

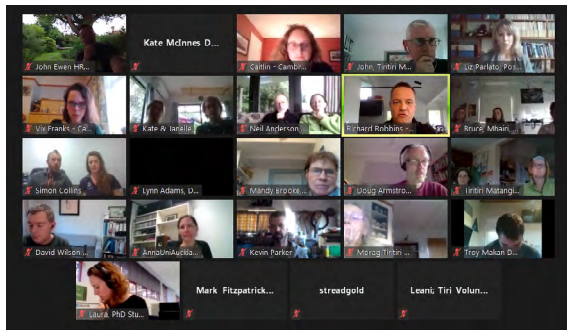


HIHI CONSERVATION 2020

www.hihiconservation.com

HIHI RECOVERY GROUP

We are a bunch of people that are passionate about hihi and tasked with guiding their recovery. To most effectively do this we are structured around two groupings, the Hihi Recovery Group (HRG) and the Hihi Conservation Charitable Trust (HCCT).



As the **HRG** we are an advisory group set up by the New Zealand Government through its Department of Conservation. Our model is somewhat unique to match the bird we work towards saving. Our membership is large and consists of representatives from the Department of Conservation, international and New Zealand based universities, conservation research institutions, local community conservation groups and iwi. This mix is viewed as an absolute strength. We have developed a clear and shared set of management objectives that we work together to achieve, using the best evidence-based management we have available.

The **HCCT** then provides us an additional support structure to achieving the recovery group's ambitious objectives. Our charitable purpose is to; (a) carry out and support conservation, research and education projects relating to hihi, (b) promote the conservation of hihi and (c) raise public awareness and appreciation of hihi. Trustees are drawn from the HRG and one of the trusts major contributions to date has been to fund the first ever Hihi Conservation Officer, Mhairi McCready.

The relationship between the HRG and HCCT? HCCT's mission is designed to fully support the national management objectives outlined by the Hihi Recovery Group. As a registered charity, it can seek funds to help achieve these goals.

WHO WE ARE

CHAIRS

Lynn Adams

Department of Conservation

John Ewen

Zoological Society of London

MEMBERS

Auckland Council:

Bruce Harrison
Matt Maitland

Auckland University of Technology:

Dr John Perrott

Bushy Park Trust:

Mandy Brooke

Department of Conservation:

Neil Anderson
Lee Barry
Jane Haxton
Troy Makan
Leani Oosthuizen - Volunteer

University of Helsinki:

Dr Rose Thorogood

Hihi Conservation Charitable Trust:

Mhairi McCready

Massey University:

Prof Doug Armstrong

Ngāti Manuhiri

Parker Conservation Ltd:

Dr Kevin Parker

Rotokare Scenic Reserve Trust:

Simon Collins
Fiona Gordon

Sanctuary Mountain Maungatautari:

Dr Janelle Ward

Shakespeare Open Sanctuary Society:

Maree Johnston

Supporters of Tiritiri Matangi:

Morag Fordham
John Stewart

University of Auckland:

Dr Anna Santure

University of Queensland:

Dr Alienor Chauvenet

Waikato Regional Council:

Dr Kate Richardson

ZEALANDIA:

Dr Danielle Shanahan
Freya Moore

Zoological Society of London:

Dr Patricia Brekke

STUDENT MEMBERS

Caitlin Andrews - Cambridge University & ZSL

Becky Downey - University College London & ZSL (Completed)

Laura Duntsch - University of Auckland & ZSL

Dr Victoria Franks - Cambridge University & ZSL (Completed)

Marjolein van Haaren - Wageningen University (Completed)

Ella Hamblin - University College London & ZSL (Completed)

Sabine Hoek - Wageningen University (Completed)

Alex Knight - University of Auckland & ZSL (Completed)

Dr Kate Lee - University of Auckland & ZSL (Completed)

Elena Mather - Royal Veterinary College London & ZSL (Completed)

Fay Morland - University of Sheffield & ZSL

Ashleigh Marshall - University College London & ZSL

Julia Panfylova - Massey University (Completed)

VISIT US ONLINE

www.hihiconservation.com

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OUR OBJECTIVES



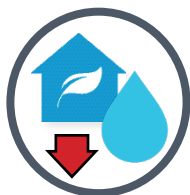
INCREASE THE TOTAL NUMBER OF HIHI NATIONWIDE

We aim to increase the number of hihi populations across New Zealand and the total number of hihi in them.



INCREASE THE NATURAL ECOLOGICAL SETTING OF THE HIHI

Nest boxes and sugar water are provided to help hihi survive and reproduce, but we want more natural sites without the need for these.



REDUCE THE COST OF MANAGING HIHI POPULATIONS

Managing hihi bears many financial costs which we want to minimise. Two major expenses are the provision of nest boxes and sugar water.



INCREASE AWARENESS AND APPRECIATION OF HIHI

We wish to raise the awareness and appreciation of hihi by local residents and visitors to New Zealand. This charismatic and striking bird is little known or understood—something we are working hard to change.

THANK YOU TO OUR SPONSORS

NATIONAL



Department of Conservation
Te Papa Atawhai

DOC Community Fund Pūtea Tautiaki Hapori

ROKARE



MAUNGATAUTARI



TIRITIRI MATANGI



tumbleweed

T-SHIRTS FUNDING CONSERVATION

BUSHY PARK TARAPURUHI



Pacific
Development and
Conservation
Trust

ZEALANDIA



Endangered
Species
Foundation



SHAKESPEAR OPEN SANCTUARY



GULF HARBOUR
COUNTRY CLUB



FOUNDATION
NORTH
*Te Kaitiaki Pūtea o
Tāmaki o Tai Tokerau*

HELP SAVE THE HIHI

Interested in sponsoring hihi recovery? Visit <http://www.hihiconservation.com> to find out more about the Hihi Conservation Charitable Trust, or email mhairi@hihiconservation.com.

THE HIHI

He manu ririki te Hīhī e noho kau ana i ngā ngahere o Niu Tīreni. I tēnei wā tonu, ka whakarōputia te manu Hīhī he manu mate haere ki tō te rautaki 'Threat of Extinction' o Te Papa Atawhai.

I mua i te taenga mai o tauīwi mā, ka rere whānuitia te Hīhī ki Te Ika a Māui whānui me ōna moutere. Heoi, i te paunga o te rautau tekau mā iwa, ka noho motuhake aua manu rā ki Te Hauturu o Toi. Nō te taenga mai o ngā kararehe tauhou, o te matē manu, me te muru kohanga, ka mate haere te Hīhī.

Mai rā anō ko te Hīhī he manu kaikai miere (te whānau manu o *Meliphagidae*), he whanaunga pātata ki te komako me te tui. Ahakoa tonu, he tūhuratanga anō tā te aronui 'Phylogenetic', he manu motuhake te Hīhī, ā, he tātai anō tōna ki tōna ake whānau, arā ko te '*Notiomystidae*'.

He rerekētanga motuhake tōna, arā, ka mahi ai te Hīhī kanohi ki te kanohi. He rerehua te tame o tēnei tū manu, he pango, he kowhai tea, he mā ōna tae. Kāore i te pērā te uha o tēnei manu, ka mau i a ia te kākāhu parauri, me ōna neko mā kei ōna parirau.

