Submit by Monday 3 December 2012

DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 19: STAGE 2

Please read the Guidance Notes before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required.

Information to be extracted to the database is highlighted blue.

ELIGIBILITY

1. Name and address of organisation (NB: Notification of results will be by post and email to the Project Leader)

Name:	**Address:**
South Georgia Heritage Trust (SGHT)	South Georgia Heritage Trust Verdant Works, West Henderson's Wynd, Dundee DD1 5BT

2. Stage 1 reference and Project title

(max 10 words)
Ref 2161: South Georgia Island Habitat Restoration Project: Mouse Eradication Sub-Project

3. Project dates, duration and total Darwin Initiative Grant requested, matched funding

Proposed start date: 1 April 2013 **Duration of project:** 36 months **End date:** 31 March 2016					
Darwin request	**2013/14** **£**	**2014/15** **£**	**2015/16** **£**	**2016/17** **£**	**Total** **£** 253,058
Proposed (confirmed and unconfirmed) matched funding as percentage of total Project cost: 40%					

4. Define the outcome of the project. This should be a repetition of Question 24, Outcome Statement.

(max 100 words)
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.

5. Country(ies)

Which eligible host country(ies) will your project be working in. You may copy and paste this table if you need to provide details of more than four countries.

Country 1: South Georgia (UK Overseas Territory)	**Country 2:**

6. Biodiversity Conventions

Which of the three conventions supported by the Darwin Initiative will your project be supporting? Note: projects supporting more than one convention will not achieve a higher scoring

Convention On Biological Diversity (CBD)	**Yes/~~No~~**
Convention on Migratory Species (CMS)	**Yes/~~No~~**
Convention on International Trade in Endangered Species (CITES)	**~~Yes~~/No**

6b. Biodiversity Conventions

Please detail how your project will contribute to the objectives of the convention(s) your project is targeting. You may wish to refer to Articles or Programmes of Work here. Note: No additional significance will be ascribed for projects that report contributions to more than one convention

(Max 200 words)

Island Biodiversity is a thematic programme under the Convention on Biological Diversity (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;*

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).

Is any liaison proposed with the CBD/CITES/CMS focal point in the host country?

☒ **Yes** ☐ **No** **if yes, please give details**:

Yes, the Project is being carried out in collaboration with the Government of South Georgia and the South Sandwich Islands.

7. Principals in project. Please identify and provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more personnel or more than one project partner.

Details	**Project Leader**	**Project Partner 1 - Main**	**Project Partner 2**
Surname	Martin	Collins	Cuthbert
Forename (s)	Anthony	Martin	Richard

Post held	Professor of Animal Conservation	Director of Fisheries and Senior Executive	Principal Conservation Scientist
Institution (if different to above)	University of Dundee	Government of South Georgia and the South Sandwich Islands (GSGSSI)	Royal Society for the Protection of Birds
Department	Centre for Remote Environments		Conservation Science Department
Telephone			
Email			

8. Has your organisation received funding under the Darwin Initiative before? If so, please provide details of the most recent (up to 6 examples). *No, but Antony Martin has led a Darwin Project before, details below.*

Reference No	Project Leader	Title
7035	Anthony Martin	River dolphin conservation in Brazil and Pakistan

9a. IF YOU ANSWERED 'NO' TO QUESTION 8 please complete Question 9,

What year was your organisation established/ incorporated/ registered?	2005
What is the legal status of your organisation?	NGO Yes/~~No~~ Government ~~Yes~~/No University ~~Yes~~/No Other (explain) Yes/~~No~~ Scottish Registered Charity (SC036819)
Type of organisation (e.g. University, NGO, private sector, Government Department etc)	NGO
Have you unsuccessfully applied to the Darwin Initiative before? If yes please provide the application reference number(s)	No
How is your organisation currently funded?	(Max 100 words) SGHT is funded by grants from charitable trusts, foundation and companies, and by donations from individuals, many of them visitors to South Georgia.
Have you provided appropriate audited/independently examined accounts?	Yes/~~No~~

9b. Provide detail of 3 contracts previously held by your institution that demonstrate your credibility as a research organisation and provide track record relevant to the project proposed. These contacts should have been held in the last 5 years and be of a similar size to the grant requested in your Darwin application.

Contract 1 Title	Phase 1 Habitat Restoration Project
Contract Value	£XXX
Contract Duration	12 months
Role of institution in project	SGHT was the coordinating and implementing institution for Phase 1 of the Habitat Restoration Project on South Georgia. Our role included planning the logistics of the operation, developing full risk and environmental impact assessments, securing funding, recruiting a highly specialised field team from around the world, purchasing and shipping two helicopters and other necessary equipment, ordering and shipping the 56 tonnes of bait, liaising with Government to obtain necessary permits and permissions, and implementing the baiting work in challenging conditions in the field.
Brief summary of the aims, objectives and outcomes of the contract.	The aim of the project was to trial the methodology for large-scale rodent eradication by clearing 12% of the rat infested area of South Georgia's rugged and challenging terrain. Outcomes: the 12,800 hectares that have now been treated already makes this project the largest rodent eradication operation ever attempted in the world. There has been no evidence of live rats since field operations were completed, and no sustained negative impact on non-target wildlife species from the baiting. This part of South Georgia is most likely rat free for the first time in two centuries.
Reference contact details (Name, e-mail, address, phone number).	John Shears, British Antarctic Survey, High Cross, Madingley Road Cambridge, CB3 0ET - jrs@bas.ac.uk Tel. 01223 221400 Martin Collins, GSGSSI, Office of the Commissioner Government House, Stanley, Falkland Islands

