Darwin Initiative – Final Report

Darwin project information

Project Reference	14-051
Project Title	In Ivan's Wake: Darwin Initiative BAP for the Cayman Islands
Host country	Cayman Islands
UK Contract Holder Institution	Marine Turtle Research Group, University of Exeter
UK Partner Institution(s)	Karen Varnham, Invasive Species Consultant Royal Botanic Gardens Kew Royal Society for the Protection of Birds *In the USA:* Duke University Marine Geospatial Lab SEATURTLE.org
Host Country Partner Institution(s)	Cayman Islands Department of Environment Office of the Governor of the Cayman Islands *Local collaborators in the Cayman Islands*: Department of Agriculture Mosquito Research and Control Unit Bat Conservation Group Blue Iguana Recovery Programme Cayman Wildlife Connection Garden Club of Grand Cayman Cayman Islands Humane Society National Trust for the Cayman Islands Queen Elizabeth II Botanic Park Wildlife Rehab Centre Cayman Islands Bird Club Cayman Islands Orchid Society CaymANNature Camana Bay Nursery National Museum The Shade Brigade International Reptile Conservation Foundation Cayman Islands Sailing Club
Darwin Grant Value	£178,822
Start/End dates of Project	1st October 2005–31st October 2008
Project Leader Name	Dr Brendan J. Godley
Project Website	http://www.caymanbiodiversity.com
Report Author(s) and date	Blumenthal JM, Broderick AC, DaCosta-Cottam M, Ebanks-Petrie G,. Olynik J, Godley BJ (30th January 2009)

1 Project Background

This project aimed to develop a sound, government-endorsed, implementable National Biodiversity Action Plan (NBAP) for the Cayman Islands following the catastrophic effects of Hurricane Ivan.

The project had several strands:

1) Integrated scientific research and monitoring including habitat mapping and monitoring key marine and terrestrial species.

2) Institutional capacity building including training workshops, participation of Cayman Islands staff in international conferences, and graduate training.

3) Raising environmental awareness in the general public and key stakeholder groups.

4) Management planning culminating in the production of the NBAP.

Location of Cayman Islands.

2 Project support to the Convention on Biological Diversity (CBD)

All activities of the project were designed to assist the Cayman Islands, a country **rich in biodiversity but currently poor in resources** due to a natural disaster with the **conservation of biological diversity** and implementation of the **Biodiversity Convention**. **CI Department of Environment,** the **main partner** in this project**,** is the **CBD national focal point** in the host country.

The work helped the Cayman Islands meet obligations under the CBD and this is on such a broad front that it makes quantitative distinction difficult: i.e. **Article 6a** – Development of a Biodiversity Action Plan (**20%**); **Article 7a,b,c,d** - Identification of components of biodiversity important for conservation and sustainable use, monitoring, identification of adverse impacts, maintaining data (**10%**); **Article 8a,b,d,e,f** Establishing Protected Areas, Developing Management Guidelines, Promoting the protection of ecosystems, natural habitats and the maintenance of viable populations of species, Promoting sustainable development; Promote the recovery of threatened species (**10%**). **Article 12a,b,c** - Research and Training; and (**10%**), **Article 13a,b** - Public Education and Awareness (**15%**). This project additionally contributed to the **thematic programme** on **Marine and Coastal Biodiversity (Jakarta Mandate) (5%)** and targets key **cross-cutting issues** such as **Biological Diversity and Tourism (5%)**, the **Ecosystem Approach (5%)**, **Global Strategy for Plant Conservation (5%)**, **Protected Areas (5%)**, **Public Education and Awareness (5%)** and **Sustainable Use. (5%). Environment Charter for the OTs and the MEA's**:

Given that the Cayman Islands is a UK OT it is worthy of note that the project has contributed substantially to helping the UK and Cayman fulfil commitments under the **Environment Charter for the CI (UK:** Commitments **1, 7, 8, 9 11**; **Cayman:** Commitments **1, 2, 3, 6, 7, 9, 10, 11).** In addition, much of the work tangibly contributed to **UK commitments** under a number of additional **MEAs** other than CBD e.g. **CITES** and **CMS.** All Habitat Action Plan (HAP) and Species Action Plan (SAP) action tables reference the need for implementation of two currently pending pieces of legislation. 1 - The "Endangered Species Trade and Transport Law" represents the enacting legislation for CITES in the Cayman Islands. 2 – The "National Conservation Law" represents the enacting legislation for a variety of MEAs, including CMS, CBD, SPAW, Ramsar and Kyoto Protocol.

Furthermore, as the CBD focal point for the Cayman Islands, capacity building within the Department of Environment will significantly improve their ability to meet CBD commitments in the future.

3 Project Partnerships

The project was very much driven by the Cayman Islands Department of the Environment (CIDoE) and other local partners, with feedback and support from UK partners where necessary. The consortium worked to the original grant proposal throughout. We detail below the contributions of each organisation over the course of the project.

UK/USA Partners

University of Exeter – Staff supported the project through administration and reporting and establishment and facilitation of visiting scientists and research students to build capacity and assist in delivery of target studies. Visits to the Cayman Islands were made by Dr Brendan Godley (May 2005, February 2006, June 2006, March 2007, and March 2008),Dr Annette Broderick (March 2008), Dr Andy McGowan (November 2006 and May 2007) and Dr Matthew Witt (February 2008). In addition, as a result of an OTEP funded collaboration, Dr David Hodgson visited the Cayman Islands to assist in data analysis of conch populations and harvest, give a statistics workshop and advise on future data analysis on a range of projects (March 2006). Three MSc students from the University of Exeter visited between March and June 2007 and completed highly collaborative research projects into invasive vertebrate species (Monk parakeets, Green iguanas, Red-eared slider turtles), with support and training from CIDoE staff. One of the students has subsequently been taken on as a full-time member of staff by the CIDoE. A temporary Associate Research fellow was also appointed to provide support to the project and assist with administrative and reporting activities.

