

Applicant: **Ratcliffe, Norman**  
Organisation: **BAS**  
Funding Sought: **£440,264.00**

# **DPR11S2\1004**

## **Evidence-based conservation of biodiversity in the South Sandwich Islands**

Our project will establish a robust baseline and build capacity for low-cost monitoring of penguins and terrestrial biodiversity on Zavodovski Island, South Sandwich Islands: a data deficient yet important biodiversity area. Validated methods will subsequently be expanded to the whole archipelago. We will also track penguin seasonal movements and diets to determine potential overlaps with krill fisheries. Evidence will support the update of the Marine Protected Area Action Plan and development of GSGSSIs proposed South Sandwich Islands Terrestrial Protected Area.



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## Section 1 - Contact Details

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### PRIMARY APPLICANT DETAILS

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Title	Dr
Name	Norman
Surname	Ratcliffe
Tel (Work)	[REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]

### GMS ORGANISATION

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Type	Organisation
Name	BAS
Phone (Mobile)	[REDACTED]
Email	[REDACTED]
Website (Work)	[REDACTED]
Address	[REDACTED]

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## Section 2 - Title & Summary

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### Q3. Project Title:

Evidence-based conservation of biodiversity in the South Sandwich Islands

### What was your Stage 1 reference number? e.g. DPR11S1\1123

DPR11S1\1020

### Q4. Summary of project

Please provide a brief summary of your project: the problem it is trying to address, its aims, and the key activities you plan to undertake.

Successful Darwin Plus Main projects in Round 11 must demonstrate substantial measurable outcomes in at least one of the themes of Darwin Plus either by the end of the project's implementation or via evidenced mechanisms for post-project delivery.

Preference will be given to discrete projects implementing existing identified environmental solutions on the ground.

The broad themes of Darwin Plus Main are:

- **Biodiversity:** improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;

- **Climate change:** responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;
- **Environmental quality:** improving the condition and protection of the natural environment;
- **Capability and capacity building:** enhancing the capacity within OTs to support the environment in the short- and long-term.

Please write this summary for a non-technical audience.

Our project will establish a robust baseline and build capacity for low-cost monitoring of penguins and terrestrial biodiversity on Zavodovski Island, South Sandwich Islands: a data deficient yet important biodiversity area. Validated methods will subsequently be expanded to the whole archipelago. We will also track penguin seasonal movements and diets to determine potential overlaps with krill fisheries. Evidence will support the update of the Marine Protected Area Action Plan and development of GSGSSIs proposed South Sandwich Islands Terrestrial Protected Area.

## Section 3 - UKOT(s), Dates & Budget Summary

### Q5. UKOT(s)

Which UK Overseas Territory(ies) will your project be working in?

South Georgia and The South Sandwich Islands (SGSSI)

\* if you have indicated a territory group with an asterisk, please give detail on which territories you are working on here:

*No Response*

In addition to the UKOTs you have indicated, will your project directly benefit any other Territories or country(ies)?

No

### Q6. Project dates

Start date:

01 April 2023

End date:

31 March 2025

Duration (e.g. 2 years, 3 months):

2 years

### Q7. Budget summary

Year:	2023/24	2024/25	2025/26	Total request
Amount:	£343,612.00	£96,652.00	£0.00	£ 440,264.00

Q8. Proportion of Darwin Plus budget expected to be expended in UKOTs (%)

Q9a. Do you have matched funding arrangements?

Yes

What matched funding arrangements are proposed?

BAS will contribute ██████ in waived FEC overheads and open access payments. Oxford University will provide ██████ from in kind staff time, associated overheads and payment of open access fees. Edinburgh University will contribute ██████

in waived overheads and open access payments. GSGSSI will contribute [REDACTED] in matching staff time and waived overheads. Antarctic Research Trust will provide [REDACTED] in new money for satellite tags and associated ARGOS service charges, plus [REDACTED] of Klemens Putz's time to the project (who works on a voluntary/freelance basis so no indicative costs are given). BAS and Oxford will loan equipment to the project that would cost [REDACTED] and [REDACTED] (respectively) to the project if bought new, that are included in the budget as having no indicative value.

#### Q9b. Total confirmed & unconfirmed matched funding (£) [REDACTED]

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**Q9c. If you have a significant amount of unconfirmed matched funding, please clarify how you fund the project if you don't manage to secure this?**

Not applicable

## Section 4 - Problem statement

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### Q10. Problem the project is trying to address

**Please describe the problem your project is trying to address in the UKOTs, relating to at least one of the themes of Darwin Plus.**

**For example, what are the specific threats to the environment that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? How will your proposed project help? Please cite the evidence you are using to support your assessment of the problem (references can be listed in your additional attached PDF document).**

Output 1: The South Sandwich Islands (SSI) are the most data deficient place in the UK OTs, owing to their remote location and difficulty in landing on the islands. Zavodovski Island, the most northerly in the archipelago, hosts the largest penguin colony in the world (~600,000 pairs of chinstrap penguins: ~18% of the global population) and the only regionally important population of macaroni penguins (~90,000 pairs) outside of South Georgia, although available estimates are coarse. The terrestrial biodiversity of Zavodovski remains virtually unsurveyed, yet satellite imagery shows extensive geothermally influenced vegetation which is likely to include communities exceptional to the region. Reliable baseline information upon which to build a terrestrial management plan is incomplete. An eruption occurred in March 2016 and resulted in ash covering a third of the island: the impacts of this upon penguin populations and terrestrial communities are undocumented.

Output 2: Krill fishing rarely occurs within CCAMLR Area 48.4, in which SSI lie, and closure of the whole MPA to krill fishing during the austral summer creates temporal segregation from breeding penguins. A 50 km no-take zone exists around all islands in the archipelago to provide spatial segregation between fisheries and penguin foraging areas all year round. Nonetheless, vessels are at liberty to fish for krill within the MPA, outside the 50 km zones, during winter. This may create direct competition for food with any wintering aggregations of penguins or create carry over effects that reduce the local supply of krill to penguins in the following breeding season.

Extrapolations of foraging range and habitat preference from tracking work at Saunders Island suggest chick-rearing chinstraps will mostly remain within the 50 km exclusion zone around the island. However, seabird foraging ranges scale with colony size, so since the colony at Zavodovski is 3.9 times larger than at Saunders, birds at the former are more likely to forage beyond its 50 km exclusion zone. Foraging ranges and habitat use by macaroni penguins from any location in SSI are unknown. Moreover, winter distributions are undocumented for both species. Chinstrap penguins from the South Orkney Islands winter in the SGSSI region, including within the MPA (see Supporting Information). If South Sandwich birds behave in a similar manner this could represent an important but unrecognised interest feature within the SGSSI MPA. This would not be protected from competition by the krill fishery by closed areas or seasons, should the fishery choose to begin operating in Area 48.4, which could create the potential for spatial overlap with important penguin aggregations.

Output 3: Dietary as well as spatial overlap is an important for assessing risks of competition between penguins and krill fisheries. The zooplankton community of SSI is more diverse than at South Georgia, presenting penguins with alternative

trophic pathways to Antarctic krill. However, no dietary data are available for penguins at SSI, which impairs the assessment of the risk that any future development of the krill fishery in Area 48.4 might present to penguins breeding or wintering in the SSI region.

