Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

To be completed with reference to the "Project Reporting Information Note"
(https://darwinplus.org.uk/resources/information-notes)

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes)

Submission Deadline: 30th April 2024

Submit to: BCF-Reports@niras.com including your project ref in the subject line

Darwin Plus Project Information

Project reference	DPLUS 186
Project title	Evidence-based conservation of key biodiversity in the South Sandwich Islands
Territory(ies)	South Georgia and South Sandwich Islands
Lead Partner	BAS
Project partner(s)	Oxford Brookes and Edinburgh Universities, Antarctic Research Trust (ART), Government of South Georgia and South Sandwich Islands (GSGSSI)
Darwin Plus grant value	£440,264
Start/end dates of project	1 Apr 2023 – 31 Mar 2024
Reporting period (e.g. Apr 2022-Mar 2023) and number (e.g. Annual Report 1, 2)	Annual Report 1
Project Leader name	Norman [redacted]
Project website/blog/social media	Zavodovski Expedition - British Antarctic Survey (bas.ac.uk)
Report author(s) and date	Norman [redacted]

1. Project summary

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 and ~90,000 pairs of macaroni penguins), although available estimates are coarse. The foraging areas that birds from this enormous colony utilise for foraging throughout the annual cycle are unknown, yet are of clear importance for the design and management of the SGSSI Marine Protected area. 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.

This project aims to fill existing gaps in knowledge by providing the first accurate and comprehensive survey of penguin colonies and terrestrial interest features on the island, which will inform the development of the Terrestrial Protected Area action plan. Comparisons of these surveys with previous information will be used on infer effects of the 2016 eruption upon biodiversity. It also aims to provide the first information on the use of the marine environment

and the diets of penguins on the island, using satellite/geolocator telemetry and DNA fingerprinting of their droppings, to inform the second management review of the SGSSI Marine Protected Area.

2. Project stakeholders/partners

The project officially comprises three official project organisations (BAS, Oxford Brookes University, Edinburgh University, ART and GSGSSI) but the number of partners has expanded as the project had evolved. Nicole Richter at RWTH Aachen University, Germany, was enlisted onto the project to help with management of the risks of working on an active volcano and to contribute physical science that places the biological observations in context. Talesmith films negotiated participation in the expedition to the island to film the penguin colonies and the work the Darwin project was undertaking for a National Geographic series. The project also involved the RAF at Mount Pleasant who supported the manned aerial surveys of the island and Pelagic Expeditions who provided access the island on their yacht.

This was a complex, multidisciplinary project that involved fieldwork on an extremely remote and potentially dangerous field site, so good communication and meticulous planning were essential. Considerations were logistic organisation of the yacht, purchase and shipping of the science and field equipment, management of risk, environmental and animal ethics permitting, coordination / MoUs among partners and budgeting. GSGSSI were central in discussions, particularly those relating to environmental permits for work on the Special Protected Area and management of risks relating to Highly Pathogenic Avian Influenza (HPAI).

Coordination was achieved through a series of Zoom meetings with all members and also among specific sub-groups or 1:1s to help streamline discussions. The official kick-off meeting was held on 24 April 2023, although 11 earlier meetings had been held since Jan 2023 to make preparations for the project's start on 01 April. At the kick-off meeting, partners discussed the project's aims and logistics in detail and agreed sub-groups going forward: Logistics, Terrestrial, Penguins and Filming. These sub-groups then met to advance their work areas and reported back to all of the project members on 07 Jun 2023. A face-to-face meeting between the PI and all the expedition team members was held at Girton College on 13 Sep, where the team also received wilderness first aid training from the BAS Medical Unit. Progress with planning was reported on to the whole team on 11 Oct 2023 where further actions to prepare for the expedition were agreed. The PI held 1:1 Zoom meeting with all expedition team members during Jan and Feb 2024. A full project meeting to report on the outcomes of the expedition and plan for annual reporting, development of project outputs and outreach was held on 19 March 2024.

3. Project progress

3.1 Progress in carrying out project Activities

1.1 Expedition logistics planned and completed

Planning the expedition took several months of the PI's time between the project starting in April and the expedition ending in January. Key tasks were:

1. Agreeing the terms and conditions of the yacht charter with Pelagic Expeditions and meeting their payment schedule.
2. Organising connections and accommodation for all the expedition pax to Cambridge for pre-deployment training in Sep and to Stanley, Falklands, in Nov to join the yacht (from UK, Germany, USA).
3. Writing and agreement of risk assessments with BAS H&S.
4. Writing and agreement of permits (for drone flying, environmental impacts and animal ethics, sample import) from BAS, GSGSSI and CAA.
5. Writing of a MoU between BAS and Talesmith films
6. Ordering, packing and shipping all science, field and safety equipment for the expedition.

7. Reaching an agreement with the RAF to overfly the island in their A400M aircraft from Mount Pleasant, Falklands.
8. Tasking Maxar and Airbus satellites to obtain images of the island in Dec-Mar.
9. Managing finances.
10. Setting up the project web page on the BAS web site.

All tasks were completed in time for the expedition beginning on 27 November 2023. The yacht passage was slowed by storms (shelter at SG and a detour to South Thule) and landing on the island was delayed until 10 Dec. A camp was set up in an open location but was damaged by storms on the first night, forcing its relocation to a sheltered but cramped gully the following day. Bad weather meant science was only possible for four days, before the approach of a severe storm forced the team to evacuate on the 16 Dec to avoid being stranded by rough seas. The yacht spent 18th-22nd Dec at the BAS KEP station, South Georgia, to decontaminate equipment and sort samples. Field equipment was donated to the station's stores to support future expedition work in the territory. The yacht then took a circuitous route back to Stanley to avoid storms, arriving on 28 Dec when the team demobilised. Two RAF flights were made over the island on 12 and 20 Dec. A full expedition report is included in Annex 4.

