

Lord Howe Island Rodent Eradication Project

Summary - Lessons Learned Report



Image: Aerial view of Lord Howe Island, Credit: Jack Shick

Background

Lord Howe Island (LHI), a UNESCO World Heritage-listed Island in the Tasman Sea, is located approximately 600 km east of mainland Australia. It spans 1,455 hectares, featuring rugged volcanic peaks, pristine beaches, and rich biodiversity, including numerous endemic species. The island's ecological significance is globally recognised due to its high conservation value and unique assemblages of flora and fauna.

Uninhabited LHI was first discovered by Europeans in 1788 and permanently settled in 1834. Today, it has a small community of around 450 permanent residents, with tourism being the dominant industry. The island is managed by the Lord Howe Island Board (LHIB), a statutory authority of the New South Wales government, which oversees the trade and affairs of the Island, conservation efforts and land management as well as the ongoing welfare of its people. The local community has a strong environmental stewardship ethic, historically engaging in conservation programs such as rodent control and habitat restoration. However, past invasive species management was largely focused on localised control rather than complete eradication.

Rodent Introduction and Environmental Impact

House mice (*Mus musculus*) arrived in the 1860s, and black rats (*Rattus rattus*) were introduced in 1918 following the grounding of the SS *Makambo*. The rats proliferated rapidly, leading to devastating ecological consequences, including the extinction of five endemic bird species, significant declines in invertebrate populations, and the loss of native vegetation. Control efforts, including poisoning, trapping, and the introduction of barn owls, were implemented over the years but were not sufficient to eradicate the rodents. The ongoing damage posed a severe threat to LHI's biodiversity, as well as negatively impacting the tourism economy and local community.

Eradication Feasibility and Planning

Initial feasibility studies conducted in the early 2000s determined that full eradication of rodents was technically possible and would provide long-term ecological and economic benefits. A cost-benefit analysis in 2003 found that eradication would eventually be more financially viable than continued rodent control. However, the challenges of implementing a large-scale eradication on an inhabited island required extensive planning, risk assessments, and community consultation. The eradication program was developed in multiple phases, incorporating aerial baiting, ground baiting, and captive management of vulnerable species, including the Lord Howe woodhen and currawong.

Community Consultation and Approval Process

Given the scale of the project and the potential impacts on residents and businesses, extensive community engagement was undertaken between 2009 and 2017. Initial opposition centred around concerns regarding baiting methods, human health risks, and potential non-target impacts. A 2015 community referendum showed divided opinions, but after further consultation and scientific assessments, support increased. In 2017, the LHIB and funding bodies approved the Lord Howe Island Rodent Eradication Project (REP), leading to the final planning stages and operational implementation in 2019.

