



Darwin Initiative Annual Report



Department
for Environment
Food & Rural Affairs

Important note: To be completed with reference to the Reporting Guidance Notes for Project Leaders:
it is expected that this report will be about 10 pages in length, excluding annexes

Submission Deadline: 30 April

Darwin Project Information

Project Reference	DPLUS011
Project Title	Ile Vache marine restoration project
Host Country/ies	British Indian Ocean Territory (BIOT)
Contract Holder Institution	Chagos Conservation Trust
Partner institutions	UK FCO; The RSPB; Royal Botanic Gardens Kew; University of Warwick
Darwin Grant Value	£32,256
Start/end dates of project	April 2013 – September 2015 (new end date to be approved)
Reporting period (eg Apr 2013 – Mar 2014) and number (eg Annual Report 1, 2, 3)	April 2013 – March 2014 Annual Report 1
Project Leader name	Peter Carr
Project website	N/A
Report author(s) and date	Charley Cranmer and Peter Carr, 28.4.14

1. Project Rationale

This project aims to repair the ecosystem of Ile Vache Marine by eradicating the introduced invasive black rat (*Rattus rattus*). This will: improve the breeding conditions for Critically Endangered Hawksbill and Endangered Green sea-turtles; and allow for the re-colonisation of seabirds from the surrounding six Important Bird Areas. Island ecological restoration has been successfully conducted elsewhere and is seen as the only method available to increase biodiversity and biomass of original species.

The problem of rat infestation on Ile Vache Marine is very clear to see on the island with the naked eye, and has been noted by all of those (e.g. scientists on expeditions) who have visited it over the years. The island is uninhabited and so there is no relevance of this project to human development.

Originally, the project rationale included managing other non-indigenous species and native pest species, particularly coconut palms, as part of the rat eradication. However, the rat eradication expert that has been contracted, Grant Harper, conducted a recce of the island in January 2014 during which he established that this level of vegetation management (output 1.6 in the project logframe) would not be required. This is shown in his recce report included as Appendix 1 to this report. A change request form detailing this has been submitted separately.

Ile Vache Marine is a tiny island (approximately 1.5 km²) in the Chagos archipelago (05° 25' 26" S, 71° 49' 50" E; 0m elevation; 500m x 300m). It is the smaller of the two islands in the Eagle Islands group on the western side of the Great Chagos Bank. Please see Appendix 2 for maps.

2. Project Partnerships

As Ile Vache Marine is uninhabited there can be no host country partners. The organisations supporting this project are: the UK Foreign and Commonwealth Office; the RSPB; Royal Botanic Gardens, Kew; and the University of Warwick. Liaison between these project partners has continued as appropriate to date. The project is now maturing and there is regular dialogue between all partners. RBG Kew has provided botanical advice relevant to the level of vegetation management required to disperse the bait; the RSPB continues to provide expertise based upon their considerable experience in this field; the FCO have increasingly provided logistical support and Peter Carr of Warwick University continues to coordinate and lead all activities.

3. Project Progress

The critical part of this project is the rat eradication phase, scheduled for 29 July – 14 August 2014 (largely determined by the availability of the BIOT Patrol Vessel). Therefore, in the year currently reported on, preparatory activities for this phase have taken place. These preparations have been completed successfully. A professional rat eradication expert, Grant Harper, has been contracted to undertake the project.

As previously communicated to LTS International, the Project Leader Peter Carr is no longer based in BIOT. This necessitated a recce of the project location by Grant Harper, which took place in January 2014. As shown in his resulting report (Appendix 1) he has advised that a simpler plan of eradication is appropriate for this small island (changes outlined in the paragraph below). The recce was not in the original project budget, but the cost of this has been compensated for by the reduction in activities specified by Grant Harper, and savings from having the rat bait donated rather than purchased (donation secured by Peter Carr from Bell Labs and APC). Current projections show that the entire project should come in slightly under budget.

