Applicant: **Weber, Sam**
Organisation: **University of Exeter**
Funding Sought: **£58,798.50**

DPR9S2\1016

Streamlining Ascension Island's Marine Turtle Monitoring Programme For Long-Term Sustainability

Ascension Island supports one of the world's largest green turtle nesting populations that has been monitored using standard methods since the 1970s. However, with exponential increases in nesting activity in recent years, existing monitoring commitments are quickly becoming unsustainable for local Government. This project will use innovative modelling techniques to streamline the Ascension Island marine turtle monitoring programme (AIMTMP) while evaluating new, labour-saving technologies that could contribute to the long-term continuity of this globally-important dataset.

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

Title	Dr
Name	Sam
Surname	Weber
Tel (Mobile)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

GMS ORGANISATION

Type	**Organisation**
Name	University of Exeter
Phone	[redacted]
Email (Work)	[redacted]
Website	[redacted]
Address	[redacted]

Section 2 - Title, Dates & Budget Summary

Q3a. Project title

Streamlining Ascension Island's Marine Turtle Monitoring Programme For Long-Term Sustainability

Q3b. What was your Stage 1 reference number? e.g. DPR9S1\10008

DPR9S1\1010

Q4. UKOT(s)

Which eligible UK Overseas Territory(ies) will your project be working in?

☑ St Helena (ODA eligible), Ascension and Tristan da Cunha* (ODA eligible)

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

working on here:

Ascension Island

Q4b. In addition to the UKOTs you have indicated, will your project directly benefit any other Territories or country(ies)?

⦿ Yes

Please list below.

Direct link to ongoing work in Montserrat where the lead partners are currently partnering with local Government on a Darwin Plus project (DPLUS106) to develop a long term marine turtle monitoring programme.

The tools and approaches that will be developed during the project are also potentially of benefit to all UKOTs and countries faced with challenges of delivering credible endangered species monitoring within limited core budgets.

Q5. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 July 2021	30 June 2022	1 year

Q6. Budget summary

Year:	2021/22	2022/23	2023/24	2024/25	Total request
Darwin funding request (Apr - Mar)	£43,201.30	£15,597.20	£0.00	£0.00	**£** 58,798.50

Q6a. Do you have proposed matched funding arrangements?

⦿ Yes

What matched funding arrangements are proposed?

Both partner organisations are committing considerable matched funding in terms of staff time and overheads to reflect their ongoing commitment to supporting marine turtle monitoring on Ascension Island. This includes:

[redacted] of Dr Diane Baum, AIG Director of Conservation and Fisheries (£[redacted]
[redacted] of Professor Brendan Godley and Professor Annette Broderick plus overheads (£[redacted]

Q6b. Proposed matched funding as % of total project cost (total cost is the Darwin request plus other funding required to run the project). [redacted]

Section 3 - Project Summary and Conventions

Q7. Summary of Project

Please provide a brief summary of your project, its aims, and the key activities you plan to undertake. Please note that if you are successful, this working may be used by Defra in communications e.g. as a short description of the project on GOV.UK.

Please write this summary for a non-technical audience.

Ascension Island supports one of the world's largest green turtle nesting populations that has been monitored using standard methods since the 1970s. However, with exponential increases in nesting activity in recent years, existing monitoring commitments are quickly becoming unsustainable for local Government. This project will use innovative modelling techniques to streamline the Ascension Island marine turtle monitoring programme (AIMTMP) while evaluating new, labour-saving technologies that could contribute to the long-term continuity of this globally-important dataset.

Q8. Biodiversity Conventions, Treaties and Agreements

Please detail how your project will contribute to the aims of the agreement(s) your project is targeting. What key OT Government priorities and themes will it address? You should refer to Articles or Programmes of Work here. You should also consider local, territory specific agreements and action plans here.

The core objectives of the project are well aligned with commitments made under the Convention on Biological Diversity to '7(b) Monitor, through sampling and other techniques, the components of biological diversity … paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use' and with Aichi Target 18 'By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends … are improved, widely shared and transferred, and applied'.

The Green Turtle is listed on Appendices I and II of the Convention on Migratory Species which commits signatories to undertake "5 a) periodic review of the conservation status of the migratory species concerned and the identification of the factors which may be harmful to that status", which will be enabled by this project.

The project also contributes directly to monitoring objectives of the Ascension Island Green Turtle Species Action Plan ("Estimate annual green turtle nesting activity on Long Beach, Pan Am Beach and North East Bay through routine counts of tracks and nests") and the (currently draft) Marine Protected Area Monitoring, Evaluation and Research Strategy ('No loss or reduction in abundance of species or reduction in ecosystem complexity').

Section 4 - Lead Organisation Summary

Q9. Lead organisation summary

Has your organisation been awarded a Darwin Initiative award before (for the purposes of this question, being a partner does not count)?

◉ Yes

If yes, please provide details of the most recent awards (up to 6 examples).

