Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

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

Submission Deadline: 30th April 2021

Darwin Plus Project Information

Project reference	DPLUS135
Project title	**From Pseudoscorpions to crickets: securing Ascensions Island's unique invertebrates**
Territory(ies)	Ascension Island
Lead organisation	Ascension Island Government
Partner institutions	MAIISG, UKCEH, SHNT
Grant value	£182,846
Start/end dates of project	1/7/2021 – 30/6/2024
Reporting period (e.g. Apr 2020-Mar 2021) and number (e.g. Annual Report 1, 2)	1/7/2021 – 31/3/2022 Annual Report 1
Project Leader name	Diane Baum
Project website/blog/social media	N/A
Report author(s) and date	Adam Sharp, Diane Baum

1. Project summary

This project is the first strategically-planned survey of Ascension's endemic and native terrestrial invertebrates, filling a major knowledge gap for the island's globally-threatened biodiversity. Survey effort will be spread across the entire island including all main habitat types. The data generated for endemic species will be embedded into the National Biodiversity Action Plan and implemented by AICFD. High-risk invasive non-native invertebrates will be identified, and training and support materials established to allow targeted monitoring and control. Engagement resources and activities will raise the profile of Ascension's endemic invertebrates.

2. Project stakeholders/partners

The project partners MAIISG and CEH have been involved from the very beginning of the project. Dr Adam Sharp, the Project Officer, spent time with them in the UK before travelling out to Ascension. This built strong personal relationships and allowed Dr Sharp to meet a network of researchers who had previously studied Ascension's invertebrates.

Two remote progress meetings have been held between AIG, CEH and MAIISG since the project began. These have allowed partners to input into the survey sampling design and method. Dr Sharp is the only entomologist on Ascension and this expert support from the UK is essential to provide a sounding board for the development of new ideas and oversight of the project methods and outputs.

Due to Covid restrictions and limited air access, it was not possible for Dr Sharp to visit St Helena and this has so far reduced the involvement of SHNT in the project. As the initial survey effort generates samples for identification and he focus shifts to invertebrate conservation and management, SHNT are likely to have greater input into the project. Initial results from the Ascension surveys suggest big-headed ants are widespread and potentially threatening native invertebrates. The expertise SHNT has built in tackling big-headed ants will be extremely valuable for developing control plans on Ascension.

3. Project progress

3.1 Progress in carrying out project Activities

Activities under Output 1

1.1 Training and upskilling of Project Officer in UK and St Helena, by knowledge exchange with existing UKOT invertebrate specialists

Following the recruitment of Dr Sharp to the Project Officer role, the project partners met to discuss the most pressing training needs. Dr Sharp already had experience of a wide range of field survey techniques and it was decided most value could be gained by introducing Dr Sharp to entomologists who had previously worked on Ascension and taxonomic experts for the groups most likely to be encountered on the island. Dr Sharp met with Vicky Wilkins (Species Recovery Trust), Dr Alan Gray (UK Centre for Ecology & Hydrology) and Dr Roger Key (Entomological Consultant) on the 19th and 20th October 2021 at the home of Vicky Wilkins in York, UK. Dr Sharp had not previously visited Ascension, and so the project partners shared their previous expert experience on the specific island landscape and ecology, logistics concerning fieldwork and equipment, and areas of previous entomological exploration that required expansion. Leaving the meeting, Dr Sharp was up-to-date with the known ecology of Ascension Island and the known endemic and invasive invertebrate species.

Covid restrictions and limited flight options prevented Dr Sharp undertaking any training in St Helena en route to Ascension. Opportunities for Dr Sharp to visit St Helena will be explored later in the project.

1.2 An invertebrate record database template is built with appropriate fields and format that will allow comprehensive recording as well as integration into wider data systems

An MS Access database has been created (Annex 3) and all survey data is being uploaded to this. It is designed to integrate with the existing Ascension Biodiversity Catalogue to create a single repository of biodiversity records.

