Darwin Initiative Main Project Annual Report

Submission Deadline: 30 April

Darwin Project Information

Project Reference	20-003
Project Title	South Georgia Island Habitat Restoration Project: Mouse Eradication Sub-Project
Host Country/ies	South Georgia and the South Sandwich Islands (a UK OT)
Contract Holder Institution	South Georgia Heritage Trust (SGHT)
Partner institutions	Government of South Georgia and the South Sandwich Islands (GSGSSI) and Royal Society for the Protection of Birds (RSPB has subsequently withdrawn)
Darwin Grant Value	£253,058 over three years
Funder (DFID/Defra)	Defra
Start/end dates of project	01/04/2013 – 31/03/2016
Reporting period (e.g., Apr 2015 – Mar 2016) and number (e.g., Annual Report 1, 2, 3)	Apr 2014 – Mar 2015 Annual Report 2.
Project Leader name	Professor Anthony Martin
Project website/blog/Twitter	www.sght.org www.facebook.com/pages/South-Georgia-Heritage-Trust/107047869335869 https://twitter.com/SGHTcharitysite
Report author(s) and date	Anthony Martin, 27 April 2015.

1. Project Rationale

The problem addressed by this project was the accidental introduction of a rodent (house mouse - *Mus musculus*) to an island ecosystem that had evolved in the absence of mammals. House mice were very likely taken accidentally to South Georgia by British and American sealers in the late eighteenth century, since they were found to occur remote from the whaling stations which were established a century later.

The impact of these rodents on the fauna and flora of the UK Overseas Territory of South Georgia had not been studied, but experience on other islands in similar latitudes left little doubt that the mice had, or would at some stage have, a profound impact if left *in situ*. On the UK Overseas Territory of Gough Island, for example, house mice have become destructive predators of nestlings of the endemic Tristan albatross. South Georgia has 5 ACAP-listed species vulnerable to mouse predation, including four albatrosses. The endemic South Georgia Pipit is also very vulnerable to rodent predation.

Another key element of the rationale for the work was that the personnel and infrastructure to effect an eradication attempt was due to be on the island for an attempt to eradicate rats in adjacent blocks of land. Consequently, mouse eradication work could be carried out at a small fraction of the cost of a stand-alone operation.

As South Georgia has no permanent human residents, this project was not required to address development challenges.

The main challenges to be overcome were the scale of the task, the remoteness of South Georgia, the hostile landscape and climate, and the need to kill every rodent in the target area.

South Georgia lies just south of the Antarctic Convergence and is situated some 1,800km east of the southern tip of South America. The two areas known to be mouse-infested prior to the project are located on the south coast of the island at its western end. Mice occupied (we hope and trust in the past tense!) the vegetated coastal fringe of these mountainous areas. Here, native tussac (a tall, stool-forming grass) dominates, producing deep peat soils over time. The peat provides excellent habitat for burrow-nesting seabirds, and tussac is the preferred habitat of the endemic South Georgia Pipit.

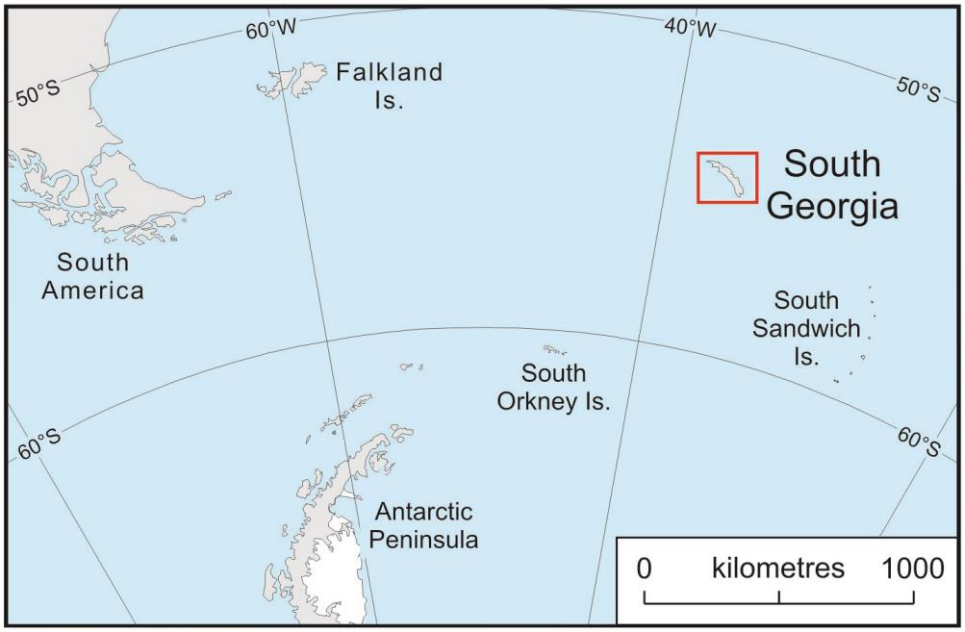

Fig. 1. Map of South Atlantic and Southern Ocean showing location of South Georgia

