

Island Restoration News: Gough and Henderson





A seemingly innocuous mouse wound has resulted in this fledgling Tristan albatross being unable to fly (*R. Daling*)

Welcome

On 1st February, the sailing vessel *Pelagic Australis* set sail from Cape Town, carrying the first team of infrastructure and aviculturists back towards Gough. Ten months have passed since we evacuated the team off the island as Covid-19 swept across the globe. The environment that we face now to deliver the project is clearly a very different one from those early days in 2020.

The team has spent much time over the past few months working through the additional challenges that delivering the project in a time of Covid entails. Lengthy discussions took place in November 2020 as to whether to proceed in 2021 given the ongoing uncertainty largely relating to Covid, our ability to move people to and through South Africa and the constraints the pandemic potentially poses to logistics. We concluded that the risks could be managed and hence the project should proceed.

We revisited the issue (of whether we can deliver the project) in early January 2021 with the same conclusion. This discussion was in advance of the bait manufacture and various other substantial financial commitments. It was also prompted in part because of concerns raised regarding increasing travel restrictions, rising Covid cases generally, and new variants in the U.K. and South Africa (which had only just been identified). As part of this discussion, we checked with all the team personnel and the critical project delivery partners as to their commitment to the project in a time of Covid. We all share a determination to get the job done if at all possible.

What has not changed over the last year is the impact that the mice are wreaking on the seabirds of Gough. The pressure of mice attacks on the breeding success of Tristan albatross is well known, though watching an albatross chick whose wing has been permanently damaged by mice and will never fledge the island is no less harrowing for the overwintering team. Much harder to quantify is the devastation inflicted on the burrow nesting birds, and especially the smaller species – the prions, petrels and storm petrels – that make up the bulk of Gough's estimated 8 million seabirds. Indeed, it is at night that the island really comes to life as these burrow nesting seabirds return to the island and the darkness resonates to their calls.

We report on pages 3-4 of this newsletter on our observations over the past few years of a colony of the near endemic and Endangered MacGillivray's prions, their near or total breeding failure in almost every year and the trajectory towards at best local extinction if mouse predation is left unchecked. This year has been no different, but the speed of the mouse predation has been devastating: of the 50 chicks we monitored, 33 were alive on the 24th January. Just a week later, 30 more chicks

were dead, with carcasses still strewn on the nests; of the three remaining chicks, one was being attacked by mice. And now, on the day that we go to press, we have heard that these last three chicks have all died from mouse attacks. Another year of total failure.

It is to prevent such tragedies that the Gough Island Restoration Programme remains so important, and urgent. This is the fundamental and driving motivation behind our determination to deliver the operation.

The next few months will no doubt bring renewed challenges as we move towards the main eradication attempt that will start from late May. The project has once again been positively reviewed for its operational readiness by the New Zealand Island Eradication Advisory Group experts. We are also fortunate in the strength of the project partnership, especially the support and commitment of Tristan and the Department of the Environment, Forestry and Fisheries in South Africa, but also the participation of personnel from partners, Manaaki Whenua - Landcare Research, Island Conservation, Grupo de Ecología y Conservación de Islas and the Royal Zoological Society of Scotland. No project delay is easy but the flexibility that our main contractors have shown has been outstanding, notably the New Zealand bait manufacturer, Orillion, and the helicopter consortium of HeliA1 in New Zealand and Aeronautics Solutions in South Africa.

Covid does demand a greater level of precaution, quarantine, testing and logistical planning, and this has added to the already rising cost of delay. To the many funders of the project, the team is extraordinarily grateful for your continued support and understanding. We will continue to work hard to deliver what has the potential to be a considerable conservation prize.



Andrew Callender
Gough Island Programme Executive

Here today, gone tomorrow?

Gough is home to around 8 million seabirds – the majority of which are often heard but little seen. Whilst the surface-nesting albatrosses and penguins largely get the limelight, it is the community of enigmatic burrow nesters that transform Gough into an undisputed world-class seabird island.

Literally millions of site-faithful seabirds raise their young in the subterranean honeycomb habitats they've created on the island over millennia. But far too many burrows remain empty, year after year, whilst in others chicks are eaten alive on a truly horrendous scale. Our monitoring paints a horrifying picture of hidden population collapse which we must reverse before it is too late.

Near to Gough's Meteorological Station lies a cave in which dozens of prions lay their eggs, safe from the avian predators alongside whom they have evolved on Gough Island.

