



Department
for Environment
Food & Rural Affairs



Foreign &
Commonwealth
Office



Department
for International
Development



DPLUS002

Darwin Plus: Overseas Territories Environment and Climate Fund Project Application Form

Submit by Monday 7 January 2013

Please read the Guidance Notes before completing this form
Information to be extracted to the database is highlighted in blue

Basic Data

1. Project Title	An Autonomous Seabird Monitoring Network for the Southern Ocean
2. OT(s) covered by proposal	British Antarctic Territory, South Georgia and South Sandwich Islands
3. Start Date:	1 st April 2013
4. End Date:	30 th March 2015
5. Duration of project (cannot be longer than 24 months)	24 Months

Summary of Costs	2013/14	2014/15	2015/16	Total
6. Budget requested	£137,715	£76,633	£1,500	£215,848
7. Total value of Co-funding	£21,200	£10,000		£31,200
8. Total Project Budget (all funders)	£158,915	£86,633	£1,500	£247,048
9. Names of Co-funders	Quark Expeditions (£20,000; exact amount to be confirmed through charity auctions). Calgary Zoo (£12,200).			

10. Lead applicant organisation (who will be responsible for delivering outputs, reporting and managing funds)	University of Oxford
11. Project Leader name	Dr Tom Hart
12. Email address	tom.hart@zoo.ox.ac.uk
13. Postal address	Department of Zoology, University of Oxford, South Parks Road, Oxford OX1 3PS
14. Contact details: Phone/Fax/Skype	01865 281329

15. Type of organisation of Lead applicant. Place an x in the relevant box.							
OT GOVT	UK GOVT	UK NGO	Local NGO	International NGO	Commercial Company	Other (e.g. Academic)	X

16. 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 main, or other, project partner.

Details	Project Leader	Project Partner 1 - Main	Project Partner 2
Surname	Hart	Collen	Rezek
Forename(s)	Tom	Ben	lead
Post held	Junior Research Fellow	Research Fellow	Research Fellow
Institution (if different to above)		Zoological Society of London	
Department	Department of Zoology	Institute of Zoology	Department of Engineering
Telephone/Skype			
Email			

17. Has your organisation received funding under the Darwin Initiative before? If so, please provide details of the most recent (up to 3 examples).

Reference No	Project Leader	Title
18-013	Riordan, P	Building capacity for wild felid conservation in China
17-031	Loveridge, A	Ecological sustainability of leopard trophy hunting in Zimbabwe
14-028	Sillero-Zubini, C	Conservation of Puna's Andean cats across national borders

18. If your answer to question 17 was no, provide details of 3 contracts previously held by your institution that demonstrate your credibility as an implementing organisation. These contracts should have been held in the last 5 years and be of a similar size to the grant requested in this application.

Project Details

19. Project Outcome Statement: Describe what the project aims to achieve and what will change as a result. (100 words max)

This project will massively increase the number of monitored penguin populations around the Southern Ocean, by deploying autonomous camera units that can record the timing and duration of breeding. This will help to identify threats (for example, by differentiating between the influence of climate change and fisheries on penguin breeding success around the Scotia Arc).

This project will also provide a template and tools for similar monitoring projects elsewhere through the provision of an online database and analysis tool.

20. Background: (What is the current situation and the problem that the project will address? How will it address this problem? What key themes will it address? (200 words max)

The Scotia Arc region has experienced dramatic increases in air and sea temperature and significant decreases in the extent, concentration, and duration of winter sea-ice over the past half-century (Meredith & King 2005, Stammerjohn et al. 2008). These warming and sea-ice trends also correlate with decreases in biological productivity and the biomass of Antarctic krill (*Euphausia superba*). In addition, an expanding fishery harvests as much as 202,346 tons of krill annually from the Antarctic Peninsula region (CCAMLR 2010) and there has been a three-fold increase in tourist visitation since 2002.

The number of seabird breeding sites monitored under the Antarctic Treaty System has declined and become patchy. Whereas a scientific base or camp was necessary to collect data on seabirds, it is now possible using remote cameras. We propose to deploy a network of Seabird Autonomous Monitoring Stations, to fill in these data gaps and assess the impacts of recent changes in climate and krill. This project will massively increase the number of sites monitored around the Scotia Sea and inform the design and prioritisation of marine protected areas from the Falkland Islands to the Antarctic Peninsula. It will also develop low cost tools for data collection and analysis applicable to other seabirds worldwide.