Reference No	Project Leader	Title
DPLUS106	N. Weber	A Marine Turtle Action Plan for Montserrat
26-018	K. Hockings	Promoting public health in a biodiverse agroforest landscape in Guinea-Bissau
26-014	K. Metcalfe & B. Godley	Empowering Ivorian coastal communities to conserve biodiversity and secure livelihoods
25-001	F. Van Veen	Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity
DARSC190	K. Metcalfe	Community managed protected areas for biodiversity and livelihoods (Cote d'Ivoire)
23-012	A.C. Broderick	Improving marine biodiversity and livelihoods of coastal communities in Principe

Have you provided the requested signed audited/independently examined accounts? If you select "yes" you will be able to upload these. Note that this is not required from Government Agencies.

◉ Yes

Please attach the requested signed audited/independently examined accounts.

UoE_financial_statements_2018-2019
27/01/2021
09:57:44
pdf 5.52 MB

UoE_financial_statements_2019-2020
27/01/2021
09:42:41
pdf 4.56 MB

Section 5 - Project Partners

Q10. Project Partners

Please list all the partners involved (including the Lead Organisation) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development.

This section should illustrate the capacity of partners to be involved in the project. Please provide Letters of Support for the Lead Organisation and each partner or explain why this has not been included.

N.B: There is a file upload button at the bottom of this page for the upload of a cover letter (if applicable) and all letters of support.

Lead Organisation name:	University of Exeter
Website address:	www.exeter.ac.uk
Details (including roles and responsibilities and capacity to engage with the project):	The University of Exeter is an internationally-recognised centre of excellence for marine turtle research and will lead on all modelling and analytical aspects of the project. Project leader Dr Sam Weber will have overall responsibility for delivering the project outputs and liasing with Ascension Island Government. Dr Weber completed his PhD on the marine turtles of Ascension Island, undertook the last full status assessment of the population in 2013 and, as an AIG employee from 2012-2017, had oversight of the recent development of the Marine Turtle Monitoring Programme. Dr Richard Sherley is an expert on Bayesian trend analysis and will support on analytical components. Dr Sherley is co-developer of population modelling software that has been widely adopted for compiling IUCN Red List assessments of threatened marine vertebrates. Professors Annette Broderick and Brendan Godley have been involved in green turtle monitoring and research at Ascension Island since 1998 when they established the current monitoring protocols as part of a Darwin Initiative project. They are both members of the IUCN Marine Turtle Specialist Group and will be responsible for project steering and ensuring that the revised monitoring program continues to provide robust data for contributing to global and regional status assessments.
Have you included a Letter of Support from this organisation?	⦿ Yes

Have you provided a cover letter to address your Stage 1 feedback?	⦿ Yes

Do you have partners involved in the Project?

⦿ Yes

1. Partner Name:	Ascension Island Government Conservation & Fisheries Directorate
Website address:	www.ascension.gov.ac
Details (including roles and responsibilities and capacity to engage with the project):	The Ascension Island Government Conservation & Fisheries Directorate (AIGCFD) is responsible for implementing the Island's green turtle monitoring programme and contributing data to regional and global population status assessments for this species. The need for the project was initially identified by AIGCFD Director Dr Diane Baum who approached the University of Exeter for advice on streamlining the current monitoring programme to reflect a recent increase in nesting activity. AIGCFD have been involved in all aspects of project development (see attached Letter of Support) and will work alongside the UoE team to develop a revised monitoring protocol that achieves the best compromise between efficiency and accuracy.
Have you included a Letter of Support from this organisation?	⦿ Yes

Do you have more than one partner involved in the Project?

⦿ No

Please provide a cover letter responding to feedback received at Stage 1 if applicable and a combined PDF of all Letters of Support.

DPR9S2_1016 Cover Letter
02/02/2021
21:53:06
pdf 929.83 KB

DPR9S2_1016 LoS
28/01/2021
13:23:26
pdf 1.13 MB

Section 6 - Project Staff

Q11. Project Staff

Please identify the core staff on this project, their role and what % of their time they will be working on the project. Further information on who should be classified as core staff can be found in the guidance.

Please provide 1 page CVs for these staff, or a 1 page job description or Terms of Reference for roles yet to be filled. These should match the names and roles in the budget spreadsheet. If your team is larger than 12 people please review if they are core staff, or whether you can merge roles (e.g. 'admin and finance support') below, but provide a full table based on this template in the PDF of CVs you provide.

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Dr Sam Weber	**Project Leader**	50	Checked
Dr Richard Sherley	Analytical support for population modelling and trend analysis	5	Checked
Prof. Annette Broderick	Project supervision and steering	10	Checked
Prof. Brendan Godley	Project supervision and steering	5	Checked

Do you require more fields?

◉ Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Dr Diane Baum	AIG Project Lead; project supervision and steering	5	Checked
No Response	*No Response*	0	Unchecked
No Response	*No Response*	0	Unchecked
No Response	*No Response*	0	Unchecked
No Response	*No Response*	0	Unchecked
No Response	*No Response*	0	Unchecked
No Response	*No Response*	0	Unchecked
No Response	*No Response*	0	Unchecked

Please provide 1 page CVs (or job description if yet to be recruited) for the Project staff listed above as a combined PDF.

Ensure the file is named clearly, consistent with the named individual and role above.

DPR9S2_1016 CVs
27/01/2021
22:17:41
pdf 2.18 MB

Have you attached all Project staff CVs?

Yes

Section 7 - Background & Methodology

Q12. Problems the project is trying to address

Please describe the problem your project is trying to address in terms of environment and climate issues in the UKOTs.

