DPLR3\1056

Darwin Plus Local - Final Report (1)

Officer: Linzi Ogden

Section 1 - Darwin Plus Local Project Information (Essential)

Project Reference Number

DPL00078

Q1. Project Title

No Response

Overseas Territory(ies)

☑ British Indian Ocean Territory (BIOT)

Lead Organisation or Individual

British Indian Ocean Territory Administration

Partner Organisation(s)

N/A

Value of Darwin Plus Local Grant Award

£49,850.00

Project Start Date

01 April 2024

Project End Date

31 March 2025

Project Leader Name

Lindsey Hollingsworth

Project Website/Twitter/Blog etc.

No Response

Report Author(s)

Lindsey Hollingsworth

Report Date

29 April 2025

Project Summary

No Response

Project Outcomes

Checked	**Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;**
Checked	**Climate Change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;**
Checked	**Environmental quality: improving the condition and protection of the natural environment;**
Checked	**Capability and capacity building: enhancing the capacity within OTs, including through community engagement and awareness, to support the environment in the short- and long-term.**

Section 2 - Project Outcomes (Essential)

On a scale of 1 (high – outcome substantially exceeded) to 5 (low – outcome substantially did not meet expectation), how successful do you think your project has been?

⦿ 4 - Outcome moderately did not meet expectation

Project outcomes and justification for rating above

Building on the existing feasibility study conducted in 2015 this pilot project tested new rat trapping technology to evaluate its suitability for a broader control programme. The pilot focused on reducing rat populations in important turtle and bird nesting areas on Diego Garcia. Trapping efforts revealed challenges that needed to be addressed before scaling up.

The project focused on six sites: three within the turtle nesting area, Index Beach – dividing into high, medium and low trap density zones and three in bird nesting areas at RNR, Shark Cove and Turtle Cove. Each of the Index Beach sites was equipped with 70 traps. Trapping data revealed a consistent decline in average daily strike rates over time, which we believe may be indicative of reduce rat interactions with traps and likely indicates a reduction in rat density.

Similar trends were observed at the bird nesting sites (RNR, Turtle Cove and Shark Cover) despite variations in trap numbers and densities. While total strike counts varied in these three sites, the consistent downward trend

on average daily strikes supports the same conclusion as the turtle nesting areas, indicating a likely effectiveness of trapping for rat control. It was anticipated that the RNR site, which is known to have high rat activity based on anecdotal evidence, would show higher trapping rates. In fact, it recorded considerably less trapping activity than the Index Beach sites, however this discrepancy may not be of particular value as the knowledge of rat density at other sites was very poor. A comparison of baits showed the meat lure to be the most favourable across all sites.

The “edge effect” aims to observe a change in rat activity between the edges and centre of the trapping site, with higher trapping expected at the edges. However, due to site asymmetry, it’s unclear why trapping rates are higher in zone 2 (middle) compared to zones 1 (near the beach) and zone 3 (further from the beach) A more consistent, shoreline free site is required for a clearer test of the edge effect.
Turtle and seabird population data were not successfully collected during this pilot due to scope of equipment and lack of resource, which restricted our capacity to monitor ecological outcomes alongside trapping efforts.

In addition to the ecological outcomes the project contributed to capacity building. Members of the local island community volunteered to assist with trap monitoring and data collection, while community outreach included beach cleans at Index Beach which offered opportunities to raise awareness in broader conservation goals.

No specific improvements were mandated in the feedback letter, but the recommendation to consider risks to non-target species incorporated into project implementation. Early trap deployment revealed that Coconut crabs and hermit crabs were triggering the traps. To reduce unintended impacts the traps were temporarily removed, and tree guards were introduced. This successfully prevented coconut crabs from activating traps, though some hermit crabs, due to their size variability, were still able to access them.

Supporting Evidence - file(s) upload

Attachment 3 - Graph analysis of data
28/04/2025
15:00:44
pptx 202.1 KB

Attachment 2 - Maps of trapping sites
28/04/2025
15:00:26
pptx 8.07 MB

Attachment 1 - Data log sheet
28/04/2025
15:00:11
xlsx 87.79 KB

Supporting Evidence - links to published document/online materials

Attachment 1 – Data log sheet
Attachment 2 – Maps of trapping sites
Attachment 3 – Graph Analysis of data
Photo attachments are included in section 6

Project Challenges

The remote location of Diego Garcia posed logistical challenges, particularly in the shipping of equipment. Traps ordered in April did not arrive until July, resulting in delays to the deployment and monitoring of rat trapping. Trials of the traps revealed that other island wildlife – particularly coconut and hermit crabs – were interacting with the traps and triggering them. As a result, traps were removed, and tree guards were ordered to help prevent accidental activations. Traps were then reactivated September/October due to delivery timeframes, causing a 2-month delay to data collection.