I te tau 1980, kā timata te mahi atawhai mō te Hīhī, nā wai nā wai, atu i Hauturu, e ono ngā wāhi whakamarumaru anō hei kāinga mō te Hīhī. Nā te mahi atawhai, ka nui haere te maha o ngā Hīhī, ahakoa tonu, he manu mate ā-moa tonu. Ko ngā kararehe kaikai manu, ko te matē manu, ko te korenga o te ira whakaurutau, me te rāweke kāinga ngā āhuatanga e whakararu ana i te orangatonutanga o te Hīhī.

The hihi is a small (30 – 40g) forest dwelling passerine endemic to New Zealand. At present the species is classified as nationally vulnerable under the Department of Conservation's 'Threat of Extinction' system.

Pre-European times, the species was distributed throughout the North Island and its offshore islands. However, by the end of the 19th century the only population that remained was that on Te Hauturu-o-Toi. The disappearance of the hihi was most likely due to introduced predators, habitat loss and disease.

The hihi was long considered to be a honeyeater (family *Meliphagidae*) closely related to bellbirds and tui. Phylogenetic analysis, however, has revealed that it is taxonomically distinct from this lineage and has been subsequently placed as the sole member of its own family, the *Notiomystidae*.

The species is also behaviourally unique, being the only bird known to copulate face to face. The males are one of New Zealand's most strikingly coloured birds with black, bright yellow and white plumage. Females are a less conspicuous brown colour but also have bold white wing bars.

Management of the species began in 1980 and there are now six reintroduced populations spread across northern New Zealand in addition to the remnant population on Te Hauturu-o-Toi. Under intensive management the hihi has been steadily increasing in numbers but is still at risk of extinction. Introduced predators, disease, the loss of genetic diversity and environmental disturbances continue to pose a risk to the long-term viability of the species.

FUN FACT

Hihi nestlings stay in the nest for a whole month – about 2.5 times longer than other NZ bird species of the same size!

A BRIEF HISTORY OF HIHI CONSERVATION

1980

The first ever translocation of hihi brings birds from Te Hauturu-o-Toi to Hen Island. The Hen Island population sadly fails but inspires the beginning of an important conservation strategy for the species.

1991

The Kapiti Island hihi population is established with birds from Te Hauturu-o-Toi and remains to this day the oldest reintroduced population.

1995

A population is established on Tiritiri Matangi Island, which becomes a very successful population and a source for many future translocations.

2005

Hihi are reintroduced to ZEALANDIA in Wellington with birds from Tiritiri Matangi.



CURRENT POPULATIONS

Since 1980, translocation has been used to grow our hihi populations. Prior to the first translocation, Te Hauturu-o-Toi (Little Barrier Island Nature Reserve) had the only hihi population left despite the species having once been found throughout northern New Zealand. Birds were originally translocated from Te Hauturu-o-Toi, but after a population on Tiritiri Matangi Island was established, this became the primary source for many translocations sometimes with a mix of birds from other sites for genetic reasons. As of 2020, six reintroduced populations exist throughout New Zealand, all of which are actively managed through non-native predator control, supplementary feeding, provision of nest boxes, management of parasites, and population monitoring. Birds for the seventh and newest population have just been released and you can see more over the page! The success of the conservation strategies employed by the recovery group can best be seen by the steady increase in both the estimated population sizes and the growing number of hihi populations. Population sizes are estimated from a state-of-the-art integrated population model combining resighting and breeding data (Parlato et al., unpublished).

Te Hauturu-o-Toi

Pop size: 1000 - 3000

Tiritiri Matangi Island

Pop size: 210

Shakespear Open Sanctuary

No. birds released: 40

Sanctuary Mountain Maungatautari

Pop size: 132

Rotokare Scenic Reserve

Pop size: 59

Bushy Park Tarapuruhi

Pop size: 54

Kapiti Island

Pop size: 99

ZEALANDIA

Pop size: 95

2009

Hihi are reintroduced to the Waikato region at Sanctuary Mountain Maungatautari.

2013

Hihi are reintroduced to the Whanganui region at Bushy Park Tarapuruhi.

2017

Hihi are reintroduced to the Taranaki region at Rotokare Scenic Reserve.

2019

The total number of hihi in reintroduced populations surpasses 600 for the first time.

2020

The latest population of hihi is established at Shakespear Open Sanctuary with a translocation of 40 birds from Tiritiri Matangi.



HIHI NEWS

CONSERVATION CHALLENGES DURING A PANDEMIC

2020 is witnessing an unprecedented global human health crisis which has drastically changed how we live. Whilst New Zealand has the applause of the world for how it is handling the Covid-19 pandemic, it has not escaped unscathed nor has it been easy for the 'team of five million'. One thing the arrival of Covid-19 and the subsequent social lockdown exposed was the vulnerability of threatened native species dependent on human care. Hihi are one of these species. Despite living in the wild they remain dependent on supplementary feeding and ongoing protection from non-native mammalian predators.

During the lockdown, site managers were uncertain about whether feeding hihi was deemed essential and, regardless of this being eventually clarified, there was a required major shift in who could most safely access sites. Sugar supplies dwindled, there was uncertainty as to how stocks could be replenished, and critical predator monitoring and incursion responses were halted. Suddenly the work of many was being done by very few. The hihi family rallied during this time with regular communication through weekly emergency zoom calls and herculean efforts from site management staff to ensure a constant supply of food for the birds.

New Zealand may currently be Covid-19 free but the legacy of this virus is being felt as sites play catch up on lost work and revenue. Beyond New Zealand's borders the virus still ravages and the country valiantly resists its advances. It remains an uncertain future, but certainly a much brighter one for hihi given the efforts of those who stepped up with their care.



Newshub.

DoC struggles to keep the hihi (stitchbird) from extinction

Midweek

stuff.co.nz

Rare birds fledge within Wellington's Zealandia despite some untimely deaths

Dutch pair study hihi

HIHI IN THE NEWS

Despite the news this year seemingly dominated by the Covid-19 crisis, hihi have still managed to claim their place in the spotlight. Hihi-related stories highlight the ongoing progress made in conservation this year as well as celebrating the recent translocation to Shakespear Open Sanctuary, in Auckland (see overleaf for more details). Media attention is a crucial part of raising awareness as more people get to know this incredible species and its importance to our local ecosystems and global scientific community.