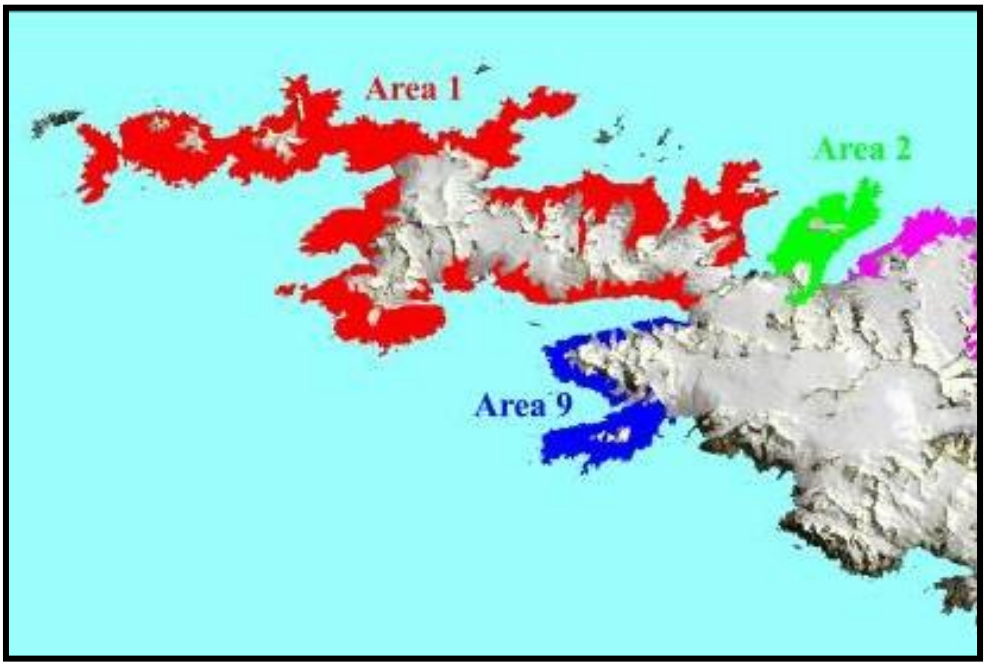

Fig. 2. Map of western end of South Georgia. The land that was mouse-infested is labelled 'Area 9' in blue, and comprises two adjacent blocks of land separated by a glacier. The total planar area of these two blocks is 4,932 ha (49.3 sq. km).

2. Project Partnerships

The Government of South Georgia and the South Sandwich Islands (GSGSSI) has been closely involved in all elements of this project from the outset. In its capacity as regulator, GSGSSI has two staff members on the project's Steering Committee, and formally approved the eight formal documents which set out how the project would be conducted and managed (Operational Plan, Environmental Impact Assessment, Health and Safety Plan, Oil Spill Response Plan, Search and Rescue Plan, Crash Recovery Plan, Monitoring Plan and Biosecurity Plan). GSGSSI's role as project partner has been one of logistical and monitoring support. Government co-chartered a vessel that, as part of a bird survey expedition, visited the areas treated by SGHT for mice. An expert team then searched for mouse sign and recorded birds seen. The report of that work forms Annex 5 to this document.

As reported in our year 1 report, the intended partnership with the RSPB did not happen. This was because the RSPB staff member involved - the only person in the organisation with the required expertise - left the UK to work overseas for another agency. Fortunately this did not significantly harm the project. The results of his earlier research work on mice on South Georgia were made available to SGHT, and subsequent advice was available from experts in New Zealand.

3. Project Progress

This is the second year of a three year grant. The majority of the project activities were planned for year one; correspondingly 87% of the grant was allocated to the first year. The focus for year two has been on monitoring the impacts and effectiveness of the first year's fieldwork, along with some dissemination tasks. Due to the extremely seasonal nature of fieldwork on South Georgia, the field activities for year two were all planned for the final quarter (South Georgia's late summer and autumn). In year three the focus will be solely on dissemination and public outreach.

3.1 Progress in carrying out project activities

Activities relating to Output 3: Final assessment of success of baiting and immediate faunal impacts

Progress in implementing project activities has been good over the past year, though a little truncated by South Georgia's weather, which always has the last say on the island.

Surveys of both the target and non-target fauna were carried out twice - in January (16th & 18th; summer) and April (9th; autumn) 2015. This equates to 21 and 24 months after baiting was carried out. The latter survey was delayed from March by a continuous stream of storms which prevented our helicopters flying to the western end of the island for more than three weeks, but was effective in yielding the information required. Although the last part of the work was strictly carried out in the next reporting year, this was simply a weather-delayed extension of the current reporting year and is treated here as such. We were fortunate in being able, in April, to divert effort from tasks not directly associated with this project to achieve the desired survey goals in the (we hope *former*) mouse infested areas. Much better late than never!

Surveys for evidence of live mice were based on both checking detection devices deployed a year earlier and searching for tracks, faeces or other sign in fresh snow. Both surveys produced negative results, i.e. no mouse sign was discovered.

Evidence from bird sightings strongly indicates both that species at risk of poisoning and those likely to benefit in the short term from rodent eradication are doing well. The species most at risk were Antarctic skua, South Georgia pintail and snowy sheathbill. In 2015 skuas were breeding at densities similar to those encountered before the baiting work. Pintails are difficult to assess during the breeding season when they are cryptic, but on 9 April 2015 a flock of 72 was seen at Cape Rosa by the author - a larger number than he had seen in the area in earlier years - and substantial pintail flocks were evident in nearby areas which were treated for rats in 2013. Sheathbills are only normally numerous in penguin colonies, of which there are few in the mouse-infested areas, and none were visited during this survey. However, other penguin

colonies treated for rats at the same time as the mouse areas were treated (March/April 2013) did have substantial numbers of sheathbills present in early 2015. It seems clear that the bait-broadcasting activities in early 2013, even if they did cause some sheathbill mortality as would be expected, did not bring about a major long-term loss of sheathbills on South Georgia.