1.2 Images of Zavodovski from satellite/RAF flyovers

Maxar and Airbus satellites were tasked with acquiring high resolution (15cm) optical imagery between 1 Dec and 31 Jan. A useable image with cloud only over the summit and the west coast was obtained on 07 Dec 2023. No further useful images had been obtained by 31 January so tasking was extended to the end of March. Marginal quality images were obtained on 27 February 2024 and 23 March 2024, where the north and east coast were visible through gaps in the cloud. A lower resolution image from Airbus SPOT satellites (1.5m) was obtained on 1 January 2024 and we also used Darwin funds to obtain two other similar images from the archive (2016 and 2020; another from 2011 was also acquired by BAS previously and is available for use *gratis*). These will be sufficient to allow ground-truthing satellite images using drone surveys. We have a budget to acquire further high-resolution optical imagery in Dec/Jan 2024/25.

Our collaborator at RWTH Aachen University successfully tasked SAR satellite images during 2023/24 (radar based, so unaffected by cloud) and is developing a novel method of identifying the extent of penguin colonies using their unique texture. Drone surveys from the Darwin project will be used to ground truth these images.

The RAF made two flights (12 and 20 Dec 2023) over Zavodovski with the A400M, operating out of Mount Pleasant on the Falklands. The photographer assigned to the project had to return to the UK in early Dec for health reasons and we substituted them for another person who was returning from the South Georgia albatross survey project and had the required skills. A Canon R5 camera with 100-500 mm lens was bought with Darwin funds to obtain imagery. Operational constraints prevented any doors opening during flight and so all photography was through the cockpit windows, which affected the focus of some images. On both flights, low cloud or haze obscured upslope colonies, but some excellent images were obtained of the coastal sub-colonies where individual penguins could clearly be discerned and counted. Repeat counts of these sub-colonies in the future could contribute toward a monitoring strategy.

1.3 Ground and drone surveys

Penguin colonies were surveyed using a Mavic 3 Enterprise multirotor drone operating at 70-100m AGL. We were unable to operate the eBeeX fixed wing drone as hoped as the only qualified pilot was taken ill in South Georgia and needed to be medivaced back to the UK. The Mavic drone was programmed to follow the topography using a 3D elevation model to ensure constant ground-sampling distance across the survey. Drone surveys of penguin colonies were hampered by strong winds and low cloud. Reasonable conditions on 14th Dec and, thanks to the efforts of the team, all of the penguin colonies at the north and south of the island were surveyed. Attempts were made to survey the smaller western colonies on 15th Dec but winds were too strong to allow this. We hope to obtain counts for this area using images from the A400M survey.

Ground surveys of terrestrial biodiversity were conducted across the plain and lower slopes of the island. The most notable finding was a previously undescribed moss bank of ~100m^2 that was forming soil and providing habitat for other biodiversity which was surveyed from the ground and a drone. Lichens of two genus were found extensively on rocks at 100-300m elevation. Invertebrates found included springtails, ticks and earthworms. Soil samples were collected from 8 sites across the island to study microbial communities. A geothermal site was found with dense growth of *Campylopus pyriformis* moss: an indicator species of this type of habitat. This was sampled and surveyed. No other such sites were found, despite extensive searches across the coastal plain with standard and thermal optics.

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

We equipped 12 chinstrap and 8 macaroni penguins with PTTs during the incubation stage on 13 and 14 Dec. These were divided equally between the north and south of the island. One tag fitted to a chinstrap stopped transmitting after a few weeks, but the remainder continued throughout the breeding and pre-moult periods until they were moulted off on land in March.

Only four GLS (and one leg band with no GLS) were recovered from chinstraps (out of 20 deployed) and none from macaroni penguins (out of 15) despite daily searches of the deployment site during the expedition. This was due to the time ashore being short and during incubation, when only half the birds were present and long nest attendance shifts make it difficult to recover tags without disturbing lone birds and exposing their eggs to skua predation.

No birds were equipped with archival GPS loggers, since the expedition visited the island during incubation rather than chick rearing as first proposed. Incubation shifts are 10-14 days in duration so any GPS deployed would not have been available for recovery before the team left the island.

3.1 Collection and processing of penguin scats

We collected 50 scats from each of the two penguin species. Collection during incubation was problematic as most birds on nests are fasting and their scats contain no prey DNA. With some effort suitable scats were obtained from nests at which changeovers in partners had recently occurred and at a coastal roost where birds were returning from the sea. The scats were preserved in an RNA buffer and were successfully shipped to the lab at Cornell University from Stanley.

3.2 Progress towards project Outputs

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.*

   Acquisition of high-resolution optical satellite imagery was hampered by cloud cover but we have sufficient coverage to allow ground truthing using the drone surveys. Medium-resolution images has been obtained which will be sufficient to describe colony boundaries. We shall attempt to acquire high-resolution images again in 2024/25 using allocated Darwin Plus funds. SAR (radar) images have also been obtained which are not affected by cloud and provide a promising means of recognising colony areas based on texture. These will be ground-truthed with drone imagery.

   Two RAF flights were conducted which acquired good quality images of coastal sub-colonies but not a complete census owing to cloud concealing colonies on higher slopes.

   Detailed drone surveys were obtained for around 80% of penguin colonies and ground surveys were conducted of several important terrestrial biodiversity sites, which provide ground-truthing data for the satellite and RAF imagery. In combination, these data have the potential for obtaining an accurate baseline count of this enormous penguin colony and designing a remote monitoring strategy for biodiversity on the island which will reduce the need for expensive and risky visits.

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

Preliminary inspection of the satellite tracks revealed that penguin foraging trips during incubation and pre-moult trips extend well beyond the 50 km no take zone around the islands (Fig 1 and interactive maps on project web page). Those of chinstrap penguins mostly remained within the outer boundary of the SGSSI MPA but outer extents of the long trips of macaroni penguins extended beyond it. The proportion of the time that birds foraging within the no take zones during the chick rearing periods will require more detailed analysis. A preliminary analysis of the GLS data show that chinstrap penguins leave the MPA altogether in winter, migrating to sub-Antarctic waters to the south of Africa (Fig. 2). This is the period when the krill fishery is allowed to operate in the SGSSI MPA, so the chinstrap's migrations segregate them from potential fisheries competition in time and space.

