

--- SPRING 2017 ---

Subantarctic Scribe ...

*Conservation in New Zealand's
subantarctic islands*



WELCOME BACK

The newsletter keeping you up to date with all the happenings in New Zealand's subantarctic islands is back.

A lot has happened since our last edition in winter 2015: Million Dollar Mouse, Operation Endurance and multiple R & D programmes, to name just a few.

The Murihiku District of the Department of Conservation (DOC), which manages the islands, has had some changes to personnel - the team now has five members devoted to the subantarctic islands. They are: senior ranger and all-round expert Jo Hiscock; supervisor and biosecurity guru Sharon Trainor; Rory Hannan, who helps manage the quarantines and store; quarantine store manager John Peterson; and I, Joseph Roberts, taking on research and tourism logistics.

With plenty more planned for this southernmost part of New Zealand's public conservation lands, now is the perfect time to bring back the newsletter dedicated to all things subantarctic. ■



Antipodes erect-crested penguin.
Photo: Jo Hiscock



Antipodes Hut with the helicopter hanger in the background, Antipodes Island.
Photo: Ann De Schutter

MILLION DOLLAR MOUSE

In winter 2016, DOC, with the help of partners, undertook an ambitious project: to eradicate mice from the remote 2,100 ha Antipodes islands. Project manager Stephen Horn reports...

The Antipodes islands, 760 km southeast of Dunedin, are one of the remotest parts of New Zealand - both ecologically and geographically. Home to unique flora and fauna, they have the highest land protection status as a National Nature Reserve. The problem: mice, and plenty of them. As the only mammalian pest species present, these mice had a severe detrimental effect on the special biodiversity of the place, impacting invertebrate species, endemic ground birds and burrowing petrels. In 2012 DOC joined with like-minded partners - the Morgan Foundation, WWF New Zealand, Island Conservation and thousands of individual supporters - to do something about it. Million Dollar Mouse was born.

In late May 2016, the MV *Norfolk Guardian* and SV *Evohe* delivered a DOC team of 19 people, 3 helicopters, 65.5 tonnes of rodent bait, food and supplies to Antipodes Island. Within 10 days the ship had been unloaded and a temporary field camp established, including a helicopter hangar. Over the next 2 months the team (living mainly on chorizo sausage) completed two comprehensive bait applications, using helicopters to spread bait containing brodifacoum to target mice. Winter timing was important - mice have generally stopped breeding and food is scarce. The project was a massive team effort, bringing us one step closer to a pest-free subantarctic region.

Now it's a waiting game... a monitoring expedition complete with rodent-detecting dogs and tracking tunnels (and probably more chorizo) is planned for summer 2018. Thank you for the huge support received during the work. We look forward to reporting back with the results in autumn next year. For more information see www.milliondollarmouse.org.nz. ■

Top: Antipodes Island.
Photo: D Mead

Department of
Conservation
Te Papa Atawhai



Male New Zealand sea lion at Sandy Bay, Enderby Island. *Photo: Jo Hiscock*

OPERATION ENDURANCE

Operation Endurance is an annual expedition to the Subantarctic – the previous year's was cancelled due to cyclones in the South Pacific. Thankfully, the 2017 trip went off without a hitch. *Words by Joseph Roberts.*

Operation Endurance is the Royal New Zealand Navy's annual expedition to the subantarctic region. It's also a useful tool for DOC: each year the operation enables us to send a group of capable people with broad expertise to complete a large amount of work.

This season, Operation Endurance was split into two parts. We spent the first 2 weeks at Campbell Island/Motu Ihupuku for some much-needed infrastructure work. The second part focused on sharing DOC's goals for the Auckland Islands with the Minister of Conservation, the Hon Maggie Barry ONZM. Discussions included sea lions, the historic 'Coastwatcher' sites, and mammalian eradication.

The operation is a multi-agency affair: the navy helps in labour and, more importantly, getting to the islands. We also had the help of the MetService, who (while achieving their own work programme) helped us immensely with their tools and the infrastructure they maintain on the island.

For DOC this year, the focus for Operation Endurance was Campbell Island, and its visitor and management infrastructure. Much of the work was targeted at making sure the boardwalk was up to scratch.