TŌ TĀTOU TĀMAKI MAKĀURAU
OUR AUCKLAND

Shakespear Regional Park welcoming new inhabitants

Local matters
Your LOCAL community newspapers in Auckland's north

Hihi introduction a milestone for Shakespear

stuff.co.nz

40 hihi released at Shakespear Regional Park, marking return to Auckland mainland

SHAKESPEAR TRANSLOCATION

HIHI HOP OVER THE BAY TO A NEW MAINLAND HOME



After a chaotic start to the decade, Covid 19 was not enough to stop another triumphant arrival of hihi to the mainland. This time to Shakespear Open Sanctuary located at the tip of the Whangaparaoa peninsula, less than a hour drive from Auckland CBD. A 1.7km predator proof fence isolates an area of about 500 hectares consisting of publicly accessible Auckland Council land (Shakespear Open Sanctuary) and parcels of New Zealand Defense Force land. Forty juvenile hihi (20 of each sex) were caught on Tiritiri Matangi Island and ferried across the bay and released at Shakespear Open Sanctuary on the 3rd of July. At its closest point Shakespear Open Sanctuary is just 3.5km from Tiritiri Matangi Island, meaning this was the shortest ever distance for a hihi translocation.

was possible. Tiritiri Matangi Island, usually crawling with tourists, school groups and volunteers, was a quiet shadow of its former hustle and bustle. Despite this sobering reminder about the current health crisis the translocation team settled in and quickly caught the required birds which then remained in aviaries on the island for health checks. On Friday 3rd July, with all birds having been given a clean bill of health, they travelled by boat to the mainland.



New Zealand's response to the Covid-19 pandemic, including the recent relaxing of lockdown restrictions, ensured that a delayed translocation

About a hundred people attended the release and were able to share in the momentous occasion. A close eye will be kept on these pioneering hihi by Auckland Council, and SOSSI (Shakespear Open Sanctuary Society) and a bunch of the wider HRG including our HCCT Hihi Conservation Officer. This translocation marks another exciting milestone in hihi conservation and it is hoped that Shakespear Open Sanctuary will serve as yet another place for people to fall in love with hihi.

TIRITIRI MATANGI ISLAND

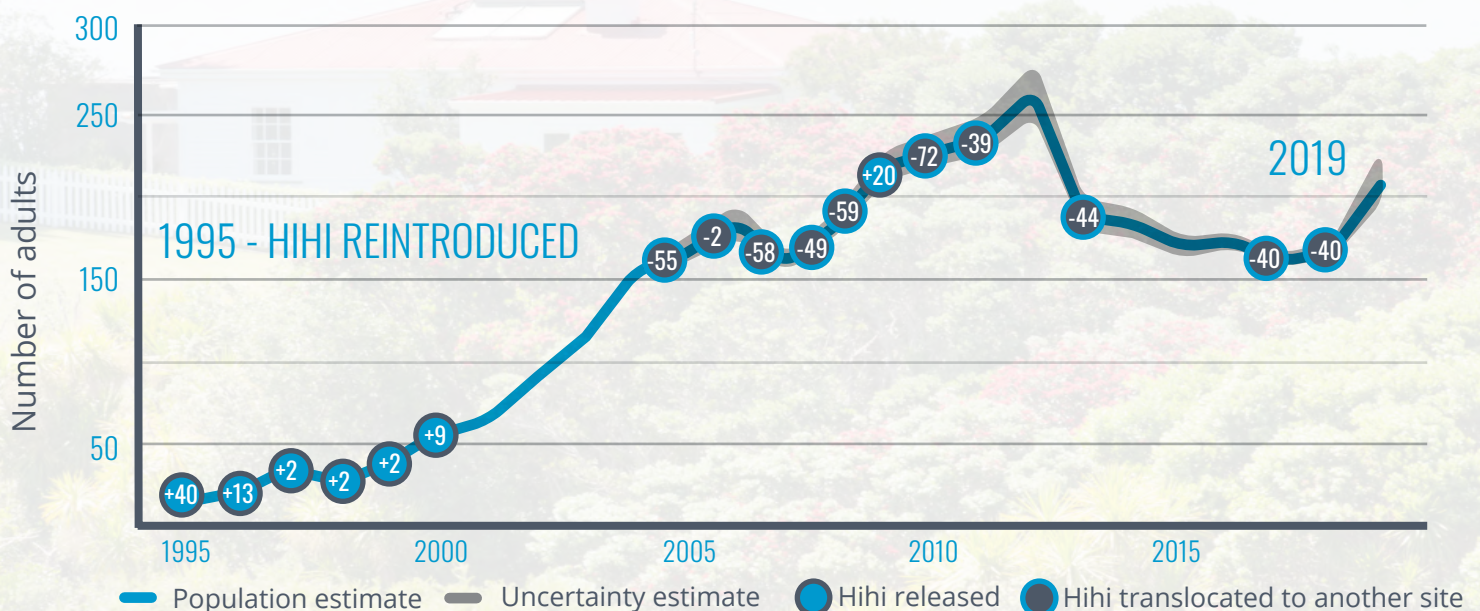


BACKGROUND

Tiritiri Matangi Island is a wildlife sanctuary and one of New Zealand's most exciting conservation projects. The island was stripped of nearly all its native bush following human occupation. Thanks to restoration efforts, approximately 60% of the island is now covered in native bush. All mammalian predators have been eradicated and the island is now home to native birds, reptiles and invertebrates.

Tiritiri Matangi is frequently used as the source for hihi translocated to other sites and continues to be the focus of many research projects that contribute to our knowledge on the species. Of the 29,000 plus people who visit the island every year over 4,600 are school students. Our Growing Minds programme funds 1200 students from low decile schools who wouldn't otherwise have the opportunity to visit the island. The project is managed by the Department of Conservation in partnership with the Supporters of Tiritiri Matangi Incorporated.

POPULATION SIZE



NEWS

Tiritiri Matangi simply continues to punch above its weight. Its not the biggest site, nor does it have the most mature bush, but it does have hihi... lots of hihi! We were not sure what to expect the season after a record-breaking number of juveniles and no harvest. Things were different, with breeding slightly later and most females only attempting one clutch. Yet the islands hihi produced over 200 fledglings and remains top producer across our reintroduced populations. This meant translocating 40 juveniles to Shakespear Open Sanctuary (page 6) was an easy call.

With a breeding population size of about 78 females there is also room to continue refining management. Our recent work has focussed on how to best control problematic nest mites. This has led to a change that provides substantial improvement to breeding success and is less time intensive to use. Win-win! Currently this work is under review at a scientific journal so watch this space.



PERFORMANCE



59 adults in the population



36 fledglings produced



224 litres of sugar water consumed



31% of females using nest boxes



35,000 visitors to the site

ROTOKARE SCENIC RESERVE

BACKGROUND

The Rotokare Scenic Reserve is a stunning 230ha forested hill-country catchment, with extensive wetlands and a 17.8ha natural lake. It is protected by an 8.2km pest-proof fence. The forest is a mix of mature tawa, rewarewa, and mahoe and has been home to hihi since they were reintroduced in 2017 – after a 130-year absence from the Taranaki region! Situated just 12km from the township of Eltham, South Taranaki, Rotokare is a popular recreation spot for boating, walking, and simply enjoying the beautiful scenery.