Royal Botanic Gardens Kew – Staff provided ongoing support of floral projects, including the Millennium Seedbank Project and collections, and the Native Tree Nursery. Damian Hicks visited the Cayman Islands to lead a Seedbanking Workshop in March 2006, and Dr Colin Clubbe visited the Cayman Islands in November 2005 and March 2006 and attended the GSPC conference in Cuba with Mat Cottam of CIDoE. Dr Clubbe and staff also assisted with technical advice on a range of associated projects.

Royal Society for the Protection of Birds – Staff offered support regarding monitoring of avian exotics and endemics.

Karen Varnham – Karen Varnham visited the Cayman Islands in March 2006 and offered invasive species advice remotely over the course of the project.

USA Collaborators – Dr Pat Halpin and Dr Michael Coyne of **Duke University** led a one week GIS workshop in June 2006 and have maintained the e-mail/internet links and continued to offer advice to the project remotely, particularly regarding remote sensing and habitat mapping. **SEATURTLE.org** – provided invaluable support to satellite tracking research, hosting data and providing analysis tools through http://www.seaturtle.org/tracking and the online Satellite Tracking and Analysis Tool (STAT) program.

Local Partners

Blue Iguana Recovery Programme – Fred Burton of the Blue Iguana Recovery Program, who has extensive knowledge of vegetation communities on the Cayman Islands, worked closely with DoE staff to develop a terrestrial habitat classification scheme. Staff advised CIDoE on reserves establishment for the Blue Iguana (a priority target of the Blue Iguana Species Action Plan), and collaborated on an EU funding application for land purchase and construction of an interpretation centre.

Cayman Wildlife Connection – Provided information on local species for Species and Habitat Action Plans.

Department of Agriculture – Assisted with planning and provision of records for assessment of non-native / invasive species in Grand Cayman and provided eight days of veterinary assistance for cat trapping programme in Little Cayman.

Mosquito Research and Control Unit – Provided aircraft and crew for first aerial survey of the Little Cayman Booby colony since hurricane Ivan and collaborated on collections for the new Darwin Insectarium.

National Trust for the Cayman Islands – Collaborated in the completion of a USFWS NMBCA-funded project to raise public awareness of local and migratory birds through the development of interpretative materials and delivery of bird cards and educational talks to all school children in the Cayman Islands.

Queen Elizabeth II Botanic Park – Donated land for the construction of the Darwin Orchid Shade House and the Native Tree Nursery, and provided ongoing support and management of the nursery. Collaborated in delivery of seminars on the Millennium Seedbank Project. Represented on the Native Tree Nursery Management Team. Staff member funded to attend Botanic Gardens management course at Kew, successfully passed course and was awarded the Kew International Diploma in Botanic Garden Management.

Bat Conservation Group – Provided information on local species for Species Action Plans.

CaymANNature – Collaborated in the production of the second edition of the *Flora of the Cayman Islands*. Met with DoE staff to discuss natural history publications. Represented on the Native Tree Nursery Management Team, responsible for development of nursery stock list.

Shade Brigade – Represented on the Native Tree Nursery Management Team.

Cayman Islands Sailing Club – Donated land for the establishment of the Red Mangrove nursery.

Camana Bay Nursery – Assisted with removal of native trees from a remnant of old forest slated to be cleared for new airport development.

Cayman Islands Bird Club – Collaborated in the establishment of a review panel for bird observation in Cayman, and the extension of Cornell's eBird to the Cayman Islands.

National Museum – Supported efforts for the collection of seedlings of Native Trees of cultural significance (Silver Thatch) to be grown at the Native Tree Nursery.

Garden Club of Grand Cayman – conducted native tree landscaping projects, partially sponsored second edition of *Flora of the Cayman Islands.*

Additional local and international collaboration

Links have been forged with additional local and international organisations - wherever possible through direct collaboration in the implementation of conservation research and management projects. These projects are geared to delivering specific objectives of the National Biodiversity Action Plan for the Cayman Islands.

Texas A&M University – Dr Will Heyman and two PhD students worked in partnership with DoE staff to complete a hydrographic survey of Grouper spawning areas surrounding all three islands.

Cayman Islands Philatelic Bureau – Completion of issue of Darwin Initiative stamps released in late spring 2008.

International Reptile Conservation Foundation – designed, launched, and managed the Darwin site www.CaymanBiodiversity.com and partnered in several projects, including the formatting and production of Burton, F.J. (2008b) Vegetation Classification for the Cayman Islands. In: Threatened Plants of the Cayman Islands: The Red List. Pub. Royal Botanic Gardens Kew: Richmond, Surrey UK

4 Project Achievements

4.1 Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The project has undoubtedly achieved its purpose of enhancing knowledge, increasing capacity, and promoting biodiversity conservation in the Cayman Islands.

This has been attained through a wide range of outputs, the most significant of these being production of a National Biodiversity Action Plan for the Cayman Islands – integrating, for the first time, all the available information on status and threats to biodiversity of the Cayman Islands and management efforts needed for its conservation.

Key actions from Species Action Plans have already been implemented, including amending marine conservation legislation to protect marine turtle nesting populations, establishing a native tree nursery (currently growing over 6,000 trees – due to be opening by the Governor of the Cayman Islands, 28th Feb 2009), seed banking of native plants with Kew's Millennium Seedback facility at Wakehurst Place (holding over 20,000 seeds), initiating research and removal programs for a variety of marine (Invasive Red lionfish *Pterois volitans* dedicated SAP created) and terrestrial invasive species (Invasive Monk parakeets *Myiopsitta monachus* component of Cayman Parrot SAP, Invasive *Scaevola sericea* component of Inkberry *Scaevola plumieri* SAP, and invasive Weeping willow C*asuarina equisetifolia* dedicated HAP created), carrying out mangrove restoration efforts, and conducting a variety of other research and monitoring programmes.

Through extensive education and training, capacity of the local partner organisations to carry out biodiversity monitoring has been greatly increased and there has also been a lasting conservation value in terms of general environmental awareness: local people in the Cayman Islands have been extensively informed through involvement in the work and a range of research seminars, media articles, newsletters, educational materials. www.CaymanBiodiversity.com, the Virtual Bird Guide to the Cayman Islands and eBirdCayman were established under this project. The research community in the region and internationally has also been informed through the publication of peer-reviewed articles and conference presentations.