While the pintail population was expected to both suffer (in the short term) and benefit (in the longer term) from the baiting, pipits were only likely to benefit, and their response to the operation has been spectacular. Before the bait was sown, pipit sightings in areas with rodents were few and far between. Now they are seen routinely on every landing, no doubt because the species breeds at an early age and has the potential to produce many fledged young per season. At Cape Rosa a pair of pipits appeared overhead as soon as the helicopter blades stopped turning, and the field team were never out of earshot of pipit calls throughout their visit. This species neither migrates nor assembles in flocks, remaining in scattered pairs or singles throughout the year. Post-breeding dispersal and the nature of preferred habitat renders estimates of population size to be prone to substantial error, but the increase in density and range this year was so profound that all observers familiar with the island were in agreement that the change was real and unmistakeable. Other factors such as weather and climate change may well be involved in this recovery to some extent, but such a rapid change in pipit population fortunes can only plausibly be due to the equally rapid, and opposite, change in rodent numbers on South Georgia.

Two years is the absolute minimum length of time required to be able to assess the likely success or failure of an eradication operation and its long-term impact on non-target fauna. Exactly 24 months after baiting one of the largest areas of land ever treated for mice, it is not possible to give a definitive answer to every question. However, it does seem reasonable to conclude the following:

1. Baiting appears to have been largely or totally effective in eradicating mice from South Georgia. No rodent sign has been found since baiting was carried out. Absence of evidence is not evidence of absence, but there are grounds to be cautiously optimistic that mice no longer occur on South Georgia.

2. The bird species expected to suffer losses from the baiting are now (two years after baiting) present in numbers that indicate no long-term damage to their populations.

3. The two species expected to benefit from rodent eradication in the medium term - pintails and pipits - are both present in abundance. It is likely that the endemic pipit is now more abundant and widespread than at any time since whaling began more than a century ago, and perhaps since shortly after sealers brought rodents to South Georgia a century earlier than that.

Activities relating to Output 4: Dissemination of results and public outreach

Reports of survey work in both January and April have been submitted to the Project's Steering Committee. They will be available publicly via the SGHT website after the Steering Committee has met to discuss them in June 2015.

During the reporting year, the Project Director gave seven presentations about the project in four countries, was interviewed for a film documentary and spoke at a press conference. Interest in the work continues, and further talks are scheduled in Brazil and for an Overseas Territories environmental conference in Gibraltar.

Media-related activities relating to this output were mainly intended for year 3, but as in year 1 have been substantially addressed again this year as part of the wider rodent-eradication media coverage. In late January 2015, we put out a press release to coincide with the departure of the project team for South Georgia. On Tuesday 24 March 2015 a further press release was issued to highlight completion of the baiting in the wider rodent eradication project.

3.2 Progress towards project outputs

The Log Frame has four outputs:

Output 1 (the sowing of bait) was completed successfully, safely and on time in year 1.

Output 2 (assessment of impacts on target and non-target fauna in the year after baiting) was also delivered and reported on in year 1.

Output 3 (extensive survey work 2 years after baiting) relates to the current reporting year.

Good progress was made on this output, though extremely bad weather in March 2015 prevented fieldwork in that month, when resources of time and helicopter access were most available. Effort was extended into April, when observers were able to access both land areas in question.

Output 4 (dissemination of results and public outreach) was mainly intended for year 3, but has been substantially addressed again this year, as last, as part of the wider rodent-eradication media coverage. In late January the Habitat Restoration Project featured on BBC *Breakfast,* Radio 4's *Today* programme and *From Our Own Correspondent*. We were also highlighted in Matt Ridley's opinion piece in *The Times* (26 January 2015). A list of media coverage is supplied in Annex 6. The project director has given a variety of presentations and interviews about the project as described in section 3.1, above.

3.3 Progress towards the project Outcome

Simply stated, the project Outcome is a mouse-free South Georgia. Evidence to date (i.e., Indicator 1 - no evidence of mice in Nunez and Rosa two years after completion of baiting despite thorough monitoring) suggests that this was achieved by the baiting operation in Year 1 of the project. The fact that many pairs of pipits were encountered during visits to the sites in early 2015 is also strong circumstantial evidence that this bird bred in these areas in the 2014/15 season. Indicator 2 - evidence of breeding of the endemic South Georgia pipit - remains as an appropriate means of gauging project success, though in truth it is possible that pipits could breed even if one or more small colonies of surviving mice remained in remote parts of the former range of this rodent.

3.4 Monitoring of assumptions

Risks and assumptions as set out in the original application are listed below, with comments on whether each still hold true or not.

At outcome level:

Assumption 1 Mice occur on just two land areas of South Georgia. There is a slim possibility that mice may be more widespread on South Georgia than is currently recognised, as their numbers could be suppressed by the presence of rats. Even if this is the case, there will be a substantial probability that the mice will succumb to the rodenticide used for the rats. Monitoring of all areas treated for rodents will demonstrate whether mice have survived in areas where rats have been eradicated.

Comment: No evidence has come to light to contradict the assumption that mice were restricted to two land areas.

Assumption 2 The mouse eradication will be 100% successful. Experience elsewhere has shown that the probability of eradication is much lower for mice than for rats. Changes to methodology (e.g. smaller pellets, greater pellet density on the ground to reduce inter-pellet distance, greater swath overlap, and repeat coverage) should improve the probability of success on South Georgia. Nonetheless, following treatment of each zone, monitoring will take place in the future to check that complete eradication of rodents has been accomplished. If any survive, the area will be treated again the following year.

