DPLR1\1057

Darwin Plus Local - Final Report (1)

Officer: Jordan Newman

Section 1 - Darwin Plus Local Project Information (Essential)

Project Reference Number

DPL00040

Q1. Project Title

No Response

Overseas Territory(ies)

☑ St Helena, Ascension, and Tristan de Cunha

Lead Organisation or Individual

Ascension Island Government Conservation and Fisheries Directorate

Partner Organisation(s)

Species Recovery Trust

Value of Darwin Plus Local Grant Award

£5,300.00

Project Start Date

01 April 2023

Project End Date

31 March 2024

Project Leader Name

Dr Adam Sharp

Project Website/Twitter/Blog etc.

No Response

Report Author(s)

Dr Adam Sharp

Report Date

29 April 2024

Project Summary

No Response

Project Outcomes

Checked	**Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;**
Unchecked	**Climate Change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;**
Checked	**Environmental quality: improving the condition and protection of the natural environment;**
Checked	**Capability and capacity building: enhancing the capacity within OTs, including through community engagement and awareness, to support the environment in the short- and long-term.**

Section 2 - Project Outcomes (Essential)

On a scale of 1 (high – outcome substantially exceeded) to 5 (low – outcome substantially did not meet expectation), how successful do you think your project has been?

⦿ 1 - Outcome substantially exceeded

Project outcomes and justification for rating above

The following knowledge gaps were previously limiting the AIGCFD from effectively managing the island-endemic Discophallus scaly crickets. The knowledge improved during this project is indicated by *:

OVERALL OBJECTIVE

New protected areas have been designed, been through a public consultation period, and approved by vote by local council. They await formal designation and are currently being held up by UK military stakeholders, despite local approval.

CURRENT SITUATION AND PROBLEM BEING ASSESSED

*Intensive research has suggested that those five species actually constitute just one true species. As such, all actions have been converted to focus on just the one species – Discophallus ascension. Immediate action is

necessary to prevent Discophallus extinction. Recent observations suggest that invasive species are driving population declines through predation or competition pressures.*

Knowledge gaps prevent informed management by AIGCFD, including:

1. Poor understanding of Discophallus ecology. Identifying key requirements will highlight resources and microhabitat to be incorporated into protected areas.
We found that Discophallus crickets are protein feeders, and probably feed mainly on crab carcasses at the coast.
Discophallus crickets have a preferred optimum temperature of around 24°C. This explains their elusive nocturnal behaviour, away from daytime ground temperatures > 50°C.
We observed Discophallus crickets breeding and ovipositing on sand and volcanic dust. They seem to require any kind of dry particulate substrate to deposit their eggs. We also recorded their audible/ultrasonic mating calls for the first time.

2. No quantitative assessment of how invasive species impact the group. Prioritising threats posed by specific invasive species will inform AIGCFD as to which to allocate limited resources for eradication.
We directly recorded increases in scavenging competition for food resources from the closely-related non-native cricket Gryllodes sigillatus.
We simulated predation in the field and detected predation by non-native ants (Paratrechina longicornis) and non-native rats (Rattus rattus).
Mexican thorn significantly modified fine-scale microhabitat but not beyond the estimated acceptable range for Discophallus ascension.
We detected Discophallus ascension around the coast and estimated the location of optimum conservation sites to be along the north and south coasts of Ascension.
Discophallus ascension has been threat assessed as Critically Endangered. The Red List assessment has been peer-reviewed and accepted, and the assessment will be published on the next version of the IUCN Red List online.

IDENTIFICATION AND MEASUREMENT OF SUCCESS

Data was successfully collected and analysed by August2023.
Only one species has been Red Listed, but we believe that the other two “species” are in fact synonymous with Discophallus ascension.
Thesis was written and submitted to Imperial College London, and received a high grade. Scientific publication was derived from the thesis and is currently in review with the scientific journal Biological Invasions.
Discophallus ascension calls were successfully recorded and are detectable by sound recorders, which will be used for monitoring of the species within newly designated protected areas.
Although protected areas are not yet legally established, they have been designed and locally approved and await designation. Management plans have been written already.

Supporting Evidence - file(s) upload

Management_Plan_South_Coast Reserve
29/04/2024
06:40:16
pdf 14.24 MB

Management_Plan_Expanded_Beach_Reserves
29/04/2024
06:40:13
pdf 4.29 MB

Article_Draft
29/04/2024
06:40:13
pdf 2.55 MB

PA_Expansion_Policy
29/04/2024
06:40:13
pdf 2.74 MB

Chin_Weng_Yuen_Masters_Thesis
29/04/2024
06:40:12
pdf 692.2 KB

Red_List_Assessment_D_ascension
29/04/2024
06:40:11
docx 16.8 KB

Supporting Evidence - links to published document/online materials

NA

Project Challenges

This project did encounter problems. Initially, the project was slow to start because of delays in the funding decision. Because of this, it was difficult to find a suitable MSc student as many had already chosen and started thesis projects. After finding a suitable MSc student, there were difficulties in working out distributions of the crickets, which we later realised was because there were not three Ascension-mainland Discophallus species as was previously reported in the scientific literature.