For example, what are the specific threats to the environment that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? How will your proposed project help?

Please cite the evidence you are using to support your assessment of the problem (references can be listed in your additional attached PDF document which can be uploaded at the bottom of the page).

The question of 'how much to monitor?' is a common dilemma facing natural resource managers in the UKOTs, where population monitoring of threatened species often competes for limited resources with management activities that contribute to species recovery. On Ascension Island, the green turtle nesting population has been monitored intermittently since 1977 and continuously since 1998, forming one of the longest-running population records for this species in the world. With approximately 25,000 nests annually, Ascension is believed to be the source of 40–70 % of green turtles found along 6,000 km of South American coastline (Weber et al. 2014). Nesting trends at Ascension are therefore a good indicator of the species' regional population status and are relied upon extensively by the IUCN for global threat assessments (Broderick & Patricio 2019). Over recent decades, the population has been recovering strongly following a period of historical exploitation. However, as a result of this resurgence, existing monitoring commitments are quickly becoming unsustainable for AIG at a time when other responsibilities are increasing. Reform that reduces the demands on the local Conservation Directorate while ensuring the continuity of this globally-significant dataset is urgently needed, but must be based on a clear understanding of the implications for data quality.

In this project, we will use innovative statistical models to develop monitoring protocols that offer the best compromise between efficiency and power to detect trends. In parallel, we will also review emerging technologies that have the potential to deliver a step change in automation and efficiency over longer timescales. Together, these approaches will set out a sustainable vision for marine turtle monitoring on Ascension Island and ensure that population trends can continue to be confidently used for assessing the impacts of climate change and other emergent threats on this globally-important nesting colony.

Q13. Methodology

Describe the methods and approach you will use to achieve your intended Outcome and Impact. Provide

information on:

- **How you have analysed historical and existing initatives and are building on or taking work already done into account in project design. Please cite evidence where appropriate.**
- **The rationale for carrying out this work and a justification of your proposed methodology.**
- **How you will undertake the work (materials and methods).**
- **How you will manage the work (role and responsibilities, project management tools etc.)**

Please make sure you read the Guidance Notes **before answering this question.**

(This may be a repeat from Stage 1 but you may update or refine as necessary)

1. STREAMLINING MONITORING

The Ascension Island green turtle population has been monitored since the 1970s using a standard methodology that involves counting the number of nocturnal nesting emergences ('tracks') and successful nests on beaches. Counts are conducted on a subset of days each week on a subset of 'index beaches' which are assumed to be representative of the population as a whole. Statistical models are then used to convert daily counts into overall population estimates and trends. Major efficiency savings can be achieved by reducing the number of days, beaches or years monitored. However, uncertainty in the resulting population estimates increases as monitoring coverage is reduced, diminishing our power to detect trends (the 'signal-to-noise ratio').

To establish the minimum survey coverage needed to achieve acceptable statistical power, the project will use a simulation-based modelling approach that involves generating datasets in which true population sizes and trajectories are 'known' and then assessing how accurately alternative monitoring regimes retrieve them. Simulated datasets will be analysed using Bayesian state-space models recently developed by one of the project team for conducting trend analyses of marine vertebrates (see Sherley et al. 2020a,b). The models work by decomposing population time-series into a long-term trend, uncertainty coming from monitoring methods (observation error) and variation due to the underlying ecology. By comparing the power of monitoring regimes with increasing levels of observation error to detect trends against the number of person-hours required to implement them (a measure of cost), we can thus identify the most parsimonious design.

Our approach builds on previous studies that have successfully used simulations to rationalise monitoring strategies for marine turtles (Jackson et al. 2008; Sims et al. 2008), and extends them to the unique challenges posed by a large colony like Ascension Island. Importantly, because the revised monitoring protocol will initially be a streamlined version of the current methodology, it can be adopted by AIG without the need for additional training, thus ensuring the continuity of this important dataset while longer-term, technology-driven solutions are developed.

2. TECHNOLOGY REVIEW

As Ascension's green turtle population continues to grow, monitoring based on manual track counts will become increasingly impractical, perhaps impossible. Thus, in addition to streamlining monitoring protocols, the project will also undertake a detailed review of novel technologies that might one day replace existing, labour-intensive survey methods. The review will comprise of: 1) a structured literature search for methods currently being trialled in sea turtles (e.g. remote-sensing, artificial intelligence) to assess their suitability and field-readiness for deployment on Ascension Island; and 2) an online workshop attended by remote-sensing specialists and researchers monitoring other high-density turtle nesting populations to

discuss shared challenges and solutions. This workstream will result in a 'technology roadmap' for the AIMTMP identifying techniques most appropriate for investment through future initiatives. We note that, while automated systems may offer labour savings in the longer-term, downstream data processing and analysis costs are typically high, meaning that efficient monitoring designs from (1) will continue to be necessary irrespective of the method used to obtain counts.

If necessary, please provide supporting documentation e.g. maps, diagrams, and references etc., as a PDF using the File Upload below.