## Section 5 - Environmental Conventions, Treaties and Agreements

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### Q11. Environmental Conventions, Treaties and Agreements

**Please detail how your project will contribute to the aims of the national and/or international agreement(s) your project is targeting. What key OT Government priorities and themes will it address and how? You should also consider local, territory specific agreements and action plans here. Letters of support from UKOT Government partners/stakeholders should also make clear reference to the agreements/action plans your project is contributing towards.**

**Note: No additional significance will be ascribed for projects that report contributions to more than one agreement.**

Output 1: The project will provide evidence to inform the future development of a management plan for the proposed South Sandwich Island Terrestrial Protected Area (TPA) on Zavodovski Island. It will achieve this by refining information on the status and trends of penguin colonies and providing the first reliable information on the extent and species composition of terrestrial biodiversity. These data will support assessments of the risk volcanic eruptions pose to penguin populations and terrestrial biodiversity. The penguin colony surveys will also update the status of the South Sandwich Islands Important Bird Area (IBA), and all chinstrap penguin colonies globally given the large influence that Zavodovski Island has on their world population estimate (and hence the 1% IBA threshold).

Output 2 & 3: We will examine the potential for spatiotemporal and dietary overlap of foraging penguins with krill fisheries relative to existing closed areas and seasons operating within the SGSSI MPA. This risk assessment will inform the SGSSI MPA management plan and inform CCAMLR policy within Area 48.4 in the event that krill fisheries start to operate there. The tracking data will refine existing, or identify new, marine Key Biodiversity Areas (KBAs) within the MPA or the adjacent high seas and further conservation measures within these can be developed in partnership with GSGSSI and CCAMLR.

All Outputs: Both terrestrial and marine elements of the research will produce recommendations of relevance to the Committee for Environmental Protection (CEP), who are responsible for development and implementation of conservation measures under the Antarctic Treaty. Advice on conservation is provided to CEP by the Scientific Committee on Antarctic Research (SCAR), specifically its Integrated Science to Inform Antarctic and Southern Ocean Conservation (Ant-ICON) programme. Although the SSI are outside of the Antarctic Treaty area, conservation there is of explicit interest to SCAR as it is a dependent and associated ecosystem and part of the biogeographic terrestrial maritime Antarctic region.

## Section 6 - Method, Project Stakeholders, Gender, Change Expected, Pathway to Change & Exit Strategy

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### Q12. Methodology

**Describe the methods and approach you will use to achieve your intended Outcome and contribute towards your Impact. Provide information on:**

- How have you reflected on and incorporated evidence and lessons learnt from past and present activities and projects in the design of this project?
- The need for this work and a justification of your proposed approach.
- How you will undertake the work (materials and methods).
- How you will manage the work (roles and responsibilities, project management tools, etc.).

Reference to past activities

1. Previous surveys of seabird populations on SSI have been conducted by BAS and Oxford University, including coarse data from Zavodovski Island to provide comparisons. The team have developed innovative survey methods, including use of satellite images and drones.
2. BAS, Oxford University and Antarctic Research Trust have conducted tracking and dietary studies of penguins across the Scotia Arc, including on Saunders Island (SSI) that provide context for our study.
3. BAS have conducted terrestrial vegetation and invertebrate surveys on islands across the Scotia Arc, including all of SSI. Those from Zavodovski, whilst sparse, provide some context for our proposed survey.
4. Our project team includes members with the greatest direct experience of conducting seabird / terrestrial surveys and landing / camping on Zavodovski. This equips us to overcome the considerable challenges of working on the island.

## Approach

This project is proposing frontier science at one of the most remote and inhospitable locations on the planet. We plan to mount a three-week expedition to Zavodovski Island during January 2024. This will be the longest science expedition to the island to date which will allow us to collect information on the island's biodiversity in unprecedented detail.

We plan to charter the yacht, Vinson of Antarctica (purpose-built for polar expeditions) skippered by Skip Novak (the most experienced navigator of SSI waters). Work on the island will be conducted from a field camp supervised by Catrin Thomas, who oversaw safety and camp logistics during filming of the BBC Planet Earth II documentary on Zavodovski. The combined experience behind our logistic support will ensure safety on this challenging field site and maximise our chances of meeting the project's objectives.

Output 1: We will use DGPS referenced ground counts and multirotor drone surveys to map and census penguin colonies. Sampling of terrestrial vegetation and arthropods will be conducted in both geothermally influenced and non-influenced habitats, and thermal images taken from drones will be used to extrapolate their wider distributions. Simultaneously, we will survey the extents of penguin colonies and vegetation using WorldView satellite images (15 cm accuracy) and high-altitude images from the RAF A400M aircraft using a gimbal stabilised, medium-format camera. We will count penguin numbers in satellite and drone images using the Penguin Watch citizen science portal. Analyses in ArcGIS will map the location and extents of fumaroles and associated vegetation communities. We will assess changes in the extents of penguin colonies and vegetation communities through comparisons with previous surveys and satellite imagery, relative to ashfall from the 2016 eruption.

Output 2: We will equip chinstrap and macaroni penguins with PTT, GPS and GLS tags to describe their seasonal foraging movements. We will attach PTTs to the back feathers of 10 chinstrap and 5 macaroni penguins during their brood, crèche and premoult trips. These tags transmit locations, accurate to several tens of km, several times per day and so do not need to be recovered to obtain data. 20 archival Pathtrack GPS will be attached to the back feathers of both species to track trips during the brood-guard period. These tags provide fixes that are accurate to tens of metres at five minute intervals, providing more detailed tracks than PTTs. We will fit GLS tags to 45 chinstraps and 24 macaronis during a visit on a vessel of opportunity in January 2023 and recover them during our proposed 2024 expedition, to describe pre-moult and winter migration trips. These tags provide low-accuracy fixes (~300km) twice daily but are small enough to mount on leg rings, allowing tracking beyond the annual moult. Distributions will be mapped and weighted by colony size to produce density maps. We will identify new marine KBAs and fit habitat models to describe oceanographic features that underpin distribution patterns. Seasonal distributions will be compared to MPA boundaries to infer overlap with periods and areas open to fisheries.

Output 3: We will collect 100 fresh scats from chinstrap and macaroni penguins and diet composition will be quantified using prey DNA analysis. The proportion of Antarctic krill in the diet will be used to calculate total krill consumption by the two species, which will then be combined with their at-sea density maps to produce a surface describing krill consumption. These metrics will place penguin consumption in the context of the regional krill stock, potential catches in the future and the proportion of consumption within areas and periods that are available for fishing, which will inform a risk assessment for future developments of krill fisheries in 48.4.

## Q13. Project Stakeholders

**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.**

The main stakeholder for this study is Government of South Georgia South Sandwich Islands, who will obtain information relevant to management of the SGSSI MPA and to development the SSI TPA. Birdlife International will benefit from revised estimates of penguin populations that will update global estimates and relative abundance at sites across their range, and novel tracking data that will contribute to recognition of new, or refinement of existing, marine KBA boundaries. The results will also be used by CCAMLR for informing the environmental risk assessment and ecosystem-based management of krill fisheries within Area 48.4. The Scientific Committee for Antarctic Research (SCAR), specifically its Ant\_ICON programme, who will be interested in developing policy advice relating to biodiversity and ecosystem conservation. Like CCAMLR, SCAR is explicitly concerned with Antarctica's 'dependent and associated ecosystems', which includes SSI and other Scotia Arc archipelagos.

