LORD HOWE ISLAND

Restoring an ecosystem through invasive species eradication

Lessons for conservation projects on inhabited islands

Lord Howe Island's rugged terrain and coastline shaped the planning and delivery of the eradication operation.



KEY LESSON
Successful eradication on an inhabited island depends on more than the technical operation. Community participation, local capability and long-term biosecurity need to be foundational elements.

At a glance

2019	~450	63	>1,638
Eradication operation	Island community	Residents employed	Woodhen records in 2024

Overview

Lord Howe Island's 2019 Rodent Eradication Project eradicated black rats and house mice from an inhabited World Heritage Site. The program combined long-term research and planning, community engagement, aerial and ground baiting, non-target species protection, intensive surveillance and strengthened biosecurity. Subsequent ecological monitoring has documented the dramatic recovery and re-ordering of native and endemic ecosystems.

The project was a major undertaking for the island's small community of approximately 450 people. While most residents agreed that rodents were an issue, aspects of the proposed methodology and implementation were divisive. The experience highlighted the importance of early, meaningful engagement and treating social and technical feasibility as equally important. The Lord Howe Island Board's lessons learned report found that technical and social feasibility are equally weighted in eradications on inhabited islands.

Why eradication was needed

Lord Howe Island's endemic species have evolved in isolation and are highly vulnerable to introduced pests, particularly rodents. Black rats and house mice preyed on birds, reptiles, invertebrates and plant material and disrupted ecological processes. Rodents contributed to the extinction of a number of endemic species and threatened the survival of species that remained.

Earlier control methods—including trapping, shooting, hunting with dogs, bounty schemes and ongoing baiting—could suppress rodents but could not remove the island-wide threat. A feasibility study in 2001 concluded that advances in island eradication methods made simultaneous rat and mouse eradication technically achievable. More than a decade of further research, environmental assessment, planning and consultation followed.

Designing an eradication program for an inhabited island

Lord Howe Island is both a globally significant conservation area and a permanently inhabited community. The program had to manage ecological, operational and social risks simultaneously.

Planning addressed potential impacts on human health, pets, livestock, tourism and access through the use of rodenticide across an inhabited landscape. Environmental impact assessments identified species at risk from baiting and developed mitigation measures to minimise impacts on endemic and native wildlife.

Community engagement was central to implementation, but was at times disconnected and controversial. Although consultation occurred, community input did not always have a meaningful influence on project decisions and technical approaches. One-on-one communication, local employment and community champions were highly beneficial in supporting delivery and addressing resident concerns.

LESSON FOR OTHER ISLANDS
Engagement should begin early and continue throughout project development and delivery. Understanding social impacts and facilitating genuine community input are as important as technical feasibility.

The 2019 Rodent Eradication Project

The eradication project commenced in 2019. Cereal pellet bait containing brodifacoum was distributed from helicopters using specialised bait-spreader buckets across the mountainous and inaccessible terrain in the Permanent Park Preserve. Approximately 22,000 bait stations on a fixed 10 m^2 grid were serviced by the ground team throughout the settlement on a rolling basis, with bait broadcast by hand in large open paddocks.

Geospatial data collection and analysis supported intensive, targeted searches for remaining rodents, using fixed monitoring equipment, a wildlife camera network and specialist rodent-detection dog teams.



During baiting, a sample of Lord Howe Island Woodhens and Lord Howe Currawongs was held in an on-island captive management facility to reduce the risk of secondary poisoning. Environmental impact monitoring continued throughout the operation and afterwards, including monitoring toxin persistence in non-target wildlife.

The operation relied heavily on local involvement. Sixty-three island residents were employed during the project, representing approximately 45% of the project workforce and more than 20% of the island's working-age population. Residents also contributed through property access, local knowledge, volunteering and other support for project activities.

