



KIWI SURVEY

PIROA CONSERVATION TRUST

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TABLE OF CONTENTS

INTRODUCTION	3
OBJECTIVE	3
METHODOLOGY	3
SURVEY SITES	4
ADVOCACY	4
DATA ANALYSIS	5
RESULTS	6
PEST CONTROL AND KIWI PROTECTION	9
DISCUSSION	10
RECOMMENDATIONS	12
ACKNOWLEDGMENTS	13
REFERENCES	14

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PIROA CONSERVATION KIWI SURVEY

2023-2024

INTRODUCTION

The kiwi survey has continued this year following the initial work done in 2022-2023. This report updates the original Kiwi Survey Report, which provided an excellent baseline for the detection/non detection of kiwi throughout the High Value Area (HVA) of the Piroa Brynderwyn Ranges. This year's survey was conducted over 9 months, from October 2023 to June 2024, with some new sites and some previously surveyed ones.

OBJECTIVE

The objectives remain the same: to gain knowledge of the presence of kiwi throughout the High Value Area of the Piroa Brynderwyn Range. The results will enable us to:

- Provide advocacy to landowners and the community.
- Produce maps showing the spread of kiwi.
- Ensure that best practice predator control is focused in areas with birds present.
- Provide information for use in future planning and development in the HVA area

METHODOLOGY

Using the same methodology as the previous survey, Kiwi Listening Devices (KLDs) were set to record for 8-12 hours per night (from dusk to dawn), depending on the season. These devices were secured to trees by a bungy approximately 2 meters from the ground. Sites were chosen to avoid noise (such as running water or rustling nikau), provide a large listening area, and be just below ridge lines to avoid the worst winds.

SURVEY SITES



Sites were chosen for various reasons: some were new areas, some followed public reports of hearing birds, and others were reassessed. The HVA is a large area (23,500 ha) with much of it inaccessible, so sites were concentrated around road ends or properties where landowners gave permission. Most landowners were excited about the possibility of kiwi being present on or near their properties, and all but one were happy to have devices placed in the best areas to pick up calls.

ADVOCACY

Confirming to local landowners that kiwi live on or near their properties is an excellent advocacy opportunity. It gives people a real sense that their conservation work is making a difference and encourages involvement in efforts to ensure the local kiwi population thrives. During this survey, kiwi were confirmed on some large subdivisions where not all residence had been committed to containing household pets or participating in pest control. This information is invaluable for educating and encouraging others to get involved in conservation efforts.

Social media reports showing maps of kiwi presence have increased public feedback about hearing kiwi calls and encouraged discussion and excitement about having kiwi in the area. Not all public reports (and subsequent device placements) were from likely kiwi habitats and resulted from hearing birds such as morepork. However, encouraging people to think and talk about kiwi is a positive outcome.



In June, a stall at the local market displayed taxidermied pest animals and a map showing kiwi presence. These proved very interesting to visitors, with many exclaiming that they hadn't realised kiwi were so close.

A visit to the Enviro class at Mangawhai Beach School was a great chance to engage with young people who are all keen and already working on the school trapping line.

They were eager to see where kiwi were living, learn about a KLD and the spectrogram it produces, and other types of kiwi conservation such as the Operation Nest Egg program.

These young people are the future of conservation and pest control, and being able to encourage and educate them at a young age is a great opportunity.

