



Department
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Development



Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

Important note *To be completed with reference to the Reporting Guidance Notes for Project Leaders:
it is expected that this report will be about 10 pages in length, excluding annexes*

Submission Deadline: 30th April 2017

Darwin Plus Project Information

Project reference	DPLUS 053
Project title	Project Pinnamin: conserving northern rockhopper penguins on Tristan da Cunha
Territory(ies)	Tristan da Cunha
Contract holder institution	RSPB
Partner institutions	Tristan da Cunha Conservation Department, British Antarctic Survey, Royal Zoological Society of Scotland, South African Department of Environmental Affairs
Grant value	£199,069
Start/end date of project	April 2016-March 2018
Reporting period (e.g., Apr 2016-Mar 2017) and number (e.g., AR 1,2)	AR1
Project leader name	Alex Bond
Project website/blog/Twitter	http://www.rzss.org.uk/conservation/our-projects/project-search/field-work/project-pinnamin-conserving-northern-rockhopper-penguins-on-tristan-da-cunha/
Report author(s) and date	Alex Bond, Antje Steinfurth, Norman Ratcliffe, Trevor Glass, Sarah Robinson, Newi Makhado

1. Project overview

Northern rockhopper penguins *Eudyptes moseleyi* are globally Endangered due to historic population declines. Monitoring shows that after a period of stability numbers have started to decline rapidly again. Around 80% of the world population breed on the UKOT of Tristan da Cunha. The causes of decline and factors limiting population size are poorly understood, although factors operating in the marine environment (including climate change, oil pollution and bycatch) are suspected causes. However, knowledge of marine distribution and habitat requirements are inadequate to identify limiting factors or recognise significant areas requiring protection. This project aims to: (1) initiate low-effort monitoring of population dynamics and their drivers which will diagnose declines and inform conservation action; (2) track birds to qualify marine habitat preference and recognise marine Important Bird Areas (mIBAs); (3) strengthen capacity for research, monitoring and data management on Tristan; (4) produce a new species action plan that will identify key conservation measures required to protect northern rockhopper penguins globally.

2. Project stakeholders/partners

Stakeholders were invited to sit on the project's Steering Group, which met on 26 May 2016 to discuss the fieldwork phase of the project (the agenda and minutes from this meeting are included as Annexes 3 and 4), and on 19 April 2017 to discuss the initial results, the species recovery workshop, and plans for fieldwork in 2017 (the agenda is included as Annex 5; the minutes have not yet been approved by all attendees). Stakeholders were also consulted throughout the first year of the project on larger issues, such as the removal of Output 2, and associated aspects, and invited to comment on the half-year report.

The most significant challenge has been coordinating this diverse, and often busy, group across several time zones, but this has been mitigated, at least in part, by forward planning and advance notice of meeting dates and agendas.

The project's partners have been in regular email communication about progress against the outputs, indicators, and means of verification.

3. Project Progress

3.1 Progress in carrying out project Activities

1.1 Organise fieldwork logistics (order equipment, ship it to Tristan, organise field team T&S etc.) – completed, with a safe and successful field season.

1.2 Initiate and maintain annual survival and productivity monitoring programme – completed. In 2016, productivity/breeding success was monitored from 150 selected nests at Nightingale Island by frequent visits to nests and eight time-lapse cameras. In 2016. Two Biomark PIT (passive integrated transponder) reader stations were set up on Nightingale Island and 300 adults (150 males and 150 females) and 100 creching chicks were implanted with PIT tags to estimate annual survival. The units logged crossings of PIT tagged adults through the breeding season. Many of the PIT tagged birds were from nests that were monitored or had cameras trained on them which will allow us to see whether crossing patterns can be used to predict breeding success.

2.1 Experimentally remove eggs from nests and monitor success of these and control nests – this activity was removed with the approval of the Darwin Initiative

2.2 Analyse data and use simulation models to determine methods and levels of harvesting that minimise impact on breeding success – this activity was removed with the approval of the Darwin Initiative

2.3 Draw up guidance for an open harvest under supervision of TC, with continued monitoring to adapt design – this activity was removed with the approval of the Darwin Initiative

3.1 Collect further tracking data to fill key season/site gaps in the current datasets – partially completed. 87 foraging tracks were obtained from penguins on Nightingale (Incubation: 10 females, 10 males), Guard (21 females), Creche (9 females, 7 males)), and a further 6 from Inaccessible Island. 40 geolocators (20 females, 20 males) were deployed on Nightingale Island to determine over-winter movements and will be recovered in September 2017, as planned.

3.2 Model new and existing tracking data to determine distribution and habitat preference – preliminary analysis is underway, and we found that during chick-rearing, foraging areas on Gough, Nightingale and Inaccessible islands were highly segregated, foraging effort (trip distance, trip duration, and maximum distance) on Nightingale was higher than that recorded previously on Gough.

