Galápagos Islands, Ecuador
Evaluation of Closed Darwin Initiative Projects

Final report - March 2007

The Darwin Initiative

The Darwin Initiative is a UK Government small grants programme whic was launched at the Rio Earth Summit in 1992. It aims to assist countries rich in biodiversity but constrained by financial resources to implement the Convention on Biological Diversity (CBD). The Initiative is funded and managed by the UK Department of Environment, Food and Rural Affairs (Defra). This is the UK Government's main support to other countries (including the UK's Overseas Territories) in their implementation of the CBD, and more recently the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS), through the funding of collaborative projects which draw on UK biodiversity expertise.

Monitoring and Evaluation

The Darwin Initiative has a comprehensive Monitoring and Evaluation (M&E) programme in place which is central to informing on the progress of the Darwin Initiative against its goal – 'to support countries that are rich in resources but poor in financial resources to meet their commitments under one or more of the major biodiversity conventions: the Convention on Biological Diversity; the Convention on Migratory Species; and the Convention on International Trade in Endangered Species'.

The M&E programme is used in a number of ways to help inform on best practice, to support ongoing projects in their delivery, to strengthen the Darwin Initiative itself, and to demonstrate the gains Darwin Initiative projects have made in conserving biodiversity through partnerships between the UK and developing countries.

The Darwin Initiative M&E programme is essentially centred on performance monitoring and impact evaluation. The M&E programme assesses legacy and impact at different levels with lessons drawn out from each level:

- At the project level – in terms of host country institutions and local partners and beneficiaries, and in terms of conservation achievements;
- At the national and ecoregion level – in terms of host country policies and programmes, and, if relevant, at a cross-boundary and eco-region level;
- At the international level – in terms of emerging best practices, and the conventions themselves;
- At the UK level – in terms of legacy and impact within UK institutions.

This report was undertaken by Rob Wild on behalf of the Darwin Initiative

Cover Photo Credit: Galapaganian High School Student practicing laboratory techniques prior to demonstrating this to fellow school students in school. All photos R Wild unless credited.

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Abbreviations

CDF	Charles Darwin Foundation
CDRS	Charles Darwin Research Station (operational arm of CDF)
ENSO	El Niño-Southern Oscillation
CBD	Convention on Biological Diversity
GNPS	Galápagos National Park Service
GNP	Galápagos National Park
GMR	Galápagos Marine Reserve
OECD	Organisation for Economic Development and Cooperation
SEGGIL	Galápagos Inspection and Quarantine Agency

Project labels - Closed Projects

For the purpose of this report and to help readability short-hand labels have been assigned to projects and used in the text.

MMP – Marine Management Plan:	**6-174**, Revision of the Galápagos Marine Management Plan
TF – Threatened Flora:	**7-078**, Threatened flora of Galápagos: a scientific basis for conservation
INV – Invertebrates:	**9-010**, Terrestrial invertebrate biodiversity in Galápagos: training and collection rehabilitation
DIS – Disease Threats:	**12-017**, Building capacity and determining disease threats to endemic Galápagos fauna (PO-15 Integrating Disease Surveillance with Conservation Management for Galápagos Fauna)
CCB – Climate Change Birds:	**12-018**, Climate change and conservation of Galápagos endemic bird species

Project labels – Active Projects

COR –Coral Monitoring:	**14-048**, Galápagos Coral Conservation: Impact Mitigation, Mapping and Monitoring
MF – Mangrove Finch:	**15-005**, Conservation of the Mangrove Finch (Cactospiza heliobates)

Executive Summary

- Five closed Darwin projects were reviewed and interaction was had with a further two current projects
- A wide number of past and present project members and conservation stakeholders were met including the CBD focal point in Quito.
- All the projects met their objectives and have had positive outcomes and impacts.
- The longer term legacy of the earlier projects has been significant.
- The Darwin Initiative has contributed a total of £731,838 (UD$1,453,035) for the five closed projects. This amount with ongoing commitments total to £1,175,034 (US$2,332,983).
- This level of investment, however, represents a relatively small contribution (2-5%) of annual conservation funding in Galápagos.
- Despite this, all of the closed Galápagos Darwin Initiative projects appear to have been remarkably successful and have outcomes and impacts disproportionate to funding levels, illustrating excellent leverage and legacy
- Success has been achieved through three key areas; investing in people, mutual learning and technology transfer, networking and long-term relationship development
- A number of key programmes have been “jump started”.
- Projects have ranged from setting up basic programmes (survey, taxonomy & collections) to much more complex ecosystem and population monitoring with cutting edge technologies.
- Reasons were identified for the high level of outcome and impact for investment, including: the grant size, support to fundamental and difficult to fund areas, human resources capacity building and the development of networks.
- Galápagos conservation initiatives appear at the global cutting of edge in a number of areas and this leadership is being shared regionally by at least two projects.
- Some of the success appears to stem from the intrinsic strength of the host country institutions.
- The iconic nature of Galápagos wildlife has attracted resources and expertise as well as gaining political support for conservation activities
- Despite the conservation successes Galápagos biodiversity remains vulnerable, especially to climate change and invasive species.
- Overall Darwin Initiative projects have made a substantial contribution to biodiversity conservation in Galápagos

