

# Update on the Lord Howe Island Rodent Eradication Project

Andrew Walsh – Project Manager (2015-2019)

Grant Harper – Ground Operations Manager, response, success checks (2018-2023)



# Acknowledgement of Country



I acknowledge the Tubbagah People of the Wiradjuri Nation as the traditional owners of the land on which we meet today.

I would like to pay my respects to Elders past, present and future and recognise their ongoing connection to land and sea relevant to pest management.

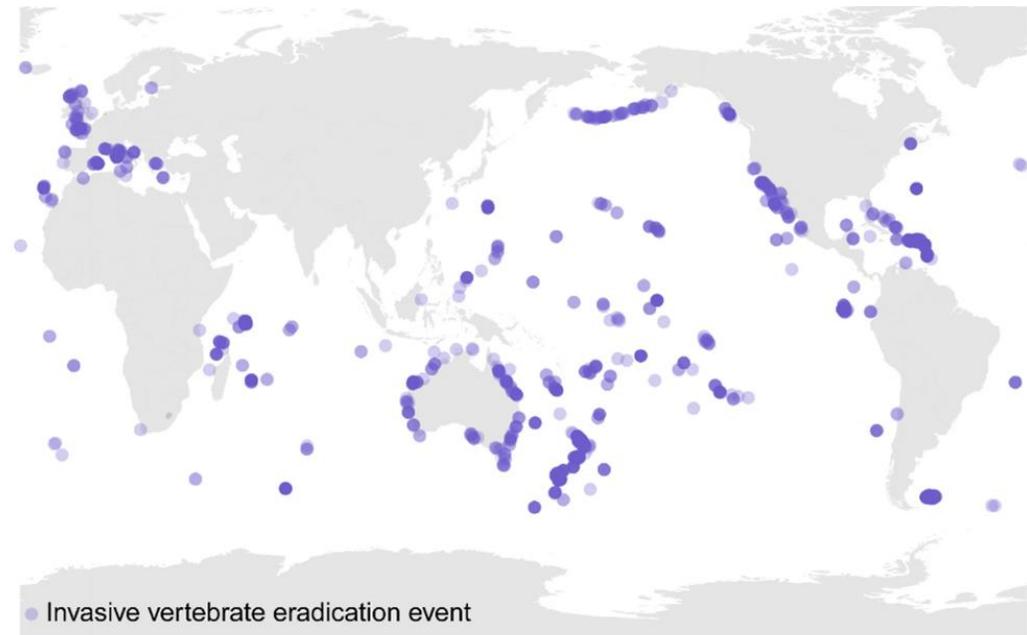
## The bigger picture

- Globally, islands are biodiversity (and extinction) hotspots
- Invasive species implicated in 86% all recorded island extinctions
- Invasive species eradication - effective conservation procedure
- Globally island invasive vertebrate eradication success rate – 88% from >1500 attempts

### EXTINCTION EPICENTERS



Of reptile, bird, amphibian, and mammal extinctions combined have occurred on islands



The island locations of all invasive vertebrate eradication events, 1872–2019. Each purple dot represents an eradication event on an island, with darker dots indicating higher numbers of eradication events.

# Lord Howe Island key features



- Discovered 1788, settled 1834
- Isolated - 600km east of Australia
- Main island + 28 smaller islets
- 1445 ha (12km long, 1-2km wide)
- Rugged mountains
- World Heritage listed
- Settlement area approx. 350 ha
- 350-400 residents + 400 tourists (summer max)
- Strong legacy of environmental custodianship