3.3 *Subject marine distribution data to BirdLife International criteria to identify mIBAs – this will be completed in the second year of the project.*

4.1 *Provide training to TC staff in novel fieldwork methods – partially completed and will be continued in the project's second year.*

4.2 *Collate all data and share among partners – All data are in the process of being analysed. Results will be presented at the species workshop held later this year and data will be made available to the project partners.*

4.3. *Develop user-friendly data systems on Tristan and train TC in their use – to be completed during the second year of the project*

4.4 *Upload data to BirdLife, BAS and RSPB online databases – partially completed. Tracking data to date has been accessioned to the Birdlife International Seabird Tracking Database (datasets 1276, 1277, and 1294), as well as the RSPB's network for data from the UK Overseas Territories. Data will be accessioned to the BAS Polar Data Centre in the second year of the project.*

5.1 *Host workshop at RZSS to agree action plan with stakeholders – planning underway. The workshop will be held in the second year of the project.*

5.2 *Write action plan based on workshop proceedings: publish and circulate – to be done in 2017-18 as planned.*

5.3 *Publish scientific papers and develop policy, management, outreach and educational materials – Educational materials have been developed for secondary and primary aged children. All resources are being uploaded onto the TES website (e.g. <https://www.tes.com/teaching-resource/rockhopper-penguin-conservation-project-pinnamin-11562137>). Hard copies are also being produced for St Mary's School on Tristan da Cunha and these will be delivered in September 2017. Interpretation information has been produced for wider outreach activities with the general public – this was used on 22 April 2017 at RZSS Edinburgh Zoo linked to World Penguin Day on 25 April 2017.*

3.2 Progress towards project Outputs

1. Implementation of annual automated monitoring of penguin survival and breeding success

Prior to this project, there was no system for measuring survival of Northern Rockhopper Penguins, and only sporadic time-consuming monitoring of breeding success. A series PIT tag sensors are now installed and operational, which logs penguins' arrivals and departures. With several years' data, this will allow us to measure annual survival. Within breeding seasons, to investigate whether the patterns of arrivals and departures can be used to infer breeding success, as Northern Rockhopper Penguins have well-defined patterns of parental nest attendance, 8 camera traps were installed at known nest-sites with PIT tagged pairs on Nightingale Island to monitor breeding success and verify outcomes against crossing patterns. More than 8000 photos were obtained, and will be analysed in the second year of the project. PIT data were successfully downloaded at the reader stations in November, December, and January to ensure successful operation, and resulted in >28,000 logged arrivals and departures.

2. Opening of a sustainable egg harvest

This output was removed with the approval of the Darwin Initiative.

3. Marine Important Bird Areas and habitat preference identified

Previous tracking had provided some indication of penguins' distribution, but there were considerable gaps in breeding stages, sexes, and sites. We obtained 87 individual GPS tracks from Nightingale Island covering all breeding stages from September through December, and 6 tracks from Inaccessible Island, where remotely downloaded tags were the only logistically feasible option. In addition, 40 light-level geolocators were deployed on Nightingale Island (20 females and 20 males), and will be retrieved in September 2017 to provide data on overwintering distribution. We are in the process of processing data and producing the relevant maps and habitat modelling outputs. Marine IBAs will be identified in the second year of the project once overwintering data have been retrieved.

4. Capacity of TC in fieldwork and data management strengthened; data shared globally

The Tristan da Cunha Conservation Department is ultimately the responsible management authority for Northern Rockhopper Penguins in the territory, and did not have previous experience with many of the tools used in this project. Logistical constraints and poor weather, however, prevented their full immersion in the day-to-day project field work, as detailed in our Change Request approved by the Darwin Initiative. We will aim to complete this aspect of the project in the second year. Data will be made available with the relevant publications (Indicators 3.3 and 5.3, Activity 4.4).

5. Formulation and dissemination of key project findings to scientific, conservation and public audiences

The previous species action plan dates from 2008, and included actions specific for the closely-related Southern Rockhopper Penguin. A workshop will be held in December 2017 at the Edinburgh Zoo to draft a revised action plan for Northern Rockhopper Penguins, which will be heavily informed by the project's work. Results from the project were presented at the 3rd World Seabird Twitter Conference on 13 April 2017 (an online social media conference with >3 million audience members).

Articles were published in the February 2017 issue of the Tristan da Cunha Associations Newsletter (pages 32-33), in the March 2017 issue of the Birdlife International's "Birdlife Magazine" (pages 18 -19) as well as a blog post on the website of the Oiled Wildlife Care Network. A further article has been submitted to the RSPB's "Nature's Home", and will appear in the coming months.

RZSS Edinburgh Zoo Staff delivered a Skype in the classroom session on Penguins in February 2017 featuring Project Pinnamin. The lesson has been uploaded to the Skype platform it will be delivered, on average, monthly. This resource is globally accessible. (<https://education.microsoft.com/skype-in-the-classroom/overview>)

Further resources have been produced for engaging primary and secondary aged children as well as resources for engaging the general public. School resources are being uploaded onto the TES (www.tes.com) website and all resources are being produced in hard copy for St Mary's School Tristan da Cunha.

In all cases, we found our indicators remained sufficient to measure progress against the outputs.