Sims et al 2008 Statistical power and sea turtle monitoring - how long and when
02/02/2021
09:27:06
pdf 231.22 KB

Winker, Pacoureau and Sherley 2020 JARA - Just another red list assessment
01/02/2021
21:15:58
pdf 2.56 MB

Broderick & Patricio 2019 IUCN Red List Assessment (Chelonia mydas)
27/01/2021
12:38:30
pdf 1.12 MB

Sherley et al 2020 Estimating IUCN Red List population reduction - a decision support tool applied to pelagic sharks
27/01/2021
12:38:29
pdf 1.08 MB

Sherley et al 2020 The conservation status and population decline of the African penguin
27/01/2021
12:38:29
pdf 1004.5 KB

Jackson et al 2008 How much monitoring do turtles really need
27/01/2021
12:38:29
pdf 474.65 KB

Weber et al 2014 Recovery of the South Atlantic's largest green turtle population
27/01/2021
12:38:28
pdf 604.41 KB

Section 8 - Stakeholders and Beneficiaries

Q14. Project Stakeholders

Who are the stakeholders for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them.

The principal stakeholders in the project are the Ascension Island Government Conservation and Fisheries Directorate and downstream users who rely upon marine turtle population monitoring data from Ascension Island to undertake regional and global status assessments (e.g. IUCN Marine Turtle Specialist Group). The original concept for the project was developed by AIGCFD who approached the University of Exeter for advice on streamlining the current monitoring program. They have been involved in all phases of preparing this application and will continue to engage with the project by providing up-to-date monitoring

data, inputting into model specifications, estimating costs for alternative monitoring protocols and trialling the reduced monitoring regime that is ultimately recommended (see attached Letter of Support). The University of Exeter's Professor Annette Broderick and Professor Brendan Godley are both members of the IUCN-SSC Marine Turtle Specialist Group and were responsible for compiling the most recent Red List Assessment for green turtles in the South Atlantic (Broderick & Patricio, 2019). Dr Richard Sherley is also a member of the IUCN-SSC (Penguins) and recently developed population modelling software specifically for compiling Red List Assessments under varying levels of uncertainty (Winker, Pacoureau & Sherley 2020). Their involvement will ensure that data standards from a streamlined monitoring programme remain sufficiently robust for the purposes of contributing to future IUCN status assessments. The key challenges addressed by this project are also relevant to the wider marine turtle research community who will be engaged through a dedicated workshop focussing on technology-driven solutions for monitoring high-density nesting populations.

Q15. Institutional Capacity

Describe the lead organisation's capacity (and that of partner organisations where relevant) to deliver the project.

The University of Exeter is a member of the Russell Group of leading UK research universities and is an internationally-recognised centre of excellence for research on marine turtle conservation and ecology. The current project builds on over 20 years of research on Ascension Island's marine turtles led by Professor Godley, Professor Broderick and Dr Weber, and draws on emerging strengths in population monitoring and trend analysis spearheaded by Dr Richard Sherley. The project team therefore brings together the necessary combination of local knowledge, species expertise and technical ability to ensure that the project outcome is achieved. Collectively, the project team have led more than 15 Darwin Initiative-funded projects, including 6 specifically focussed on Ascension Island. They will also be supported by the University of Exeter's dedicated Research Project Management team who manage a significant portfolio of Research grants.

AIGCFD is the government body responsible for developing local biodiversity policy and delivering commitments under domestic legislation and multinational agreements. It is based on Ascension and employs 13 members of staff with expertise in marine and terrestrial biology who carry out almost all conservation activity undertaken on the island. AIGCFD have been responsible for implementing the Marine Turtle Monitoring Programme since 2012 and, while capacity has been stretched in recent years by a rapid increase in nesting activity, they already have the experience and training needed to adopt a revised monitoring protocol based on the same core methodology.

Q16. Project beneficiaries

Who will your project benefit? You should consider the direct benefits as a result of your project as well as the broader indirect benefits which may come about as a result of your project achieving its Outputs and Outcome. The measurement of any benefits should be included in your project logframe.

The primary beneficiary of the project will be the Ascension Island Government Conservation and Fisheries Directorate who will be able to divert limited resources from routine monitoring to practical conservation action while still fulfilling their obligations to report on the status of the Island's iconic green turtle population. Downstream data users who rely upon regular population estimates from Ascension Island to track the global and regional status of the green turtle also stand to benefit from a sustainable monitoring programme based on a measurable level of uncertainty and statistical power. As part of the project, the complete 42-year nesting time series will be reanalysed using state-of-the-art Bayesian models to produce an updated status assessment for the Ascension Island green turtle that can feed into these global

syntheses.

The core problem that the project addresses - that of efficiency - is common to virtually all species monitoring programmes, meaning approaches developed during the project will be relevant to a diverse range of potential end users. Although such indirect benefits are difficult to quantify, opportunities for knowledge sharing will be maximized by making key outputs (e.g. computer code, technology review) accessible via open access repositories (see Q29).

Section 9 - Gender and Change Expected

Q17. Gender (optional)

How is your project working to reduce inequality between persons of different gender? At the very least, you should be able to provide reassurance that your proposed work is not increasing inequality. Have you analysed the context in which you are working to see how gender and other aspects of social inclusion might interact with the work you are proposing?