Lessons Learned

We successfully completed a range of both lab and field experiments to decipher various aspects of Discophallus ecology. Despite the delays in finding a suitable candidate, it worked well recruiting a university student to collect this data as he was able to completely focus on the objectives of this project within a tight timeframe. This project also worked well in effectively designing meaningful protected areas and getting them approved by local council.

For some of the experiments, we did not collect as much data as would have been ideal. This was mainly because of delays to the start of the project and subsequent delays in recruiting a student.

If we repeated this project, we would have examined the type material of the Discophallus crickets beforehand so as to better understand the “species” morphology. However, it could not have been anticipated that we would find the genus to be comprised of just a single species.

I would recommend using novel and creative methods to assess ecological threats in the field. Most of the methods we used were low-cost, low-effort and highly informative. These methods are described through the attached thesis and subsequent publication should others like to try them.

Section 3 - Project Finance (Essential)

Project Expenditure

Project Spend (indicative) since last Annual Report	2023/24 Grant (£)	2023/24 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff Costs	[redacted]			
Consultancy Costs				
Overhead Costs				
Travel and Subsistence				
Operating Costs				
Capital Items				
Others				
Total	5,300.00	3,192.12	40	

Please provide a short narrative summary on project finances.

All project finances were spent on electronic devices which were crucial to collecting data for this project. Underspend was due to some of the devices being on "special offer" at the time that we bought them, and thus were significantly less expensive than anticipated. All equipment is currently still being used by AIGCFD for long-term monitoring of Discophallus cricket recovery in the new protected areas.

Co-financing was spent on accommodation, flights and subsistence costs for the student who carried out the majority of data collection.

Section 4 - Contribution of Project to Darwin Plus Programme Objectives

Please select up to **one** indicator that applies within **each group/indicator list (A, B, C, D)** and report your results for that indicator in the text box underneath. If you do not have relevant results to report for any of the indicators in a particular group, you can leave them blank.

Please also submit some form of evidence (above) to demonstrate any results you list below, where possible.

Group A: Capability and Capacity - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-A01: Number of people from key national and local stakeholder groups completing structured and relevant training.**

Unchecked	**DPLUS-A02: Number of secondments or placements completed by individuals of key local and national stakeholders.**
Checked	**DPLUS-A03: Number of local/national organisations with improved capability and capacity as a result of project.**
Unchecked	**DPLUS-A04: Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.**
Unchecked	**DPLUS-A05: Number of trainers trained reporting to have delivered further training by the end of the project.**

Group A Indicator Results

Ascension Island Government has improved capability and capacity to manage their endemic Discophallus crickets through development of baseline knowledge, purchase of monitoring tools and updating of official management plans with informed actions.

Group B: Policies, Practices and Management- Core Darwin Plus Standard Indicators (select one)

Checked	**DPLUS-B01: Number of new/improved habitat management plans available and endorsed.**
Unchecked	**DPLUS-B02: Number of new/improved species management plans available and endorsed.**
Unchecked	**DPLUS-B03: Number of new/improved community management plans available and endorsed.**
Unchecked	**DPLUS-B04: Number of new/improved sustainable enterprises/ community benefits management plans available and endorsed.**
Unchecked	**DPLUS-B05: Number of people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement).**
Unchecked	**DPLUS-B06: Number of Local Stakeholders and Local Communities (people) with strengthened (recognised/clarified) tenure and/or rights.**

Group B Indicator Results

The management plans for the protected areas enclosing the cricket habitat have been either newly written or updated and improved.

Group C: Evidence and Best Practices - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-C01: Number of best practice guides and knowledge products published and endorsed.**
Unchecked	**DPLUS-C02: Number of new conservation or species stock assessments published.**
Checked	**DPLUS-C03: New assessments of habitat conservation action needs published.**
Unchecked	**DPLUS-C04: New assessments of community use of biodiversity resources published.**
Unchecked	**DPLUS-C05: Number of projects contributing data, insights, and case studies to national Multilateral Environmental Agreements (MEAs) related reporting processes and calls for evidence.**

Group C Indicator Results

A threat assessment and habitat management actions have been published.

Group D: Sustainable Benefits to People, Biodiversity and Climate - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-D01 Hectares of habitat under sustainable management practices.**
Unchecked	**DPLUS-D02: Number of people whose disaster/climate resilience has been improved.**
Checked	**DPLUS-D03: Number of policies with biodiversity provisions that have been enacted or amended.**

Group D Indicator Results

This project directly addresses aims 1, 2, 3 and 8 of the Ascension Island Biodiversity Strategy and Action Plan (2022).

Section 5 - Project Partnerships, Wider Impacts and Contributions

Project Partnerships

Ascension Island Government managed most parts of this project as an extension of Darwin Plus 135 From pseudoscorpions to crickets: securing Ascensions Island's unique invertebrates.

The Species Recovery Trust supported Red List assessment of Discophallus ascension. Collaboration with AIGCFD extended from DPLUS135 and worked very well.

Imperial College London was informally involved as this was the institution from which we recruited a student to work on the project. Professor Rob Ewers (Imperial College London) handled university matters for the student and acted as co-supervisor for his thesis project. This collaboration stemmed from pre-existing relationships with Dr Adam Sharp and worked very well.