Erect-crested penguin on Campbell Island, with the HMNZS *Otago* behind. *Photo: Tim Weston*

The surface geology of Campbell Island is largely boggy, with lots of peaty mud sitting on top of rock. This means that the boardwalk slips and sinks. A team of seven DOC staff worked on the boardwalk for 9 days to lift, strengthen, and slip-proof it. Vegetation was also cut back where the track was overgrown.

The concrete platform foundation for the old wharf and storage area had ankle-deep mud that had built up over time. This was cleaned down by a DOC team of three, with the help of five MetService personnel and their historic Fiat tractor. Over this newly cleaned-down site, a boardwalk was built from the top of the boat ramp up to the wharf shed.

The team studied all the buildings of the MetService base to find out their structural health. The team also built two lots of new boardwalk – leading up to the MetService hostel, and around the front to reduce muddying from the increased foot traffic.

All this work meant a lot of heavy lifting – about 7 tonnes to be exact. Luckily, we had the navy's help with the mammoth task of unloading the container of timber, supplies and tools. They also helped carry everything along 4 km of boardwalk to the worksites, and lent a helping hand with repairs.

Campbell Island has been pest free since 2001. To make sure no rodents had since found their way south, Gadget the rodent



The MetService team using the Fiat tractor to remove built-up mud and grass. *Photo: Kathryn Pemberton*



Crew of the *Otago* carrying timber up the Col-Lyall boardwalk. *Photo: Kathryn Pemberton*



Gadget with the *Otago* at Perseverance Harbour, Campbell Island. Photo: Sandy King

dog and her handler Sandy King walked to all corners of the island. With the report card back, we can say that Campbell Island remains pest free, 16 years after the eradication was undertaken.

During our stay we were lucky enough to have 10 days of fantastic weather – so good that many of us came back with a tan (or in my case a Trump-esque sunburn). With spirits high, we were very productive – so productive in fact, we achieved some extra work. This included the deconstruction and flat packing of South East Hut, an exercise that the navy wanted to complete for us. We also discovered the track out to Leslie Clifton's memorial stone had become degraded and severely undercut, so we built a new boardwalk to make access safer.

We would like to thank the navy, and the crew of the offshore patrol vessel HMNZS *Otago*. Their hospitality while we were aboard, and their help both on and off ship, was instrumental to the success of this year's operation.

Planning for Operation Endurance next season has already begun, with a focus on the historic and management infrastructure of the Auckland Islands, including Enderby and Adams islands. ■

METSERVICE

Weather reporting from New Zealand's subantarctic islands has been an integral part of human occupation since the Cape Expeditions of the 1940s, when the government established three stations to monitor shipping to the south of New Zealand. *Words by Steve Knowles, network observations manager for MetService.*

Weather reporting from the subantarctic islands serves an important purpose: it helps give a better understanding of the southern oceans, contributes to forecasting models around the world, and may have helped provide insights into shifts in the climate over the past 75 years.

Although reports from the Auckland Islands ceased in 1945, reporting from Campbell Island's Perseverance Harbour continued until the early 1990s, when manual weather reporting was replaced by automatic weather stations, there and on Enderby Island. Reporting from the Antipodes islands commenced in 2008 using a modified drifting buoy, usually used for monitoring atmospheric pressure and sea temperature.

To ensure a seamless transmission of data back to New Zealand, routine maintenance trips are needed. The navy and Heritage Expeditions enable us to get to these remote locations.



The Enderby Island automatic weather station. Photo: Alan Lorking, MetService

These stations have contributed significantly to our understanding of both weather and climate, filling an important gap to the south of New Zealand. Along with Macquarie Island, they provide insight into approaching storms circling the Antarctic landmass further south.

Sharing this data through the World Meteorological Organization fulfils an important part of New Zealand's international obligations, as the data gathered contributes to forecasting models used by weather services and climate researchers around the world.

With an increasing focus on potential changes to our southern oceans and Antarctica due to climate change, these stations may continue to give insights into our shifting climate well into the future. ■



New Zealand sea lions on Sand Bay, Enderby Island. Photo: Jo Hiscock

R & D IN THE SUBANTARCTIC

Yellow-eyed penguins, albatrosses, sea lions, petrels – and many other species – all contribute to the biodiversity of the subantarctic region. To study their populations, scientists and researchers went south for the summer.

Research groups covered almost every corner of the subantarctic this season, conducting all-important research in the name of science.

The Yellow-Eyed Penguin Research Expedition was the first to depart. They headed to the Auckland Islands to look at population statistics, foraging patterns and yellow-eyed penguin (YEP) behaviour. This research also looks at identifying behaviour changes in response to tourist operations.

