Submit by 21 January 2005 14-051

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 13 COMPETITION:STAGE 2

Please read the Guidance Notes before completing this form. Applications will be considered on the basis of information submitted on this form and you should give a full answer to each question. Please do not cross-refer to information in separate documents except where invited on this form. The space provided indicates the level of detail required. Please do not reduce the font size below 11pt or alter the paragraph spacing. Keep within word limits.

1. Name and address of organisation

Name:	**Address:**
Centre for Ecology and Conservation	University of Exeter in Cornwall, Tremough Campus, Penryn, TR10 9EZ, UK

2. Project title (not exceeding 10 words)

In Ivan's Wake: Darwin Initiative BAP for the Cayman Islands

3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date: April 2005 (negotiable)			**Duration of project:** 30months	
Darwin funding requested	**Total £**178,822 **(21% of Total)**	**2005/6 34,769**	**2006/7 77,512**	**2007/8 66,541**

4. Define the purpose of the project in line with the logical framework

To generate a sound, government endorsed, implementable **Biodiversity Action Plan (BAP)** for the Cayman Islands following the catastrophic effects of Hurricane Ivan (reef damage, loss of natural vegetation, pollution and loss of infrastructure). Integral to this aim will be substantial elements of:

1. **Biodiversity mapping** of marine and terrestrial habitats based on remotely sensed imagery.
2. **Research** into key endemic and threatened taxa, invasive species and aggregations of regional importance.
3. **Institutional capacity building** in key areas highlighted by pre-bid consultation between local partners and taxon specialists.
4. **Environmental awareness activities** for the general public and key stakeholder groups.

It will only be through a locally developed Biodiversity Action Plan with a legacy of increased local implementation capacity that sustainable development will be attained during the rebuilding of the infrastructure of the islands.

Three key points highlighted by the panel at Stage 1 were:

1. **Details of the accountability of each partner, to set the Darwin Fellows activities in context.** These have been given in sections **8, 10 and 23A and letters of support.**
2. **Clarity of the exit strategy relating to the continuity of BAP.** This has been clarified in section **16.**
3. **Details of methods of biodiversity assessment and action planning.** These have been given in much greater detail in section **10.**

4. Principals in project. Please provide a one page CV for each of these named individuals

Details	**Project Leader**	**Other UK personnel (working more than 50% of their time on project)**	**Main project partner or co-ordinator in host country**
Surname	Godley	Cottam	Ebanks-Petrie
Forename (s)	Brendan	Matthew	Gina
Post held	Lecturer Conservation Biology	Independent Consultant and Proposed Darwin Research Fellow (75%)	Director
Institution	University of Exeter in Cornwall	c/o CIDoE	Cayman Islands Government
Department	Centre for Ecology and Conservation		Department of Environment (CIDoE)

NB These CV's are given as Appendix at the foot of this application

6. Has your organisation received funding under the Darwin Initiative before? If so, give details

Drs Godley and Broderick have a long history with the Darwin Initiative. The ***Darwin Ascension Island Turtle Project,*** which Drs. Godley and Broderick co-ordinated as **Darwin Research Fellows,** was considered "***particularly successful***" (Rose Clarkson, Darwin Initiative) and the external reviewer was "***very impressed with the quality of this work***". As PI's they have passed the meridian point on the ***Darwin Initiative Assessment of the Coastal Biodiversity of Anegada, British Virgin Islands*** project involving the same strong consortium of UK biodiversity organisations as this proposal. This was **rated highly** by the reviewer following its annual report with many outputs being **achieved over and above those agreed**. The proposed project will build upon lessons learned as part of the Darwin project in the BVI.

7. IF YOU ANSWERED NO TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words) N/A
Activities (50 words)
Achievements (50 words)

8. Please list the overseas partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

Overseas Partners and Their Roles

Cayman Islands Department of the Environment (CIDoE) will be the lead partner in the Cayman Islands as the main agency responsible for biodiversity and conservation. CIDoE is also the **CBD focal point** in the Cayman Islands. CIDoE has been involved since the inception of the proposed Darwin project and the radical revision following the strike of Hurricane Ivan. CIDoE has also assembled the **local consortium of additional supporting agencies and partners (See Letter 1 in appendix II to this electronic file)**. The Darwin Research Fellows will be based in the CIDoE and, under the direction of the project leaders, the "field" component of the project will be largely co-ordinated from CI with the project administration and accounting being covered by UK staff. The Darwin Research Fellows will be responsible for liaison with local NGO's and overseas specialists, facilitation of focussed field visits and the extended data collection by local partners, advanced planning for workshops, media liaison and much of the preparation of project outputs.

The **CI Governor** has endorsed the project and will participate by hosting key public awareness events for key stakeholder groups such as decision makers and teachers (**See appended Letter 2**)

NB All letters other than that of CIDoE Director Gina Ebanks-Petrie are submitted as separate electronic files.