4.2 Outcomes: achievement of the project purpose and outcomes

The purpose of the project was to "Carry out an assessment of the key biodiversity elements of the Cayman Islands; create the capacity for its future monitoring and conservation; increase environmental awareness". We feel this has been achieved.

EXAMPLE: SAP for *Hohenbergia caymanensis*.
Action Item CP1. "Raise public awareness of the unique nature of *Hohenbergia caymanensis* with a children's competition to think of a "common name" for the plant".
Competition launched in Darwin Newsletter, 2008, resulted in a winning entry of "Old George", named by Cristiana McMurdo "because it is found in the last piece of Old George Town forest". "Old George" became a focal point in public campaign to preserve the Ironwood Forest: in 2008, a controversial roads development through the Ironwood Forest was shelved amid public outcry.
"Old George" was published as the common name for *Hohenbergia caymanensis* in the Red List (Burton 2008a).

4.3 Outputs (and activities)

Project outputs are detailed in Appendix II. In summary, the project has significantly over-achieved attaining 100% or greater of all project targets.

Output 1. Partner organisations able to undertake long-term monitoring and management of the biodiversity of Cayman Islands

International Meeting Attendance

- April 2006 Janice Blumenthal and Joni Solomon (CIDoE) attended the 26th Annual Symposium on Marine Turtle Biology and Conservation and presented Darwin Project work (marine turtle inwater research).
- April 2006 Janice Blumenthal and Joni Solomon attended the Wider Caribbean Sea Turtle Conservation Network (WIDECAST) Annual General Meeting.
- May 2006 Mat Cottam (CIDoE) attended the Caribbean Regional GSPC Workshop
- June 2006 John Lawrus (QEII BP Assistant Manager) attended the Kew Botanic Gardens programme in Botanic Garden Management.
- October 2006 Mat Cottam attended the UKOTCF conference in Jersey and presented Darwin

project work during the Invasive Workshop facilitated by Kew partner Dr Colin Clubbe.

- January 2007 Janice Blumenthal attended the WIDECAST Annual General Meeting.
- January 2007 Janice Blumenthal attended the 27th Annual Symposium on Marine Turtle Biology and Conservation and presented Darwin Project work (marine turtle inwater research)
- January 2007 Janice Blumenthal attended the IUCN Marine Turtle Specialist Group Annual General Meeting.
- June 2007 Jeremy Olynik (CIDoE) attended the ESRI GIS International Users Conference.
- January 2008 Janice Blumenthal attended the WIDECAST Annual General Meeting.
- January 2008 Janice Blumenthal attended 28th Annual Symposium International Symposium on Marine Turtle Biology and Conservation.
- January 2008 Janice Blumenthal attended IUCN Marine Turtle Specialist Group Annual General Meeting.
- March 2008 Mat Cottam attended CBD - GSPC conference in Cuba to discuss Darwin plant initiatives.
- July 2008 Jeremy Olynik and James Gibb (CIDoE) attended ESRI International Users Conference.
- July 2008 Mat Cottam attended "The European Union and its Overseas Entities: Strategies to counter Climate Change and Biodiversity Loss" conference and presented Darwin Project work.
- July 2008 Brendan Godley and Watthew witt attended Biologging III, Monterey, California, USA
- August 2008 Janice Blumenthal and James Gibb attended the Caribbean ESRI GIS Users Conference and presented Darwin Project work (marine habitat mapping).
- September 2008 Brendan Godley and Michael Coyne attended ARGOS Users Meeting, Annapolis, Maryland, USA

Postgraduate Training

During the course of the project, Darwin partner Janice Blumenthal successfully completed her PhD and spent three weeks at the University of Exeter receiving support in the preparation of manuscripts on Darwin marine turtle monitoring. Three MSc students from the University of Exeter spent three months in the Cayman Islands undertaking collaborative projects into invasive species monitoring. They each received training from CIDoE staff in turtle nesting beach monitoring, turtle inwater monitoring, and invasive species monitoring. All three students successfully completed their MSc qualification in September 2007. 12 local postgraduate veterinary students from St. Matthews University (Grand Cayman) received training in marine turtle nest excavation and necropsy, and in 2008, 20 postgraduate veterinary students attending the Marine Veterinary Medicine (MARVET) Workshop received training in turtle nesting beach monitoring.

Undergraduate student training

Training of undergraduates and high school students has been a focus of the work. Over the course of the project, 20 undergraduate students received a total of 27 weeks of training in GIS ground truthing, conch surveying, and inwater and nesting beach monitoring for marine turtles while contributing to Darwin research goals.

Darwin workshops

Four Darwin workshops were held for staff of CIDoE, as well as attendees from local project partners.

- Invasive Species. Leaders: C Clubbe (Kew) and K Varnham (Independent Consultant). Held in March 06.
- Seedbanking. Leader: D Hicks (Kew). Held in March 2006.
- Experimental Design and Statistics. Leader: D Hodgson (University of Exeter). Held in April 2006.
- Geographic Information Systems. Leaders: M Coyne and P Halpin (Duke University). Held in June 2006.

Output 2. Greatly enhanced knowledge of key biodiversity elements in Cayman Islands

Detailed Satellite Mapping to Underpin Biodiversity Management

Completion of detailed marine and terrestrial habitat maps represented a major accomplishment of the Darwin Project. In order to construct the maps, high resolution aerial photography and satellite imagery was obtained for all three of the Cayman Islands, ground truthing was completed, habitat classification was undertaken in using a combination of manual digitising and supervised classification, and maps were subjected to a rigorous accuracy assessment. Additional layers include abundance and distribution for key taxa, including species of conservation concern and invasive species. Maps form a basis for biodiversity monitoring, protected areas designation and management, conservation planning, detection of hurricane impacts, and tracking habitat loss.