The project has no implications for gender equality in the Territory, although we note that the project team achieves a good gender balance. AIG team members and interns involved in delivering the marine turtle monitoring programme are also a diverse group in terms of gender and nationality, representative of the diverse community of Ascension Island as a whole.

Q18. Change expected

Detail the expected changed this work will deliver. You should identify what will change and who will benefit a) in short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended). Please describe the changes for the environment and, where relevant, for people in the OTs, and how they are linked.

The project will result in a streamlined marine turtle monitoring protocol being adopted by the Ascension Island Government, reducing monitoring costs and freeing up resources for management activities while minimizing any loss in power to detect long-term trends. The revised protocol will be incorporated into the Green Turtle Species Action Plan and will form the basis for all future turtle monitoring on Ascension, thus ensuring a lasting impact on conservation actions in the Territory. In the longer term, the results and recommendations of the Technology Roadmap will also provide a platform for future projects carrying out field tests and ground truthing of new technologies that have the potential to further automate monitoring and reduce labour costs. The updated population status assessment for the Ascension Island green turtle along with methodology and modelling tools used to rationalize the monitoring programme will be published in the peer-reviewed literature and will be permanently available to external stakeholders who either utilize population data (e.g. IUCN Marine Turtle Specialist Group) or who are interested in carrying out similar streamlining exercises. This will ensure that other projects in the UKOT's and elsewhere can benefit fully from the work in terms of developing more efficient, and consequently more sustainable, monitoring of sea turtles and other colonially-breeding marine vertebrates

Q19. Pathway to change

Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline how you expect your Outputs to contribute towards you overall Outcome, and, longer term, your expected Impact.

The project will rationalise the Ascension Island Green Turtle Monitoring Programme and thus ensure its continuity in three steps. In Output 1, we will first reanalyse the existing 42-year monitoring timeseries in order to determine the current status of the population and model sources of variability in nesting numbers. This is an essential step in streamlining monitoring as it provides the starting point for realistic simulations of future trends, but also presents an opportunity to formally reassess one of the world's largest green turtle nesting populations which has not been evaluated since 2012. In Output 2, simulation-based models parameterized using the existing nesting timeseries will be used to assess the power of alternative, reduced monitoring protocols to detect trends of varying magnitude over different timeframes. This output is fundamental to achieving the intended outcome of the project which aims to deliver more efficient population monitoring underpinned by a clear scientific justification of the protocol that is ultimately adopted. In the longer-term, technological advances may provide even greater efficiency gains. Although field trials of new technologies are beyond the scope of this project, Output 3 will comprehensively review emerging monitoring methods to assess their suitability for integration into the AIMTMP.

Q20. Exit strategy

State how the project will reach a stable and sustainable end point, and explain how the outcomes will be sustained, either through a continuation of activities, funding and support from other sources or because the activities will be mainstreamed in to "business as usual". Where individuals receive advanced training, for example, what will happen should that individual leave?

Achieving a sustainable outcome goes to the core purpose of this project. The AIMTMP has been running continuously for 22 years and is a routine activity undertaken by AIG. However, it is becoming unsustainable to deliver in its current form. Without action there is a risk that monitoring will cease altogether or be arbitrarily reduced with unknown implications for data veracity. The streamlined protocol developed through this project will form the basis for all future marine turtle monitoring on Ascension Island, ensuring the continuity of this important dataset as it adapts to shifting priorities and resource constraints in the Territory. While it is not possible to predict how local capacity might change in the longer-term, by rationalising the AIMTMP and demonstrating efficiency in achieving its monitoring objectives, the project aims to maintain support for the programme through future changes in leadership at AIG. Initially, monitoring will be based around the same core methods used by AIG since 2012, meaning no additional training or capacity building is needed. However, the Technology Roadmap will also provide a strong platform for developing funding cases for future projects aimed at incorporating new labour-saving technologies that will further secure the long-term sustainability of the programme.

Section 10 - Funding and Budget

Q21. Budget

Please complete the appropriate Excel spreadsheet, which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet. Note that there are different templates for projects requesting over and under £100,000 from the Darwin Plus budget.

- R9 D+ Budget form for projects under £100,000
- R9 D+ Budget form for projects over £100,000

Please refer to the Finance Guidance for Darwin/IWT **for more information.**

N.B: Please state all costs by financial year (1 April to 31 March) and in GBP. Darwin Plus cannot agree any increase in grants once awarded.

Budgets submitted in other currencies will not be accepted. Use current prices – and include anticipated inflation, as appropriate, up to 3% per annum. The Darwin Initiative cannot agree any increase in grants once awarded.

DPR9S2_1016 Stage 2 Budget
02/02/2021
17:06:06
xlsx 36.44 KB

Q22. Funding

Q22a. Is this a new initiative or a development of existing work (funded through any source)?

⦿ Development of existing work

Please provide details:

The Marine Turtle Monitoring Programme is the longest-running biological monitoring initiative on Ascension Island that predates the establishment of the Ascension Island Government and the Conservation Directorate itself. The annual monitoring programme was established in its current form through a previous Darwin project (1998-2000). Initially, monitoring was undertaken by a local grassroots volunteer organisation (the Ascension Island Turtle Group) funded through donations and guided tours. In 2012, responsibility for funding and delivering the programme was transferred to the Ascension Island Government and staffed through an international internship scheme supported by a combination of core-funding and philanthropic donations. The current project represents the next stage in the evolution of this flagship monitoring programme and is intended to ensure that it can be sustainably and cost-effectively retained within the core remit of AIG as the turtle population continues to recover from historical exploitation.