## Q14. Gender equality

**All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain how your understanding of gender equality within the context your project, and how is it reflected in your plans. Please summarise how your project will contribute to reducing gender inequality. Applicants should, at a minimum, ensure proposals will not increase inequality and are encouraged to design interventions that proactively contribute to increased gender equality.**

Our organisations are committed to Diversity, Equality and Diversity. We have chosen a woman field guide (Catrin Thomas) for the project, which is traditionally a male dominated profession. Her outstanding performance on previous BAS projects, and experience of working on Zavodovski with the BBC during the filming of Planet Earth II, made her the natural choice for the post. Our expedition team has been expanded to include Dr Claudia Colesie of the University of Edinburgh, who will join with Co-I Convey to conduct the collection, analysis and write up of the terrestrial biodiversity module of the project. Her expertise in terrestrial ecology in extreme environments strengthen this component of the project. Jen Black has been assigned to be the point of contact for GSGSSI. Jen is an Environmental Manager with an excellent track record for delivering projects relating to terrestrial conservation, including island eradications, biosecurity and survey/monitoring. She is leading the development of the SSI TPA and so will facilitate conversion of terrestrial science into policy and management. Sue Gregory, the Marine Environment and Fisheries Manager at SGSSI, will support Jen by converting the marine science into policy relating to MPA management and CCAMLR. We will not employ any new staff on contract so there is no scope to increase the woman or non-binary representation on the project through recruitment.

## Q15. Change expected

**Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended) and the potential to scale the approach. Please describe the changes for the environment and, where relevant, for people in the OTs, and how they are linked.**

**When talking about how people will benefit, please remember to give details of who will benefit, differences in benefits by gender or other layers of diversity within stakeholders, and the number of beneficiaries expected. The number of communities is insufficient detail - number of households should be the largest unit used.**

Short term:

1. Surveys of penguin colonies will update Important Bird Area (IBA) statistics for Zavodovski Island and global population estimates for chinstrap penguins. Any effects of the eruption on total numbers and distribution of colonies will be revealed to inform future risk assessments. Evidence contributes to the research and monitoring plan for the proposed SSI Terrestrial Protected Area (TPA) and will form a robust baseline for future monitoring.
2. Empirical breeding season tracking data will replace over-extrapolated predictions and show the extent to which penguins from this enormous colony forage beyond the boundary of the 50 km exclusion zone around the island.
3. Novel data on the winter distribution of penguins has the potential to identify a previously unrecognised but globally important marine KBAs within the SGSSI MPA. Overlap of penguins with areas of the MPA that are open to krill fishing during the winter period will be revealed.
4. Diet of penguins, particularly that comprising Antarctic krill, is revealed. This information, when combined with the population and tracking data, will allow production of a krill consumption map for penguins.
5. Enhanced advice given to GSGSSI and CCAMLR on the risk assessment for any development of krill fisheries in Area 48.4,



based on evidence from 1 - 4 above.

6. Vegetation and arthropod surveys will become available to inform the development of the proposed SSI TPA and form a robust baseline for future monitoring. Any effects of the eruption on the extent of terrestrial biodiversity will be revealed to inform future risk assessments.

Long-term:

1. Build capacity for GSGSSI/FCDO to implement low cost, low risk and regular monitoring of key interest features from satellite and RAF aerial surveys of SSI
2. Development and implementation of evidence-based management for both Terrestrial and Marine Protected Areas on and around the SSI.

Potential to Scale:

1. Methodological approaches and ground-truthing algorithms for satellite and A400M images may facilitate wider monitoring of terrestrial biodiversity and penguin populations in South Georgia and across BAT (with appropriate cross-validation of ground-truthing with respect to spatial variability)

## Q16. Pathway to change

**Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline why and how you expect your Outputs to contribute towards your overall Outcome and, longer term, your expected Impact.**

1. The findings from the penguin tracking and diet work will contribute to the next revision of the Marine Protected Area management plan to incorporate new risk assessments of overlap with fisheries and recommendations for any new closed areas/seasons.
2. We will present findings of the fisheries risk assessment to CCAMLR WG-EMM and discuss implications for krill fisheries management in Area 48.4.
3. We will engage with BirdLife International to revise / recognise the boundaries of existing / new marine Key Biodiversity Areas (KBAs), within the SGSSI MPA and in the adjacent high seas.
4. Penguin colony status and distribution will be reported to Birdlife International to update statistics on the status of the SSI IBA.
5. We will incorporate the evidence from the penguin colony and terrestrial biodiversity surveys into the SSI Terrestrial Protected Area management, research and monitoring plan as it develops
6. We will present conservation evidence to SCAR via the Ant-ICON programme. From there, recommendations will be passed to CEP via the SCAR Standing Committee on the Antarctic Treaty System (SC-ATS). We also have the option to input directly to SC-ATS via the UK national representative on the committee (Susie Grant, BAS).

## Q17. Exit Strategy

**How will the project reach a sustainable point and continue to deliver benefits post-funding? Will the activities require funding and support from other sources, or will they be mainstreamed in to "business as usual"? How will the required knowledge and skills remain available to sustain the benefits? If relevant, how will your approach be scaled?**

The evidence from this project will contribute to action plans which will guide the long-term management of the SGSSI MPA and SSI TPA. These action plans are reviewed by GSGSSI in concert with a range of stakeholders every five years. Our project will support this process by establishing methods of ground-truthing satellite and high-altitude aerial surveys by the RAF. This will enable quinquennial monitoring of penguin colonies and terrestrial interest features on Zavodovski Island and other islands in the archipelago. RAF flights are free at point of delivery and tasked satellite images and modest amounts of staff time required for image analysis are affordable within the partnership's core funds or through small grant applications. Our project will reduce the need for expeditions to SSI to collect monitoring data, with their associated high cost and risks to personnel and biosecurity. However, our project will also provide valuable logistic planning advice to any future expeditions relating to accessing, camping and working on this challenging site, when these are deemed necessary. This advice will be published in online appendices to our manuscripts with the aim of improving the chances of future expeditions delivering evidence-based conservation outcomes.

**If necessary, please provide supporting documentation e.g. maps, diagrams, references etc., as a PDF using the File Upload below:**

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## Section 7 - Risk Management

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### Q18. Risk Management

Please outline the 6 key risks to achievement of your Project Outcome and how these risks will be managed and mitigated, referring to the [Risk Guidance](#). This should include at least one Fiduciary, one Safeguarding, and one Delivery Chain Risk.

Projects should also draft their initial risk register using the [Risk Register Template](#) provided, and be prepared to submit this when requested if they are recommended for funding. Do not attach this to your application.