3.3 Progress towards the project Outcome

Prior to Project Pinnamin, the causes of Northern Rockhopper Penguins' decline, and the life history stage at which they occurred were unknown. When fully collected, the survival and breeding success data (Indicator 1.1) will enable us to examine factors limiting the population (Indicator 0.1). Important foraging areas (Indicator 0.2) can be identified once all tracking data are retrieved (Indicators 3.1, 3.2, and 3.3), while annual monitoring of penguin populations (as

part of TCD's annual work) will indicate whether the population trend has improved. Indicator 0.4 has been removed with the approval of the Darwin Initiative.

While two of the Outcome Indicators are beyond the timeline of this project, the groundwork Project Pinnamin has laid, and its legacy beyond 2018 will allow these outputs to be delivered, and leverage additional funding.

We believe that the Outcome can be partially achieved by the end of the project, with a preliminary examination of the factors affecting penguin populations on Tristan da Cunha, a full identification of marine IBAs, and informed management actions.

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

Project Pinnamin aims to strengthen the capacity of the Tristan da Cunha Conservation Department (TCD) to implement activities in their Biodiversity Action Plan, which includes monitoring the population and status of Northern Rockhopper Penguins. While this was limited in 2016 because of logistical constraints, TCD staff have been able to perform regular maintenance on the PIT tag gateway, and additional training & experience will be conducted in 2017, as outlined in our Change Request. This will include ca. 3 weeks of 1-on-1 training in the use of the gateway, and retrieving automatically archived data. The ultimate goal is to enable TCD to continue this programme of annual monitoring of survival, and breeding success, in addition to their current work on population numbers. We believe this is still achievable upon completion of a successful 2017 field season.

3.5 Monitoring of assumptions

PIT tag gateway reliably records attendance (verify with time-lapse cameras) and attendance can be used to predict breeding success – these assumptions will be verified in the next few months, but based on similar systems used on penguin species elsewhere, and extensive pre-deployment testing, we believe these assumptions will hold.

Recovery rates of equipped birds are sufficient to provide data needed – while this assumption was met on Nightingale Island, only 6 of the 10 deployed GPS tags on Inaccessible provided data, and of these only three captured complete foraging trips. The recovery rates of GLS tags in the coming year is yet to be determined.

Access to Inaccessible Island – this was possible, and GPS tags were successfully deployed, and the base station that archived tracking data was successfully retrieved. Two colonies on Inaccessible Island were also surveyed for the first time since 2011, which was not an original component of the project, but incurred no additional cost, and was facilitated by Project Pinnamin.

Key people will attend the species workshop – this assumption pertains to the second year of the project.

Data are of sufficient quality and interest to merit publication – this assumption pertains to the second year of the project.

Press releases and education materials are of sufficient interest to be used by media & schools – In addition to the classroom based resources being produced for schools a video exchange is being planned for the second year of the project encouraging pupils on Tristan da Cunha and in Edinburgh to record their environments and what it means to them.

In addition, we have a further assumption that pertains to Outputs 1, 3, and 4 – that passage can be secured for a field season in September 2017.

4. Monitoring and evaluation

Monitoring and evaluation has been done at two levels. First, the detailed work plans, protocols, and operational/logistical procedures have been developed by the five project partners collaboratively, and as appropriate. Regular email and telephone communication among the partners has ensured a free flow of information.

More broadly, the project is overseen by a Steering Group (membership as detailed in our proposal) which comprises the five project partners, as well as other internal and external stakeholders and experts from the University of Cape Town, Falklands Conservation, Centre National de Recherche Scientifique, and RSPB. While these meetings were originally scheduled for every 6 months, we found that the difficulty in finding a suitable time for participants to attend meant that an annual meeting was more realistic during the first year of the project (see Annexes 3, 4, and 5). It was agreed on 19 April 2017 to have another steering Group meeting in 4-5 months' time.

Monitoring and evaluation is done against the project's logical framework, which underpins all aspects of the work plan, provides measurable outcomes, and sets realistic targets for completion.

5. Lessons learnt

We had few technical issues in the first year of the project, and the challenges we faced were largely outside our control (e.g., requirements for TCD staff to be present on Tristan rather than Nightingale). The reliance on remote-downloading GPS devices on Inaccessible was the only feasible option, but returned relatively little data. We are currently, together with the manufacturer, looking into reasons for this poor performance, so should projects adopt this approach in the future any potential similar errors in set up can be averted.

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

Not applicable, as this is the first annual report.

7. Other comments on progress not covered elsewhere

Last (southern) spring, Tristan started the process of building a new hospital, which came via chartered ship in a modular design. The resulting poor weather meant that the ship spent two months at Tristan (at great cost to the government; <http://tristandc.com/shipping/news-2016-12-26-MVGlory.php>), and because of the urgency in trying to off-load the ship, all work off the main island was prohibited until the ship could depart. While we were able to complete the field component of the work plan this year successfully, this was only possible because of expatriate workers employed for the project. Local staff spent a short period of time (rather than the entire field season) engaged in the project. Our aspiration was that, after this year, Tristan Conservation Department staff would be able to retrieve data in September/October as part of their current work plan based on the training and experience they were to receive in 2016. Given that such training and experience wasn't possible for reasons out of our control, there is both a significant and a skills & experience gap on-island. Our approved Change Request allows us to carry forward some of this underspend to 2017/18, and will enable us to have a short field expedition in September 2017, where we can ensure TdC staff are trained to carry the project forward into its legacy phase, and retrieve data relating to Outputs 3.1 and 3.3.