Comment: There is no evidence that any mice survived the baiting regime carried out in Year 1 of the project.

Assumption 3 Mice will not be reintroduced. Should rats or mice be found at any location on SG subsequent to an eradication operation, they will be genetically tested to determine whether they are newly arrived or derived from survivors of the baiting attempt. Reference samples of the extant population will be securely archived in anticipation of this eventuality. However, strict

biosecurity measures are already in place to prevent the re-introduction of rodents to the islands. Recent attention to the risk of new introductions of IAS to South Georgia by GSGSSI, including strict administrative procedures, infrastructure and public awareness has brought about improvements which mean that the probability of reintroduction is now close to zero.

Comment: To date there is no evidence that mice have been re-introduced to South Georgia, but the risk is real and GSGSSI recognises that more must be done to diminish the risk further.

At output level:

Assumption 1 That the required number of flying hours can be achieved within the time allocated and before winter snows prevent further bait spreading

Assumption 2 That two or three (of three) helicopters remain functional throughout almost all of the operation

Assumption 3 That any injury or illness within the field team is limited to manageable levels and does not disable both key staff and their replacements for other than short periods of time

Comment: These risks were relevant only to the baiting work carried out in Year 1. The assumptions held good.

3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation

The Goal/Impact in our original application form was stated as follows:

"In the absence of rodents, South Georgia's native biodiversity and ecosystem function will be restored, with the anticipated return of over 100 million seabirds to their ancestral home. The project will have a worldwide impact by virtue of informing, encouraging and inspiring other rodent eradication operations. The recovery of South Georgia's birds will be a major international conservation story. It should encourage more sustainable tourism to the island, generating revenue for its Government which is substantially reinvested to improve wildlife protection."

The impact of the work is both local and global. At the local level, the island's native flora and fauna in an area of 48 km^2 will be freed of human-induced damage and, in time, a natural regeneration of native seabirds and other fauna and flora will occur. At the global level, a milestone in the fight back against invasive species will have been achieved. Moreover, this ambitious challenge will have been undertaken successfully and efficiently by a small UK charity, providing inspiration to many NGOs around the world. This is already being seen in numerous enquiries from groups in countries such as Mauritius, the Falkland Islands, the Antipodes and Auckland Islands (NZ) and the French sub-Antarctic islands of Crozet and Kerguelen. Nearer to home, SGHT's expertise has been sought in relation to eradicating rodents from the Shiant Islands (Hebrides), a project being scoped by RSPB Scotland, neatly reciprocating the advice provided by the RSPB in regard to the mouse work on South Georgia.

As South Georgia has no permanent human residents, this project is not expected to make direct contributions to human development, poverty alleviation and welfare.

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

The Convention on Biological Diversity (CBD) was signed by the UK in 1992 and ratified in 1994, but that ratification did not include South Georgia and the South Sandwich Islands. On 27/03/15 GSGSSI announced that the Foreign Secretary had agreed to declare an extension of the Convention on Biological Diversity to South Georgia & the South Sandwich Islands. The extension of the CBD to SGSSI is a demonstration of the commitment of the GSGSSI, the UK Government and partners such as SGHT to the conservation of the flora and fauna of South Georgia and the South Sandwich Islands and is, in part, a consequence of recent work to protect the biodiversity of the Territory. In making this announcement, GSGSSI made reference to SGHT's "world leading" rodent eradication work, which, alongside other non-native species eradications, has been a factor in facilitating the extension of the CBD to South Georgia.

Island Biodiversity is a thematic programme under the CBD, and invasive alien species is a cross cutting issue. This project relates particularly to CBD *Article 8. In-situ Conservation:*

(f) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;

(h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;

In terms of the Aichi Targets, the project supports *Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use, Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment*

The project also relates to the Agreement for the Conservation of Albatrosses and Petrels (ACAP) under the CMS. Seven of the 29 currently listed ACAP species breed on South Georgia and South Sandwich Islands (SGSSI). For all of these species, SGSSI hosts significant proportions of the global breeding population, including the largest populations for four of the seven species.

The following ACAP obligations concerning the conservation of breeding sites are of particular relevance to this project:

1. Conserve and, where feasible and appropriate, restore those habitats that are of importance to albatrosses and petrels (Art III, 1a).

2. Prevent introductions, eliminate or control non-native species detrimental to albatrosses and petrels (Art III, 1b).

5. Project support to poverty alleviation

Since South Georgia has no permanent human residents, this project does not contribute to the Darwin Initiative criteria relating to poverty alleviation. This was recognised in the invitation from the Darwin Secretariat to submit a Stage 2 application, which stated that 'meeting all the ODA criteria is not necessarily required for this application'.

Nonetheless the project may have some relevance for poverty alleviation on inhabited islands elsewhere. Many invasive alien species increase human poverty, and rodents are among the most destructive in this regard. Although rodent eradication is still in its infancy as a tool, this project offers a step-change in the land area that can be tackled for mice, and runs alongside an eradication of brown rats (*Rattus norvegicus*) that is an order of magnitude larger than anything yet attempted. Each rodent eradication is informed by its predecessors, and this South Georgia project is attempting to clear rodents from land areas greater than many inhabited islands.

6. Project support to Gender equity issues

Since South Georgia has no permanent human residents, the project does not address gender equality issues.