Historic records have been collated and verified as far as possible (Annex 3). These now form part of the invertebrate database and have been shared with JNCC as part of their efforts to update species records from the overseas territories**.** A total of around 460 species (depending on acceptance of spurious historical records and possible synonymy) from 180 families have previously been recorded on Ascension. The earliest records date back to 1752.

1.4 Undertake invertebrate surveys on 100 sites, taking samples and recording associated environmental data.

Dr Sharp developed a sampling strategy that has been discussed and agreed with the project partners. The island has been divided into 100 1 km^2 grid squares (Annex 4) that were used in a past vegetation survey of Ascension (DPLUS038). This ensures that the survey effort is comprehensive and includes all major habitat types.

Within these squares sampling locations are being randomly selected. Multiple methods are used at each sampling site to target different types of invertebrates and collect a representative sample of what is present. These methods include: ground pitfalls, hanging pitfalls, malaise traps, tullgren funnels, moth traps and hand searching (Annex 4). In addition to the sample collection, the following environmental variables are recorded at each site: broad habitat category (barren, grassland, shrub, forest, cave etc), local geology (eg mafic flows, mafic ash, superficial deposits, cones), elevation, presence/absence of major invasive plant species, and presence/absence of seabird colonies and guano.

To date, 70 survey sites from 27 1 km^2 grid cells have been visited and 500 samples collected.

1.5 Survey samples are processed and identified using initial sorting to groups and family by Project Officer and groups labelled, and sent to external specialists in St Helena National Trust, Natural Museum.

Invertebrate samples have been sorted and identified to at least family level by Dr Sharp (Annex 5). All samples are being stored in ethanol and the first batch will be sent to the UK for species level identification on the May supply ship from Ascension. Contacts at the Natural History Museum, Fera Science, Derby University, the Museum for Natural Sciences and Prehistory in Dessau have been established to carry out the identification work.

1.6 Voucher specimens linked to DNA samples of each species stored on Ascension and sent to BIOSCAN project to establish DNA reference collection for Ascension

This activity is not scheduled to begin until year 2 of the project. Samples are being stored in ethanol to allow future DNA sequencing to be undertaken.

1.7 Verified species records added to Ascension Biodiversity Catalogue (ABC) and made available via SAERI

This activity is not scheduled to begin until year 2 of the project. The project database has been designed to be compatible with the Ascension Biodiversity Catalogue so that records can be easily transferred once verified.

Activities under Output 2

2.1. Red listing process is undertaken working with MAIISG and appropriate IUCN taxon Specialist Groups is used for review, and submitted for publishing

Between 5 and 8 April 2022, Dr Sharp attended a remote red listing workshop to gain a deeper understanding of the red listing process. Dr Sharp's preliminary red list recommendations for several unlisted and endemic species were confirmed as appropriate by IUCN reviewers.

2.2 Endemic invertebrate conservation plan written based on background information and consultation with project partners
2.3 Invertebrate actions, species and broader actions, are incorporated into protected area management plans and development control guidance
2.4 Training in invertebrate conservation is delivered to AIGCFD staff and volunteers by the Project Officer supported by international specialists

No actions under Output 2 are scheduled to begin until year 2 of the project.

Activities under Output 3

3.1 Profiles of 19 invertebrate species including best-practice surveillance and control methods will be researched and written using existing invasive species databases and partner input.

There has been no progress on this activity to date even though it was scheduled to begin in Q4 of Year 1. It was decided by the project partners that the survey effort should be prioritised to ensure samples can be collected from across the island with sufficient time to identify the species and act on the findings within the project period. As a result, preparation of the species profiles for high risk non-native invertebrates will be initiated and completed in Year 2.

3.2 Training on surveillance and control of 19 high-risk invasive invertebrate species provided to 3 staff in the AIGCFD team
3.3 Surveillance methods for high risk invertebrates implemented as part of existing biosecurity monitoring
3.4 Control methods for high risk invasives incorporated into existing AIG biosecurity response protocols
3.5 Control methods for BHA applied in trial sites and complementary monitoring undertaken to understand impact of control

Actions 3.2-3.5 are not scheduled to begin until year 2 of the project.