8. Sustainability and legacy

The project team have worked closely with the Tristan Conservation Department and there is a strong commitment from all project partners to continue monitoring Northern Rockhopper Penguins, and further research after the end of the Darwin project in 2018. An explicit goal of the project is to establish data collection methods that are low effort and high return (e.g., automated systems), and increase the capacity for Tristan Conservation Department staff to undertake regular monitoring as part of their annual work programme.

The tracking data from the project is also being incorporated into the marine spatial planning of the Tristan da Cunha government and Foreign and Commonwealth Office, with the ultimate aim of establishing a regime of marine protection in the Tristan da Cunha Exclusive Economic Zone by 2020.

9. Darwin identity

The Darwin Initiative logo has been used at local events held on Tristan, as in previous Darwin-funded work, and in the profile on the tristandc.com website. It also features on the RZSS project website, and has been identified in conference and meeting presentations (e.g., Oiled Wildlife Care Network blog post, World Seabird Twitter Conference 2017).

The Darwin Initiative support is a separate project with a clear identity on Tristan. There is a good understanding of Darwin on Tristan. The population of Tristan is very small (less than 300 people) and there have already been several successful projects leading to increased capacity on Tristan for conservation work. As in the past, the pool of workers available for conservation work is still referred to as “the Darwin team” and one of the boats used for conservation work is known as the “Darwin Express”. Project Pinnamin contributes to this long-standing relationship on Tristan da Cunha with the Darwin Initiative.

10. Project Expenditure

We have not yet received all financial information from project partners, so a complete detail of expenditure will follow in the expense claim for the fourth quarter of the project.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2016-2017 – if appropriate

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
<p>Impact</p> <p>Northern rockhopper penguin population declines are halted then reversed in response to evidence-based management of limiting factors both at their colonies and at sea whilst allowing sustainable harvesting of eggs</p>		<p>Key data gaps identified, necessary data collection on at-sea distribution and demography initiated and adequate for long-term impact.</p>	
<p>Outcome</p> <p>Diagnosis of limiting factors upon populations and recognition of important foraging areas at sea will inform future management actions. Design of sustainable egg harvests will allow continuation of cultural tradition</p>	<p>0.1 Limiting factors on population size are recognised and mitigating measures are recommended within next 10 years</p> <p>0.2 Important foraging areas at sea are recognised and afforded appropriate protection within the next 5 years</p> <p>0.3 Population decline is halted then reversed within the next 20 years</p> <p>0.4 Sustainable egg harvests are opened allowing islanders to continue traditional practice within the next two years</p>	<p>0.1 Required data types identified, and data collection underway (e.g., survival, productivity)</p> <p>0.2 Key gaps in tracking data identified, and filled (or in the process of being filled). Tristan has announced their aspiration to have a regime of marine protection in place by 2020 (as announced at the Our Oceans Conference in September 2016).</p> <p>0.3 Population size monitored on Nightingale, and on Inaccessible for the first time since 2011. Relies on indicators 0.1 and 0.2.</p> <p>0.4 This has been removed with the approval of the Darwin Initiative.</p>	<p>0.1 First estimates of return rates (the first step in estimating survival) after September 2017.</p> <p>0.2 Retrieval of geolocators, filling all tracking gaps.</p> <p>0.3 Life history stages affected, and spatial distributions known to allow identification of threats causing population declines.</p> <p>0.4 This has been removed with the approval of the Darwin Initiative.</p>
<p>Output 1. Implementation of annual automated monitoring of penguin survival and breeding success</p>	<p>1.1 PIT sensor equipment installed on the two main penguin highways. Birds PIT tagged and attendance/ survival logged annually</p>	<p>1.1 Indicators achieved (see section 3.1 for evidence). Additional data to be retrieved in September 2017 and beyond the life of the project.</p>	
<p>Activity 1.1 Organise fieldwork logistics (order equipment, ship it to Tristan, organise field team T&S etc.)</p>		<p>Completed, with a safe and successful field season. Planning for 2017 field work is underway.</p>	
<p>Activity 1.2 Initiate and maintain annual survival and productivity monitoring programme</p>		<p>Completed. In 2016, productivity/breeding success was monitored from 150 selected nests at Nightingale Island by frequent visits to nests and eight time-</p>	