7. Monitoring and evaluation

The project continues to be overseen by a multi-agency Steering Committee (SC) chaired by a trustee of SGHT. The SC meets quarterly and often conducts urgent business by email and phone between meetings. The Project Director reports to the SC and, on financial and non-operational matters, to the SGHT Board.

Progress made on the various elements of the project is monitored by virtue of a Microsoft *Project* database. This allows participants and stakeholders to quickly understand how the elements are interlinked, which are running to schedule and which are not.

Ultimately, responsibility for monitoring the project's progress, work plan and budget is that of the Project Director.

8. Lessons learnt

The substantial experience of project management and of South Georgia itself within the field and organisational teams was thankfully able to avoid most problems before they arose. The work this year, as last, was carried out in complete safety despite the challenging sub-Antarctic environmental conditions, on budget and (mostly) successfully. The only disappointment this year was in the amount of time, and indeed when, survey visits could be made to the area of land in question, near the western end of the island and on the inhospitable south coast. The logistics and people were in place but, as ever, the South Georgia weather dictated what was, and was not, possible. Nevertheless, sufficient contingencies of time and helicopter fuel were available to ensure that survey visits were made in both summer and autumn to the mouse-infested land. To have allowed even more contingency time, with a team of people and a yacht or two helicopters standing by, would have been extremely expensive. Ultimately a judgement has to be made based on experience of the weather at the time of year in that area over many years, the safety risks of travelling in poor weather, the risk of helicopters breaking down and leaving people stranded, and the finance available. A few more days of good weather at the right time would have been very welcome, but ultimately would have been unlikely to change the result.

The project benefited greatly from the cooperation between lead and partner organisations. Getting people with the right expertise to South Georgia for long periods and with the ability to land and travel safely is both expensive and challenging. To have two teams visit the remote, rarely visited mouse areas at different times of the year was exceptional, and only possible by virtue of pooling resources of GSGSSI and SGHT.

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

Feedback following the Year 1 report pointed out a degree of confusion between monitoring and evaluation *of* the project itself and that *carried out* by the project in the field. This has been rectified in the current report.

10. Other comments on progress not covered elsewhere

This project comprises essentially two very distinct elements - a relatively short, intensive baiting campaign, and a much longer, less intense period of monitoring and evaluation. Having completed the baiting in Year 1, we are now firmly in the monitoring and evaluation phase. If any mice have survived the baiting, they will be few and far between. The question is this - how do you find a tiny nocturnal animal with a small home range in a huge mountainous landscape over which it is extremely difficult to walk?

Proving a negative in these circumstances is simply impossible. The objective must therefore be to devise a strategy which maximises the probability of detecting survivors within the constraints of money, time and opportunity. Our approach has been to use detection devices which accumulate evidence over time (chew sticks, tracking tunnels, automatic cameras, and wax blocks impregnated with peanut butter) and to revisit these. In addition, visiting the sites after fresh snow was possible in April 2015, and of course this facilitates a search for recent sign (tracks, faeces, holes, food remains) that might otherwise be missed.

Any doubt about the difficulty of detecting mice in tussac grass habitat on South Georgia was removed during my visit in early April 2015. I suspect that a small number of mice living in a remote spot could remain undetected indefinitely, although if they bred and the progeny dispersed, at some stage an animal would be detected if the monitoring work was done well.

Apart from investing more resources into what we are doing now, the only way of substantially increasing the chances of encountering any survivors would be to secure the services of a dog handler and two specially-trained rodent dogs. This would require substantial extra financial resources and would have a long lead time, but SGHT and GSGSSI are already talking about the possibility of combining resources to make this happen as soon as possible (but beyond the end of this Darwin Initiative project).

11. Sustainability and legacy

The mouse-eradication operation is a significant part of the South Georgia Habitat Restoration (HR) project, which seeks to rid the island of all invasive rodents and allow millions of native birds to reclaim the island. As the largest and most visual recent innovation on South Georgia, with a substantial international profile, the HR project is known to everyone who visits the island (c7,500 people per year, almost all of whom receive a talk about the work) as well as to those who live there or who seasonally work on South Georgia.

Our exit strategy remains unchanged.

The sustainability of the project outputs and impacts is dependent on no further introductions of mice to the island. Recent attention to the risk of new introductions of IAS to South Georgia by GSGSSI, including strict administrative procedures, infrastructure and public awareness has brought about improvements which mean that the probability of reintroduction is now close to zero.

In terms of legacy on South Georgia, the recovery of South Georgia's birds should encourage more sustainable tourism to the island, generating revenue which is substantially reinvested to improve wildlife protection.

More widely, the project has already inspired governments and other NGOs to seriously consider eradications of IAS in their own parts of the world.

12. Darwin Identity

The Darwin Initiative logo was placed on SGHT's helicopters (see photographs in Annex 4), and images of them are universally used both in presentations about the work and in publicity material. The Darwin Initiative funding has been publicised on SGHT's web site http://www.sght.org/latest-news-page, where it was made explicit that the Darwin Initiative was funding the discrete mouse–eradication sub-project as distinct from the larger rat eradication programme.

The Darwin Initiative is now widely known in conservation circles, and to have won an award is recognised as a mark of esteem, so there is mutual advantage in publicising the fact that this project is supported by the Darwin Initiative. SGHT does have a Twitter account, and this is indeed linked back to the Darwin account.

As mentioned previously, there are no permanent residents on South Georgia, but the island's Government is very aware of the Darwin Initiative both as a partner in this and other projects and as Lead Institution for a Darwin Plus award relating to the management of invasive plants.