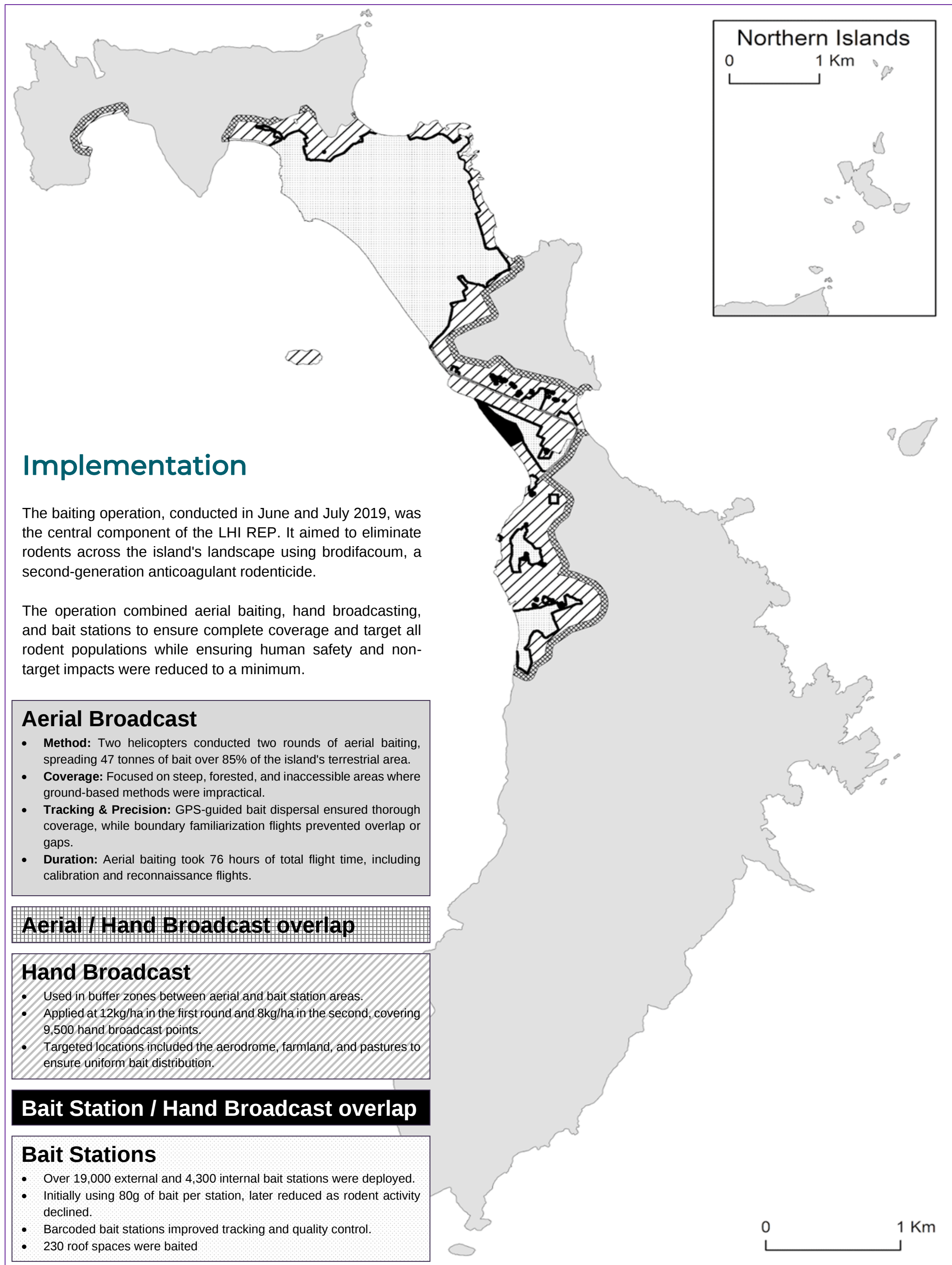


Figure 1: Spatial Implementation of the LHI REP

Lessons Learned

The implementation of the LHI REP marked a world-first as the largest permanently populated island to attempt a full-scale rodent eradication. Given that a project of this scale had never been attempted before, there was no guide to refer to and there are actions that could have been done differently. The staff and project team members of the REP worked hard to advance this innovative, challenging, ground-breaking, project. The complexities and challenges that were overcome stand as a testament to the passion and dedication of everyone involved.

The project was ultimately successful, with the Success Check in 2023 determining that there are almost certainly no rodents extant on Lord Howe Island. However, there were elements of the project that could have been improved.

Below is a concise summary of the lessons learned during the implementation of this project under several key themes. While many lessons will be specific to this program, it is hoped that many recommendations can be applied to future eradication operations elsewhere, as well as for projects on LHI.

Theme 1: Community

- **Social impact assessment** needs to be equally weighted with technical and economic feasibility in project planning.
- Early and **genuine** community involvement is essential for success.
- A dedicated **community engagement officer(s)** need to be employed.
- **Clear communication** builds trust and reduces resistance.
- The project team should **work alongside** the community, not just inform them.
- **Property access** needs to be planned for early on.