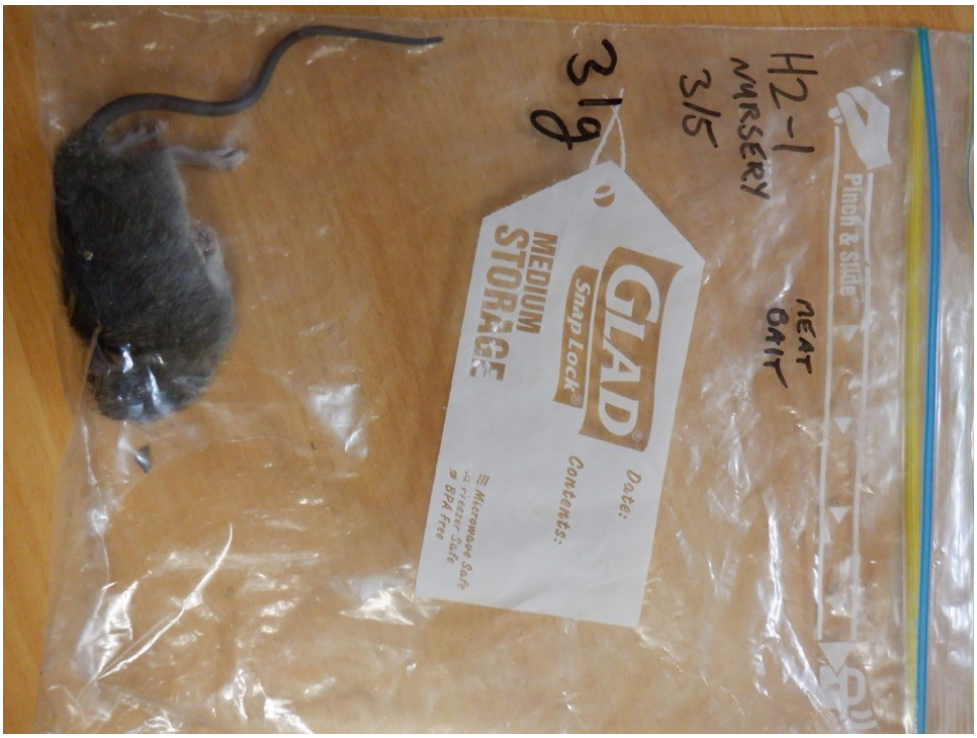


The 2021 rodent response

In April 2021, after approximately 16 months without a confirmed live rodent, a rat was detected in the settlement by a community member. A rapid response was triggered and resulted in the removal of 96 rats.



The incident reinforced the importance of long-term post-eradication surveillance and the capacity to respond rapidly to an incursion—or, in this case, a residual population. It also led to improvements in the island's biosecurity surveillance network and provided valuable information about detecting residual rodents, through the community reporting network, rodent-detection dogs and thermal technology.



Following the response, and the last record of a live rodent on 28 July 2021, intensive rolling surveys were carried out across the island to confirm absence. The eradication was declared a success in 2023 following an intensive success check. Intensive searches for residual rats concluded in December 2025, marking a shift from surveillance and response focused on the eradication to ongoing biosecurity surveillance for new threats arriving across the island's borders.

Ecological re-ordering

Rodent removal has produced substantial ecological benefits. Since the eradication of these invasive mammals, the island has undergone a gradual process of ecological re-ordering, with both positive and negative outcomes.

The Lord Howe Island Board reports that more than 30 threatened species—including endemic plants, snails and invertebrates—are beginning to recover following rodent removal, although the number benefiting is likely to be significantly greater.

The Lord Howe Island Woodhen provides one of the clearest examples: its population increased from approximately 208 birds in 2019 to more than 1,200 by 2023, with at least 1,638 recorded in the final intensive mark–recapture survey in 2024.

Seabird colony numbers have increased exponentially, and species not previously recorded are now nesting on the main island. Natural recruitment and regeneration have also increased in palm forests and other unique habitats. However, some weed species—which would previously have been a food source for invasive mammals—are also proliferating despite an ongoing control program.

RECOVERY IS DYNAMIC
Removing an invasive species can trigger broad ecosystem change. Monitoring needs to track intended benefits as well as emerging management challenges.

Protecting the gains: biosecurity

Biosecurity remains a permanent commitment after eradication, particularly on an island with a thriving community and busy tourism industry. Controlling risk pathways by sea and air remains a key challenge, beginning before goods reach the mainland border.

The need for ongoing biosecurity should be clearly communicated to the community from the outset. Eradication is not the end of the work; it is the beginning of a long journey. Maintaining a rodent-free island requires permanent vigilance and surveillance, consistent biosecurity practices and the capacity to respond rapidly to any detection. This has ongoing implications for residents, businesses, visitors and island operations.

The 2021 detection demonstrated the importance of a community intelligence network, comprehensive surveillance and rapid response capability. The Lord Howe Island Board maintains a permanent on-island team of authorised biosecurity officers, detection-dog handlers and dogs, alongside contract biosecurity officers who manage mainland ports of departure.

Key lessons for island conservation

- **Treat social and technical feasibility equally.** On inhabited islands, community concerns and social impacts can shape whether an eradication is workable and sustainable.
- **Start engagement early and make it meaningful.** Consultation is strongest when local input can genuinely influence decisions, not simply explain them after the fact.
- **Build local capability and ownership.** Employment, local knowledge, property access, volunteers and community champions supported delivery.

- **Plan for non-target species and wider ecosystem effects.** Environmental assessment, mitigation and monitoring are needed during and after baiting; ecological changes may include new management challenges.
- **Fund the long-term response, not only the eradication.** Surveillance, community reporting, detection capability and rapid response are essential to sustain the result.
- **Embed biosecurity across the whole pathway.** Risk management begins before goods leave the mainland and continues through sea and air access routes.

Project partners

- Lord Howe Island Board
- Australian Government's National Landcare Programme
- NSW Environmental Trust
- NSW Government agencies, including the Department of Climate Change, Energy, the Environment and Water and National Parks and Wildlife Service
- Taronga Conservation Society Australia
- New Zealand Department of Conservation's Island Eradication Advisory Group

Further information

The following sources are identified in the source document for linking from the Australian Islands Alliance website:

- Lord Howe Island Board Rodent Eradication Project and Final Report & Lessons Learned (2025)
- NSW Government State of the Environment
- Published scientific studies on the 2019 eradication and subsequent ecological response