		lapse cameras in 2016. Two Biomark PIT (passive integrated transponder) reader stations were set up on Nightingale Island and 300 adults (150 males and 150 females) and 100 creching chicks were implanted with PIT tags to estimate annual survival. The units logged crossings of PIT tagged adults through the breeding season. Many of the PIT tagged birds were from nests that were monitored or had cameras trained on them which will allow us to see whether crossing patterns can be used to predict breeding success.
Output 2. Opening of a sustainable egg harvest	2.1 Islanders are allowed to take rockhopper eggs according to management regulations 2.2 No adverse effects of these harvests on productivity or breeding success are detectable	This output was removed with the approval of the Darwin Initiative.
Activity 2.1. Experimentally remove eggs from nests and monitor success of these and control nests		This activity was removed with the approval of the Darwin Initiative.
Activity 2.2. Analyse data and use simulation models to determine methods and levels of harvesting that minimise impact on breeding success.		This activity was removed with the approval of the Darwin Initiative.
Activity 2.3. Draw up guidance for an open harvest under supervision of TC, with continued monitoring to adapt design		This activity was removed with the approval of the Darwin Initiative.
Output 3. Marine Important Bird Areas and habitat preference identified.	3.1. Data collected to fill all significant gaps in current knowledge 3.2. Data analyses and complete maps of at-sea distribution are produced 3.3. Distribution maps are subject to mIBA criteria and mIBAs are delineated for Northern Rockhoppers to replace their current provisional mIBA that is based on a generic foraging radius of 40km. Discussions about MPA management of these initiated with Tristan authorities.	3.1 Partially achieved; retrieval of geolocators in September 2017 will complete this indicator. 3.2 To be completed during the second year of the project. 3.3 To be completed during the second year of the project. Discussions about marine protection are underway with the Tristan Government as part of this, and other projects lead by the RSPB and other partners. In all cases, indicators are appropriate and on schedule. Evidence provided in Sections 3.1 and 3.2
Activity 3.1 Collect further tracking data to fill key season/site gaps in the current datasets		Partially completed. 87 foraging tracks were obtained from penguins on Nightingale (Incubation: 10 females, 10 males), Guard (21 females), Creche (9 females, 7 males)), and a further 6 from Inaccessible Island. 40 geolocators (20 females, 20 males) were deployed on Nightingale Island to determine over-winter

		movements and will be recovered in September 2017, as planned.
Activity 3.2 Model new and existing tracking data to determine distribution and habitat preference		Preliminary analysis is underway, and we found that during chick-rearing, foraging areas on Gough, Nightingale and Inaccessible islands were highly segregated, foraging effort (trip distance, trip duration, and maximum distance) on Nightingale was higher than that recorded previously on Gough.
Activity 3.3 Subject marine distribution data to BirdLife International criteria to identify mIBAs		This will be completed in the second year of the project.
Output 4. Capacity of TC in fieldwork and data management strengthened; data shared globally	<p>4.1. TC staff trained in use of PIT tagging, use and maintenance of PIT sensor units and deployment of tracking devices</p> <p>4.2 TC staff trained in data management and mapping so local databases can be updated and used for conservation</p> <p>4.3. Data are shared globally through BirdLife, RSPB and BAS online databases.</p>	<p>4.1 Partially achieved. Logistical constraints on Tristan da Cunha meant that insufficient time for training and capacity-building of staff was available. Additional field work in 2017 will allow us to achieve this indicator.</p> <p>4.2 Partially achieved. Logistical constraints on Tristan da Cunha meant that insufficient time for training and capacity-building of staff was available. Additional field work in 2017 will allow us to achieve this indicator.</p> <p>4.3 Partially completed. Data have been shared through BirdLife and RSPB databases, and are scheduled to be uploaded to the BAS Polar Science Data Centre in the second year of the project.</p> <p>Indicators are sufficient to achieve the output. Evidence and reasoning is provided in Sections 3.1 and 3.2, and in the Change Request form submitted in March 2017.</p>
Activity 4.1 Provide training to TC staff in novel fieldwork methods		Partially completed and will be continued in the project's second year.
Activity 4.2 Collate all data and share among partners,		All data are in the process of being analysed. Results will be presented at the species workshop held later this year and data will be made available to the project partners.
Activity 4.3. Develop user-friendly data systems on Tristan and train TC in their use		To be completed during the second year of the project
Activity 4.4 Upload data to BirdLife, BAS and RSPB online databases		Partially completed. Tracking data to date has been accessioned to the Birdlife International Seabird Tracking Database (datasets 1276, 1277, and 1294), as well as the RSPB's network for data from the UK Overseas Territories. Data will be accessioned to the BAS Polar Data Centre in the second year of the project.