Risk Description	Impact	Prob.	Inherent Risk	Mitigation	Residual Risk
<b>Fiduciary (Financial)</b> Misuse of funds for non-Darwin Plus related tasks within institution or for personal gain. Corrupt procurement of goods or services from favoured parties not offering best value for money.	Moderate	Rare	Minor	BAS finance division will maintain oversight of expenditure and time-sheets which will be subjected to independent audit at the end of the project. UKRI operate rules on open, competitive procurement.	Minor
<b>Safeguarding</b> Discrimination, bullying and harassment among project staff who are part of the project, or by colleagues from outside of the project	Moderate	Rare	Minor	The PI will be vigilant for safeguarding issues within BAS and across partner organisations through project meetings and 1:1 discussions. Issues will be referred to BAS HR for further advice and action.	Minor
<b>Delivery Chain</b> Yacht charter not secured, equipment not available, RAF flight or satellites not tasked	Severe	Rare	Major	We have approached these suppliers to signal our intentions and no issues with delivery chains are evident. Once funding is confirmed we can place orders and bookings to assure delivery, but nothing can be guaranteed before then.	Moderate
<b>Risk 4</b> Environmental risks preventing landing (eruption of the volcano, severe storms and high swells)	Severe	Rare	Major	An eruption or weather/sea conditions that prevent landing over a whole three week period are very unlikely events. If an eruption is evident well in advance of the expedition there is an option to defer for a year, with agreement from D+.	Moderate

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<b>Risk 5</b> Analysis and write up of project findings do not progress to schedule, due to staff over-commitment, illness, maternity, changes of employment or skills deficit.	Moderate	Rare	Minor	The project staff are committed to this project and are motivated to complete the work ahead of other responsibilities. They are experts in their fields and have the knowledge and skills to complete the work. The PI will monitor progress, support staff and reallocate roles as required.	Minor
<b>Risk 6</b> Policy advice from project is not taken up by stakeholders and conservation outcomes are not realised.	Moderate	Possible	Major	Project members will provide high calibre evidence at policy workshops, which will be persuasive and will maximise chances of uptake. However the workshops operate on a democratic or by content process and we cannot guarantee our advice will be taken.	Moderate





## Section 8 - Implementation Timetable

### Q19. Provide a project implementation timetable that shows the key milestones in project activities

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

[Implementation Timetable Template](#)

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and fill/shade only the quarters in which an activity will be carried out.

 [Timetable for Upload](#)  
 13/10/2022  
 16:01:10  
 pdf 183.53 KB

## Section 9 - Monitoring and Evaluation (M&E)

### Q20. Monitoring and evaluation (M&E) plan

Describe how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.

Darwin Plus projects will need to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E 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. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E. For more information, see [Finance Guidance](#).

A Steering Group will be established at the start of the project to oversee monitoring and evaluation and track progress against objectives. The Steering Group will include team members from all project partners and will be chaired by the Project Leader. Meetings will be scheduled every two months and will be held on Zoom in order to accommodate all team members without incurring travel costs, with additional meetings when demand requires (e.g. expedition planning, policy engagement). Meetings will be used to obtain updates from team members, and to assess progress against project milestones and budget. Minutes and actions will be circulated to all members and will be shared via Microsoft Teams or another suitable means that is accessible to all partners.

Six-monthly progress reports will be shared with all interested stakeholders and published on partner websites. The budget will be managed on a day-to-day basis by the Project Leader, with support from the BAS Finance Team. This will ensure that spending against the agreed budget is on track. BAS Finance Office will have overall control of budgets and spend, and the project will be subject to external audit for which funds of [REDACTED] have been allocated in the budget. Any requests to make changes to the project timeline or budget will be raised with Darwin Plus/ LTS as soon as the need is identified. The principal costs associated with M&E are staff time (project team and BAS Finance) and audit costs, which amount to [REDACTED] of the total budget.

<b>Total project budget for M&amp;E in GBP (this may include Staff, Travel and Subsistence costs)</b>	[REDACTED]
<b>Percentage of total project budget set aside for M&amp;E (%)</b>	[REDACTED]
<b>Number of days planned for M&amp;E</b>	[REDACTED]

## Section 10 - Logical Framework





### Q21. Logical Framework (logframe)

Darwin Plus projects will be required to monitor and report against their progress towards their Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you expect to measure progress against these and how we can verify this.

#### Stage 2 Logframe Template

The **logframe template** (N.B. there is a different template for Stage 1 and Stage 2) needs to be downloaded from Flexi-Grant, completed and uploaded as a PDF within your Flexi-Grant application – **please do not edit the logframe template structure (other than adding additional Outputs if needed) as this may make your application ineligible**. On the application form, you will be asked to copy the Impact, Outcome and Output statements and activities - these should be the same as in your uploaded logframe.

#### **Please upload your logframe as a PDF document.**

-  [LogFrameFinal](#)
-  07/10/2022
-  13:59:13
-  pdf 323.94 KB

#### **Impact:**

Effective conservation of South Sandwich Islands penguins and terrestrial biodiversity is underpinned by scientific evidence and implemented through marine and terrestrial management plans, produced by GSGSSI with stakeholder input

#### **Outcome:**

Development and implementation of appropriate Protected Area Management Plans in the South Sandwich Islands, resulting in reduced potential for fisheries competition and risk assessments in relation to volcanic eruptions.

## Project Outputs

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### Output 1:

Accurate ground-truthing data collected that allows continued five-yearly monitoring of penguins and terrestrial biodiversity from remote sensing data at low cost/effort/risk by project partners.

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### Output 2:

Seasonal movements of penguins described. Important areas and vulnerability to overlap with areas and seasons open to krill fisheries revealed.

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### Output 3:

Breeding season penguin diets quantified: proportion of Antarctic krill in diet reveals risk of dietary competition with krill fishery

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### Output 4:

*No Response*

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### Output 5:

*No Response*

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## Do you require more Output fields?

**It is advised to have fewer than 6 Outputs since this level of detail can be provided at the Activity level.**

No

## Activities

**Each activity is numbered according to the Output that it will contribute towards, for example, 1.1, 1.2, 1.3 are contributing to Output 1.**

Logistic preparations for expedition (Outputs 1): Yacht charter, environmental and ethics permits, travel and subsistence, risk assessments, insurance, procurement of equipment.

Ground-based survey work (Output 1): drone surveys and DGPS referenced ground surveys of both penguin colonies and terrestrial communities.

Remote sensing from satellite/A400M (Output 1): Tasking of satellites and A400M mission. Aerial photography using stabilised medium format camera from A400M.

Tracking of penguin foraging tracks (Output 2): Equipping penguins with GPS, PTT and GLS, recovery of GPS and GLS.

Collection and processing of penguin scats (Output 3): collecting scats from penguins in the field. Analysis of diet composition in the lab using DNA fingerprinting.

Data management and analysis (all Outputs): Coding and curation of data on PDC/TOW. Data analysis, modelling and mapping.

Write up and reporting (all Outputs): Annual reports to Darwin Plus, writing of scientific papers.

Policy impact (all Outputs): Production of advice to decision makers and presentation at appropriate fora for discussion by stakeholders.

Monitoring and Evaluation (all Outputs): Assessment of safeguarding, risks, finances, progress against key objectives.

## Section 11 - Budget and Funding

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### Q22. Budget

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





[Budget form for projects over £100k](#)

Please ensure you include any co-financing figures in the Budget spreadsheet to clarify the full budget required to deliver this project.

**NB: Please state all costs by financial year (1 April to 31 March) and in GBP. Darwin Plus cannot agree any increase in grants once awarded.**

Please upload the Lead Partner's financial accounts at the certification page at the end of the application form.

Please upload your completed Darwin Plus Budget Form Excel spreadsheet using the field below.