21. 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). Give details of any innovative techniques or methods. (500 words max)

Overview

1. Eighty Seabird Autonomous Monitoring Stations (SAMS) will be deployed and serviced by investigators and volunteers on tour ships.
2. The use of computer vision tools developed under EIDCF001, combined with crowdsourcing, will permit detailed analysis of an expanding online database of images.
3. Public engagement, coupled with adoption of camera units will provide for the long-term sustainability of this project.

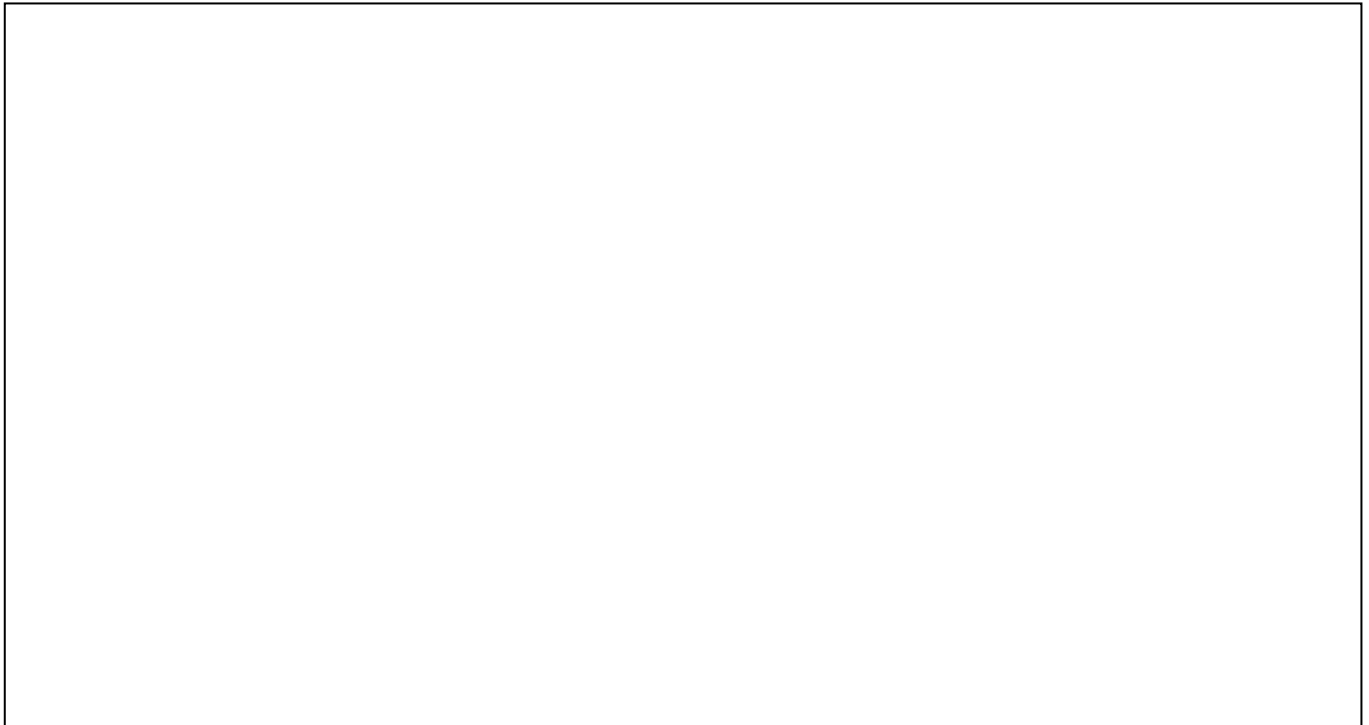
Fieldwork

In the 2013/14 and 2014/15 seasons SAMS will be positioned throughout the Scotia Arc following the methods developed during EIDCF001 "Automating seabird counts from standardized photos contributed by volunteers". Data from the SAMS network will provide regional scale coverage of seabird life history parameters such as: timing of arrival to colonies, egg-laying, nest attrition, chick hatching, establishment of crèches, fledging, and attendance at breeding sites during the winter. This large-scale approach will provide context for existing localized long-term monitoring sites and will be essential for detecting and assessing regional-scale environmental change.