Activities under Output 4

4.1 A short booklet on Ascension's endemic invertebrates is written and designed and published both as a hard copy and an online version
4.2 Plan and deliver school events run, engaging 65 pupils with Ascension's invertebrates
4.3 Produce a video showcasing Ascension's invertebrates and distribute via AIGCFD website

No actions under Output 4 are scheduled to begin until year 2 of the project.

3.2 Progress towards project Outputs

Output 1. Comprehensive and fully accessible database of invertebrates on Ascension, including all existing records and results of strategic sampling effort.

A strategic sampling effort has been designed and is underway. The island has been divided into 100 grid squares and at the end of March 2022 27 squares have been visited and sampled. All samples are being stored in ethanol to allow subsequent DNA sequencing. The results of the sampling are being entered into a dedicated database that will be incorporated into the existing Ascension Biodiversity catalogue.

Output 2. Invertebrates integrated into long-term conservation planning
Output 3: Targeted biosecurity response for potential and existing 'high risk' invertebrate invasives that would impact Ascension's protected species by introducing a species-specific control assessment and surveillance measures
Output 4: Information materials and engagement activities raise awareness of Ascension's invertebrate importance and diversity both nationally and internationally

No actions associated with these outputs were scheduled to begin until Year 2 and so there is no progress to report on these outputs.

3.3 Progress towards the project Outcome

Outcome - Data, knowledge, tools and resources facilitating the integration of invertebrates into conservation and biosecurity planning systems; fostering understanding, resulting in improved biodiversity conservation and reduced invasive invertebrate species impacts

The survey work that will provide the foundation for achieving the project outcome is underway. This work is proceeding as planned, no assumptions have been violated and no new risks have emerged, but it is too early in the project to evaluate meaningfully whether the outcome will be met.

3.4 Monitoring of assumptions

In Year 1 of the project the focus has been on delivering actions that contribute to output1 and so consideration of assumptions is restricted to those associated with that output.

Assumption 1: *A suitable project officer can be recruited and upskilled*
Comments: Dr Sharp is highly qualified and experienced to undertake this role and has already demonstrated great skill in field sampling, species identification and public engagement.

Assumption 2: *Weather conditions allow consistent survey methods to be applied*
Comments: There have been a small number of days when heavy rain has disrupted the survey effort. However, these periods have been very short and it was possible to either survey at different locations or prioritise sample sorting during those times.

Assumption 3*: Taxonomic experts are willing to contribute to project and able to identify specimens*
Comments: A network of taxonomists has already been identified through the project partners and Dr Sharp's existing connections.

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

This project is addressing one of the highest priorities identified in the updated Ascension Island Biodiversity Strategy and Action Plan that is about to go out to public consultation. The lack of comprehensive knowledge of the island's terrestrial invertebrate fauna and their inclusion in the protected area network is recognised as a major weakness in current biodiversity protection on Ascension and this project is designed specifically to address this.

This project will allow the Ascension Island Government (AIG) to meet its obligations under Articles 7, 8 and 13 of the Convention on Biological Diversity by filling a major gap in knowledge about endemic invertebrate species on the island and providing the necessary information to identify appropriate management tools to protect them.

AIG introduced a Biosecurity Strategy in 2020. A key aim of the strategy is to use the most effective and sustainable means of controlling non-native species already present on the island. This project has already collected new records of non-native species that pose a potential threat to Ascension's native biodiversity and identified how widespread damaging big-headed ant species are on the island. This work will help to prioritise highest risk species and lead to of more effective species-specific control measures.

5. OPTIONAL: Consideration of gender equality issues

This question is not relevant to the project.

6. Monitoring and evaluation

An M&E framework tied to the indicators and verification methods set out in the project logframe and timetable has been established. The AIGCFD project lead is responsible for overall management of the M&E process with input from project partners through quarterly meetings to assess progress.