Contract 2 Title	Management of the South Georgia Museum
Contract Value	Currently £XXXX pa
Contract Duration	12 months, renewable annually (since July 2006)
Role of institution in project	The South Georgia Heritage Trust has managed South Georgia museum for the Government of South Georgia since July 2006. Our role involves staffing the museum and running the Museum shop.
Brief summary of the aims, objectives and outcomes of the contract.	The aim of the contract is to maintain the museum collection to a high professional standard and provide an enjoyable and informative visitor experience on behalf of the Government of South Georgia. Outcomes: originally set up purely as a whaling museum, in 1992, the Museum diversified so that its exhibits now illustrate most aspects of South Georgia's history and natural history, as well as items of current interest. It is key to many visitors' understanding and enjoyment of the island. It is visited by 6,000-7,000 visitors each season.
Reference contact details (Name, e-mail, address, phone number)	Martin Collins, GSGSSI, Office of the Commissioner Government House, Stanley, Falkland Islands

Contract 3 Title	Internship - curatorial intern
Contract Value	£XXX bursary per annum
Contract Duration	4-5 months internship at South Georgia museum annually
Role of institution in project	SGHT selects a curatorial intern graduate from the University of St Andrews Museum and Gallery Studies course. The Trust pays for their travel and accommodation for 4-5 months of work under the supervision of the South Georgia Director.
Brief summary of the aims, objectives and outcomes of the contract.	Under the contract, a recent graduate from the University of St Andrews Museum and Gallery Studies course is appointed as the Museum intern for part of the summer season each year, to provide professional input on South Georgia into the running of the Museum and to provide the graduate with valuable work experience. The graduate provides a report of their time on South Georgia to the Trust and makes a presentation to the St Andrew's university class.
Reference contact details (Name, e-mail, address, phone number).	Ann Gunn, University of St. Andrews School of Art History, 79 North St, St Andrews, KY16

9c. Describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words)

- To conserve and protect species of indigenous fauna and flora on South Georgia and in the surrounding seas and to raise awareness of South Georgia's threatened species
- To assist efforts to preserve the historical heritage of South Georgia and increase international awareness of the human history of the island.

Activities (50 words)

- Undertaking a ground-breaking project to restore South Georgia's biodiversity and increase by over 100 million the number of birds on South Georgia.
- Advancing knowledge of the island's historical heritage and wildlife through research, publications, conferences and events.
- Managing the South Georgia museum.
- Restoring whaling stations, buildings and historical artefacts.

Achievements (50 words)

- Completion of Phase 1 of the SG Habitat Restoration Project
- Supporting research to develop marine protected areas around South Georgia in partnership with Cambridge University and British Antarctic Survey.
- Restoration of a former whaling manager's villa.
- Publication of guide-books to the wildlife of SG

10. Please list all the partners involved (including the Lead Institution) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of partners to be involved in the project. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships.

Lead institution and website:	**Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)**
South Georgia Heritage Trust (SGHT) www.sght.org.uk	SGHT is responsible for the entire project, including development, planning, preparations, H&S, flight operations, field supplies, accommodation, monitoring, travel and financial control. The Trust has, or will employ, adequate staff to deliver almost all elements of the Project, including the Project Director who is on full-time secondment for the purpose. The one exception in terms of capacity is that of monitoring. Here, the Government of South Georgia has greater experience, better access to a pool of experienced and knowledgeable field staff, and greater logistical resources to carry out monitoring. Through Phase 1, SGHT has demonstrated its capacity to deliver a large-scale rodent eradication project in challenging field conditions, on time and to budget. SGHT has experience of, and an excellent reputation for, financial control and audit. During Phase 1 of the Habitat Restoration Project in 2011 it hired and managed staff in all the disciplines pertinent to the current mouse eradication project (medics, pilots, cook, engineers, GIS specialists, field staff and directorial staff). It trained those staff in H&S risks and procedures, and equipped them with UK-standard PPE, as it would during the mouse eradication project.

Partner Name and website where available:	**Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)**
Government of South Georgia and South Sandwich Islands (GSGSSI) http://www.sgisland.gs	GSGSSI is the governing body of South Georgia. GSGSSI has been closely involved in the planning and trial phase of the SGHT's Habitat Restoration Project on South Georgia, and has assisted with logistics. GSGSSI and the applicant organisation (SGHT) plan a joint operation to monitor the results and impacts of the rodent eradication project in 2013 and subsequent years. GSGSSI has a full-time charter on a large vessel that would be used to deploy, pickup and support monitoring field teams. It would also be responsible for selecting and hiring monitoring staff. The objectives, methodology and delivery of monitoring results would be agreed between SGHT and GSGSSI. Our main contacts at GSGSSI are Dr Martin Collins (CEO) and Dr Jennifer Lee (Environment Officer).
Have you included a Letter of Support from this institution?	**Yes/~~No~~**