Around ten years ago, scientists noticed some 'odd' things about these birds. Although they had the characteristic broad bill of a broad-billed prion it was, perhaps, slightly more slender than your average broad-billed prion's bill.

And what is more, these birds were incubating eggs when they should be at sea. The penny dropped – a new species had been discovered!

Although the taxonomists settled on a species 'new' only to Gough rather than the world, it still changed all the text books.

MacGillivray's prion, described previously from a small handful of islands and rock stacks in the Indian Ocean—where it was being pushed to the very edge of extinction by invasive rodents—was suddenly nowhere near as rare as first thought but instead was abundant on Gough Island. Indeed, over 99% of the global population was assumed to breed on Gough.

(Understandably, Gough's population estimate of broad-billed prions took quite a knock, but nonetheless remained above 1,000,000 pairs!)

Despite the presumed large colony on Gough (estimated at the time between 100,000 – 1,000,000 mature individuals), the IUCN classified the species as Endangered – in other words, at very high risk of global extinction. Regardless of this massive boost to the population figure, Gough's prions were

known to be in trouble.

In the years since the discovery of the MacGillivray's prion colonies on Gough, monitoring of this 'new' species has stepped up a gear. And the worst fears have been exceeded—breeding success is catastrophically and unsustainably low.

For the last few years, our overwintering team has monitored the fate of around 50 nests in Prion Cave (pictured). Since 2014, only 21 chicks have fledged out of 370 monitored nests – most of which were in a single year. In the *last four years*, just a *single chick* has fledged from Prion Cave. The rest have been eaten by mice or abandoned by parents themselves being attacked by mice.

This year the colony seemed to be holding out well – 33 out of 50 chicks had hatched and made it through to the 24th January. Seven days later, our team returned to find just three chicks alive – one of whom had a mouse eating it from an open wound. Today we heard that all the chicks have now been lost to mice. Needless to say, a 0% breeding success rate is simply not sustainable.

[New scientific modelling](#) indicates that the MacGillivray's prion population on Gough Island probably numbered a staggering 3,500,000 pairs as recently as 1956. The population estimate for 2020 shows a jaw-dropping collapse to 175,000 pairs. <https://bit.ly/3qhwMxv>



This year's last surviving MacGillivray's prion chick from Prion Cave
(R.Daling)



Mice fight for best position to scavenge from this MacGillivray's prion chick (R.Daling)

MacGillivray's prion in numbers

Year of discovery on Gough:
2011-12

Estimated population 1956:
3,500,000 pairs

Estimated population 2021:
175,000 pairs

Fledging success since
monitoring began:

2020-21: 0%
2019-20: 0%
2018-19: 2%
2017-18: 0%
2016-17: 37%
2015-16: 2.5%
2014-15: 0%

Burrow nesters are very difficult to study: the ease with which house mice find an egg or chick at the end of a burrow makes a mockery of our efforts to study them using burrowscopes!

Seabird scientists consider that what is happening to MacGillivray's prions is likely to be representative of the state of the wider avian subterranean world on Gough, with a similar fate playing out across several of the island's globally-important seabird populations.

We need to stop this, now.

More than 8,550 donations were made raising over £355,000 for the project when we launched our members appeal last year. News of the postponement, which came just a week or two after the appeal was launched, did nothing to dampen people's

generosity and the appeal was one of the most successful in our recent history.

At the moment, the RSPB is carrying a £3M+ funding gap to see this project through sooner rather than later. We desperately need to reduce this figure. We know so many readers of Island Restoration News have already been enormously generous in support of this work, but we appeal to anyone who may be able to do more to please get in touch with our Philanthropy Team by emailing:

philanthropy@rspb.org.uk

We can also receive UK donations on our [appeal page](https://bit.ly/3ikFo1r) <https://bit.ly/3ikFo1r>

Gough's 'new' overwintering team hold the fort

Our new team of field workers reached Gough in September. Their work will lead us into the 2021 restoration operation and put us in a strong position for the challenging year ahead.

Incredibly, our new field team on Gough are already approaching the halfway point of their stint on the island.

Having all previously overwintered on South Africa's Marion Island (one of just two other islands where we know invasive mice have learnt to exploit the easy food source that is abundant seabirds), much of the work and the scenes they've been faced with on Gough have, sadly, been quite familiar to them.

As we gear up to the 2021 operation, Kim Stevens, Vonica (Von) Perold and Roelf Daling have picked up all sorts of restoration-related work in addition to the long-term scientific monitoring the field team usually undertakes. Given the state of play when we had to abandon the 2020 operation, Roelf has taken the lead on the hugely important task of ensuring the temporary infrastructure the project requires has remained in good working order, despite the extra 12 months of weather and weathering it needs to endure.

