Friends of Lord Howe Island

Newsletter No.47 Spring 2019

Members of the August 2018 weeding ecotour

In this issue:

Friends members attended a dinner at Bondi to thank Stephen Gale for his dedicated service to the Friends of LHI. Steve and his wife Leonie came on weed ecotours from 1999 to 2013 and provided great energy into the group. Steve was the inaugural Treasurer for the group from 2001, and held the positon until 2018. Steve and Leonie have moved to a farm near Port Macquarie where he has cattle and is pursuing his interest in Blacksmithing. Veronica Lambert presented Steve with a wooden bowl made from Lord Howe Island timber.

Friends LHI AGM

The Annual General Meeting was held at 3.27pm on Saturday, 22nd September, at the home of Ian Sinclair and John Pemble, 28 George Street, Yowie Bay, NSW 2228; preceeded by a bbq lunch.

The committee positions were declared vacant and the new committee elected as follows:

President: David Christopher Murray
Vice President: Ian Hutton
Secretary: Annie Hawker
Treasurer: Gwenda Lister
Committee Members: Hank Bower, John Pemble, Robert Coenraads, Ian Sinclair

6. General Business

6.1 The FoLHI Membership Form
Rob Pallin, Anne Pickles, David Scott, John Pemble and Carolyn Rae all came up with ideas about how the new form could be improved.
Actions: Ian Hutton will do a second draft of the form, based on these ideas, omitting the fax number, possibly including banking details, and including a mention of Citizen Science
Gwenda Lister will look into possible payment methods for members.

6.2 The “before” and “after” signs at Transit Hill and another location.
As mentioned above, it was decided that there will be 3 signs, 2 funded by the Friends and one by a generous sponsor.
Action: Ian Hutton will send possible designs round to members.

6.3 Possible need for change to our constitution.
Nancy Pallin raised the fact that we may need to change our constitution if we introduce electronic banking.
Action: Gwenda Lister and Annie Hawker will look into this.

6.4 Qualifications for membership of the Gift Fund Committee
Gwenda Lister raised the fact that quite strict qualifications are required for this. Action:
Gwenda will also explore this further.

6.5 Possible donation to the Board to help with rodent eradication/ weeding projects
Ian Hutton suggested that this might be welcomed by the Board of Lord Howe Island. Rob Pallin said there was no need for this at this stage. It may be best to wait until after the eradication, when we could offer the funds to tackle a particular issue arising from it.
Ian then suggested that we might fund the clearing of the track to Mutton Bird Point and (another project), both of which were approved.

6.6 The new CEO of the Board
Rob Pallin informed the meeting that the new CEO of the Board is Peter Adams,

6.7 Letters to the Minister
Rob Pallin urged that we all write to the Minister to congratulate him on the decision to go ahead with the rodent eradication and to express our support.
Action: We all write!

6.8 Vote of thanks to Ian Sinclair and John Pemble
Ian Hutton proposed a vote of thanks to Ian and John for hosting the AGM, which was unanimously supported.

BALANCE SHEET FINANCIAL YEAR END 2018 (30.4.18)

INCOME
Donations- Individual $5,120.00
Payments $0
Subscriptions $485.00
Grants $0
Interest/Sales/etc $202.56
TOTAL $5,807.56

EXPENDITURE
Insurance $430.00
Tools $0
Statutory Fees $0
Volunteer Expenses $0
Grant/Project Expenses $0
Operating Expenses $0
Miscellaneous $80.00
Promotion $0
Bank Fees $0
TOTAL $510.00

EARNINGS/(LOSS) $5,297.56

Retained Earnings at beginning of the year $41,410.42

Retained Earnings at end of the year $46,707.98

Represented by:
Assets
Cash at Bank Main Account $6,211.09
Cash at Bank Main Investment Account $17,141.59
Unpresented cheque 300276 -$105.45
Subtotal Main Accounts $23,247.23
Cash at Bank Gift Fund $3,237.13
Cash at Bank Gift Investment Account $20,118.17
Subtotal Gift Accounts $23,355.30
TOTAL $46,602.53

LIABILITIES
Project Support $5,000
LHI Marine Park Gift Fund $1,346.88
TOTAL $6,346.88

Net Assets $40,255.65

MAIN ACCOUNT BALANCE SHEET FINANCIAL YEAR END 2018 (30.4.18)

INCOME
Donations $5,020
Payments $0
Subscriptions $485.00
Grants $0
Interest/Sales/etc $103.49

TOTAL $5,608.49

EXPENDITURE
Insurance $430.00
Tools $0
Statutory Fees $0
Volunteer Expenses $0
Grant Expenses$0
Operating Expenses $0
Transfers to Gift Fund $5,020.00
Promotion $0
Miscellaneous $80

Bank Fees $0
TOTAL $1,247.65

EARNINGS/(LOSS) $5,530

Retained Earnings at beginning of the year $23,274.19

Retained Earnings at end of the year $23,352.68

LIABILITIES
ET Volunteer weeder support $5,000.00
Re-imbursement of DFT and postage $105.45
Total $5,105.45

FLHI Available Funds $18,247.23

GIFT ACCOUNT BALANCE SHEET FINANCIAL YEAR END 2018 (30.4.18)