Partner Name and website where available: Royal Society for the Protection of Birds www.rspb.org.uk	**Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)** Provision of technical support and advice, especially in regard to post-baiting monitoring and baiting prescriptions for mice eradication. Lead contact is Dr Richard Cuthbert, who is a recognised authority on mouse eradications and has visited South Georgia under an earlier Darwin Initiative grant. The RSPB has considerable expertise and capacity in rodent eradications on islands and their follow-up, and is actively engaged in several such projects including trials and monitoring methods for eradicating mice from Gough Island (Tristan da Cunha) and Steeple Jason Island (Falkland Islands).
Have you included a Letter of Support from this institution?	**Yes/~~No~~**

11. Have you provided CVs for the senior team including the Project Leader	**Yes/~~No~~**

TECHNICAL EXCELLENCE

12. Problem the project is trying to address

Please describe the problem your project is trying to address. For example, what biodiversity and development challenges will the project address? Why are they relevant, for whom? How did you identify these problems?

(Max 200 words)

This project addresses the introduction by humans of a destructive rodent to an ecosystem, including an avifauna, that evolved in the absence of mammals. It is a problem common to thousands of islands worldwide, including many of those that host, or once hosted, the vast majority of seabirds and endemic vertebrates in the world. In the particular case being tackled by this project, House mice (*Mus musculus*) were very likely taken accidentally to South Georgia by British and American sealers in the late eighteenth century, since they occur remote from the whaling stations which were established a century later.

In every case, introduced rodents impact the native ecosystem, and on inhabited islands they often have a damaging impact on crops. House mice, despite their diminutive size, can become destructive predators of nestlings of even the largest birds, as has been demonstrated on the UK Overseas Territory of Gough Island, where the endemic Tristan albatross is in decline for this very reason. South Georgia has 5 ACAP-listed species vulnerable to mouse predation, including 4 albatrosses.

Globally, invasive species are second only to habitat loss as a cause of loss of biodiversity, and rodents are among the worst offenders in this regard.

13. Methodology

Describe the methods and approach you will use to achieve your intended outcomes and impact. Provide information on how you will undertake the work (materials and methods) and how you will manage the work (roles and responsibilities, project management tools etc).

(Max 500 words – repeat from Stage 1 with changes highlighted)

The methodology employed will be based on an apparently successful large-scale rat eradication trial on South Georgia in 2011 combined with expert advice on mouse-specific baiting protocols. The Island Eradication Advisory Group (IEAG) is the global authority in this field and has recommended a baiting strategy specifically for South Georgia.

Mice occur in two areas near the western end of the south coast, jointly comprising some 49 km^2. This would be by far the largest mouse-eradication operation ever attempted. Three helicopters will spread rodenticide-laced cereal bait from Forward Operating Bases (FOBs), situated such that all rodent-infested land is within 10km of an FOB. Each such site will have been supplied by ship with bait and helicopter fuel. The active ingredient in the pellets is Brodifacoum, a second-generation anticoagulant, at 50ppm. The helicopters will be equipped with a global positioning (GPS) and tracking system to enable the pilots to maintain flight lines with a high degree of accuracy and achieve the desired even bait coverage.

To take account of the biology and feeding ecology of house mice, the bait size, active ingredient load, spreading density and swath overlap will be tailored for maximum effectiveness. Bait will be applied at 3.0kg/Ha over non-vegetated areas and 8kg/Ha over vegetation, with 50% swath overlap The treatment will be repeated after a period of at least 10 days. Nearly 15 helicopter-days and 48.2 tonnes of bait will be required to complete the work. Fieldwork in February 2012 (supported by Darwin Project 18-017) determined the distribution and abundance of mice in the infested areas of South Georgia and that this baiting regime was likely to be effective for mice.

Details of logistics, planning and risk assessments are set out in the Operational Plan for the Eradication of Rodents from South Georgia: Phase 2 (7th DRAFT; 20 Nov 2012, available from SGHT), Environmental Impact Assessment, two Baiting Zone Briefing Documents (one for each mouse-infested area) and the following Plans: Health and Safety, Biosecurity, Search and Rescue, Crash Recovery, Monitoring and Oil Spill Response (all available from SGHT). Monitoring of results and impacts will be conducted in the two years after baiting, in collaboration with the GSGSSI and RSPB.

The Project Director (PD) implements and coordinates all planning and logistical elements of the operation, supported by a Deputy Project Director and a Project Administrator, and the SGHT CEO in part-time capacities. An Assistant Project Director will be employed full-time during fieldwork.

The PD will coordinate aerial baiting operations. External advice will be sought from the Steering Committee and the IEAG as necessary. The field team will comprise 23 people, including pilots, helicopter engineers, doctor, GIS specialist and bait loaders. They will be accommodated in a field camp established at each FOB.

The PD reports to the South Georgia Heritage Trust (SGHT) via a Steering Committee comprised of four trustees, two representatives of the South Georgia Government, two of the British Antarctic Survey and a trustee of the US-based foundation Friends of South Georgia Island.

14. Outcome

Detail what the expected outcomes of this work will be. The outcome should identify what will change and who will benefit. The outcome should refer to how the project will contribute to reducing poverty while contributing to sustainable development and management of biodiversity and its products. A summary statement of this outcome should be provided in question 4 and 24.