DATA ANALYSIS

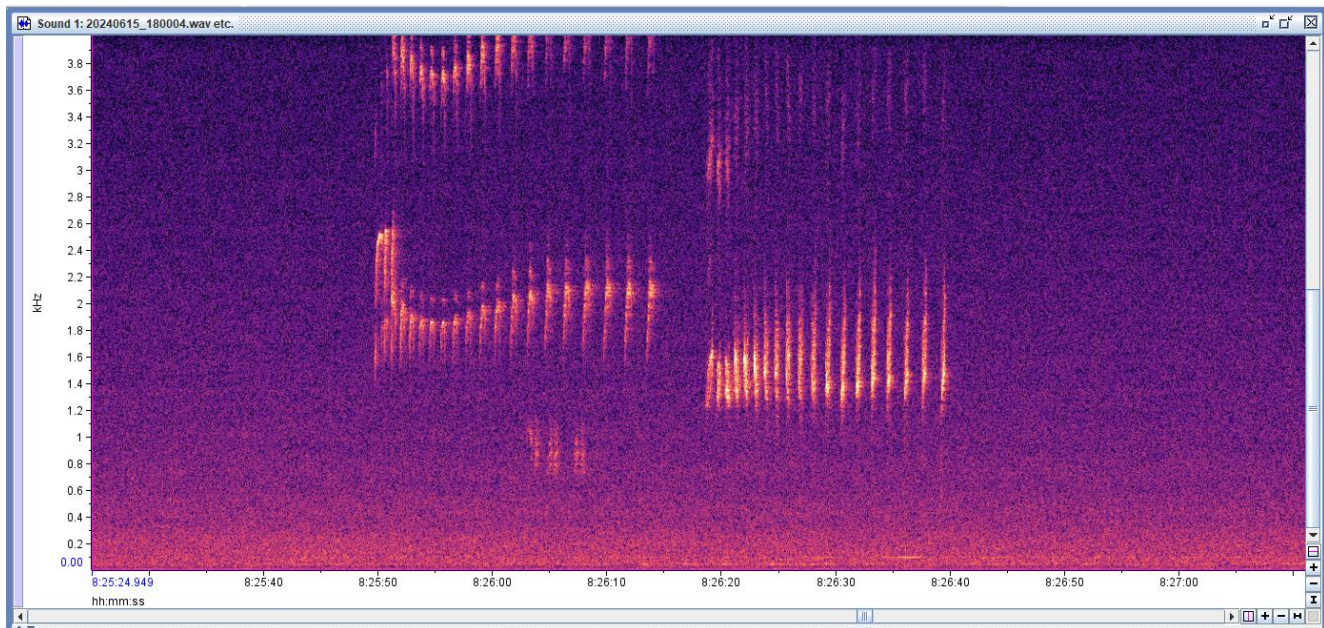
The KLDs were left in place for approximately 7 nights, depending on the weather, with the aim of 4-5 clear nights. They were set to record from dusk to dawn. The information was recorded on removable SD cards, which were then downloaded and saved to a hard drive.

To analyse the data, we initially used both Raven Lite from Cornell University (a program that produces spectrogram images to enable visual determination of bird species calling) and AviaNZ (a listening and analysis program developed by DOC along with NZ universities that uses AI to determine bird species). After comparing results, we found Raven to be more time-efficient and accurate for our requirements, so it was used exclusively. Avia missed distant calls and sometimes

struggled to distinguish between morepork, cars, and kiwi, making it inefficient to use.

The Raven program allows a large amount of data to be scanned quickly, the devices record everything (rain, wind, other bird calls, airplanes, etc.) and produce a visual spectrogram pattern for each sound. Morepork calls can be very close to kiwi calls and produce a similar pattern, so care must still be taken to ensure there is no confusion.

Each night's data was analysed with the objective of hearing both a male and a female call. Male calls were much more frequent, males call more often and their high shrieking call travels better than the female's more guttural call. Once the presence of both sexes' calls was confirmed on a device, we stopped analysing further data as the objective of detection/non detection had been determined. This means that on some devices where both calls were detected early, perhaps only one night's data was processed, while on others, all seven nights were analysed.



Raven Pro spectrogram. Male kiwi call followed immediately by female. Duet recorded near Cattlemount trig.