13. Project Expenditure

Table 1 Project expenditure during the reporting period (1 April 2014 – 31 March 2015)

Project spend (indicative) sinc last annual report	2014/15 Grant (£)	2014/15 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				The monitoring work being undertaken by GSGSSI required a greater proportion of their budget to be spent on transport (charter of a vessel) than originally envisaged. However, they were able to reduce spend on equipment and personnel. Indeed with contribution of staff time in kind their overall spend was less than budgeted. This was approved in a change request.
Consultancy costs	0			
Overhead Costs				
Travel and subsistence				Explained above – charter vessel costs greater than anticipated (approved in change request)
Operating Costs				
Capital items (see below)				Explained above.
Others (see below)				
TOTAL	**27,000**	**23,696**	**-12%**	Explained above

Breakdown of staff costs for GSGSSI monitoring team

Item	Daily rate per person	Amount	Notes
Staff time for field work			Three persons for three days spent in mouse area. Team members were Andy Black, Sally Poncet and Ken Passfield.
Staff time for biosecurity checks, de-brief and report writing			Five person days
TOTAL		**£**	

Breakdown of staff costs for SGHT team

Staff Member	Daily Rate	Time	Total	Notes
Bryan Beck - pilot		4 days		
Dave McLaughlin - pilot		4 days		
Tony and Rob		4 days	£0	Covered by other funding

Keith Springer - Ops Manager		4 days		
George Lemann – Env. Officer		4 days		
Dickie Hall		4 days		
Roger Stilwell		4 days		
Paul Wilkinson - Engineer		4 days		
Jamie Doube - Field Medic		4 days		
TOTAL				

14. 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 (please leave this line in to indicate your agreement to use any material you provide here)

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2014-2015

Project summary	Measurable Indicators	Progress and Achievements April 2014 - March 2015	Actions required/planned for next period
Impact In the absence of rodents, South Georgia's native biodiversity and ecosystem function will be restored, with the anticipated return of over 100 million seabirds to their ancestral home. The project will have a worldwide impact by virtue of informing, encouraging and inspiring other rodent eradication operations. The recovery of South Georgia's birds will be a major international conservation story. It should encourage more sustainable tourism to the island, generating revenue for its Government which is substantially reinvested to improve wildlife protection.		Seabirds are long-lived and reproduce slowly, so their recovery will be evident on a scale of decades. However, the endemic SG pipit, which reproduces rapidly, can be considered as our equivalent of the canary in a coal mine, and is already showing clear signs of post-baiting recovery.	[redacted]
Outcome. South Georgia will be free of mice for the first time since shortly after discovery by Captain Cook in 1775, and the likely spread of mice to other parts of South Georgia, due to the rapid retreat of glacial barriers, will be prevented. Mouse-inflicted damage to the island's native flora and fauna will cease; five ACAP-listed breeding species and many other vulnerable birds, including the endemic pipit, will be protected. Mouse eradication programmes on other UK Overseas Territories and beyond will be informed by the South Georgia operation, which represents a landmark in the global race against invasive alien species	<u>Indicator 1</u> No evidence of mice in Nunez and Rosa zones two years after completion of baiting, despite thorough monitoring <u>Indicator 2</u> Within 3 years evidence of breeding of the endemic South Georgia pipit - the most obvious of the birds that are expected to benefit from mouse eradication (and the only songbird on SG)	Given the nature of the project, the main outcome was either achieved, or not, in Year 1 when the baiting was carried out. If the eradication was successful, the resultant benefits to the island's ecology, flora and fauna will occur, regardless of whether or not mouse eradication is proven. The task this year was to establish, to the extent possible, whether every single mouse was indeed killed. Progress towards this goal was substantial, as was conveying news of the work to others in the UK and overseas. There was no sign of mice in either of the zones treated and strong circumstantial evidence that pipits bred in the treated areas less than two years after treatment.	Forthcoming actions relate to dissemination of project results and impacts to a wide audience and to informing those who are considering or planning similar work elsewhere. A key element of this in the year ahead will be a talk and round-table discussion at a conference on conservation and sustainability in the UKOTs in Gibraltar in July 2015.
Output 1. Completion of bait spreading in mouse infested areas of SG	<u>Indicator 1.</u>GPS-derived evidence of comprehensive bait-sowing, with no gaps and at the planned sowing densities. Complete by end May 2013.	The bait spreading was completed successfully, safely and on time – see year 1 report for details.	