(Max 250 words)

South Georgia will be free of mice for the first time since shortly after discovery by Captain Cook in 1775. The consequences of this are several and diverse:

1. Damage being done each year to the island's native flora and fauna by mice will cease. No other invasive vertebrate co-occurs, so the land area treated (some 50 km^2) has the potential, with time, to return to close to its pre-human condition. These areas host 5 ACAP-listed breeding species and another 25 breeding birds including an endemic pipit and duck.

2. The likely future spread of mice to other parts of South Georgia will be prevented. Currently restricted in their distribution (~3% of South Georgia's land area) by rapidly-retreating glaciers, it would only be a matter of time before mice invaded adjacent areas and eventually all habitable parts of the island.

3. Mouse eradication programmes on other UK Overseas Territories and beyond will benefit from the South Georgia operation and its lessons. Few mouse eradications have been attempted worldwide, and none on anything approaching this scale, so South Georgia represents a major step forward in the global race against invasive alien species damage.

4. Success on South Georgia by a Non-Governmental Organisation will encourage and inspire others to tackle invasive species eradications. Hitherto large-scale eradications have overwhelmingly been carried out by governments, and global capacity to remove IAS and thereby enhance biodiversity, especially on islands, would be greatly enhanced if more NGOs were encouraged to take up the challenge.

15a. Is this a new initiative or a development of existing work (funded through any source)? Please give details (Max 200 words):

This is a new initiative, but it builds on the results of two earlier projects. The first of these was a Darwin Initiative Round 17- funded project entitled 'Developing knowledge to eradicate mice from UK OT islands', led by the RSPB (Project Ref 18-017). The results of that project have informed the design of the current proposal. The second was the Trial Phase of the South Georgia Heritage Trust's Habitat Restoration project in 2011, which tested techniques to eradicate rodents over vast areas of South Georgia's challenging topography. Together, these initiatives laid the groundwork upon which the current proposal has been founded.

15b. Are you aware of any other individuals/organisations/ projects carrying out or applying for funding for similar work? ☒ **Yes** ☐ **No**

If yes, please give details explaining similarities and differences, and explaining how your work will be additional to this work and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits:

The RSPB has been planning the eradication of mice on Gough Island, Tristan da Cunha, another South Atlantic UK Overseas Territory, for a number of years. The proposed South Georgia and Gough operations are entirely complementary. In the same way that the current proposal has been informed by every similar eradication attempt that preceded it, so that on Gough Island will be improved and have a better chance of success as a consequence of experience gained on South Georgia. The RSPB - Birdlife International's UK partner and a pioneer in the eradication of invasive rodents on islands - is a collaborator in the current proposal.

Further afield, a number of small-scale mouse eradication operations are planned. Internationally, the rodent eradication community is well connected and mutually supporting, so the results of each new project are quickly disseminated and acted upon to inform and improve others in the pipeline.

15c. Are you applying for funding relating to the proposed project from other sources?
☐ **Yes** ☒ **No**

16. Value for money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money?

(Max 250 words)

Phase 1 of the South Georgia Heritage Trust's Habitat Restoration Project - the Trial Phase - demonstrated that the Trust could deliver a safe and apparently successful operation at a much lower cost than expected on the basis of similar work elsewhere. Phase 1 was delivered on time, and under budget at a cost of £1.4m, including the purchase of 2 helicopters which are now available for the mouse eradication project. Phase 1 covered 128 km^2 and is jointly (with Macquarie island) the largest rodent eradication ever attempted, but the South Georgia costs were very substantially lower than those of the Macquarie Island rat/rabbit operation. Another relevant comparison is that the cost to clear rats from a square km of the Phase 1 area on South Georgia was 20% of that to clear rats from the same area of Rat Island, off Alaska, in 2008.

Among other elements, savings have been made in the size and complexity of the organising structure, not least in that trustees overseeing the project are unpaid.

Value for money in the current application is particularly enhanced by virtue of the mouse eradication work being carried out in parallel with a rat eradication operation on other parts of South Georgia. The economy of scale is such that the mouse work would cost at least 4 times as much if it were to be tackled alone.

17. Ethics

Outline your approach to meeting the Darwin Initiative's key principles for research ethics as outlined in the guidance notes.

(Max 300 words)

This project meets all legal and ethical obligations of the UK and its Overseas Territories. The Government of South Georgia and the South Sandwich Islands is a partner in this proposal, and has given appropriate permits for the work to proceed.

The Project Leader and the South Georgia Heritage Trust are responsible for the health and safety of all staff working on the project, and have demonstrated this as follows:

1. Formal Risk Assessments for every element of the work have been developed and peer-reviewed, and are contained in a comprehensive Heath and Safety Plan. The suite of documents defining the operation also includes a Search and Rescue Plan.

2. Formal briefings will be held for all staff on all elements of the work at the outset.

3. Industry-standard PPE (personal protection equipment) will be worn by all staff.

4. Two medicals doctors will be included in the team.

5. Appropriate insurance will be held by the Trust to cover all staff.

PATHWAY TO IMPACT

18. Legacy

Please describe what you expect will change as a result of this project with regards to biodiversity conservation/sustainable use and poverty alleviation. For example, what will be the long term benefits (particularly for biodiversity and poor people) of the project in the host country or region and have you identified any potential problems to achieving these benefits?