Another challenge was verifying what triggered traps without clear signs of rat activity (e.g. blood on trees). The traps could've been set off by other wildlife or falling branches. To verify strike counts two camera traps were set up on six cameras within the control site. This allowed us to verify what was triggering the traps. Of the 60 strikes counted with cameras set up – 5 rat strikes; 19 suspected rat strikes, as the camera footage cuts off, and a 5 crab strikes were captured.

In several instances traps were knocked off trees and were lost while some traps, strike counters and guards were damaged by coconut crabs rendering them ineffective. No spare traps had been purchased to replace damaged or lost units. However, eight traps were affected which is negligible and did not significantly impact overall data collection. For any future expansion of this project, it's recommended that additional equipment be procured to account for potential loss/damage.

Lessons Learned

Trialling new rat trapping technology provided valuable insights for future non-native species management and potential expansion of a broader rat eradication programme. A total of 280 traps were deployed, and while effective, their regular monitoring proved highly labour intensive.
Without continuous surveillance it was often unclear what triggered the traps. Reviewing video footage, although helpful, demanded significant time and effort.
To improve efficiency, establishing a dedicated volunteer group for trap monitoring and video analysis would enhance data collection and strengthen the overall monitoring process.
Complete rat eradication would not use these trapping methods; however, they provide insight into a tool that may be used for future rat population assessment. As this work focused on key wildlife sites, and there were no barriers to prevent wider movements, our sites were open to rat movement from surrounding areas.

A more robust method will need to be used to test the Edge effect successfully, we weren't able to draw meaningful conclusions from our results due to the asymmetry of the sites. Improvements would include site selection away from the shoreline and have consistent edges with traps spread consistently throughout.

Key recommendations include developing a method to assess rat density (either absolute or relative density, comparable between sites) to quantify the impact. Consideration of non-target species and adapting traps, accordingly, deploying wildlife cameras alongside traps for data reliability and ensuring there's a dedicated work force – especially if trap numbers scale up and a significant amount of time is needed for regular rebaiting/resetting.

Section 3 - Project Finance (Essential)

Project Expenditure

Project Spend (indicative) since last Annual Report	2023/24 Grant (£)	2023/24 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff Costs	[redacted]			
Consultancy Costs				
Overhead Costs				

Travel and Subsistence			
Operating Costs			
Capital Items			
Others			
Total	49,850.00	36,124.98	-26%

Please provide a short narrative summary on project finances.

A significant portion of the project budget was allocated to the purchase and shipping of rat traps. Although funds were originally set aside to acquire a large number of camera traps, collaboration with Swansea university enabled the use of existing cameras on Diego Garcia, resulting in substantial cost saving.

Some unanticipated expenses arose including the need for tree guards and screws. These items had not initially been budgeted for but became essential due to necessary project adaptations to ensure completion. Due to cost savings elsewhere, this did not impact the total cost of the project.

Section 4 - Contribution of Project to Darwin Plus Programme Objectives

Please select up to **one** indicator that applies within **each group/indicator list (A, B, C, D)** and report your results for that indicator in the text box underneath. If you do not have relevant results to report for any of the indicators in a particular group, you can leave them blank.

Please also submit some form of evidence (above) to demonstrate any results you list below, where possible.

Group A: Capability and Capacity - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-A01: Number of people from key national and local stakeholder groups completing structured and relevant training.**
Unchecked	**DPLUS-A02: Number of secondments or placements completed by individuals of key local and national stakeholders.**
Checked	**DPLUS-A03: Number of local/national organisations with improved capability and capacity as a result of project.**
Unchecked	**DPLUS-A04: Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.**
Unchecked	**DPLUS-A05: Number of trainers trained reporting to have delivered further training by the end of the project.**

Group A Indicator Results

The British Indian Ocean Territory Administration now have 275 traps available as a resource for future trapping projects in Diego Garcia.

