Applicant: **Baum, Diane**
Organisation: **Ascension Island Government**
Funding Sought: **£5,300.00**

DPLR1\1057

Ascension Scaly Crickets: Urgent Conservation of a Unique Endemic Genus

OVERALL OBJECTIVE

We will prevent the extinction of Ascension's endemic Discophallus genus through establishment of new protected areas and targeted management plans underpinned by knowledge of their fundamental ecology and threats.

CURRENT SITUATION AND PROBLEM BEING ASSESSED

The Discophallus scaly crickets comprise five species, of which three are confined to the main Ascension Island and two to an inaccessible islet. The crickets were described as "very abundant" on the mainland in 1990 (Ashmole & Ashmole 1997) but 2022 surveys suggested severe population declines.

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 need to know:
    a. Diet and resource requirements.
    b. Microclimate preferences.
    c. Breeding behaviour.
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. Threats include:
    a. Increased scavenging competition for food resources, eg with abundant invasive crickets.
    b. Direct predation, eg by aggressive introduced invertebrates such as big-headed ant.
    c. Modification of habitat structure, eg by invasive plants such as Mexican thorn.
3. Poor understanding of Discophallus occupancy at key mainland sites, which will inform protected area boundaries.
4. None of the three mainland species have been Red Listed.

METHODS

This project will systematically address the knowledge gaps listed above.

1. A postgraduate ecology/entomology student will research Discophallus under controlled conditions.
    a. Live-trap Discophallus individuals and maintain them.
    b. Quantify diet preferences via trials.
    c. Identify microclimate requirements via trials.
    d. Record male calls.
    e. Identify breeding mechanisms and requirements via trials.

f. Rerelease scaly crickets at site of capture.

2. The student will identify and prioritise invasive species threats from field experiments.
   a. Quantify competitive scavenging interactions involving Discophallus along baited transects.
   b. Quantify predation rate by ants using surrogate invasive cricket species as bait.
   c. Link controlled analysis of resource/microclimate requirements with field measurements to imply critical shifts in habitat structure.
   d. Assess impacts and prioritise invasive species for control.
   e. Student and supervisor will compile results in thesis and scientific publication.
3. Identify extents of Discophallus occupancy at key sites.
   a. Student will assess via baited transects and GoPro cameras.
   b. AIGCFD will use findings to inform protected area boundaries.
   c. AIGCFD will deploy audio recorders along relevant coastline to monitor Discophallus occurrence via male calls.
4. Red List the three species.
   a. Using new evidence on ecology, occupancy and threats.

Findings will be used to define boundaries of a new protected area(s) for Discophallus on Ascension. Captive and field-based studies will inform evidence-based management plans for the Discophallus species within protected areas. Management, to be incorporated into long-term AIGCFD workflow, is likely to include chemical control of specific invasive invertebrates or manual removal of invasive plants. Conservation success will be monitored via field audio recorders.

IDENTIFICATION AND MEASUREMENT OF SUCCESS

A successful outcome would be the designation of new protected areas and implementation of evidence-based management plans by AIGCFD to address threats and monitor mainland Discophallus recovery.

Success will be measured by achievement of the following targets

- Data collected by August 2023.
- Three Discophallus species Red Listed by November 2023.
- Thesis written by October 2023 and converted into scientific publication by January 2024.
- Report on Discophallus monitoring via sound recorders by January 2024.
- Protected area established and associated management plans adopted by March 2024.

PRIMARY APPLICANT DETAILS

Title	Dr
Name	Diane
Surname	Baum
Organisation	Ascension Island Government
Website (Work)	[redacted]
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

CONTACT DETAILS

Title	Dr
Name	Adam
Surname	Sharp
Organisation	Ascension Island Government
Tel	[redacted]
Email	[redacted]
Address	[redacted]

DPLR1\1057

Ascension Scaly Crickets: Urgent Conservation of a Unique Endemic Genus

Section 1 - Project Title & Contact Details

Q1. Project Title

Ascension Scaly Crickets: Urgent Conservation of a Unique Endemic Genus

Q2. Please select whether you are applying as an organisation or as an individual **(Guidance section 3 and Guidance Glossary)**

⦿ Organisation

PRIMARY APPLICANT DETAILS

Title	Dr
Name	Diane
Surname	Baum
Organisation	Ascension Island Government
Website (Work)	[redacted]
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

CONTACT DETAILS

Title	Dr
Name	Adam
Surname	Sharp
Organisation	Ascension Island Government
Tel	[redacted]
Email	[redacted]
Address	[redacted]

GMS ORGANISATION

Type	Organisation
Name	Ascension Island Government
Phone	[redacted]
Email	[redacted]
Address	[redacted]

Section 2 - Overseas Territory(ies)

Q3. Overseas Territory (Guidance section 1.3):

Which UK Overseas Territory(ies) will your project be working in? Please note that in case of a non-permanent resident population you need to demonstrate a clear, meaningful, long-term link to the territory.