Monitoring and Research of Marine Species

Marine Species Action Plans are already under implementation and significant progress has been made towards plant and animal conservation aims. Highlights of the marine program have included:

- Continued comprehensive marine turtle nesting beach monitoring, consisting of DoE staff and volunteers monitoring beaches throughout the three Cayman Islands four days per week from May to September of each year. Through the project, distribution patterns have been identified, trends detected, and nests protected from a variety of anthropogenic threats, including inappropriate lighting and illegal take.
- Continued of monitoring of the legal traditional turtle fishery (green *Chelonia mydas,* loggerhead *Caretta caretta*, and hawksbill *Eretmochelys imbricata* turtles) by DoE Research and Enforcement staff – resulting in amendment of the Marine Conservation Law to protect marine turtle nesting populations by modifying size limits and catch limits and extending the closed season for the fishery.
- Deployed satellite transmitters on ten green and loggerhead turtles from the Cayman Islands, resulting in identification of key habitats (internesting areas, migratory routes, and foraging grounds) in a variety of jurisdictions, encompassing a 2,000 km stretch of Caribbean coastline and the Florida Keys.
- Conducted a genetic study of juvenile hawksbill turtles in the Cayman Islands and examined the role of ocean currents in determining distribution of neonates, determining origins of hawksbill turtles foraging in the Cayman Islands, delineating management units, and providing data which may be of relevance to the controversial management of Caribbean hawksbills.
- Conducted studies on the demographics, habitat use, distribution, movements, diet, behaviour, and causes of injury and mortality for juvenile hawksbills in Cayman Islands foraging aggregations by conducting capture-mark-recapture surveys, obtaining sighting reports, surveying dive operations, and collecting stranding data.
- Deployed time depth recorders and ultrasonic tags on 21 juvenile hawksbill turtles, determining diving behaviour, habitat use, vulnerability to habitat degradation, and movements with respect to the boundaries of marine protected areas.
- Deployed time depth recorders and ultrasonic tags on 6 juvenile green turtles of legal size for capture in the Cayman Islands legal turtle fishery – demonstrating movements between protected and unprotected areas and offering insights into vulnerabilities and management needs of green turtles within the Cayman Islands foraging ground.
- Continued and expanded research and monitoring of Little Cayman Nassau grouper *Epinephelus striatus* spawning aggregations, assessing abundance, fish size, behavioural ecology, and movements through catch/release and acoustic tracking, and launched monitoring of grouper spawning aggregations in Cayman Brac and Grand Cayman.
- Assessed grouper spawning areas through the completion of a hydrographic survey of the Cayman Islands. This survey was conducted in a partnership between Dr Will Heyman of Texas A&M University, two PhD students and CIDoE staff.
- Deployed four satellite drogues during peak grouper spawning to examine possible distribution patterns of grouper larvae in ocean currents.
- Began collection of post-larval/new grouper recruits through deployment of light traps.
- Continued annual conch monitoring surveys, collecting information on density, abundance and trends across the three Cayman Islands.
- Commenced investigations into abundance, distribution, and biomass of coral reef fish and invertebrates, within and outside marine protected areas.
- Commenced a research, education, and management program for invasive lionfish *Pterois volitans* (recently documented on reefs in the Cayman Islands), including distributing informational posters to all dive operations, collecting detailed data on all sightings, and capturing and removing lionfish whenever reported.

Monitoring and Research of Terrestrial Species

Terrestrial Species Action Plans are already under implementation and significant progress has been made towards plant and animal conservation aims. Highlights of the terrestrial research programme have included:

- Establishment of a *Native Tree Nursery*, at the Queen Elizabeth II Botanic Park. An integral component of several SAPs, the *Native Tree Nursery* is currently growing over 6,000 trees from thirty target species. The stock is specially selected on the basis of landscaping value, hardiness for local conditions, cultural significance, wildlife value, endemism, and conservation status. Targeting members of the public, commercial landscapers, and public and private sector development, the *Native Tree Nursery* aims to reintroduce ecological, aesthetic and cultural value into the built environment of the Cayman Islands.
- Rediscovery of the Cayman sage *Salvia caymanensis.* Considered extinct in 2005, the SAP for Cayman sage basically aimed to establish whether this endemic plant, not seen for almost 50

years, still existed. Three years later, the SAP can report the rediscovery of the Cayman sage, seedbanking of 10,000 seeds, successful propagation at the Native Tree Nursery, and sale to members of the public - eager to plant and preserve this attractive and unique little flower in their own gardens.

- Initiation of feral cat control in Little Cayman, towards eradication of the feral population and protection of the significant birdlife and reptile interest of the island. In 2008, all pet cats on the island were micro-chipped, and some 29 feral cats were captured, in a pilot study.
- Initiation of feral Monk parakeet *Myiopsitta monachus* control in Grand Cayman, towards eradication of the feral population. During 2007-2008, some 80% of feral birds were captured.
- Establishment of a Shade House for the Cayman Islands Orchid Society, at the Queen Elizabeth II Botanic Park. This shade house will facilitate the Conservation Propagation Team growing local orchids in their propagation facility, for habitat restoration around the Islands.
- Commencement of seedbanking of endemic flora, with banking of 10,000 seeds each of Cayman sage *Salvia caymanensis* and Tea banker *Pectis caymanensis* lodged with Royal Botanic Gardens, Kew.
- Establishment of informational website www.CaymanBiodiversity.com, incorporating a *Virtual Bird Guide* to the Cayman Islands.
- Supporting complementary projects, including OTEP, in the production of the *Red List for the Cayman Islands,* and USFWS NMBCA, in the establishment of a nursery for mangroves.
- Initiation of public education programmes, beginning with the launch of a Darwin Initiative stamp issue, featuring local wildlife and the habitats on which they depend.
- Initiating research programs on the status of the red footed-booby.
- The completion of research projects by three MSc students from the University of Exeter, supported by CIDoE, into the ecology of key invasive species (Green iguanas, Red-eared sliders and Monk parakeets).
- Cayman Parrot survey conducted in Grand Cayman and Cayman Brac.
- Facilitation of Durrell/Blue Iguana Recovery Programme survey of Little Cayman for Sister Islands Rock Iguana *Cyclura nubila caymanensis.*

All of these events, activities and successes have fed directly into the media profile of the project.

Output 3. Publications and Presentations- ***Raising Environmental Awareness***

Websites

We have built and developed two websites:
http://www.seaturtle.org/mtrg/projects/cayman/ A basic site to advertise the project
http://www.caymanbiodiversity.com/ A long-term central repository/information store for biodiversity conservation in the Cayman Islands.