INCOME

Donations $5,120

Donations to LHI Marine Park Fund $0

Interest $99.07

TOTAL $5,219.07

EXPENDITURE

Marine Park Grant $0
TOTAL $0

EARNINGS/(LOSS) $5,219.07

Retained Earnings at beginning of year $18,136.23

Retained Earnings at end of year $23,355.30

Liabilities
Marine Park Fund $1,346.88

FLHI Available Gift Fund
$22,008.42

August 2018 Weed ecotour report

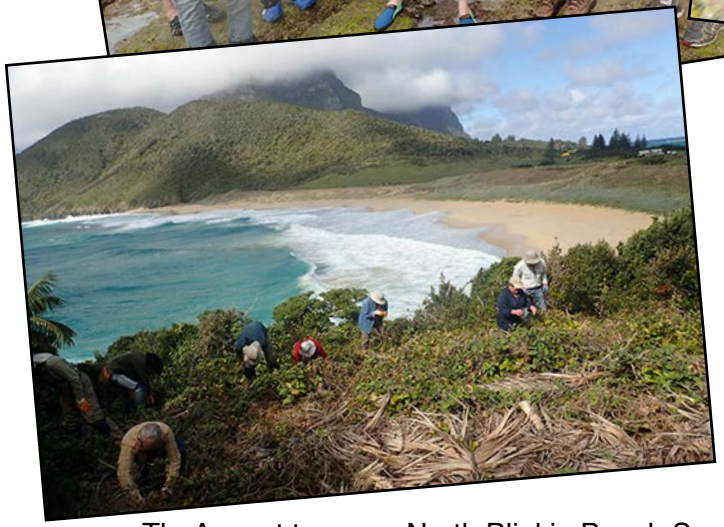
A very enthusiastic group of ten along for this 87th weeding ecotour. We had Bill McDonald to assist, three regulars – Elizabeth Staraj, David and Gail Scott. Otherwise all tour members were new to the program and keen to learn all about the island, its flora, fauna and conservation. - Susan McVie, Laurent Perez, Michael Rouse, David Taylor, and it was particularly inspiring to see father and son Antony and Henry Inglis along for the week; also we ,had on the island visiting from WA, Donna Bicknell who joined in for many weeding activities.

For our first day conservation activity we visited Edie's Glen to give that another clean-up – particularly around the new small palms planted by the June group. Then after lunch we went down to Ned's Beach for a great reef walk on a very low tide day – enjoyed by all. After dinner we viewed the phasmids being held at the museum and Gail wrote "Highlight of the evening after the lecture about the world heritage values of the island, was the introduction of the phasmid – and the privilege of holding a 6-month-old female – a truly unique experience, every home should have one."

Day two we visited the Blinkie Beach headland site where the June group had removed the garden escape sweet pea. The group members swept through and removed any seedlings that had sprouted since June. The afternoon walk was to the top of Malabar – great views on a sunny day- and we heard the calls in the distance of the Sooty terns – they hadn't quite landed back for summer breeding, but were swirling around in clouds high off the cliffs.

On Tuesday we headed down to Johnson's Beach opposite Capella to look at the Sea spurge infestations. No one has looked at the weeds along this stretch of beach, and we were amazed to see

Edies Glen clean up and check on palm seedlings



TheAugust team on North Blinkie Beach Sweet pea site

the high density of some very big Sea spurge plants – what a lot of Lagoon Beach may have looked like if the Friends had not started eradicating this weed as far back as 2010.

Many of these Sea spurge plants were 60cm across and had long thick tap roots; some so big that they could not be dug out, and we had to cut the roots and apply glyphosate to them. The afternoon walk was out to Clear Place, returning via Middle Beach and some delightful rock pool exploring.

Day four we visited North Bay for the day – the target weed was the coastal morning glory *Ipomoea cairica* infestation at New Gulch and on the hill leading to North Head. The group in June had started tackling this and realised just what a big infestation it was – 100 metres square, with multiple stems crawling under and over the native grasses and herbs found there. We soon found the most efficient technique was to dig a hole through the grass, to uncover a heap of morning glory stems criss-crossing over each other – then scraping the stem and applying glyphosate; in a few hours we did manage to dig a lot of these holes to treat the weed. Then we had a wonderful BBQ lunch – which included a nice squid that had washed up on the beach early that morning and so was very tasty on the BBQ.

Day five we decided to go and help the native forest above Middle Beach regenerate with some help removing the native vines that were smothering small native sapling trees. In the afternoon we walked down to Little Island to see the Providence petrel chicks. Along the way we came upon a very friendly White-faced heron that walked nonchalantly in front of us most of the way along the track. Providence petrels are always a huge hit at this stage of development – a thick fluffy ball of down with just a head and feet protruding. Around 4pm we looked up at the Lower Road, and could just

Sea spurge Johnson's Beach

North Head morning glory team

see the tiny white dots that were the helmets of the climbing party coming down – including two of our party – Tony and Henry – who thoroughly enjoyed the days experience. Henry wrote “Our intrepid adventure up Mt Gower was a botanical bonanza. Saw beautiful examples of the orchid *Dendrobium moorei.* We were also accompanied by a tag team of Currawongs who seemed to pass the group between themselves waiting to be fed. The forest near the summit was a wonder of cloud-induced ferns and mosses. It looked surreal – or maybe that was the effect of the climb! “

For the final day we returned to Johnson’s Beach to finish off tackling the Sea spurge. We completed from the northern outbreak all the way to the mouth of Soldier’s Creek and then crossed over and began working in the southern area – not as large or dense as we had encountered the previous days here – but still quite a lot and it has been buried by moving sand so was quite hard to dig out. We didn’t quite finish – so some left for 2019 groups. We then had a nice sausage BBQ at Ned’s Beach followed by a walk along the cliff top from Ned’s Beach to Middle Beach – quite spectacular landscape in the windy conditions of the day.