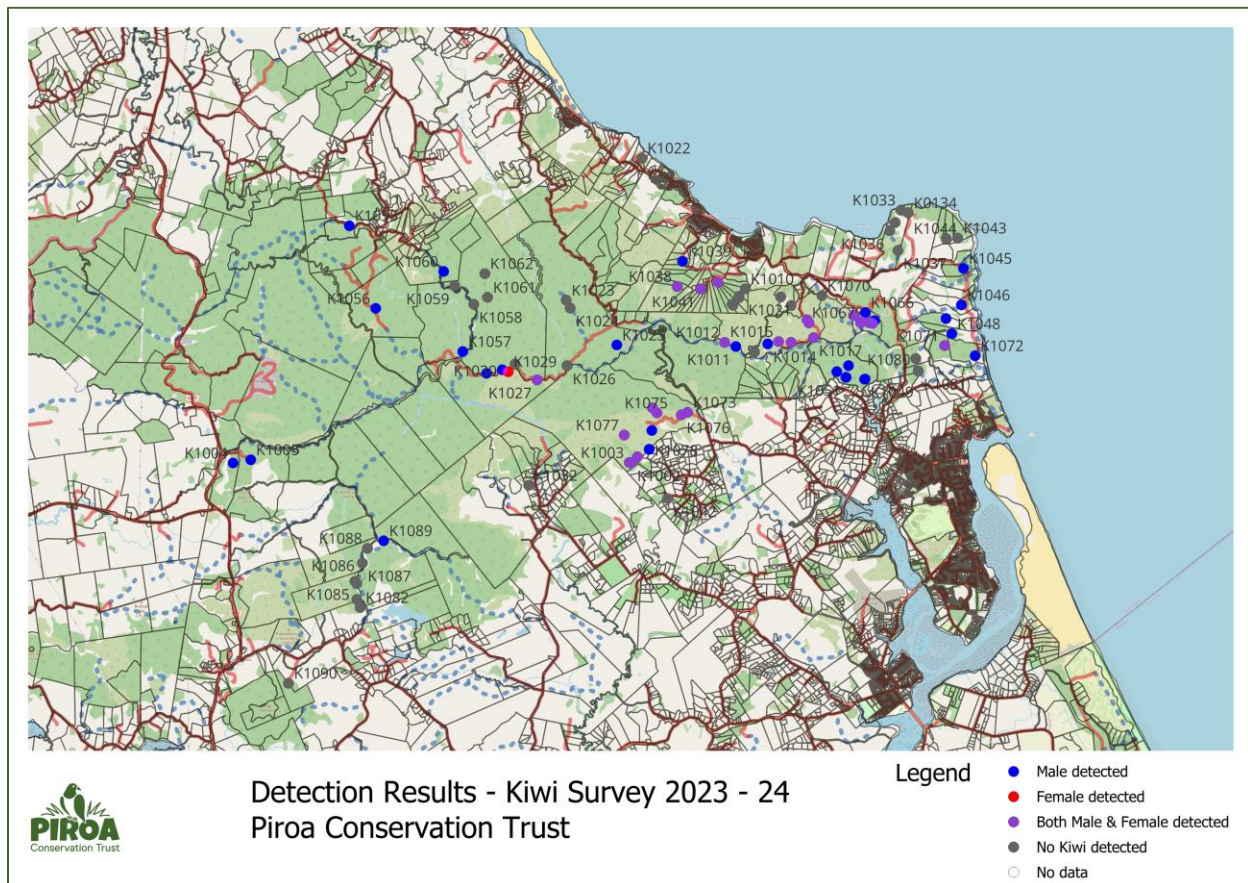
RESULTS

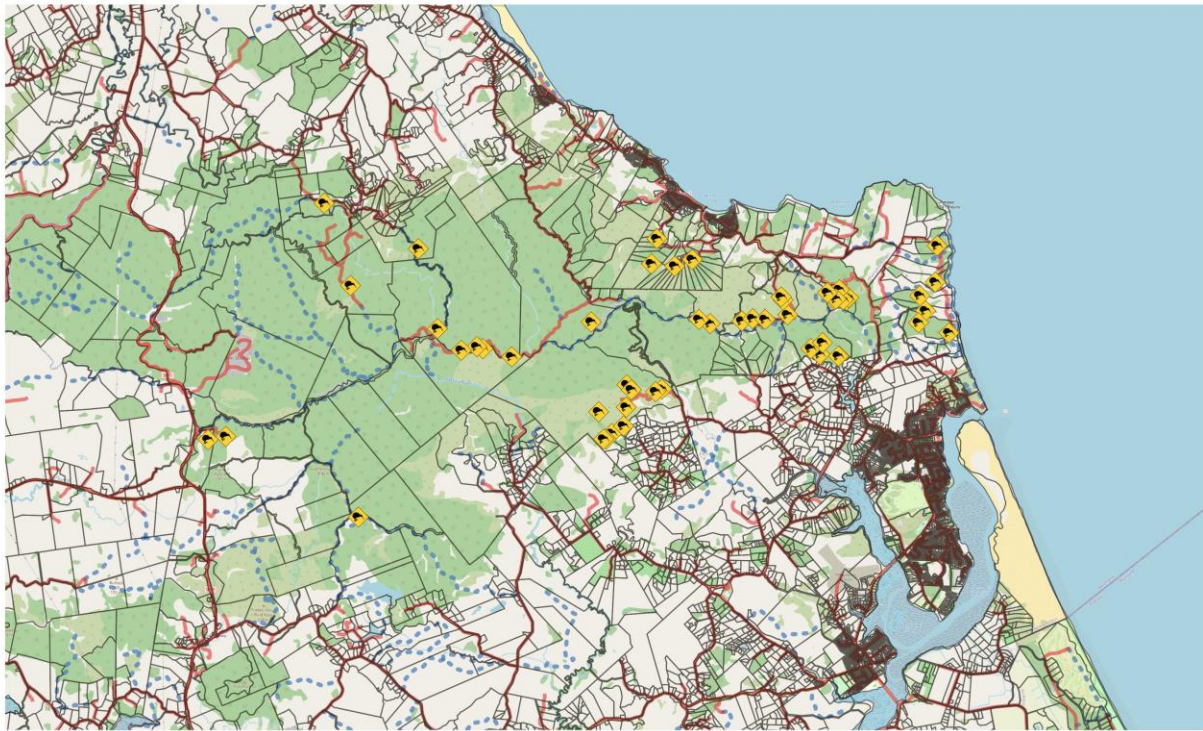
- 90 devices were installed in locations all over the Brynderwyn Ranges.