SAMS comprise a wire mesh basket, scaffold pole, swivel mount and camera unit (Figure 2). Cameras are commercially available Reconyx, Bushnell or Buckeyecam units, running off AA lithium batteries and/or solar cells. Lessons learned during EIDCF001 showed that it is possible to deploy a large-scale network around Antarctica using these cost-effective, commercially available units.

Trials during 2012/13 using FCO and Oxford University John Fell Funds have developed integrated audio and camera monitoring SAMS with wireless transmission. This allows us to place units in remote locations which can feed data back to regional hubs (Figure 3). We can also use SAMS nodes to monitor sea ice concentration around breeding colonies, with the data freely available to the British Antarctic Survey. For very remote locations, satellite-linked SAMS are being beta tested now by Cambridge Consulting.

We plan to position SAMS at a list of candidate sites according to a recent power analysis to provide the maximum increase in predictive ability of penguin monitoring in the region (Hart et al in prep). The final placement of SAMS within a subset of these 52 selected sites will depend on logistics during deployment.



Analytical tools

We will analyse SAMS data using the online counting tool (Figure 4) developed under EIDCF001 and available for demonstration via:

http://faith.robots.ox.ac.uk:8080/annotator_tom/

username: tom

password: penguin

This counting tool permits investigators and volunteers to annotate images for reproductive stage and click on penguins in an image. Clicking on penguins collects data on the number and the spatial aggregation of penguins in an image which can be used to develop proxies for reproductive state. The recent cameras placed have made it possible to follow individual nests for laying date, hatching date and crèche date. Furthermore, annotation data will be used to refine an automatic counting algorithm for Adelies and develop new algorithms for Gentoo, Chinstrap, King and Rockhopper penguins.



Figure 4: The online database, which archives images and permits annotation for the number of penguins, their location and the reproductive stage of individual nests or colonies per day.

Management and co-ordination

To coordinate the implementation of the SAMS program and analysis of the associated data we ask for funding support for a meeting among project participants during the 8th International Penguin Conference (IPC) in Bristol, UK (Sept. 2013). The IPC will also help us to attract and train project participants.

22. How does this project:

- a) Deliver against the priority issues identified in the assessment criteria
 - b) Demonstrate technical excellence in its delivery
 - c) Demonstrate a clear pathway to impact in the OT(s)
- (500 words max)

Delivery against priority issues

The ability to deliver against targets to reduce biodiversity loss implies that you can measure change in wildlife populations, which has been lacking in the Polar regions.

In the Falkland Islands, Rockhopper penguins are identified as a priority species under the more general Environmental Planning Department priority areas:

- coastal and marine species and ecosystems
- seabird species;
- interactions between the above species at an ecosystem level

The proposed project adds capacity to Falklands Conservation in their ability to monitor populations with limited resources and adds analytical techniques, citizen scientists and adds revenue streams through colony adoption.

GSGSSI lists the ability to monitor seabird populations, particularly against the management of the krill fishery as a priority, and the monitoring of all seabirds in the aftermath of the rat eradication as priority areas.

In Antarctica, this project falls primarily under BAT Priority Area 1: *“Environmental Protection and Minimising Human Impacts”*, more specifically:

- development of a better understanding of the BAT environment
- development and implementation of best Antarctic environmental practices
- enhancement of UK expertise on tourism management and minimising human impacts
- proactive management of key protected areas in the Territory
- identification of future environmental challenges and development of mitigation measures.

This project will reduce the error in estimates of krill consumption by penguins in BAT and hence reducing uncertainties in models that inform the sustainable management of krill fisheries.

SAMS promise to be able to monitor tourism since the effects of disturbance by tourists on penguin breeding success can be investigated without the confounding effect of visits by scientists,

This project will lead to improvements in census and monitoring methods that can then be applied to ASPAs

Through the website and counting tool the project will also contribute to BAT Priority Area 2: Education and Outreach.