Meanwhile, Kim and Von—both of whom were working towards their seabird-related PhDs before setting sail for Gough—are primarily tasked with biological monitoring. It has been bittersweet for them to have to document another poor year of breeding success figures when we'd all hoped so much this would be the first year of a restored seabird haven.

Of the 1,528 Tristan albatross nests counted in January 2020, in October the team counted just 569 chicks still alive and looking likely to fledge. As it turns out, that 569th chick is not going to be so lucky after all – a seemingly sub-lethal injury on its wing, almost certainly caused by a mouse and first spotted during that October check, means that it

simply cannot fly. With its parents already back at sea assuming the chick will fly when it gets too hungry not to, its fate is sealed.

The team have continued to gather depressing data for Gough's enigmatic burrow nesters (p 3) as well as data from the island's seals and penguins, and superb quality footage, powerful images and evocative [soundscape](https://bit.ly/2Z7K7wy) <https://bit.ly/2Z7K7wy> which we hope will help raise awareness and much-needed funds to fill the project's £3M funding gap.

We're immensely grateful for all their efforts.

"It is a great privilege to be a part of the Restoration Programme and I am very excited and positive about the year ahead. Whenever I see a seabird with mice wounds, I find solace in the fact that help is on its way and that we are working towards a goal of a mouse-free Gough Island. I want to make the most of this opportunity by giving my all in my work and getting out into the field as much as possible. I'm also very fortunate to have an excellent team at the South African Meteorological station who already feel like family. Together, we look forward to the year ahead and will hold the fort until the restoration team arrives"

Von Perold
Gough Island Field Assistant,
G66 Team, 2021-22



The RSPB contingent of the G66 Gough overwintering team (left to right) Von, Roelf and Kim (*K.Stevens*)

'Gough Restoration 2021' underway

After last year's complex evacuation and repatriation mission for our advance party of multinational personnel, the operation to save millions of birds each year, forever, is back on.

Sailing half-way across the South Atlantic Ocean on a small yacht for the third time in 12 months hasn't exactly made happy sailors of the first of our three 'Gough 2021' restoration teams. But after the false start that was the 2020 operation, they're delighted to be picking up where they left off last year.

Remarkably, we've been able to keep the original 2020 team largely intact meaning they have hit the ground running and will be well-placed to greet the second team in a couple of weeks' time.

True to our 2020 plan, our 2021 crew includes Michelle, Chris and Alexis who, after their unprecedented two-year-straight stint as 'overwinterers' on Gough, all wanted to be part of the final push to see the island restored.

Their knowledge of the island, its species and their behaviour will, no doubt, be invaluable over the next six months.

We are also extremely grateful to our project partners who have risen to the challenge of filling the few gaps in personnel the postponement has created.

South Africa's Department of Environment, Forestry and Fisheries will help us deliver high standards of biosecurity whilst our team is quarantined and unable to take charge. New Zealand's Department of Conservation— the pioneers of island restoration— are helping train the team in the specialist New Zealand software that the new GIS team will be using.

And, with most island restoration projects around the world not only put on hold in 2020 but largely able to wait out 2021 as well, we have even more world-

class island restorationists able to join our team for 2021.

Island Conservation's Wes Jolley was primed to lead the 2020 restoration of Midway Atoll – the third (and most recent) island to record mouse predation on albatrosses – but Covid-related project postponements mean he is now available to join us on Gough for the 2021 operation.

We are also hugely grateful to Grupo de Ecología y Conservación de Islas for letting us borrow Noe da Silva and Manaaki Whenua—Landcare Research for loaning us Araceli Samaniego (both of whom were a central part of our 2020 team plans). Araceli's name may ring a bell as she's featured in *Island Restoration News* before— her research in the Pacific will be instrumental to informing our plans to return to restore Henderson Island (see pp 11-12).



MacGillivray's prions arguing over a nest site in Prion Cave (*J.Cleeland*)



One of the first Tristan albatross incubators of 2021 (*V. Perold*)

Preparing Gough for the restoration operation

Before the operation to eradicate mice can begin, we need to install a temporary helicopter hangar and accommodation for a couple of dozen extra people, amongst other things. Our first teams have 12 weeks to get everything sorted. It may sound like plenty of time, but all the while, Gough's winter weather will be closing in.