(Max 300 words)

The legacy of this landmark project will be at two geographical scales - local and global. The local legacy would, nonetheless, be of international importance since South Georgia has the capacity to host the world's greatest concentration of seabirds (and may have done so prior to the introduction of rodents).

At the local level, South Georgia's native fauna and flora would be free of mouse damage in perpetuity. Together with the parallel removal of rats and reindeer - the other two introduced mammals - this project will transform the conservation outlook of South Georgia's wildlife and landscape. The legacy also includes enhanced measures to ensure that no re-introductions occur; these are being introduced by Government in response to the rodent eradication effort. Biodiversity changes due to the project should begin to occur quickly, with the return of the endemic South Georgia Pipit - currently restricted to relatively small rodent-free refugia. Longer term, we expect to see increased populations of myriad burrow-nesting petrels. Perhaps the most important change, however, is that mice will no longer threaten the vast areas of South Georgia from which they are currently excluded by glaciers. Without this project it is extremely likely that mice will extend their range as the glaciers continue to retreat, eventually invading all habitable parts of the island.

At the global level, the success of this project - by far the largest and most challenging of any mouse eradication attempted - will change international opinion about the feasibility of eradications generally. In the same way that this project was inspired by its predecessors in other parts of the world, so it will likely inspire and inform rodent eradication efforts internationally. Tackling, as it is, one of the most invasive and widespread of all rodents, results from this project will have global relevance.

19. Pathway to poverty alleviation

Please describe how your project will benefit poor people living in low-income countries. Projects are required to show how positive impact on poverty alleviation will be generated from your project in low-income countries. All projects funded under the Darwin Initiative in Round 19 must be compliant with the Overseas Development Assistance criteria as set out by the OECD. The outcomes of your research must at the very least provide insight into issues of importance in achieving poverty alleviation.

(Max 300 words)

This project cannot conform to the newly-introduced DI criteria relating to poverty alleviation, due to the nature of South Georgia and the fact that it has no permanent residents. This was recognised in the invitation to submit a Stage 2 application, received from the Darwin Secretariat, which stated that ' *meeting all the ODA criteria is not necessarily required for this application'.*

That said, 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 it would run alongside an eradication of brown rats (*Rattus norvegicus*) that is an order of magnitude larger

than anything yet attempted. No two rodent eradication operations are identical, but each is informed by its predecessors, and this South Georgia project will, for the first time, be attempting to clear rodents from land areas greater than many inhabited islands.

Limitations on the size of rodent eradication efforts are as much aspirational as technical. Having apparently already cleared 128 km^2 of rats, we hope and trust that success with mice over an area of 50 km^2 will encourage and inspire communities and professionals alike to consider tackling their own invasive rodent problem. There is no silver bullet here, and every eradication proposal would need to be carefully planned, taking into account potential non-target impacts, which can be considerable and challenging. But success on South Georgia will extend horizons and show what can be achieved, and even failure would add knowledge to the currently very small pool of information on which future mouse eradication attempts are based.

20. Exit strategy

State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave?

(Max 200 words)

Unusually, the local objective of this project has a very clear, stable and sustainable end point - the complete eradication of an introduced rodent population. Success is unequivocally dependent on the removal of every single mouse from the areas being treated. Longer term, the sustainability of the result is dependent on no further introductions of mice to the island. The responsibility for this lies with the Territory's government, and a consequence of this project (and the rat eradication operation that will run in parallel) is that the Government is revising its regulations to help prevent any future accidental rodent introductions to South Georgia.

In the wider context, this project is the latest, and largest, in a global sequence of invasive mouse eradications. It will be used to inform and improve plans for other eradications, not least on Gough Island - another South Atlantic UK Territory that is facing a catastrophic mouse impact on its native avifauna.

HIGHLY DESIRABLE

21. Raising awareness of the potential worth of biodiversity

If your project contains an element of communications, knowledge sharing and/or dissemination please provide a description of your intended audience, how you intend to engage them, what the expected products/materials there will be and what you expect to achieve as a result. For example, are you expecting to directly influence policy in your host country or is your project a community advocacy project to support better management of biodiversity?

(Max 300 words)

The communication strategy for this project includes informing a diverse audience - the international public through the popular press (via press releases) and a TV documentary, the international conservation community through the Project's quarterly newsletter and presentations at conferences, relevant decision-makers in the UK and Overseas Territories Governments through the South Georgia Heritage Trust's formal FCO and GSGSSI links, and South Georgia Stakeholders through all of the above and presentations at relevant meetings (e.g. South Georgia Association).

The eradication of invasive mammals is proving to be a cost-effective and immensely powerful strategy in the restoration of biodiversity - perhaps the single most effective tool available to the conservationist in the context of islands. It is frustrating, therefore, that little public and governmental recognition of this capacity is to be found other than in New Zealand, Australia and a few other countries where invasive species have had a well-known and catastrophic impact on native wildlife and human livelihoods. We hope and trust that multi-level, effective information dissemination from the South Georgia mouse eradication project will encourage and inspire local communities, NGOs and governments alike to initiate and fund similar projects in their own back yards, and thereby increase the number of endemic species saved and island ecologies restored.

Better education is much needed - not only to allow decision makers to see what is possible, but also to reassure island-dwellers that properly-managed eradication operations carry long-term benefits and tolerable, transient shot-term costs.

