

# **DPLR1\1052**

## **Conserving five Ascension-endemic crustaceans in a tiny biodiversity hotspot**

### OVERALL OBJECTIVE

This project will improve understanding of Ascension's anchialine pool ecology, identify immediate threats and develop a conservation strategy.

### CURRENT SITUATION AND PROBLEM BEING ADDRESSED

The anchialine habitat consists of landlocked saline pools covering 280 sq m with permanent subterranean connections to the sea. They represent the entire global distribution of five endemic crustaceans, three of which have yet to be described.

The pools are within the Mars Bay Nature Reserve, but currently receive little active management. Observations suggest they may be vulnerable to climate change impacts, human disturbance and litter. The following knowledge gaps prevent effective protection of the pools by AIGCFD:

1. Poor understanding of pool hydrology and ocean connectivity.
2. Poor understanding of species and ecosystem.
3. No quantitative assessment or prioritisation of threats, preventing the development of effective mitigation measures. Threats include:
  - a. Rising temperature and subsequent effects on pool salinity and dissolved oxygen.
  - b. Increased inundation caused by sea level rise and storm waves.
  - c. High pool connectivity rendering low spatial redundancy to biosecurity or pollution impacts.
  - d. Regular littering and disturbance.
4. None of the five endemic species have been Red List assessed.
5. The island community are largely unaware of the value of and fragility of the pools.

### METHODS

This project will systematically address the knowledge gaps listed above.

1. Define the topography and hydrology of the pools.
  - a. Create high-resolution Digital Surface Models of the pools using drone photogrammetry.
  - b. Use depth sensors to quantify drainage rates in individual pools.
  - c. Combine data to model tidal water flow between pools.
2. Describe three species and their ecology.
  - a. Collect specimens of each.
  - b. Taxonomic authority publishes species descriptions.
  - c. Photograph species in situ and analyse images for behaviours.
3. Quantify and prioritise threats to pool ecosystems.
  - a. Use temperature/salinity/oxygen sensors to compare present day values with 50 years ago (Chace & Manning 1972).

- b. Initiate ongoing temperature/salinity/depth measurement within the current capacity of AIGCFD.
  - c. Quantify frequency of extreme wave events using depth sensors to log inundation.
  - d. Quantify direct human impacts with monthly surveys of littering and invasive interaction (eg footprints in sediment).
  - e. Prioritise immediate threats in written Threat Assessment.
4. Red List the five endemic species.
    - a. Repeat methods of Chace & Manning (1972) to establish current density and distribution of five endemics and infer population trends over the past 50 years.
    - b. Red List endemic species based on population trends and Threat Assessment.
  5. Educate the island community on anchialine pool ecosystem and conservation.
    - a. Design and construct information boards close to the pools.
    - b. Disseminate learning and images via AIG social media channels.

The results of ecological/hydrological research and Threat Assessment will be used to develop an evidence-based conservation plan for the pools. This could include interventions such as the construction of barriers to inundation, shading or expansion of the pools to buffer increased temperatures and biosecurity barriers if invasive species are detected.

#### IDENTIFICATION AND MEASUREMENT OF SUCCESS

A successful outcome to this project would be AIGCFD having the knowledge to implement informed management interventions to protect the anchialine ecosystem, with support from the public.

Success will be measured by achievement of the following targets

- Hydrology map produced by October 2023.
- Three new species described and published by October 2023.
- Comprehensive Threat Assessment for pool ecosystems created by December 2023.
- Information boards installed by January 2023.
- All five endemic species Red Listed by January 2023.
- Updated Nature Reserve Management Plan with recommended management actions and plan for ongoing environmental monitoring by March 2023.
- Social media posts attract 10,000 engagements.

## PRIMARY APPLICANT DETAILS

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

## CONTACT DETAILS

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**Title** Dr  
**Name** Adam  
**Surname** Sharp  
**Organisation** Ascension Island Government  
**Tel (Work)** [REDACTED]  
**Email** [REDACTED]  
**Address** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

# DPLR1\1052

Conserving five Ascension-endemic crustaceans in a tiny biodiversity hotspot

## Section 1 - Project Title & Contact Details

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### Q1. Project Title

Conserving five Ascension-endemic crustaceans in a tiny biodiversity hotspot

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

Organisation

#### PRIMARY APPLICANT DETAILS

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<b>Title</b>	Dr
<b>Name</b>	Diane
<b>Surname</b>	Baum
<b>Organisation</b>	Ascension Island Government
<b>Website (Work)</b>	[REDACTED]
<b>Tel (Work)</b>	[REDACTED]
<b>Email (Work)</b>	[REDACTED]
<b>Address</b>	[REDACTED]