Group B: Policies, Practices and Management- Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-B01: Number of new/improved habitat management plans available and endorsed.**
Unchecked	**DPLUS-B02: Number of new/improved species management plans available and endorsed.**
Unchecked	**DPLUS-B03: Number of new/improved community management plans available and endorsed.**
Unchecked	**DPLUS-B04: Number of new/improved sustainable enterprises/ community benefits management plans available and endorsed.**
Checked	**DPLUS-B05: Number of people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement).**
Unchecked	**DPLUS-B06: Number of Local Stakeholders and Local Communities (people) with strengthened (recognised/clarified) tenure and/or rights.**

Group B Indicator Results

7 people within the island community on Diego Garcia volunteered to assist with trap monitoring.

Group C: Evidence and Best Practices - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-C01: Number of best practice guides and knowledge products published and endorsed.**
Unchecked	**DPLUS-C02: Number of new conservation or species stock assessments published.**
Unchecked	**DPLUS-C03: New assessments of habitat conservation action needs published.**
Unchecked	**DPLUS-C04: New assessments of community use of biodiversity resources published.**
Unchecked	**DPLUS-C05: Number of projects contributing data, insights, and case studies to national Multilateral Environmental Agreements (MEAs) related reporting processes and calls for evidence.**

Group C Indicator Results

n/a

Group D: Sustainable Benefits to People, Biodiversity and Climate - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-D01 Hectares of habitat under sustainable management practices.**
Unchecked	**DPLUS-D02: Number of people whose disaster/climate resilience has been improved.**
Unchecked	**DPLUS-D03: Number of policies with biodiversity provisions that have been enacted or amended.**

Group D Indicator Results

n/a

Section 5 - Project Partnerships, Wider Impacts and Contributions

Project Partnerships

The British Indian Ocean Territory Administration were the main driver for decision making and planning of this project. The BIOTA Environmental Officer was key to the planning and delivery of this project. Additional advice was obtained from external people with interest in the territory and management of non-native rats to ensure robust outputs from the project.

Dr Nicole Esteban and Dr Holly Stokes from Swansea University were added as collaborators on the project as they allowed the loan of camera traps to assist with the project and provide contributions based on observations to achieve project outcomes. Several meetings were organised in the planning phase to discuss the use of camera traps and to provide general advice on turtle predation rates. This created a good foundation for knowledge exchange and built scientific capacity.

External groups and organisations have been kept informed regularly of project progress. The military

community on island were updated in regularly biweekly meetings on the project and opportunities for involvement have been shared during this forum. Pete Carr from Chagos Conservation Trust has also provided advice and literature with regards to density testing methods.

Wider Impacts and Decision Making

This project was designed as a feasibility pilot to test trapping technologies and methodologies. A full-scale island-wide eradication is highly desirable, and these trapping technologies may help in planning such future efforts, although scaling up would also require a more comprehensive extermination process. Whilst no specific policy was amended during this pilot, the data and insights gained are intended to feed into future habitat/species management plans and conservation strategies for Diego Garcia and other UK overseas territories affected by invasive rats.

The project aligns closely with multiple national and local environmental strategies including BIOTs environmental priorities of control and eradication of invasive species, UKOTs biodiversity strategy of controlling and preventing the spread of invasive species and the UK's 25-year environmental plan with goals relating to enhancing biodiversity and resilience of ecosystems. Outcomes and learnings from this project can be taken forward and considered for a further eradication programme on Diego Garcia.

Sustainability and Legacy

The data collected and knowledge shared during the project will continue to inform environmental management strategies on Diego Garcia.

The Environmental Officer role continues to exist within BIOTA. Whilst staff changes are occurring the project knowledge and legacy will be passed on to new members of staff. This pilot project has provided a step towards a more robust management plan for non-native rats. Providing an insight as to what has worked well, and the challenges faced which can be reviewed and improved by future Environment Officers. The rat traps purchased through the project will remain in Diego Garcia should further trapping efforts be rolled out in the future.

Section 6 - Communications & Publicity

Exceptional Outcomes and Achievements

This project delivered several outcomes and achievements that could significantly advance future rat control on Diego Garcia.

1. Successful deployment of new technology
The project effectively trialled a new rat trapping system in a remote, logistically challenging environment. This marks a major step forward in understanding how such tools can be applied in tropical island ecosystems.

2. High volume of data collected
Over 3500 trap strikes were recorded across six sites – providing a substantial dataset on rat activity and trap performance, especially in relation to trap density and placement.