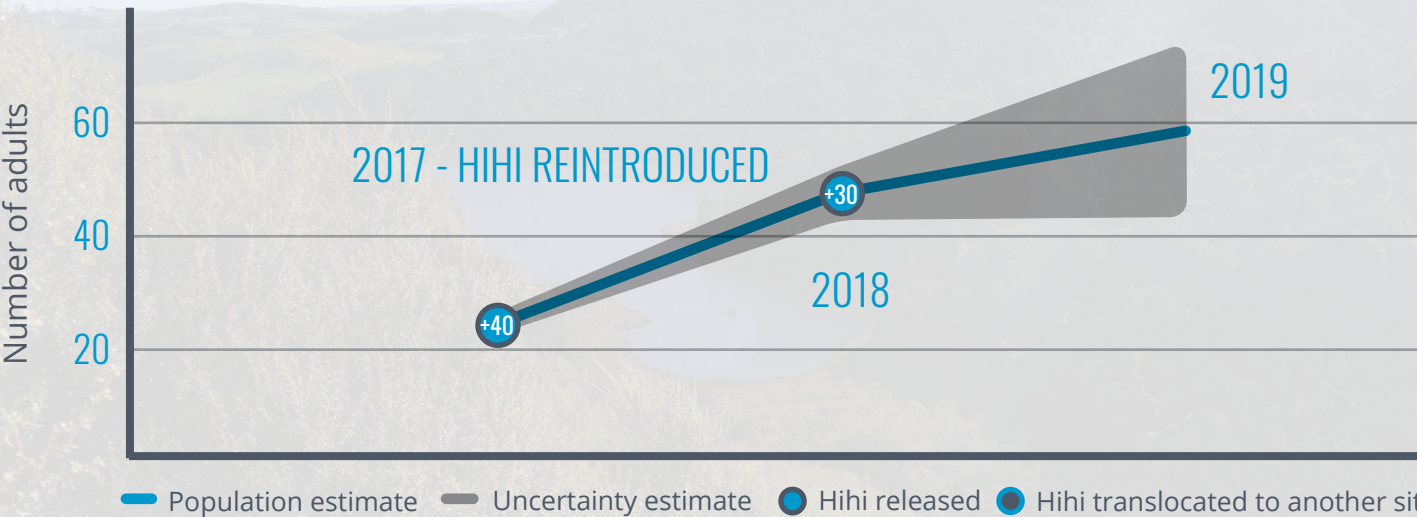
The Rotokare Scenic Reserve Trust was formed in 2004 out of concern for the declining state of the Rotokare Scenic Reserve. It is a community-owned and community-driven project and accommodates a wide variety of community interests including conservation and recreation. The Trust led on building the pest-proof fence and has continued to champion a range of conservation and recreation activities including: high-level biodiversity restoration, total eradication of 12 pest species within the fence, the establishment of a quality environmental education programme, revegetation of 12.5ha of land gifted from neighbouring landowners, the establishment of on-site facilities (including a Site Manager's residence, workshop, and an education centre), and the reintroduction of native species that were rare or extinct from the area.



NEWS

Its steady as she goes for the hihi at Rotokare Scenic Reserve. The adult population is holding at about the same size as last year and its been another good breeding season with at least 36 more juveniles produced. Not only this but many are happily using natural nest sites provided by the mature forest. Having hihi living in as natural an ecological setting as possible is something we are striving toward and Rotokare is certainly getting us closer. That said, there is still critical support to provide and Rotokare Scenic Reserve Trust staff Fiona and Simon managed to keep up essential work throughout the Covid-19 lockdown.

POPULATION SIZE



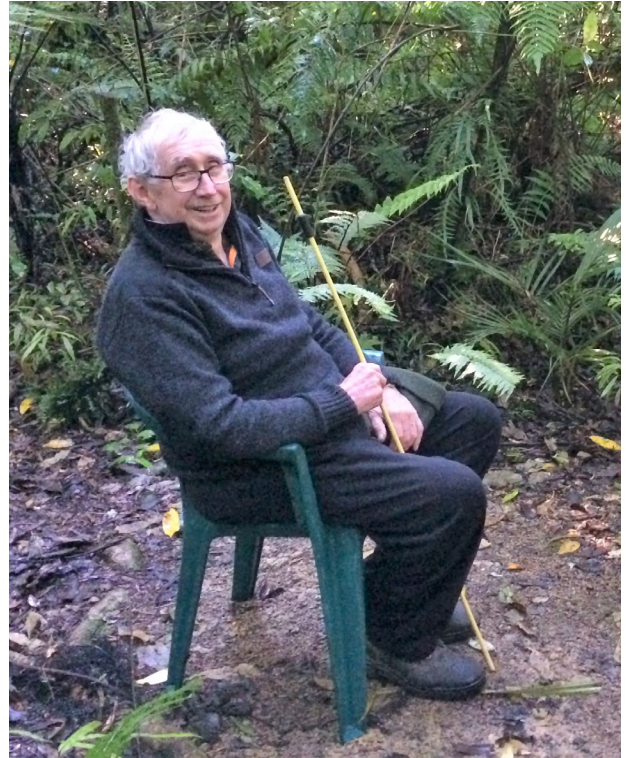
BUSHY PARK TARAPURUHI

BACKGROUND

Bushy Park Tarapuruhi is a 98 ha conservation area situated 24 km northwest of Whanganui on the North Island's West Coast. It comprises 87 ha of mature lowland temperate forest, with tawa, pukatea northern rātā, rimu and rewarewa predominant and 11 ha of gardens and pasture around a historic Edwardian-era homestead.

It was bequeathed to the Royal Forest and Bird Protection Society in 1962 by the late G.F. Moore, a prominent Whanganui farmer. Today the sanctuary is governed by the Bushy Park Trust in partnership with Forest and Bird and Te Kaahui o Rauru, plus significant support from Horizons and DOC. Protected from major disturbance for over 100 years, the forest is a prime example of an intact forest ecosystem.

Predator control was achieved in 2005 following construction of a predator exclusion fence around the forest. This has allowed successful reintroductions of toutouwai, tīeke and hihi.