It is too early in the project to evaluate whether the outcome is being achieved, but delivery of the project activities and outputs are on schedule and the project logic that these will lead to a successful outcome is still valid.

7. Lessons learnt

The project began only nine months ago and so far no major problems or learning opportunities have been encountered. There has been some refinement of the survey methods as they have been deployed in Ascension's unique habitat.

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

This is the first annual report for DPLUS135 and so no previous feedback has been received.

9. Other comments on progress not covered elsewhere

A subsequent Darwin Plus bid has been submitted by AIG to increase capacity and scope for DNA metabarcoding on Ascension. If successful, this project would allow the barcoding of species collected during this current project and the training of AIG staff to undertake metebarcoding on invertebrate samples.

10. Sustainability and legacy

The project has a high profile in the Territory because it is embedded within the Ascension Island Government Conservation and Fisheries Directorate. Everyone working in the conservation sector on Ascension is aware of the project and knows Dr Sharp. The presence of an invertebrate expert on the island has already resulted in improvements to the National Biodiversity Strategy and Action Plan and greater oversight of biosecurity surveillance monitoring linked to a major infrastructure project on the island.

The planned legacy and exit strategy for the project is still valid and will be further strengthened if the pending Darwin Plus bid is successful and a full invertebrate sequence library and metabarcoding capacity is established on Ascension.

11. Darwin identity

The focus of the first nine months of this project has been intensive sample collection to get the survey underway. As a result, there has been less time for outreach in the first year and there are few results to report to date. However, there has been some publicity to introduce the project including articles in the Ascension press, Species Recovery Trust Winter newsletter, UKOTCF newsletter and social media posts. All acknowledged the support provided by the Darwin Plus Programme.

There is a high level of awareness of Darwin Plus on Ascension. It is recognised as one of the main funders of biodiversity protection on the island and elected councillors and the island Administrator ask for regular updates on bid submissions and project progress.

12. Impact of COVID-19 on project delivery

The Covid pandemic and its impact on flight access to Ascension led to a two month delay in Dr Sharp arriving on Ascension. Through exceptional hard work, the sampling effort is back on schedule, but that initial delay coupled with a reduction in the frequency of supply ships meant the narrow window to get the first samples back to the UK for species-level identification was missed. There will be no long-term impact on the project logframe or timetable since species

identification was scheduled to take place until the start of FY23/24 and will now be carried out within a more concentrated period.

13. Safeguarding

Please tick this box if any safeguarding violations have occurred during this financial year. ☐

If you have ticked the box, please ensure these are reported to ODA.safeguarding@defra.gov.uk as indicated in the T&Cs.

There have been no safeguarding issues during this reporting period. AIG has safeguarding policies in place, but given the nature of this project there is a relatively low risk of safeguarding problems.

14. Project expenditure

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

Project spend (indicative) in this financial year	**2021/22 D+ Grant (£)**	**2021/22 Total actual D+ Costs (£)**	**Variance %**	**Comments (please explain significant variances)**
Staff costs (from Section 6)	[redacted]	[redacted]	[redacted]	There was a delay in Dr Sharp beginning his contract on Ascension due to Covid that resulted in lower staff costs.
Consultancy Costs	[redacted]	[redacted]	[redacted]	
Overhead Costs	[redacted]	[redacted]	[redacted]	
Travel and subsistence	[redacted]	[redacted]	[redacted]	Dr Sharp was not able to stopover in St Helena on his way to Ascension because of restricted flight schedules caused by Covid. This resulted in lower flight and T&S costs.
Operating Costs	[redacted]	[redacted]	[redacted]	It is difficult to estimate operating costs and although the percentage variance is high, it is a small absolute amount.
Capital items (from Section 7	[redacted]	[redacted]	[redacted]	
Others (from Section 8)	[redacted]	[redacted]	[redacted]	
TOTAL	[redacted]	[redacted]		

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 should 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 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.	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?	Yes
Do not include claim forms or other communications with this report.	