

Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

To be completed with reference to the "Writing a Darwin/IWT Report" Information Note: (<https://dplus.darwininitiative.org.uk/resources/reporting-forms-change-request-forms-and-terms-and-conditions/>). It is expected that this report will be a maximum of 20 pages in length, excluding annexes)

Submission Deadline: 30th April 2021

Darwin Plus Project Information

Project reference	DPLUS109
Project title	Initiating monitoring support for the SGSSI-MPA Research and Monitoring Plan
Territory(ies)	South Georgia and the South Sandwich Islands
Lead organisation	BAS - British Antarctic Survey
Partner institutions	
Grant value	£283,417.00
Start/end dates of project	03/08/2020 to 31/08/2023
Reporting period (e.g. Apr 2020-Mar 2021) and number (e.g. Annual Report 1, 2)	03 August 2020 to 30 April 2021 Annual Report Year 1
Project Leader name	Philip Trathan
Project website/blog/social media	
Report author(s) and date	Philip Trathan, Martin Collins, Nathan Fenney and Adrian Fox (BAS), Mark Belchier (GSGSSI)

1. Project summary

At South Georgia, the climate is changing. Further, species abundances are changing with the recovery of historically depleted species of seal, whale and finfish. In addition, the eradication of introduced non-native mammals from South Georgia is likely to lead to changes in terrestrial habitats, with consequent changes in species diversity. Taken together, these changes mean that large ecological changes are to be anticipated as species populations (and diets) alter.

Baseline estimates have been missed, due to a lack of resources before the eradication of non-native mammals. However, it is still feasible to establish recovery patterns if monitoring starts as soon as possible. Ecosystem change is likely to occur rapidly, so this project is now urgent.

We propose to initiate monitoring for a range of species and vegetation types in order to document change. Un-crewed aerial vehicles offer practical cost-effective solutions. This project will therefore introduce the use of new-generation fixed-wing survey drones, coupled with sophisticated analyses. This project will provide a step-change in ability for multi-species baseline reference surveys, while providing an established workflow into the SGSSI MPA Research and Monitoring Plan, facilitating updates for management policies. The resulting sample data will provide direct counts and trend information. They will also help ground-truth satellite remote-sensing data that cover a wider perspective than is feasible from ground surveys.

Future use of ground-truthed remote-sensing will ensure a lifetime beyond the scope of the current project. Such future-proofing, and legacy outputs will be vital for the SGSSI MPA Research and Monitoring Plan. The last comprehensive surveys of all seabirds and marine

mammals were completed using yachts; these are expensive and logistically challenging platforms. Modern monitoring requires a different modus operandi.

This project will also contribute to the Blue Belt initiative currently underway by the UK Government, contributing to GSGSSI and potentially two other UKOTs - the Falkland Islands and the British Antarctic Territory. These Overseas Territories have surface breeding seabirds and marine mammals, so these UKOTs could also benefit from the project outcomes.

2. Project stakeholders/partners

Through DPLUS109, we have engaged with our key stakeholders, GSGSSI and BAS. We have developed a plan for our forthcoming fieldwork, engaging with GSGSSI Operations and Logistics Department to negotiate logistic capacity on the Pharos SG. This was agreed initial during Project development, as field access depends upon Pharos SG support. The relationship with GSGSSI is therefore vital for the success of the Project.

We have also engaged with other stakeholders interested in the use of survey data obtained from UAVs. Related to this project, but funded separately, we have engaged with HiDef Aerial Surveying Ltd through a project funded by WWF (UK) to develop automated wildlife counting software for aerial imagery. This project will have great synergy with DPLUS109.

3. Project progress

We have all delivered elements as envisaged under our log frame (Version dated 8 June 2020); see below.

3.1 Progress in carrying out project Activities

We have created a list of high-priority, long-term monitoring sites, for which baseline reference data should be collected. The list of sites was developed following consultation with experts from within BAS and externally. A report identifying the sites, with maps and latitude/longitude coordinates was provided to GSGSSI. Within the report we identified which sites should be surveyed in the first season of fieldwork, 2021/22. Planning for Pharos SG requires close liaison with GSGSSI and acceptance of the proposed sites; the report is still under consideration by GSGSSI.

We have purchased a Sensefly Ebee X (www.sensefly.com/app/uploads/2018/09/eBeeX-EN.pdf) for the photographic survey. The airframe with associated photographic equipment consists of:

- SenseFly eBee X (platform);
- 2x SenseFly Aeria X sensors;
- Endurance activation (extended range);
- RTK / PPK activation (GNSS);
- 2x Standard batteries, 6x Endurance batteries;
- 2x Spares kit;
- Radio tracker;
- Backup ground station;
- ADS-B (Automatic Dependant Surveillance – Broadcast).

Extensive training in the UK using the Ebee X has already been happening, with further training planned before field deployment to South Georgia.

3.2 Progress towards project Outputs

Our initial schedule was delayed because of Covid-19, so no fieldwork was possible in 2020. A Change Request was submitted and accepted. We are currently pursuing the revised schedule under the revised log frame and are on track.

3.3 Progress towards the project Outcome

As fieldwork opportunities were not possible in our first year, our revised log frame was developed to facilitate field work in 2021/2022. This means that our workload has remained

light this year, which we felt was important given the uncertainty associated with Covid-19 in 2020.

3.4 Monitoring of assumptions

We believe that all of our assumptions remain valid, but these will only be tested in full when we are able to start fieldwork in 2021/22. Those assumptions that relate to planning were all correct and we have made the progress expected under our revised log frame.

4. Project support to environmental and/or climate outcomes in the UKOTs

This year our efforts have been largely associated with the purchase of equipment and planning for future fieldwork. We have therefore had little opportunity to undertake work that will address environmental and/or climate change outcomes.