Technical excellence in delivery

Previous work associated with this application funded under the Darwin Initiative has developed the state of the art for camera monitoring of Antarctic Wildlife. Cameras have been used in Antarctica before, but have cost in the region of £2500 per unit and required large Antarctic national programme support. The cameras associated with this project have been trialled and in all of the regions we propose to monitor.

Pathway to impact in the OTs

This project has scope far beyond the taxa and the OTs described. The data collection phase is applicable across regions and taxa. The same cameras and units could be used on any colonially nesting seabird or breeding animal. Cameras are cheap, robust and could be deployed by local conservation groups, allowing them to collect much more data on a limited budget or with limited access to sites. The non-technical nature of data retrieval means that units are easy to maintain. Analysis of data is facilitated by the online counting tool, the annotation part of which is directly applicable to other taxa. The success of this proposal would mean the database had the capacity for other taxa, and would enable us to design the training programme to involve other participants. Equally, the ability to engage the public through following nests or colonies would allow local conservation groups access to additional volunteers and funding, for example through colony adoption initiatives.

23. Who are the **stakeholders** for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them. (250 words max)

Falkland Islands Government/ Falklands Conservation

Conservationists and policy makers on the Falkland Islands have identified Southern Rockhopper penguins as a priority for investigation and conservation following a workshop in April 2011.

Falklands Conservation have been consulted in the development of this proposal and fieldwork (see attached letter of support). Further to this, the Falkland Islands Government Environmental Planning Department has been consulted and in April 2012, gave PI Hart and Falklands Conservation £1905 to place three cameras on Rockhopper penguin colonies in the Falklands. We have added a further three cameras to place on Gentoo penguin colonies.

Government of South Georgia and South Sandwich Islands

GSGSSI have been consulted throughout the development of this application, and PI Hart was involved in the Marine Protected Areas consultation meeting in April 2012, which highlighted the gaps in monitoring in areas around South Georgia and the South Sandwich Islands away from the Bird Island and King Edward Point research stations. To further this application, GSGSSI have given £900 to test two monitoring stations at Maivikken. Discussions made it clear that this has three main applications to South Georgia: penguin monitoring, post rat eradication monitoring and flying seabird monitoring.

Foreign and Commonwealth Office Overseas Territories Polar Regions Department

Discussions with the FCO and annual policy meetings make it clear that they was to increase the level of monitoring within the British Antarctic Territory region. The FCO have given £38,137 towards fieldwork and camera units on the Antarctic peninsula in 2012/13

24. Institutional Capacity: Describe the implementing organisation's capacity (and that of partner organisations where relevant) to deliver the project. (500 words max)

University of Oxford, Department of Zoology

Dr Tom Hart is a researcher working on the conservation and ecology of Southern Ocean penguins within the Oceans group headed by Professor Alex Rogers. Within Professor Rogers' group, there is considerable expertise on Antarctic and sub-Antarctic ecosystems and the implementation of policy within this region. The expertise is useful to manage logistics planning as well as the co-ordination of polar collaborators. Dr Hart has been conducting research on penguins in the Southern Ocean since 2004. Through links with the tour industry and through a yacht charter already booked for 2013/14, he has the logistics in place to deploy this network.

The Department of Zoology is well placed to support such a network from the concept to the analysis. Automated collection of data on breeding behaviour and other 'life history' traits has synergy with the Edward Grey Institute for Field Ornithology (EGI) and Biodiversity Institutes within the Department. The EGI has been collecting automated tracking data on blue tits in Wytham Woods since 2008 allowing inference of the network and relationships of sub-populations, something analogous to the proposed SAMS network.

The links with the Department of Engineering are well – established, via the EGI and the link between the Oxford Navigation group and the Computer Vision group. Existing and fruitful collaborations include Professor Marian Dawkins and Professor Stephen Roberts, who have pioneered optical flow as a method for monitoring chicken welfare in farms through automatic analysis of video.

University of Oxford, Department of Engineering

As described above, the Department of Engineering have collaborated with the Department of Zoology on projects indirectly and directly related to this, such as the broiler chicken monitoring system or the network study of blue tits in Wytham Woods. They were a key partner in the Darwin Initiative Challenge Fund EIDCF001, which piloted the SAMS system and designed the initial database and analysis tool. The Department of Engineering brings analytical excellence beyond that which the Department of Zoology can support. Namely, these skills are; computer vision and algorithm design for the automation of image analysis and network analysis.