There is also strong support from the two other relevant government Departments:

Department of Agriculture (See appended Letter 3)
Mosquito control Unit (See appended Letter 4)

In addition, the project has the full and extensive support of all the relevant Caymanian NGO community:

Bat Conservation Group (See appended Letter 5)
Blue Iguana Recovery Programme (See appended Letter 6)
Cayman Wildlife Connection (See appended Letter 7)
Garden Club (See appended Letter 8)
Humane Society (See appended Letter 9)
National Trust for the Cayman Islands (See appended Letter 10)
QEII Botanic Park (See appended Letter 11)
Wildlife Rehab Centre (See appended Letter 12)

Where possible, **local organisations** will be involved at every stage of the project fieldwork, training and awareness activities. CIDoE have committed a significant proportion of the time of at least 14 staff members to the project. Senior staff from CI partners will join those from UK organisation in a **Darwin Project Steering Committee** which will meet at least biannually to monitor progress of the project towards key objectives. All outputs will be produced **collaboratively**. It should be noted that CI DoE has a track record of **institutionalisation of training** arising from overseas specialists, for example, the long-term turtle research and monitoring programme was initiated by an FCO Assistant

Undersecretary's Priority Budget grant and has now completed 7 seasons of work.

Staff Turnover
Within the NGO's there is little that can be done to control for rotation of personnel but our major partner is the CIDoE. Unlike many states in the Caribbean, within the Cayman Islands, turnover of government biodiversity staff is very low. To **maximise institutional memory**, all relevant staff in CI will participate in **training and fieldwork** so that skills and knowledge are **transferred** into organisations in **depth**. This includes middle and senior management as well as those in posts normally expected to carry out fieldwork. **Housing the Darwin Research Fellows in CIDoE** will also help promote the institutionalisation of many of the protocols and processes developed as part of the project.

Role of UK/USA Based Specialists

The project will be supported by an extremely strong consortium of biodiversity specialist organisations:

In UK:

Karen Varnham Invasive Species Consultant (See appended Letter 13)
Royal Botanic Gardens Kew (See appended Letter 14)
Royal Society for the Protection of Birds (See appended Letter 15)

In USA:

Duke University (See appended Letter 16)

The **overseas specialists** will be constantly on hand for remote advice and mentoring in their areas of speciality and will spearhead key workshops, bouts of fieldwork and analysis. These include:

Biodiversity Action Planning (Dr. A Broderick and Dr. B Godley, U of E; Dr Sarah Sanders; RSPB)
Bird Research and Conservation (Dr. Geoff Hilton, RSPB)
Invasive Species Detection, Monitoring and Control (Karen Varnham, Consultant)
Marine Research and Conservation (Dr. Brendan Godley and Dr. Annette Broderick, U. of Exeter)
Plant Research, Conservation and Invasives (Dr. Colin Clubbe, RBG Kew)
Remote Sensing and Habitat Mapping (Dr. Michael Coyne and Dr Pat Halpin, Duke)

9. What other consultation or co-operation will take place or has taken place already with other stakeholders such as local communities? Please include details of any contact with the government not already provided.

All of **the UK partner organisations** already have a **working relationship** with Cayman Islands and the relevant NGO's as part of their wider role focussing on biodiversity conservation in the UK Overseas Territories. CI Department of Environment and other partner organisations in Cayman, and UK have an **excellent track record** of community outreach and involvement especially with some of the key stakeholder groups such as young people, fishers and the tourist sector. The proposed project will also contain strong elements of community outreach and consultation; this is evidenced by the involvement of all the Caymanian NGO's.

PROJECT DETAILS

10. Is this a new initiative or a development of existing work (funded through any source?) Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

The Darwin project will be **catalytic** in that disparate sources of information will be united in a highly accessible format for the first time:

1. DoE has a number of high quality, long-term data sets on numerous species of local significance.
2. Desk-based overviews of all existing information will be collated.
3. Information from the many collaborating NGO's will be collated
4. Additional new data will be gathered.

Habitat mapping and the BAP process would represent an opportunity to integrate all these data in a GIS context and allow their subsequent for practical habitat protection and management. As such, this project incorporates new studies and additionally builds upon and maximises the conservation value of previous work.

Given the nature of the work and the severe environmental damage received from Hurricane Ivan much has changed and although not complete, previous habitat mapping will serve as a baseline to compare damage. The lead partner in CI is also the lead biodiversity agency and every step has also been made to involve all stakeholder NGO's it is likely that the project will help to encapsulate and harmonise all additional ongoing biodiversity related work in the Cayman Islands. We give a full elaboration of the methods of operation of the project in the attached sheets according the following framework:

A. Integrated Scientific Monitoring and Research

1. Detailed Satellite Mapping to Underpin Biodiversity Management

2. Monitoring and Research of Marine Species:

a. Crucial Marine Habitats: Reefs, Seagrass and Mangroves
b. Exploited Species: Turtles, Grouper, Conch and Lobster

3. Monitoring and Research of Terrestrial Species:

a. Key Habitats: Native Plants
c. Charismatic Species: Birds and Iguanas
d. Undervalued Species: Insects
e. Invasive Species Assessment

B. Institutional Capacity Building

C. Raising Environmental Awareness

D. Management Planning

A. Integrated Scientific Monitoring and Research
(Outputs: 1A/B, 4A/B/C/D, 8, 9, 10, 11A/B, 12A/B, 13A, 20, 22)

1.Detailed satellite mapping to underpin biodiversity management in the Cayman Islands:

Satellite images of the Cayman Islands will be obtained, georectified and colour balanced to a range of land-based locations throughout the Cayman Islands. The images will then be imported into a GIS database. Habitat classification will be undertaken in both the marine and terrestrial habitats using a combination of supervised and unsupervised classification. The results of habitat classification will be ground-truthed and classification will be revised as needed. This will allow an assessment of the damage incurred by Ivan. Additional layers will include key point locations, abundance of key taxa, whether they be of conservation priority or invasive species. The project will generate data contributing toward the construction biodiversity layers compatible with the Cayman Islands national **Land Information System (LIS)**. It is expected that all management and research outputs from the project, in addition to educational and awareness raising materials will make use of these images and resultant maps and that these data layers will form the basis of all future biodiversity, monitoring and research in the Cayman Islands. This is will involve significant amounts of time and resource from all project partners but will be work of maximal impact with significant positive legacy.

2. Monitoring and Research of Marine Species:

This work will can be broken down into two main subsections:

a. Crucial Marine Habitats: Reefs, Seagrass and Mangroves
The DoE's programme to monitor the health and status of the coral reefs around Grand Cayman and the Sister Islands is now in its tenth year. This uses a photographic methodology and involves comparing precisely orientated images from one year to the next at specific point locations permanently marked on the reefs. Preliminary findings suggest that local coral reefs, as elsewhere both regionally and globally, are facing serious ecological threats with associated steady declines in hard coral, the major reef framework builders. Seagrasses and mangroves are also subject to limited monitoring. Once all habitats are accurately mapped, all monitoring programmes can be more fully contextualised and key areas for remedial management/protection can be highlighted. In addition, with a view to ecosystems based island systems management, a more effective overview of how marine habitats can be managed to ensure ecological connectivity will be obtained. It is likely that in addition to valuable data layers within which to contextualise the fauna studied, that work on this part of the project will result in **at least one scientific publication on the effect of Hurricane Ivan to the nearshore marine habitats of the Cayman Islands**.

b. Exploited Species: Turtles, Grouper, Conch and Lobster
CIDoE already monitor a number of key species, which are subject to direct exploitation and are important in ecological, monetary and cultural terms. Data from these projects will be integrated within the GIS habitat framework and additional new and important research will be undertaken into the spatial ecology of marine turtles and Nassau grouper on the reefs.

Marine Turtles and Nassau Grouper: The Cayman Islands host foraging populations of Critically Endangered hawksbill turtles (*Eretmochelys imbricata)* and Endangered green turtles (*Chelonia mydas*), as well as regionally important spawning aggregations for Endangered Nassau grouper (*Epinephelus striatus).* Marine turtles and Nassau grouper possess a high level of cultural importance to the Caymanian people, are a charismatic example of the marine life that draws visitors to the Cayman Islands, and may also represent keystone species for critical marine ecosystems. Green turtle grazing has been shown to maintain the health of seagrass beds, while Nassau grouper are among the top predators on the coral reef, and hawksbill turtles prevent encrusting sponges from out-competing slow-growing hard corals. In the overall context of habitat protection and marine conservation in Cayman Islands, marine vertebrate species are of great ecological importance, are highly threatened, and have the potential to serve as effective flagship species for marine and seashore conservation.

1. During the course of this project, extensive in-water sampling and utilization of Time Depth Recorders and Acoustic Tags (equipment already funded by NERC and NFWF) will be undertaken to ascertain the spatial distribution, site fidelity, abundance, and habitat utilization of these species throughout reef and lagoonal marine habitat. Abundance and distribution information will serve to both generate a fundamental understanding of the synecology of these species but will also inform policy decisions regarding harvest of sea turtles and fishing on grouper spawning aggregations.

2. Monitoring of marine turtle nesting is already undertaken. GIS mapping of sea turtle nest site distribution will enable identification of key sea turtle breeding habitat in the Cayman Islands, resulting in mitigation of threats to critically reduced loggerhead (*Caretta caretta*) and green turtle nesting populations. Throughout the Cayman Islands, in addition to significant alteration to morphology from Hurricane Ivan, suitable sea turtle nesting beaches have the potential to be lost to development, erosion, and inappropriate beach lighting, while lagoonal seagrass habitats are compromised through sedimentation and dredging.

A minimum of three scientific papers expected (**11A/B**) from the work on marine vertebrates focusing on:
Status and biology of marine turtles nesting in the Cayman Islands
Spatial Ecology of Nassau groupers in the Cayman Islands.
Ecology of marine turtles foraging in a Caribbean coral reef system

Conch and Lobster: CIDoE have ongoing survey work on both of these highly exploited species. The queen conch (*Strombus gigas*) survey was initiated in 1988 in order to establish the effectiveness of protected areas or “Replenishment Zones” in the preservation of conch populations. The results of this annual monitoring programme are used in the setting of catch-limits towards maintaining a sustainable fishery. However, there is not currently any detailed habitat map available for this species and integration of archival data into a spatial context will greatly enhance management capacity. DoE is involved in a variety of studies related to the conservation status of the Caribbean Spiny lobster (*Panulirus argus*). The larval programme has identified areas of larval recruitment in association with key habitat types – again, the availability of detailed maps of shallow shelf areas would be a useful reference tool in studies of this nature. Adult capture / release studies have also been implemented toward establishing viable seasons for the maintenance of a sustainable artisanal lobster fishery. Integration of these data into a GIS framework will greatly improve this work. **It is expected that at least one scientific output will result from the work carried out**

as part of this aspect of the project.