☑ St Helena, Ascension and Tristan da Cunha*

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

Ascension Island

In addition to the UKOT(s) you have indicated, will your project directly benefit any other UK OT(s) or country(ies)?

⦿ No

Section 3 - Project Partners

Q4. Project partners (Guidance section 3.2)

In this section, please give details of all the partners involved (including the Lead Partner) and provide a summary of their roles.

Project Leader name (Guidance section 3.1):	Dr Adam Sharp
Lead Partner name (if applying as an organisation; Guidance section 3.1):	Ascension Island Government Conservation and Fisheries Directorate
Lead Partner Website (if applicable):	www.ascension.gov.ac

Is the Lead Partner based in a UKOT where the project is working (Guidance section 3.1)?	⊙ Yes
List other partners involved and where are they based (Guidance section 3.2):	Species Recovery Trust, Salisbury, UK
Summary of roles and responsibilities of each partner in the project:	AIGCFD, led by Dr Sharp, will take responsibility for delivery of all actions listed in the project description, project management, financial controls and monitoring, evaluation and reporting. Vicky Wilkins of Species Recovery Trust will lend expert support on Red List assessment of three species.
I confirm that all listed partners are aware of this application and have indicated support:	Checked

Attach a Cover Letter for your application (Guidance section 4.2).

cover_letter_scaly_crickets
13/02/2023
15:38:22
pdf 1.38 MB

Section 4 - Project Summary & Description

Q5. Project Summary (Guidance section 3.8)

Please provide a brief summary of your project. This may be used in communication activities and/or published online, if your application is successful.

This project will secure the long-term recovery of the Ascension-endemic scaly cricket genus Discophallus. The three illusive mainland species are at immediate risk of extinction, with anecdotal evidence suggesting population crashes since 1990. Urgent research will describe ecology and environmental requirements of the group, and will quantify and prioritise specific threats posed by invasive species. Findings will inform Red List assessments and the designation of new protected areas, which will in turn enable evidence-based species management by AIGCFD.

Q6. Description (Guidance section 2.1)

Please provide a description of your project, including:

- **the overall objective**
- **the current situation and the problem the project is trying to address**

- **what success will look like and how you will measure it**

Please be as specific as possible when describing the project, using quantified data and evidence where available. You may wish to consider: what are the specific threats to the environment that the project will attempt to address, and what should we know about these threats? What does your successful project look like? And how will you demonstrate whether and how your project has been successful?

OVERALL OBJECTIVE

We will prevent the extinction of Ascension's endemic Discophallus genus through establishment of new protected areas and targeted management plans underpinned by knowledge of their fundamental ecology and threats.

CURRENT SITUATION AND PROBLEM BEING ASSESSED

The Discophallus scaly crickets comprise five species, of which three are confined to the main Ascension Island and two to an inaccessible islet. The crickets were described as "very abundant" on the mainland in 1990 (Ashmole & Ashmole 1997) but 2022 surveys suggested severe population declines.

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 need to know:
a. Diet and resource requirements.
b. Microclimate preferences.
c. Breeding behaviour.
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4. None of the three mainland species have been Red Listed.

METHODS

This project will systematically address the knowledge gaps listed above.
1. A postgraduate ecology/entomology student will research Discophallus under controlled conditions.
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e. Student and supervisor will compile results in thesis and scientific publication.
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a. Student will assess via baited transects and GoPro cameras.
b. AIGCFD will use findings to inform protected area boundaries.
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4. Red List the three species.
a. Using new evidence on ecology, occupancy and threats.

Findings will be used to define boundaries of a new protected area(s) for Discophallus on Ascension. Captive and field-based studies will inform evidence-based management plans for the Discophallus species within protected areas. Management, to be incorporated into long-term AIGCFD workflow, is likely to include chemical control of specific invasive invertebrates or manual removal of invasive plants. Conservation success will be monitored via field audio recorders.