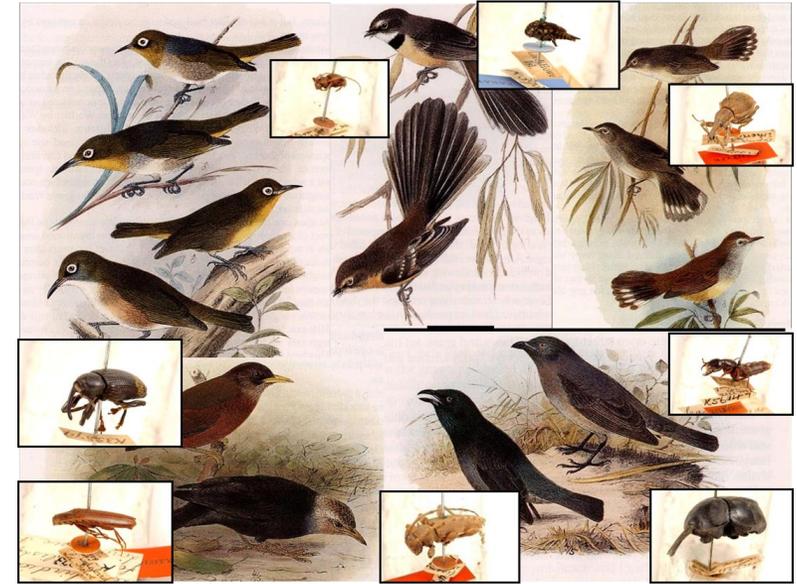
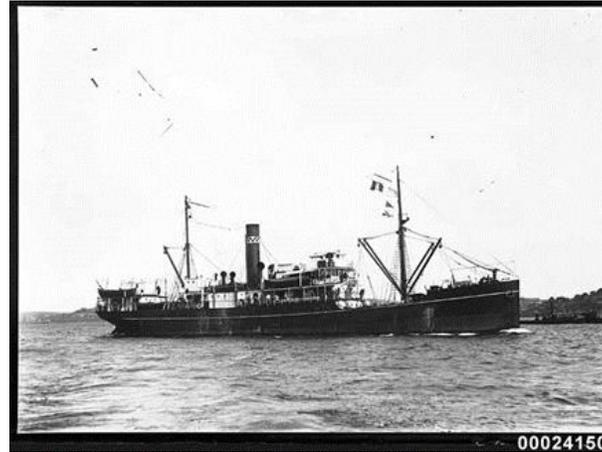
# Natural environment

- 241 native plants
- 182 bird species
- >1600 invertebrates
- 1 mammal
- 2 reptiles
- > 30 vegetation communities
- High % of island endemics



# Rodent introduction and early control

- Mice arrived circa 1860s
- Rats in 1918 - immediate and devastating impacts - implicated in extinction of 20 species (6 endemic bird spp.)
- Long history of rat control
  - Rat bounty & owls introduced in 1930's
  - Many years of control baiting using anticoagulants



# Rodent impact

- Over 70 species threatened by rodents
- 33 of those listed as threatened species
- 7 listed - *Critically Endangered* - rodent predation the key threat
- One species not seen since 2002, was thought to be extinct

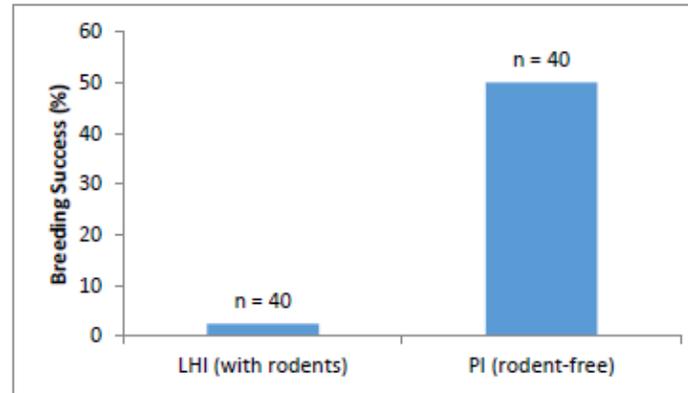


Figure 5 Breeding success of Black-winged Petrels on LHI where rats are present and on Phillip Island which is free of rodents (OEH, 2017)



Photo: Michael Murphy

LHI land snail (*Placostylus bivaricosus*)



## Rodent impact

- Lord Howe Island stick insect thought extinct
- Re-discovered 2001 – Balls Pyramid
- 16 individuals left in the wild
- Captive breeding program - Melbourne Zoo



## The solution - Rodent Eradication Project (REP)

- 20+ years of planning and trials
- Highly divisive in the community
- The largest rodent eradication project on a permanently inhabited island globally
- The most important conservation project in LHI history
- With the eyes of the world watching, the eradication commenced in 2019