PERFORMANCE



54 adults in the population



16 fledglings produced



169 litres of sugar water consumed



30% of females using nest boxes



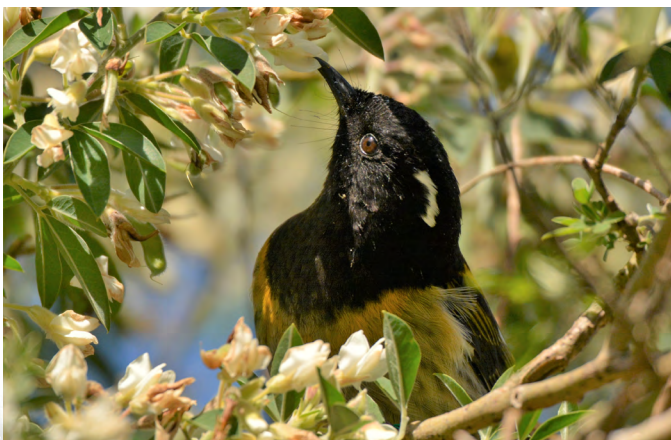
11,000 visitors to the site



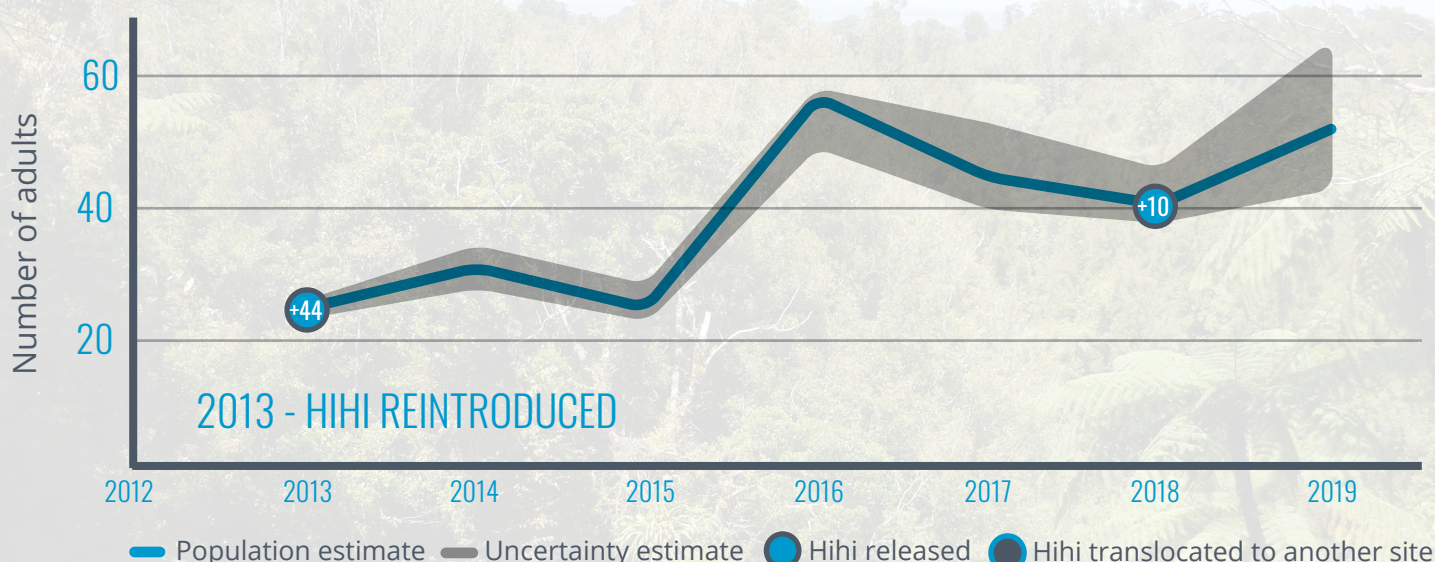
NEWS

It has been a sad year at Bushy Park Tarapuruhi, and for the hihi community overall, as we lost a conservation champion. Allan Anderson QSM (1940-2019) was largely responsible for getting hihi to Bushy Park Tarapuruhi and continued to fundraise and work for hihi recovery nationally right to his last days. His legacy is the continued recovery of hihi in his beloved Whanganui region and his contributions to neighbouring populations such as Rotokare. As a hihi community we acknowledge his immense contribution and we miss him.

The hihi population at Bushy Park Tarapuruhi has had a quiet breeding season this year with 16 fledglings from the monitored nest boxes. However, a bunch of unbanded fledglings also shows hihi are finding and nesting successfully in natural cavities. Natural nesting is something we really like to see in our hihi populations (despite then immediately trying to capture and put bands on the young produced!). At least one of the original birds released in 2013 is still going strong as an eight-year-old breeding female. As with other sites, students have assisted hihi management whilst also completing their studies. Alongside volunteers at Bushy Park Tarapuruhi this included Marjolein van Haaren and Sabine Hoek from Wageningen University in the Netherlands – reinforcing the international following this species has and continuing a now long running connection between the site and this university!



POPULATION SIZE



ZEALANDIA

BACKGROUND

Located just 10 minutes from downtown Wellington, ZEALANDIA is the world's first fully-fenced urban eco-sanctuary, with an extraordinary 500 year vision to restore a Wellington valley's forest and freshwater ecosystems as closely as possible to their pre-human state.

The eco-sanctuary is a ground breaking conservation project that has reintroduced 18 species of native wildlife back into the area, 6 of which were previously absent from mainland New Zealand for over 100 years. The 225 ha sanctuary valley is fully enclosed by an 8.6 km fence that excludes 14 types of mammalian pest, and has seen huge success over the past 20 years thanks to dozens of community groups, hundreds of volunteers, thousands of members and millions of donations and funding.



PERFORMANCE



95 adults in the population



36 fledglings produced



914 litres of sugar water consumed



64% of females using nest boxes



140,000 visitors to the site

NEWS

This year has seen record numbers of manuhiri/visitors to ZEALANDIA Te Māra a Tāne, which has provided an exceptional opportunity for ongoing advocacy for hihi. We recorded over 140,000 visits across the year, with a great turn out of locals heading out to experience New Zealand's wildlife following the COVID-19 lockdown.

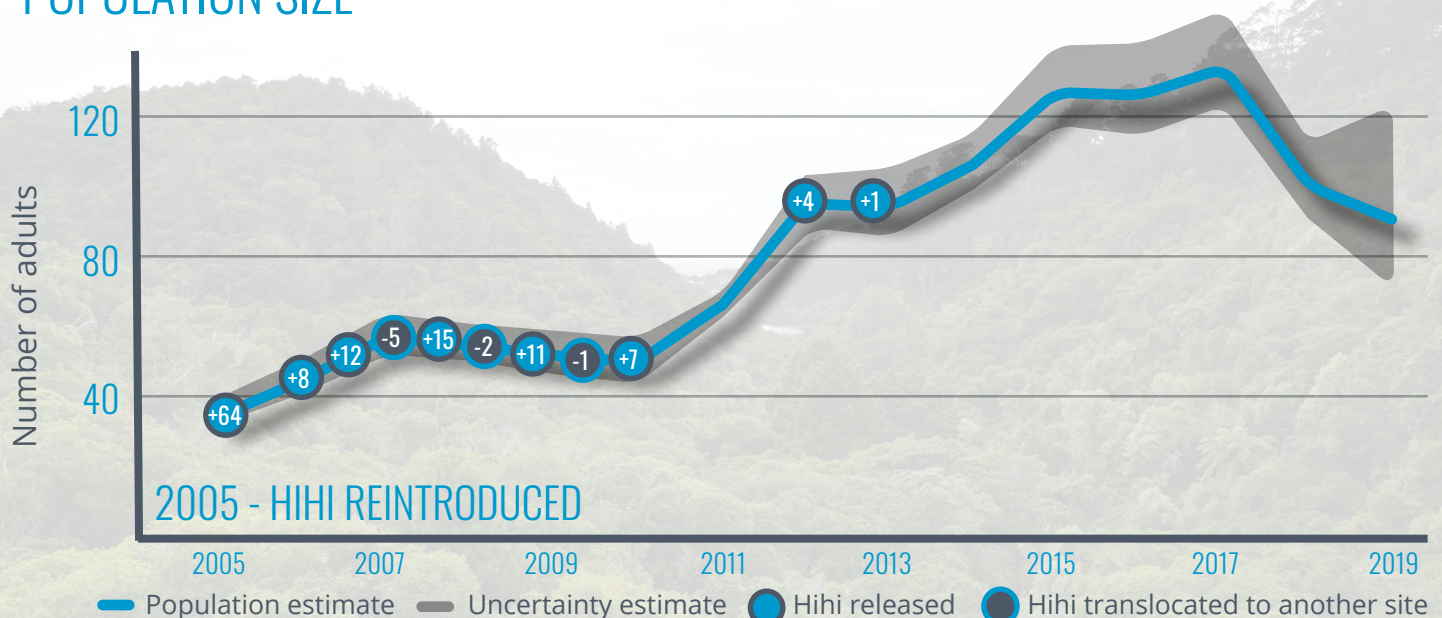
The 2019/2020 hihi breeding season was a challenge, with poor weather resulting in most females only attempting one nest later in the season. However, despite low production of eggs, nesting and egg fledging success rates were some of the highest on record. We will be keeping a close eye on the birds over winter to ensure we have a good understanding of who is still around as we head into next summer.