#### CONTACT DETAILS

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<b>Title</b>	Dr
<b>Name</b>	Adam
<b>Surname</b>	Sharp
<b>Organisation</b>	Ascension Island Government
<b>Tel (Work)</b>	[REDACTED]
<b>Email</b>	[REDACTED]
<b>Address</b>	[REDACTED]

#### GMS ORGANISATION

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Type	Organisation
Name	Ascension Island Government
Phone (Work)	[REDACTED]
Email	[REDACTED]
Address	[REDACTED]

## Section 2 - Overseas Territory(ies)

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### 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

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### 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](http://www.ascension.gov.ac)

**Is the Lead Partner based in a UKOT where the project is working (Guidance section 3.1)?**  Yes

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**List other partners involved and where are they based (Guidance section 3.2):** There are no other partners involved.

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**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.

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**I confirm that all listed partners are aware of this application and have indicated support:** Checked

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

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 [cover letter anchialine pools](#)  
 10/02/2023  
 17:28:58  
 pdf 1.28 MB

## Section 4 - Project Summary & Description

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### 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.**

We will secure the future of the delicate and unique anchialine pool ecosystem on Ascension to which five crustacean species are globally endemic, thus avoiding multiple species extinctions. This project will define the area's crucial hydrology, identify population trends in species, and prioritize immediate threats. Actions will include environmental assessment, species description, Red List assessment, public engagement, and on-island capacity building for habitat management. On completion, AIGCFD will be able to implement evidence-based conservation management of the anchialine pools.

### 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?**

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The pools are within the Mars Bay Nature Reserve, but currently receive little active management. Observations suggest they may be vulnerable to climate change impacts, human disturbance and litter. The following knowledge gaps prevent effective protection of the pools by AIGCFD:

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- Social media posts attract 10,000 engagements.

**(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)

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

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

**Please tick which theme(s) of Darwin Plus your project underpins:**

Checked **Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;**

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Checked **Climate change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;**

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Checked **Environmental quality: improving the condition and protection of the natural environment**

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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.**

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**Please justify your selection.**

This project will initiate conservation of five endemic crustacean species (BIODIVERSITY) through quantifying changes to and identifying threats to their unique habitat (ENVIRONMENTAL QUALITY). Threats to be examined include temperature changes and frequency of pool inundation during extreme wave events, which are both driven by CLIMATE CHANGE. Community awareness will be improved through both construction of information boards and regular social media updates, and AIGCFD staff will be enabled to progress with habitat management using purchased equipment, AIG Management Plan and comprehensive Threat Assessment to define next steps (CAPABILITY AND CAPACITY BUILDING).

## Section 6 - Project Timeline

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### 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

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

-  [timetable anchialine pools](#)
-  11/02/2023
-  15:50:17
-  docx 41.99 KB

## Section 7 - Costs

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### 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).

No

Budget line	Explanation	Cost in GBP
<b>Staff costs:</b>	Staff costs will be covered in-kind, as the majority of actions will be incorporated into ongoing AIGCFD workflow. Existing Invertebrate Project Coordinator Dr Adam Sharp will lend expertise on invertebrate taxonomy, ecological data analysis and Red Listing as an extension to DPLUS135.	██████
<b>Overhead costs:</b>	Contributed in-kind by AIGCFD	██████
<b>Travel &amp; subsistence costs:</b>	Contributed in-kind by AIGCFD	██████
<b>Operating costs:</b>	Contributed in-kind by AIGCFD	██████
<b>Capital equipment:</b>	<ul style="list-style-type: none"><li>• 6x water depth data loggers.</li><li>• 2x water temperature/salinity data loggers.</li><li>• 2x dissolved oxygen data loggers.</li><li>• Various sensor calibration solutions.</li><li>• 1x snorkel camera lens for underwater photography (to be used with pre-existing AIGCFD camera).</li><li>• Various components to construct and cement signage.</li></ul>	██████████
<b>Consultancy costs:</b>	Taxonomic specialist, to publish three species descriptions, has agreed to complete the work without payment.	██████
<b>Total:</b>		██████████

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):**

- 6x HOBO U20L-04 Water Level Data Loggers (0-4m) – [REDACTED] total.
- 2x HOBO U24-002-C Conductivity Data Loggers (Salt Water) – [REDACTED] total.
- 2x HOBO U26-001 Dissolved Oxygen Loggers – [REDACTED] total.
- 1x Laowa 24mm f14 Macro Probe Lens – [REDACTED].