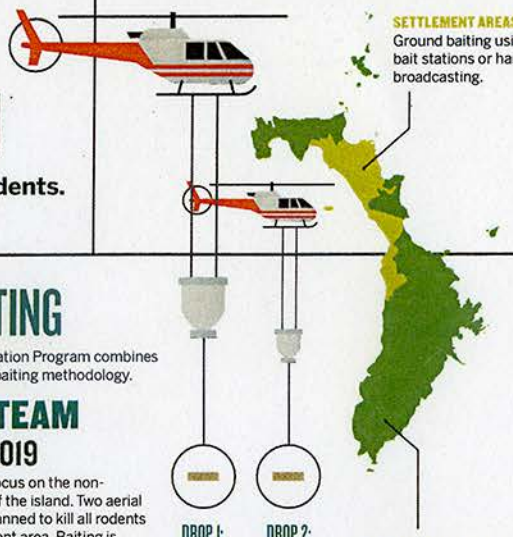
Before dinner at the museum that night, LHIB World Heritage officer Hank Bower came and thanked all of the group for a great effort through the week,

A great week, with 172 volunteer hours put into conservation on Lord Howe Island.

Sea spurge Johnson’s Beach

LORD HOWE ISLAND RODENT ERADICATION PROGRAM

The largest populated island to undertake a full scale eradication of rodents. What does it take for an operation of this magnitude to be successful?



LESS THAN **1.2KG** BRODIFACOUM
The total bait application of cereal pellets will contain a total of 1.2kg of the active ingredient brodifacoum.

28000 BAIT STATIONS
Used across the settlement area.

2100ha OF SURFACE AREA TO BE BAITED

1 PROBLEM IDENTIFICATION

2001

Mice and rats are responsible for the extinction of at least 5 endemic bird species and 13 invertebrate species since 1918. Inaction will threaten the unique biodiversity values on which World Heritage listing is based.

150 000 MICE **210 000** RATS

House mice (*Mus musculus*) arrived on Lord Howe Island before 1860. Black rats (*Rattus rattus*) were introduced in 1918 when the ship *SS Makambo* ran aground.

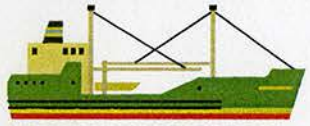
70+ THREATENED SPECIES IMPACTED BY RODENTS

Including the world's rarest insect, the Lord Howe Island phasmid. Thought to be extinct since 1920, it was rediscovered on a rodent-free island in the Lord Howe Island Group in 2001.

2 PLANNING, LOGISTICS & COMMUNITY ENGAGEMENT

SEP 2017–APR 2019

Located 775km off the coast of Sydney, Lord Howe Island's remote location means the project requires extensive planning and logistics management, in conjunction with broad and ongoing community engagement to ensure the greatest possible chance of success.



1 SUPPLY SHIP

Most of the equipment and materials needed for the project will be shipped by the *Island Trader*.

8 CORE PROJECT CREW
Responsible for project planning and logistic management.

3 BAITING

The Rodent Eradication Program combines aerial and ground baiting methodology.

AERIAL TEAM
JUN/JUL 2019

Aerial baiting will focus on the non-settlement areas of the island. Two aerial applications are planned to kill all rodents in the non-settlement area. Baiting is scheduled for winter to decrease the risk to non-target native animals.

2 AS350 HELICOPTERS USING BAIT SPREADING BUCKETS

Each helicopter is equipped with a flight line Global Positioning System (GPS), recording accurate flight lines to ensure bait is applied with 100% coverage. Use of deflector buckets will minimise bait in the marine environment.

2 AERIAL BAIT APPLICATIONS
3–5 days each, 14–21 days apart. Scheduled for June/July 2019.

2 HELICOPTER PILOTS
Highly skilled with experience flying in challenging conditions.

8 AERIAL SUPPORT CREW
One helicopter engineer, one GIS officer, one loading supervisor, and five bait loaders.

GROUND TEAM
MAY–OCT 2019

Bait stations will be placed throughout the settlement area, with hand broadcasting in areas between bait stations and aerial areas.

50 GROUND BAITING CREW
To place bait stations, monitor bait stations and to hand broadcast bait.

4 MONITORING & CAPTIVE MANAGEMENT

APR 2019–AUG 2021

6 CAPTIVE MANAGEMENT CREW
Up to 85% of woodhens and 50-60% of currawongs will be housed during baiting by the Taronga Zoo team, who provide specialist care for the birds during the monitoring phase.

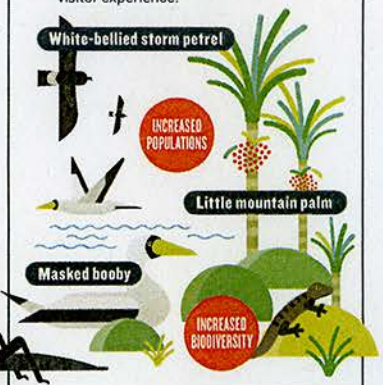
6 SPECIALLY TRAINED DOG TEAMS
Two permanent biosecurity dogs and their handlers will monitor rodent activity. Specially trained rodent detection dogs and their handlers will also be used after the baiting.

Intensive rodent monitoring will occur for two years, followed by ongoing biosecurity monitoring. If no rodents are detected two years after the initial eradication the project will be deemed a success.

5 OUTCOMES

AUG 2021

- ✔ Increased biodiversity.
- ✔ Enhanced world heritage values.
- ✔ Removal of rodenticide from Lord Howe Island permanently.
- ✔ Removal of domestic rodent impacts and related health concerns.
- ✔ Increased numbers and breeding success for birds such as the Kermadec petrel, masked booby and white-bellied storm petrel.
- ✔ Increased seeds and seedlings for numerous plant species including the critically endangered little mountain palm.
- ✔ Recovery of endemic ground lizards and invertebrates such as land snails.
- ✔ Reintroduction of the world's rarest insect, the Lord Howe Island phasmid.
- ✔ Long term benefits to tourism and the island's economy through improved visitor experience.



TIMELINE

PROGRAM BUDGET: $10.5 MILLION

PRE-2017

2001–2004 Feasibility study.
2007–2012 Initial trials.
2012 Funding received.

2012–2017 Additional studies and community engagement.