Gough Island really is unique — regularly described as like landing in the Jurassic age — its dense vegetation certainly gives the impression that no people have ever set foot here. But they have, and they have left their mark around the small parcel of land on which the South African meteorological station sits. This is fortunate for us as it means we can erect much of the project's necessary (and temporary!) infrastructure on land which has already been impacted, so reducing disturbance to the island's natural habitats.

But even this is not easy. The vegetation surrounding us is thick, the peat is too and our feet can easily sink in as we move about.

Every nail, every screw, every inch of wood and piece of wire needed to complete our task was accounted for in Cape Town before being sent out ahead of us on the annual changeover voyage for overwintering staff (way back in September 2019) when helicopters could lift it all and place it where we would need it.

Last year we had the job of finding and unpacking it all before we could start any work. So far, so good—a great testament to the meticulous planning.

Eradication projects are almost always complex, but when they have to be run 'expedition style'—as with Gough—there really is no room for leaving anything behind. Even a small mistake can lead to a project becoming undeliverable.

We managed to get about 60% of the work completed last year before being evacuated following the project's postponement. As such, we now have a smaller team returning to finish the job.

But we are in a race against the clock and need to get everything in place before the rest of the team arrives, eager to start baiting as soon as they possibly can. The race is not helped by the unpredictable weather, so whilst we might erect an entire structure in one day, the next day (or several) may be very slow. As we head towards winter, we will be making the most of every hour of good (enough) weather that we have.

It is vital to us that we protect the land as we go. We are putting down biodegradable matting which will help ensure Gough's ferocious weather doesn't cause soil erosion once the infrastructure is removed at the end of the project. This matting should foster the natural process of habitat recovery and regeneration over time.

As the team returns in 2021 to finish preparations, I don't know how many of the 34,850 screws required in total have already been used. But what's important is we have what we need on the island—including the right people and the right screwdrivers for the job!





A Tristan albatross nesting whilst a juvenile Gough bunting forages in the uplands of Gough Island (*M.Risi*)

Habitat Spotlight: Gough's uplands

The uplands of Gough Island are home to the only two British birds classified as Critically Endangered by the IUCN. Conservation Scientist for the Gough Island Restoration, Steffen Opperl explains what life is like for these birds clinging on in this somewhat surprising refuge.

It takes a long time for a Tristan albatross chick to grow up. So long, in fact, that by the time the bird has grown each of its impressive 1.5m long wings to fly away from Gough Island, the next season's breeding birds have already arrived.

From November until December, the two partners of each Tristan albatross pair arrive independently in the windswept uplands and re-establish their bond with elaborate wing and head displays. The balmy summer months are filled with wailing and croaking calls and the noise of clapping bills of albatross pairs wooing each other – until in late January the female lays an egg and the long incubation begins.

Besides the large and conspicuous albatrosses, the uplands of Gough are also home to the smallest bird on the island – the Gough bunting. A sturdy ground-hopping songbird, this species occurs nowhere else in the world. And on Gough, the buntings are now largely confined to the uplands: regular monitoring by the RSPB indicates that they are now virtually absent from lowland areas, where historic accounts described them as being abundant.

Mice are the prime suspect behind this change. Fortunately, Gough buntings have so far withstood the effects of mice in the uplands, and data now show that breeding success here does not appear to have changed over the past decade. The RSPB team counts buntings twice per year, in late September at the start of the breeding season, and again in early February when a new crop of juveniles is bouncing around the uplands.

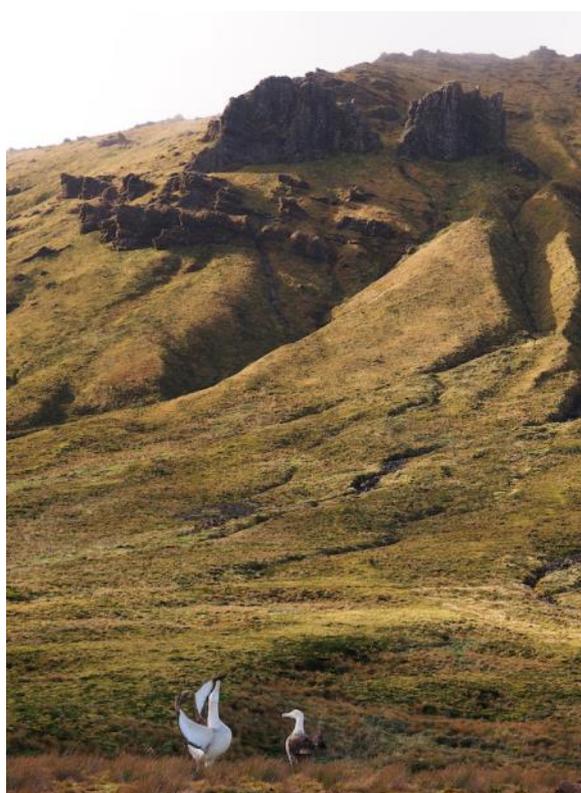
The uplands of Gough Island, from ~500m above sea level to the island's highest peak at 910m, are a treeless and sodden expanse of heath, moss, and grassy tussocks interspersed by small pools and creeks that drain the copious amount of rainfall into larger creeks tumbling off the cliffs into the sea. The hills and vegetation look superficially similar to the mountains in Wales or Scotland, only it rains a lot more on Gough.