Theme 2: Planning and Resources

- **Thorough financial planning** and active ongoing project management is critical to avoid cost overruns.
 - Plan and manage for **delays in approvals** and factor in extra time and resources.
 - A **contingency budget** is essential for unexpected challenges.
 - A clear **governance structure** needs to be developed.
 - Clear and thorough **staff planning** is important – including identifying gaps and bringing in external expertise as required.
 - The impacts on **business as usual** need to be considered and planned for.
 - Employing a **local workforce** will offer considerable benefits.
- A **budget for biosecurity** post eradication should be secured as part of project funds

Theme 3: Technical Implementation

- **Social complexities** can easily impact operational implementation. An inhabited island needs to be approached very differently to uninhabited ones.
- While aerial baiting is the most efficient method for uninhabited areas, a **mix of aerial, ground, and hand-broadcast baiting** ensures full coverage and social acceptability.

- **Weather delays** and **livestock management** must be planned for well in advance.
- Systems for accurate and efficient **data capture** and **mapping** are critical.

Theme 4: Environment

- Identify potential **non-target species impacts** early in the planning so they can be **minimised**.
- A thorough **Environmental Health Risk Assessment** will be required.
- Pre- and post-project **monitoring** of environmental impacts will be required from a compliance and social perspective.
- The **ecological response** of LHI after the eradication has been monumental.

Theme 5: Biosecurity

- Staying rodent-free is **harder than eradication itself**. Ongoing surveillance is key, and the ongoing costs (financial and social) cannot be underestimated.
- **Biosecurity protocols** need to be developed and implemented before the eradication program begins.
- Establishing a **biosecurity team** early in the project is crucial.
- **Investment in biosecurity** must continue in perpetuity to protect the project success.
- It needs to be **clearly communicated** to the community from the project outset that increased biosecurity is **forever** after an eradication.

Theme 6: Incursion/Detection Response

- Rodents were **not eradicated** from the initial effort; the rediscovery of residual rodents highlighted that the declaration of eradication success was premature.
- Be ready with a **response plan** if a rediscovery occurs.
- Residual rodents may behave differently - be ready to **change tactics** if something isn't working.

Theme 7: Measuring Success

- Success should be clearly and measurably defined at the inception of the project.
- The assessment and recording of **benefits** of an eradication should not be limited to **ecological benefits**.
- An effective and well-established program of **environmental monitoring** needs to be in place **before** the eradication begins, so success can be effectively measured and communicated.

Conclusion

The Lord Howe Island Rodent Eradication Project (REP) stands as a monumental achievement in conservation history – marking the first large-scale eradication of rodents on an inhabited island. The REP was a key project in a multi-species ecological restoration and threatened species recovery program, outlined in the Lord Howe Island Biodiversity Management Plan.

An undertaking of this scale had no written guidebook available, which meant that throughout the project, many lessons were learnt as problems arose and the project team adapted as they went. A key take-away is the importance of social aspects in ecological projects. Effective and genuine community engagement will play a pivotal role in any similar project, fostering a sense of ownership and ensuring sustained support for conservation effort. Alongside community involvement comprehensive planning, adaptive management strategies, interdisciplinary collaboration, robust monitoring and evaluation, and high levels of technical knowledge were all fundamental to the REP's success.

After a premature declaration of success in 2021, the project was ultimately successful, with comprehensive surveys in 2023 determining that there are almost certainly no rodents extant on Lord Howe Island. This success has resulted in significant ecological benefits for the Lord Howe Island World Heritage Property, setting a benchmark globally for invasive species eradication as an ecological restoration method on inhabited islands.

The REP demonstrates the potential of collaborative conservation efforts on inhabited islands. The lessons in this summary and the full report (Lord Howe Island Board (2025) Lord Howe Island Rodent Eradication Project – Lessons Learned. ISBN: 978-0-9807065-5-0) are aimed to assist conservation practitioners elsewhere when planning similar ground-breaking ecological restoration and regeneration projects.

We thank the Lord Howe Island community, staff, volunteers, and contractors for their dedication to the Rodent Eradication Project and ongoing conservation efforts. We also thank funding bodies and project partners for their support to this landmark restoration project.