2017

SEP 2017–MAY 2019 Recruitment, planning and operational logistics.

2018

APR 2019 Woodhen and currawong capture.
MAY–OCT 2019 Ground baiting.
JUN/JUL 2019 Aerial baiting.

2019

MAY–NOV 2019 Environment and targeted health monitoring.
AUG 2019 Masked owl eradication.

2020

SEP–OCT 2019 Currawong (staged) release.
NOV 2019 Woodhen release.

2021

JUL 2019–JUL 2021 Rodent monitoring and biodiversity benefits.
AUG 2021 Final detection and rodent monitoring.

POST-2021

AUG 2021 Outcome of project declared.
POST-2021 Long term biodiversity monitoring over 3–10 years, plus ongoing rodent and biosecurity detection.

LORD HOWE ISLAND RODENT ERADICATION PROJECT

PROGRAM PARTNERS

National Landcare Program
NSW Government
NSW Environmental Trust
Taronga Zoo

INFOGRAPHIC BY MIKE ROSSI / MICROGRAFIK.COM

FOR RESIDENTS AND VISITORS DURING THE RODENT ERADICATION PROJECT (REP)

LORD HOWE ISLAND RODENT ERADICATION PROJECT

Please place this document in your home or lodge where it is easy to find. Due to the level of detail, it is two sided in order to reduce paper. For more information visit www.lhirodenteradicationproject.org or contact Assistant Project Manager (Community) Jaclyn Pearson or Graeme Beech on **6563 2066 (ext39)**. Additional copies are available at LHIB.

The need for the REP

NO MORE WILDLIFE EXTINCTIONS

Invasive rodents have caused extinction on islands worldwide including Lord Howe. The community here have a history of conservation, but rodents still threaten birds (13 species), reptiles (2 species), invertebrates (7 species) including the world's rarest insect, the LHI phasmid (tree lobster) and 12 vegetation communities. **By removing the rodents we will protect these species.**

STOP THE USE OF AN ONGOING POISON

Black rats and house mice arrived on shipwrecks and have been controlled since, recently using anticoagulant poisons. Control is failing to protect species and there is constant risk from continued poisons bioaccumulating in the environment. **This one-off operation will remove the need for ongoing rodent poison.**

Safety information on the rodenticide being used during the REP

During the REP we will be using Pestoff® 20R cereal pellets containing brodifacoum. This poison is not as concentrated as poisons currently used on LHI; each pellet contains 20 parts per million, which means they're 99.99% wax, cereal and sugar to attract rodents. The pellets are not as palatable to non-target species (e.g. dogs) as they are to rodents. The NSW Chief Scientist commissioned an independent Human Health Risk Assessment which concluded that the use of Pestoff® 20R on LHI is not expected to result in adverse health effects. As a resident or previous visitor, you will already know not to touch bait stations. If in the unlikely event poisoning was to occur, the available antidote is vitamin K1 via pill or injection.

2019 Diary Dates

15th April	External rat bait stations will be set up in a **10m grid in the settlement** (rats need to get used to them first).
20th May	External bait stations start to be **baited**, internal mouse stations will begin to be placed inside dwellings pre-baited.
1st June	**There will be no aerial broadcast over the settlement.** The first of two aerial broadcasts is planned for 1st June, with the second 10 - 21 days later (weather dependent). **Hand broadcasting** is planned at the same time, each will take approximately 2-3 days to complete.
June - Oct	Bait stations will be checked every 5 days in the first month, this will reduce to weekly and then fortnightly.
July –Oct	Non-toxic monitoring tools and **Biosecurity Detector Dogs** will be used to detect any remaining rodents.
31st Oct	All bait stations will be brought back in. Monitoring for two years with no rodent sign to prove success.

Safety measures for you – residents and visitors

Where?	What should I be aware of?	What actions are REP staff taking?	What actions should or could I take?
In the settlement area - your home, lodge, garden, picnic areas, the foreshore.	 **Lockable bait stations** Photo: An external lockable station (for rats & mice)  Photo: An internal lockable station (for mice)	Bait stations have been used to control rodents on Lord Howe for years. During the REP, staff will check them frequently. All bait stations are lockable. Trays may be used in roof spaces. Staff continue to have health and safety discussions with residents, lodges and the school as part of property management plans.	Residents – continue to remind children and visitors not to touch stations. Visitors – the stations in your lodge will have a **'do not touch sticker'**.
 Photo: Two bait pellets next to a 20 cent piece	**A pellet found outside a station** A rat may accidently drop a pellet whilst caching them in the nearby area. This will be rare, as often they are found and eaten by other rodents during darkness.	During bait station checks, REP staff will be vigilant and retrieve any pellets outside stations. Staff will wear **bright blue hats**, please ask them questions and let them know any concerns at any time.	Residents - use gloves provided & put the pellets back in the entrance of stations or call us. Visitors – tell your lodge or call **6563 2066 (ext 39)**

Medical assistance: if you're concerned a person/dog has eaten bait (lethargic or pale in colour especially around the gums) contact the Medical Centre immediately on 6565 2000. The Doctor will assess the situation and has Vitamin K antidote.