As a consequence of these extreme conditions, the life of an albatross chick between the time when it hatches in April until it can eventually fly away isn't particularly glorious. Imagine sitting at a remote bus stop in a rural part of Wales or Scotland – the wind is driving sleet and rain over the boggy hills, it is foggy, wet, and miserable. You sit and wait. After 30 minutes you get annoyed, after six hours you are totally soaked, cold, and starving. After a few days one of your parents comes along and vomits some rancid fish oil in your mouth to keep you alive (admittedly, you do probably like this bit if you're an albatross chick!). You sit and wait, knowing that the 'bus' that will finally get you out of this place – in the form of very slow-growing feathers that will eventually allow a young albatross to lift off – will not come for another eight months.

The normal ordeal of growing up in the harsh uplands of Gough sounds already pretty daunting, but the Tristan albatross chicks here face another threat: they are eaten alive by mice. Unlike the Gough bunting, which raises chicks during the summer months of December and January when there is plenty of other food for mice, the albatross

chicks are left alone by their parents in the middle of winter. In fierce storms and cold temperatures, the chicks aren't the only ones who are starving hungry – the mice are, too. Since the mice have learned that they can eat the fatty albatross chicks, generally only 1 out of 3 chicks survives the winter and goes on to fledge.

These appalling fledging figures should be about to change – though this year is likely to bring a mixed bag. Our greatest chance of successfully removing the mice comes in winter, when the mice are hungriest. This means we have to accept, with heavy hearts, that we will still lose some Tristan albatross eggs and young chicks this year. But for those which make it as far as midwinter, the chances of fledging will be far higher than they have been for decades. And next winter on Gough, the uplands should be full of fluffy and partly feathered chicks.



Right: The dramatic uplands landscape makes the perfect setting for a male Tristan albatross to seek the attention of a female (*K.Lawrence*)

Gough restoration welcomes additional global expertise

Restoring Gough Island wouldn't be possible without our project partners. Dr Araceli Samaniego, a global leader in island restoration, is 'on loan' to the project from our partner New Zealand's Manaaki Whenua – Landcare Research. A rodent behaviouralist, Araceli has been at the forefront of many ground-breaking island restoration projects across the globe and will lead on the difficult job of ensuring no house mouse finds refuge in the buildings which make up Gough's Meteorological Station Base. She talks to us about how she feels to be part of the project and the experience she will bring to the team.

It's a once-in-a-lifetime opportunity to explore one of the remotest places on Earth, sure, but there's more than that. Way more. I'm thrilled to be part of the event that is going to kick-start an almost magical transformation: the coming mouse eradication on Gough Island. It will bring a wide range of benefits to the local flora and fauna, both in the short and the long term, especially for threatened birds such as the Tristan albatross and the MacGillivray's prion. We've all read amazing examples of biodiversity recovery on islands around the world, but I've also been fortunate enough to witness such transformations. Eradicating invasive rodents from islands and recording the outcomes is my specialty. Starting in Mexico about 20 years ago, the job has taken me from Canada to Galápagos and from the warm Caribbean to – this time – the not-so-warm South Atlantic.

I'm based in New Zealand now, working among the pioneers and champions of island biodiversity restoration. I joined Manaaki Whenua – Landcare Research (MWLR), New Zealand's Crown Research Institute for the country's land environment. We undertake research into New Zealand's unique biodiversity, biosecurity, land resources and soils, and environmental issues including climate change and carbon emissions. We work with numerous institutions, nationally and internationally, to create impactful, relevant and useful research.