Institute of Zoology, Zoological Society of London

The IOZ have a history of analysing census and phonological data over time to make recommendations for policy, such as the Living Planet Index (Nicholson et al 2012), which has already been applied to polar systems through the Arctic Species Trend Index (McRae et al 2012). The data from SAMS would be the same as those already incorporated into these analyses.

25. Expected Outputs

Output (<i>what will be achieved e.g. capacity building, action plan produced, alien species controlled</i>)	Indicators of success (<i>how we will know if it has been achieved e.g. number of people trained/ trees planted</i>)	Status before project/baseline data (<i>what is the situation before the project starts?</i>)	Source of information (<i>where will you obtain the information to demonstrate if the indicator has been achieved?</i>)
1. Increase in the number of colonies monitored for breeding parameters	The placement and successful recording of breeding success by cameras. This should be 52 additional sites if all those budgeted are reached; an approximate doubling of monitoring in the region.	One camera in the Falkland Islands on Gentoo penguins. Three cameras in South Georgia; one on King penguins, two on Gentoos. Twenty-one cameras in the Antarctic peninsula region; 13 on Gentoos, 5 on Chinstraps and 3 on Adelies. Also, approximately 20 colonies monitored in this region by national programmes near scientific bases.	A report to the FCO and to the Antarctic Treaty showing the placement of cameras and images obtained, analysed for the phonological parameters of breeding required
2. An online database allowing analysis and interpretation of phonological data from photographs	A completed data base, which has capacity for at least four projects of similar size and scope to this for use with colonial seabirds across all OTs.	A pilot site, capable of annotation, but not with the capacity to scale up or to accept multiple users' own data.	Letters of support from partners sharing data and evidence of utility on the database.

Output (<i>what will be achieved e.g. capacity building, action plan produced, alien species controlled</i>)	Indicators of success (<i>how we will know if it has been achieved e.g. number of people trained/ trees planted</i>)	Status before project/baseline data (<i>what is the situation before the project starts?</i>)	Source of information (<i>where will you obtain the information to demonstrate if the indicator has been achieved?</i>)
3. Crowdsourcing	A sizable proportion of the online images annotated by volunteers (crowdsourcing) to allow validation of automatic analysis and to generate data from images. A useful benchmark would be over 1000 users capable of annotating at least 20,000 images per year.	A pilot study using 15 school children and 3 adult volunteers to annotate images.	User data, showing the number of users on the website and the number of images annotated per year.
4. Seeding similar projects with partners.	Number of partners with cameras deployed in the field and number of users/partners contributing images to the database.	Two partners contributing to the image database; Dr Mike Polito/Heather Lynch from Oceanites and Dr Colin Southwell from AAD.	Cameras out on new projects and new taxa in OTs beyond the Southern Ocean and South Atlantic.

26. Expected Outcomes: How will each of the outputs contribute to the overall outcome of the project? (100 words max)

The main outcomes of the project are 1 and 2, which encompass the great increase in data collection and interpretation. The design and building of a network capable of monitoring penguins around the Scotia Arc would go a long way to filling the data gap that exists in this sensitive and increasingly changing region. The online database, would enable data to be processed across regions to the same standards, allowing use at the local and regional scale.

Outcomes 3 and 4 are secondary, meaning that this project can successfully scale up to be useful across taxa and OTs.

27. Main Activities

Output 1	Design and deploy a network of SAMS sites around the Scotia Arc.
1.1	Complete the power analysis of available monitoring sites and couple these with the Lynch et al 2012 sites of high leverage for estimates of krill consumption. Design the network of SAMS sites in relation to these high value colonies for monitoring.
1.2	Order the cameras and components to the Falkland Islands for assembly.
1.3	Beta test a satellite-linked camera for deployment in remote, unvisited areas.
1.4	Deploy the camera trap in the 2013/14 season using Quark vessels and existing fieldwork plans.
Output 2	Build an online database capable of storing and annotating data from 100 SAMS for this project and 200 SAMS from other projects
2.1	Test current trial version with multiple user images and users.
2.2	Redesign beta version and go live on www.penguinlifelines.org

Output 3	Extract breeding parameters from image data and conduct a network analysis.
3.1	Generate count data and clustering statistics from the data on the image database.
3.2	Pass to Dr Rezek for network analysis to determine network structure.
3.3	Compare the network derived from breeding phenology with estimates of population genetic structure and current management areas to determine areas of conflict.