Recommendations

- The Galápagos Islands remain a very suitable area for Darwin investments through projects.
- Projects should receive clearer guidance as to how to interact with host country institutions to ensure that decisions are made transparently.
- Promoting and supporting greater regional learning between projects would help extend the positive lessons and best practices of individual projects.
- The programme should retain its flexibility as well as support to areas that is it difficult to fund from other sources.
- Better contacts with CBD focal points may improve the profile of the DI programme within host countries.

1. Introduction

The Galápagos Islands are unique. They are biologically the most intact island archipelago anywhere on Earth. Additionally they have influenced human thought, being the inspiration behind Darwin's ideas on evolution. They are then "the islands that changed the world" as subtitled in the recent BBC production. In a forward to the BBC book Professor Richard Dawkins describes the "pressing need to conserve this priceless, natural museum of evolution – to redeem our past failings" Our past failings are of course ongoing and the rate of loss of biodiversity continues apace.

Reducing the rate in the loss of biological diversity is the principle target of the Convention on Biological Diversity, the support of which was the main reason for establishing the UK's Darwin Initiative. The Initiative, itself considered unique, is a grant mechanism which partners UK with host country institutions to support commitments to the CBD. The Initiative has supported the Galápagos Islands from 1998 to 2006 in the five closed projects and a fellowship to the tune of £731,838 (US$ 1,453,035[1]), with ongoing commitments to 2009 taking this figure to £1,175,034 ($ 2,332,983) This report evaluates the contribution of five closed Darwin Initiative projects to reducing the loss of biodiversity in Galápagos.

The scope of the review was five Darwin Initiative projects (table 1.), two of them only recently completed. The review interacted with, and drew information from, but did not analyse in detail a) a Darwin Fellowship secured by one project (INV), and b) the two current projects (COR, MF) One project (DIS) was also just in receipt of post project funding.

Like all the monitoring of Darwin Initiative work, the terminology used is the standard established by the OECD framework for monitoring and evaluation. The exception is 'legacy', which is not an OECD term. This refers in the Darwin Initiative to the longer term impacts, outcomes and utility of outputs, usually considered several years after project closure. Given the review covers five projects in not many more days, it is somewhat superficial and impact on biodiversity and value for money are therefore based on the reviewer's experience of projects elsewhere, rather than a deeper analysis of data.

[1] The dollar value is based on Jan 07 exchange which is relatively high. Ecuador adopted the US dollar as its currency within the period that it has received Darwin Initiative funding and exchange rates may have differed significantly. The purchasing power of sterling may have been lower at time of expenditure.