Importantly for Gough, we have wide-ranging research capability in all aspects of biosecurity and predator control science, including invasive non-native species eradication, trapping,

and animal behaviour manipulation. We collaborate with many partners to help New Zealand reach its ambitious biosecurity and predator-free goals and, in turn, this work benefits other countries engaged in restoring habitats. We can also draw on the experience of our social scientists in building a 'social licence to operate' – a key ingredient of successful applied research in this field.

Getting rid of mice on Gough is not an easy task, but I have no doubt it's doable. Fortunately, pushing the boundaries has been a recurring feature in the field over the past couple of decades. Anacapa (USA), Banco Chinchorro (Mexico) and Lord Howe (Australia), a few of the eradication projects I've been involved with, are good examples. Anacapa, an island with an endemic rodent (which needed to be protected, and hence added another layer to project complexity!) has been rat-free since 2002. Banco Chinchorro Atoll, despite being partially inundated and dominated by land crabs and crocodiles, has been rodent-free since 2015 – it's also the largest wet tropical island to have been restored to date. Lord Howe Island, treated only in 2019 and currently in the confirmation phase (though already showing signs of species recovery), will hopefully be confirmed later this year as the largest inhabited island from which rats and mice have been eradicated.

Our recent experimental eradications in French Polynesia (see opposite) have also been challenging assumptions of what can be achieved and how. In addition, exciting technological innovations such as drones, smart traps, novel lures and new toxins are in MWLR's pipeline.

Such endeavours are excellent tests of endurance, focus, teamwork, organisation, and inclusion. Because the work is hard, mentally and physically demanding, and requires many personal sacrifices, it's not for everybody. You need the right mindset and support, just as when you are mountain climbing – otherwise no one gets to the summit to admire the view. As a result, in this line of work you get to know the most amazing, committed people. I enjoy and value that very much. All the eradication projects I've been involved with have been successful, no doubt in large part due to the professionalism of both the planning and the ground teams.

As the Technical Advisor for Gough's mouse eradication, I take my hat off to the team making the project a reality. Even in this globally difficult time they are finding solutions to the many extra hurdles, all while maintaining the high standards required to stand the best chance of success. That's the team you want to be in! And that's why I can't wait to get to Gough, examine these infamous mice, work with an exceptional team to deliver an efficient eradication operation, and hopefully return later to witness the magic of mouse-free Gough Island.

Dr Araceli Samaniego

Manaaki Whenua – Landcare
Research

New research proves promising for Henderson return

Eradication success is never guaranteed. Sometimes the reasons for failure are easy to spot, but this isn't always so. We are keen to get back to Henderson Island as soon as possible to try once more to remove Pacific rats *Rattus exulans*, but without understanding better what went 'wrong' before, how can we have any more confidence in the outcome next time? Much has been going on over the last few years to plan again and we are inching closer towards the goal of restoring this tropical island.

A decade ago when our team arrived at Henderson to lay rodent bait, the island looked particularly lush— a long drought had recently broken. With the 'benefit' of hindsight, perhaps the team should have packed up and left; the lush conditions could mean more plentiful food supplies which some rats may eat in preference to the bait. Perhaps it was too risky— better to try another time.

But perhaps the abundance of natural foods wasn't the reason for failure—or even part of the reason. Hindsight can be helpful, but in this instance, the real question for us is: *What would we actually do if faced with the same situation upon our return?*

Turning around at the shores of that remotest of islands, after all the years of planning and many resources expended could render the project too expensive to complete, not to mention prolong further the decline of native populations. And it might not even be necessary!

There were a few rodent eradication attempts on tropical islands that failed in the same season as Henderson Island, and the international field of island restorationists took a keen interest in trying to get to the bottom of 'Why?' So followed an international workshop and then a new set of recommendations for eradication operations on tropical islands.

However, no clear cut reason which would categorically explain what went wrong on Henderson emerged—just a lot of hard-to-answer questions that continued to niggle.

Thankfully, research led by Dr Araceli Samaniego has shown that eradication is possible despite a number of conditions being present that might have contributed to the failure on Henderson last time around.

During an experimental eradication of Pacific rats on the small (22ha) tropical Reiono Island (part of Tetiaroa Atoll),

Araceli and her team found that eradication was possible despite far from ideal conditions. Bait was not available for as long as is recommended, alternative foods such as coconuts were bountiful, rats were breeding and all age-classes of juveniles were present, as was an abundance of land crabs who would compete for bait.