Our wonderful crew of volunteers continue to be involved in every aspect of management of the species at ZEALANDIA. Volunteer work includes taking care of sugar water provision, nest box monitoring, feeder surveys, incidental observations and mini-research projects. These opportunities all provide our volunteers with a connection and understanding of the hihi. These people are some of the most ardent advocates for the species, and have a significant impact on people's awareness of their plight.

We would like to thank those who support hihi management in the sanctuary, including our dedicated volunteers and staff, members, the Donald and Pamela Paterson Trust and the Endangered Species Trust.



POPULATION SIZE



PERFORMANCE



99 adults in the population



Number of fledglings produced unknown



3357 litres of sugar water consumed



0% of females using nest boxes



15000 visitors to the site

KAPITI ISLAND

BACKGROUND

Kapiti Island is one of New Zealand's oldest protected areas, with most of its landmass being gazetted as a Nature Reserve in 1897. It is located 5.5 km off the west coast of the lower North Island, is 1965 ha in size and 521m at its highest point.

The island was largely cleared for farming in the 1800s but has been naturally regenerating since. Possums and rats were eradicated by 1997 leaving the island free of introduced mammalian pests. Following a stoat incursion in 2010 the island was once again declared 'introduced predator free' in January 2013.

Hihi were first transferred to Kapiti in 1983 and favour two main areas of the island area of the island within major catchments that descend from the summit, as these areas have the highest plant diversity, rainfall, and many of the island's larger trees and old growth forest which offer nesting cavities.

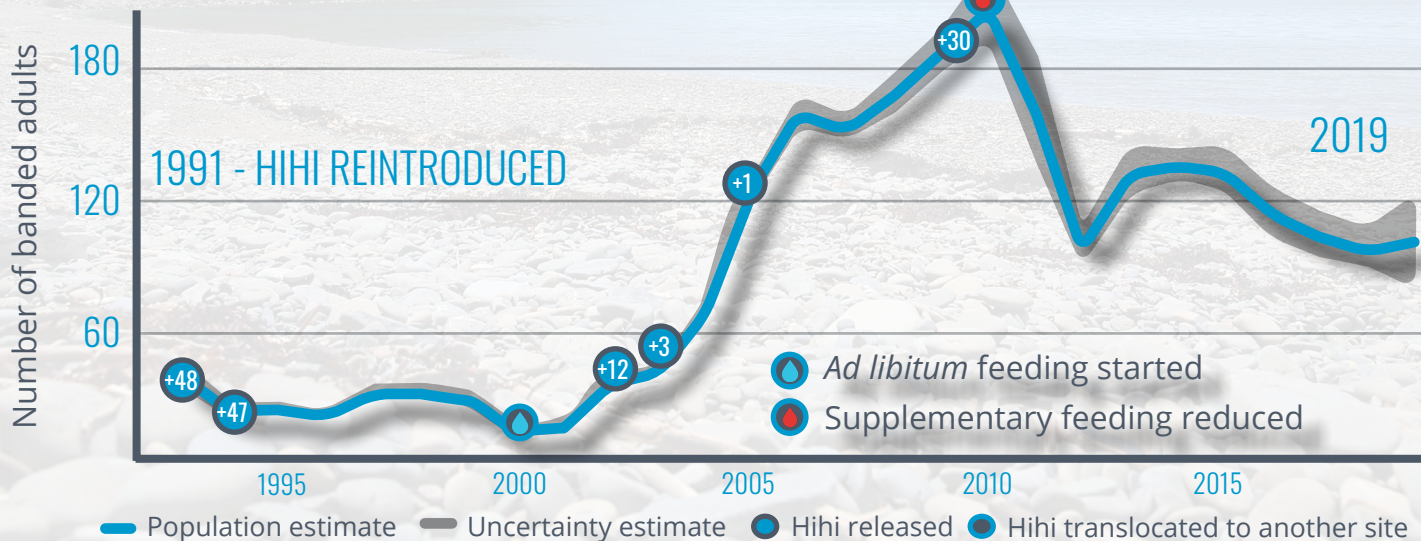


NEWS

This season we identified 68 individuals in the pre-season survey but also noticed a particularly high number of unbanded birds (in fact 47 birds were caught and had bands put on over the season – an impressive effort!).

Kapiti Island comprises almost 2000 hectares of predominantly steep, bush-clad country and this poses challenges for intensive monitoring of the longest established of our reintroduced hihi populations. Impressive effort is then something that characterises hihi work out here. No more so than during the Covid-19 lockdown where the rangers went 40 days isolated on island watching sugar supplies dwindle and being confronted with uncertainty about whether feeding hihi was a permitted activity under Department of Conservation rules. Luckily both permissions and sugar arrived in time and business as usual was able to resume, but not before numerous offers of sugar had come in from other members of the hihi community as everyone rallied around to support each other and the birds.

POPULATION SIZE



SANCTUARY MOUNTAIN MAUNGATAUTARI

BACKGROUND

Sanctuary Mountain Maungatautari is a mainland ecological island located near Cambridge in the North Island of New Zealand. Maungatautari Mountain was first made into a reserve in 1912 after the wildlife service survey found the forest to be of high significance.

Surrounded by the world's longest pest-proof fence at 47 km, the fence encloses 3,400 ha of habitat on the mountain. Erected in 2006 the fence prevents all mammalian pests, pets and livestock from getting over, under or through it and onto the mountain. Fourteen mammalian pests have now been eradicated from inside.

Sanctuary Mountain Maungatautari's ancient forest offers a sanctuary for populations of many of our most endangered species – from birds to bats, frogs to reptiles, tuatara to giant weta.