 [Copy of BCF-Budget-over-100k-Zavo 05102022 v3 approved](#)  
 17/10/2022  
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### Q23. Funding

**Q23a. Is this a new initiative or a development of existing work?**

New Initiative

**Please provide details:**

This project is a new initiative and not an extension of an existing or recent project, although it does build on earlier survey and research work relating to biodiversity on Zavodovski Island and across the wider SSI archipelago. Previous penguin survey work is described in Lynch et al. (2016) Polar Biology 39: 1615-1625 (lead organisation Stonybrook University, partners Oceanites, GSGSSI, Rutgers University and Maryland University). The expedition costs were supported by the Tinker and Jeniam Foundations and analysis by the US National Science Foundation Office of Polar Programs and Geography and Spatial Sciences (Award Nos. 07-39515 and 12-55058). Previous penguin tracking work for Saunders Island in SSI is published in Clucas et al. (2022) Deep Sea Research II 199: 105093 (lead organisation Cornell University, partners BAS and Oxford University) which was supported by donations from Penguin Watch, Pew Charitable Trusts (Ref 33395), Cornell Lab, Antarctic Science Bursary and the John Ellerman Foundation. Earlier terrestrial work is described in Convey et al. (2000) Journal of Biogeography 27: 1279-1295 (sole organisation BAS). This was funded by NERC/BAS with logistic support from the Royal Navy.

**Q23b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?**

No

### Q24. Balance of budget spend

Defra are keen to see as much Darwin Plus funding as possible directly benefiting OT communities and economies.

**While it is appreciated that this is not always possible every effort should be made for funds to remain in-Territory.**

**Explain the thinking behind your budget in terms of where Darwin Plus funds will be spent. What benefits will the Territory/ies see from your budget? What level of the award do you expect will be spent locally? Please explain the decisions behind any Darwin Plus funding that will not be spent locally and how those costs are important for the project.**

South Georgia and the South Sandwich Islands has no resident human population. Contract workers from BAS, GSGSSI and South Georgia Heritage Trust man the stations at King Edward Point (KEP) and Bird Island on South Georgia and SSI are completely uninhabited. Therefore, there is no scope for local expenditure beyond stamps and souvenirs at the KEP post office and Grytviken museum. The majority of the expenditure is for salaries and overheads for UK investigators, equipment purchased from the UK and USA, and the yacht charter.

## **Q25. Capital items**

**If you plan to purchase capital items with Darwin Plus funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.**

NA

## **Q26. 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.**

Our project is expensive owing to the high cost of the yacht charter but there is no viable alternative to mounting an expedition to SSI of this duration. Vessel support is required throughout the expedition for emergency evacuation, given the remoteness of the island and the small risk of a volcanic eruption, meaning there is no option for BAS/GSGSSI vessels to drop off a field party and pick them up three weeks later.

The remainder of the project represents excellent value for money. We are using established staff time to deliver the work programme which saves the expense of having a contractor working on the project solidly for two years. We have put together a competitive matching funding package, which includes reduced overheads from BAS, Oxford and Edinburgh, matched staff time from Oxford University and ART, new money for satellite tags from ART and loan of existing equipment owned by BAS/Oxford for use on the project. The A400M flight will be supplied by the RAF for free at the point of delivery.

## **Section 12 - Safeguarding and Ethics**

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### **Q27. Outputs of the project and Open Access**

**All outputs from Darwin Plus projects should be made available on-line and free to users whenever possible. Please outline how you will achieve this and detail any specific costs you are seeking from Darwin Plus to fund this.**

We will publish three papers in open access journals describing (i) penguin population status, trends and census method comparisons (ii) seasonal patterns of penguin foraging movements and krill consumption relative to MPA boundaries and (iii) community composition of terrestrial fauna and flora and its distribution relative to fumaroles. Our project is relatively short (2 years) and it is unlikely any of these papers will reach the proofs stage, at which open access charges are levied, within the project budget's lifetime. We will therefore use existing open access agreements with publishing houses through the BAS and Oxford/Edinburgh University Libraries to pay these charges.

Data will be made available for future scientific endeavour on the NERC Polar Data Centre, which is based at BAS Cambridge. Penguin tracking data will also be made available on the penguin node of the BirdLife Tracking Ocean Wanderers portal based in Cambridge.

We plan to safeguard and biobank terrestrial species in the BAS herbarium, Kew Seed Bank, NERC Culture Collection of Algae and Protozoa (CCAP), CABI for fungal and bacterial deposits.  
 We will make the project accessible to the general public via a web page on the BAS website. This will feature a description of the project's background and aims, supported by an infographic, a live map of the PTT tracks and an illustrated blog about the experiences of the expedition team on Zavodovski Island.

## Q28. Safeguarding

**Projects funded through Darwin Plus must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding policies in place.**

**Please confirm the Lead Partner has the following policies in place and that these can be available on request:**

**Please upload the lead partner's Safeguarding Policy as a PDF on the certification page.**

<b>We have a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse</b>	Checked
<b>We have attached a copy of our safeguarding policy to this application (file upload on certification page)</b>	Checked
<b>We keep a detailed register of safeguarding issues raised and how they were dealt with</b>	Checked
<b>We have clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made</b>	Checked
<b>We share our safeguarding policy with all partners</b>	Checked
<b>We have a whistle-blowing policy which protects whistle blowers from reprisals and includes clear processes for dealing with concerns raised</b>	Checked
<b>We have a Code of Conduct for staff and volunteers that sets out clear expectations of behaviours - inside and outside the work place - and make clear what will happen in the event of non-compliance or breach of these standards</b>	Checked

**Please outline how you will implement your safeguarding policies in practice and ensure that all partners apply the same standards as the Lead Partner.**

BAS is a component of UKRI and we will follow the UKRI Code of Conduct (link below) and Safeguarding Policy (pdf uploaded with application) which covers all the issues in the table above. This policy and guidance will be shared with all partners at the start of the project and adherence to these will be monitored by the lead organisation throughout the project's duration during steering group meetings and 1:1 discussions.

<https://www.ukri.org/wp-content/uploads/2020/10/UKRI-081020-CodeOfConduct.pdf>

## Q29. Ethics

**Outline your approach to meeting the key ethical principles, as outlined in the guidance. Additionally, are there any human rights and/or international humanitarian law risks in relation to your project? If there are, have you carried out an assessment of the impact of those risks, and of measures that may be taken in order to mitigate them? Any risk assessment and mitigation of human rights and/or international humanitarian law risks should be included in the Question 18 on Risk Management.**



There is no permanent resident population on SGSSI. However, the islands are managed by the GSGSSI who are based in the Falkland Islands and will be closely involved in this project. As the lead organisation, BAS already has well-established channels of communication with the GSGSSI and we will maintain these throughout and beyond the lifetime of the project. BAS regularly works in SGSSI and has established processes in place to address environmental, legal and ethical obligations which we will follow.

We will work closely with the BAS Environment Team and GSGSSI to ensure that all our activities comply with all relevant environmental and legal requirements and that any necessary permits are obtained. The BAS Animal Welfare and Ethics Review Board (AWERB) will ensure that all animal handling procedures meet accepted standards.

We will be respectful and inclusive of the staff supporting this project. We will engage with BAS Health & Safety (H&S) leads and operations managers to produce appropriate risk assessments and mitigation measures for all activities.