In short, no evidence was found to support hypotheses that rat breeding and diet specialisation may cause eradication failure, even in the presence of plentiful alternative food sources. Whilst more such findings from other islands would be reassuring, this is essentially very good news for Henderson Island!

In light of this research, and in keeping following eradication failure, the feasibility assessment for Henderson Island has been revisited. The new findings are being considered currently by the Pitcairn Government. We hope to be able to share more news on this in the next edition.



Dr Araceli Samaniego (left, *Nic Tolentino*) and above working on the on the Alacranes Archipelago project Gulf of Mexico (*J.A. Soriano/GECI archive*)

Mouse-Free-Marion shaping up

At 29,000 ha (more than 4 times the size of Gough), Marion Island hopes one day soon to hold the record for the largest island from which house mice have been eradicated. Marion's invertebrate biomass is collapsing whilst mouse predation on birds is increasing, so the spate of successful mouse eradications around the world on ever-larger islands can only be good news. Newly-appointed Project Manager Dr Anton Wolfaardt reports on the project's latest developments.

The Mouse-Free Marion Project is a joint endeavour between the South African Department of Environment, Forestry and Fisheries and BirdLife South Africa, with support from a number of organisations, such as the FitzPatrick Institute of African Ornithology and the RSPB to eradicate invasive non-native mice from Marion Island (south Indian Ocean).

The project has gained significant momentum recently with the appointment of Dr Anton Wolfaardt as Project Manager and the establishment of the Mouse-Free Marion Non-Profit Company as the vehicle to undertake this important work.

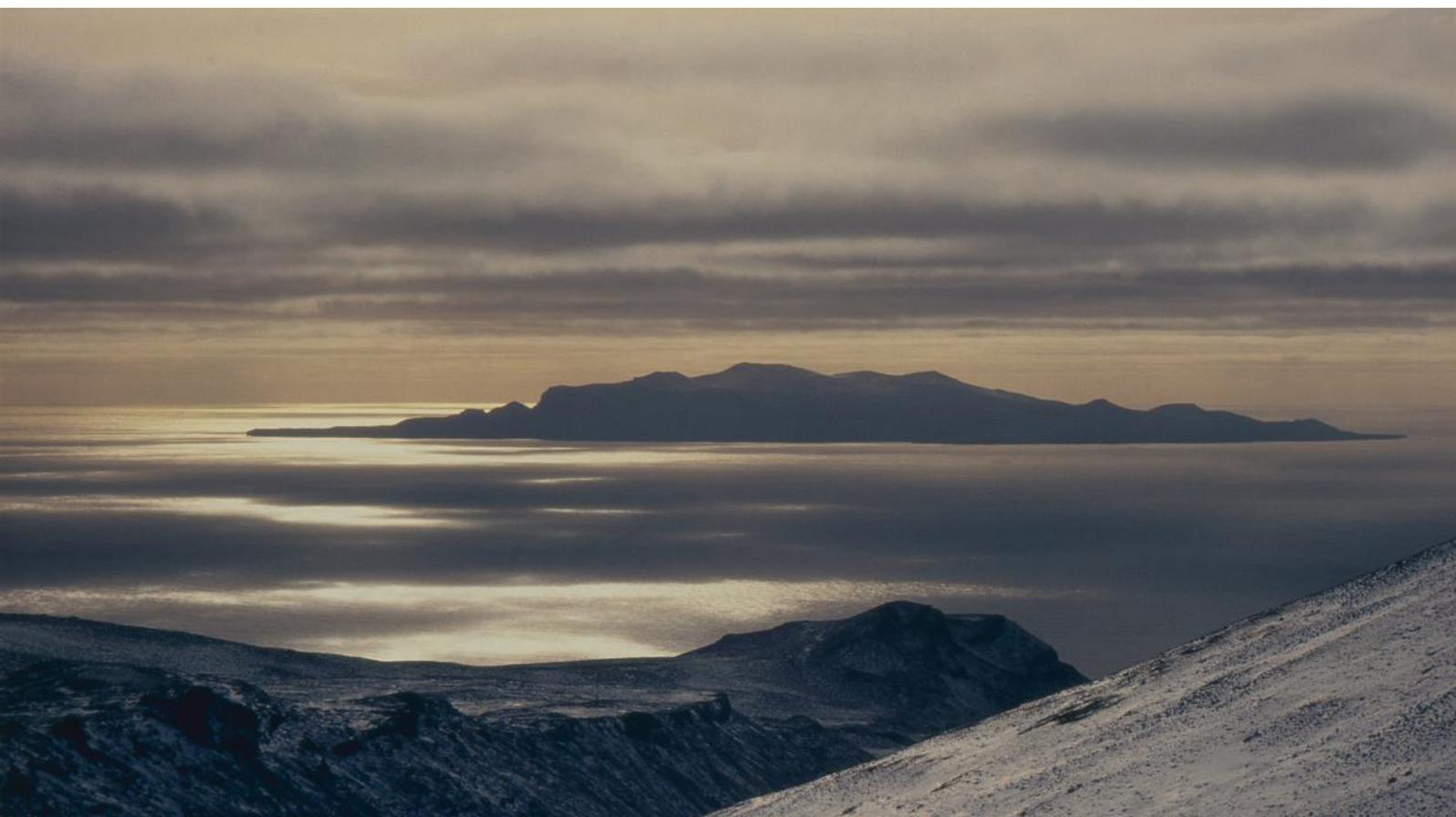
The institutional arrangements between the various partners of this joint endeavour are currently being set up, and efforts are being directed towards developing and updating the