Q22b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?

⦿ No

Q23. Co-financing

Are you proposing co-financing?

⦿ Yes

Q23a. Secured

Provide details of all funding successfully levered (and identified in the Budget) towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity, as well as any your own organisation(s) will be committing.

(See Finance for Darwin/IWT **and** Guidance Notes**)**

Donor organisation	Amount	Currency code	Comments
University of Exeter	[redacted]	GBP	Salary contributions and overheads in kind.
Ascension Island Government	[redacted]	*No Response*	Salary contributions in kind.
No Response	0	*No Response*	*No Response*
No Response	0	*No Response*	*No Response*

Q23b. Unsecured

Provide details of any matched funding where an application has been submitted, or that you intend applying for during the course of the project. This could include matched funding from the private sector, charitable organisations or other public sector schemes. This should also include any additional funds required where a donor has not yet been identified.

Date applied for	Donor organisation	Amount	Currency code	Comments
No Response	*No Response*	0	*No Response*	*No Response*
No Response	*No Response*	0	*No Response*	*No Response*
No Response	*No Response*	0	*No Response*	*No Response*
No Response	*No Response*	0	*No Response*	*No Response*

Do you require more fields?

⦿ No

Section 11 - Finance

Q24. Financial Controls

Please demonstrate your capacity to manage the level of funds you are requesting. Who is responsible for managing the funds? What experience do they have? What arrangements are in place for auditing expenditure?

The University of Exeter has a well-established Research Project Management team, systems and accounting procedures in place to manage a significant portfolio of Research grants. Darwin projects have

been a consistent part of the University's Research portfolio for many years and we have staff members in the Research Finance Team who are experts in managing the Darwin awards. In terms of project management, the University implement separate account codes to capture the direct project costs on a new cloud based bespoke research accounting and finance system – Technology One. All Research Projects are managed through this system, which provides budget monitoring capabilities and access to a clear audit trail to evidence defrayal of project costs. The Research teams also have significant experience of managing the external audits required of Darwin projects.

Q25. Financial Management Risk

This question considers the financial risks to the project. Explain how you have considered the risks and threats that may be relevant to the successful financial delivery of this project.This includes risks such as fraud or bribery, but may also include the risk of fluctuating foreign exchange and internal financial processes such as storage of financial data.

All of the expenditure associated with this project will remain within the lead organization and is therefore assured by the University of Exeter's robust financial management and accounting systems (see Q24).

Q26. Balance of budget spend

Explain the thinking behind your budget in terms of where funds will be spent.What benefits will the Territory see from your budget? What level of the award to you expect will be spent locally? Please explain the decisions behind any funding that will not be spent locally and how those costs are important for the project.

There is a strong desire and recognized need for this project by the Ascension Island Government (see attached Letter of Support); however, most of the key activities required to achieve the intended outcome are desk-based exercises requiring a set of specialist analytical skills that are not currently available in the Territory. The project can therefore be most efficiently delivered by UK-based researchers who routinely work with data of this kind and have developed many of software tools needed to process them. Although the majority (ca. 90%) of the budget will not be spent locally, it is important to stress that these costs have been kept to the minimum possible (see Q25) and that the long-term financial benefits of the work in terms of efficiency savings will accrue directly to AIG. A small T&S budget has been requested that will be spent locally to ensure that field trials of the revised monitoring protocol do not represent an additional financial burden at a time when other funding streams have been interrupted by the COVID-19 pandemic (see Q25).

Q27. Capital Items

If you plan to purchase capital items with Darwin Plus funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

There are no capital costs associated with this project.

Q28. Value for Money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.

As outlined in Q26, the technical nature of this project means that the desired outcome can be most efficiently achieved by utilizing UK-based staff with the requisite skillset. Salary costs for these team

members have been calculated on institutional pay scales commensurate with the level of experience required and based on the minimum amount of time needed to complete an exercise of this nature. To ensure value for money, all senior staff members in the University of Exeter and Ascension Island Government have committed time and overheads in kind, resulting in significant matched funding that represents approximately half of the overall budget.

Marine turtle monitoring is currently undertaken as a core activity by AIG through an international internship programme and, for sustainability purposes, it is important that a streamlined protocol can be delivered within these existing capacity constraints. However, the COVID-19 pandemic has severely interrupted several of the funding streams (e.g. charitable donations, tourism) that AIG typically rely upon to fund the travel and subsistence of interns, while at the same time disruption to flights associated with both COVID-19 and runway repairs (due to be completed in 2022) have substantially added to costs of travelling to the island. For this reason, a small budget has been requested to support the T&S of interns during the field trial phase of the project and ensure that this element can be delivered without adding an additional financial burden. This budget is based on actual costs and it thus the minimum possible.

Q29. Outputs of the project and Open Access

All outputs from Darwin Plus projects should be made available on-line and free to users whenever possible. Please outline how you will achieve this and detail any specific costs you are seeking from Darwin Plus to fund this.