PERFORMANCE



132 adults in the population



Number of fledglings produced unknown



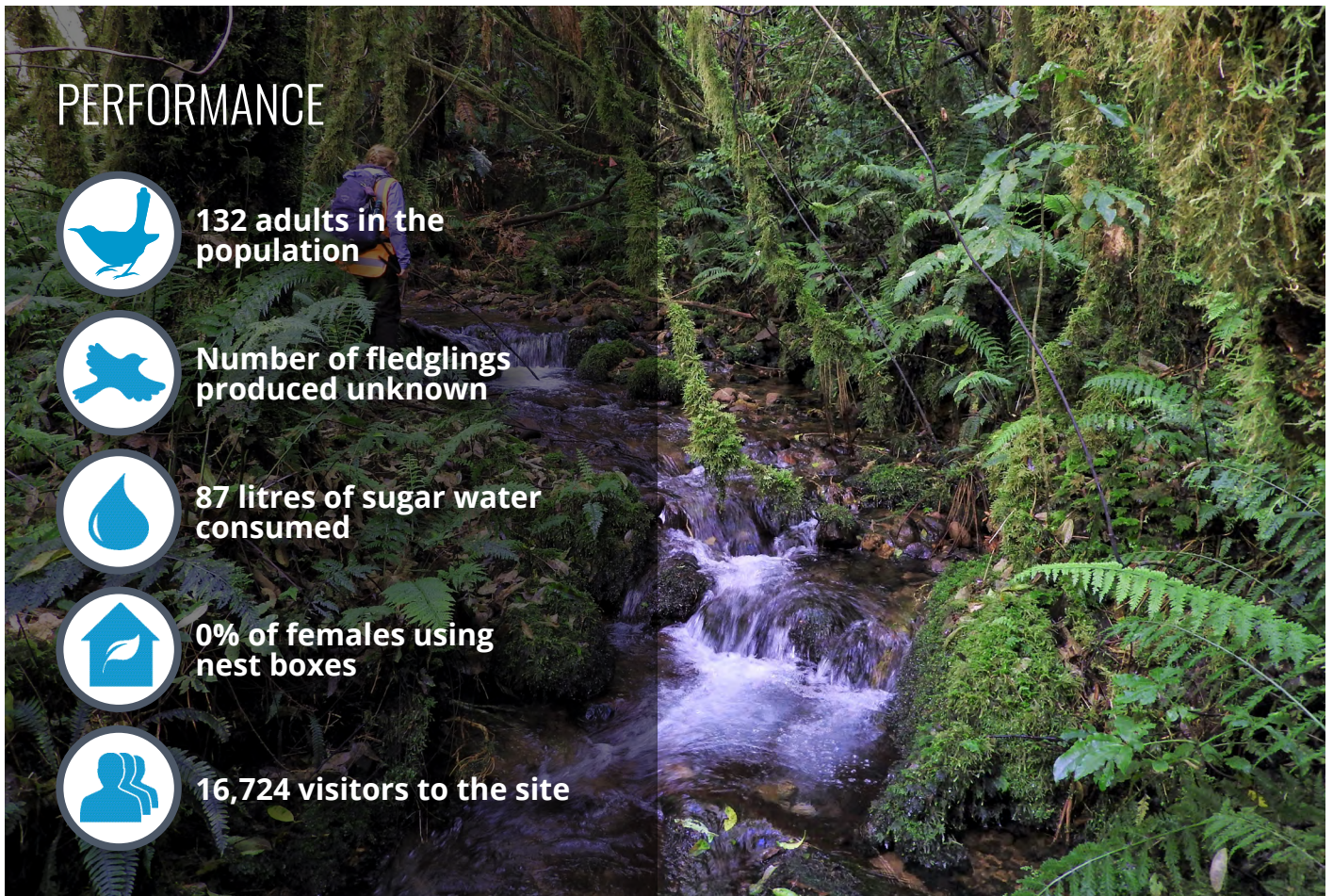
87 litres of sugar water consumed



0% of females using nest boxes



16,724 visitors to the site



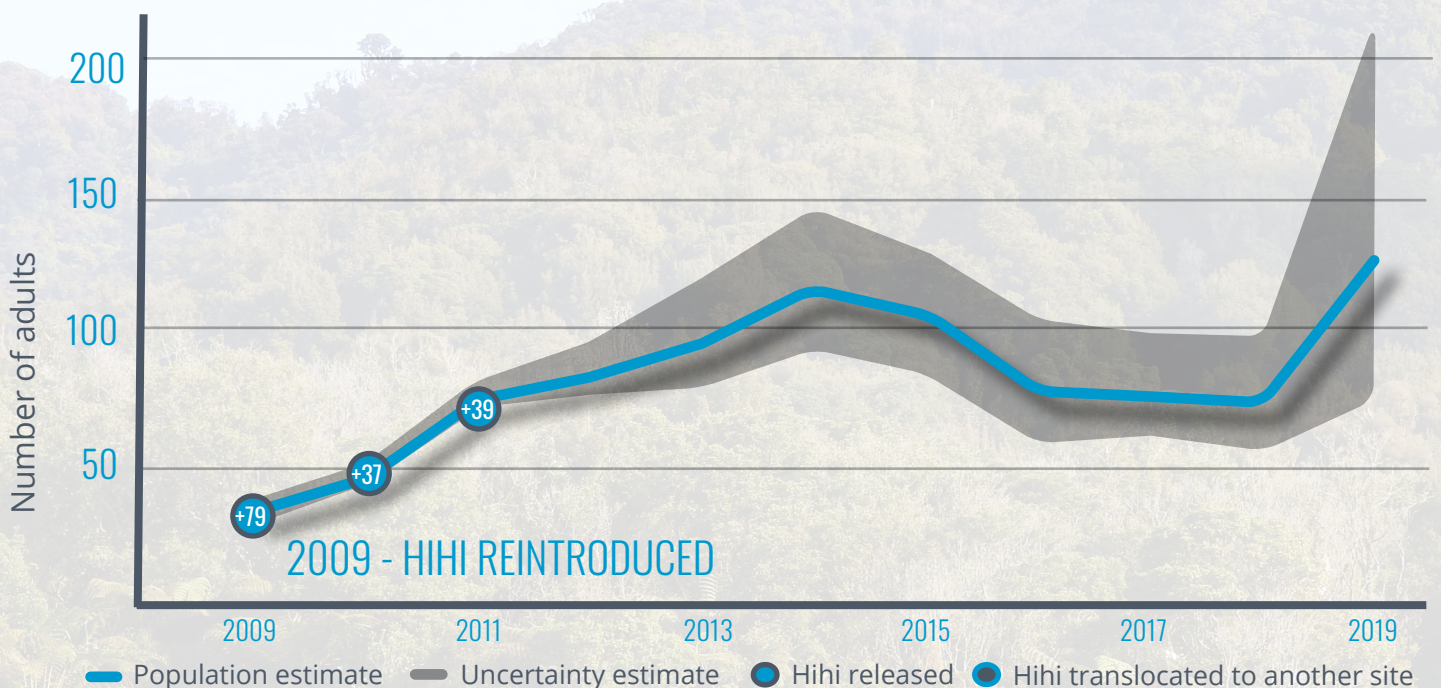


NEWS

Sanctuary Mountain Maungatautari has a fantastic team of volunteers rostered to deliver sugar water year round. Its not a small job at such a large site! Three feeders are located in the Southern Enclosure whilst four feeders are located up the central “over the mountain” track, requiring a rather fun ride by quad bike through the forest interior. Whilst consumption of sugar is low, there are regular hihi visitors to most feeding stations and consumption increases up to eight-fold during the breeding season. This year, Deborah Smith completed her summer research internship through Waikato University with a study on feeder use by hihi. Among other things she found that our monitoring with trail cameras misses a substantial number of feeding visits. On the theme of feeders, we are happy to announce that thanks to a generous donation from the Milestone Foundation we were able to purchase 6 new stainless-steel feeding stations. These new feeders will be installed in 2020.