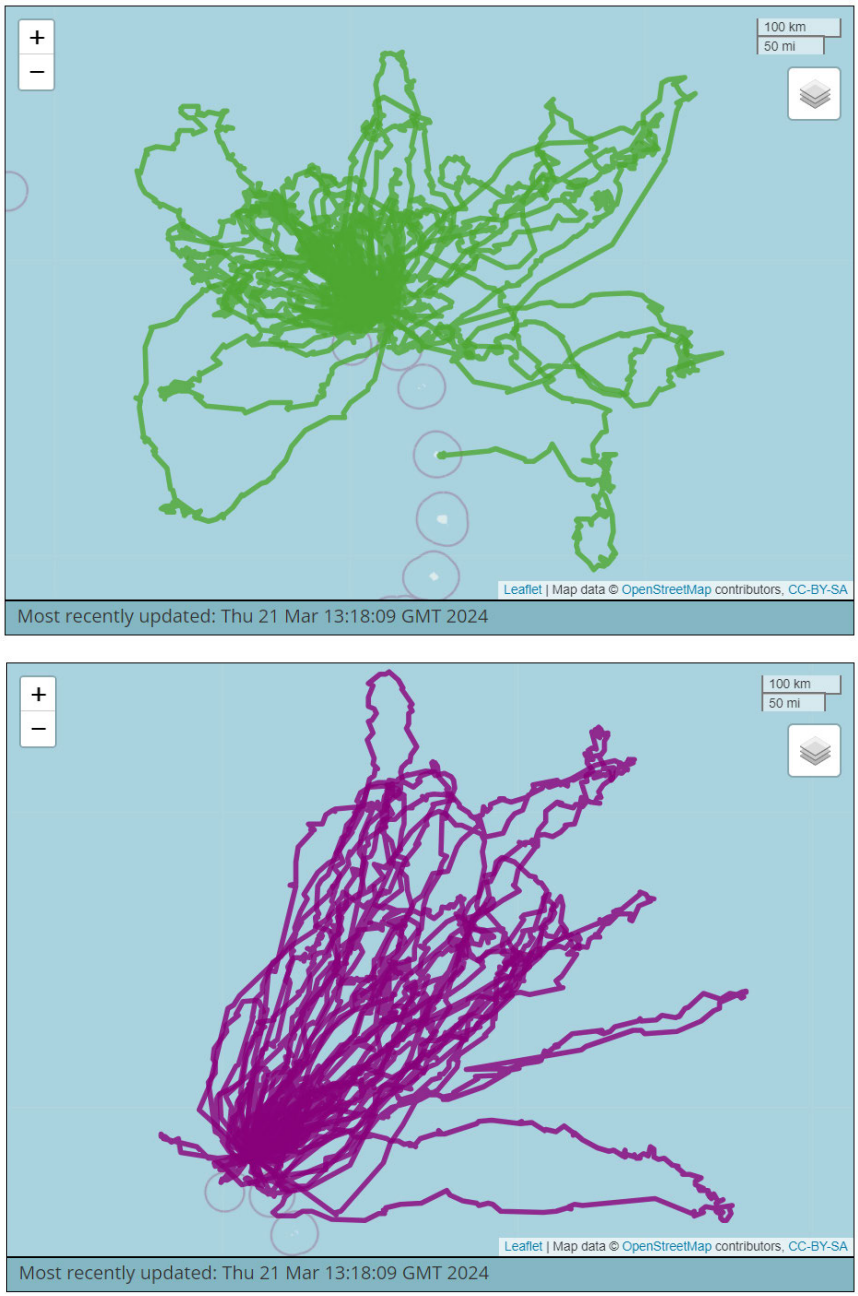

Fig 1. PTT tracks for chinstrap penguins (green) and macaroni penguins (purple) breeding at Zavodovski Island in 2023/24.