In chronological order, the changes to the project as determined by Grant Harper are as follows (and are included in a change request form submitted separately to this report). A bait acceptance trial is unnecessary. The pre-eradication vegetation management does not need to be as extensive as originally planned, and will now be undertaken by military volunteers rather than paid labourers. Similarly, paid labourers are no longer required to assist Grant Harper and Peter Carr for the eradication phase, which is to be simpler than initially envisaged. Monitoring was originally planned 30, 60 and 90 days after eradication, but Grant Harper has advised that this be undertaken circa 9-12 months after eradication, as before this time detection of rats will be virtually impossible at the very low population size present if the eradication fails.

Delaying the post-eradication monitoring means that the resultant reporting and therefore project end date is pushed into the next financial year (Year 3). However, there will be no budgetary impact into Year 3 as the monitoring will be done on an expedition with costs covered elsewhere, and any costs linked to the production of the academic paper and its dissemination (outputs 3.2 and 3.3) will have already been discharged in Year 2 (i.e. any payments to the rat eradication expert and partner organisations).

3.1 Progress in carrying out project activities

In the year currently reported on, all of the scheduled project activities have been completed in the manner and time planned. These were: to contract a professional rat eradication expert (output 1.1); continued liaison between the project partners (output 1.2); and assess rat and land crab density, securing a genetic sample of rats present (output 1.4). This latter task was completed by the Project Leader, Peter Carr, on an expedition in BIOT in March 2013.

In addition a recce to the project location was completed, as outlined in the section above.

In line with the advice of the professional rat eradication expert, some initial vegetation management (output 1.7) was also undertaken in April 2014 (during a scientific expedition to BIOT). Peter Carr and an accomplice physically marked, GPS way-pointed and cut in two complete lanes of the required grid for bait dispersal, and cut portions of six of the other 20 lanes required. Peter Carr wrote detailed instructions for the volunteers to follow when managing the vegetation and personally briefed the leader of the volunteers. This is viewed as the best possible course for delivering the very important vegetation management phase.

3.2 Progress towards project outputs

As scheduled, the indicators of success of the project outputs have not been reached in this first preparatory year of the project. The streamlining changes proposed to the project plan by the professional rat eradication expert impact on the indicators of success of the project outputs in that: less vegetation management is required (output 1); and the post-eradication monitoring (output 2) and academic paper (output 3) are going to happen later than originally anticipated.

3.3 Progress towards the project Purpose/Outcome

Considerable preparations have been made towards the project outcomes, as scheduled. The first of the three project outcomes – dealing with vegetation management - has been affected by Grant Harper's recommendations (as detailed in the separately submitted change request form). He advised that the former coconut plantation does not need to be clear-felled in order for the rat eradication to be a success, and so less extensive vegetation management is now proposed.

The project is still expected to achieve its purpose of restoring the ecosystem of Ile Vache Marine to a state comparable to pre-human arrival by eradicating the invasive black rat.

3.4 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation

N/A – not included in the Darwin Plus application form.

4. Project support to the Conventions (CBD, CMS and/or CITES)

By removing invasive alien species from Ile Vache Marine, to enable the return of birds and terrestrial organisms such as the IUCN Red-Listed coconut crab, this project will contribute towards implementing Article 8(h) of CBD and to achieving Aichi target 9. Although the CBD has not yet been extended to cover the BIOT, the outcomes of this project will contribute to the FCO's ambition as stated in the Overseas Territories White Paper to achieve exemplary environmental management in the uninhabited UK Overseas Territories. As the project is still in its preparatory phase, it is not possible to refer to indicators to illustrate what has been achieved in this context. However, the emphasis in this project has been on robust planning and preparation with a realistic objective, to maximise the chance of success and the achievement of a good outcome for conservation.