The outputs from this project will be of interest to a range of potential end users and several steps will be taken to maximise opportunities for knowledge sharing. Updated population estimates for the Ascension Island green turtle will be submitted to the IUCN Marine Turtle Specialist Group for inclusion into future RedList assessments and deposited in the State of the World's Turtles (SWoT) database (https://www.seaturtlestatus.org/), which provides the most comprehensive online resource for archiving population monitoring data for marine turtles. Computer code for implementing the Bayesian population models that will form the basis of much of our analytical work is already freely available (https://github.com/Henning-Winker/JARA) and all new statistical code and modelling tools will be similarly shared via the GitHub online repository. Findings of the Technology Review and monitoring workshop will also be made available via the AIMTMP Technology Roadmap uploaded to the AIG website. Finally, to ensure that the outputs of the project reach the widest possible audience, a small budget has been requested from Darwin to enable open access publication of key findings and methodologies in the peer-reviewed literature.

Section 12 - Safeguarding

Q30. Safeguarding

Projects funded through Darwin Plus must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding polices in place. Please confirm the lead organisation has the following policies in place and that these are available on request:

We have a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse	Checked

We have attached a copy of our safeguarding policy to this application	Checked
We keep a detailed register of safeguarding issues raised and how they were dealt with	Checked
We have clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made	Checked
We share our safeguarding policy with downstream partners	Checked
We have a whistle-blowing policy which protects whistle-blowers from reprisals and includes clear processes for dealing with concerns raised	Checked
We have a Code of Conduct in place for staff and volunteers that sets out clear expectations of behaviors - inside and outside of the work place - and make clear what will happen in the event of non-compliance or breach of these standards	Checked

Please outline how you will implement your policies in practice and ensure that downstream partners apply the same standards as the lead organisation.

All staff directly employed through the project will be based within the lead organization and thus covered by the University of Exeter's comprehensive safeguarding policy. As detailed in the attached policy document, the University has a clear process and designated point of contact for raising safeguarding issues and all employees are required to undertake regular, mandatory training on their responsibilities and expected standards of behavior on issues associated with safeguarding, diversity and inclusivity. Conservation interns recruited to the Ascension Island Marine Turtle Monitoring Programme fall under the Ascension Island Government's equally rigorous safeguarding policy, which includes criminal record (DBS) checks for employees working with children.

Please upload the Lead Organisation's Safeguarding Policy as a PDF

UoE_safeguarding_framework
27/01/2021
22:22:25
pdf 113.53 KB

Section 13 - Logical Framework

Q31. Logical Framework

Darwin Plus projects will be required to monitor (and report against) their progress towards their expected Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you expect to measure progress against these and how we can verify this.

- Stage 2 Logframe Template

Please complete your full logframe in the separate Word template and upload as a PDF using the file upload below. Copy your Impact, Outcome and Output statements and your activities below - these should be the same as in your uploaded logframe.

Please upload your logframe as a PDF document.

DPR9S2_1016 Logframe
02/02/2021
22:08:19
pdf 248.41 KB

Impact:

Ascension Island continues to generate reliable green turtle population estimates that contribute to global and regional status assessments while freeing up limiting resources for practical conservation action and applied research.

Outcome:

Ascension Island Government adopts a streamlined green turtle monitoring protocol that achieves clearly defined monitoring objectives while better reflecting local capacity constraints.

Project Outputs

Output 1:

The status of the Ascension Island green turtle nesting population is updated and population estimates are made widely available.

Output 2:

The efficiency of alternative monitoring protocols is evaluated through simulation-based modelling.

Output 3:

Novel technologies that may one day supplement or replace existing monitoring methods are reviewed and assessed for suitability and field readiness.

Output 4:

No Response

Output 5:

No Response

Do you require more Output fields?

It is advised to have less than 6 Outputs since this level of detail can be provided at the Activity level.

◉ No

Activities

Each activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1.

1.1 Reanalyse all existing marine turtle monitoring data for Ascension Island using Bayesian state-space models.

1.2 Prepare an updated status assessment for the Ascension Island Green Turtle for publication in the peer-reviewed literature.

2.1 Using the current population estimate as a starting point, simulate future marine turtle nesting data assuming a range of long-term trends.

2.2 Assess the power of alternative sampling regimes to detect simulated trends using Bayesian state-space models.

2.3 Carry out a cost-benefit analysis of alternative monitoring protocols by comparing statistical power versus person-hours required to implement them.

2.4 Trial the new monitoring protocol recommended in 2.3 across one nesting season to assess practicality and efficiency savings.

2.5 Report methodology used for streamlining the AIMTMP for publication in the peer-reviewed literature.

3.1 Undertake a structured literature review of new or emerging methods for marine turtle population monitoring

3.2 Host an online workshop/webinar focussing on the application of new technologies for monitoring high density turtle nesting populations.

3.3 Collate findings and conclusions of (3.1) and (3.2) into a Technology Roadmap for the AIMTMP.

Section 14 - Implementation Timetable

Q32. Provide a project implementation timetable that shows the key milestones in project activities

Provide a project implementation timetable that shows the key milestones in project activities. Complete the Excel spreadsheet template as appropriate to describe the intended workplan for your project.