***Although brodifacoum is practically insoluble in water, we will be diligent and through monitoring check any brodifacoum residue in the soil, streams, milk and fish livers caught in the lagoon. This precaution is based on community feedback.**

Where?	What should I be aware of?	What actions are REP staff taking?	What actions should I or could I take?
Permanent Park Preserve mountains and hills (Gower, Lidgbird, Transit, Malabar)	**Aerial broadcast (AB)- Some hill and Mountain trails closed** There will be two aerial broadcasts by helicopter, both will take approximately 2-3 days to complete. During these periods trails will be closed and the mountain guides will not operate. **We advise** to not drink from the streams during the REP*. **Please note -** Brodificoum does not move through the environment (e.g. water courses) as it binds to soil and sediment and soon becomes inactive.	Staff will place signs explaining the dates that 'tracks are closed during aerial broadcast.' Residents -Through email, letters and posters we will provide a 24 hour notice of when the aerial broadcasts will occur. Visitors – Posters at Visitor Information Centre and lodges. **Please note -** There will be no bait dust able to be carried by wind.	Residents Liaise with us for details on closed tracks, Tour Operators will also know in advance. Take water flasks on walks. Visitors Liaise with the Visitor Information Centre and Tour Operators to plan your walks. Take water flasks on walks.
Between the bait station areas and the aerial broadcast areas.	**Hand Broadcast (HB) – be vigilant.** Occurring at the same time as AB, taking 2-3 days. Pellets will be seen on the ground in some areas on the outskirts of the settlement area. Most will be eaten by rodents, but some may remain on the ground until weathering breaks them down. **Please note -** Brodificoum does not move through the environment (e.g. water courses) as it binds to soil and sediment and soon becomes inactive.	By 1st April we will provide a map of the AB and HB areas (email, letters, and posters on noticeboards). Staff will place signs explaining the dates that 'This is a hand broadcast area.' Residents – Through email, letters and posters we will provide a 24 hour notice of when the hand broadcast will happen and cease, followed by updates including details on the breakdown of bait pellets*. Visitors – Posters at Visitor Information Centre and lodges.	Residents and visitors Recreational areas for children which are not in hand broadcast areas are plentiful, but if you do enter hand broadcast areas, be aware and do not touch pellets. Dog owners, prepare to muzzle your dog if you choose to walk them in these areas.
Anywhere on island	**Rodent carcasses above ground** This will only be a limited number as they usually return to their nests underground to die.	Staff will look for, collect and autopsy any rodents found. You can contact us to collect any you may find.	Residents and visitors Prevent dogs eating rodent carcasses. **Call us to collect carcasses 6563 2066 (ext 39).**
Lagoon	**Lagoon areas** – enjoy normally. **We advise** to not consume the liver of any fish caught in the lagoon shore area. Even though trials have shown that it is highly unlikely for fish to interact with pellets and toxicology trials show residues in fish livers to be highly unlikely*.	We will let you know when the residue testing is completed (email, letters, posters) and when you can eat fish livers if you choose to. **Please note** – LHI field trials and information from worldwide projects show that marine life interaction with pellets is highly unlikely. Research shows rodent eradications can benefit reefs.	Do not consume the liver of any fish caught in the lagoon area until we confirm no residues. Otherwise, catch and eat fish as normal.
Across the island	**Livestock, poultry and crops** **We advise** to not eat meat or offal from any animals butchered on LHI during the baiting period. Milk from the dairy herd will not be available until bait is no longer present and laboratory testing confirms that there are no brodifacoum residues present*.	These precautions have been confirmed as part of 'Property Management Plans' and inform ongoing discussions. **Please note** – Bait stations are livestock tamper proof and bait stations are used around food crops.	Residents continue to liaise with REP staff. Visitors check out the website or chat to REP staff for more information lhirodenteradication project.org

Residents - what can you do to assist the project further?

Parents, your children will bring home leaflets after school safety education sessions with REP staff.	
April 1st	Cease composting as this provides alternative food for rodents. Use waste food pails provided instead and if you need the REP Waste Management Officer to collect any food or organic waste during the REP, call Jaclyn to book this. Contact **6563 2066 (ext39). Please refer to your 'waste management flyer'.**
	Start 'chicken plans' which you have confirmed with Jaclyn as part of your Property Management Plan.
	Be vigilant and start to collect fallen fruit and place in your waste food bucket.
Ongoing	**Continue to contact REP staff with questions or concerns 6563 2066 (ext39).**

Lord Howe Island – a window to the depths of Zealandia?