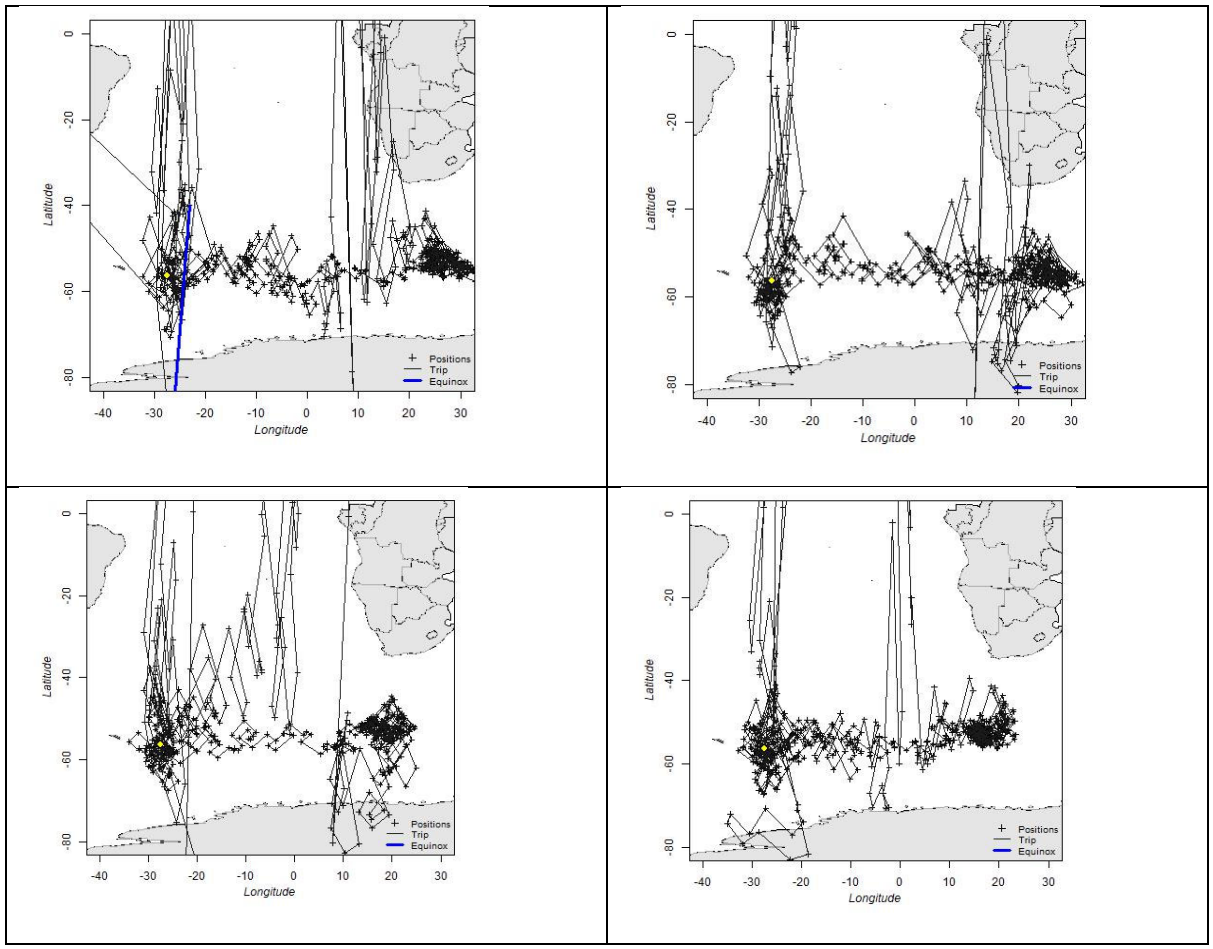

Fig 2. Crude Geolight tracks derived from four geolocation data sets recovered from chinstraps, which show overwinter migrations. Note the large erratic north-south movements are equinox errors that will be removed in more robust analyses in the future.

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

   The fresh scats (50 chinstrap and 50 macaroni) were collected from sites across the island. These were stored in RNA buffer and were successfully shipped to the lab at Cornell University for analysis of diet composition. These will be analysed for prey composition using DNA fingerprinting by our collaborator, Gemma Clucas.

3.3 Progress towards the project Outcome

The success of the project's expedition to Zavodovski Island represents a major step toward achieving the project's Outcome and means all the significant Assumptions made in the logframe have been overcome. We are now proceeding with analysis and write up. We have every confidence that these will be completed and used to inform the SSI Terrestrial Protected Area Action Plan and the second revision of the SGSSI MPA management plan by the target dates of Y2Q4.

3.4 Monitoring of assumptions

Assumption 1: Suitable charter vessel and skipper is available. Agreement reached in principle but cannot be booked until funding available.

Comments: The charter vessel had been booked for January for the GSGSSI albatross survey by the time funding became available. We therefore booked it for late Nov to the

end of Dec following approval of a Change Request. This change resulted in some plus and minus points:

+ The expedition coincided with the incubation stage rather than chick rearing. Surveys are more accurate during this period (fewer losses of nests have occurred)
+ The collection of incubation stage foraging trips was possible (always longer than chick-stage ones)
- Weather conditions were extremely stormy during Dec (see Assumption 3) but turned out to be calm in Jan.
- Long incubation shifts made recovery of GLS difficult (see Assumption 7)
- GPS deployments were not possible (see Assumption 7).
- Finding fresh scats with a high DNA load was harder (see Assumption 8).

Assumption 2: 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.

Comments: Cloud cover hampered image acquisition, but we obtained the three high resolution images that included sufficient could-free coverage to allow ground truthing. One medium resolution image was also obtained in Jan. We have funds to obtain further imagery in the Dec/Jan 2023/24 season. A project collaborator is developing the use of SAR (radar) imagery as a monitoring tool that can “see” through cloud which may be applicable to future monitoring.

Assumption 3: RAF mission is flown successfully, given uncertainties in scheduling, weather and aircraft maintenance. Image stabilisation implemented as part of this project will improve the quality of images taken from RAF flights.

Comments: Despite stormy weather two missions were flown over the island. Low cloud meant that upslope colonies could not be photographed but good quality images were obtained from coastal ones. The image stabilisation in the camera body and lens eliminated vibration but image quality was affected in some cases by having to shoot through the cockpit windows: doors open operations were not allowed and no external pod is available for open-air photography.

Assumption 4: 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 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.

Comments: Weather conditions during the expedition were appalling, with successive storms sweeping across the Scotia Sea. This may have been due to a strong El Nino event in 2023/24. This necessitated sheltering at South Georgia and detouring South to Thule Island on the inbound journey which took 13 days compared to the expected 7 days. Landing at the south of the island was finally made on 10 Dec (the north landing was deemed unsuitable by the skipper). The team left on 16 Dec to avoid another inbound storm, as otherwise the resulting swell would have stranded them ashore. The return journey to Stanley was also slowed by storms that necessitated a very circuitous route back. Of the 5-week expedition only 4 days were available for science, and we consider ourselves fortunate to have achieved that.

Assumption 5: 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.

Comments: The volcano was monitored from satellite imagery prior to the expedition which showed no increase in the ash cloud. Upon arrival, the volcanologist assessed the state of the volcano and found no significant changes in activity since the previous visit in Jan 2023. Work therefore commenced as planned.

Assumption 6: Drone flying is dependent on relatively favourable weather, but the BAS Skyranger military-grade drone is able to fly in worse conditions than standard DJI models, which provides greater confidence of obtaining data.

Comments: We chose not to use the Skyranger as is it an old model and its camera is of lower quality than modern aircraft. We instead selected an eBeeX as the primary survey aircraft: a fixed wing model that can achieve more rapid coverage of large areas than multi-rotors. Unfortunately, the pilot on the expedition qualified to use it was taken ill in South Georgia and was medivaced back to the UK. We therefore resorted to Mavic 3 Enterprise multirotors and thanks to a weather break and efforts of the field team obtained coverage of over 80% of penguin colonies on the island.