Implementation Timetable Template

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 fill/shade only the quarters in which an activity will be carried out.

DPR9S2_1016 Implementation Timetable
02/02/2021
22:09:15
pdf 221.87 KB

Section 15 - Monitoring and Evaluation

Q33. Monitoring and evaluation (M&E)

Describe, referring to the Indicators above, how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.

Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see Finance Guidance for Darwin/IWT**).**

The project involves only two partners and a limited number of outputs which greatly simplifies monitoring and evaluation (M&E). Both partners have an established working relationship and have successfully collaborated on a number of previous projects which in practice encourages a near-continuous M&E process. However, the implementation timetable includes a number of natural milestones that will form the basis for formal M&E and can be divided into two broad phases.

The first phase (Y1Q2 - Y1Q3) will primarily be focussed on model development and testing and will be necessarily highly adaptive as existing techniques are applied to Ascension Island's marine turtle monitoring data for the first time and new methods are developed. The University of Exeter team will meet at least monthly during this period to review progress with model development and refine approaches as necessary. The project leader will also hold monthly steering meetings with AIG to ensure that outputs are meeting local needs and expectations. Important M&E milestones involving both partners during this first phase include:

Y1 Q2. Evaluating the results of the population time series reanalysis. Revised population estimates will be quality controlled by both partners before uploading into the Ascension Island Marine Turtle Monitoring database. Final estimates will also be submitted to the IUCN Marine Turtle Specialist Group and SWoT who will perform further quality assurance before uploading into global databases.

Y1 Q3. Evaluating the results of the simulation-based modelling and cost-benefit analysis to recommend a more streamlined protocol for trialling during phase 2.

Phase two (Y1Q4 - Y2Q1) will predominantly be dedicated to trialling the new streamlined monitoring protocol, publishing findings and developing the AIMTMP Technology Roadmap. As before, UoE and AIG will meet formerly at least monthly during this period to monitor progress and make adjustments as necessary. Key milestones in this second phase include:

Y1 Q4. Preparation of an updated status assessment for the Ascension Island green turtle population. This milestone will give both partners an opportunity to review and finalise results before submission to peer-review.

Y2 Q1. Reporting on the results and recommendations of the simulation-based modelling. This important milestone will allow both partners to evaluate the effectiveness of the approach used and the efficiency savings achieved by the revised monitoring protocol, informed by a first season of trial data. Again, results of this output will ultimately be submitted to peer-review providing a further opportunity for external evaluation of project achievements.

Y2 Q1. The publication of the AIMTMP Technology Roadmap. This milestone will be an opportunity to evaluate the findings and recommendations of the technology review and novel technologies workshop and agree a long-term strategy for future investment in new, labour-saving monitoring techniques.

The budget assigned to M&E below is based on fortnightly half-day M&E sessions during Phase 1 and monthly thereafter calculated as a proportion of total staff costs. The project leader (Dr Weber) will have

overall responsibility for M&E with contributions from both partners.

Total project budget for M&E in GBP (this may include Staff, Travel and Subsistence costs)	£[redacted]
Number of days planned for M&E	9.00
Percentage of total project budget set aside for M&E (%)	[redacted]

Section 16 - Certification

Certification

On behalf of the

company

of

The University of Exeter

I apply for a grant of

£58,798.50

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- **I have enclosed CVs for project key project personnel, letters of support, budget and project implementation timetable (uploaded at appropriate points in application).**
- **Our last two sets of signed audited/independently verified accounts and annual report are also enclosed.**

Checked

Name	Professor Dave Hodgson
Position in the organisation	Director, Centre for Ecology and Conservation,
Signature (please upload e-signature)	HoD_signature 02/02/2021 11:36:18 jpg 5.84 KB
Date	02 February 2021

Section 17 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance documents, including the "Guidance Notes for Applicants**" and "**Finance Guidance**".**	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 this proposed project.	Checked
I have provided a budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that the budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached my completed logframe and timeline as a PDF using the templates provided.	Checked
I have included a 1 page CV or job description for all the Project staff identified at Question 11, including the Project Leader, or provided an explanation of why not.	Checked
I have included a letter of support from the Lead Organisation and main partner organisation(s) identified at Question 10, or an explanation of why not.	Checked
I have included a cover letter from the Lead Organisation, outlining how any feedback at Stage 1 has been addressed where relevant.	Checked
I have included a signed copy of the last 2 years annual report and accounts for the Lead Organisation, or provided an explanation if not.	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 GOV.UK**.**	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 the Darwin Initiative, Darwin Plus and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. You are free to unsubscribe at any time.

Checked

Data protection and use of personal data
Information supplied in this application form, including personal data, will be used by Defra as set out in the latest copy of the Privacy Notice for Darwin, Darwin Plus and the Illegal Wildlife Trade Challenge Fund available here. This Privacy Notice must be provided to all individuals whose personal data is supplied in the application form. Some information, but not personal data, may be used when publicising the Darwin Initiative including project details (usually title, lead organisation, location, and total grant value) on the GOV.UK and other websites.

Information relating to the project or its results may also be released on request, including under the 2004 Environmental Information Regulations and the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality nor will we act in contravention of our obligations under the General Data Protection Regulation (Regulation (EU) 2016/679).