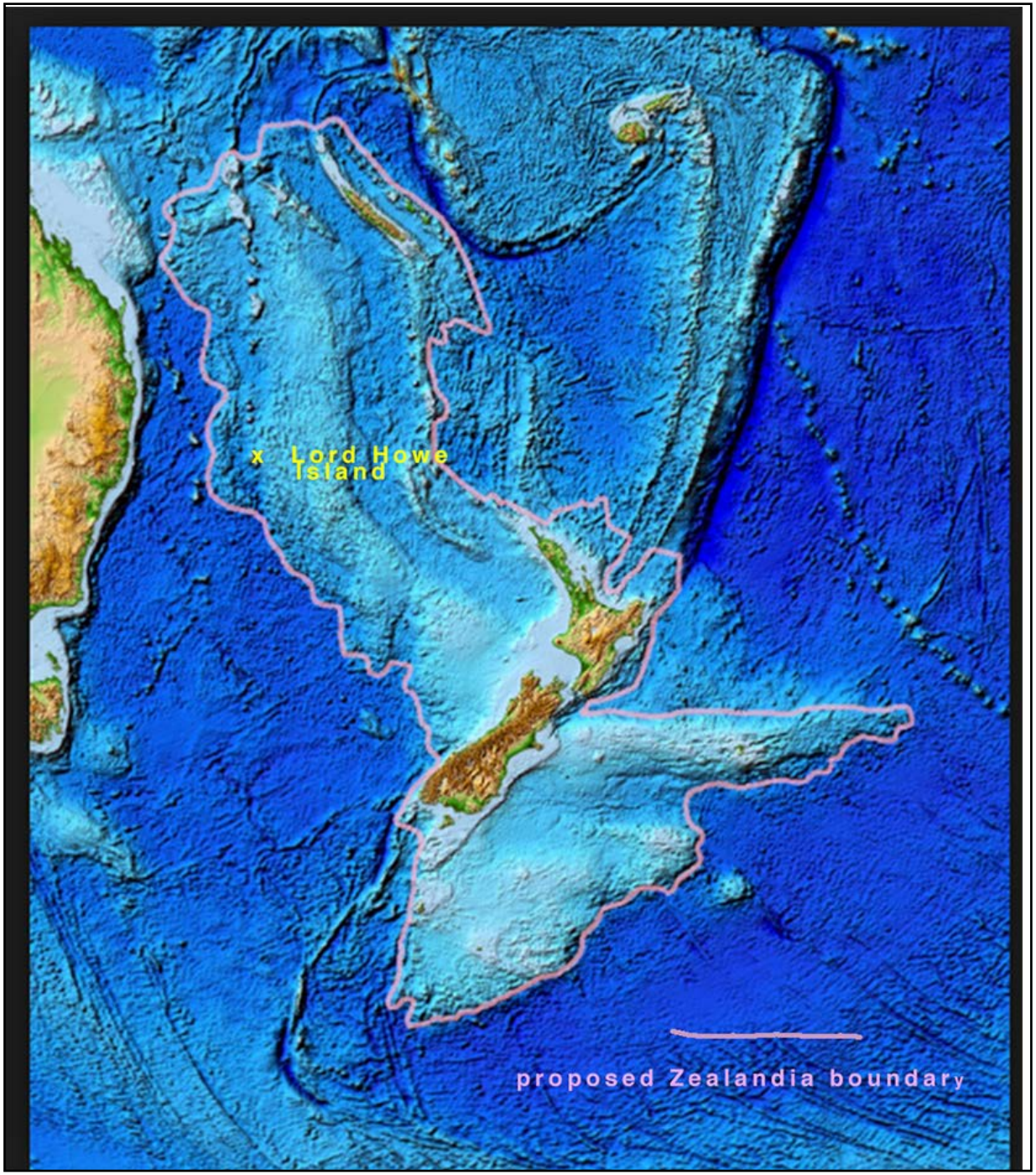
Lord Howe Island lies on the western edge of Zealandia, an ancient, submerged continental fragment that separated from Australia tens of millions of years ago. Until recently, the volcanic rocks on Lord Howe Island were thought to preserve only the most recent history of Zealandia, i.e. the last 6–7 million years. This perception has changed.

In May 2017 Dr Sanny Saito, a geologist from the Japan Agency for Marine Earth Science and Technology, visited the island to film for a documentary on the "Lost Continent of Zealandia". He was specifically keen to see if he could locate any xenoliths. A xenolith is a piece of rock trapped in another type of rock. Most of the time, a xenolith is a rock embedded in magma while the magma was cooling. Magma is the molten rock beneath the Earth's crust that emerges as lava during a volcanic eruption.

Asked by Dr Saito where might be a possible place to look for xenoliths, Ian Hutton suggested the best location would be the rocks on the boulder beach around Little Island – as these boulders have fallen from many different lava layers in the cliffs above. Whilst examining the huge boulder that makes up Little Island, Dr Saito identified what he thought may be "xenoliths", inclusions in the volcanic basalt that differ markedly from their host lavas.

These rare rock fragments may have been dragged to the surface from depths of many kilometres as magma (molten rock) rose to the surface during the formation of the Lord Howe Island volcano 7 million years ago. The fragments may therefore provide rare clues about the deep geology of Zealandia.

The xenolith discovery is extremely important given that ninety-five percent of Zealandia is submerged. Besides New Zealand and New Caledonia, Lord Howe Island is one of the few parts of Zealandia that lies above sea level and is thus uniquely located to provide a window into the deep crust of this enigmatic continental fragment.



A group of geologists from the Japan Agency for Marine-Earth Science and Technology, Geoscience Australia, the Geological Survey of New South Wales and the University of Wollongong visited Lord Howe Island in early March to sample some of the rare xenoliths. Over the coming year, the composition and chemistry of the xenoliths will be analysed and used to link the volcanic evolution of Lord Howe Island to the broader geology of Zealandia.

This work is timely given that efforts to understand the submerged continent of Zealandia have increased in recent years. Geophysical techniques have been used for decades to infer the deep geology of Zealandia and various attempts have been made to dredge rock samples from the seafloor of Zealandia. However, the older geology of Zealandia is largely concealed by a 500-m-thick blanket of muddy sedimentary rocks. Thus, the only way to access deep Zealandia geology is through drilling or by sampling fragments of the deeper crust carried to the surface in rising magmas. Scientific drilling in Zealandia was initially undertaken in the early 1970s during the earliest phase of a long-running international scientific collaboration. The most recent scientific drilling in Zealandia was completed in mid-2017. Future plans include an Australia/Japan proposal for scientific drilling to a depth of more than 2.5 km below the seafloor at a site about 600 km to the north of Lord Howe Island.

The Australia/Japan proposal is not yet funded. In the meantime, xenoliths like those recently sampled on Lord Howe Island may provide rare insight into the deep geology of Zealandia.