We will ensure that all the project's findings are published in open access journals. Data and samples will be made open access at the end of the study to support further scientific endeavour.

## Section 13 - Project Staff

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### Q30. Project staff

**Please identify the core staff (identified in the budget), their role and what % of their time they will be working on the project.**

**Please provide 1-page CVs or job description, further information on who is considered core staff can be found in the [Finance Guidance](#).**

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Norman Ratcliffe	<b>Project Leader</b>	20	Checked
Tom Hart	Co Investigator	15	Checked
Pete Convey	Co Investigator	10	Checked
Claudia Colesie	Co Investigator	10	Checked

**Do you require more fields?**


Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Peter Fretwell	Co Investigator	10	Checked
Nathan Fenney	Co Investigator	10	Checked
Jen Black	Co Investigator	5	Checked
Klemens Pütz	Co Investigator	5	Checked


Catrin Thomas	Field Assistant	25	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked


**Please provide 1 page CVs (or job description if yet to be recruited) for the project staff listed above as a combined PDF.**

**Ensure the file is named clearly, consistent with the named individual and role above.**

 All CVs Combined

 14/10/2022

 12:08:13

 pdf 2.03 MB

**Have you attached all project staff CVs?**

No

**If you cannot provide a CV or job description, please explain why not.**

We have been unable to secure a CV for Catrin Thomas before the submission deadline. Catrin is one of BAS' most experienced field assistants, who has supervised logistics and safety at scientific camps all over Antarctica. She participated in the BBC Planet Earth II expedition to Zavodovski Island, which lasted for several weeks and provided detailed knowledge of the challenges of landing, camping and travelling on the island. She has also developed competencies in handling and tagging penguins from several BAS field camps in the South Orkneys and South Georgia, supporting scientists who were studying penguin foraging behaviour.

## Section 14 - Project Partners

### Q31. Project partners

**Please list all the Project Partners (including the Lead Partner – i.e. the partner who will administer the grant and coordinate the delivery of the project), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far and planned.**

**This section should demonstrate the capability and capacity of the Project Partners to successfully deliver the project. Please provide Letters of Support for all project partners or explain why this has not been included.**

**The partners listed here should correspond to the Delivery Chain Risk Map (within the Risk Register template) which you will be asked to submit if your project is recommended for funding.**

**Lead partner name:** British Antarctic Survey

**Is the Lead Partner based in a UKOT where the project is working?**  No

**Please explain why this project is led from outside the UKOT**

There are no residents in SGSSI

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**Website address:** [www.bas.ac.uk](http://www.bas.ac.uk)

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**Details (including roles and responsibilities and capacity to engage with the project):** BAS will manage the project and lead the penguin tracking, terrestrial biodiversity surveys, RAF aerial surveys and satellite image analysis. BAS have extensive previous experience of managing research projects of similar magnitude (including multiple Darwin Plus) which demonstrates its institutional capacity to deliver the programme of work. Ratcliffe is a respected seabird biologist and has an excellent track record for organising multi-disciplinary expeditions of this type and keeping projects on time and on budget. He has performed penguin tracking and drone surveys at multiple sites across the Scotia Arc, so has the skills necessary to complete the penguin work package. Convey is a leading terrestrial biologist who has studied fauna and flora at remote sites across the Antarctic and Scotia Sea islands, including the SSI, which provides assurances for the quality of delivery of the terrestrial component of the project. He will lead on Ant\_ICON engagement. Fretwell and Fenney are both highly skilled at surveying polar wildlife using manned aerial photography and satellite images, which will provide remote images for ground-truthing. Thomas led the logistics for the several week long BBC Planet Earth 2 expedition to Zavodovski Island which will ensure work at this risky field site is conducted safely.

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**Allocated budget (proportion or value):**



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**Representation on the Project Board (or other management structure)**

Yes

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**Have you included a Letter of Support from this organisation?**

Yes

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**Have you provided a cover letter to address your Stage 1 feedback?**

Yes

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**Do you have partners involved in the Project?**

Yes

**1. Partner Name:** [Oxford University](http://www.ox.ac.uk/)

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**Website address:** [www.ox.ac.uk/](http://www.ox.ac.uk/)

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**Details (including roles and responsibilities and capacity to engage with the project):**

Tom Hart is a research fellow at Oxford University Biology Department, specialising in developing novel tools to monitor wildlife populations in polar regions. This includes innovative use of time-lapse cameras and drones for survey work and building of crowdsourcing and AI tools to extract data from images. Hart has extensive experience of organising field expeditions to the SSI archipelago and making successful landings on Zavodovski Island. Hart will lead on the seabird drone and ground surveys and derive counts from images through the Penguin Watch crowdsource network which he leads. Hart will also be responsible for logistics of the yacht charter for input and support of the field team, using his long-standing contacts with yacht operators. He has led or been a partner in several previous Darwin Plus projects.

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**Allocated budget (proportion or value):**



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**Representation on the Project Board (or other management structure)**

Yes

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**Have you included a Letter of Support from this organisation?**

Yes

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**2. Partner Name:**

Antarctic Research Trust

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**Website address:**

[www.antarctic-research.de/?lang=en](http://www.antarctic-research.de/?lang=en)

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**Details (including roles and responsibilities and capacity to engage with the project):**

The Antarctic Research Trust (ART) was founded in 1997 and is a charity registered in the Falkland Islands (since 1999), Switzerland (since 2002) and the USA (since 2004). The ART's aim is to conduct and support scientific research on Antarctic and sub-Antarctic animals in order to provide baseline data for adequate conservation measures. Klemens Pütz is the Science Director and is among the founding fathers of penguin tracking studies, leading pioneering studies of their movements from colonies on the Falklands, South America, South Georgia and Antarctica since the 1990s. ART will provide PTTs to the project as matching funding and Pütz will use his expertise to support the fieldwork planning and contribute to the interpretation and write up of the tracking data.

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**Allocated budget (proportion or value):**



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**Representation on the Project Board (or other management structure)**

Yes

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**Have you included a Letter of Support from this organisation?**

Yes

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**3. Partner Name:**

Government of South Georgia and South Sandwich Islands (GSGSSI)

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**Website address:** [www.gov.gs/](http://www.gov.gs/)

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**Details (including roles and responsibilities and capacity to engage with the project):** GSGSSI are responsible for environmental management of South Georgia and the South Sandwich Islands, including protection of the entire landmass and management of the MPA and fisheries that operate therein. Jen Black is an Environmental Manager responsible for management of the terrestrial environment, including permitting, biosecurity and eradication of non native species. Black, in liaison with Sue Gregory (GSGSSI Marine Environment and Fishery Manager), will use the science from the study to develop/update action plans for the SGSSI MPA and the SSI TPA, with advice from the project partners and with due consultation with wider stakeholders. Gregory will also assist BAS with development of papers for CCAMLR WG-EMM.

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**Allocated budget (proportion or value):** ██████████

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**Representation on the Project Board (or other management structure)**  Yes

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**Have you included a Letter of Support from this organisation?**  Yes

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**4. Partner Name:** University of Edinburgh

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**Website address:** <https://www.ed.ac.uk/>

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**Details (including roles and responsibilities and capacity to engage with the project):** Claudia Colesie is a lecturer for Plant Physiological Ecology with the School of Geosciences, University of Edinburgh. She has experience in polar ecosystem ecology from several successful field campaigns all across the Antarctic continent and the Arctic. She has a strong research background on investigating eco-physiological responses of Antarctic vegetation and surveying with significant experience in combining historic and modern vegetation records. Colesie will be responsible for documenting, collecting and monitoring vegetation on Zavodovski Island. She will also be responsible for designing the vegetation survey so that it can be used in comparison to the previous survey and is robust for future resurveying.