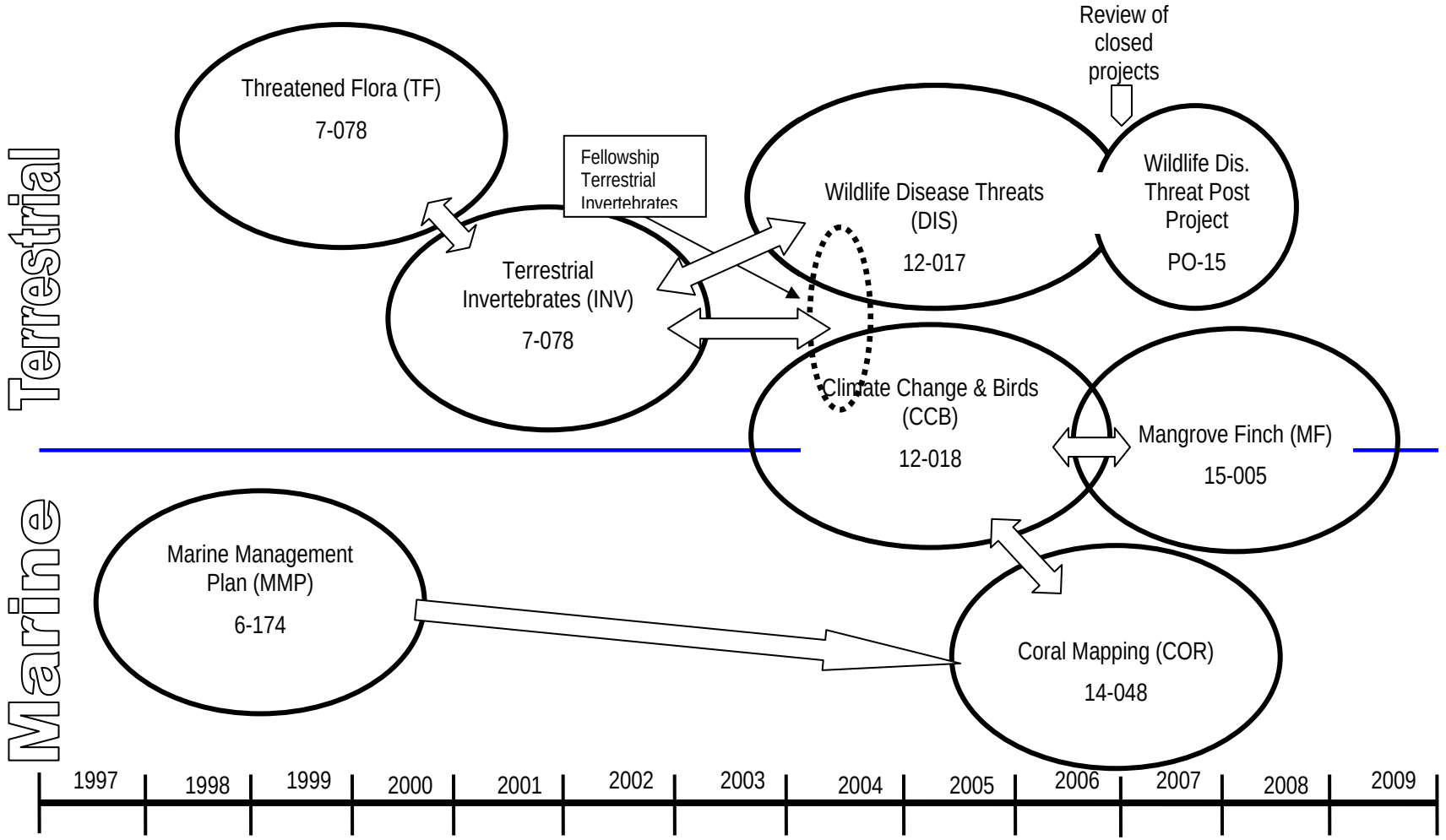


Figure 1 Darwin Initiative Project in Galapagos, Ecuador - Showing some of the inter project links

2. Closed Project Accounts

Project No./label	Title	Purpose
6-174 (MMP)	Revision of the Galápagos Marine Management Plan	To produce a computer based database to help the authorities in zoning the Galápagos Marine Reserves.
7-078 (TF)	Threatened flora of Galápagos: a scientific basis for conservation	To collect the necessary data for the design and implementation of a comprehensive conservation programme for the flora of Galápagos.
9-010 (INV)	Terrestrial invertebrate biodiversity in Galápagos: training and collection rehabilitation	To provide training in sampling and identification of the invertebrate groups to provide baseline data for a) a self-sustaining monitoring programme and b) identifying future conservation actions.
12-017 (DIS)	Building capacity and determining disease threats to endemic Galápagos fauna	To establish the ability of researchers and managers in the Galápagos national park to determine the nature and prevalence of disease threats to endemic fauna (with a focus on birds) stemming from the introduction of novel pathogens and vectors, and to build a capacity for the continued monitoring of introduced diseases in these populations.
12-018 (CCB)	Climate change and conservation of Galápagos endemic bird species	To increase local expertise for scientific research, ecological monitoring and sustainable management in the Galápagos Islands. To understand the mechanisms of natural and anthropogenic factors on the conservation of threatened endemic bird species and associated biodiversity in rich up welling ecosystems of the Galápagos Islands.

Table 1 Closed Darwin Initiative projects subject to the review

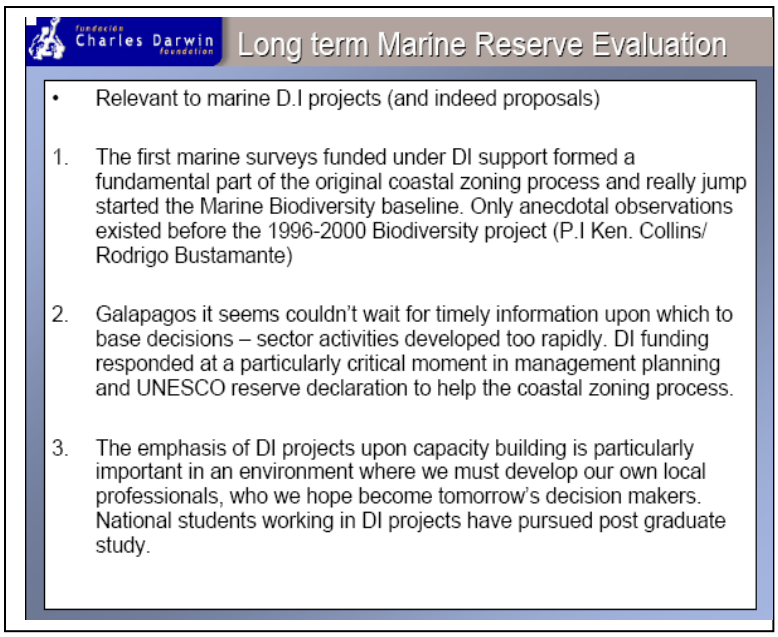
Project Ref	Title	Purpose
14-048 (COR)	Galápagos Coral Conservation: Impact Mitigation, Mapping and Monitoring (building on 6-174)	To assist Ecuador in protecting the last remaining extensive Galápagos coral reefs.
15-005 (MF)	Conservation of the Mangrove Finch (Cactospiza heliobates)	Long term conservation of the Mangrove Finch ensured through intensive field research efforts and building capacity in small population management in partner institutions, CDF and GNP
PO -15	Integrating Disease Surveillance with Conservation Management for Galápagos Fauna	To provide capacity to respond to specific disease threats identified by the current project, to fully embed disease surveillance in the Galápagos National Park strategy, to integrate wild tortoise health initiatives with the tortoise captive breeding programme, and to build conservation education capacity within the Galápagos community and Latin American region.