Dr Sharp (previously the AIGCFD Invertebrate Project Coordinator) analysed data and wrote reports from his new position at the University of Hong Kong (late 2023) where he is an ecology and conservation scientist.

Wider Impacts and Decision Making

The project has not influenced wider decision-making – only decision making within the new and expanded protected area. The most significant threats identified were invasive species. Impact (through management) was intentionally confined to protected areas, as local capacity for dealing with invasive species is limited.

Sustainability and Legacy

The legacy of the project is certainly in the new and expanded protected areas stemming from the data collected. Equipment purchased for data collection during this project remains with AIGCFD and will be used for monitoring species recovery within the new protected areas, once designated. The student, Chin Weng Yuen, has graduated and now works elsewhere. Dr Sharp has left AIGCFD. Ongoing species management and coordination of recommended further research will be by terrestrial Conservation Team AIGCFD team.

Section 6 - Communications & Publicity

Exceptional Outcomes and Achievements

The Darwin Local project Ascension Scaly Crickets: Urgent Conservation of a Unique Endemic Genus was lead by the Ascension Island Government Conservation & Fisheries Directorate (AIGCFD). During the course of the project, the ecology and threats of the endemic scaly cricket Discophallus ascension were researched and described in detail, mainly by Mr Chin Weng Yuen who was a MSc student from Imperial College London. Mr Chin found that those endemic crickets were coastal scavengers on crab and fish carcasses and were immediately threatened by invasive species. In even barren areas far from settlement, the species was threatened by predation from invasive black rats Rattus rattus. With encroachment of the invasive woody shrub Neltuma (formerly Prosopis) juliflora, invasive ants were also introduced and further threatened the crickets with unnatural predation. These findings directly informed management as they showed that both invasive shrub and rat control were required to restore this endemic insect to natural population levels. The project was successful in defining threats to endemic biodiversity and exposing areas of high management potential. Those areas are well on the way to becoming designated as new or expanded protected areas with explicit management actions aimed at the recovery of D. ascension populations. The legal designation of those areas as new reserves has already been campaigned for by AIGCFD, passed approval vote by local council, and requires only final confirmation before coming into force. On limited budget, the project has therefore been hugely beneficial in uncovering threats to local biodiversity and developing effective management strategies for mitigating against biodiversity loss. On top of this, the analysis of threats is currently in review with an international scientific journal and might inform species management of endemic invertebrates and invasive species on oceanic islands elsewhere. AIGCFD hope that this successful project and future management of D. ascension will serve an exemplary case of invertebrate conservation and recovery in the UKOTs.

Photo, video or graphic to be used for publicity and communications.

Please upload at least one relevant and engaging image, video or graphic that you consent to be used alongside the above text in Defra, JNCC or NIRAS communications material.

Discophallus_acension
29/04/2024
06:59:32
jpg 8.87 MB

North_East_Coast_NR
29/04/2024
06:59:31
png 1.72 MB

South_Coast_NR
29/04/2024
06:59:31
png 1.66 MB

Photo, video, and/or graphic captions and credits.

North_East_Coast_NR.png
Caption:
Boundary of a planned and locally approved expansion to the existing North East Coast Nature Reserve (white) on Ascension Island. The expansion incorporates rocky volcanic coastline which accommodate the Ascension-endemic scaly cricket Discophallus ascension. Map credit: Dr Diane Baum.

South_Coast_NR.png
Caption:
Boundary of an entirely novel protected area on Ascension Island: South Coast Nature Reserve. The new protected area, which has already been locally approved and awaits formal designation, comprises rocky volcanic habitat of the Ascension-endemic scaly cricket Discophallus ascension. Map credit: Dr Diane Baum

Discophallus_ascension.jpg
Caption:
First ever live photographs of the Ascension-endemic scaly cricket Discophallus ascension. The species has previously only ever been observed dead in insect traps. These elusive crickets are the natural “clean-up crew” of Ascension’s barren coastlines. Photo credit: Dr Adam Sharp

I agree for the Biodiversity Challenge Funds Secretariat, Administrator, and/or JNCC to publish the content of this section.

⦿ Yes, I agree for the BCFs Secretariat and/or JNCC to publish the content of this section.

Please list any accounts that you would like tagged in online posts here. This can include project pages, partners’ pages or individuals’ accounts for any of the following platforms: LinkedIn, Facebook, Twitter, or Instagram.

Twitter:
AIGCFD @AIGConservation
Dr Adam Sharp @DrAdamSharp

Facebook:
AscensionIslandConservation

Section 7 - Darwin Plus Contacts

Please tick here to confirm that you have read and acknowledge the BCF's Privacy Notice on how contact details will be used and stored and that you have sought agreement from anyone that you are sharing personal details with us on their behalf.

⊙ I confirm I have read the Privacy Notice and have consent to share the following contact details

Project Contact Details

Project Contact Name	Dr Tiffany Simpson
Role within Darwin Plus Project	Director of AIGCFD
Email	[redacted]
Phone	
Do you need further sections to provide additional contact details?	⊙ No