3. Evidence of population suppression
The project recorded a decline in strike rates over time at all sites – indicating a potential reduction in rat populations – a key indicator of success for future eradication efforts.

4. Adaptive management in action
Quick responses to unforeseen challenges such as non-target species interference by implementing solutions

such as tree guards. This flexibility ensured continued progress and minimised negative impacts on native wildlife.

5. Foundations for Best Practice
The project has produced a blueprint of lessons learnt – covering logistics, monitoring, equipment resilience and species preservation – that will inform best practice for future eradication or control programmes.

6. Capacity Building
The experience gained by on island personnel and through external collaboration has built capability in invasive species control, setting clear paths for future larger scale programmes.

Photo, video or graphic to be used for publicity and communications.

Please upload at least one relevant and engaging image, video or graphic that you consent to be used alongside the above text in Defra, JNCC or NIRAS communications material.

DPLR3_1056 - Successful rat strike at Index Beach site - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:11
jpg 1.68 MB

DPLR3_1056 - Lindsey Hollingsworth, Project lead installing rat traps - BIOT - Photo Credit George Balcombe
29/04/2025
08:01:11
jpg 1.71 MB

DPLR3_1056- Chief Scientific Adviser, Dr Mark Spalding assisting with trap monitoring - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:10
jpg 1.62 MB

DPLR3_1056 - Wildlife camera traps set up to verify strike counts - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:10
jpg 1.51 MB

DPLR3_1056 - Tree guards successfully keeping Coconut crabs out of traps - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:09
jpg 1.17 MB

DPLR3_1056 - Branches fallen on a trap which causes activation of strike count - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:07
jpg 1.54 MB

DPLR3_1056 - Some hermit crabs were small enough to enter the trap without activating them - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:07
jpg 533.13 KB

DPLR3_1056 - Damage to traps caused by crabs - BIOT - Credit Lindsey Hollingsworth
29/04/2025
08:01:06
jpg 1.07 MB

DPLR3_1056 - Project lead, Lindsey Hollingsworth and volunteer David Green, installing traps at turtle cove - BIOT - Credit Chloe Jones
29/04/2025
08:01:05
jpg 28.49 KB

Photo, video, and/or graphic captions and credits.

DPLR3_1056 - Successful rat strike at Index Beach site - BIOT - Credit Lindsey Hollingsworth

DPLR3_1056 - Project lead, Lindsey Hollingsworth installing rat traps - BIOT - Credit George Balcombe

DPLR3_1056 - Chief Scientific Adviser, Dr Mark Spalding assisting with trap monitoring - BIOT - Credit Lindsey Hollingsworth

DPLR3_1056 - Wildlife camera traps set up to verify strike counts - BIOT - Credit Lindsey Hollingsworth

DPLR3_1056 - Tree guards successfully keeping Coconut crabs out of traps - BIOT - Credit Lindsey Hollingsworth

DPLR3_1056 - Branches fallen on a trap which causes activation of strike count - BIOT - Credit Lindsey

Hollingsworth

DPLR3_1056 - Some hermit crabs were small enough to enter the trap without activating them - BIOT - Credit Lindsey Hollingsworth

DPLR3_1056 - Damage to traps caused by crabs - BIOT - Credit Lindsey Hollingsworth

DPLR3_1056 - Project lead, Lindsey Hollingsworth and volunteer David Green, installing traps at turtle cove - BIOT - Credit Chloe Jones

I agree for the Biodiversity Challenge Funds Secretariat, Administrator, and/or JNCC to publish the content of this section.

⦿ Yes, I agree for the BCFs Secretariat and/or JNCC to publish the content of this section.

Please list any accounts that you would like tagged in online posts here. This can include project pages, partners' pages or individuals' accounts for any of the following platforms: LinkedIn, Facebook, Twitter, or Instagram.

n/a

Section 7 - Darwin Plus Contacts

Please tick here to confirm that you have read and acknowledge the BCF's Privacy Notice on how contact details will be used and stored and that you have sought agreement from anyone that you are sharing personal details with us on their behalf.

⦿ I confirm I have read the Privacy Notice and have consent to share the following contact details

Project Contact Details

Project Contact Name	Lindsey Hollingsworth
Role within Darwin Plus Project	Project Lead
Email	[redacted]
Phone	
Do you need further sections to provide additional contact details?	⦿ No