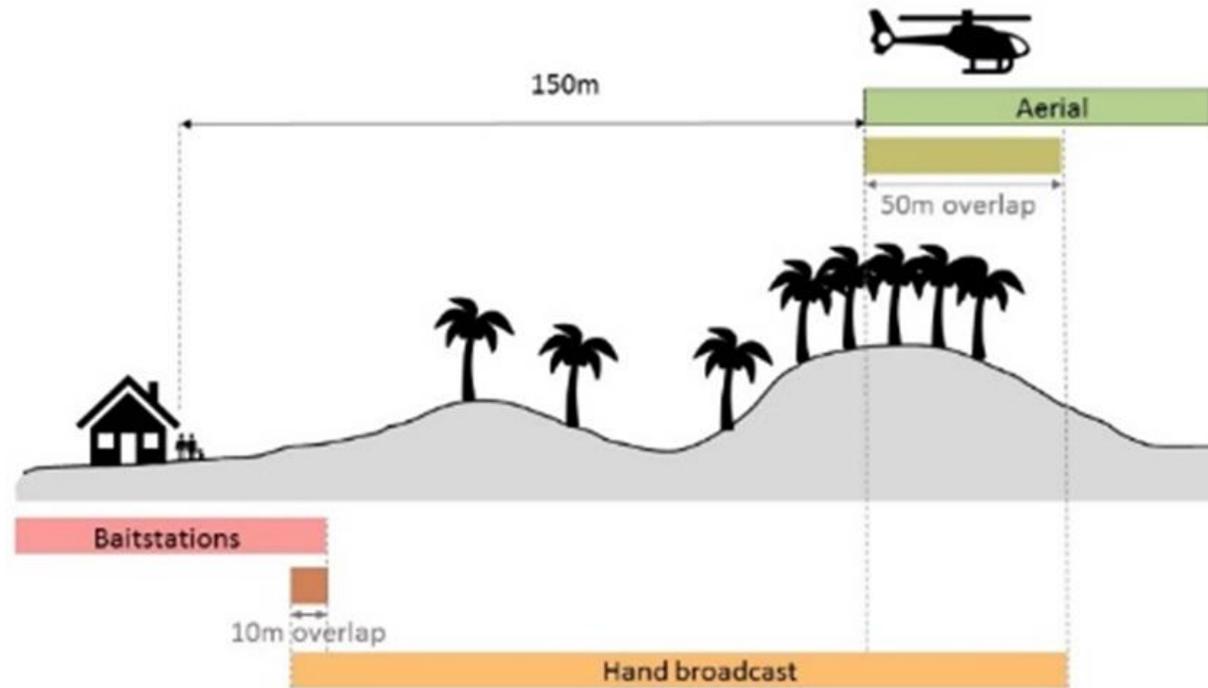
# Challenges and risk

- Two rodent species
- Several overlapping eradication techniques
- Difficult terrain
- Non-target species risk
- Presence of people, pets, livestock and commensal areas
- Community engagement
- Logistics and recruitment
- Prevent reinvasion