Table 2 Current Darwin Initiative projects not reviewed

2.1 Revision of the Galápagos Marine Management Plan - 6-174 (MMP)

Project Purpose: To produce a computer based database to help the authorities in zoning the Galápagos Marine Reserves.

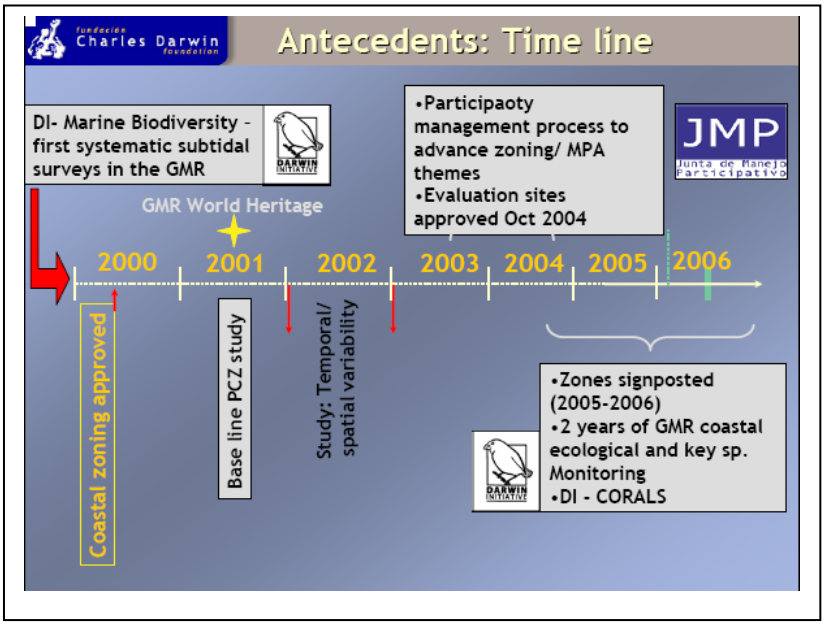
Relevance:



- A particularly timely and relevant project, which initiated sub-tidal survey in the Galápagos. It coincided with the need for a scientific basis for the application for World Heritage Status, and as a consequence had a greater immediate impact on World Heritage Convention than on the CBD.
- The project 'jump started' as set of activities that led on to a ten year programme of increasingly sophisticated marine scientific activities.

Figure 2 Extract from project leader presentation of current coral monitoring project

Efficiency:



- The project was operated efficiently with a total project cost £125,272 representing good value for money.
- The training, survey and data base technologies were appropriate. The project established a marine GIS capacity which has subsequently developed into a sophisticated conservation programme.
- Host country partners were actively involved in the design and implementation.

Figure 3 Links between Marine Management Plan and Corals Projects

Effectiveness:

- The project outputs were all achieved as well as some additional items (e.g. An identification guide to some marine organisms)
- The marine GIS system, survey data and capacity building for Galápagos staff, have led to significant capacity building within the CDF.

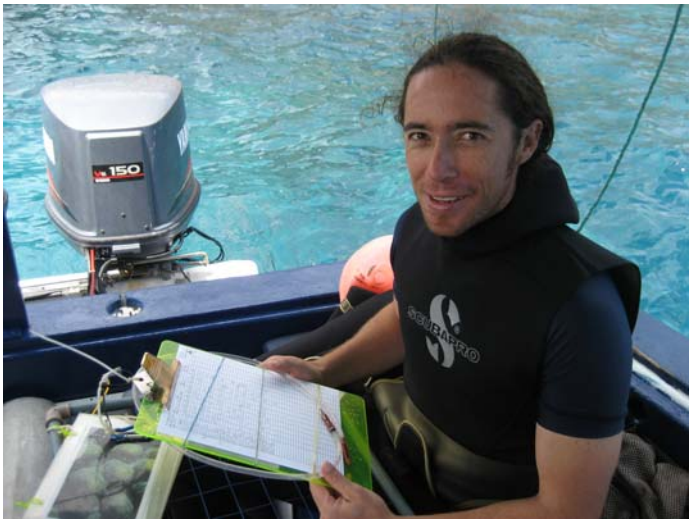
Impact:

- The project had significant impact on conservation management. It provided data for the revision of the marine management plan. The revision was a participatory process with significant levels of conflict (Heylings, pers.com), therefore scientific data would have aided the process.
- The project carried out the first systematic marine surveys which have subsequently been built upon (time series data, increased taxonomic precision).
- The Management and zoning plan was one of the components which allowed World Heritage status to be conferred in 2002.
- The marine reserve is the main location of fishing and tourism activities and has a significant impact on the livelihoods of the Galápagos population. The reserve is zoned for extractive utilisation, to which this project contributed technical information.
- Significant contribution to CBD particularly Article 8 *in-situ* conservation.

Sustainability:

The project led to a number of activities (Figure 3), including a second Darwin Initiative marine project which is currently being implemented. This project (COR) is following up a need identified in the first project (MMP).

- The project influenced the marine protected areas process, and World Heritage status.
- It led to the establishment of a marine programme as a significant section within CDF
- The marine surveys and the management zoning form the basis for management of the reserve today. The zoning scheme developed during the project has in fact recently been signposted by shoreline markers.
- The project follow on activities included a climate monitoring process in collaboration with the USA – NASA, which has led to a sophisticated monitoring and modelling of climate related changes to parameters of the physical environment.



Surveying corals cover under the follow on project.

2.2 Threatened flora of Galápagos: a scientific basis for conservation 7-078 (TF)

Project Purpose: To collect the necessary data for the design and implementation of a comprehensive conservation programme for the flora of Galápagos.

Relevance:

- The project was highly relevant. "Before the project, Galápagos plant conservation was hampered by a lack of up to date and comprehensive information. There had been no review of the status of the endemic plants and native vegetation communities of Galápagos since the mid-1980's. Botanists had never even surveyed many parts of the archipelago". (project final report). The final report went on to say that the work was recognised as the most under-funded and neglected area of conservation research, and a high priority.
- There was good alignment with CBD especially Identification and Monitoring (Article 7), *In-situ* Conservation (Article 8) and Research and Training (Article 12), it also contributed to *Ex-situ* Conservation (Article 9).
- The project was jointly identified and supported by GNPS & CDF, and had good links to other parts of the programme including with the Darwin Initiative invertebrate project (INV).

Efficiency:

- The project was implemented efficiently and the grant value of £124,500 represents good value for money.
- UK technical inputs were appropriate and relationships worked well.

Effectiveness:

The project was instrumental in restarting work on the endemic flora of Galápagos which continues today. Facilities, equipment activities and key personnel are still in place.

Project Outputs:

- Field surveys of endemic species;
- Collation of existing information;
- Revision of the threat status of endemic species and subspecies;
- Refurbishment of the CDRS Herbarium;
- Construction of *ex situ* cultivation facility;
- Training of 16 graduate students; including 3 MSc projects

Outputs near to completion at end of project

- Preparation of outline management plans[2] for all endemic species (100% instead of 30%);
- Awareness raising – successful but not to the level planned;
- The project provided significant training and capacity building as well as support to the herbarium.

[2] Originally the project envisaged full management plans for 30% of endemic plants. A briefer and more appropriate outline plan was a more effective management tool and was achieved for all endemic plants.

Impact:

- The project kick started a work programme on the endemic plants, surveyed areas of the island that had not been surveyed previously,
- The capacity for conservation management for the CDF botany department was improved with, by training in identification, survey and herbarium management.
- The data was collected on all the endemic plants and during the project detailed management plans for some of them were produced. The knowledge on endemic plants was utilised in ongoing conservation programmes.
- The project made a high standard input to the Ecuador Plant Red Book, the first such book for any tropical country.
- Unplanned impacts were the rediscovery of a species thought extinct, and previously unknown populations of other highly endangered species. A sub-species new to science was also recognised.
- The project led to a Galápagos strategy for plant conservation, and meets the and probably exceeds requirements for CBD.
- Practical actions such as the fencing of plant populations threatened by introduced herbivores (e.g. goats) has reduced the decline of several species.

Sustainability:

Dra. Patricia Jaramillo – Ecuadorian Project Coordinator (TP) and trained at Kew in Herbarium Techniques. Now Curator of CDF Herbarium.