IDENTIFICATION AND MEASUREMENT OF SUCCESS

A successful outcome would be the designation of new protected areas and implementation of evidence-based management plans by AIGCFD to address threats and monitor mainland Discophallus recovery.

Success will be measured by achievement of the following targets
• Data collected by August 2023.
• Three Discophallus species Red Listed by November 2023.
• Thesis written by October 2023 and converted into scientific publication by January 2024.
• Report on Discophallus monitoring via sound recorders by January 2024.
• Protected area established and associated management plans adopted by March 2024.

(Optional) Please upload any additional and supporting materials or files (such as maps of project sites, etc) below. Maximum of 5 pages:

No Response

Section 5 - Project Outcome(s)

Q7. Project Outcome(s) (Guidance section 1.2)

Successful Darwin Plus Local projects must demonstrate measurable outcomes in <u>at least one of the themes</u> of Darwin Plus, either by the end of the project or soon after through a credible plan.

<u>Please tick which theme(s) of Darwin Plus your project underpins:</u>

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.**

Please justify your selection.

This project will initiate conservation of three endemic Discophallus species, thus preventing species extinctions and slowing BIODIVERSITY loss. This will be achieved by identifying and quantifying the specific mechanisms by which invasive species reduce ENVIRONMENTAL QUALITY. Addressing knowledge gaps on those impacts will inform AIGCFD on how best to allocate protected areas and target limited resources at control of specific invasive species within them, and purchase of long-term monitoring devices will allow low-effort tracking of Discophallus recovery within regular AIGCFD workflow (CAPABILITY AND CAPACITY BUILDING).

Section 6 - Project Timeline

Q8. Project timeline (Guidance section 2.2)

Please provide anticipated dates for the start and end of your planned project here. Please use the Darwin Plus Local Project Implementation Timetable Template (which can be downloaded below) to provide a list of the individual activities you have planned for this project, a brief description of what each activity entails, and the months in which the activities will be carried out. If the project involves only one activity (e.g. a purchase), please still provide project start and end dates (noting estimated times for procurement). Please note that your project will need to be completed by 31 March 2024.

Start date:	End date:	Duration (e.g. 3 months):
23 May 2023	31 March 2024	11 months

Please upload the completed Darwin Plus Local Project Implementation Timetable template with your proposed project activities below.

timetable_scaly_crickets
11/02/2023
16:38:01
docx 41.88 KB

Section 7 - Costs

Q9. Costs (Guidance section 2.2 and please read the Finance Guidance)

Please provide a breakdown of costs to be funded through Darwin Plus Local (in GBP).

Are you seeking any matched funding for this project? (Please note that this is optional and there is no requirement to seek matched funding for Darwin Plus Local projects).

⦿ Yes

How much matched funding are you seeking and where from?

US[redacted] (equal to [redacted], 6th February 2023) from Indianapolis Zoo, which has already been confirmed.

Budget line	Explanation	Cost in GBP
Staff costs:	Staff costs will be covered in-kind, as the majority of the work will be incorporated into ongoing AIGCFD workflow. Existing Invertebrate Project Coordinator Dr Adam Sharp will lend expertise on invertebrate taxonomy, ecological data analysis, and analysis of audio data as an extension to DPLUS135. Vicky Wilkins (SRT) will lend expertise on Red Listing as an extension to DPLUS135. The majority of experimental work will be conducted by an unsalaried student, as part of a Masters project.	[redacted]
Overhead costs:	Contributed in-kind by AIGCFD	[redacted]
Travel & subsistence costs:	Travel and subsistence costs for a postgraduate student making a two month visit to Ascension from the UK will be covered by Indianapolis Zoo. These costs include flights, utilities, food, housing maintenance and travel insurance. Accommodation will be provided by AIGCFD as an in-kind contribution.	[redacted]
Operating costs:	Fuel cost for fieldwork is covered by Indianapolis Zoo. Vehicle usage is supplied in-kind by AIGCFD.	[redacted]
Capital equipment:	GoPro cameras, tripods, memory cards and lighting to monitor scavenging transects in the field. Terrariums, heating, thermostats, thermometers and hygrometers to trial preferred microhabitat conditions under lab conditions. Garmin GPS device to map cricket occurrence sites. AudioMoth devices to detect male calls in the field and deploy for long-term occurrence monitoring.	[redacted]
Consultancy costs:	No consultancy costs.	[redacted]
Total:		[redacted]

This section provides more information on the budget to help evaluators understand how you will

use the funds you are requesting. You do not need to list all costs, but please list and detail costs of more than £1,000 per item below, under the appropriate budget line.