Activity 1.1. Establish and provision Forward Operating Bases		Completed, as reported in Year 1 report
Activity 1.2, Set up camps in sequence and carry out baiting work using three helicopters and a team of 23		Completed, as reported in Year 1 report
Activity 1.3 Carry out bait-spreading by helicopter		Completed, as reported in Year 1 report
Output 2. Assessment of impacts on target and non-target fauna immediately after bait spreading and in year following	<u>Indicator 1</u> Within 2 weeks after the second bait drop - results of a search for fresh evidence of mice and a count of bird carcasses. <u>Indicator 2</u> By end of summer in the year after baiting - results of extensive search (at least 4 person-weeks of effort) for fresh mouse sign and a survey of abundance of any bird species found to be vulnerable.	Year 1 output – completed, see year 1 report
Activity 2.1.Survey potentially vulnerable bird species before and immediately after baiting		Completed – see year 1 report
Activity 2.2.Search for carcasses of birds and test whether they had eaten the bait in weeks after baiting		Not possible due to persistent poor weather – see year 1 report
Activity 2.3Search for mouse sign after bait drops		Completed – see year 1 report
Activity 2.4Survey potentially vulnerable bird species in year after baiting		Completed – see year 1 report
Activity 2.5Comprehensive search for mouse sign in year after baiting		Completed – see year 1 report
Activity 2.6Survey breeding birds expected to react positively and rapidly to mouse eradication in year after baiting.		Completed – see year 1 report
Output 3. Final assessment of success of baiting and immediate faunal impacts	<u>Indicator 1</u> Two years after baiting - results of extensive search (at least 6 person-weeks of effort) for fresh mouse sign and a new survey of abundance of any bird species found to be vulnerable.	Surveys of evidence of population status for both target and non-target species were carried out at two different times of year. The total amount of effort was as expected (in excess of 6 person weeks) but appalling weather in March 2015, intended to be the focus of fieldwork, meant that the observers were unable to access the treated sites at all in that month. Consequently the team was diverted from other tasks in April 2015 eventually accessed both areas and carried out the work necessary.
Activity 3.1.Survey potentially vulnerable bird species two years after baiting		Completed.

Activity 3.2 Comprehensive search for mouse sign two years after baiting.		Searches were carried out, but the second round of surveys did not cover as much ground as had been hoped, due to prolonged poor weather at the end of March preventing access to the land in question for all but a few days.
Activity 3.3. Survey breeding birds expected to react positively and rapidly to mouse eradication two years after baiting.		Completed.
Output 4. Dissemination of results and public outreach	Indicator 1 Annual reports on baiting and monitoring published on SGHT website. Indicator 2 Press release on completion of baiting and on declaration of success in 2015 (assuming success is achieved). Indicator 3 At least 7 media articles on the eradication effort and its consequences Indicator 4 At least 7 public talks/lectures on the eradication effort and its consequences	Indicator 1. The Habitat Restoration Project Newsletters available on the SGHT web site report baiting and monitoring progress. http://www.sght.org/newsletters-and-publications Indicator 2 – intended for 2015/16, though a press release relating to the completion of the baiting for the wider rodent eradication was put out on 25 March 2015. A further media briefing will be is planned before June 2015, probably at the Royal Geographical Society. Indicator 3 – significant media coverage already achieved. See Annex 6. Indicator 4 –In the second year, the Project Director has given seven lectures on the project and its impacts in four countries.
Activity 4.1.Write annual reports of fieldwork, submit to Steering Committee & publish on website		The Project Director completed his report on the baiting work immediately after the fieldwork was completed, and submitted this to the Steering Committee. The Deputy Project Director did the same in regard to the March/April 2014 Monitoring Expedition, which he led. A report on the just-completed fieldwork is in preparation and will be completed by June 2015.
Activity 4.2.Write final report of mouse eradication operation and faunal impacts & publish on website		Year 3 activity
Activity 4.3 Hold press event and circulate press release to announce eradication of introduced mice on South Georgia (assuming success is achieved)		Year 3 activity. However a press event reporting on progress to date was completed in year 1, resulting in national and international press coverage. Further press coverage of our rodent eradications efforts on South Georgia was achieved in year 2. See Annex 6
Activity 4.4 Project Director to disseminate results through talks at conferences and to stakeholder groups		Annual activity, completed for the year.

Annex 2. Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Risks and Assumptions
Goal/Impact In the absence of rodents, South Georgia's native biodiversity and ecosystem function will be restored, with the anticipated return of over 100 million seabirds to their ancestral home. The project will have a worldwide impact by virtue of informing, encouraging and inspiring other rodent eradication operations. The recovery of South Georgia's birds will be a major international conservation story. It should encourage more sustainable tourism to the island, generating revenue for its Government which is substantially reinvested to improve wildlife protection.			
Purpose/Outcome South Georgia will be free of mice for the first time since shortly after discovery by Captain Cook in 1775, and the likely spread of mice to other parts of South Georgia, due to the rapid retreat of glacial barriers, will be prevented. Mouse-inflicted damage to the island's native flora and fauna will cease; five ACAP-listed breeding species and many other vulnerable birds, including the endemic pipit, will be protected. Mouse eradication programmes on other UK Overseas Territories and beyond will be informed by the South Georgia operation, which represents a landmark in the global race against invasive alien species.	<u>Indicator 1</u> No evidence of mice in Nunez and Rosa zones two years after completion of baiting, despite thorough monitoring <u>Indicator 2</u> Within 3 years evidence of breeding of the endemic South Georgia pipit - the most obvious of the birds that are expected to benefit from mouse eradication (and the only songbird on SG)	Annual report of monitoring of the treated areas (Nunez Peninsula and Cape Rosa). To be written, circulated and published on the SGHT website Field notes collected on a daily basis which provide the substance for the report above	Mice occur on just two land areas of South Georgia. There is a slim possibility that mice may be more widespread on South Georgia than is currently recognised, as their numbers could be suppressed by the presence of rats. Even if this is the case, there will be a substantial probability that the mice will succumb to the rodenticide used for the rats. Monitoring of all areas treated for rodents will demonstrate whether mice have survived in areas where rats have been eradicated The mouse eradication will be 100% successful. Experience elsewhere has shown that the probability of eradication is much lower for mice than for rats. Changes to methodology (e.g. smaller pellets, greater pellet density on the ground to reduce inter-pellet distance, greater swath overlap, and repeat coverage) should improve the probability of success on South Georgia. Nonetheless, following treatment of each zone, monitoring will take place in the future to check that complete eradication of rodents has