- Despite the overriding demands of controlling invasive plants GDF and GNPS continue to give high priority to endemic and threatened species. Work on the endemic plants has, therefore, continued since the closure of the Darwin project in 2001. Funding has been maintained at US$100,000 – 150,000 per year. The Botany department is about to move into a new building and is recruiting a new threatened plant specialist.
- Ex-situ conservation work initiated under the Darwin Initiative project is ongoing.
- Work on taxa not covered earlier (lower plants) is now being undertaken.
- While lengthy management plans were not completed for all endemic plants, as previously mentioned lighter and more flexible outline plans were subsequently completed for all endemic species. Outline plans are considered by CDF to be more achievable, easily revisable and management friendly and are now the standard output of the department.

2.3 Terrestrial invertebrate biodiversity in Galápagos: training and collection rehabilitation, 9-010 (INV)

Project purpose: To provide training in sampling and identification of the invertebrate groups to provide baseline data for a) a self-sustaining monitoring programme and b) identifying future conservation actions.

Relevance:

- The project was highly relevant and timely. There was little knowledge of terrestrial invertebrates at the time of project start up. There was much concern about invasive invertebrates as well as concern about the conservation of native species but there was little information upon which to base action. The project as a consequence has been strongly supported by host country institutions
- The project has been strongly complementary to other Darwin Initiative programmes, especially the conservation of endemic plants and the control of invasive invertebrates. Close relationships are maintained with the main CDF clients, GNPS and the Galápagos Inspection and Quarantine Agency (SEGGIL)

Efficiency:

- At a grant value of £160,625 the project represents good value for money.
- UK project training and technical support was appropriate and effective.
- Project reporting was consistently late (average 6 months) and was lacking in detail. As a consequence the project received a negative final review. This was unfortunate as the evidence on the ground four years after the project shows an exemplary project.

Effectiveness:

- Most of the project outputs were achieved. These included; training Galápagos personnel, Ecuadorian undergraduates, fitting out a museum for invertebrate collection, establishing an invertebrate reference collection protocol, producing training manuals and training products for surveying and collection management. The outputs also included producing action plans and submitting journal papers and a successful Ecuadorian MSc in insect systematics and conservation.

Lazaro Roque-Albelo, Head of Native Insect Research Programme and Head Curator of Insect Reference Collection, Project Member – INV.

- While some outputs were not achieved (an internet based newsletter and a final workshop) others were exceeded. About 14 peer revered papers were produced instead of two. The MSc was upgraded to a PhD, and the holder is a key actor in the current department.
- The project transformed the invertebrate activities at CDF from two people under the Botany Department to a separate department. It provided significant resource for the increasing invertebrate work of GNPS and SEGGIL.

- The invertebrate collection housed in Galápagos increased from 12,000 to 24,000 specimens. More importantly the collection went from two small presentation cases of identified and referenced specimens, to a fully referenced collection (climate controlled room with cabinets). The collection data was established on a computer database.

Impact:

- The project provided a strong base for significant positive impacts on biodiversity. The curation of the collection has enabled work on invertebrates that would be very difficult without this resource. The endemic and introduced species are now much better known, and follow on work has included the eradication (fire ants on Marchena Island) and the biological control of invasive species (see below).
- The project allowed for some unplanned work, for example, there was a successful programme for the biological control of the invasive cottony cushion scale insect. The base provided by the Darwin Initiative project allowed for the feeding range tests and non target species analysis. Following control of the scale insect, affected endemic plant species are showing some recovery. The project also worked well with the CDF Botany department in understanding the insect pollination relationships between poorly regenerating endemic plants and insects, this work was taken forward by Ruth Boada as part of her Darwin Fellowship.
- The project has made significant contributions to meeting Ecuador's commitment to the CBD. Not least of these is the red listing of native invertebrates, for example of the 80 species of the Islands' land snails 54 have been put on the IUCN red list. Redlisting helps to focus conservation action but depends on a good knowledge of the taxa.

Sustainability:

- The referenced collections, cabinets and database established under the projects still form the basis of current activities and are still managed and curated by staff that worked and were trained on the original project.
- There is strong host country project commitment to the programme stemming from the Darwin Initiative project. The project collaborated with the work surrounding other Darwin Initiative projects (especially TF and DIS)
- The Galápagos has very progressive policies and programmes for the prevention and control of introduced species, in part as a follow on action to the project.
- The Department has continued to grow and is now moving into upgraded facilities. It provides crucial support to GNPS and SEGGIL for controlling and preventing the introduction of invasive invertebrates.
- The Invertebrate Department is carrying out very interesting work with Galápaganian communities in developing early warning systems and a rapid response mechanism for the detection and addressing of new invasive invertebrates.

2.4 Building capacity and determining disease threats to endemic Galápagos fauna 12-017 (DIS)

Project Purpose: To establish the ability of researchers and managers in the Galápagos national park to determine the nature and prevalence of disease threats to endemic fauna (with a focus on birds) stemming from the introduction of novel pathogens and vectors, and to build a capacity for the continued monitoring of introduced diseases in these populations.

