

PROJECT REPORTING FORM



● CONTACT

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If you have suggestions for improvement of this form, your feedback would be appreciated:

COUNTRY:

Ascension Island (UK Overseas Territory)

PROJECT TITLE:

A revised population size estimate for the Ascension Island green turtle

REPORTER: Name, Organization, Contact Details.
(Same as applicant)

Dr Nicola Weber and Dr Sam Weber
Darwin Research Fellows* – Ascension Island Government (AIG)/ University of Exeter
***(previously OTEP Post-doctoral Researchers for the project that is being reported)**

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PROJECT DESCRIPTION: How did the project go? What were the HIGHLIGHTS and OVER-ACHIEVEMENTS of objectives? What CHALLENGES did you encounter? How were these RESOLVED?

HIGHLIGHTS and OVER-DELIVERY

The project was completed successfully and generated important results that not only relate to the Ascension Island green turtle population, but also have significant implications for understanding the size of global sea turtle stocks as a whole.

The project was enhanced by the donation of 3 GPS satellite tags by Wildlife Computers in addition to the 40 radio-telemetry tags that were purchased with the Research Contribution from JNCC. This allowed cross-validation of two different approaches for determining sea turtle clutch frequency, producing a more confident final estimate and strengthening the manuscript that is currently being prepared for publication.

PROBLEMS and RESOLUTION

As a pilot study had been carried out for the radio-tracking element of the work during a previous nesting season on Ascension Island, all minor problems related to optimal tag attachment, survey methods etc. had already been successfully

resolved. Also, a protocol for beach monitoring (i.e. the counting of turtle tracks and nests to estimate population size) has been in place for over ten years, and has been proven to be successful. Thus, due to the amount of background work that had been carried out, we did not encounter any noteworthy problems during this project.

OUTPUTS: With reference to the FUNDS APPLICATION form, did your MAIN OUTPUTS achieve their EXPECTED OUTCOMES?

- **Primary Aim:** To establish using radio-telemetry, the number of clutches laid by individual green turtles ('clutch frequency') nesting at Ascension Island (AI) (the second largest rookery in the Atlantic) which is essential to enable accurate population size estimates to be calculated from beach monitoring data.
- **Outcome:** Females fitted with VHF tags ($n = 40$) laid a minimum average of 5.9 clutches, almost doubling the previous estimate of 3 from conventional capture-mark-recapture studies. We also equipped 3 females with GPS tags (donated by Wildlife Computers), and found that some VHF-tagged females laid additional clutches after the last observed nesting event. Correcting for incomplete recapture histories using a local survival analysis yielded an overall mean clutch frequency of 6.3 clutches per female, which effectively reduces the estimated size of the globally important Ascension Island green turtle population by 52%. Given that clutch frequency estimates for most marine turtle populations are based on conventional mark-recapture, these results suggest that global sea turtle stocks are likely to be considerably less than currently thought, calling for an urgent reassessment of all regionally important populations.

The results are being finalized for submission to a peer-reviewed scientific journal, and also feed directly into the Biodiversity Action Plan that is currently being written for Ascension Island.

- **Secondary Aim:** To provide training in radio-telemetry techniques to local conservation organisations and donate all necessary equipment to these organisations to enable future research.
- **Outcome:** AIG Conservation Department staff received training in the attachment of identification and tracking devices (flipper, radio- and satellite-telemetry tags) to nesting turtles (see photograph below). They received specific training on the use of radio-telemetry to track animals through space and time.

INFORMATION: This final section is, in some ways, the most important part of this form. Provision of this information will enable us to pursue further funding and support for conservation projects in the Overseas Territories.

I ATTACH the following, by way of INFORMATION:

(Please ✓ tick appropriate boxes, and attached necessary information as necessary)

- ✓ **Brief QUOTATIONS** from the Project Manager / individuals involved with this project, which may be used freely by JNCC to promote and publicized the conservation achievements of this project through suitable media:

“The Ascension Island Government Conservation Department and the University of Exeter are extremely grateful to JNCC for their funding contribution towards our project to assess the status of the green turtle population on Ascension Island. The Research Contribution allowed us to purchase 40 radio tags to follow individual female turtles throughout the nesting season and determine how many clutches of eggs they lay. This information is vital for converting routine counts of nests on Ascension Island’s beaches into an estimate of population size. Incredibly, female green turtles were found to nest an average of 6 times within a nesting season, doubling the previous estimate of 3 that was derived in the 1980’s using a conventional flipper-tagging approach! Whilst the Ascension Island green turtle population is rapidly increasing in numbers, these new figures show that it is in fact 52% smaller than previously thought. Our results suggest that global sea turtle stocks could be considerably less than is currently estimated, calling for similar studies in other major marine turtle populations.”

- ✓ **PHOTOGRAPHS** or **VIDEO CLIPS** and full details of associated photo-credits, which may be used freely by JNCC and other OTs, to promote and publicized the conservation achievements of this project through suitable media.



Full sized copies of these photographs are attached in the email. The photos show (L → R) A) A female green turtle (dubbed ‘technology turtle’) with a radio-transmitter attached to the side of her carapace, and Dr Sam Weber fixing a satellite-transmitter to the top of the shell. Dr Nicola Weber is showing Assistant Conservation Officer Jolene Sim how to attach a metal flipper-tag to the turtle. Photo credit: Natasha Williams. B) A green turtle with a radio-transmitter attached to the top of her carapace laying a clutch of eggs. The radio-transmitter allowed this individual to be followed throughout the season, and she was observed laying 6 clutches – double the previous estimate for turtles nesting on Ascension Island. Photo credit: Nicola Weber C) A female green turtle with a radio-transmitter attached to the top of her carapace returning to sea just after first light. Photo credit: Nicola Weber.

- ✓ **A scanned copy and / or web-address of any NEWS ITEMS, PUBLISHED**

ARTICLES arising from this project.

Updates on the progress and results of this project featured in issues # 36, 37 & 38 of the Ascension Island Conservation publication, *Conservation Quarterly*. JNCC was fully acknowledged in the articles, which can be downloaded from the following website: <http://www.conservation-ascension-island.gov.ac/conservation-quarterly>

The results from this project are currently being finalised for submission to a peer-reviewed journal and when accepted we anticipate that it will generate further interest with the science community and general public.

- A copy of any EDUCATIONAL MATERIALS, books, brochures, pamphlets or posters, arising from this project.
- Details of any WEBSITE or WEBLINKS arising from this project.
- √ Details of any COLLABORATION or PARTNERSHIP, local or international, which contributed to the success of this project.

This project was carried out by researchers at Ascension Island Government Conservation Department who are also affiliated with the Marine Turtle Research Group (led by Professor Brendan Godley and Dr Annette Broderick) at the University of Exeter.

- Details of any other unexpected benefits arising from this project, such as CONSERVATION AWARDS, PUBLIC SUPPORT, VOLUNTEER PARTICIPATION or SPONSORSHIP.