3. Monitoring and Research of Terrestrial Species:

a. Key Habitats: Native Plant Communities

The flora of the Cayman Islands is quite well known with several projects over recent times investigating various aspects of the flora. This has resulted in a comprehensive flora published in associated with RBG Kew (Proctor, G 1984 Flora of the Cayman Islands), a set of vegetation maps for the islands which form routine reference and management tools for the Cayman Islands Department of the Environment and other local conservation organisations. During 2005, the completion of a National Red List of the flora of the Cayman Islands is planned. A variety of local organisation are developing a growing interest in native plants and trees, and the promotion of the benefits of native landscaping to members of the public. Fragmentation of natural habitats and the ingress of invasive species, especially in man-modified and coastal areas is an increasing source of concern.

1. Vegetation maps (with particular emphasis on endemic taxa and invasives) will be updated. These are particularly important when assessing the environmental impact of new developments, and provide important baseline data upon which to assess change, be it natural, such as post hurricane impacts, as in the present case, or over the longer term as the effects of climate change become more evident. The recent hurricane has seriously modified the vegetation and the full extent of this will be elucidated. Potentially positive impacts of the hurricane included the toppling of many non-native Casuarina (*Casuarina equisetifolia*) trees along the coast of Grand Cayman, presenting a opportunity for recovery planting of denuded areas with native species, such as Sea Grape (*Coccoloba uvifera*) before recolonising invasives take hold.

2. Voucher specimens collected to verify plant identity and distribution will be collected in duplicate with one set held in trust for the Cayman Island Government until facilities exist to establish a national herbarium in Cayman. The second set will be incorporated into the Kew herbarium and included in the database of plants of the UK Overseas Territories. Training will be provided in all aspects of the botanical work undertaken as needed locally.

3. The Flora is more than 20 years old and the Cayman Islands Government has started work with George Proctor and RBG Kew to update **the Flora** with a view to publish a second edition. Activities within this proposed Darwin project will form an umbrella for completion of the second edition of **the flora** as well as providing direct input in terms of updated distributions and conservation status. A particular group of plants that need evaluating are alien invasive species and these would be a focus of this Darwin project. In this way the second edition could be co-branded as a Darwin product carrying the Darwin logo.

It is expected that botanical work will result in at least one scientific publication during the course of the project.

b. **Charismatic Animal Species: Birds and Iguanas:**
Successful biodiversity conservation depends on good quality monitoring data. Monitoring sites, species and environmental pressures allows conservation problems to be identified in a timely fashion, and allows the success of conservation interventions to be measured. In order to generate high value information, biodiversity monitoring schemes need to be managed consistently and over the long-term. It is also crucially important that results are rapidly available to decision-makers; therefore, schemes need to be locally managed. There is a need for sound monitoring schemes to be established in all of the UK OT's. These schemes should give coverage of all key (internationally important) sites and populations, and need to be embedded in the work programmes of strong, local institutions.

The status of bird populations in the Caribbean islands is poorly known. However, this region is a key avian diversity hotspot, holding large numbers of endemic species, and seven Endemic Bird Areas. The Cayman Islands currently forms a 'Secondary Area' of its own, supporting three restricted-range species (Vitelline Warbler *Dendronica vitellina*, Thick-billed Vireo *Vireo crassirostris*, Yucatan Vireo *Vireo magister*). An endemic species - Grand Cayman Thrush *Turdus ravidus*, became extinct in the 1930s, and another restricted-range species, the Jamaican Oriole *Icterus leucopteryx*, became extinct in the Territory in the 1960s. However, if the proposed new species, Taylor's bullfinch *Melopyrrha taylori*, formerly a race of the Cuban bullfinch *Melopyrrha nigra*, is accepted, the Cayman Islands would have two full endemic species and therefore should qualify as an Endemic Bird Area. Investigation is also ongoing into the taxonomic status of Cayman's parrots *(Amozona leucocephala hesterna* and *A. l. caymanensis*) currently distinguished from the Cuban Rose-throated parrot at the sub-species level. Little Cayman supports the largest colony of Red-footed Boobies *Sula sula* in the Caribbean, Recent *ad hoc* observations indicate that the colony may have suffered significant mortality as a result of hurricane Ivan, while casual estimates of resident bird species in Grand Cayman indicate an estimated 80% reduction in numbers.