Relevance:

- The need for the project was identified after an outbreak of canine distemper, and in 2002 the National Park had established a basic lab with 2 staff and one student. The park made contact with the University of Guayaquil and Dr Goodman, then with the Institute of Zoology at ZSL, and the project was then developed.
- The project has built significant capacity of host partner institutions ability to carry out a whole range of work related to disease microbiology.

Efficiency:

- The project is applying a high level of technology in a remote location, a common feature of island conservation that, due to transportation, increases costs. However, the team has increasingly been able to source reagents and other materials in mainland Ecuador rather than having to import them themselves. This is actually reducing the transaction costs of research as visiting scientists need to bring less equipment with them.
- There have been significant host country partner contributions to the project, for example, on the news of the receipt of the Darwin Initiative award the University of Guayaquil provided a large building for the laboratory that had not previously been discussed. They also contributed $100,000 for refurbishment of the building. This delayed the project to some extent to allow for the refurbishment. It, however, widened the potential scope of the project and will allow for future expansion. The GNP has also provided significant staff and transport costs.
- The project is a capital intensive project with significant investment in sophisticated equipment and is the largest single grant to the Galápagos (and is now receiving post project funding). Given the amount of interest the project has generated relative to its cost, it appears to present good value for money.

Effectiveness:

- The project was designed with four outputs:
    - Identify prevalence of disease pathogens that threaten endemic wildlife;
    - Develop a disease management plan;
    - Establish a wildlife disease laboratory;
    - Develop education programmes;
- The project has identified some critical diseases that threaten Galápagos wildlife. The potential pathways for arrival to the islands have been determined. The project is supporting the captive breeding programme and has allowed the monitoring of the health history of each individual, taking ex situ conservation management to a new level. The project has established an advanced laboratory in the Galápagos. This provides a significant resource to conservation on the islands, with the capability to carry out various types of work, store and process tissue samples, culture and do molecular analysis. The lab has open days and hosts high school students that are trained to carry out certain procedures which they demonstrate at their own schools in front of other students. This is a particularly innovative public awareness exercise.

- The project represents a new area of work for all project partners especially for the University of Guayaquil and for the Galápagos National Park. There was some scepticism that such a laboratory could be established in a remote island location, thus far the project is being successful.
- Extent of the project's ability to adapt its programme and approach during the course of implementation in response to changing assumptions and risks.

Capacity building: Next generation of scientist, lab technician at the Galápagos National Park Wildlife Disease Laboratory.

Impact:

- Conservation of biodiversity impacts include:
  - Identifying that different tortoise species have different parasites – with implications for their housing in the breeding centre (different species have been kept in the same enclosures up to now).
- The project has had unexpected contribution to the conservation of endemic flora with micro propagation of endemic plants (20 people have been trained in these techniques).
- Prior to the development of the lab the national park staff had limited options for pathological analysis, specimens sent overseas for analysis incurred high transaction costs and genetic and other material was lost from government control. GNP feels much empowered and has greater control over these issues.

Sustainability:

- There is a strong sense of ownership of the project by the National Park. This was the only project where the National Park was the lead Galápaganian agency implementing the project, and the parks ownership of the project was strong. GNP and University of Guayaquil will be retaining all the staff and providing the logistics for operation.
- The University of Guayaquil, who is the current owner of the building (with the local municipality) has pledged continued support. The University has offered to give the facility to the National Park and this is being negotiated with the Municipality. Due to the negotiations with the Municipality, no labelling of any contributors to the project, including Darwin Initiative has been carried out.
- Overall the profile of disease management has been significantly increased on the islands and it is becoming a core area of conservation management. Polices have been influenced at national level and protocols for the prevention of incoming diseases have been developed.
- A number of other international Universities has begun collaboration with the Lab (including Rome, Italy and Yale and Missouri, USA), and some have donated additional items of equipment (generator & microscopes).
- The facility is beginning to be used as a teaching facility within Latin America degree programmes.
- The project is in receipt of post project funding (PO -15, Integrating Disease Surveillance with Conservation Management for Galápagos Fauna) which will consolidate the gains of this important project

2.5 Climate change and conservation of Galápagos endemic bird species, 12-018 (CCB)

This project focused on monitoring coastal endemic bird populations of Cormorant, Penguins and Mangrove Finches. These are coastal lagoon species with the objective of complete censuses. The project provides baseline population data and developed methodologies to achieve that.