The sea lion disease research team followed the YEP team. The team look at risk factors affecting pup mortality, and identify pockets of the pathogenic bacteria *Klebsiella pneumoniae*. Both the YEP and sea lion teams spend 3 months at Enderby Island – the same 3 months that make up most of the tour season. As most of the sea lion research takes place on the beach at Sandy Bay, many tourists see it first-hand.

Gibson's albatross, light-mantled sooty albatross, and white-chinned petrel are studied on Adams Island, and the white-capped albatross on Disappointment Island.

These studies help us understand the conservation status of these populations. Among other things, the team carries out population counts and monitors breeding success; we follow banded birds as they return to the islands, and track their movements at sea.

Meanwhile, at the Antipodes, research was underway on the Antipodean wandering albatross as part of a larger long-term study of its abundance, recruitment and productivity. Researchers Graeme Elliott and Kath Walker have been doing this work for more than 20 years. They've also worked on the maintenance of island facilities and other monitoring work around the Million Dollar Mouse project.

Over at Enderby Island, a small study was conducted to confirm the reported extinction of the resident population

of South Georgian diving petrels.

Unfortunately, no evidence of the species was found, confirming they have indeed become locally extinct – likely thanks to introduced mammals. The South Georgian diving petrel now only persists within New Zealand on Codfish Island/Whenua Hou. These findings are formally published in the scientific journal *Notornis*.

At the Snares Islands/Tini Heke, another long-term project continued this year. NIWA, in partnership with Deepwater Group, sent a small team (and an on-station yacht) to understand the population dynamics of the albatrosses using the islands as a breeding ground. This project has been going since 1992.

And lastly, the honorary subantarctic island, Solander Island (Hautere), hosted researchers looking at the winter breeders on the island. This long-term project aims to understand population dynamics of the Southern Buller's albatross, with emphasis on population size, adult survival and breeding frequency, among other things.

Before next season gets fully underway, Otago University is heading to the Auckland Islands onboard the *Polaris II* to continue researching southern right whale breeding around the archipelago. Last year's research gained media attention, with stunning shots of the whales around the island.

Several maintenance trips were also made this research season. Thanks to these trips and Operation Endurance, all huts on the Auckland Islands and Campbell Island were inspected and future work noted. Some maintenance work was carried out on the boardwalk and huts at Enderby Island.

The nature of this part of the world means smooth weather cannot be relied on – so we would like to extend a thank you to Rodney Russ and Heritage Expeditions for returning some stranded Enderby workers and researchers to the mainland for Christmas with their families! ■



Southern right whale tail at the Auckland Islands. Photo: Ros Cole

VOLUNTEER PROGRAMMES

In November, six volunteers left Bluff and travelled to Enderby Island aboard the yacht *SV Evohe*. Their mission: to assist and support yellow-eyed penguin research.

Volunteering helps educate, inform and give experience to many people from many walks of life. Sometimes, it can even take you to the ends of the earth.

An expedition, led by DOC's Sarah Crump, did just that when four DOC staff and six volunteers headed to the Auckland Islands to support the YEP research expedition.

Finlay Cox, Juzah Zammit Ross, Nicki Atkinson, and Stephen Horn from DOC helped with a range of activities, such as beach-counting YEPs and monitoring nest sites – continuing work done by similar groups in the past.

DOC was pleased to have the Sir Peter Blake Trust as part of this expedition. Over the past 3 years the Trust has sponsored volunteers to join the YEP monitoring



Yellow-eyed penguins surveying the yacht *Evohe*. Photo: DOC

project. These included teachers, educators, Trust team members and leaders who are keen to contribute, gain knowledge about the species and the region, and share their experiences upon returning home. All volunteers lucky enough to be part of this project to date have been challenged and inspired, and the experience has truly been

a once-in-a-lifetime highlight!

The YEP Volunteer trip is running again this coming season (2017/2018). It's a fantastic opportunity for volunteers to experience a more in-depth look at the Auckland Islands and YEPs. If you are interested or know some who is, visit www.doc.govt.nz/volunteers. ■

FUTURE PROGRAMMES



Auckland Island pig. Photo: Colin Bishop

The next eradication for the subantarctics will focus on the Auckland Island pigs. We've been given the go-ahead to start planning the removal of pests from the main Auckland Island.