<p>Output 5. Formulation and dissemination of key project findings to scientific, conservation and public audiences</p>	<p>5.1 Workshop held at Edinburgh Zoo attended by stakeholders and experts involved with northern rockhopper research and conservation</p> <p>5.2 Species action plan written, approved by all workshop attendees and published online.</p> <p>5.3 Two scientific papers written and published open access</p> <p>5.4. Findings promoted to general public via RZSS publicity programme and BAS/RSPB press releases</p>	<p>5.1 To be completed in the second year of the project. Discussed at the Steering Group meetings in May 2016 and April 2017 (Annexes 3, 4, 5).</p> <p>5.2 Discussions with project partners underway to maximize engagement with external stakeholders, and capitalize on Tristan Conservation Department staff visiting the UK in July/August 2017.</p> <p>5.3 To be completed in the second year of the project.</p> <p>Educational materials produced (or to be produced) for delivery to Tristan da Cunha in September 2017.</p> <p>All indicators are sufficient for achieving the output.</p>
<p>Activity 5.1 Host workshop at RZSS to agree action plan with stakeholders</p>	<p>Planning underway. The workshop will be held in the second year of the project.</p>	
<p>Activity 5.2 Write action plan based on workshop proceedings: publish and circulate</p>	<p>To be done in 2017-18 as planned.</p>	
<p>Activity 5.3 Publish scientific papers and develop policy, management, outreach and educational materials</p>	<p>Educational materials have been developed for secondary and primary aged children. All resources are being uploaded onto the TES website (e.g. https://www.tes.com/teaching-resource/rockhopper-penguin-conservation-project-pinnamin-11562137). Hard copies are also being produced for St Mary's School on Tristan da Cunha and these will be delivered in September 2017.</p> <p>Interpretation information has been produced for wider outreach activities with the general public – this was used on 22 April 2017 at RZSS Edinburgh Zoo linked to World Penguin Day on 25 April 2017.</p>	

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

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Northern rockhopper penguin population declines are halted then reversed in response to evidence-based management of limiting factors both at their colonies and at sea whilst allowing sustainable harvesting of eggs			
<p>Outcome: (Max 30 words)</p> <p>Diagnosis of limiting factors upon populations and recognition of important foraging areas at sea will inform future management actions. Design of sustainable egg harvests will allow continuation of cultural tradition.</p>	<p>0.1 Limiting factors on population size are recognised and mitigating measures are recommended within next 10 years</p> <p>0.2 Important foraging areas at sea are recognised and afforded appropriate protection within the next 5 years</p> <p>0.3 Population decline is halted then reversed within the next 20 years</p> <p>0.4 Sustainable egg harvests are opened allowing islanders to continue traditional practice within the next two years</p>	<p>0.1 Publication of population model that diagnoses population declines and tests mitigation measures in an applied journal</p> <p>0.2 mIBAs for northern rockhoppers recognised by BirdLife. Tristan administration recognises these as MPAs with appropriate management prescriptions</p> <p>0.3 Annual monitoring of numbers detects a halt in the population decline followed by a steady recovery to previous levels</p> <p>0.4 Islanders are able to harvest eggs sustainably and have an evidence-base to justify this to concerned conservationists</p>	<p>Limiting factors identified are amenable to management and marine protection is effective and enforceable</p> <p>Egg harvests can be carried out sustainably</p>
<p>Outputs:</p> <p>1. Implementation of annual automated monitoring of penguin survival and breeding success</p>	<p>PIT sensor equipment installed on the two main penguin highways. Birds PIT tagged and attendance/ survival logged annually</p>	<p>1.1 Equipment installed and maintained on Nightingale. 200 birds tagged in first year and c. 40 tagged annually afterwards to maintain sample size in face of mortality. Attendance data collected from PIT sensor annually.</p>	<p>PIT tag equipment will reliably record bird attendance to allow survival to be estimated and breeding success to be inferred. PIT tag studies of penguins elsewhere have been successful, but nonetheless time-lapse cameras will be used to test this assumption independently in the first year of study.</p>

<p>2. Opening of a sustainable egg harvest</p>	<p>2.1 Islanders are allowed to take rockhopper eggs according to management regulations</p> <p>2.2 No adverse effects of these harvests on productivity or breeding success are detectable</p>	<p>2.1 Annual record of number of eggs taken maintained by TC</p> <p>2.2. Annual monitoring shows no changes in breeding success or trends that could be ascribed to egg collecting. If so harvest closed or altered adaptively.</p>	<p>This assumes that the research finds an approach to harvesting that is sustainable. If not, TC will have evidence to explain to islanders why egg harvests cannot be re-opened.</p>
<p>3. Marine Important Bird Areas and habitat preference identified</p>	<p>3.1. Data collected to fill all significant gaps in current knowledge</p> <p>3.2. Data analyses and complete maps of at-sea distribution are produced</p> <p>3.3. Distribution maps are subject to mIBA criteria and mIBAs are delineated for Northern Rockhoppers to replace their current provisional mIBA that is based on a generic foraging radius of 40km. Discussions about MPA management of these initiated with Tristan authorities.</p>	<p>3.1. An updated and complete tracking database</p> <p>3.2 Processed and mapped tracking data</p> <p>3.3 mIBAs for northern rockhopper penguins are identified and added to the BirdLife mIBA gazetteer.</p>	<p>Recovery rates of equipped birds are sufficient to provide data needed. Access to Inaccessible Island possible given sea conditions. We have budgeted for a large number of loggers to allow for anticipated losses, and have a large time-window to await suitable conditions for landings on Inaccessible.</p>
<p>4. Capacity of TC in fieldwork and data management strengthened; data shared globally</p>	<p>4.1. TC staff trained in use of PIT tagging, use and maintenance of PIT sensor units and deployment of tracking devices</p> <p>4.2 TC staff trained in data management and mapping so local databases can be updated and used for conservation</p> <p>4.3. Data are shared globally through BirdLife, RSPB and BAS online databases.</p>	<p>4.1 TC staff can use equipment and carry out field procedures without supervision</p> <p>4.2 TC staff competent in coding, archiving and retrieving information from on-island databases.</p> <p>4.3 Data are available to conservationists and researchers around the world via websites</p>	<p>None</p>
<p>5. Formulation and dissemination of key project findings to scientific, conservation and public audiences</p>	<p>5.1 Workshop held at Edinburgh Zoo attended by stakeholders and experts involved with northern rockhopper research and conservation</p> <p>5.2 Species action plan written, approved by all workshop attendees and</p>	<p>5.1 Workshop held and attended by key people</p> <p>5.2 Species action plan written, approved and published</p> <p>5.3 Two scientific papers published in</p>	<p>Key people will attend workshop. We will pay expenses and give ample advance notice to maximise attendance</p> <p>Data are of sufficient quality and interest to merit publication. Based on experience this assumption is likely to</p>