- Calls were recorded on 54 of these devices, resulting in 60% detecting kiwi presence.
- One device malfunctioned and did not record any data.

Of the devices that picked up calls:

- 28 recorded only male calls.
- 25 picked up both male and female calls.
- 1 picked up only a female call.
- 27 duets (usually females answering male calls) were recorded, though there may have been more. As previously explained, once the presence of both sexes was found, further analysis was not conducted.

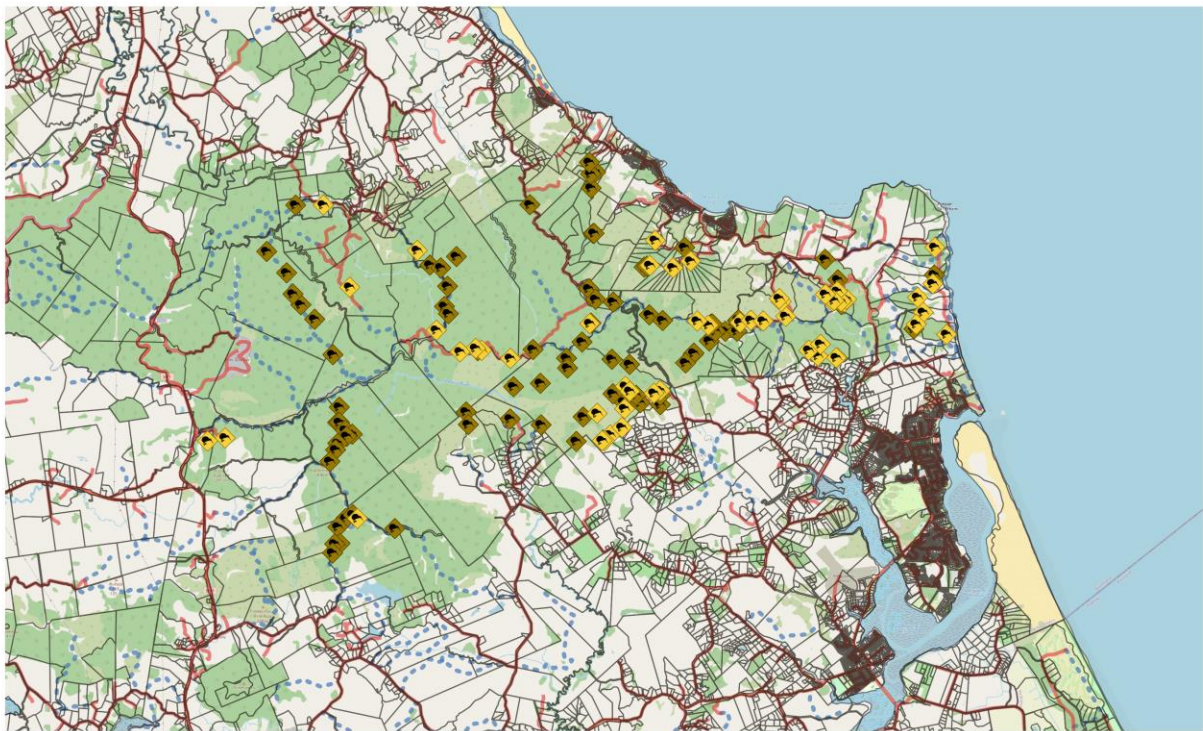




Kiwi Presence Survey 2023 - 2024
Piroa Conservation Trust

Legend

- ◆ Kiwi Presence 2023 - 24



Kiwi Presence Survey 2022 - 2024
Piroa Conservation Trust

Legend

- ◆ Kiwi Presence 2023 - 24
- ◆ Kiwi Presence 2022 - 23

This data can be viewed by requesting to join project on Trap NZ

Project name: Piroa Conservation Kiwi Survey

link: <https://www.trap.nz/project/12294657/join>

PEST CONTROL AND KIWI PROTECTION

Predator control is the most important thing that we can do to protect our kiwi populations, and being able to map where birds are means that we can concentrate our intensive control efforts to protect critical areas of habitat around known populations. Unmanaged populations of North Island Brown Kiwi are declining by 2% per year, this is mainly due to adult kiwi being killed by ferrets, feral cats and dogs and chicks being killed by stoats and feral cats. In areas with no or minimal pest control 95% of kiwi chicks die before they reach the age of 6 months. In areas with intensive predator control the survival rate increases to 50-60% (Robertson, Guillotel, Lawson, & Sutton, 2019), in order to sustain population levels we need a survival rate of over 20%. (Save the Kiwi, n.d.). Predator control to protect kiwi focuses on mustelid control and the removal of stoats, weasels, ferrets and feral cats through trapping and targeted toxin use. While stoats are a main predator of younger kiwi, once birds reach the weight of 1.2kg, they are considered stoat-proof. However, this does not mean we can relax our pest control efforts, we need our birds to be breeding to maintain our population, so continual intensive control is essential to ensure that chicks are protected.

Spring and over summer is when trappers in kiwi areas need to up the ante on their work, to protect as many wild-bred chicks as possible.

Ferrets are the largest of the mustelid family, while we do not have many reports of ferrets being seen or caught (one was caught on the Waipu side a few months ago), they are lethal to kiwi at all life stages as are and feral cats with both becoming more common throughout the country (Save the Kiwi, n.d.). Continuing to raise awareness so that if a ferret or feral cat is spotted an intensive response can be