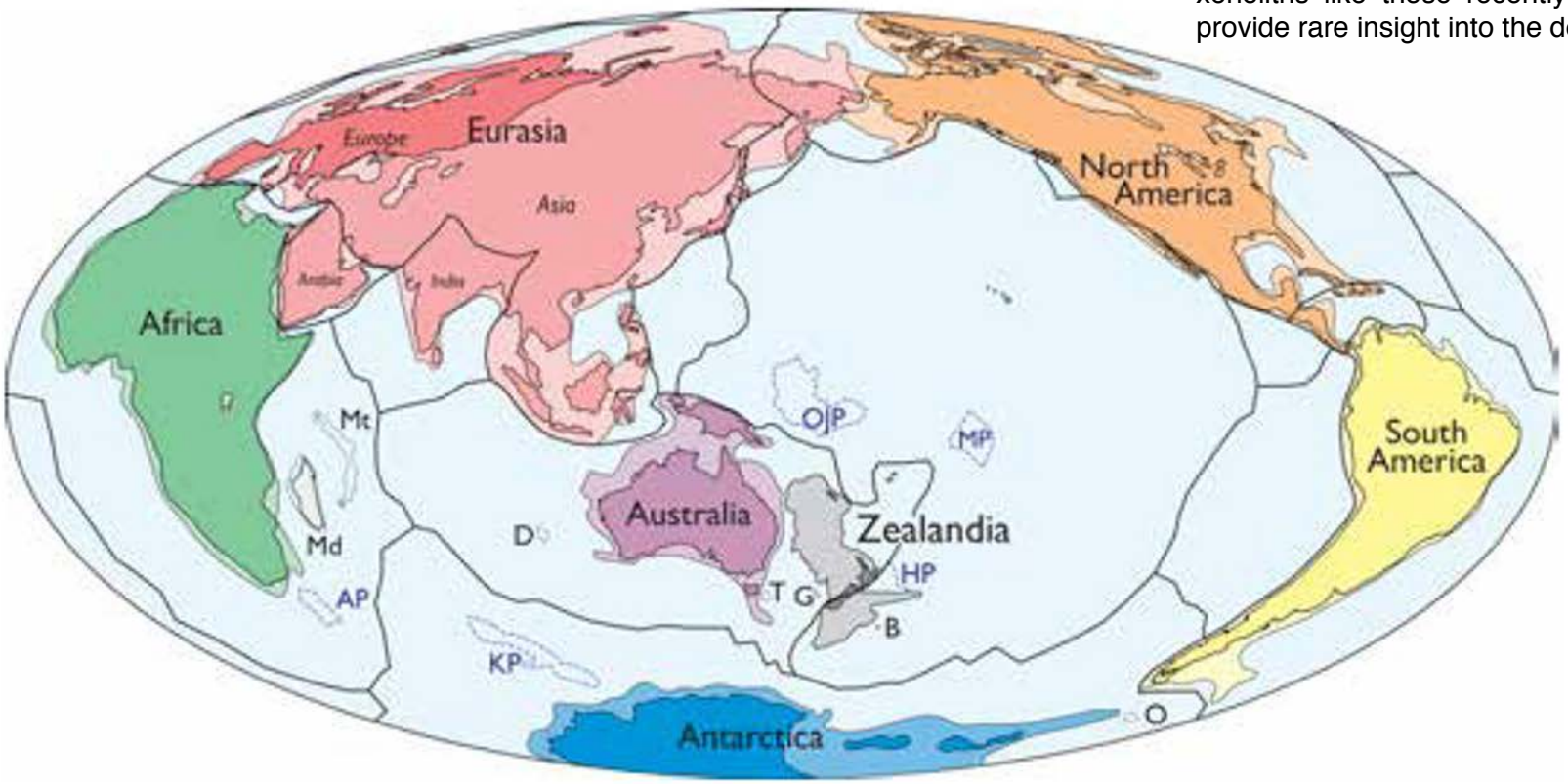


Figure 1. Simplified map of Earth's tectonic plates and continents, including Zealandia. Continental shelf areas shown in pale colors. Large igneous province (LIP) submarine plateaus shown by blue dashed lines: AP—Agulhas Plateau; KP—Kerguelen Plateau; OJP—Ontong Java Plateau; MP—Manihiki Plateau; HP—Hikurangi Plateau. Selected microcontinents and continental fragments shown by black dotted lines: Md—Madagascar; Mt—Mauritia; D—Gulden Draak; T—East Tasman; G—Gilbert; B—Bollons; O—South Orkney. Hammer equal area projection.

The geology team

Drilling a sample from Little Island

Second Lord Howe Island Sea Slug census

In February 2019 a second Sea Slug census was held on the island. This was run collaboration with the National Marine Science Centre, LHI Marine Parks, and LHI Museum. An introductory lecture was presented by Dr Stephen Smith and Matt Nimbs from the NMSC and a free public workshop at Neds Beach on Wednesday 20th.

The 48-hour census took place from midnight 20th to midnight 21st. Many locals and tourists took part, snorkelling, scuba diving and rock pool exploring during the period. A total of 68 slug species were photographed; and 8 of these hadn't been recorded at Lord Howe Island before, taking the total sea slugs for the island to 250 species. One of particular interest was *Halgerda onna*, which had only previously been recorded from Japan, The Philippines and Guam.

Cyerce nigricans

Halgerda onna

Update on Galapagos shark research

In the last issue of the Friends newsletter I detailed the project being run by Jonathon Mitchell of WA University to look at the movement of Galapagos whaler sharks around the island, to get some basic information about their movements. In 2018 30 small sharks were caught and had an electronic transponder inserted into the body cavity. Eleven listening posts were deployed at various locations around the island and Balls Pyramid; and when one of the sharks with transponders swim within 1km, it sends a signal to be recorded on the listening post.

In February 2019 the researchers returned and retrieved the listening posts to download the data collected during the past year.

Preliminary results showed that 9 of the 11 listening posts recorded pings (the other two were in shallow water and it is not certain why no pings were recorded). Of the 30 sharks fitted with transponders 25 had been recorded on some posts. Most sharks stayed fairly localised to the same area, but one larger female roamed around all sites. The record number of pings recorded by one unit was 3,025. More in next issue when results have been analysed.

Coral bleaching and health check research

In January 2019 NOAA advised the Marine Parks of a coral bleaching alert for Lord Howe Island , as a hot pool of water was approaching from the north. With clear skies and light winds this hot pool of water did cause some coral bleaching, particularly in shallow areas of Sylph's Hole, North Bay and Comet's Hole. Researchers are here at the moment carrying out coral bleaching and health checks. Tess Moriarty from Newcastle University and Rosie Steinberg from University of NSW are involved in monitoring the extent of bleaching, and also disease caused by microbial activity in corals. They will return at the end of April to see how the affected corals recover.