Details of staff costs over £1,000 (if relevant)

No Response

Details of overhead costs over £1,000 (if relevant):

No Response

Details of travel and subsistence costs over £1,000 (if relevant):

No Response

Details of operating costs over £1,000 (if relevant):

No Response

Details of capital equipment costs over £1,000 (if relevant):

5x GoPro Hero 10 Black – total [redacted].
Cameras will be purchased from www.amazon.co.uk, which was found to be cheaper than www.argos.co.uk and equally-priced compared with www.very.co.uk.

Details of consultancy costs over £1,000 (if relevant):

No Response

Details of other costs over £1,000 (if relevant)

No Response

If your project budget was prepared in another currency and converted to GBP, please provide the exchange rate, its source, and the date it was accessed:

Other currency:	Exchange rate:	Source of this exchange rate:	Date exchange rate accessed:
No Response	*No Response*	*No Response*	*No Response*

Darwin Plus Local has been created to build capacity and contribute to local economies in-territory.

What % of the total will be spent in the OTs? [redacted]

If less than 80% of the total project spend is to be spent within the OT(s), please explain why.

No Response

Section 8 - Local and National Priorities

Q10. Local and national priorities

Please explain how this project aligns with local and national priorities? You may wish to consider

the project in the context of national environmental laws, objectives, strategies, territory specific agreements, action plans or policies.

This project meets five of the nine strategic objectives outlined in the Ascension Island Biodiversity Strategy and Action Plan (AIG 2022):
"1. No native species or genetically distinct populations are lost from Ascension and the size and distribution of native populations is maintained or increased."
- This project aims to conserve populations of Ascension-endemic scaly crickets.
"2. Management plans are in place and being implemented for all protected areas."
- We will establish a new protected area and write and implement a new management plan for it..
"3. Habitats are improved to support self-sustaining populations of endemic species that require little or no ongoing management."
- Informed removal of high-priority invasive species from areas of Discophallus occupancy.
"4. There are no new introductions of invasive, non-native species and the impacts of those already present are reduced."
- This project will quantify the impacts of a range of invasive species and reduce their impact by prioritizing their removal at key sites.
"8. The knowledge and value of Ascension's biodiversity are shared with the Ascension and global community."
- All knowledge, images and outputs will be disseminated via AIG social media channels.

Will the project take place on Government owned land or water?

◉ Yes

Please attach evidence that you have Government support i.e. Letter of Support.

AIG Letter of support - Darwin Local R1 - Scaly crickets
11/02/2023
16:46:19
pdf 141.63 KB

Section 9 - Project Risks

Q11. Project Risks

Please demonstrate your consideration of any risks involved in this project and how you intend to manage them. Depending on your project, you may wish to consider:

- **Biosecurity risks – particularly for projects involving external equipment.**
- **Safeguarding risks – particularly for projects involving vulnerable groups such as children, older people or people with disabilities.**

Risk	Mitigation

Over-sampling of endemic crickets.	Population sizes of the Discophallus species are unknown and presumed small, and thus all individual involved in captive research will be properly maintained and rereleased. If any preserved specimens are required (eg to confirm difficult species-level identification), lethal collection will be limited to one per site.
Failure to find a suitable postgraduate student.	Dr Adam Sharp and AIGCFD have professional links to postgraduate courses at Imperial College London, Natural History Museum, University of Cambridge and Harper-Adams University. They run courses of significant relevance to this project (ecology/entomology) and have agreed to advertise for a student, therefore there is considerable redundancy in place to mitigate the risk.
Failure to collect live crickets.	Although the crickets are rare, AIGCFD have already designed non-lethal traps which have successfully caught Discophallus crickets in notable numbers at multiple sites (January and February 2023).

Do you require more fields?

