



**Darwin Initiative
Overseas Territories Challenge Fund
Final Report**

This report should be completed and submitted within a month of agreed end date of project

Darwin Ref Number	EIDCF008
Darwin Project Title	Sea turtles in the British Indian Ocean Territory
Country (ies)	British Indian Ocean Territory (BIOT)
Award holding Organisation	Swansea University
Partner Organisations	Foreign & Commonwealth Office, Marine Resources Assessment Group (MRAG) Ltd
Grant Value	XXX
Start/end date	1 April 2012/31 March 2013
Author(s), date	Prof. Graeme Hays, Nicole Esteban

1. Challenge Fund Background

Sea turtles are a flagship group for the BIOT Marine Protected Area. Some excellent studies on the biology of sea turtles at BIOT have been undertaken by Dr Jeanne Mortimer, an internationally renowned sea turtle expert based in the USA and Seychelles. These studies have shown that two species, green turtles and hawksbill turtles, occur in appreciable numbers at BIOT. We requested funds for the two people mainly involved in this work, Hays and Esteban, to visit BIOT to assess the feasibility of conducted targeted sea turtle work.

We set out to (1) explore the potential for using MRAG Senior Fisheries Protection Officers on board the patrol vessel for conducting surveys on sea turtle nesting populations across the wider archipelago which is much less accessible than the island of Diego Garcia where the US base is located; (2) assess the practicability of measuring hatchling success and incubation conditions using in situ data loggers; (3) assess the potential for using biotelemetry to assess the movements of turtles; (4) assess the potential for measuring operational sex ratios for the breeding populations and (5) investigate the potential to train local residents to be involved in this work.

2. Challenge Fund Activities

Hays, Esteban and Mortimer visited Chagos for three weeks in October 2012. On the nesting beaches, activities included attachment of satellite tags to eight nesting green turtles (carapace lengths ranging from 101.5 – 111.5cm) to assess the extent of post-nesting movements and burial of 30 temperature loggers at a range of nest depths in various nesting habitats to measure sand temperature for one year to enable informed predictions of hatchling sex ratio in the Chagos Archipelago. At Turtle Cove, a sheltered creek in the southern part of the lagoon in Diego Garcia, monitoring of the population status of green and hawksbill turtles continued from previous visits in 1996, 1999 and 2006 and more than 60 immature hawksbill turtles and a couple of green turtles were caught tagged, measured and weighed, and dozens more untagged turtles were encountered. Electronic tags were attached to 10 of the juvenile hawksbill turtles (carapace lengths ranging from 36.2 to 70cm) to allow their diving and horizontal movements in the lagoon to be assessed. Prior to this visit, Antenor Nestor Guzman, Environment Department, USN NAVFAC had been conducting regular nesting beach surveys at Diego Garcia in collaboration with Jeanne Mortimer and these will continue. Nestor was also

involved with deployment of the temperature loggers, and will be monitoring their position in the coming months to ensure they do not wash away.

Problems encountered: The start of the visit coincided with a typhoon. The storm constrained fieldwork but we made use of this time for meetings with personnel at BIOT and a well-attended evening presentation to members of the military and civilian community on Diego Garcia. These events resulted in well over 100 people (from the US and UK military as well as civilian contractors) joining the research team with great enthusiasm to assist on day and night work in the lagoon and on nesting beaches. The achievements and overall success of the visit was greatly enhanced due to the support received from these volunteers.

The eight satellite tags continue to send a huge amount of information. While one turtle only travelled a few 100 km to the Chagos Bank, others have travelled more than 3000 km to mainland Africa, while others have travelled to the Seychelles. We are in the process of working up these data and expect the first scientific publications, including detailed maps of the routes followed, to appear later this year. Preliminary results were presented at a focussed meeting on BIOT in November 2012 at the Zoological Society of London. The last update distributed to personnel at BIOT is attached.

3. Outcome & Impact of Challenge Fund

The huge success of our visit to BIOT has confirmed that our plans for a full Darwin proposal are feasible. We are confident that within a full Darwin grant we can build local capacity for sea turtle conservation work which will add hugely to our understanding of sea turtles at BIOT and allow informed management decisions to be made to optimise the conservation of turtles at this site. This progress has all been made possible with our Darwin Challenge Grant.

Hays continues to serve on BIOT Science Advisory Group (SAG) and keeps in close contact with the Foreign & Commonwealth Office about the on-going success of our turtle work at BIOT.

During our October visit we demonstrated huge success in building on-site capacity with both personnel at the US Base (including military personnel and long-stay private contractors) and worked with the fisheries protection officers on board the patrol vessel (MRAG) to extend sea turtle surveys to the outer islands. So we have shown how a full Darwin Grant would leave a legacy of on-site trained personnel to maintain sea turtle conservation work. Even though individuals may only be working at BIOT for a few years before they are re-deployed, the expertise could be handed down from trained staff to successors on the island to maintain continuity. A full Darwin grant would enable the UK to meet national obligations arising from several Conventions relevant to turtles, in particular the CBD (provision of monitoring data for the CBD database), CMS (establishment of geographical range of species of turtles) and CITES (endorsing listing of turtle species on CITES lists).

We are currently working up our data-sets and then later in 2013 we plan to apply for full Darwin Initiative funding.

We were conscious of the interest about our research in BIOT. At the request of the BIOT office in Diego Garcia, we were able to meet with resident media officers and arranged for articles to be published in the US forces newsletter, as well as radio and TV interviews. A visit by a UK submarine and their involvement in our work was widely reported in UK national news. Media reports are highlighted in Appendix 3.

4. Lessons

We have learnt hugely about how to conduct successful fieldwork at BIOT and build capacity with local personnel. We now have many contacts in the BIOT Government, US Base

personnel, MRAG Ltd, media (radio and TV) on BIOT, local societies (e.g. divers reporting turtle observations). We have learnt about the key turtle nesting beaches on Diego Garcia, optimum times for fieldwork both with adults and immature turtles and how these can be located.

5. Project Expenditure

Item	Budget for whole project*	Actual Expenditure	Variance** as a %	Comments
Travel Costs	XXX	XXX	+3.7%	
Subsistence costs				
Overhead costs				
Operating Costs				
Capital Costs	XXX	XXX	-5.7%	
Other				
Salaries (specify by individual)	XXX (Hays)	XXX	0	
TOTAL	XXX	XXX	<0.001%	

* please indicate which document you refer to if other than your project application or annual grant offer letter

** please explain any variance of +/- >10%

6. Other comments not covered elsewhere

n/a

Appendix 1. Recent update about project activities to volunteers – pdf attached

Appendix 2. BIOT 2012 Turtle Research Scrapbook – pdf attached

Appendix 3. BIOT 2012 Turtle Research Media – pdf attached

Darwin Challenge Fund Reporting Guidelines

All Darwin projects are required to report on the work they have undertaken with Darwin funds and this offers you the opportunity to report on your achievements and lessons learnt and on any other issues you would like to raise. Your report should show how you have progressed against the activities outlined in your application, or clearly explain any changes and the reasons why these changes were necessary.

You are expected to prepare the report in conjunction with your partners and you are expected to submit a Final Report within 1 month of completion of the agreed dates for the award (max 6 pages excluding annexes).

We will acknowledge and read all reports submitted, but will only contact you about your report if there are specific concerns.

If you have any additional queries about reporting, please feel free to email or call on 0131 440 5181.

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project reference number in the Subject line.	Yes
Is your report more than 5MB? If so, please advise Darwin-Projects@ltsi.co.uk that the report will be sent by post on CD, putting the project reference number in the Subject line.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes via regular updates
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	