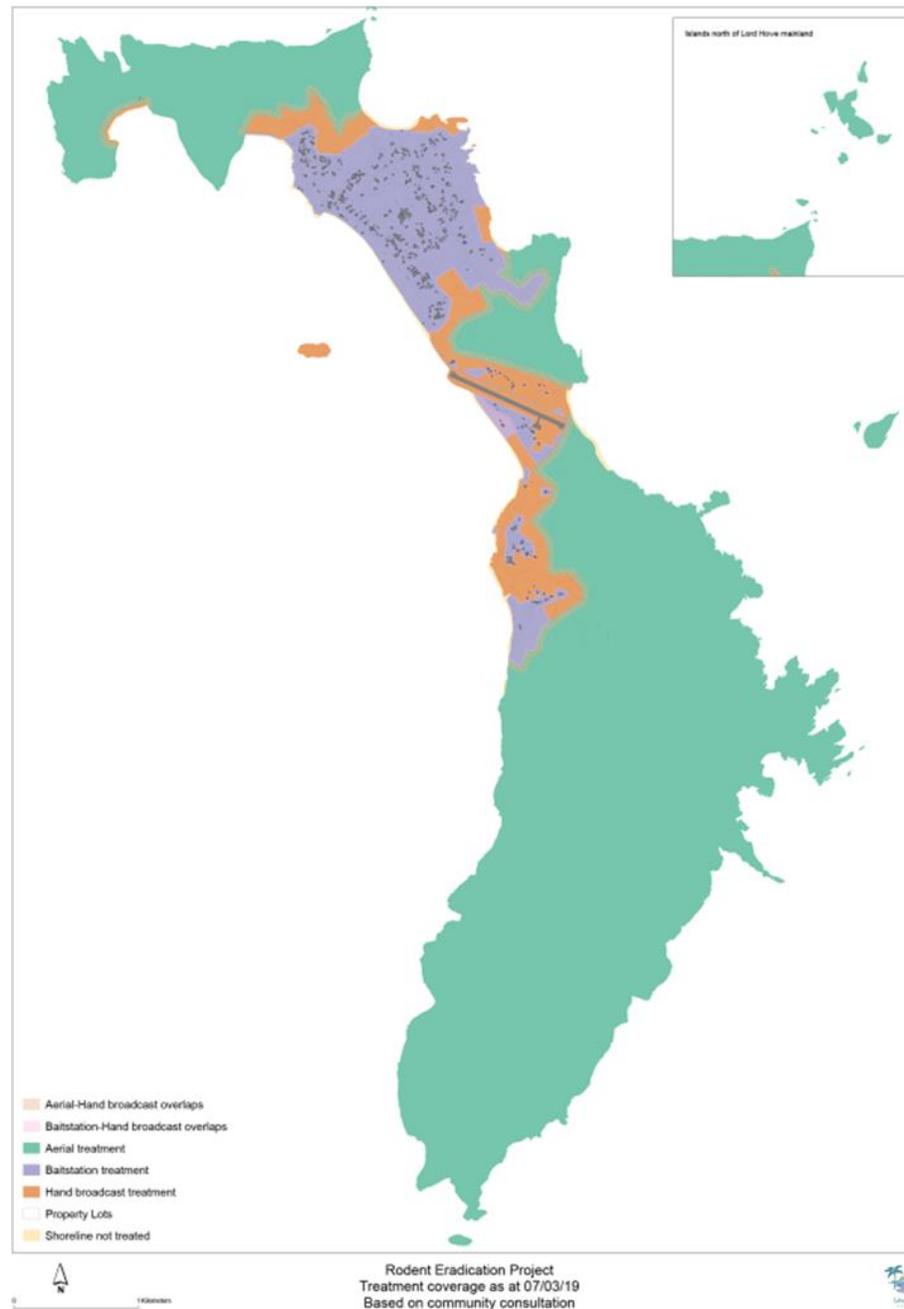
## Key project features

- Primary target species - Black Rat & House Mouse
- Secondary target - hybridized Masked Owl
- Pestoff 20R cereal based pellets (brodifacoum - 20ppm)
- Combination of aerial, hand broadcast & bait stations
- Bait needs available for every individual rat and mouse



## Key project features

- Aerial application 1300ha (green)
- Hand-broadcast 163ha (orange)
- Bait stations 190ha (purple)



## Key project features

- Human Health Risk Assessments and non-target species trials
- Extensive community engagement
- Repeat property access (inside & out)
- 364 Individual Property Management Plans, 670 structures
- Special management - pets, livestock, chickens, waste and compost
- Citizen science involvement
- 140 Staff (63 locals – ¼ of island pop.)