22. Importance of subject focus for this project

If your project is working on an area of biodiversity or biodiversity-development linkages that has had limited attention (both in the Darwin Initiative portfolio and in conservation in general) please give details.

(Max 250 words)

Invasive species eradication is in its infancy, and growing more slowly than the body of evidence demonstrating the ecological and financial costs wrought by introduced alien species around the world. The knowledge, resource capacity and supportive Governmental attitude necessary to eradicate rodents and other destructive mammals has been rare outside Australasia until quite recently. However, the transformational results achieved in New Zealand, especially, have inspired a growing number of privately-funded eradications elsewhere, and now the UK is slowly gaining a reputation for pioneering rodent eradications. Not all succeed, but the public is increasingly demonstrating - not least through donations - that doing nothing (and thereby accepting the loss of an increasing number of potentially recoverable endemic species and native ecologies) is no longer acceptable.

Island rodent eradications, such as the mouse project planned for South Georgia, can offer the exciting rare conservation prospect of rapid, total and indefinite recovery from even long-term human-induced damage.

A well-written and informative history of rodent eradications on islands, providing the context to the South Georgia mouse project can be found in the following book: 'Rat Island' by William Stolzenburg, Bloomsbury USA, ISBN 978-1608191031.

23. Leverage

a) Secured

Provide details of all funding successfully levered (and identified in the Budget) towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity.

Confirmed:

We have secured grants of £250,000 from the Garfield Weston Foundation and £100,000 from Alastair Salvesen's Charitable Trust. One–sixth of each of these donations has been allocated as matching funding towards this project. We have also secured support from Dundee University for the salary of the Project Director and his Administrator in 2013, of which one-sixth is allocated to this project. The remaining confirmed match funding for the first year of the project is from donations made by cruise ship passengers visiting South Georgia.

In addition, we have received an in-kind donation of half the mouse bait (value £XXXX) from the manufacturers, Bell Laboratories. As this was donated prior to the project start date of April 2013 we have not included it in the formal budget spreadsheet, but it is absolutely essential to project delivery. Other expenses incurred in advance of the project starting on the ground (such as the chartering of the *RRS Ernest Shackleton*) could also be considered part of our matching contribution.

b) Unsecured

Provide details of any matched funding where an application has been submitted, or that you intend applying for during the course of the project. This could include matched funding from the private sector, charitable organisations or other public sector schemes.

Date applied for	Donor organisation	Amount	Comments
	The likely sources of match funding for years 2 and 3 (cruise ship donations and Dundee University) will not require applications to be submitted.		

PROJECT MONITORING AND EVALUATION

MEASURING IMPACT

24. LOGICAL FRAMEWORK

Darwin projects will be required to report against their progress towards their expected outputs and outcomes if funded. This section sets out the expected outputs and outcomes of your project, how you expect to measure progress against these and how we can verify this. Further detail is provided in Annex x of the guidance notes which you are encouraged to refer to. The information provided here will be transposed into a logframe should your project be successful in gaining funding from the Darwin Initiative. The use of the logframe is sometimes described in terms of the Logical Framework Approach, which is about applying clear, logical thought when seeking to tackle the complex and ever-changing challenges of poverty and need. In other words, it is about sensible planning.

Impact

The Impact is not intended to be achieved solely by the project. This is a higher-level situation that the project will contribute towards achieving. All Darwin projects are expected to contribute to poverty alleviation and sustainable use of biodiversity and its products.

(Max 100 words) 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.

Outcome

There can only be one Outcome for the project. The Outcome should identify what will change, and who will benefit. The Outcome should refer to how the project will contribute to reducing poverty and contribute to the sustainable use/conservation of biodiversity and its products. This should be a summary statement derived from the answer given to question 14.

(Max 100 words) 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.

Measuring outcomes - indicators

Provide detail of what you will measure to assess your progress towards achieving this outcome. You should also be able to state what the change you expect to achieve as a result of this project i.e. the difference between the existing state and the expected end state. You may require multiple indicators to measure the outcome – if you have more than 3 indicators please just insert a row(s).

Indicator 1	No evidence of mice in Nunez and Rosa zones two years after completion of baiting, despite thorough monitoring
Indicator 2	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)
Indicator 3	

Verifying outcomes

Identify the source material the Darwin Initiative (and you) can use to verify the indicators provided. These are generally recorded details such as publications, surveys, project notes, reports, tapes, videos etc.

Indicator 1	Annual report of monitoring of the treated areas (Nunez Peninsula and Cape Rosa). To be written, circulated and published on the SGHT website.
Indicator 2	Field notes collected on a daily basis which provide the substance for the report above

Outcome risks and important assumptions

You will need to define the important assumptions, which are critical to the realisation of the *outcome and impact* of the project. It is important at this stage to ensure that these assumptions can be monitored since if these assumptions change, it may prevent you from achieving your expected outcome. If there are more than 3 assumptions please insert a row(s).

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
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, 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.
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.

Outputs

Outputs are the specific, direct deliverables of the project. These will provide the conditions necessary to achieve the Outcome. The logic of the chain from Output to Outcome therefore needs to be clear. If you have more than 3 outputs insert a row(s). It is advised to have less than 6 outputs since this level of detail can be provided at the activity level.

