50% of the PurePods and hence generate an increased revenue stream