The BirdLife International Important Bird Areas Programme is part of a world-wide initiative, using standardised criteria to identify sites of global importance for birds. RSPB has taken on the role of producing a directory of Important Bird Areas for all the UKOTs, in partnership with local colleagues. The IBA programme in the Cayman Islands has identified ten sites of global importance for birds but sporadic monitoring indicates that several bird species and habitats have undergone substantial declines in recent years, as a result of rapid conversion of natural habitats for tourism and residential development. Additionally, the rare Cayman Brac Amozona sub-species is thought to be dependent on Cedar (*Cedrela odorata*) trees for nest sites. There is known to have been a lack of recent recruitment of this tree on the island due to damage to growing shoots from the Mahogany shoot borer *Hypsipyla grandella*. Hurricane Ivan may have exacerbated the problem of poor availability of useable nesting cavities. As such, practical projects envisaged include the construction and deployment of parrot nesting boxes. Land use conflict is also evident with certain species – for example crop damage arising from parrots feeding. There is therefore an urgent need to quantify decline rates, identify remaining hotspots, and determine which species require concerted conservation action. This project gives the opportunity to achieve this aim for bird sites and populations in Cayman Islands. **As a central part, this Darwin project will result in the design and enactment of a National Bird Monitoring Programme for the Cayman Islands and key threats, management and detailed research needs will be identified as part of the BAP process.**

An important first step is a strategic planning process undertaken by stakeholders, which identifies the populations, sites and environmental pressures that should be monitored. Secondly, an assessment is made of the capacity building requirements. Finally, detailed methods are developed, including fieldwork protocols, data storage and management, and reporting. The methods should be tailored to local capacity and institutional set-ups, and the uses to which the data will be put. In addition to local parrots, species of particular interest for Cayman include West Indian Whistling-Duck *Dendrocygna arborea,* Cuban Parrot Amozona sp., White-crowned Pigeon *Columba leucocephala*, Vitelline Warbler *Dendroica vitellina*), along with regionally important seabird colonies. Work by RSPB and Cayman partners in 2004, reviewing key species and identification of Important Bird Areas (IBAs) will form an extremely useful basis for this process. Monitoring of environmental pressures might include estimates of habitat conversion, invasive species, and habitat condition.

The Blue Iguana Recovery Programme is dedicated to the conservation of the most critically endangered rock iguana in the world, the endemic Grand Cayman Blue Iguana (*Cyclura lewisi*). Over the past ten years, this programme has effectively thwarted the extinction of this species through the establishment of a highly successful captive breeding programme based at the QEII Botanic Park. Run under the auspices of the National trust for the Cayman Islands. The BIRP will work very closely with the Darwin project and although the project will not carry out bespoke research on iguanas their conservation will be promoted and they will be involved with birds, turtles and groupers as iconic species.

It is highly likely that in addition to essential management data that work will result in at least one scientific publication on the status of Cayman's birds (11A/B).

c. Undervalued Species: Insects

The insects of the Cayman Islands are very significantly under-studied, outside serendipidous collection as a result of work on pest species carried out by the Mosquito Research and Control Unit (MCRU; **see letter of support**). Although starting afresh as a result of hurricane damage, a reference collection of insects of the Cayman Islands we undertaken There are numerous avenues available to those willing to open up access to this significant area of the fauna of the islands. In addition to collation of all published information, areas of priority for assessment will be highlighted and where possible recording initiated. The creation of a biodiversity action plan will represent a mechanism for the highlighting or some of the more obscure creatures on the island, which in their own way are ever bit as intriguing as the charismatic flagship species. Key species will be highlighted in awareness raising materials.

d. Invasive Species Assessment

A recent review of non-native species in the UK Overseas Territories by the JNCC resulted in over 100 species records from the Cayman Islands, including an unusually high number of alien vertebrates. Cayman had more non-native vertebrate species recorded than any other OT. Feral cats and dogs are regarded as representing one of the most significant threats to the critically endangered Grand Cayman Blue Iguana (*Cyclura lewisi*) and invasive plants are as yet largely undescribed and mapped. As part of the project:

1. Invasive species will be identified and mapped and relative threat will be assessed.
2. Capacity will created for effective identification of invasives.

3. Potential control strategies will be formulated and costed.

B. Institutional Capacity Building
(Outputs: 1A/B, 4A/B/C/D, 6A/B, 7, 8, 9, 10, 11A/B, 12A/B, 13A, 14A/B, 15A/C//D, 17A, 20, 22)

This will form an essential part of the project. A minimum of **four major training workshops** lead by **biodiversity specialists** from Cayman, UK and USA will be undertaken in Cayman involving a wide range of **staff and student trainees** from project partner organisations. These will involve both **theoretical** and **practical** sessions and all project partners have extensive relevant experience:

Developing a Bird Monitoring Strategy for the Cayman Islands
Workshop leaders: Geoff Hilton/Sarah Sanders (RSPB)
Habitat Mapping from Remote Sensed Imagery
Workshop leaders: Pat Halpin/Michael Coyne (Duke)
Invasive Species Management in the Cayman Islands
Workshop leaders: Colin Clubbe (RBG Kew)/Karen Varnham (Consultant)
Developing a Biodiversity Action Plan for the Cayman Islands
Workshop leaders: Brendan Godley/Annette Broderick (U of E)

The project also involves Caymanian trainees participating in **international training/communication of ideas:** in **Ornithological Techniques** with RSPB at the Society for Conservation and Study of Caribbean Birds (1 place for 2 weeks in each of 2005 and 2007), participation in **International Sea Turtle Symposium** in (1 person in each of 2006 and 2007). In addition, as part of her **graduate training**, Janice Blumenthal will receive extensive training both in the UK (Exeter) and the USA (Duke). All **fieldwork**, **awareness** activities and production of **outputs** (Website, Reports and Papers, Presentations at Meetings, Newsletters, Biodiversity Action Plan) will all be undertaken **by local partners and UK staff**. It is expected that given the diversity and scope of these outputs that the process of development will **contribute to local capacity** for similar future work.