Assumption 7: GPS and GLS tags are 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.

Comments: The change in timing of the expedition (see Assumption 1) meant that the work was conducted in the penguin incubation rather than chick rearing stage. During incubation, one partner remains alone at the nest for 10-14 days compared to chick rearing when birds perform repeated 1-2 day long trips. GPS deployments were therefore not appropriate: most birds would not have simply sat on the nest throughout and those that did leave would not have returned before the expedition members had departed the island. We therefore relied on PTTs for tracking breeding stage and pre-moult trips and purchased three additional tags to increase sampling following approval of a Change Request. GLS recoveries were low due to being timed to the incubation period. Half of the birds equipped were at sea throughout the expedition and female macaroni penguins are prone to leave the nest when incubating alone which can expose eggs to skua predation. These tags are leg-mounted and may be available for recovery if another expedition visits the island in next year or two.

Assumption 8: 100 fresh scats containing high DNA loads are available for both species. During January, chicks have hatched and they will produce copious amounts of suitable material.

Comments: Incubation shifts are 10-13 days long during which birds fasting and so produce no faecal material that contains DNA. This made finding suitable scats for diet studies more difficult. However, with perseverance, the penguin team were able to find 50 scats from each species which will be sufficient for diet studies.

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

The project has produced valuable and unique data that will inform conservation planning in the South Sandwich Islands:

1. The survey of the penguin colonies will provide the first accurate census of numbers of chinstrap and macaroni penguins at this globally important colony. Those for chinstrap will affect global population estimates and the 1% threshold for IBA/KBA recognition. This will form a baseline for future monitoring to determine trends using remote sensing methods that the project aims to develop (satellites, RAF flights).
2. The penguin tracking data provide the first insights into the use of the SGSSI MPA by penguins from Zavodovski. These data reveal use of areas outside the 50 km exclusion zone during incubation and pre-moult and will allow us to quantify use of the zone

during chick rearing following further analysis. We found that chinstraps migrate away from the SGSSI MPA during winter. The diet data when combined with population size data will allow estimates of biomass of prey consumed to be estimated which can be placed in context against krill stock size and fisheries catches. This will inform the current SGSSI MPA review which will determine management of the area for the next five years.

3. Surveys of terrestrial biodiversity found unique interest features that were not detected on previous visits. The moss bank and communities associated with the fumarole are particularly important and sensitive habitats and warrant specific mention and protection in the SSI Terrestrial Action Plan.

We will develop discussions with our GSGSSI partners in the coming months to convert these findings into conservation policy and management as part of the SGSSI MPA review and development of the SSI TPA action plan.

5. Gender equality and social inclusion

Please quantify the proportion of women on the Project Board[1].	0.40
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	1.00

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

We have increased the proportion of women involved in the project since it was proposed. The six-person expedition included three women. They contributed valuable scientific skills and knowledge in the fields of ornithology, terrestrial biodiversity and volcanology/satellite imagery.

[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

Privacy issues in the camp were discussed sensitively to reach arrangements all female participants were comfortable with. We have included a new woman member of the project team; Nicole Richter who brings expertise in volcanology and remote sensing.

6. Monitoring and evaluation

Monitoring and Evaluation: This was conducted throughout the year, assessing progress toward outputs, assumptions, emerging risks (using the Risk Register) and expenditure. The project has made three Change Requests in the past year to agree changes in the expedition timing and pax, the reallocation of budgets across years and cost headings and to agree participation of a film crew in the expedition. The emergence of bird flu in South Georgia created an additional risk that was not anticipated when the proposal was written and necessitated extended discussions about operating practices and PPE on the expedition if HPAI were found to be present upon arrival at the island (thankfully, no signs were apparent). Last minute pax changes to the expedition occurred: the film team pulled out three days prior to sailing over concerns relating to bird flu, and two of the science staff returned home to the UK for health reasons. We were able to replace one staff member to undertake the RAF flights, but the filming component was lost and the expedition lost a science team member with unique drone piloting skills. Despite the significant challenges the expedition encountered due to these setbacks, bad weather and timing changes (see Assumptions) we achieved all the fieldwork objectives, which is a testimony to careful planning, responsive problem solving and the dedication and resilience of the team. The project's Indicators relating to the fieldwork element of the project have been fulfilled and the Outputs are now assured given data collection at this difficult site was the main source of the Assumptions.

7. Lessons learnt

Planning the expedition took far longer than anticipated owing to the multi-disciplinary nature of the expedition (multiple topics, personnel and organisations), the hazardous nature of the study site (volcanic, exposed, remote) and the special protected status of the island. Additional complications were attempts to include a film team (eventually unsuccessfully) and emergence of HPAI on South Georgia. Future projects should budget 4-6 months of PI time to adequately plan a similar expedition.

The expedition delivered its objectives despite numerous setbacks (weather, staff changes). The five weeks allowed was just sufficient to complete the round trip and even this was thanks to an additional (non-refundable) contribution to yacht charter from the film team. Future expeditions would be wise to allow 6-7 weeks to ensure more than a few days ashore, while having provision to extend work to other islands in the archipelago if weather allows objectives to be completed early.

The team worked well together but there was a lack of clear leadership as the PI was unable to participate in the expedition owing to care responsibilities that arose after the grant was awarded. Responsibilities for logistics, safety and science were delegated among team members but there was no single authority figure to make final decisions, coordinate efforts or provide accountability. This is an important consideration for future trips to improve project management.

The work on the island has added to the understanding of the hazards and practicalities of camping on, travelling across and working at this challenging field site. Expedition reports have been submitted to the BAS archive which will help with planning future trips to Zavodovski.

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

Not applicable

9. Risk Management

The Darwin Risk Register was used to monitor risks and plan contingencies. The main emerging risk was Highly Pathogenic Avian Influenza which was found on South Georgia in October 2023 before the expedition began. Presence of the virus on the SSI would only be recognised upon our expedition's arrival. If present in penguins this would have prevented any bird handling and possibly landing on the island altogether. The project leaders discussed contingencies in detail with members of GSGSSI, BAS and the Animal and Plant Heath Agency, including acceptable working practices and PPE. Thankfully there was no sign of the virus on the island and so work could proceed as planned. No further fieldwork will occur so HPAI no longer presents a risk to the projects Outcome or Outputs. Management of other risks is outlined in the Assumptions section and appended Risk Register.