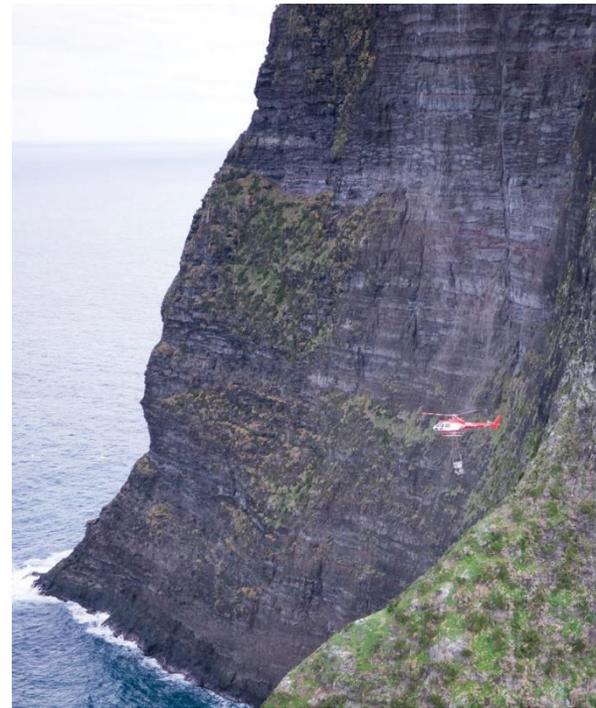
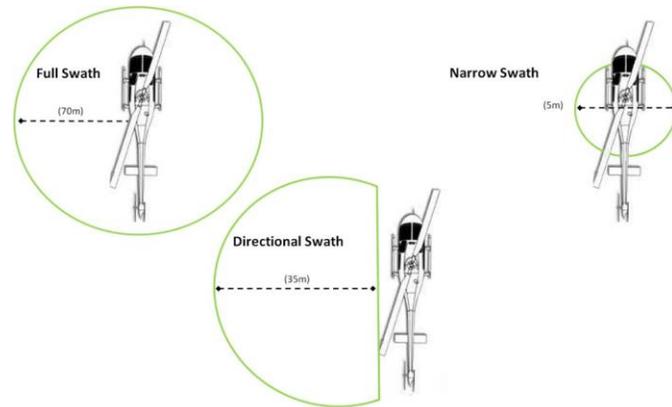
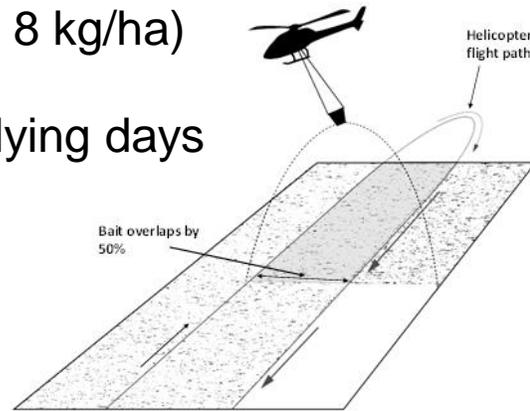
# Key project features

- Captive management -  
237 woodhens (80%)  
129 currawongs (60%)
- Environmental & non-target species monitoring during and post REP
- Increased biosecurity and incursion monitoring



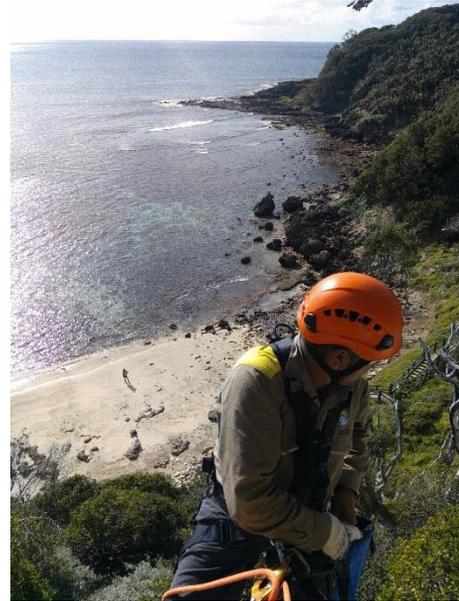
# How did we do it – aerial broadcast

- 2 Helicopters
- 3 specially designed spreader buckets
- 2 applications (12 kg/ha + 8 kg/ha)
- 55 baiting hours over 11 flying days
- Highly experienced pilots
- This was the easy bit...



# How did we do it - Hand Broadcast

- Simultaneous with aerial bait application
- 9500 hand broadcast points
- 164 ha each application