C. Environmental Awareness Raising
(Outputs: 4A/B/C/D, 6A/B, 7, 8, 9, 10, 14A/B, 15A/C//D, 16A/B/C, 17A, 18A, 19A/D)

A **multi-faceted** approach will be used to improve environmental **awareness** both in the general **public** and **key stakeholder** groups. This involves a **Darwin project website**, a biannual **Darwin Newsletter** which will be produced in hardcopy and electronically to be circulated via e-mail and hosted on the website. The project will start with a launch hosted by the **Cayman Island Governor's Office** where **key decision makers**, **opinion-formers** and **educators** in the Cayman Islands will be gathered to be introduced to the project and invited to **participate**. This will be augmented by a series of **public awareness workshops** geared at the wider public and key stakeholder groups (tourism, fisheries sector, schools). **Darwin Seminars** will be used to disseminate findings **locally** on a regular basis to local people**.** A strategy of sequential **press releases** both in **Cayman, UK and internationally** will be exploited to make the most of key **research** and **conservation activities**. Where possible **fieldwork opportunities** will be used to **involve local people** and the **community** will be invited to **participate** in the process of drawing up the **BAP** and key events such as **nesting beach monitoring, satellite tracking and release of hatchling marine turtles, bird survey and nestbox construction**. The project will employ many of the same mechanisms as have proven so successful in other Darwin projects run by

members of the consortium.

D. Management Planning
(Output: 9)

All of the work in the project will lead to the BAP. It is envisioned that the BAP will pull together for the first time, all the available information on the biodiversity of the Cayman Islands, the threats it faces and the management options needed for its conservation. The BAP will be produced as a result of stakeholder participation in the fieldwork, drafting and revision. One workshop will be dedicated to the collation of information, ideas and overview design of the plan and the document will be open for public comment prior to publication.

The National Conservation Law (currently in draft format) requires that *conservation plans* be developed for protected species and other species of conservation concern, towards implementing practical protection measures for these. It is envisaged that species conservation plans will be an integral component of a wider BAP for Cayman, and therefore, a legal mechanism for implementation of individual BAPs should be in place by time of grant award.

11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD thematic programmes and/or cross-cutting themes (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.

All activities of the project are 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. There would be significant impact in the ability of the local conservation organisations in carrying out work which allows the Cayman Islands to 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 would additionally contribute 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 Cayman is a UK OT it is worthy of note that the project will contribute substantially to helping 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 would tangibly contribute to **UK commitments** under a number of additional **MEAs** other than CBD e.g.

CITES and **CMS.**

12. How does the work meet a clearly identifiable biodiversity need or priority defined by the host country? Please indicate how this work will fit in with National Biodiversity Strategies or Environmental Action Plans, if applicable.

The Cayman Islands currently has a draft National Conservation Bill representing a comprehensive framework for the development of a National Biodiversity Strategy/Environmental Action Plan. The Bill seeks to "promote and secure biological diversity and the sustainable use of natural resources in the Cayman Islands".

Numerous projects and research activities, many well-established and on-going represent a concerted effort. by Cayman Islands Government Dept. Environment and local NGOs towards the preservation of Cayman's natural environment and local biodiversity. There is not, however, currently in existence, any single document within which these various strategies and undertakings are formally reviewed / integrated.

Given the recent disruption to all habitats in the Cayman Islands and the numerous threats faced by all natural and semi natural areas; a clearly focussed Biodiversity Action Plan is urgently needed. To ensure the quality and successful implementation of such a plan additional resources are needed to help build capacity and promote biodiversity to the wider public.

13. If relevant, please explain how the work will contribute to sustainable livelihoods in the host country.

Estimates suggest that anywhere between 30 and 70% of the Cayman Islands GDP is based on tourism, and much of this is inextricably linked with its natural resources, especially of the marine realm. Given this innate dependency, a successfully implemented BAP will make a significant contribution to sustainable livelihoods.

14. What will be the impact of the work, and how will this be achieved? Please include details of how the results of the project will be disseminated and put into effect to achieve this impact.