	<p>published online.</p> <p>5.3 Two scientific papers written and published open access</p> <p>5.4. Findings promoted to general public via RZSS publicity programme and BAS/RSPB press releases</p>	<p>reputable journals with open access and on NERC Open Research Archive</p> <p>5.4 Press releases made, exhibits at Edinburgh Zoo created and educational materials provided to schools, talks and meetings on Tristan</p>	<p>be met.</p> <p>Press releases and education materials are of sufficient interest to be used by the media and schools. Uptake by the media can be unpredictable depending on competing global news stories.</p>
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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)

- 1.1 Organise fieldwork logistics (order equipment, ship it to Tristan, organise field team T&S etc.)
- 1.2 Initiate and maintain annual survival and productivity monitoring programme
- 2.1 Experimentally remove eggs from nests and monitor success of these and control nests
- 2.2 Analyse data and use simulation models to determine methods and levels of harvesting that minimise impact on breeding success
- 2.3 Draw up guidance for an open harvest under supervision of TC, with continued monitoring to adapt design
- 3.1 Collect further tracking data to fill key season/site gaps in the current datasets
- 3.2 Model new and existing tracking data to determine distribution and habitat preference
- 3.3 Subject marine distribution data to BirdLife International criteria to identify mIBAs
- 4.1 Provide training to TC staff in novel fieldwork methods
- 4.2 Collate all data and share among partners,
- 4.3. Develop user-friendly data systems on Tristan and train TC in their use
- 4.4 Upload data to BirdLife, BAS and RSPB online databases
- 5.1 Host workshop at RZSS to agree action plan with stakeholders
- 5.2 Write action plan based on workshop proceedings: publish and circulate
- 5.3 Publish scientific papers and develop policy, management, outreach and educational materials

Project Pinnamin Steering Group

Meeting Agenda

May 26, 2016

10:00-12:00 BST
(11:00-13:00 in France & South Africa)
(9:00-11:00 on Tristan da Cunha)
(6:00-8:00 in Stanley)

Room 2.53, David Attenborough Building, Cambridge, UK

Telephone: +44 (0)20 3418 9113 PIN: 7772#

Invitees: Alex Bond, Charly Bost, Sarah Crofts, Trevor Glass, Ben Lascelles, Newi Makhado, Norman Ratcliffe, Sarah Robinson, Peter Ryan, Andy Schofield, Antje Steinfurth, Clare Stringer, Juliet Vickery

1. Welcome and introductions (AB)
2. Project description (AB, NR)
3. Administration and finance (AB)
4. Fieldwork logistics
 - a. Agulhas II berths in September/October (NM, TG)
 - b. Edinburgh berths in December (TG)
 - c. Helicopter support/SANAP3 (NM, TG)
 - d. Support for work on Inaccessible (TG, NM)
5. Project communications & school link (SR)
6. Any other business
7. Adjournment

**Project Pinnamin Steering Group
Meeting Minutes**

May 26, 2016

10:00-12:00 BST
(11:00-13:00 in France & South Africa)
(9:00-11:00 on Tristan da Cunha)
(6:00-8:00 in Stanley)

Room 2.53, David Attenborough Building, Cambridge, UK

I. Attendees

Alex Bond, Rob Crawford, Sarah Crofts, Maria Dias, Newi Makhado, Norman Ratcliffe, Sarah Robinson, Peter Ryan, Andy Schofield, Antje Steinfurth, Clare Stringer, Juliet Vickery

Apologies: Charly Bost, Trevor Glass

Notes: Maria Dias will replace Ben Sullivan

II. Call to order

Alex called the meeting to order at 10:10 BST.