5. Project support to poverty alleviation

N/A

6. Monitoring, evaluation and lessons

N/A

7. Actions taken in response to previous reviews (if applicable)

N/A

8. Other comments on progress not covered elsewhere

A risk that has not been covered elsewhere is if unexpected circumstances prevent the military volunteers from undertaking the pre-eradication vegetation management. This has been mitigated by securing extra time from the FCO on the eradication phase and by bringing extra personnel (at no expense) to undertake vegetation management at the time of the bait spreading.

9. Sustainability

After the eradication of rats is complete, the project on this uninhabited island becomes self-sustaining. The project requires monitoring circa 9-12 months after eradication, to ensure all rats were eradicated, and this is scheduled to happen on a scientific expedition in April 2015. An academic paper will be produced and disseminated confirming the eradication outcome and to share the project lessons.

10. Darwin Identity

As only preparations for the project have been made this year, it has not been practical to publicise it. However it has been mentioned in presentations, including the Darwin Initiative's support of it, for example at CCT's supporter reception in June 2013 and science conference in November 2013.

11. Project Expenditure

Table 1 project expenditure during the reporting period (1 April 2013 – 31 March 2014)

Project spend since last annual report	2013/14 Grant (£)	2013/14 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				The project end date was delayed as agreed with LTS International.
Overhead Costs				
Travel and subsistence				These costs are from the January 2014 recce, which was not originally planned (as per the October 2013 change request and half year report).
Operating Costs				The £4,270 budgeted for rat bait has been saved as it is now being donated.
Capital items (see below)				

Others (see below)				
TOTAL	15,531	14,951		

12. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section

The previously mentioned preparation for the vegetation management undertaken by the Project Leader in order to make the volunteers task as simple and easy as possible. This will be an important contribution to the eventual success of the project. This was not in the original bid (as the project plan has subsequently changed) and was undertaken by the Project Leader free of charge.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2013-2014

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
<p>Goal/Impact</p> <p>N/A – not included in the Darwin Plus application form.</p>		N/A	
<p>Purpose/Outcome</p> <p>To restore the ecosystems of Ile Vache Marine by eradicating the invasive black rat (<i>Rattus rattus</i>).</p>	N/A – not included in the Darwin Plus application form.	Initial project preparations have been completed as planned, as well as an originally unanticipated project location recce by the rat eradication expert and some initial vegetation management.	The rat eradication is scheduled to happen in July/ August 2014.
<p>Output 1. Habitat management in preparation of rat eradication. This will include the control of alien and invasive species of plants.</p>	<p>Original indicator:</p> <p>Former area of introduced for crop coconuts cleared and clearance and control of alien species (especially <i>Pipturus argenteaus</i>) by the end of quarter 1 of the project.</p>	<p>The vegetation management is now scheduled to take place in Year 2 of the project (this change was agreed with LTS International in April 2013).</p> <p>Following the simplification to the project plan recommended by the rat eradication expert, a more appropriate indicator would be: “A matrix of tracks will be cut across the island in preparation of the bait dispersal.” Further habitat management will occur on Vache Marine but will now form a task on a future terrestrial scientific expedition and does not impact upon this project.</p>	
<p>Activity 1.1</p> <p>Professional rat eradication expert contracted.</p>		Completed.	
<p>Activity 1.2</p> <p>Continued technical liaison between the PI Peter Carr, Royal Botanic Gardens Kew, RSPB and the contracted professional rat eradication expert.</p>		Ongoing.	