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**Allocated budget (proportion or value):** ██████████

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**Representation on the Project Board (or other management structure)**  Yes

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**Have you included a Letter of Support from this organisation?**  Yes

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**5. Partner Name:** *No Response*

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Website address: *No Response*

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Details (including roles and responsibilities and capacity to engage with the project): *No Response*

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Allocated budget (proportion or value): £0.00

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Representation on the Project Board (or other management structure)  Yes  No

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Have you included a Letter of Support from this organisation?  Yes  No

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6. Partner Name: *No Response*

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Website address: *No Response*

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Details (including roles and responsibilities and capacity to engage with the project): *No Response*

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Allocated budget (proportion or value): £0.00

---

Representation on the Project Board (or other management structure)  Yes  No

---

Have you included a Letter of Support from this organisation?  Yes  No


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If you require more space to enter details regarding Partners involved in the project, please use the text field below.

*No Response*


Please provide a cover letter responding to feedback received at Stage 1 if applicable and a combined PDF of all letters of support.


 [Responses to DPAG comments](#)


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 [All LoS-combined](#)

 14/10/2022

 10:40:01

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## Section 15 - Lead Partner Capability and Capacity

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## Q32. Lead Partner Capability and Capacity

**Has your organisation been awarded Darwin Plus, Darwin Initiative or Illegal Wildlife Trade Challenge Fund funding before (for the purposes of this question, being a partner does not count)?**

Yes

**If yes, please provide details of the most recent awards (up to 6 examples).**

Reference No	Project Leader	Title
DPLUS179	Cecilia Liszka	Characterising pelagic biodiversity at South Georgia through novel sampling methods
DPLUS149	Martin Collins	Resolving ecosystem effects of the South Georgia winter krill fishery
DPLUS132	Peter Fretwell	Monitoring albatrosses using very high resolution satellites and citizen science
DPLUS120	Victoria Warwick-Evans	Spatial segregation and bycatch risk of seabirds at South Georgia
DPLUS109	Phil Trathan	Initiating monitoring support for the SGSSI-MPA Research and Monitoring Plan
DPLUS092	Richard Phillips	Seabird sentinels: mapping potential bycatch risk using bird-borne radar

**Have you provided the requested signed audited/independently examined accounts?**

**If yes, please upload these on the certification page. Note that this is not required from Government Agencies.**

Yes

## Section 16 - Certification

### Certification

**On behalf of the**

Company

**of**

British Antarctic Survey

**I apply for a grant of**







**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 applicant institution to submit applications and sign contracts on their behalf.)





- I have enclosed CVs for project key project personnel, a cover letter, letters of support, a budget, logframe, Safeguarding Policy and project implementation timetable.
- Our last two sets of signed audited/independently verified accounts and annual report are also enclosed.

Checked





<b>Name</b>	Mags Clark
<b>Position in the organisation</b>	Director of Finance
<b>Signature (please upload e-signature)</b>	 <a href="#">Certification Page</a>  17/10/2022  14:56:49  pdf 24.8 KB
<b>Date</b>	14 October 2022

**Please attach the requested signed audited/independently examined accounts.**

 [UKRI-190822-AnnualReportAccounts2021To2022](#)  
 14/10/2022  
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 pdf 958.13 KB

 [UKRI-200721-AnnualReport2020-2021](#)  
 14/10/2022  
 13:36:23  
 pdf 934.9 KB

**Please upload the Lead Partner's Safeguarding Policy as a PDF**

 [UKRI-081020-SafeguardingPolicy](#)  
 05/10/2022  
 13:14:05  
 pdf 111.65 KB

## Section 17 - Submission Checklist

### Checklist for submission

	<b>Check</b>
<b>I have read the Guidance, including the "Darwin Plus Guidance", "Monitoring Evaluation and Learning Guidance", "Risk Guidance" and "Financial Guidance".</b>	Checked
<b>I have read, and can meet, the current Terms and Conditions for this fund.</b>	Checked
<b>I have provided actual start and end dates for the project.</b>	Checked
<b>I have provided my budget based on UK government financial years i.e. 1 April – 31 March and in GBP.</b>	Checked
<b>I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.</b>	Checked



The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached my completed logframe and timeline as a PDF using the templates provided.	Checked
I have included a 1 page CV or job description for all the Project Staff identified at Question 30, including the Project Leader, or provided an explanation of why not.	Checked
I have included a letter of support from the lead partner and main partner organisation(s), including relevant OT Governments, identified at Question 31, or an explanation of why not.	Checked
I have included a cover letter from the Lead Partner, outlining how any feedback received at Stage 1 has been addressed where relevant.	Checked
I have included a copy of the Lead Partner's safeguarding policy, which covers the criteria listed in Question 28.	Checked
I have included a signed copy of the last 2 annual report and accounts for the Lead Partner, or provided an explanation if not.	Checked
I have checked the Darwin Plus website immediately prior to submission to ensure there are no late updates.	Checked
I have read and understood the Privacy Notice on the Darwin Plus website.	Checked

### We would like to keep in touch!

**Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under the Darwin Initiative and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. You are free to unsubscribe at any time.**

Checked

### Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the **Privacy Notice**, available from the [Forms and Guidance Portal](#).

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising the Darwin Initiative including project details (usually title, lead partner, project leader, location, and total grant value).



Project Title: Evidence-based conservation of biodiversity in the South Sandwich Islands

Project Summary	SMART Indicators	Means of Verification	Important Assumptions
<p><b>Impact:</b> Effective conservation of South Sandwich Islands penguins and terrestrial biodiversity is underpinned by scientific evidence and implemented through marine and terrestrial management plans, produced by GSGSSI with stakeholder input</p>			
<p><b>Outcome:</b> 0. Development and implementation of appropriate Protected Area Management Plans in the South Sandwich Islands, resulting in reduced potential for fisheries competition and risk assessments in relation to volcanic eruptions.</p>	<p>0.1 By Y2Q2 preliminary management recommendations from the penguin tracking and diet studies submitted to GSGSSI MPA review.</p> <p>0.2 By Y2Q4 paper on penguin tracking/diet work submitted for discussion at CCAMLR WG-EMM meeting to inform krill management in Area 48.4.</p> <p>0.3 By Y2Q4 paper on terrestrial biodiversity submitted to Terrestrial Protected Areas Advisory Group</p> <p>0.4 By Y2Q4 findings and recommendations are submitted to Ant-ICON programme of SCAR</p>	<p>0.1 Attendance at, and proceedings of, stakeholder consultation workshop. Updated Action Plan published online citing evidence from project.</p> <p>0.2 Publication of paper online and presentation at WG-EMM meeting.</p> <p>0.3 Email confirming receipt of findings and invitation to present evidence at future consultation workshop</p> <p>0.4 Email confirming acceptance of paper and invitation to present evidence at next meeting</p>	<p>The outcome assumes that the ground-truthing and penguin tracking work is successful (see below for risks).</p>