Predator Free New Zealand

New Zealand is facing the point of no return with its precious native species, says Sir Rob Fenwick, but the people working to make the country predator free are hitting milestones.

Dunedin City Council's proposal to a Local Government New Zealand conference obliging local authorities to compulsorily register cats passed, by a whisker. Early last year, Wellington City Council introduced a by-law that made microchipping of all cats compulsory. Auckland Council proposes to introduce a plan to dispatch any non-microchipped cat caught in "high ecological value sites".

The creation of funding agency Predator Free 2050 Ltd was a Government experiment to determine the private sector's appetite to invest in nature. If the Government put $28 million on the table, would third parties match it 1:2? Within a couple of years, the agency created a roughly $100 million fund to do landscape-scale predator eradication on sites all over the country. Credit should go to philanthropic organisations and all the regional councils that want to align with a nationally co-ordinated programme with measurable targets towards eradicating possums, stoats and rats by 2050.

Perhaps the most profound illustration of incremental gain is found in the Predator Free NZ Trust, the independent charitable body established to connect and support the growing army of conservation volunteers who give innumerable hours to manage pests on their local reserves, farms, marae and in their own backyards. With support from DoC, Kiwibank and the Morgan Foundation, the trust has nurtured a groundswell of national support, with new groups sprouting up in urban and rural neighbourhoods, all working together to suppress predators and celebrate the return of the birds. Its online following is soaring.

The single most powerful ingredient to engage the community is hope – and milestones create hope. But conservation needs continual community support. There's no shortage of credible organisations to which you can donate your time or money.

Waiheke Island is set to become the world's largest predator-free urban island under a bold new $11 million plan to rid the Hauraki Gulf Island of rats and stoats.

Waiheke Island, which covers 9200ha with a permanent population of about 9000 residents, is a jewel in the Hauraki Gulf and named one of the world's best regions in Lonely Planet's Best in Travel 2016. Conservation Minister Eugenie Sage announced plans in October 2018 to make the island, which is already free of possums, free of other pests by 2025. This would enable North Island kākā, kākāriki, kererū, tūī, korimako or bellbird, piwakawaka or fantail, tūturiwhatu or New Zealand dotterel, ōi or grey-faced petrel and kororā or little blue penguins to breed safely and increase in number on Waiheke, she said.

"Successful eradication of stoats and rats from Waiheke would make it the world's largest and most populated island predator eradication project," Sage said. The first stage of the project is focused on removing stoats by traps, followed by a trial on rats to prove the methods will work before they are scaled up. Auckland Council, Predator Free 2050 and Foundation North are providing the bulk of the $10.9m funding for the project. Other funding, current services and in-kind support is coming from community groups, existing Department of Conservation and Auckland Council programmes and Waiheke landowners.

"The Waiheke project is a wonderful example of how agencies and the community are working together to reduce predators with the goal of freeing New Zealand of possums, rats and stoats."

Waiheke Island

Record drought on Lord Howe Island impacts the Gnarled Mossy Cloud Forest

Lord Howe Island has just experienced its driest summer season. December 2018 was the driest December on record, with just 8.2mm of rainfall (December average rainfall is 106 mm). January 2019 rainfall was the driest January on record with just 1.0mm compared to the average of 107.6mm. This dry summer was on top of the driest year for the island – with just 984.6mm for 2018 (average)

This recent dry period on the island has impacted the plant species of the forest, including on the mountain summits. This Gnarled Mossy Cloud Forest has been listed as a Critically Endangered Ecological Community under the NSW Threatened Species Conservation Act 1995. This forest type only occurs on the summit plateau of Mount Gower (27 ha) and Mount Lidgbird (1 ha).

Not only has there been record low rainfall over this most recent summer, but there has been far less cloud cover on the mountain summits, which has worsened conditions for the forest. The cloud droplets usually provide the extra moisture required for the moss forest to exist. Additionally, the lack of cloud on the mountain summits increases the direct solar radiation which heats and desiccates the canopy leaves.

On a recent trip up Mount Gower I witnessed dead Little Mountain palms, both large and small; also a number of dead tree ferns and other plant species; and areas where the ground is so dry it has developed large cracks. I have never seen this before on many trips to Mount Gower over the past 40 years.

Above: the SW face of Mt Lidgbird at 400m
Below left: close up of dead filmy fern *Hymenophyllum howense*
Below centre: dead Little mountain palm
Below right: cracked ground on Mount Gower summit.

Unusual bird sightings
August 2018 to March 2019

The dry summer was not very favourable for visiting waders so we had fewer of the regular species, and fewer of the rarer visitors. However in November two Sanderlings were seen around the beaches.

In October and November this juvenile Great cormorant was around the island for a few weeks. These birds are recorded on the island every few years.

On Birdweek in March 2019 John Martin photographed this Intermediate egret on Roach Island. The fourth record of this species on the island.

2019 WEED TRIPS

June 8 to 15 - Staying at Oceanview

August 24 to 31 to - staying at Somerset

Contact Shelly at Oxley Travel to book 1800 671 546

The June 2019 Friends of Lord Howe Island weeding ecotour will be staying at Oceanview Apartments. This accommodation place is owned and operated by the Wilson family that started it originally as a guest house in the late 1890's.

The guest house had a reputation for fine food and friendly hospitalty; and often family guides would take guests on walks and bbqs to places such as North Bay and Salmon Beach. In the 1980's the kitchen was closed and Oceanview followed the trend of providing self contained accommodation for visitors.

The grounds have beautiful well-tended gardens, and the original lounge area will be available for our tour members to enjoy socialising after dinners.

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