Hobo data loggers will be ordered from www.tempon.co.uk – one of two UK importers of these US products. The other importer (www.measurementsystems.co.uk) was found to be more expensive.

The Laowa lens will be ordered from www.wexphotovideo.com, which was found to be cheaper than both www.amazon.co.uk and www.ukdigital.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 four 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 actively aims to conserve populations of Ascension-endemic crustaceans, across the entirety of their tiny distribution.

"2. Management plans are in place and being implemented for all protected areas."

- Knowledge and outputs resulting from this project will be used to update the existing management plan for the Mars Bay Nature Reserve in which the anchialine pools exist.

"3. Habitats are improved to support self-sustaining populations of endemic species that require little or no ongoing management."

- Immediate environmental assessment and ongoing monitoring will ensure that habitat quality is either maintained or will be improved.

"8. The knowledge and value of Ascension's biodiversity are shared with the Ascension and global community."

- All knowledge, images and outputs of this project will be disseminated to the Ascension community via information boards and also to the global community 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 - Anch](#)

[ialine pools](#)

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## Section 9 - Project Risks

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### 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
Human disturbance to the delicate anchialine pool ecosystem during research or sign construction.	Project workers will not be allowed to enter the water at any point. Data collection will be conducted from beside pools, and data loggers will be installed via attachments above the water level. Signs will be constructed at least five meters away from the closest pool edge.
Inadvertent introduction of species to the pools.	There will be absolutely no transfer of material between sea and pools. Any data loggers that are used will be thoroughly cleaned and then dried out before redeployment in the pools.

Over-sampling of endemic crustaceans.

Although the statuses of the five species are unknown, AIGCFD are extremely wary of removing any specimens from the pools. Where unavoidable (eg for species description), the bare minimum will be removed (<10 individuals) and all local legislation for the protected area will be strictly adhered to.

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**Do you require more fields?**

No

## Section 10 - Terms & Conditions

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### 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

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### 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

<b>Name:</b>	Dr Diane Baum
<b>Position in the organisation: (if applicable)</b>	Director of Conservation and Fisheries
<b>Signature (please upload e-signature)</b>	 <a href="#">Dee signature</a>  10/02/2023  17:48:57  jpg 7.12 KB
<b>Date:</b>	10 February 2023

## Section 12 - Submission Checklist

### Checklist for submission

	Check
<b>I have read the Guidance documents, including the “Darwin Plus Local Guidance” and the “Darwin Plus Local Finance Guidance”.</b>	Checked
<b>If my proposed project takes place on public lands or water, I have uploaded a Letter of Support from Government.</b>	Checked
<b>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).</b>	Checked
<b>I have read, and can meet, the current Terms and Conditions for this fund.</b>	Checked
<b>I have provided actual start and end dates for the project.</b>	Checked
<b>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.</b>	Checked
<b>I have uploaded my project implementation timetable using the specific template provided.</b>	Checked
<b>(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.</b>	Checked
<b>The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).</b>	Checked

**I have checked the Darwin Plus website immediately prior to submission to ensure there are no late updates.** Checked

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**I have read and understood the Privacy Notice on the Darwin Plus website.** Checked

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### **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).

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

## 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	Create high-resolution Digital Surface Models (DSMs) of the pools using drone photogrammetry.	2												
1b	Use depth sensors to quantify drainage rates in individual pools.	4												
1c	Combine data to model tidal water flow between pools.	2												
2a	Collect specimens of each of three undescribed amphipod species.	2												
2b	Taxonomic authority publishes species descriptions.	5												
2c	Photograph species in situ and analyse images for behaviours.	2												
3a	Use temperature/salinity/oxygen sensors to compare present day values with 50 years ago (Chace & Manning 1972).	5												
3b	Initiate ongoing temperature/salinity/depth measurement within the current capacity of AIGCFD.	6												
3c	Quantify frequency of extreme wave events	5												

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
	using depth sensors to log inundation.													
3d	Quantify direct human impacts with monthly surveys of littering and invasive interaction (eg footprints in sediment).	6												
3e	Prioritise immediate threats in written Threat Assessment.	2												
4a	Repeat methods of Chace & Manning (1972) to establish current density and distribution of five endemics and infer population trends over the past 50 years.	3												
4b	Red List endemic species based on population trends and Threat Assessment.	3												
5a	Design and construct information boards close to the pools.	3												
5b	Disseminate learning and images via AIG social media channels.	11												
6	Update Nature Reserve Management Plan with recommended management actions and plan for ongoing environmental monitoring.	2												