various plans and processes required for the eradication. The project is working towards an implementation target date of late (austral) autumn and winter 2023.

There remains a lot to do between now and then, not least the need to raise the outstanding funding required. Insights gained from the planning for the Gough operation have been hugely beneficial for the Marion project. A valuable partnership has been established between the two projects and their proponents, which will continue to deliver reciprocal benefits.

Dr Anton Wolfaardt

Editor's note: As both the Marion and Gough operations will launch from South Africa, there is great scope for skills and knowledge transfer between the two projects. We're delighted, therefore, that all six members of the last two RSPB field teams on Gough have been South African nationals and hope that the skill-sharing will continue!



The view from Marion Island: Nearby rodent-free Prince Edward Island gives hope and inspiration for Mouse-Free-Marion (A. Wolfaardt)

What lies beneath?

There are eight seabird species which breed on both Gough and Marion islands. However, very little is known about most of them—beyond the fact they are almost certainly in trouble.



A two-week old grey petrel chick with mouse wound on Gough Island (B.Dilley)

Burrow-nesting species nesting on both Gough & Marion islands:

Grey petrel
Procellaria cinerea

Great-winged petrel
Pterodroma macroptera

Common diving petrel
Pelecanoides urinatrix

Grey-backed storm-petrel
Garrodia nereis

Black-bellied storm-petrel
Fregetta tropica (melanoleuca)

Kerguelen petrel
Aphrodroma brevirostris

Blue petrel
Halobaena carulea

Soft-plumaged petrel
Pterodroma mollis

Despite almost a million pairs of the Endangered and near endemic Atlantic petrel breeding on Gough Island—and us having spent years working to protect them—we have almost no photos of them at all. It is perhaps no wonder then, that the same is true for the other, less-threatened and more geographically widespread burrow-nesting seabirds found on Gough and Marion islands.

Burrow-nesting seabirds remain an enigma to this day. They return to land at dusk and stay underground tucked well away from avian predators until setting off to forage once more at dawn.

Population number and trend estimates can be vague and variable. We don't even know *for sure* that mice are preying on all burrow nesting species on Gough and Marion. But it is almost certainly the case. On the

understanding that the plight of MacGillivray's prions (p3) is indicative of the wider subterranean picture it's worth sharing what we do know of these birds.

Gough and Marion have eight burrow-nesting species in common. And almost all breed on one or other of these mouse-riddled islands in globally-important numbers.

There has been little to no recovery of burrowing petrel populations recorded from Marion since the removal of cats 20 years ago. Mice are thought to be behind this.

Common diving petrels, suspected to have been lost from the island when cats were removed, still have a population estimate of just 50-100 pairs.

Grey-backed storm petrels and black-bellied storm petrels are

now so uncommon on Marion that they are thought likely to be locally extirpated.

Without action to remove mice, it is feared that 18 of the 28 (burrow- and surface-nesting) species on Marion could be lost. On Gough, mouse predation is known or thought likely to be affecting 18 of the island's 24 avian species.

Two of the species known, or presumed to be, at risk on Gough Island were only 'discovered' within the last few years. I'm mindful of song lyrics sung so beautifully you almost forget to listen to them—

Don't it always seem to go that you don't know what you've got 'til it's gone?

Time is running out, fast.

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Cover image: the first restoration team sets sail from Cape Town to Gough in February 2021 (*D.Hall*)



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The RSPB is a member of BirdLife International, a partnership of conservation organisations working to give nature a home around the world.

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