Output 1	Completion of bait spreading in mouse-infested areas of SG
Output 2	Assessment of impacts on target and non-target fauna immediately after bait spreading and in year following
Output 3	Final assessment of success of baiting and immediate faunal impacts
Output 4	Dissemination of results and public outreach

Measuring outputs

Provide detail of what you will measure to assess your progress towards achieving these outputs. You should also be able to state what the change you expect to achieve as a result of this project i.e. the difference between the existing state and the expected end state. You may require multiple indicators to measure each output – if you have more than 3 indicators please just insert a row(s).

Output 1	
Indicator 1	GPS-derived evidence of comprehensive bait-sowing, with no gaps and at the recommended sowing densities. Complete by end May 2013.

Output 2	
Indicator 1	Within 2 weeks after the second bait drop - results of a search for fresh

	evidence of mice and a count of bird carcasses.
Indicator 2	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.

Output 3	
Indicator 1	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.

Output 4	
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

Verifying outputs

Identify the source material the Darwin Initiative (and you) can use to verify the indicators provided. These are generally recorded details such as publications, surveys, project notes, reports, tapes, videos etc.

Indicator 1	Bird survey field notes
Indicator 2	Mouse survey field notes
Indicator 3	Annual reports of fieldwork

Output risks and important assumptions

You will need to define the important assumptions, which are critical to the realisation of the achievement of your outputs. It is important at this stage to ensure that these assumptions can be monitored since if these assumptions change, it may prevent you from achieving your expected outcome. If there are more than 3 assumptions please insert a row(s).

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

Activities

Define the tasks to be undertaken by the research team to produce the outputs. Activities should be designed in a way that their completion should be sufficient and indicators should not be necessary. Any risks and assumptions should also be taken into account during project design.

Output 1	
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

Output 2	
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.

Output 3	
Activity 3.1	Survey potentially vulnerable bird species two years after baiting
Activity 3.2	Comprehensive 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.

Output 4	
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

25. Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project.

	Activity	No of Months	Year 1				Year 2				Year 3			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1	**Completion of bait spreading in mouse-infested areas of SG**													
1.1	Establish and provision Forward Operating Bases	1	X											
1.2	Set up camps in sequence and carry out baiting work using three helicopters and a team of 23	1	X											
1.3	Carry out bait-spreading by helicopter	1	X											
Output 2	**Assessment of impacts on target and non-target fauna immediately after bait spreading and in year following**													
2.1	Survey potentially vulnerable bird species before and immediately after baiting	2	X											
2.2	Search for carcasses of birds and test whether they had eaten the bait in weeks after baiting	2	X											
2.3	Search for mouse sign after bait drops	2	X											
2.4	Survey potentially vulnerable bird species in year after baiting	2				X								
2.5	Comprehensive search for mouse sign in year after baiting	2				X								
2.6	Survey breeding birds expected to react positively and rapidly to mouse eradication in year after baiting.	2				X								
Output 3	**Final assessment of success of baiting and immediate faunal impacts**													
3.1	Survey potentially vulnerable bird species two years after baiting	2								X				
3.2	Comprehensive search for mouse sign two years after baiting	2								X				
3.3	Survey breeding birds expected to react positively and rapidly to mouse eradication two years after baiting.	2								X				
Output 4	**Dissemination of results and public outreach**													

4.1	Write annual reports of fieldwork, submit to Steering Committee & publish on website	2			X				X					
4.2	Write final report of mouse eradication operation and faunal impacts & publish on website	2											X	
4.3	Hold press event and circulate press release to announce eradication of introduced mice on South Georgia (assuming success is achieved)	1											X	
4.4	Project Director to disseminate results through talks at conferences and to stakeholder groups	2				X				X			X	X

26. Project based monitoring and evaluation

Describe, referring to the Indicators above, how the progress of the project will be monitored and evaluated, making reference to who is responsible for the projects monitoring and evaluation. Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. Monitoring and evaluation is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact.

(Max 500 words)

Monitoring is fundamental to this project and must be used to answer a number of important questions. The value of the work is as much in what can be learned from it as in what it achieves on South Georgia itself. The Project Director will be responsible for delivering the monitoring and reporting its results.

If the operation succeeds in its central objective of clearing all mice from the treated land areas, we need to know how success was accomplished and whether it could have been achieved, for example, with lower baiting densities and/or a single bait drop. If it fails, similarly it is vital that lessons are learned on what went wrong so that another attempt can have a better chance of success and/or that mouse eradications on other islands benefit from the experience and are improved as a result.

'Success' in this endeavour actually comprises two elements, both of which must be monitored. The first of these is that the target species - the house mouse - is completely eradicated. Proving this over 50 km^2 of very rough terrain on a sub-Antarctic island will be a challenge. We will carry out this process over three successive years, starting in the weeks after the baiting work itself. The methodology will include searching for immediate mouse sign and putting in place means of recording mouse activity between visits (waxtags). By 2 years after baiting any surviving mice should have multiplied to detectable levels, so lack of mouse sign by the end of summer 2015 despite intensive searching and trapping will be taken as evidence that the population is no longer extant.