Media

As a result of a well-planned media strategy, we have been very successful in public education. Media outputs over the course of the project have included 4 Darwin press releases, 33 press articles in the Cayman Islands, 7 TV features, and 5 radio features. Where possible, press articles are stored online at http://www.seaturtle.org/mtrg/projects/cayman/.

Newsletter

Five issues of the Darwin Newsletter have been produced and widely circulated. These have incorporated feature stories on marine and terrestrial habitat mapping, invasive species, marine turtles, and other projects as well as competitions aimed at engaging the public in Darwin activities.

Darwin Seminars

21 Darwin Seminars were organised for public and school groups. Marine turtle conservation education has been a strong focus for public education: presentations were given at summer camps (4 presentations, attended by approximately 80 children in total), to school children and college students (14 presentations, attended by approximately 250 students in total), and to volunteers and community members (3 presentations, attended by approximately 70 adults).

Production of Educational Materials

Collaboration with USFWS NMBCA and the National Trust for the Cayman Islands resulted in Brac Parrot reserve consolidation, including raising public awareness of local and migratory birds through development of signage and delivery of talks and ID cards to all school children in the Cayman Islands and mangrove restoration and developing bird monitoring and recording protocols and databases to assist in collation of records from the public. Additionally, a Virtual Field Guide to the birds of the Cayman Islands module was completed for www.CaymanBiodiversity.com.

A Darwin Initiative stamp issue was completed in spring 2008. Stamps featured local endemic species and those of conservation significance in association with their habitats and the issue was accompanied by interpretative brochures and posters.

In partnership with the Wider Caribbean Sea Turtle Conservation Network (WIDECAST) marine turtle textbooks (*Sea Turtles – An Ecological Guide*), teachers' guides (*Sea Turtles – An Ecological Guide Teachers' Activity Manual*, and Endangered *Caribbean Sea Turtles – an Educators Handbook*), as well as brochures and other educational materials on marine turtles were purchased by DoE and delivered to all 30 local schools in the Cayman Islands. Additionally, posters regarding marine turtles and marine invasive species were delivered to dive operations, marinas, and marine shops.

Public events

Over the course of the project, CIDoE staff had information booths at many local events, including an agricultural show and school fair. Themes of these booths included shifting baselines (turtles, coral reefs, terrestrial habitats) and raising awareness about the beginning of turtle nesting season.

Management Planning

The main aim of this Darwin project was

"... generating a sound, government endorsed, implementable Biodiversity Action Plan for the Cayman Islands following the catastrophic effects of Hurricane Ivan"

To this end, habitat maps and research and monitoring data have been incorporated into Habitat Action Plans (HAPs: aimed at preservation of key habitats) and Species Action Plans (SAPs: aimed at preservation of key individual species, generally those of special local significance, economic value. particular conservation concern, or subject to pressures unlikely to be adequately addressed through a general Habitat Action Plan). **To date, HAPs have been completed for 18 habitats, and SAPs have been completed for 42 key species (or groups of species). These are contained within the National Biodiversity Action Plan which will be sent under separate cover.**

4.4 Project standard measures and publications

All project standard measures are detailed in Annex 4; publications are detailed in Annex 5.

4.5 Technical and Scientific achievements and co-operation

The research carried out in the project has been diverse and we have significantly overachieved on this output. To date, 6 peer-reviewed papers have been published or accepted for publication (120% of target), and 2 more are in review. Also, a minimum of 3 additional manuscripts will be submitted over the coming months.

4.6 Capacity building

The terrestrial section of DoE staff has grown from 1 to 2… or by 100%! A full-time GIS specialist has been employed through the course of this project by DoE to maintain mapping effort throughout / post project. Training and capacity building activities for the project included four Darwin workshops, extensive postgraduate, undergraduate, and other training, and funding/support for the Cayman Islands partners to attend international workshops, conferences, and symposia. The UK institution has learnt additional skills in co-ordinating such an ambitious project that will serve key players well in future projects.

4.7 Sustainability and Legacy

Through extensive investment in training of biodiversity professionals in the Cayman Islands, a lasting legacy of capacity for conservation has been obtained. Additionally, partners will stay in active collaborative contact. Project achievements most likely to endure are marine and terrestrial habitat maps, species monitoring data, capacity to continue such mapping and monitoring, and creation of the NBAP, which will now inform designation of marine protected areas, protection of key species, and other management initiatives. Also, among the general public, environmental awareness has been increased through extensive public education efforts. Key legacy effects of the project are:

1 – NBAP established as a living document with 5-year renewal.
2 – Native tree nursery to assist maximisation of the ecological value of the built environment, also conservation propagation of key species.
3 – Construction of Orchid Shade House – for conservation propagation of local orchids
4 – Partnerships strengthened. New local / international partnership projects are already in the pipeline towards reaching NBAP targets locally and internationally.
5- Increased staff complement of Terrestrial Officer and GIS specialist will be maintained at DoE.
6- Legislative changes well underway.

5 Lessons learned, dissemination and communication

The capacity of the Cayman Islands to implement effective conservation action is in the most part limited by a lack of suitable key legislation. This legislation has been long-pending, and affects all component SAPs and HAPs. All SAPs and HAPs call for implementation of suitable conservation and planning legislation. DoE has the technical expertise and capacity to otherwise deliver effectively on local conservation goals, and also actively facilitate regional and international initiatives.

Information relating to project outputs and outcomes has been disseminated in a number of ways:

- Darwin Steering Group Listserv (for project partners)
- Regional and taxon specific listservs (for regional/taxon specialists)
- Darwin Newsletter (for local people, regional specialists)
- Press releases and associated media (for the wider community in the Cayman Islands)
- Project website (for all sectors)

The project website will remain in place and publications are freely downloadable. Manuscripts currently in press, under revision or in preparation will be distributed as they become available. Darwin Newsletters have proved popular with the readership. Darwin projects and competitions have attracted excellent media attention and thus facilitated non-linear dissemination of publicity regarding the initiative to the general public through a variety of means, including local press, radio and TV. The Darwin Stamp issue was accompanied by an interpretative leaflet outlining the reliance of key native species on key native habitats, and each bore the "Darwin initiative" name.