Pigs were first introduced in 1807 on the main Auckland Island, as a source of food for whalers and shipwrecked sailors. But the pigs took to island life like a fish to water and were soon all over the island, causing massive damage to the ecosystem.

To make all New Zealand's offshore islands pest free, plans are now underway to begin looking at eradicating pigs – and potentially mice and cats – from the island.

DOC's focus for the next couple of years will be to understand the methods and strategy for eradicating pest species, and planning operations. ■

TOURISM

The tour season in the subantarctic is cyclical. The past season was one of the busiest in a while, with five companies and a private yacht heading down to view the subantarctic in all its glory.

Typically, the tour season for the subantarctic runs from mid-November until late March. This, in part, aligns with a few happenings in the subantarctic, such as the flowering of mega herbs, the period of abundant wildlife, and (perhaps most importantly) the best weather and daylight hours. The subantarctic is also New Zealand's gateway into the Antarctic – and this part of the year (especially January until early March) is when the sea ice opens.

We had about 860 tourists on the islands this year, up from 650 in the previous two seasons. With these numbers in mind, and looking back at previous years' data, a 3-year pattern emerges. This coming season looks to continue the trend with a quiet season forecast.

The main changes this season are

maintenance and upgrades to the visitor infrastructure at Campbell Island, as shown under 'Operation Endurance' above. The takeaway for the tour industry is improved safety – although the Campbell experience is already great, DOC has made the boardwalk up the Col-Lyall Saddle Track safer. Hopefully this will lead to people slipping less, and enjoying the flora, fauna and scenery more.

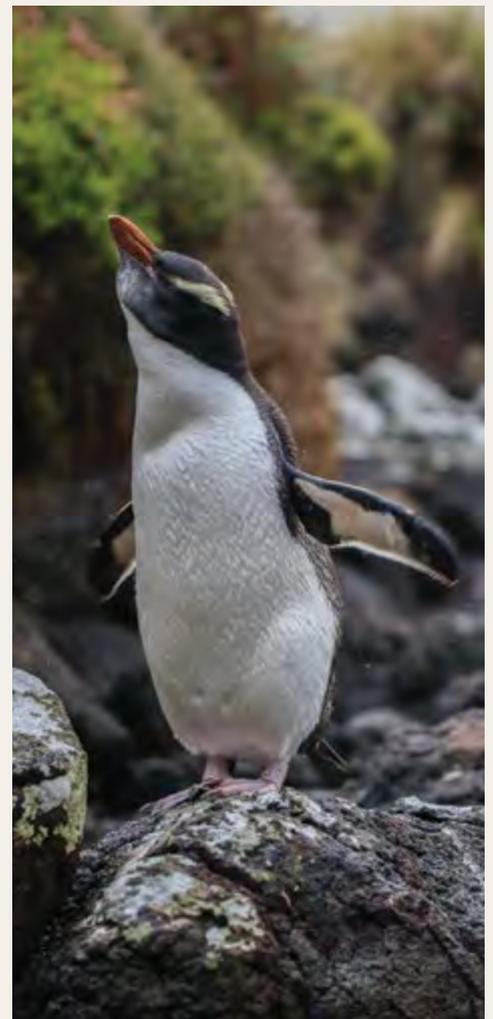
The Campbell landing site has been cleaned down, too, and a new boardwalk has been added to make biosecurity between the islands easier. A small piece of this work, although no less important, was also completed on Enderby Island.

DOC is looking to gain a better understanding of subantarctic tourism, and its effects on this remote area. Over the next couple of years, we will develop a tourism management plan to keep the islands' interests in mind while giving visitors the best experience we can.

The subantarctic branch of DOC's Murihiku District team is, at the time of writing, preparing for the coming season and looking forward to what it may bring.



Campbell Island daisy. *Photo: KA Bodmin*



Action shot of an erect-crested penguin at Campbell Island. *Photo: Charles Barnett*



Left: Campbell Island. *Photo: John Barkla*



End of Operation Endurance. Photo: DOC

Thanks for taking the time to read this newsletter. I hope it was useful and informative.

I look forward to writing many more of these, and learning with you all as research continues – and exciting new research projects begin.

If you would like to know more about the subantarctic, please visit and search 'subantarctic' at www.doc.govt.nz.

We look forward to reading your comments and suggestions.

Southern Islands team

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