<p>Activity 1.3</p> <p>Originally this output was to contract six paid labourers to undertake vegetation management, which will now be undertaken by military volunteers based in Diego Garcia, led by the BF BIOT. The British Representative and Commander British Forces has committed to this.</p>	<p>This is to take place in Year 2 of the project.</p>
<p>Activity 1.4</p> <p>Assess rat and land crab density; secure genetic sample of rats present.</p>	<p>Completed</p>
<p>Output 2.</p> <p>Black Rat <i>Rattus rattus</i> (invasive alien species) eradicated.</p>	<p>Original indicator:</p> <p>By end of quarter 1 in year 2, post eradication monitoring confirms that all have been eradicated on Ile Vache Marine.</p> <p>The eradication is now scheduled to take place in Year 2 of the project (this change was agreed with LTS International in April 2013).</p> <p>Following the changes to the project plan recommended by the rat eradication expert, a more appropriate indicator would be: "Circa 9-12 months following the eradication, post eradication monitoring confirms that all rats have been eradicated on Ile Vache Marine."</p>
<p>Output 3.</p> <p>Post-eradication monitoring report produced in the form of an academic paper (confirming outcome and to share lessons).</p>	<p>Original indicator:</p> <p>Report produced and disseminated to key stakeholders and networks by end of quarter 1 in year 2.</p> <p>Following the changes to the project plan recommended by the rat eradication expert, a more appropriate indicator would be: "Report produced and disseminated to key stakeholders and networks by end of quarter 2 in year 3."</p>

All of the remaining activities are for future financial years, as shown in the logframe below.

Annex 2 Project's full current logframe

In the logical framework below, there are proposed changes to those agreed in the original version in outputs 1.3, 1.5, 1.6, 1.7, 1.8, 2.1, 2.3, 2.4, 2.5, 2.6 and 3.1. A change request form related to these changes has been submitted separately. All of the changes are for future financial years, make the project simpler and were recommended by the contracted rat eradication expert following the recce to the project location in January 2014.

Activity	No of Months	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1													
1.1 Professional rat eradication expert contracted.	0.1			▪									
1.2 Continued technical liaison between the PI Peter Carr, Royal Botanic Gardens Kew, RSPB and the contracted professional rat eradication expert.	24	▪	▪	▪	▪	▪	▪	▪	▪				
1.3 Originally this output was to contract six paid labourers to undertake vegetation management, which will now be undertaken by military volunteers based in Diego Garcia, led by the British Forces on Diego Garcia. This has been agreed by the British Representative on Diego Garcia.	0.13						▪						
1.4 Assess rat and land crab density; secure genetic sample of rats present.	0.1	▪											
1.5 This output was to conduct a bait acceptance trial, but the contracted professional rat eradication expert (Grant Harper) has advised this is not necessary.	N/A												
1.6 Grant Harper has advised that the vegetation management initially listed as this output (to "clear-fell and burn coconut palms, fruits and fallen leaves as well as other alien plants") is not necessary. (Ref Appendix 1).	N/A												
1.7 Cut in grid system for bait stations - the grid lanes will be spaced at 25m intervals (measured by GPS) and will run the length of the island. In variance to the original plan, the	0.13						▪						

	parallelism of cut lines will not be checked as this is viewed as unnecessary, but a new detailed set of instructions have been given to the volunteers to simplify and ease their task. Volunteers now simply have to locate a physical marker and cut a lane across the island in a North direction. (Ref Appendix 3).													
1.8	This output was originally to deploy rat bait stations but this will now take place during the eradication phase (output 2.3) on the advice of Grant Harper.	N/A												
Output 2														
2.1	This output was originally to contract two paid labourers to help undertake outputs 2.2 – 2.7. However, this will not now be necessary as Grant Harper has simplified the plan, there is less work to be done and he and the PI Peter Carr will complete this without help from paid labourers.	N/A												
2.2	Eradication stores and equipment will be shipped in waterproof rat-proof containers on the BIOT Patrol Vessel (BPV) Pacific Marlin to Ile Vache Marine and off-loaded on to the island using BPV small craft. Base camp and the stores dump will be located in the area of the wide sandy beach on the northern side of the island, which also provides the safest landing access.	0.03						▪						
2.3	Grant Harper has advised on the following plan regarding the rat bait stations: On days one and two set out 48 unloaded bait stations, 4 per hectare, throughout the island at regular intervals on the grid lines cut at 25m intervals (output 1.7). This is opposed to the original plan for this output: All bait stations will be supplied with 160g of the second generation anticoagulant bait brodifacoum (@ either 0.005% or 0.002% active ingredient – bait acceptance trial dependant) in the form of 8 x 20g blocks. The bait stations will be checked daily for seven days and any bait removed will be replenished. On day seven the bait station load will be reduced to 80g for the remaining 21 days and continue to be checked daily and replenished as required.	0.06						▪						