10. Sustainability and legacy

The project has just completed its data acquisition phase and the success of this provides a springboard to securing the Outcome upon which its legacy will be built. We presented the scope of the penguin component of the study at the second SGSSI MPA review workshop in Cambridge on 13 June 2023 to provide a placeholder for the findings in the planning process. The project drew interest and the implications of the findings for the review were discussed. We will produce preliminary results for consideration in the review panel by the end of Y2Q1. The terrestrial biodiversity element will be developed into advice for the SSI TPA action plan by Y2Q3. We will collaborate with GSGSSI to advise on practical implementation of these management plans after they have been written.

11. Darwin Plus identity

A project web page is posted on the BAS website. This includes the Darwin Plus logo and states the project is funded by them. The page includes text describing the project, a number of pictures and an infographic depicting elements of the expedition, plus an interactive map of the penguin tracks.

The Vinson of Antarctica (the charter yacht we used for input) has a landing page that features the Darwin Plus logo. This leads to an engaging series of blogs (accessible at the bottom left of successive pages) written by team members and illustrated with photos and videos.

A two-page article was published in the Falkland Island's "*Penguin News*" paper on 26th Jan describing the expedition. This acknowledges Darwin Plus funding in the opening paragraph.

Social media: An Instagram reel, X tweet and Facebook post released for Penguin Awareness Day promoted the expedition to a wide public audience. Instragram: 17K views and 847 likes, X 12.9K views and 1000 engagements, Facebook 1.7K views. These had tags to the Darwin funder.

We contributed penguin PTT tracks to the Argonautica project; an interactive web page that makes data available to school children to help them learn about the marine environment.

Norman Ratcliffe presented a short talk at the GSGSSI MPA meeting in Cambridge on 13 June 2023 to outline the scope of the project, where Darwin Plus were acknowledged for funding.

Gemma Clucas presented at talk entitled "Using drones, faecal DNA, and satellite trackers to gather baseline data from the world's largest and under-studied penguin colony" at the Pacific Seabird Group annual meeting, 20th - 24th February, Seattle which featured the Darwin Plus logo.

12. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been investigated in the past 12 months	No

Does your project have a Safeguarding focal point?	Yes: Norman [redacted] (PI)
Has the focal point attended any formal training in the last 12 months?	No
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 0% [and number] Planned: 0% [and number]

Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses.

Safeguarding issues across the project have been monitored carefully by the PI with support and advice from the BAS, operations, health and safety, medical unit and finance teams. Particular attention was given to health and safety considerations on Zavodovski Island, given the hazardous nature of the site. Detailed procedures were developed in consultation with the few people who have visited the islands previously, in order to minimise the risk of an incident occurring and to plan medical evacuation procedures if an incident occurred. This careful planning resulted in the team completing the expedition without incident.

Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify.

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 was be shared with all partners at the start of the project and adherence to these will continue to 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

13. Project expenditure

final accounting for funds.

Table 1: Project expenditure during the reporting period (1 April 2023 – 31 March 2024)

Project spend (indicative) in this financial year	2023/24 D+ Grant (£)	2024/25 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				Invoices from partner organisations have not yet been finalised. Underspend will be less than shown here when claim is submitted
Consultancy costs	[redacted]			
Overhead Costs				Underspend carries from Salary
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				Underspend derives from BAS in kind contributions of field kit to the project from BAS
TOTAL	£348,612.4	£311,578.3		

CR1: Move £5,000 from Other costs: lab costs in 2024/25 to T&S in 2023/24.
CR2: Move £7,830 from Other costs: Camping / expedition gear to Capital items, to allocate underspend on expedition gear to photographic equipment.

22% underspend on equipment is due to BAS Operations contributing a large proportion of the expedition equipment in kind, compared to that budgeted for originally. DEFRA have been notified and the amount will be surrendered back to them.

Table 2: Project mobilising of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.	[redacted]	
Total additional finance mobilised by new activities building on evidence, best practices and project (£)		

14. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes

I agree for the Biodiversity Challenge Funds Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
				Yes / No
				Yes / No
				Yes / No
				Yes / No
				Yes / No

Annex 1: Report of progress and achievements against logframe for Financial Year 2022-2023 – <u>if applicable</u>

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
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		Completion of the fieldwork element of the project produced the data needed to secure the projects impact. Further analytical, write up and policy engagement is required through Y2 to achieve the desired impact.	
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.	0.1 By Y2Q2 preliminary management recommendations from the penguin tracking and diet studies submitted to GSGSSI MPA review. 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. 0.3 By Y2Q4 paper on terrestrial biodiversity submitted to Terrestrial Protected Areas Advisory Group 0.4 By Y2Q4 findings and recommendations are submitted to Ant-ICON programme of SCAR	Data collected and placeholder for findings made at SGSSI MPA workshop in June 2023. Data collected ready for analysis and write up Data and samples collected ready for analysis and write up Recommendations to be developed from above paper	Year 2 will focus on analysis of data, write up of results. We will achieve policy impact by contributing information relevant to the revision of the SGSSI MPA management plan and production of the SSI Terrestrial Protected Area action plan.