initiated is extremely important, to encourage this Piroa has a \$100 bounty reward to any reported sightings or catches of ferrets.

Mustelids and feral cats can easily become trap shy with any unsuccessful encounter with a trap but by following best practice techniques and using all the tools, techniques and technology available to us we can make headway and eliminate even trap shy animals giving our native wildlife the best chance of success. Reducing mice and rats means more insects and seeds for bird life and nests are more likely to survive, reducing mustelids and feral cats results in safer ground dwelling birds. Reducing possums means a healthier forest canopy leading to a deeper leaf litter, which in turn protects the kiwi (especially in drought prone northland) by providing a shaded forest floor that is easier to probe into.

DISCUSSION

Kiwi are a key species in New Zealand's ecosystems, their presence can help maintain and enhance biodiversity by contributing to the balance of the ecosystem. Kiwi are considered an indicator species, meaning their presence and health can provide valuable information about the overall health of the ecosystem. If the environment is safe for kiwi to breed and chicks are not predated, then all other native birds are placed well to thrive. It is also vital to note that kiwi chicks do not call until they reach breeding age so reducing or stopping focused predator control and still hearing kiwi does not mean the environment is safe.

This survey has increased our knowledge of the spread of kiwi throughout the Piroa Brynderwyn ranges. Birds were confirmed from SH1 in the west to Bream Tail Farm on the east coast. It is not easy to make a clear comparison between the two surveys as not all of the same sites were resurveyed, some new sites were used and surveys were completed at different times of the year. However, we can ascertain that kiwi are spreading further throughout the ranges and are being found in some places where they were not previously, such as the hills behind The Sanctuary development (in the 22/23 survey, no birds were identified in this area). Conversely, birds were not located in all areas they had been found previously. For example, in the hills behind Brooklands Way in the Baldrock area, 9 devices were

placed in 22/23 and 5 devices picked up calls, whereas in the 23/24 survey, 8 devices were placed and only 1 picked up (very distant) calls. This could be due to many reasons, including changes in territories, different recording seasons, phases of the moon (both sexes are known to call less at full moon), or the age of the birds as chicks and juveniles rarely call. These sub-adults only begin calling when they get to breeding age, in males this is approx 18 months of age and in females can be 3 years.