28. Risks			
Description of the risk	Likelihood the event will happen (H/M/L)	Impact of the event on the project (H/M/L)	Steps the project will take to reduce or manage the risk
Ship difficulty deploying SAMS units	L	H	Deployment with multiple collaborators to reduce the risk of any one ship or operator failing to reach the region. Also use early and late season expeditions to reduce the risk of ice conditions preventing access to sites.
Failure of satellite-linked camera	M	L	Inability to monitor as many of the remote sites that are seldom visited (less than two visits per year).
Database failure	L	H	Multiple user testing prior to beta version going live and backup on separate server.

29. Sustainability: How will the project ensure benefits are sustained after the project has come to a close? If the project requires ongoing maintenance or monitoring, who will do this? (200 words max)
<p>This project will build a network of Seabird Autonomous Monitoring Stations (SAMS) that will be both cost-effective and easy to maintain given a small level of support by stakeholders in the region. Once installed, SAMS can be easily serviced (e.g. replacing of batteries, memory cards, or cameras when necessary by investigators (Dr. Hart et al.), collaborators (e.g. Falklands Conservation, Oceanites Inc.), stakeholders (Government of South Georgia and South Sandwich Islands) and volunteers on commercial tour ships (IAATO). Data analysis will also be self-sustaining as computer vision tools will take advantage of crowdsourcing to efficiently analyse the wealth of data provided by SAMS. In addition, we are piloting public engagement strategies to develop non-traditional funding streams and secure the long-term sustainability of this project. These include an “Adopt a Penguin Cam” which allows individuals to donate the equivalent cost of a SAMS in exchange for time lapse videos of the colonies they have adopted and updates about program objectives, progress and impacts. On-line (www.penguinlifelines.org) and direct-sale versions (Antarctic Heritage Trust at Port Lockroy, South Georgia Museum) of this donation program show great potential for making SAMS units financially self-sustaining. We already receive donations from individuals via our website and on ships.</p>

30. Monitoring & Evaluation: How will the project be monitored and who will be responsible? Will there be any independent assessment of progress and impact? When will this take place, and by whom?
<p>Financial monitoring will take place by the University of Oxford and by an external audit at the end of this project in accordance with Darwin rules for projects over £100,000.</p> <p>Grants are reviewed quarterly, every six months or annually by the Department of Zoology against the projected spending plan. The project budget proposed here is relatively simple, involving the large purchase of camera equipment in year one, through one main and secondary supplier. The other major cost is salary. We will therefore audit the budget internally at the end of year one, and then six and three months later to ensure a final report can be made timely at the end of the project. The external audit will be made within three months of the end date of the project once all expenses have cleared.</p> <p>Monitoring of the SAMS activities will be carried out with all stakeholders in September 2013, once cameras are ready to deploy from the Falkland Islands, but prior to fieldwork. This will include a review of</p>

the monitoring network design by Dr lead Rezek and of the power analysis by Dr Heather Lynch.

Output of the system will be critically evaluated by peer review in scientific journals and by stakeholder review at the end of year 2 prior to a report to the Antarctic Treaty.

The project completion report is **due up to 3 months** after the project is over and is linked to the final payment.

31. Use of information: If your application is successful, the information in this form may be published on the internet or used in publications. If there are any parts of the application which you do not want to be used in this way, please indicate them in the box below.

There are no parts of this application I would like to be kept confidential.

32. Financial controls: (Who is responsible for managing the funds? What experience do they have? What arrangements are in place for auditing expenditure?)