The impact of the Darwin project would be felt throughout the Cayman Islands, the Wider Caribbean region and further internationally. This will be attained through a **wide range of outputs**, the most significant of these will be the production of a **Biodiversity Action Plan** for the Cayman Islands and increased **capacity** of the local partner organisations to carry out biodiversity monitoring and conservation. This will be acieved by extensive fieldwork and training. **Local people** will be extensively informed through i**nvolvement** in the work, **interactive projects of practical conservation value, a range of research seminars, media articles, newsletters, educational materials** and the **project website**. The biodiversity monitoring/research community in the region and internationally will be informed through the publication of **peer-reviewed articles**, **announcements/updates** in taxon specific journals, **conference presentations** and the **Darwin Initiative Website**. Experiences gained will be shared with the wider **UK Overseas Territories Conservation Community** via interactions with the UK Overseas Territories Conservation Forum (an organisation that three consortium partners are members of) and through publishing articles in **Forum News**.

15. How will the work leave a lasting legacy in the host country or region?

A **Biodiversity Action Plan** will be produced with **community participation** which will have at its core the long-term **sustainable management** of the key biodiversity resources of the Cayman Islands. A lasting **legacy of capacity** for conservation will be attained by the extensive investment in **training** of biodiversity professionals in the CI and the huge boost that will be given to **environmental awareness**. All data sets will be lodged with the host nation to be incorporated into the **National LIS.** Gathered in a comparable framework, these datasets can form the **basis** of **future studies** on other taxa. All fieldwork will be supported by **detailed documentation** of protocols, which will be lodged with all partner organisations. We will set up an e-mail based **Darwin Cayman Electronic Dissemination Network** through which key individuals globally will be kept abreast of key issues during the project and beyond.

16. Please give details of a clear exit strategy and state what steps have been taken to identify and address potential problems in achieving impact and legacy.

The project has a clear exit strategy in that by the end of the project a sound, implementable BAP will be produced through consultation and based on solid scientific underpinnings. At this point public awareness (including among key decision makers) of biodiversity issues is likely to be at an all time high as will the capacity of Caymanian partners to research, monitor and manage their vital biodiversity resources. The BAP will be compiled in partnership with a wide range of stakeholders to promote buy in and will be open for public consultation and comment prior to publication.

The National Conservation Law (currently in draft format) requires that *conservation plans* be developed for protected species and other species of conservation concern, towards implementing practical protection measures for these. It is envisaged that species conservation plans will be an integral component of a wider BAP for Cayman, and therefore, a legal mechanism for implementation of individual BAPs should be in place by time of grant award. This will greatly facilitate the incorporation of recommendations into the workplans of biodiversity organisations in the Cayman Islands. Through the extensive training that will occur as part of the project, skills will be in place to ensure implementation capacity is present.

The project consortium already has a good working relationship, with many already involved in a similar BAP led Darwin Project in the BVI, thus the project will **"hit the ground running"**. Despite this the following are possible impediments to impact and legacy:

Operating costs in the Cayman Islands could be prohibitive

We have already identified the **major fiscal challenges** of operating in the Cayman Islands and **budgeted accordingly**. We have localised a major part of the Darwin Research Fellow's role in the form of Dr. Matt Cottam (British citizen with extensive experience of Biodiversity conservation in the Cayman Islands who will soon have Caymanian status) which means we can have UK postdoctoral expertise focussed on the project for most of each year; something that would not be possible should the post-doc be UK-based. In addition, large amounts of in kind logistical support from CIDoE have helped lower field operating costs.

The project is over-ambitious in its scope
The project will work on very broad front and produce numerous and diverse outputs to underpin the BAP. However, the **large and diverse consortium** assembled will facilitate this effectively with great value for money. We would point to the demonstrated synergy of the ongoing project to produce a Darwin Initiative Biodiversity Action Plan for Anegada BVI. **All key stakeholders**, including the local community, have been **identified** and will be **involved**.

Brain drain
Unlike many states in the Caribbean, within the Cayman Islands, turnover of biodiversity staff is very low. To **maximise institutional memory**, all relevant staff in CI will partake in **training and fieldwork** so that skills and knowledge are transferred into organisations in depth. This **includes** middle and senior **management** as well as those in posts normally expected to carry out fieldwork.

Natural Disasters
We cannot rule out the possibility of additional natural disasters impacting the project, either physically or through the availability of resources. Should any such events occur during the course of the project we would expect to discuss and renegotiate with the DI Secretariat.

17. How will the project be advertised as a Darwin project and in what ways would the Darwin name and logo be used?

The project will be called the "*Darwin Initiative Assessment*…..." , the PDRA employed on the project will be called a **Darwin Research Fellow**, A Darwin Biodiversity Action Plan, Darwin Newsletter, Darwin Website and Darwin educational materials will be produced. In all outputs, the **Darwin logo** will be displayed **prominently** and where possible Darwin Initiative will be **acknowledged** in all **scientific** articles and **media** outputs.

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?

The project involves and extensive training component which will be accomplished in two main ways.

Workshops
A minimum of 4 key workshops will be carried out in the Cayman Islands lead by specialists and will involve all key personnel in CI in addition to local students and particularly interested members of the public. Trainees will be those in need of the training and if prioritisation is needed, those most able to make extensive direct and indirect use of information and skills. Currently the four workshops planned to be at the core of the project will pass on high quality information suitable highly experienced/graduate level workers and will also focus on workshop ideas from the group which will feed into subsequent workplans and the BAP itself. Where pertinent, training effectiveness will be monitored and assessed during the field component of each workshop and constructive recommendations will be given to each trainee as to how best to improve their relevant skills set and experience.