⦿ No

Section 10 - Terms & Conditions

Q12. Terms and conditions (Guidance section 3.10)

By applying for Darwin Plus Local you are adhering in full to the grant Terms and Conditions in full (available at: https://dplus.darwininitiative.org.uk/apply **and as referenced in the Guidance at section 3.10). For information, the Terms and Conditions include requirements for all applicants to (amongst other requirements as per the full Terms and Conditions):**

- **Uphold a zero tolerance for inaction approach to tackling sexual exploitation, abuse, and harassment.**
- **Where appropriate, make all reasonable and adequate efforts to address gender inequality and other power imbalances.**
- **Notify all cases of fraud and theft (whether proven or suspected) relating to the project to the Grant Administrator as soon as they identified.**

Please indicate you have read, and understood, and will adhere to the Terms and Conditions.

Checked

If your application is successful: If your project application is successful, the Fund Administrator (NIRAS) will ask you to provide some financial evidence for due diligence checks before you receive your project grant. (Please see section 3.3 of the Darwin Plus Local Finance Guidance). Please be ready to provide this evidence promptly.
Financial evidence for organisations: Year-end financial statements, the latest management accounts or audited accounts (if you have these).
Financial evidence for individuals: Proof of identity such as a passport, ID card or driving licence and solvency (such as bank statements) and a police check.

Section 11 - Certification

Certification

I certify that, to the best of my knowledge and belief, the statements made in this application are true and the information provided is correct.

Checked

I have the authority to submit an application on behalf of my organisation.

Checked

Name:	Dr Diane Baum
Position in the organisation: (if applicable)	Director of Conservation and Fisheries
Signature (please upload e-signature)	Dee signature 11/02/2023 16:50:06 jpg 7.12 KB
Date:	11 February 2023

Section 12 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance **documents, including the "**Darwin Plus Local Guidance**" and the "**Darwin Plus Local Finance Guidance**".**	Checked
If my proposed project takes place on public lands or water, I have uploaded a Letter of Support from Government.	Checked

I have uploaded a cover letter that details the information requested in the guidance (Guidance section 4.2 has information on what this cover letter should include).	Checked
I have read, and can meet, the current Terms and Conditions **for this fund.**	Checked
I have provided actual start and end dates **for the project.**	Checked
I have provided my summary budget based on UK government financial years **i.e. 1 April – 31 March and in GBP in the application form.**	Checked
I have uploaded my project implementation timetable using the specific template **provided.**	Checked
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
The application has been signed by a suitably authorised individual **(clear electronic or scanned signatures are acceptable).**	Checked
I have checked the Darwin Plus website **immediately prior to submission to ensure there are no late updates.**	Checked
I have read and understood the Privacy Notice on the Darwin Plus website**.**	Checked

We would like to keep in touch!

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

Unchecked

Data protection and use of personal data

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

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

Darwin Plus Local

Provide a **Project Implementation Timetable** that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project. Projects are based on UK Financial Years (**1 April – 31 March** - therefore starts April 2023).

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and shade only the months in which an activity will be carried out. The workplan can span multiple pages if necessary.

Activity #	Description (max 25 words)	No. of months	UK Financial Year 2023/24											
			Calendar Year 2023									Calendar Year 2024		
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1a/f	Live-trap *Discophallus* individuals and maintain/rerelease them.	3												
1b	Quantify diet preferences via trials.	3												
1c	Identify microclimate requirements via trials.	3												
1d	Record male calls.	3												
1e	Identify breeding mechanisms and requirements via trials.	3												
2a	Quantify competitive scavenging interactions involving *Discophallus* along baited transects.	3												
2b	Quantify predation rate by ants using surrogate invasive cricket species as bait.	3												
2c	Link controlled analysis of resource/microclimate requirements with field measurements to imply critical shifts in habitat structure.	2												
2d	Assess impacts and prioritise invasive species for control.	2												

Project Title: Conserving five Ascension-endemic crustaceans in a tiny biodiversity hotspot

Activity #	Description (max 25 words)	No. of months	UK Financial Year 2023/24											
			Calendar Year 2023									Calendar Year 2024		
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2e	Student and supervisor will compile results in thesis and scientific publication.	8												
3a	Student will assess via baited transects and GoPro cameras.	3												
3b	AIGCFD will use findings to inform protected area boundaries.	2												
3c	AIGCFD will deploy audio recorders along relevant coastline to monitor *Discophallus* occurrence via male calls.	3												
4a	Red List three species using new evidence on ecology, occupancy and threats.	3												
5	Protected area established and associated management plans written and adopted	4												