			been accomplished. If any survive, the area will be treated again the following year. Mice will not be reintroduced. Should rats or mice be found at any location on SG subsequent to an eradication operation, they will be genetically tested to determine whether they are newly arrived or derived from survivors of the baiting attempt. Reference samples of the extant population will be securely archived in anticipation of this eventuality. However, strict biosecurity measures are already in place to prevent the re-introduction of rodents to the islands. Recent attention to the risk of new introductions of IAS to South Georgia by GSGSSI, including strict administrative procedures, infrastructure and public awareness has brought about improvements which mean that the probability of reintroduction is now close to zero.
Outputs 1. Completion of bait spreading in mouse infested areas of SG	GPS-derived evidence of comprehensive bait-sowing, with no gaps and at the recommended sowing densities. Complete by end May 2013.	Bird Survey field notes Mouse survey field notes Annual reports of fieldwork.	That the required number of flying hours can be achieved within the time allocated and before winter snows prevent further bait spreading That two or three (of three) helicopters remain functional throughout almost all of the operation That any injury or illness within the field team is limited to manageable levels and does not disable both key staff and their replacements for other than short periods of time
2. Assessment of impacts on target and non-target fauna immediately after bait spreading and in year following	Within 2 weeks after the second bait drop - results of a search for fresh evidence of mice and a count of bird carcasses. By end of summer in the year after		

	baiting - results of extensive search (at least 4 person-weeks of effort) for fresh mouse sign and a survey of abundance of any bird species found to be vulnerable.		
3. Final assessment of success of baiting and immediate faunal impacts	Two years after baiting - results of extensive search (at least 6 person-weeks of effort) for fresh mouse sign and a new survey of abundance of any bird species found to be vulnerable		
4. Dissemination of results and public outreach	Annual reports on baiting and monitoring published on SGHT website. Press release on completion of baiting and on declaration of success in 2015 (assuming success is achieved). At least 7 media articles on the eradication effort and its consequences At least 7 public talks/lectures on the eradication effort and its consequences		

Activities Activity 1.1 Establish and provision Forward Operating Bases Activity 1.2, Set up camps in sequence and carry out baiting work using three helicopters and a team of 23 Activity 1.3 Carry out bait-spreading by helicopter Activity 2.1.Survey potentially vulnerable bird species before and immediately after baiting Activity 2.2.Search for carcasses of birds and test whether they had eaten the bait in weeks after baiting Activity 2.3 Search for mouse sign after bait drops Activity 2.4 Survey potentially vulnerable bird species in year after baiting Activity 2.5 Comprehensive search for mouse sign in year after baiting Activity 2.6 Survey breeding birds expected to react positively and rapidly to mouse eradication in year after baiting. Activity 3.1.Survey potentially vulnerable bird species two years after baiting Activity 3.2Comprehensive search for mouse sign two years after baiting. Activity 3.3. Survey breeding birds expected to react positively and rapidly to mouse eradication two years after baiting. Activity 4.1.Write annual reports of fieldwork, submit to Steering Committee & publish on website Activity 4.2.Write final report of mouse eradication operation and faunal impacts & publish on website Activity 4.3 Hold press event and circulate press release to announce eradication of introduced mice on South Georgia (assuming success is achieved) Activity 4.4 Project Director to disseminate results through talks at conferences and to stakeholder groups	

Annex 3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
Established codes								
8	Number of weeks to be spent by UK project staff on project work in the host country			263	40		303	
14B	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated			0	0		0	7
15C	Number of national press releases in UK			1	2		3	1
16A 16B 16C	Number of newsletters to be produced Estimated circulation of each newsletter in the host country(ies) Estimated circulation of each newsletter in the UK			4 40 1000	6 40 1000		10	12
19A 19B 19C 19D	Number of national radio interviews/features in host county(ies) Number of national radio interviews/features in UK Number of local radio interviews/features in host country(ies) Number of local radio interviews/features in UK			1 (Falklands Radio) 3 n/a 9	0 4 3		1 7 12	2

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g.website link or publisher)
n/a						

Annex 4. Photographs from the 2015 field season

Helicopter *Alpha Sierra* on the helideck of the RRS *Ernest Shackleton* displaying the Darwin logo just beneath the rotor blades
Photo: Nici Rymer

Alpha Sierra in flight over South Georgia displaying Darwin logo. Photo: Tony Martin

The project areas of Cape Rosa and Nunez Peninsula (behind) viewed from the air. Photo Tony Martin.

Helicopter on the ground at Cape Rosa, one of the (former) mouse-infested areas, to commence monitoring work. Photo Tony Martin.

Deputy Project Director Rob Webster with a waxtag stake at Cape Rosa April 2015. Photo Tony Martin

South Georgia Pipit footprints in the snow in the former mouse zones – an encouraging sign. Photo Tony Martin

South Georgia Pipits were seen in increased numbers this season across the areas of the island previously treated for rodents. Photo Tony Martin

The first South Georgia Pipit nest to be discovered in an area treated for rodents as part of the wider Habitat Restoration Project. The nest, with five healthy chicks, was found on an area of land very close to the mouse zones which was baited for rats in 2013. Photo Sally Poncet.

Annex 5. GSGSSI Monitoring Report (supplied as separate pdf)

Annex 6. List of Media Coverage (supplied as separate Excel document)

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.	No
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.	No
Have you involved your partners in preparation of the report and named the main contributors. Jennifer Lee of GSGSSI provided the report on their component of the monitoring	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	