The University of Oxford Research Accounts team in the Finance Division are responsible for oversight of all external grant funding. Day to day financial management is devolved to Departments and the Departmental Administrator, Ms N McEntee in Zoology, has responsibility for ensuring that new research awards are effectively reviewed, started, and communicated, and that research expenditure is charged promptly and coded accurately, in line with the research funder's terms and conditions. In the Department of Zoology this responsibility is delegated to an experienced Research Funding Manager, Ms T Wheeler, who manages two dedicated staff in our Grants Office. All expenditure is recorded in the University's Oracle Financials system and must comply with the University Financial Regulations. All processes are regularly reviewed and subject to internal and external audit. External auditors are engaged as required for specific projects in line with funder requirements and University regulations.

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.

33. 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. (300 words max)

Salaries: Dr Tom Hart and Dr lead Rezek are employed on salary points 7.4 and 7.11 respectively, set by Oxford University according to position and the number of years' post-Doctoral experience. Dr Ben Collen is employed on the ZSL salary scale on point 20 according to the same criteria. The two research assistants are employed for six months at the Oxford/ZSL standard on what has proven to be sufficient time for index analysis and database management and image analysis in the past. The two Research Assistants will be employed in year one as all the data for an index analysis are in place and the database needs redesigning for sufficient images before scaling up.

Equipment costs: Camera units are mass produced, purchased bought at 40% discount for Reconyx and 15% discount for Bushnell through Trailcampro with whom we have a sponsorship deal. These are imported direct from the US to the Falkland Islands, avoiding VAT. Scaffolding poles have been donated to Falklands Conservation.

Fieldwork costs: Ship time on board Quark vessels has been donated in return for giving lectures on board. This represents a saving of approximately £60,000 per annum compared to the cost of berths. A yacht charter would be £1,000 per day (approximately £45,000 p.a) or a national programme ship such as the RRS Shackleton or the RRS Cook would be £20,000 per day and unlikely to be available for a monitoring project of this duration which would remove them from other duties.

Travel costs: These have been kept low by tying meetings with the International Penguin Conference.

Database and services: Most maintenance time is covered by the Department of Engineering and by Dr lead Rezek. Server provision and backup is provided by the university.

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 (Q1 starting April 2013)

Activity	No of Months	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1 Deploy a SAMS network around the Scotia Arc.													
1.1 Power analysis of monitored sites and design network	3	3											
1.2 Order and assembly of SAMS units	1			1									
1.3 Beta test satellite linked camera	2		1.5	0.5									
1.4 Deployment of SAMS devices around Antarctica.	4			3	1								
Output 2 Build an online database													
2.1 Test current trial version with multiple user images and users.	3	3											
2.2 Redesign beta version and go live on www.penguinlifelines.org	2				2								
2.3 Publicise and generate many users.	2				1	1							
Output 3 Extract breeding parameters and conduct a network analysis to automate monitoring.													
3.1 Generate count data and clustering statistics from the data on the image database	8		2				3	3					
3.2 Pass to Dr Rezek for network analysis to determine network structure.	4				1				1				
3.3 Compare the network derived from breeding phenology with estimates of population genetic structure and current management areas to determine areas of conflict.	1								1				
3.4 Engage stakeholders to determine how initial results would change management and redesign the SAMS network in light of new questions.	1								1				

CERTIFICATION 2013/14

On behalf of the trustees of The University of Oxford
(*delete as appropriate)

I apply for a grant of £215,848 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 can be found at : <http://www.admin.ox.ac.uk/finance/information/financialstatements/>

Name (block capitals)	
Position in the organisation	

Signed

Date:

Application Checklist for submission

	Check
Have you provided actual start and end dates for your project?	Y
Have you provided your budget based on UK government financial years i.e. 1 April – 31 March and in GBP?	Y
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?	Y
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable in the email)	Y
Have you included a 1 page CV for all the principals?	Y
Have you included a letter of support from the <u>main</u> partner(s) organisations?	Y
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.	Y
Have you read the Guidance Notes?	Y
Have you checked the Darwin Plus website immediately prior to submission to ensure there are no late updates?	Y

Once you have answered the questions above, please submit the application, not later than midnight GMT at the end of Monday 7 January 2013 to Darwin-Applications@ltsi.co.uk using 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 (e.g. 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 Darwin Plus. Application form data will also be held by contractors dealing with Darwin Plus 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 (i.e. name, contact details and location of project work) on the Darwin Initiative and Defra/FCO/DFID 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 Governor's Offices outside the UK, 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.