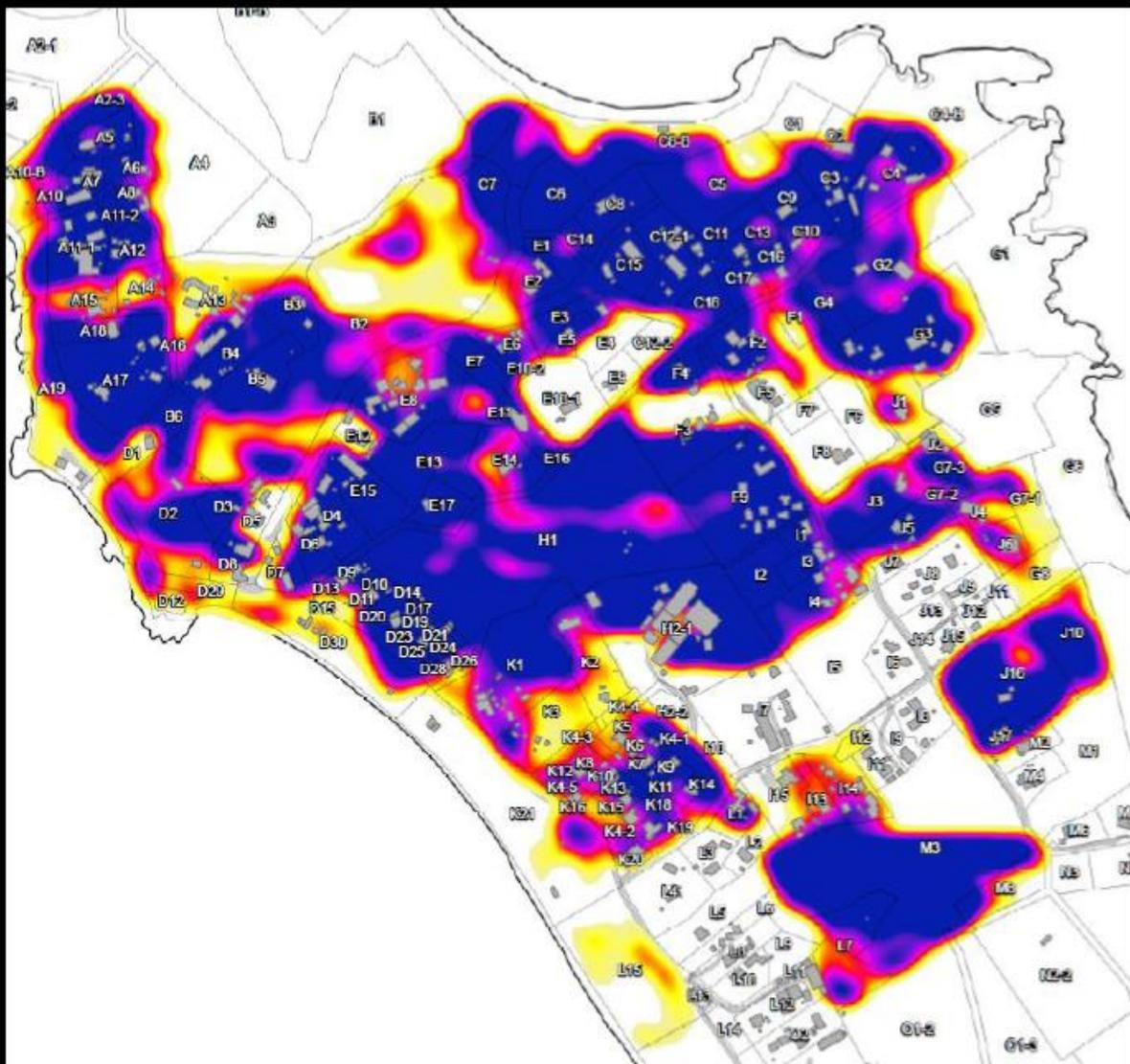


## How did we do it – Bait Stations

- 19,000 bait stations 10m x 10m
- Establishment - 2 months
- 60 staff
- ~3500 internal stations incl. 230 roof spaces
- 2500 cattle covers
- Baiting started – 20 May
- Last baiting round (#19) – 1 Nov
- All bait removed – 22 Nov
- +305,000 data points – high accuracy GPS



# ROUND 3

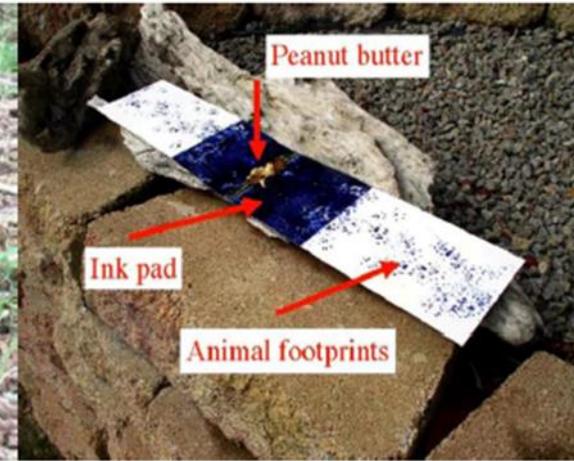


# ROUND 16



# Monitoring & mop-up Detector Dog searches

- 3500 detection devices - 30 m x 30m grid in Settlement
- In place - 90 days after last rodent removed
- 5 dog teams searching properties repeatedly over several months