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
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.	1.1 Expedition logistics planned and completed end of Y1Q3 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. 1.3 Ground and drone surveys achieved for at least 50% of penguin colonies and 10% of vegetated fumaroles on island in Y1Q4. 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. 1.5 Plans, funding streams and data analysis pipelines for five-yearly surveys agreed by project partners by Y2Q4.	Expedition logistics planned and expedition completed Three tasked high-res satellite obtained but all had some cloud cover. One medium res image obtained. Radar images acquired which can "see" through cloud and provide information on ground texture. Two RAF flyovers made and imagery obtained. Drone surveys of >80% of penguin colonies. The only fumarole found on the island was surveyed, along with a large moss bank. Data and samples obtained and analysis is proceeding. Planning will be developed following analysis and write up.	
Activity 1.1 Logistic preparations for expedition (Output 1): Yacht charter, environmental and ethics permits, travel and subsistence, risk assessments, insurance, procurement of equipment.		Completed	No further action.
Activity 1.2 Ground-based survey work (Output 1): drone surveys and DGPS referenced ground surveys of both penguin colonies and terrestrial communities.		Completed	No further action

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Activity 1.3 Remote sensing from satellite/A400M (Output 1): Tasking of satellites and A400M mission. Aerial photography using stabilised medium format camera from A400M.		RAF missions completed. Satellite tasking will continue in Dec 2023 and Jan 2024.	Set up tasking for next season.
Data management and analysis (all Outputs): Coding and curation of data on PDC/TOW. Data analysis, modelling and mapping.		Samples consigned to UK on BAS ship. Data securely archived on BAS server.	Sample and data analysis, write up by Y2Q4.
Policy impact (all Outputs): Production of advice to decision makers and presentation at appropriate fora for discussion by stakeholders.		None	Secure impact with SGSSI MPA review, WG-EMM and SSI TPA action plan process
Output 2. Seasonal movements of penguins described. Important areas and vulnerability to overlap with areas and seasons open to krill fisheries revealed	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 Jan2024. (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. 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.	Change in timing of expedition from chick-rearing to incubation meant GPS tags could not be used: equipped birds would not have been available for recapture as foraging trips would have been completed after the team left the island. PTTs deployed on 12 chinstraps and 8 macaroni in Dec 2023. One chinstrap tag failed in Dec but the remainder transmitted until moulted off in March 2024. 4 GLS out of 20 recovered from chinstraps and none out of 15 from macaroni. Timing of visit would have reduced recovery rate (half of birds absent throughout and concerns over animal ethics when removing lone birds from nests and exposing eggs to predation). Data obtained and write up will occur through Y2	

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
	2.3 Advice to SGSSI MPA review and CCAMLR formulated and presented at MPA workshop (probably early in Y2Q1) and WG-EMM meeting (Y2Q3). .	Advice will be provisioned to MPA review and CCAMLR WG-EMM as findings emerge.	
Tracking of penguin foraging tracks (Output 2): Equipping penguins with GPS, PTT and GLS, recovery of GPS and GLS.		Completed	No further action required
Data management and analysis (all Outputs): Coding and curation of data on PDC/TOW. Data analysis, modelling and mapping.		Basic mapping of tracks	Analysis, visualisation, write up.
Policy impact (all Outputs): Production of advice to decision makers and presentation at appropriate fora for discussion by stakeholders.		Presentation at SGSSI MPA review workshop	Secure impact on SGSSI MPA review and WG-EMM
Output 3. Breeding season penguin diets quantified: proportion of Antarctic krill in diet reveals risk of dietary competition with krill fishery	3.1 100 fresh scats collected and frozen from both chinstrap and macaroni penguins in Y1Q4 and returned to BAS Biostore by Y2Q1. 3.2 DNA analysis of prey composition in 100 samples, including discrimination of Antarctic krill in Euphausiid component, by Y2Q2. 3.3 Section on diets included in paper from Output 2.4 by Y2Q4. 3.4. Advice to SGSSI MPA review and CCAMLR on potential for dietary overlap with krill fishery formulated and presented at 2024	50 collected from both chinstrap and macaroni penguin. Change of timing made scats harder to find: most birds fasting on long incubation stints and producing no material. Sample sufficient to achieve aims. Samples transferred direct to Cornell University rather than via BAS biostore. Samples have been received at Cornell University lab and analysis will be complete by the end of Y2Q2. Writing will proceed once analysis complete. Advice to be developed and implemented as results emerge.	

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
	MPA workshop and summer 2025 WG-EMM meeting		
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.		Sample collection completed	Lab analysis of samples to estimate diet composition.
Data management and analysis (all Outputs): Coding and curation of data on PDC/TOW. Data analysis, modelling and mapping.		None	Data analysis, visualisation, write up.
Policy impact (all Outputs): Production of advice to decision makers and presentation at appropriate fora for discussion by stakeholders.		Presentation at SGSSI MPA review workshop	Secure impact with SGSSI MPA review and WG-EMM

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

Project summary	SMART Indicators	Means of verification	Important Assumptions
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: 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.	0.1 By Y2Q2 preliminary management recommendations from the penguin tracking and diet studies submitted to GSGSSI MPA review. 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.	0.1 Attendance at, and proceedings of, stakeholder consultation workshop. Updated Action Plan published online citing evidence from project. 0.2 Publication of paper online and presentation at WG-EMM meeting. 0.3 Email confirming receipt of findings and invitation to present evidence at future consultation workshop	The outcome assumes that the ground-truthing and penguin tracking work is successful (see below for risks).

Project summary	SMART Indicators	Means of verification	Important Assumptions
	0.3 By Y2Q4 paper on terrestrial biodiversity submitted to Terrestrial Protected Areas Advisory Group 0.4 By Y2Q4 findings and recommendations are submitted to Ant-ICON programme of SCAR	0.4 Email confirming acceptance of paper and invitation to present evidence at next meeting	
Output 1 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.	1.1 Expedition logistics planned and completed end of Y1Q3 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. 1.3 Ground and drone surveys achieved for at least 50% of penguin colonies and 10% of vegetated fumaroles on island in Y1Q4. 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. 1.5 Plans, funding streams and data analysis pipelines for five-yearly surveys agreed by project partners by Y2Q4..	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. 1.2 Images obtained and archived with the Polar Data Centre 1.3 Data sets and aerial images collected and archived with the Polar Data Centre 1.4 Publication of papers open access online 1.5. Census estimates updated and reported to GSGSSI regularly from Jan 2025 onward to inform site condition monitoring and Terrestrial Action Plan development.	Suitable charter vessel and skipper is available. Agreement reached in principle but cannot be booked until funding available. 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. 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