III. New business

- a) Project Description: Alex briefly summarized the logical framework for the project. Juliet highlighted the potential ethical issue of harvesting eggs from Endangered species given the RSPB's work on this issue in the UK. All agree, however, that this should not pose a problem for this project, as it will form part of the RSPB Ethical Advisory Committee Application.
- b) Administration & Finance: Norm queried the need for 1-year contracts (rather than for the duration of the project).
Action: Alex to check with RSPB Finance about this & advise Norm directly. Memoranda of Understanding (MOUs) will be prepared for RZSS and DEA in the next month.

c) Logistics: transport & DEA support

It was recognized that before any logistical arrangements could be made, they must be discussed with Trevor & Tristan Government

Action: Alex and Andy to follow up with Trevor and Alex Mitham (Tristan Administrator) when Trevor returns from Nightingale.

Alex and Norm outlined the likely requirements for berths on the SA Agulhas II (3 from Cape Town to Tristan, 1 from Tristan to Cape Town), and anticipated helicopter & small boat support for transporting passengers and equipment to Nightingale. Helicopter support is preferred for ease, as much of the equipment is bulky and would be difficult to offload from the boat.

There was considerable discussion around the program on Inaccessible, and the possibility of conducting a census with support from the SA Agulhas II en route to Gough (i.e., early September) or on the return voyage (i.e., late September). Both time windows are unlikely to be suitable for deploying remote-downloading tags and, asking the vessel to remain offshore for a day would likely impact operations at Tristan.

Peter recommended the base station on Inaccessible be located on Salt Beach on the east coast, as it is the site of the largest colonies, as well as to facilitate boat access, and be easier for helicopter operations.

Rob recommended we request helicopter or small boat support for Inaccessible on the return voyage to conduct a census of the three large east coast colonies, but all recognized while this was useful, it was not part of the current work package, and a census could be carried out in early October if time and conditions allowed.

Action: Alex will liaise with Newi and Rob when the SANAP3 forms are due (likely in July).

Maria emphasized the need for adequate sample sizes of tracked individuals from Inaccessible if this were to feed into a marine IBA, and ideally >1 year of data. Norm and Alex clarified that there will likely be only 1 year, but 10 remote-download tags, which should be sufficient.

d) Communications & outreach: Sarah R has approached some primary schools in Edinburgh, UK, including the school of Penny Grainger's (a dentist who visits Tristan regularly) daughter. Clare highlighted that there may already be links between St Mary's School on Tristan and others in the UK. Sarah R also discussed other groups who could make use of the resources, including

Edinburgh Zoo and Highland Park visitors, members of the Penguin Taxon Advisory Group of the European Zoos and Aquariums Association, and its US counterparts.

Action: Andy to determine main contact on Tristan for education

Action: Alex, Sarah, and Andy to liaise with that contact, St Mary's School, and the Tristan Education Advisor, as well as the RSPB's international lead on its Education team.

Sarah R asked about how we could demonstrate behaviour change or measure the impact of outreach and communications activities.

Action: Alex to speak with Joelene Hughes at RSPB about this.

Alex and Sarah R mentioned that the species workshop is only 18 months away, and Sarah R suggested we begin planning and looking for a suitable date, especially for coordinating travel from Tristan, and of attendees from elsewhere.

Action: Alex, Norm, and Antje to draft a list of likely participants for the workshop

- e) Other business: Juliet asked how everyone would be kept informed of high-level progress (e.g., the steering committee, organizations' communications teams and managers). Alex suggested a bi-monthly email update, which will start in July and be distributed to steering committee members.

It was recognized that it would be useful to have a steering group meeting before the field season to finalize any logistical arrangements or outstanding issues.

Action: Alex to coordinate a date for a meeting in mid-August

IV. Adjournment

There being no further business, Alex thanked the participants for their time, and adjourned the meeting at 11:00 BST.

**Project Pinnamin Steering Group
Meeting Agenda**

April 19, 2017

11:00-12:30 BST
(12:00-13:30 in France & South Africa)
(10:00-11:30 on Tristan da Cunha)
(7:00-8:30 in Stanley)

Room 2.53, David Attenborough Building, Cambridge, UK, CB2 3QZ
Dieter Hoffman's Office, RSPB Headquarters, Sandy, UK, SG19 2DL
Swift Meeting Room, RSPB, 5th Floor, 50 Southwark Street, London SE1 1UN

Telephone: +44 (0)20 3146 3299 Extension: 404801# Pin: 124056

Invitees: Alex Bond, Charly Bost, Sarah Crofts, Maria Dias, Trevor Glass, Newi Makhado, Norman Ratcliffe, Sarah Robinson, Peter Ryan, Andy Schofield, Antje Steinfurth, Clare Stringer, Juliet Vickery

1. Welcome and introductions (AB)
2. Review of minutes from 5 May 2016 (AB)
3. Brief summary of work to date
 - a. Field work & preliminary results (AS, NR, TG)
 - b. Education/outreach (SR)
4. Plans for 2017-18
 - a. Field work (all)
 - b. Workshop (SR)
 - c. Education/outreach (SR)
 - d. Potential future funding (all)
5. Any other business
6. Adjournment

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want 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.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	No
Do not include claim forms or other communications with this report.	