Graduate Studies for Caymanian Partner Towards PhD

Janice Blumenthal will be fully supported in year 2 and 3 of her PhD studies as part of this project. Whilst working as a volunteer for CIDoE for the last 2 years she has been registered on a PT basis. She will now be employed as part of the CIDoE staff as one of two Darwin Research Fellows focussing on the marine component of the work; especially marine turtles. Monitoring of outcome will be by submission and successful defence of a thesis. In addition to J Blumenthal above, the project will fund the participation of 3 CIDoE staff at overseas training events.

LOGICAL FRAMEWORK

19. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes.

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	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

	releases and media items, newsletter; teachers resources		
Activities			
Research Programme		Years 1 and 2 Full field season. Year 3: Limited field season. Milestones for completion of field seasons 1-3: May 06, May 07 and Mar 08, respectively. Milestones for submission of peer-reviewed papers 1-4: May 06, Jul 06, Jan 07, Jul 07, respectively. Biodiversity Action Plan Mar08.	
Capacity Building		Years 1 -3: Training Workshops and Output Production with local partners Milestones for completion of workshops 1-4 are Jan 06, Mar 06, Jun07, Mar 08, respectively. Years 2 and 3: Trainees to key international training events according to scheduled timing	
EnvironmentalAwareness/Publicity material		Year 1: Website Established (Oct 05), Public Awareness Workshop (Apr 06) Year 2:Darwin Seminars (Oct 06) Year 3: Teachers Education Pack (Sep 07), Reporting Conference (Mar 08) Years 1-3: Media outputs, Newsletters	

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

Project implementation timetable		
Date	**Financial year**	**Key milestones**
	Apr-Mar 2005/6	
Oct		Steering Group Meeting 1
Nov		
Dec		Workshop1; Website Established
Jan		
Feb		Workshop2; Public Awareness Workshop
Mar		Darwin Seminars
	Apr-Mar 2006/7	
April		Steering Group Meeting 2, First Annual Report
May		Completed Field Season 1, Peer Reviewed Submission1
Jun		Workshop 3; Teachers Education Pack
July		Peer Reviewed submission 2
Aug		
Sept		Reporting conference
Oct		Steering Group Meeting 3; 6 Month Report
Nov		
Dec		
Jan		Peer Reviewed submission 3
Feb		
Mar		
	Apr-Mar 2007/8	
April		Steering Group Meeting 4; Second Annual Report
May		Completed Field Season 2
Jun		
July		Peer Reviewed submission 4
Aug		
Sept		
Oct		6 Month Report
Nov		Steering Group Meeting 5
Dec		
Jan		
Feb		Workshop 4;
Mar		Completed Field Season 3;
Apr		Biodiversity Action Plan

21. Set out the project's measurable outputs using the separate list of output measures.

PROJECT OUTPUTS		
Year/Month	**Standard output number**	**Description (include numbers of people involved, publications produced, days/weeks etc.)**
Oct 2007	1A/1B	1 Darwin Scholar Funded by U of Exeter
Jun 06, Aug 06, June 07, Mar 08	4A	10
Throughout Project	4B	10
Throughout Project	4C	1
Throughout Project	4D	10
Throughout Project	6A	20
Throughout	6B	30
Jul 06, Jul 07	7	2
Throughout	8	20 weeks (plus additional 90 weeks by Dr. Cottam who will be employed and reside locally)
Mar 08	9	1
Mar 08	10	1
May 06, Jul 06, Jan 07, Jul 07, Oct 07	11A/B	5
Mar 08	12 A	3
Jan 06	12 B	1
July 07	13 A	1
Sept 07	14 A	1
Oct 05, Jan 06, Jan 07	14 B	3
Oct 05, Jan 06, May 06, Nov 06, May 07	15 A	5
Oct 05, Mar 08	15 C	2
Oct 05, Mar 08	15 D	2
Nov 05, May 06, Nov 06, May 07	16 A	4
	16 B	>1000
	16 C	>100
Oct 05	17 A	1
Oct 05, May 06, Nov 06, May 07	18 A	4
Oct 05, May 06, Nov 06, May 07	19A	4
	19 D	1
Nov 05	20	£19,570
Dec 06		
Mar 08	22	>50
Mar 08	23	£19,570
TOTAL	**30 categories**	**>195 discrete measurable outputs plus circulation and financial**

MONITORING AND EVALUATION

22. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its

outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

Senior staff from all **Caymanian partners** will join those from UK organisation in a **Darwin Project Steering Committee** that will meet **biannually** to monitor the progress of the project towards key objectives. **All outputs** will be produced in **partnership**. Through its lifetime, the progress of the project towards reaching its **very detailed milestones and scheduled output**s will be carefully monitored by assessing the results in comparison with the **log frame** prior to each **steering committee** meeting and the compilation of **6 monthly reports** to Darwin Initiative. The **reasons** for any delay in reaching a milestone/producing an output will be **discussed and addressed** at part of the steering committee process. There will be written evaluation of all formal training activities e.g. workshops and formal courses in UK.