2.4	<p>Grant Harper has advised the following plan regarding hand broadcasting of the rat bait: On days one and two a hand broadcast of Bell Labs pelletised brodifacoum will be spread throughout the island. This will be applied at 15kg/ha, using the grid lines cut at 25m intervals.</p> <p>This is opposed to the original plan for this output: On day one, seven and 14 a hand broadcast of Pestoff pelletised brodifacoum (@ 0.002% active ingredient) will be spread throughout the island. This will be applied at 4 kg/100m² in the interior of the island on day one, seven and 14 and at 1.5kg/50m along the coastline from the edge of vegetation to the limit of the high tide mark on the same days. In the interior, bait will be broadcast midway between all bait stations. Along the coast bait will be broadcast from the edge of the vegetation towards the shore at 50m intervals around the perimeter of the island.</p>	0.06						▪						
2.5	<p>Grant Harper has advised the following plan regarding the next stage of the rat eradication: Return 10-12 days later, after all / most of the rats have died (it takes 5-10 days). Hand broadcast 20R pellets at 15kg/ha as per the first application (output 2.4).</p> <p>This is opposed to the original plan for this output: When no further bait is being taken by rats from bait stations, baited mechanical traps (T-Rex Traps) will be deployed throughout the island for a minimum period of seven days to check for bait station shy rodents. Mechanical snap traps will be set in each 25m² grid square in the area of still baited bait stations. If after seven days no further rats are trapped and no bait is taken (by rats) from the stations, the eradication attempt will have been deemed successful and stores, equipment and personnel will be recovered to Diego Garcia by the Pacific Marlin. If rats are still detected and this requires a stay beyond the predicted maximum stay of 30 days, this is planned for. A home-made chocolate wax will be used as bait for the mechanical traps.</p>	0.06					▪							
2.6	<p>Prior to the eradication team departing the island, all bait</p>	0.06					▪							

	stations will be loaded with 500g of Bell Labs 25W each (as opposed to the originally planned 160kg of rodent blocks and a final hand broadcast of pelletised brodifacoum).												
2.7	On completion of the eradication, stores, equipment, bait and all rubbish will be removed from the island. (Bait stations will not be removed until the monitoring proves conclusively that the operation was successful).	0.03						▪					
Output 3													
3.1	Monitoring was originally planned 30, 60 and 90 days after eradication, but Grant Harper has advised that this be undertaken circa 9-12 months after eradication, by an appropriately qualified person.	0.06								▪			
3.2	Post-eradication academic paper completed by the PI Peter Carr with technical review and input by the RSPB, the Royal Botanic Gardens, Kew and the professional rat eradication expert.	1									▪		
3.3	Post-eradication academic paper disseminated (e.g. to other OTs and via RSPB networks).	1									▪		

Annex 3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
Established codes								
11A	The academic paper produced as a result of this project will be submitted to a peer review journal, if possible for publication.			1		0	0	1
11B	The academic paper produced as a result of this project will be submitted to a peer review journal.			1		0	0	1
14B	The results of this project will be presented at CCT's annual science conference.			1		0	0	1
23	The current total of gift in kind support to this project is £206,538 but this is expected to be higher by the end of the project.							
New - Project specific measures								

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Appendices:

1. Report on a visit to Ile Vache Marine and other northern BIOT territory islands in regard to proposed eradication of black rats (*report of January 2014 recce*)
2. Maps
3. Ile Vache Marine, Peros Banhos, Rat Eradication Project, Vegetation Management Phase Requirement

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	✓
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	N/A
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	N/A
Have you involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	