# Baiting phase 2019

- Over 90,000 hours
- Last mouse - June
- Last dead rats - recovered 9 Oct
- Currawongs released Sept 2019  
(5 months in captivity)
- Woodhens released  
Nov 2019- Jan 2020  
(7-9 months in captivity)



## Rodent Response 2021

- Mid-April 2021 – Rat sighting reported
- Two rats immediately killed 15-16<sup>th</sup> April
- Triggered rapid response
- Bait station & detection grid –

Northern Settlement



# Rodent Response 2021

- Within 6 weeks -
  - 1200 bait stations & monitoring devices
  - 250 lured trail cameras @1 per 1.2 ha
  - 7 rodent detector dogs
  - 35 staff
- Developed the “Cordon and Capture” technique
- Rats not taking rat bait – baiting at den sites
- Search and remove protocol –
  - dogs for detection, then cameras for qualitative information/monitoring



# Rodent Response 2021

- At least 96 rats removed
- Incursion restricted to northern settlement
- ~91,100 device checks
- 3831 kms of detector dog searches
- 50,000 trail camera photos reviewed
- **Last rat removed 31 July – 3.5 months**
- Intensive monitoring continued - 90 days after last rat



## 2022 - Keeping commitments



## 2023 Success Check

- No mice seen since 2019 – 4 years
- Two years of biosecurity checks – dogs/detection devices
- July 2023 - Two week systematic survey –  
Permanent Park Preserve & Settlement
- >950 detection device checks undertaken –  
  
140 tracking tunnels,  
32 trail cameras  
300 wax tags and chew cards  
4 x rodent-detection dogs
- Results assessed & confirmed by independent experts
- No rat sign - 2 years in north Settlement  
& 4 years for rest of Lord Howe –

# Success!



REP Success Check Planning

Proposed monitoring device locations - Whole Island

0 1 2 Kilometers

Success Check

Monitoring Grid

Transect

Biosec Surveillance Network

Track Monitoring Device

Tracks

Walking Track

Weeder Track

# Conservation Outcomes Post Eradication

- Species increases - dramatic & rapid
  - Woodhens – quadrupled >1200+ birds
  - BW petrel breeding success – 2.5% - >50%
- Rediscovery several snail species previously thought extinct
- Increased seed bank & seedlings many species, forest birds, invertebrates & lizards



# How do we stay rat free?

- Permanent Rodent detection dogs
- Ongoing surveillance network using a variety of devices
- Increased biosecurity for ships and planes on island and mainland
  - \$32.9M - 4 years biosecurity funding announced 2022
  - \$30.7M in 2023/24 NSW budget - enhance biosecurity incl. new freight vessel & modern wharf facilities
- Community reporting
- Rapid response protocols for incursions



Help us achieve a successful incursion response by reporting any rodent sign or sightings to our **Biosecurity Team on 6563 2066.**

The Lord Howe Island Rodent Eradication Project active phase took place May-November 2019.

<b>IF YOU SEE A RODENT</b> 	<ul style="list-style-type: none"><li>• Type (Rat/Mouse)</li><li>• Colour</li><li>• Location</li><li>• Size</li><li>• Behaviour</li><li>• Direction it was heading</li></ul>	<b>IF YOU SEE RODENT SIGN</b> 	<ul style="list-style-type: none"><li>• Droppings</li><li>• Gnaw marks</li><li>• Rodent noises</li><li>• Rodent smell</li><li>• Unusual pet behaviour</li><li>• Fresh rodent nest</li></ul>
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# Special thanks

# FAME



Preventing Extinctions



LORD HOWE ISLAND just paradise.



penguinparade philip island



birdlife AUSTRALIA

Collaboration is the key to conservation success!



Department of Conservation Te Papa Atawhai



LORD HOWE ISLAND nature tours

saving our species



TARONGA ZOO



LORD HOWE ISLAND RODENT ERADICATION PROJECT



*We do not* inherit the earth from our ancestors *we borrow* it from our children.

Native American Proverb

Thank You

[Andrew Walsh - Andrew.Walsh@ecoaus.com.au](mailto:Andrew.Walsh@ecoaus.com.au)

[Grant Harper - biodivrestoration@gmail.com](mailto:biodivrestoration@gmail.com)