The second element of success is defined as the operation causing no unsustainable losses to non-target fauna. South Georgia has no native mammals, reptiles, amphibians, freshwater fish or permanent human population, so the vulnerable non-target fauna are birds. On the basis of the results of the trial phase of the 2011 rat eradication project and experience elsewhere, an Environmental Impact Assessment (available from SGHT) identifies 7 bird species as potentially vulnerable to either primary or secondary mortality. In the light of the Phase 1 experience, an independent expert group found that non-target mortality due to further baiting should be recoverable in the short-term, and that baiting should therefore continue with monitoring in place. In the mouse-infested areas of the island, that monitoring will be carried out immediately prior to baiting (to establish the numbers of vulnerable birds in the area) and in the weeks following, to search for bird carcasses.

The final strand of monitoring is that relating to the recovery of breeding bird populations in the absence of rodents. Most of the birds expected to respond to the absence of this predator will do so on a scale of many years. The species that is most likely to respond rapidly is the endemic South Georgia pipit, and fortunately this bird announces itself through song, so surveys are relatively easy to carry out in summer.

FUNDING AND BUDGET

Please complete the separate Excel spreadsheet which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.

NB: Please state all costs by financial year (1 April to 31 March) and in GBP. **Budgets submitted in other currencies will not be accepted.** Use current prices – and include anticipated inflation, as appropriate, up to 3% per annum. The Darwin Initiative cannot agree any increase in grants once awarded.

27. Value for Money

Please explain how you worked out your budget and how you will provide value for money through managing a cost effective and efficient project. You should also discuss any significant assumptions you have made when working out your budget.

(max 300 words)

The budget for this project was calculated on the basis of (a) experience gained during Phase 1 of the South Georgia rat eradication operation in 2011, and (b) cost sharing with the *next* Phase of the rat project, which will be carried out alongside the mouse work. Phase 1 was delivered under budget, and we are confident that real costs for the mouse project have been accurately anticipated because of the similarities. The biggest additional item will be the charter of the supply vessel which will be used as the platform from which depots of fuel and bait are established ashore, and the exact cost of that is known. A potential variable is the cost of helicopter fuel, but we have secured a fixed, competitive cost from a supplier in the Falkland Islands, so any uncertainty has been removed.

The continuing rat eradication project, in 2013 working at the western end of the island where the mice occur, provides a unique opportunity to carry out the mouse eradication baiting at a small fraction of the cost of setting up an independent mouse operation. The cost-sharing benefits run through the entire operation, from transportation to the cost of setting up camps to the provision of helicopters and specialist pilots.

Efficiencies would continue through the monitoring phases of the mouse work, by virtue of having trained staff, field equipment and transportation available on and around South Georgia at the right times.

Financial management and control is also shared between the projects, and is provided by the South Georgia Heritage Trust with oversight of a Steering Committee, the Board of trustees and the Charity's auditors.

FCO NOTIFICATIONS

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the Darwin competition in the host country. ☐

Please indicate whether you have contacted the local UK embassy or High Commission directly to discuss security issues (see Guidance Notes) and attach details of any advice you have received from them.

Yes (no written advice) ☐ **Yes, advice attached** ☐ **No** ☒

CERTIFICATION 2013/14

On behalf of the trustees/~~company~~* of South Georgia Heritage Trust

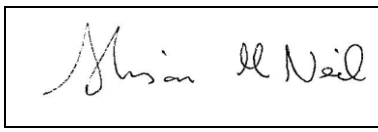
(*delete as appropriate)

I apply for a grant of £ 253,058 in respect of **all expenditure** to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful. (*This form should be signed by an individual authorised by the lead institution to submit applications and sign contracts on their behalf.)*

I enclose CVs for project principals and letters of support. Our most recent audited/independently verified accounts and annual report ~~are also enclosed~~/can be found at *(delete as appropriate)*: http://www.sght.org/annual-reports

Name (block capitals)	ALISON NEIL
Position in the organisation	CHIEF EXECUTIVE

Signed  **Date:** 03/12/12

Stage 2 Application - Checklist for submission

	Check
Have you provided **actual start and end dates** for your project?	✓
Have you provided your **budget based on UK government financial years** i.e. 1 April – 31 March and in GBP?	✓
Have you checked that your **budget is complete**, correctly adds up and that you have included the correct final total on the top page of the application?	✓
Has your application been **signed by a suitably authorised individual**? (clear electronic or scanned signatures are acceptable in the email)	✓
Have you included a **1 page CV for all the Principals** identified at Question 7?	✓
Have you included a **letter of support from the main partner(s) organisations** identified at Question 10?	✓
Have you **checked with the FCO** in the project country/ies and have you included any evidence of this?	✓
Have you included a **copy of the last 2 years annual report and accounts** for the lead organisation? An electronic link to a website is acceptable. http://www.sght.org/annual-reports	✓
Have you **read the Guidance Notes**?	✓
Have you **checked the Darwin website** immediately prior to submission to ensure there are no late updates?	✓

Once you have answered the questions above, please submit the application, not later than midnight GMT on Monday 3 December 2012 to Darwin-Applications@ltsi.co.uk using the application number (from your Stage 1 feedback letter) and the first few words of the project title **as the subject of your email**. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc). You are not required to send a hard copy.

DATA PROTECTION ACT 1998: Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (ie name, contact details and location of project work) on the Darwin Initiative and Defra websites (details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Foreign and Commonwealth Office posts outside the United Kingdom, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.