Project Title: Evidence-based conservation of biodiversity in the South Sandwich Islands

<p><b>Outputs:</b> 1. Accurate ground-truthing data collected that allows continued five-yearly monitoring of penguins and terrestrial biodiversity from remote sensing data at low cost/effort/risk by project partners.</p>	<p>1.1 Expedition logistics planned and completed end of Y1Q3</p> <p>1.2 Cloud-free, stable images of all ice-free areas of Zavodovski for at least one day from satellite/RAF flyovers obtained in Y1Q4 and analysed by end of Y2Q1.</p> <p>1.3 Ground and drone surveys achieved for at least 50% of penguin colonies and 10% of vegetated fumaroles on island in Y1Q4.</p> <p>1.4 Open access publication of two papers describing (i) status of terrestrial flora/fauna and (ii) seabirds on the island, (including ground-truth correction factors) by Y2Q4.</p> <p>1.5 Plans, funding streams and data analysis pipelines for five-yearly surveys agreed by project partners by Y2Q4.</p>	<p>1.1 Yacht charter and travel booking paperwork received, email confirmation of equipment being received at BAS Stanley Office, with photographs. Electronic copies of environmental and animal welfare permits. Approved risk assessments received.</p> <p>1.2 Images obtained and archived with the Polar Data Centre</p> <p>1.3 Data sets and aerial images collected and archived with the Polar Data Centre</p> <p>1.4 Publication of papers open access online</p> <p>1.5. Census estimates updated and reported to GSGSSI regularly from Jan 2025 onward to inform site condition monitoring and Terrestrial Action Plan development.</p>	<p>Suitable charter vessel and skipper is available. Agreement reached in principle but cannot be booked until funding available.</p> <p>Cloud free images may be difficult to obtain given the inclement weather on Zavodovski, but by tasking the satellite there is a high chance of success. RAF mission is flown successfully, given uncertainties in scheduling, weather and aircraft maintenance. Image stabilisation implemented as part of this project will improve quality of images taken from RAF flights.</p> <p>Landing on Zavodovski was previously challenging owing to lack of landing points and high swells. However, a relatively safe natural harbour for Zodiacs in the NW of the island has been discovered and used with success in recent expeditions, which reduces the risk of being</p>
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Project Title: Evidence-based conservation of biodiversity in the South Sandwich Islands

			<p>unable to land. Our proposed survey duration is intentionally much longer than previous scientific expeditions to allow for lost days to poor weather or swell</p> <p>Zavodovski is an active volcano, so in the unlikely event of an eruption, landing or close approach by vessels will be dangerous and prohibited by GSGSSI. Postponement to the following year is possible, subject to agreement from Darwin Plus, as we are not employing contract staff.</p> <p>Drone flying is dependent on relatively favourable weather, but the BAS Skyrainger military-grade drone is able to fly in worse conditions than standard DJI models, which provides greater confidence of obtaining data.</p>
2. Seasonal movements of penguins described. Important areas and vulnerability to overlap with areas and seasons open to krill fisheries	2.1 Collection of penguin foraging tracks: (i) GPS during chick rearing for at least 20 chinstrap and 10 macaroni penguins over 3 weeks in Jan	2.1 All data sets collected and archived with Polar Data Centre and BirdLife Tracking Ocean Wanders database.	<p>Penguin tracking requires landings: risk and mitigation are as for Output 1.</p> <p>GPS and GLS tags are</p>

Project Title: Evidence-based conservation of biodiversity in the South Sandwich Islands

<p>revealed.</p>	<p>2024. (ii) PTTs during chick rearing and pre-moult for at least 10 chinstrap and 5 macaroni penguins over 4 months Jan-Mar 2024 (iii) GLS tracks during winter for at least 20 chinstrap and 10 macaroni penguin over ~6 months from May 2023-Nov 2023 with recapture in Y1Q4.</p> <p>2.2 Open access paper published describing penguin tracks from all seasons, including identification of marine KBAs and assessment of spatiotemporal overlap with areas open to krill fishing by Y2Q4.</p> <p>2.3 Advice to SGSSI MPA review and CCAMLR formulated and presented at MPA workshop (probably early in Y2Q1) and WG-EMM meeting (Y2Q3).</p>	<p>2.2 Publication of paper online. Inclusion of revised/new KBAs in BirdLife gazetteer.</p> <p>2.3 Presentation of work at SGSSI MPA review workshop and CCAMLR WG-EMM meeting. Revision of MPA closed area/season restrictions as appropriate given evidence.</p>	<p>archival and birds need to be recaptured to obtain their data. We have assumed a 90% recapture rate for GPS and 70% for GLS, which is reasonable based on previous experience</p>
<p>3. Breeding season penguin diets quantified: proportion of Antarctic krill in diet reveals risk of dietary competition with krill fishery</p>	<p>3.1 100 fresh scats collected and frozen from both chinstrap and macaroni penguins in Y1Q4 and returned to BAS Biostore by Y2Q1.</p>	<p>3.1 Samples collected and catalogued in BAS Biostore.</p> <p>3.2 DNA analysis completed by</p>	<p>Penguin scat collection requires landings: risk and mitigation are as for Output 1. 100 fresh scats containing high DNA loads are available for both species. During</p>

Project Title: Evidence-based conservation of biodiversity in the South Sandwich Islands

	<p>3.2 DNA analysis of prey composition in 100 samples, including discrimination of Antarctic krill in Euphausiid component, by Y2Q2.</p> <p>3.3 Section on diets included in paper from Output 2.4 by Y2Q4.</p> <p>3.4. Advice to SGSSI MPA review and CCAMLR on potential for dietary overlap with krill fishery formulated and presented at 2024 MPA workshop and summer 2025 WG-EMM meeting.</p>	<p>contractors and data archived with Polar Data Centre.</p> <p>3.3 Acceptance email from journal editor.</p> <p>3.4 Presentation of work at SGSSI MPA review workshop and CCAMLR WG-EMM meeting.</p>	<p>January, chicks have hatched and they will produce copious amounts of suitable material.</p>
<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1. Each activity should start on a new line and be no more than approximately 25 words.)</p> <p>Logistic preparations for expedition (Output 1): Yacht charter, environmental and ethics permits, travel and subsistence, risk assessments, insurance, procurement of equipment.</p> <p>Ground-based survey work (Output 1): drone surveys and DGPS referenced ground surveys of both penguin colonies and terrestrial communities.</p> <p>Remote sensing from satellite/A400M (Output 1): Tasking of satellites and A400M mission. Aerial photography using stabilised medium format camera from A400M.</p> <p>Tracking of penguin foraging tracks (Output 2): Equipping penguins with GPS, PTT and GLS, recovery of GPS and GLS.</p> <p>Collection and processing of penguin scats (Output 3): collecting scats from penguins in the field. Analysis of diet composition in the lab using DNA fingerprinting.</p>			

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Data management and analysis (all Outputs): Coding and curation of data on PDC/TOW. Data analysis, modelling and mapping.

Write up and reporting (all Outputs): Annual reports to Darwin Plus, writing of scientific papers.

Policy impact (all Outputs): Production of advice to decision makers and presentation at appropriate fora for discussion by stakeholders.

Monitoring and Evaluation (all Outputs): Assessment of safeguarding, risks, finances, progress against key objectives.