Our most exciting news is that the annual population survey in 2019 found hihi numbers to be the highest since they were first released in 2009 and we have all our fingers and toes crossed that the population will once again show a positive trend in 2020.

POPULATION SIZE





TE HAUTURU-O-TOI

BACKGROUND

Located 80 km north-east of Auckland, Te Hauturu-o-Toi or Little Barrier is described as "the most intact ecosystem in New Zealand". Established as a nature reserve in 1895, it is considered to be one of the most important reserves of its kind in the world. Entry is strictly by permit only.

The island is managed in partnership between Ngati Manuhiri and the Crown, by the Auckland region of the Department of Conservation. Hauturu-o-Toi is an iconic site for Ngati Manuhiri and is of cultural, spiritual and historic significance. The island's name comes from its highest point "the windblown summit of Toi".

Te Hauturu-o-Toi's 3,083 hectare landmass makes it one of New Zealand's largest offshore island reserves. It is home to a greater number of endangered birds than any other island in the country, two species of bat, an endemic giant weta, reptiles that include the northern tuatara, and over 400 species of native plants.



NEWS

Over the past few years we have been undertaking research to learn how the islands' hihi population is structured. It's our largest and only natural population, a remnant from a time when hihi were spread across the northern half of the country. It is not fed nor provided with nest boxes, however it is carefully guarded against invasion from non-native mammalian predators. For nearly a century this was the only place in the world that the birds could be found. Our translocations from Te Hauturu-o-Toi have always sourced birds from one small corner of this island. This is due to the extreme difficulty of access across a rugged coast and the steep wild bush-clad country reached once this coastal barrier is breached.

Work from Dr Alex Knight and a team from the HRG and University of Auckland successfully sampled hihi from across the island and genetic analysis confirms it is one well mixed population. We can rest assured that periodic harvests of small numbers of birds from the south-west corner has low risk of compromising the population and that the birds harvested contain the available diversity of this most precious of hihi populations. The work will shortly be submitted for peer review and publication – watch out for future research news.



RESEARCH HIGHLIGHTS

A key strength of the Hihi Recovery Group is the research partners which are part of it. Each year, researchers produce high quality science examining hihi ecology and conservation, which goes on to be published in peer reviewed, specialist journals. We highlight a range of these which have been published in the last year below.

Hihi populations provide a world-renowned study system in small population recovery and reintroduction biology. Alongside our long-term HRG academic members we are particularly proud of supporting a growing number of research students through MSc and PhD studies. We see this as a winning formula – growing both the number of hihi we have and the number of future conservation

leaders for the world! This year students Marjolein van Haaren and Sabine Hoek from Wageningen University provided valuable assistance monitoring hihi at Bushy Park Tarapuhuri. We wish them the best of luck in their continued studies.

We especially want to congratulate Dr Kate Lee and Dr Alex Knight on successfully passing their respective PhD defences through the University of Auckland and Becky Downey for obtaining a distinction for her MRes through University College London. Congratulations also to Elena Mather and Ella Hamblin for successfully passing their respective MSc courses in Wild Animal Biology with the Royal Veterinary College, London.

MAKING STRUCTURED DECISIONS FOR REINTRODUCED POPULATIONS IN THE FACE OF UNCERTAINTY

Structured decision-making has become popular in natural resource management but has been underused in reintroduction programs. Julia Panfylova (MSc student; Massey University) and colleagues illustrated how conservation managers can use this to guide management decisions after initial reintroduction, when data are still limited and uncertainty around vital rates estimates is high. Using the real-world problem faced by the HRG of deciding whether to reinforce the hihi population at Bushy Park Tarapuruhi, this study highlights the best way to make decisions in complicated and uncertain biological systems.

This decision analysis incorporated uncertainties in parameter estimation, model selection, and

demographic stochasticity. It produced distributions of final scores for management alternatives based on population projections for both the Bushy Park Tarapuruhi population and source population (Tiritiri Matangi), and objective weights assigned by HRG members. Although the underlying modelling was complex, the output provided a simple visualization of outcomes that allowed the HRG to make an informed decision (no further translocation) that fully considered the uncertainties.

Reference (available open access): Panfylova, J., Ewen, J.G. & Armstrong, D.P. (2019) Making structured decisions for reintroduced populations in the face of uncertainty. Conservation Science and Practice 1 e90.

CHANGES IN SOCIAL GROUPS ACROSS REINTRODUCTIONS AND EFFECTS ON POST-RELEASE SURVIVAL

Despite growing recognition that social connections in animals might alter survival (e.g. social transmission of foraging skills, or transmission of disease), there has thus far been little focus on the consequences of social disruption during reintroductions. Here Dr Vix Franks (PHD; University of Cambridge UK & ZSL) and colleagues investigated if moving familiar social groups of hihi would help them to adjust to their new environment and increase post-release survival.

Vix observed social groups before and after translocation of hihi from Tiritiri Matangi to Rotokare Scenic Reserve. Although social structure remained similar among juveniles that remained on Tiritiri Matangi, Vix detected significant changes in translocated birds at both the

group- and individual- level post-release. Crucially, there was a small tendency for translocated juveniles that gained more associates during re-assortment of social groups to be more likely to survive their first year. Vix suggests that prior sociality may not be important during translocations, but rather individuals that are most able to adapt and form associations at a new site are most likely to survive.

Reference: Franks, V.R., Andrews, C.E., Ewen, J.G., McCready, M., Parker, K.A. & Thorogood, R. (2019) Changes in social groups across reintroductions and effects on post-release survival. Animal Conservation <https://doi.org/10.1111/acv.12557>

LINKS BETWEEN PERSONALITY, EARLY NATAL NUTRITION AND SURVIVAL OF A THREATENED BIRD

There is growing recognition that variation in animal personality traits can influence survival and reproduction rates, and consequently may be important for wildlife population dynamics. Despite this, the integration of personality research into conservation has remained uncommon. Alongside the establishment of personality as an important source of individual variation has come an increasing interest in factors affecting the development of personality. Recent work indicates the early environment, including natal nutrition, may play a stronger role in the development of personality than previously thought.

Here, Dr Kate Richardson (PHD; Massey University & ZSL) and colleagues investigated the importance of three personality metrics (activity, boldness and acclimation time) for estimating survival of hihi, and evaluated the influence of early natal nutrition on those metrics. Kate showed that boldness had a positive effect on the probability of juvenile hihi surviving to adulthood. There was also a tendency for juveniles that had nutrient supplementation in the nest to be bolder, suggesting that the early environment had some influence on the expression

of boldness in juvenile hihi. Linking the development of personality traits with ultimate effects on vital rates may benefit conservation management, as it could enable developmentally targeted management interventions.

Reference: Richardson, K.M., Parlato, E.H., Walker, L.K., Parker, K.A., Ewen, J.G. & Armstrong, D.P. (2019) Links between personality, early natal nutrition and survival of a threatened bird. Philosophical Transactions of the Royal Society B. 374: 20190373.



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