It is important to keep in mind that detections are an indication that kiwi are in the area, it is not possible to ascertain if it is the same or different birds calling at each spot. Some devices picked up calls that were heard on other devices as well, so we can't estimate the number of birds from these results. With the right weather and terrain conditions, some calls could be heard over a kilometre between different devices, but with the timing of calls, we could tell it was the same bird calling. Of course, some detections were different birds calling, and some were the same birds calling repeatedly. Non detections mean calls were not confirmed but for previously discussed reasons does not necessarily mean that no birds are present.

Dogs are one of the main killers of adult kiwi in Northland and are heard quite often on call detectors. Any dog can kill a kiwi, even the most docile of family pets. Kiwi have a strong enticing scent and lack a keel and the strong flight muscles on their chest that other birds have, making them very vulnerable to crush injuries.

Conducting the survey and speaking with landowners is a great opportunity to educate them on the importance of dog control and not letting dogs wander out of sight in and around any kiwi habitat. When kiwi are present in the area, they don't necessarily stay in the bush; they can be in long grass, a culvert at the side of the road, under pampas grass or gorse bushes or in pine forests.

The aim is that your dog should never meet a kiwi in the wild. Our Know Your Dog workshops are an excellent way to upskill pet owners on ways to keep our wildlife safe while out and about with your dog. Working and hunting dogs will benefit more from kiwi avoidance training.

Recently, three kiwi have been sighted on the side of Cove Road. Two were together at the south entrance of Bream Tail Farm and The Sanctuary gates, with another

close to the Robert Hastie Reserve sign a little further north on Cove Road. One of the consequences of having more kiwi in the area can be an increased death rate on the roads (this is another large killer of kiwi in Northland). This shows how essential it is that drivers are aware they are driving through kiwi habitat and don't aim to run over any dark shapes on the road, thinking they are possums. For several months this year Cove Rd was State Highway 1 with much increased traffic loads, being able to alert drivers that they are in kiwi habitat is an important measure to avoid road deaths (fortunately none were reported in this period). Mapping kiwi presence gives us the opportunity to increase awareness with more signage in hotspots that we find, such as the gorge between Mangawhai and Waipu. The Piroa Conservation Trust is working with Kiwi Coast to install billboards to spread the message to take care on our roads.

REQUEST FOR SPONSORSHIP OR DONOR SUPPORT

Continuing with this survey in the coming years will continue to provide invaluable information to support our ongoing planning and operations. The results are useful for motivating public and recreational users of the ranges to undertake trapping, control dogs, and drive carefully at night through kiwi habitat. Filling in gaps in our knowledge of kiwi presence allows us to concentrate intensive pest control in and around the areas we know birds reside.

The Piroa Conservation Trust is eager to engage organisations, businesses or private donors to help fund this very non-invasive method of monitoring the population and ongoing work and even expand the survey parameters and community advocacy/awareness raising.

RECOMMENDATIONS

1. Continue providing local community trapping and Know Your Dog workshops to educate the public. People are more likely to participate in predator/dog control if they see tangible results such as the presence of kiwi.
2. Survey more of the interior of the ranges and fill in some of the gaps in our knowledge of kiwi presence. This could be achieved by collaborating with the

commercial trappers who are regularly visiting the more remote areas of the HVA to place and retrieve devices.

3. Continue and increase our advocacy via social media channels and roadside signage by using updated information to inspire and educate.
4. Continue our intensive predator control and increase the areas across the HVA that we are protecting. Kiwi move across the landscape, young birds need to find new territories so we also need to protect areas that we are not yet detecting birds in, and we need to protect our breeding age adults to grow our population. The added benefit is that protecting kiwi means we are protecting all of our local wildlife!
5. Share our knowledge with others to benefit the wider community. Our results can contribute to planning and development decisions around the HVA and collaboration with ecologists and other conservation groups increases understanding of the health of our local environment.
6. Standardise some survey locations to make annual comparisons more accurate. To be able to make better comparisons between results of the kiwi survey we could use the same technique as used for the 5-minute bird counts. This entails using the exact same sites at the same time of the year to be able to more accurately see trends, make comparisons and evaluate the effectiveness of our active stewardship of the HVA area.

ACKNOWLEDGMENTS

As the report author (Deb Searchfield) I would like to thank all of the local landowners that allowed us access to their properties along with the team that have actively worked on the project; Ian Fish, Peter Hunt, Graeme Giles, Adele Mangnall, Ann Neill, Simon Walker, Steve Henderson, Jackie Fanning, and the children from the MBS Enviro Club.

A special thanks to Dr John McLennan for his review and valuable feedback.



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