Project summary	SMART Indicators	Means of verification	Important Assumptions
			reduces the risk of being 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 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. Drone flying is dependent on relatively favourable weather, but the BAS Skyranger military-grade drone is able to fly in worse conditions than standard DJI models, which provides greater confidence of obtaining data.
Output 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 Jan2024. (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	2.1 All data sets collected and archived with Polar Data Centre and BirdLife Tracking Ocean Wanders database. 2.2 Publication of paper online. Inclusion of revised/new KBAs in BirdLife gazetteer. 2.3 Presentation of work at SGSSI	Penguin tracking requires landings: risk and mitigation are as for Output 1. GPS and GLS tags are archival and birds need to be recaptured to obtain their data. We have assumed a 90% recapture rate for GPS and 70% for GLS,

Project summary	SMART Indicators	Means of verification	Important Assumptions
	for at least 20 chinstrap and 10 macaroni penguin over ~6 months from May 2023-Nov 2023 with recapture in Y1Q4. 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. 2.3 Advice to SGSSI MPA review and CCAMLR formulated and presented at MPA workshop (probably early in Y2Q1) and WG-EMM meeting (Y2Q3).	MPA review workshop and CCAMLR WG-EMM meeting. Revision of MPA closed area/season restrictions as appropriate given evidence.	which is reasonable based on previous experience
Output 3 3. Breeding season penguin diets quantified: proportion of Antarctic krill in diet reveals risk of dietary competition with krill fishery	3.1 100 fresh scats collected and frozen from both chinstrap and macaroni penguins in Y1Q4 and returned to BAS Biostore by Y2Q1. 3.2 DNA analysis of prey composition in 100 samples, including discrimination of Antarctic krill in Euphausiid component, by Y2Q2. 3.3 Section on diets included in paper from Output 2.4 by Y2Q4. 3.4. Advice to SGSSI MPA review and CCAMLR on potential for dietary overlap with krill fishery	3.1 Samples collected and catalogued in BAS Biostore. 3.2 DNA analysis completed bycontractors and data archived with Polar Data Centre. 3.3 Acceptance email from journal editor. 3.4 Presentation of work at SGSSI MPA review workshop and CCAMLR WG-EMM meeting.	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 January, chicks have hatched and they will produce copious amounts of suitable material

Project summary	SMART Indicators	Means of verification	Important Assumptions
	formulated and presented at 2024 MPA workshop and summer 2025 WG-EMM meeting.		

Activities (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)

Logistic preparations for expedition (Output 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.

Annex 3: Standard Indicators

The Biodiversity Challenge Funds (BCFs) use high quality and accessible Monitoring, Evaluation and Learning (MEL) to enable scaling, replication and increase the impact of the funds and the projects we support.

By asking project teams to align indicators with the Darwin Plus Standard Indicators, we aim to increase our contribution to the global evidence base for activities that support biodiversity conservation, benefits to local communities, and capability & capacity.

The tables below are provided to assist project teams in reporting against Standard Indicators. Please report against the Standard Indicators that you have selected specifically for your project in Table 1 below. Refer to the Standard Indicator Guidance & Menu available on the Darwin Plus website for guidance on how to select indicators, as well as how to disaggregate reporting within your chosen indicators.

New projects should complete the Y1 column and also indicate the number planned during the project lifetime. Continuing projects should copy and paste the information from previous years and add in data for the most recent reporting period.

We recognise that our menu cannot cover all the potential monitoring needs for all projects – where necessary you can select indicators from other sources or develop your own. See our BCF MEL guidance on best practices for selecting and developing indicators.

Table 1 Project Standard Indicators

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-B01	Number of new/improved habitat management plans available and endorsed[6].	Creation/revision of SGSSI MPA management plan and SSI TPA	Number	Marine / Terrestrial	0			0	2
DPLUS-A03	Number of local/national organisations with improved capability and capacity as a result of project.	Number of local/national organisations with improved capability and capacity as a result of project.	Number of organisations	International/ National Governmental/ NGO	0			0	5
DPLUS-C01	Number of new conservation or species stock assessments published[11]	Publication of penguin population estimates and trends, terrestrial biodiversity baseline survey	Number	Taxa (birds, terrestrial biodiversity	0			0	2

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-C05	Number of projects contributing data, insights, and case studies to national Multilateral Environmental Agreements (MEAs) related reporting processes and calls for evidence.	Contribution of evidence to CCAMLR relating to SGSSI MPA management and policy and SCAR ANTIcon relating to terrestrial biodiversity conservation	Number	CCAMLR/SCAR	0			0	2
DPLUS-D03	Number of policies with biodiversity provisions that have been enacted or amended[21].	Implementation management/policy prescriptions from revised/new action plans for MPA and TPA	Number	Terrestrial/Marine	0			0	6
DPLUS-C08	Areas of importance for biodiversity identified	Areas of importance for biodiversity identified (penguin foraging KBAs, terrestrial features)	Area	Terrestrial/Marine	0			0	2 terrestrial 2+ penguin
DPLUS-C12	Social Media presence	Social Media presence	Number of posts	Platform	1 each on FB, X, Instagram			3	10
DPLUS-C15	Number of Media related activities	Number of Media related activities	Number	Internet/Print/ Radio/Television, and sub-national/national/international	3 web pages, 1 local newspaper article			3 web pages, 1 newspaper article	10

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-C16	Number of records added to accessible databases	Number of records added to accessible databases (NERC Polar Data Centre, Birdlife Tracking Ocean Wanderers)	Number	Biodiversity (Species occurrence, Utilisation)	0			0	5
DPLUS-C18	Number of papers published in peer reviewed journals.	Number of papers published in peer reviewed journals.	Number	Annual downloads, Journal.	.0			0	3

In addition to reporting any information on publications under relevant standard indicators, in Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark with an asterisk (*) all publications and other material that you have included with this report.

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	✓
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	✓
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	No
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.	✓
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.	NA
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 15)?	✓
Have you involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	