5. OPTIONAL: Consideration of gender equality issues

Our work is not increasing inequality of gender or race.

6. Monitoring and evaluation

As part of the Project we hold frequent team meetings to discuss different aspects of the implementation and future direction of work. These meetings include all scientists involved in the Project. This ensures that all participants are aware of ongoing plans and any necessary changes. It gives participants opportunity to evaluate and comment on all decisions.

Given the global Covid-19 pandemic, we are pleased to report that all work scheduled under the agreed log frame for the past reporting period has been completed, with regular review by those involved. All meetings have been held virtually because of the pandemic. Liaison with GSGSSI and with others has also been virtual, or by email.

Financial oversight has been undertaken by the BAS Finance Team, who have communicated with the Project personnel through virtual meetings or email.

The use of virtual meetings has not been a barrier to progress, and all work has been completed. Although in-person meetings are preferable, virtual meetings have allowed work to continue and therefore have been a suitable approach.

The key indicators of achievement are those detailed in the log frame.

7. Lessons learnt

The Covid-19 pandemic has meant that we have had to operate through virtual meetings. However, this has not been an impediment to progress. A key lesson is that flexibility of staff has contributed to our ability to move forward.

We have used our revised log frame (8 June 2020) to guide our work. Our workload was deliberately kept light this year, given the uncertainty associated with the Covid-19 pandemic. This proved to be a sensible strategy given the enormous consequences of Covid-19.

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

This is the first report from the Project.

9. Other comments on progress not covered elsewhere

Revising our log frame in the face of Covid-19 was important as no international travel and no fieldwork was possible in 2020.

The project still faces some risks because of Covid-19, but fieldwork is now feasible under current BAS operational guidance. It is anticipated that a field team will be deployed at the end of 2021, allowing the Project to move forward as planned, albeit delayed by 12 months.

10. Sustainability and legacy

When our Project was funded, other UK OTs interested in the use of UAVs contacted us for details. We plan to update interested OTs once we have successfully completed fieldwork in 2021/2022.

Our planned exit strategy remains valid. At the end of the Project, we intend to pass control of the UAV to the KEP Project at BAS, so that work can continue into the future. We have also

participated in writing one peer-reviewed paper that includes details of our selected monitoring sites. This is so scientists external to the Project, understand our objectives and can contribute where they have capacity.

Authors: John Dickens, Philip R Hollyman, Tom Hart, Gemma V Clucas, Eugene J Murphy, Sally Poncet, Philip N Trathan, Martin A Collins (In Review) Developing UAV monitoring of South Georgia and the South Sandwich Islands' iconic land-based marine predators. *Frontiers in Marine Science*, section Marine Conservation and Sustainability, Manuscript ID: 654215.

11. Darwin identity

The paper identified under Q10 (Dickens et al., 2021 In Review) includes acknowledgement to the Darwin Initiative funding for DPLUS109.

GSGSSI is very aware of the value of the Darwin Initiative.

When outputs from the Project become available, we will ensure they are promoted with the Darwin logo prominently displayed. As identified in our log frame, we will also undertake relevant outreach about the outputs that we deliver.

12. Impact of COVID-19 on project delivery

Our Project is dependent upon the successful implementation of fieldwork at South Georgia. We therefore agreed a revised log frame and implementation plan just as the DPLUS109 started. This allowed us to redesign our work plan, fieldwork and budget to reduce Covid-a9 impacts. We deliberately reduced our workload in the first part of the Project, and extend the end date of the Project.

Now as fieldwork opportunities are feasible for the 2021/2022 field season, these mitigation measures proved to have been sensible. Although risks remain should the Covid-19 pandemic surge, we have reduced risks to the greatest extent possible. In the event of a subsequent surge, we will necessarily need to delay fieldwork again through a revised log frame.

We have assured the health and safety of all Project staff through use of virtual meetings and email. Once the pandemic passes, we envisage continued use of virtual meetings to reduce the need for travel.

Our project outcomes and impacts do not have relevance to assist with the response to Covid-19 or reduce the risk of future pandemics.

13. Safeguarding

To the best of our knowledge, there have been no safeguarding issues.

14. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2020 – 31 March 2021)

Project spend (indicative) in this financial year	2020/21 D+ Grant (£)	2020/21 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2020-2021 – if applicable

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
<p>Impact</p> <p>Strategic long-term scientific monitoring project addressing ecosystem change relationships for important land-based predator species, forming an important contribution to the SGSSI MPA Research and Monitoring Plan.</p>			
<p>Outcome</p> <p>Establishment of a rigorous, multi-species, baseline reference dataset for seabird and seal colonies at South Georgia, used to inform policy decisions by GSGSSI and CCAMLR.</p>	<p>0.1 Creation of a list by Q3Y1 of high priority, long-term monitoring sites, for which the baseline reference data will be collected.</p>	<p>0.1 Formal report submitted to GSGSSI. We delivered our fieldwork plans, including maps showing proposed monitoring sites.</p>	
<p>Output 1.</p> <p>Creation of a list of high priority, long-term monitoring sites at South Georgia for species targeted as ecosystem indicators (king, macaroni and gentoo penguins, elephant and fur seals, and albatross species).</p>	<p>1.1 Discussion with GSGSSI and members of the wider South Georgia scientific community to consider potential sites or long-term monitoring. Discussion to be undertaken during Y1.</p>	<p>Our proposed list of sites is currently being used bby GSGSSI in their planning for movements of Pharos SG.</p>	

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed) - if applicable

N.B. if your application's logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact Darwin-Projects@tsi.co.uk if you have any questions regarding this.

Our log frame is attached as a separate file. This version was agreed in June 2020.

Checklist for submission

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