An additional lesson learned has been the importance of open access - for several of our most recent paper submissions we chose *Endangered Species Research,* which currently has free open access publication. This has raised the profile of a project, and we would recommend that DI promote open access publication thus increasing the legacy of Darwin projects.

5.1 Darwin identity

The project was considered as a discrete collaborative project within the joint remit of all project partners.

There was a broad understanding of the Darwin identity in the Cayman Islands among partners, the media, and the public.

The project was called the "Darwin Initiative Assessment" and we produced a Darwin Initiative National Biodiversity Action Plan (NBAP), Darwin Newsletters, and a Darwin Website, held a Darwin Initiative plant name competition, and gave several Darwin seminars. All outputs had the Darwin logo displayed prominently and the Darwin Initiative was acknowledged in all scientific and media outputs. In most cases, the Darwin Initiative was recognised as the lead in associated projects, with DoE and other partners taking part under the "Darwin Initiative".In some additional case, the Darwin Initiative was recognised as a partner in projects – e.g. Red List production.

After three years and numerous innovative interactive projects and publicity, understanding of the Darwin Initiative is probably extremely good in the Cayman Islands.

6 Monitoring and evaluation

As discussed in the 2007 annual report, delays were encountered in conducting the habitat mapping component that was required for the development of the Habitat Action Plans (HAPs), causing the production of terrestrial HAPs to fall behind schedule. We therefore requested and were granted an extension of the project by the Darwin Secretariat, until 31st October 2008. This extension allowed all the necessary HAPs to be completed and included in the NBAP and by the end of the project, all targets in the original logical framework had been met or exceeded.

Regarding external evaluation, we have submitted a series of manuscripts for peer review and have presented the work at many national and international workshops and symposia but have not sought additional peer review.

We found the M&E process useful.

6.1 Actions taken in response to annual report reviews

Only one minor query was raised in the review of the 2008 annual report: the reviewer requested clarification regarding the need for a Monk parakeet eradication program. In this report (and in communications with the public) we have clarified the rational for this decision: monk parakeets represent an invasive species (with the potential to compete for resources with native Cayman parrots), and they have proven to be crop pests in the Cayman Islands. While agricultural issues would not normally fall under the remit of CIDoE, damage to crops caused by Monk parakeets is commonly attributed to Cayman Parrots – antagonising farmers and increasing the number Cayman parrots shot and killed each year. Thus, in response to threats to Cayman parrots, Department of Environment has implemented an eradication program in which monk parakeets are taken from the wild, neutered, and maintained in captivity.

Finance and administration

6.2 Project expenditure

Item	Budget (please indicate which document you refer to if other than your project application)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others Satellite Imagery Field Equipment Audit			
Salaries (specify) Salary Overseas Consultants **Total**			
TOTAL			

6.3 Additional funds or in-kind contributions secured

Significant funds have been raised for initiatives complementary to this Darwin project:

- Proposal for native tree nursery successful – US$32,620.
- Native tree nursery grant used to secure match funds (US$51,000) for NMBCA mangrove restoration project – total project value US$210,000.
- Economic Valuation of Natural Resources in the Cayman Islands successful – GBP 97,500.
- Scoping Study for GSPC Targets 1 and 2 in the Caribbean successful - GBP 48,800.
- Cat Control / eradication on Little Cayman (OTPF successful bid – cost to OTPF GBP 4,851). TOTAL VALUE GBP 14,619. Project implemented November 07. Result: control successful. The pilot project successfully neutered / micro-chipped all pet cats in Little Cayman, followed by the capture and euthanasia of 29 feral cats over an intensive 10-day trapping period. During this time, local hoteliers provided accommodation to CSL, DoE and DoA workers, in support of the project. Purchase of 72 Tomahawk 32x9x9 collapsible double door cat traps. Four local members of staff trained in techniques.
- Native tree nursery - GBP 3,000 (OTPF bid - successful) for additional interpretative materials. Result - signage completed and emplaced. Due to be opened by the Governor of the Cayman Islands, 28th Feb 2009.
- Native tree nursery expansion corporate sponsorship successful - CI$ 20,000. Funds were dedicated to expanding and reducing water resources footprint of nursery.

CURRENTLY PENDING:

Invasive Species in UKOTs: databases and awareness value US$ 80,370, £53,043.
Brac Birdlife Assessment Post Paloma: request to OTPF US$ 10,111.

6.4 Value of DI funding

1 – Creation of an NBAP for the Cayman Islands, aligning preservation of 18 key habitats and 42 key species to CBD targets. Objectives have been set with the conservation situation pre-existing in the Cayman Islands in mind, building on current strengths and filling gaps within the current scheme.
2 – Implementation of Action Items from the initiation of the project has resulted in some SAPs being well-advanced, most notably the rediscovery of the Cayman sage *Salvia caymanensis*. Considered extinct in 2005, the SAP for Cayman sage basically aimed to establish whether this endemic plant, not seen for almost 50 years, still existed. Three years later, the SAP can report the rediscovery of the Cayman sage, seedbanking of 10,000 seeds with Royal Botanic Gardens, Kew, successful propagation at the newly established Native Tree Nursery, and sale to members of the public - eager to plant and preserve this attractive and unique little flower in their own gardens.
3 – Other significant achievements under Darwin to date:

- Establishment of a Native Tree Nursery, at the Queen Elizabeth II Botanic Park. An integral component of several SAPs, the Native Tree Nursery is currently growing over 6,000 trees from thirty target species. The stock is specially selected on the basis of landscaping value, hardiness for local conditions, cultural significance, wildlife value, endemism, and conservation status. Targeting members of the public, commercial landscapers, and public and private sector development, the Native Tree Nursery aims to reintroduce ecological, aesthetic and cultural value into the built environment of the Cayman Islands.
- Initiation of feral cat control in Little Cayman, towards eradication of the feral population and protection of the significant birdlife and reptile interest of the island. In 2008, all pet cats on the island were micro-chipped, and some 29 feral cats were captured, in a pilot study.
- Initiation of feral Monk parakeet *Myiopsitta monachus* control in Grand Cayman, towards eradication of the feral population. During 2007-2008, some 80% of feral birds were captured.
- Establishment of a Shade House for the Cayman Islands Orchid Society, at the Queen Elizabeth II Botanic Park. This shade house will facilitate the Conservation Propagation Team to grow-on local orchids cultured in their propagation facility, for habitat restoration around the Islands.
- Commencement of seedbanking of endemic flora, with banking of 10,000 seeds each of Cayman sage *Salvia caymanensis* and Tea banker *Pectis caymanensis* lodged with Royal Botanic Gardens, Kew.
- Establishment of informational website www.CaymanBiodiversity.com, incorporating a Virtual Bird Guide to the Cayman Islands.
- Supporting complementary projects, including OTEP, in the production of the Red List for the Cayman Islands, and USFWS NMBCA, in the establishment of a nursery for mangroves.
- Initiation of public education programmes, beginning with the launch of a Darwin Initiative stamp issue, featuring local wildlife and the habitats on which they depend.
- Supporting publication of:

Burton, F.J. (2008a) *Threatened Plants of the Cayman Islands: The Red List.* Pub. Royal Botanic Gardens Kew: Richmond, Surrey UK and Burton, F.J. (2008b) *Vegetation Classification for the Cayman Islands.* In: Threatened Plants of the Cayman Islands: The Red List. Pub. Royal Botanic Gardens Kew: Richmond, Surrey UK – both of which bear the Darwin logo – in partnership with DoE, Kew and OTEP.

Annex 1 Progress and achievements against final project logframe

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Goal: *To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.*		Key species and habitat action plans have been implemented, resulting in tougher legal protection and increased protected areas for conservation of key species. Ex situ plant initiatives initiated and well underway	*(do not fill if not applicable)*
Purpose: Carry out an assessment of the key biodiversity elements of the Cayman Islands; create the capacity for its future monitoring and conservation; increase environmental awareness	Increased knowledge of the patterns of biodiversity of Cayman Islands. Effective management of biodiversity in Cayman Islands	Greatly enhanced knowledge base and completion of National Biodiversity Action Plan (NBAP). Marine and terrestrial habitat maps completed	
Output 1. Partner organisations able to undertake long-term monitoring & management of the biodiversity of Cayman Islands	Minimum of 14 staff from partner organisations trained in key biodiversity assessment techniques	Capacity within CIDoE and the Cayman Islands community was significantly increased, through post-graduate training, Darwin Workshops, and support for attendance of international conferences.	
Activity 1.1 Training workshops		A total of 4 Darwin training workshops were conducted in the Cayman Islands, training DoE staff and others in habitat mapping, and biodiversity monitoring and conservation	
Activity 1.2. Local Partners to International Training Events		CIDoE staff attended 15 international conferences and meetings.	
Output 2. Greatly enhanced knowledge of key biodiversity elements in Cayman Islands	Habitat maps, population assessments of key species	Production of marine and terrestrial habitat maps has been accompanied by the initiation, continuation, or completion of monitoring programs focusing on a wide range of crucial habitats and exploited, endangered, or invasive species.	
Activity 2.1. Habitat Mapping		Marine and terrestrial habitat maps completed.	
Activity 2.2. Population Assessments		Habitat maps and monitoring data have been utilised to produce 18 Habitat action Plans and 42 Species Action Plans.	
Output 3. Publications and Presentations	Computer databases, biodiversity action plan, peer reviewed papers, reference collections, conference presentations, website, research seminars, press releases and media		

	items, newsletter; teachers resources	
Activity 3.1. Publications		Scientific papers: 6 published or accepted, 2 in review, 3 to be submitted in the coming months. Websites: 2 sites launched Darwin Newsletters: 5 produced and distributed Media: 4 Darwin press releases, 33 press articles in the Cayman Islands, 7 TV features, and 5 radio features.
Activity 3.2. Presentations		21 Darwin seminars delivered to varied audiences.

Annex 2 Project's final logframe, including criteria and indicators

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources			
Purpose Carry out an assessment of the key biodiversity elements of the Cayman Islands; create the capacity for its future monitoring and conservation; increase environmental awareness	Increased knowledge of the patterns of biodiversity of Cayman Islands. Effective management of biodiversity in Cayman Islands	Fieldwork underway. Reports and publications by partner organisations Minutes of Steering Committee Meetings	CI Partner organisations incorporate new knowledge into future strategies and workplans.
Outputs Partner organisations able to undertake long-term monitoring & management of the biodiversity of Cayman Islands Greatly enhanced knowledge of key biodiversity elements in Cayman Islands **Publications and Presentations**	Minimum of 14 staff from partner organisations trained in key biodiversity assessment techniques Habitat maps, population assessments of key species Computer databases, biodiversity action plan, peer reviewed papers, reference collections, conference presentations, website, research seminars, press releases and media items, newsletter; teachers resources	Field reports, participation in field activities, workshop reports, correspondence, biological databases Habitat maps, biological databases, scientific papers Copies of all outputs sent to Darwin Initiative	A high proportion of participants continue current employment

Activities	
Research Programme	Years 1 and 2 Full field season. Year 3: Limited field season. Milestones for completion of field seasons 1-3: May 2006, May 2007 and March 2008, respectively. Milestones for submission of peer-reviewed papers 1-4: May 2006, July 2006, January 2007, July 2007, respectively. Biodiversity Action Plan October 2008.
Capacity Building	Years 1 -3: Training Workshops and Output Production with local partners Milestones for completion of workshops 1-4 are January 2006, March 2006, June 2007, March 2008, respectively. Years 2 and 3: Trainees to key international training events according to scheduled timing
Environmental Awareness /Publicity materials	Year 1: Website Established (October 2005), Public Awareness Workshop (Apr 2006) Year 2:Darwin Seminars (October 2006) Year 3: Teachers Education Pack (September 2007), Reporting Conference (March 2008) Years 1-3: Media outputs, Newsletters

Annex 3 Project contribution to Articles under the CBD

Project Contribution to Articles under the Convention on Biological Diversity

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	20%	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	10%	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	10%	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation		Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity		Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	10%	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	15%	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information		Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Other Contribution	35%	Smaller contributions (eg of 5%) or less should be summed and included here.
Total %	100%	

Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1a	Number of people to submit PhD thesis	1 (*Proportion of target:* 100%). Nationality: Caymanian. Employed by CIDoE.
1b	Number of PhD qualifications obtained	1 (100%).
2	Number of Masters qualifications obtained	3 (N/A). Nationality: UK. One student now employed by CIDoE.
3	Number of other qualifications obtained	1 (N/A). Botanic Park employee completed Kew International Diploma in Botanic Garden Management
4a	Number of undergraduate students receiving training	20 (200%). Nationality: Cayman Islands, UK, USA, other.
4b	Number of training weeks provided to undergraduate students	27 (270%).
4c	Number of postgraduate students receiving training (not 1-3 above)	32 (N/A). Nationality: USA, other.
4d	Number of training weeks for postgraduate students	15.5 (155%)
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(ie not categories 1-4 above)	
6a	Number of people receiving other forms of short-term education/training (ie not categories 1-5 above)	75 (375%)
6b	Number of training weeks not leading to formal qualification	53 (177%)
7	Number of types of training materials produced for use by host country(s)	2 (100%)
Research Measures		
8	Number of weeks spent by UK project staff on project work in host country(s)	35 (175%)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1 (100%). National Biodiversity Action Plan, comprising 18 individual Habitat Action Plans and 42 Species Action Plans.
10	Number of formal documents produced to assist work related to species identification, classification and recording.	2 (200%)
11a	Number of papers published or accepted for publication in peer reviewed journals	6 (120%)
11b	Number of papers published or accepted for publication elsewhere	
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	4 (133%)
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	
13a	Number of species reference collections established and handed over to host country(s)	2 (200%).
13b	Number of species reference collections enhanced and handed over to host country(s)	1 (100%)
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	21 (2100%)
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	9 (300%)
15a	Number of national press releases or publicity articles in host country(s)	13 (260%)
15b	Number of local press releases or publicity articles in host country(s)	
15c	Number of national press releases or publicity articles in UK	2 (100%)
15d	Number of local press releases or publicity articles in UK	2 (100%)
16a	Number of issues of newsletters produced in the host country(s)	5 (125%)
16b	Estimated circulation of each newsletter in the host country(s)	1000 (100%)
16c	Estimated circulation of each newsletter in the UK	>100 (100%)
17a	Number of dissemination networks established	2 (200%)
17b	Number of dissemination networks enhanced or extended	
18a	Number of national TV programmes/features in host country(s)	6 (150%)
18b	Number of national TV programme/features in the UK	1
18c	Number of local TV programme/features in host country	
18d	Number of local TV programme features in the UK	
19a	Number of national radio interviews/features in host country(s)	4 (100%)
19b	Number of national radio interviews/features in the UK	
19c	Number of local radio interviews/features in host country (s)	
19d	Number of local radio interviews/features in the UK	1 (100%)
Physical Measures		

Code	Description	Totals (plus additional detail as required)
20	Estimated value (£s) of physical assets handed over to host country(s)	GBP 19,570 (100%)
21	Number of permanent educational/training/research facilities or organisation established	
22	Number of permanent field plots established	>50 (100%)
23	Value of additional resources raised for project	> GBP £270,000
Other Measures used by the project and not currently including in DI standard measures		
	Darwin Project Website	2 (200%)
	Estimated international circulation of newsletter	200 (100%)
	Press Articles in Cayman	33
	Articles in UK Specialist Media	2
	Articles in International Specialist Publications	2
	Weeks spent by International partners (US) in the field	3
	Darwin Native Tree Nursery	1
	Darwin Orchid Shade House	1

Annex 5 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Newsletters	Darwin Newsletter, Department of Environment.		http://www.caymanbiodiversity.com	Available for download
Journal article.	Diving behaviour and movements of juvenile hawksbill turtles *Eretmochelys imbricata* on a Caribbean coral reef. Blumenthal JM, Austin TJ, Bothwell JB, Broderick AC, Ebanks-Petrie G, Olynik JR, Orr MF, Solomon JL, Witt MJ, Godley BJ. 2008	Coral Reefs. Online first. Springer, New York, NY	Copy available from J Blumenthal:	Reprint upon request.
Journal article.	Harnessing recreational divers for the collection of sea turtle data around the Cayman Islands. Bell, CD, Blumenthal JM, Austin TJ, Ebanks-Petrie G, Broderick AC, Godley BJ. In press.	Tourism in Marine Environments. Cognizant Communication Corporation, Auckland, New Zealand	Copy available from J Blumenthal:	Preprint upon request.
Journal article.	Satellite tracking of sea turtles: Where have we been and where do we go next? Godley BJ, Blumenthal JM, Broderick AC, Coyne MS, Godfrey MH, Hawkes LA, Witt MJ. 2008	Endangered Species Research. 4:3-22 Inter-Research Science Centre, Luhe, Germany	www.seaturtle.org/mtrg/pubs/	Open access.
Journal article	Bell C, Solomon JL, Blumenthal JM, Austin TJ, Ebanks-Petrie G., Broderick AC, Godley BJ (2007) Monitoring and conservation of critically reduced marine turtle nesting populations: lessons from the Cayman Islands.	Animal Conservation. 10:39-47 Cambridge University Press, Cambridge, UK	www.seaturtle.org/mtrg/pubs/	Reprint available for download.
Journal article	Bell CD, Blumenthal JM, Austin TJ, Solomon JL, Ebanks-Petrie G, Broderick AC, Godley BJ (2006) Traditional Caymanian fishery may impede local marine turtle population recovery.	Endangered Species Research 2: 63-69 Inter-Research Science Centre, Luhe, Germany	www.seaturtle.org/mtrg/pubs/	Open access
Journal article	Blumenthal JM, Solomon JL, *Bell CD, Austin TJ, Ebanks-Petrie G, Coyne MS, Broderick AC, Godley BJ (2006) Satellite tracking highlights the need for international cooperation in marine turtle management.	Endangered Species Research 2: 51-61 Inter-Research Science Centre, Luhe, Germany	www.seaturtle.org/mtrg/pubs/	Open access

Annex 6 Darwin Contacts

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