Relevance

The project was well designed and supported a number of Key CBD areas. The project worked closely with and shared data with the Coral Project (COR), and used the services of the Pathology Lab (DIS). It is well embedded in the work of the Foundation and the National Park. The Principle Researcher, Hernán Vargas is Galápaganian, and during the project was a Ph.D. student at Oxford University, as well as past employee of CDF and long term actor in Galápagos conservation and research. The project was therefore well linked into all intuitions, with a high level of host country participation

Efficiency

The project was closely designed and implemented by all parties. The project developed some innovative research techniques including using radio telemetry units taped to the back of breeding birds (Penguins & Flightless Cormorant). This allowed the development of feeding patterns and depth profiles. This data was linked with physical data for temperature and sea condition collected from data logger station as leverage to a (NASA) project of the Coral monitoring project (COR). During the project the financial contribution from GNPS has been high as it has provided the bulk of the costs of marine census work. These 2-3 week-long boat expeditions are very costly and represent considerable commitment. The total project cost was £120,000. The outputs of the project represent therefore considerable value for money.

Effectiveness

The project made an number of technical advances in the census of endemic aquatic birds of Galápagos. The telemetry which allows range and depth data is innovative and the use of breeding birds that had to return to their nests allowed the recovery of equipment which can be reused for future studies. Appropriate methodologies have been developed for monitoring the populations of iconic species particularly vulnerable to climate change. Initial baseline data is now available and a better understanding of the response of bird populations to the ENSO El Niño-Southern Oscillation (ENSO) and climate in general. This linking of population to climate was seen as particularly important by GNPS staff. Information from the project directly led to a separate project dealing with one of the species (MF). Annual censuses are now planned by CDF & GNP. All three parties GNP, CDF and Oxford University participated in the intensive and demanding boat based census trips and jointly learnt from and developed protocols and methodologies.

Impact

- Like a number of the Galápagos projects this project is a proactive attempt to learn about the likely climate effects on birds, and set in place a full understanding of the factors affecting population fluctuations. This will enable the development of strategies to mitigate both climate and non climate factors negatively impacting on these species. Direct conservation responses to climate may not develop for some time but GNPS and CDF will be armed with the knowledge required to tackle negative trends. The project highlighted the more immediate anthropogenic effects, e.g. cat predation of penguins, which increase the vulnerability to climate effects and is putting actions in place to tackle these.

- Galápagos is a biodiversity tourism economy with penguins and flightless cormorants key tourism species. Their conservation is an element towards a sustainable economy and maintain Galápagos' high quality desirable tourism destination. This (with COR) is likely to be one of the few Ecuador conservation projects which specifically target climate change (ref: CBD POW) and therefore supportive of Ecuador's CBD Commitments.

Sustainability

This is seen as an important project and there is a high level of ownership within CDF & GNPs, with both institutions planning to keep annual bird census going, and making the considerable financial investment this entails. The links with the monitoring of the physical and other components of the marine ecosystem and the role of Galápagos as a "miner's canary'[3] for climate change makes maintaining project activities important.

Training. Park rangers monitoring body condition of a Galápagos Penguin to asses the effect of El Niño. Photo Hernán Vargas

[3] The analogy discussed with S. Banks is that due to its unique location Galapagos can act for the global community over climate change as a yellow canary acts for miners regarding gas presence.

3. Main Findings

The following are the main findings of the evaluation:

- All the projects have successfully met their objectives and have had positive outcomes and impacts. The longer term legacy of the earlier projects has been very significant.
- The Darwin Initiative has contributed a total of £731,838 (UD$1,453,035) for the five closed projects (Table 3). With ongoing commitments to current projects the total Darwin Initiative contribution to Galápagos is £1,175,034 (US$2,332,983).

Project	Label	Number	£	$ equivalent
Marine Management Plan	MMP	6-174	123,700	
Threatened Flora	TF	7-078	124,500	
Invertebrate collections	INV	9-010	159,765	
Wildlife disease threats	DIS	12-017	195,381	
Climate change - birds	CCB	12-018	120,000	
			723,346	**1,436,175**
DI Fellowship	INV	EIDS02	8,492	
Total closed projects			**731,838**	**1,453,035**
Scoping award coral mapping	COR		1,954	
Coral mapping	COR	14-048	173,500	
Mangrove Finch	MF	15-005	150,000	
Wildlife disease threats	DIS	EIDP015	119,696	
Total ongoing projects			**443,196**	**879,948**
Total spent and committed			**£1,175,034**	**$2,332,983**

Note: dollar values as of January 2007.

Table 3 Financial contribution to Galápagos from Darwin Initiative.

- Seemingly substantial, this level of investment, however, represents 5% and usually less (1-2%) of annual funding to the whole Charles Darwin Foundation (CDF) programme (the organisation with the largest single recipient of Darwin Initiative funds). This percentage will be smaller if other institutions budgets, especially GNPS, are taken into account. It therefore represents a relatively small contribution to the annual conservation funding to the Galápagos.
- Despite this, all of the closed Galápagos Darwin Initiative projects appear to have been remarkably successful and have contributed to reducing the rate of loss of the Islands' biodiversity[4] to a disproportionately greater extent than the low percentage contribution would indicate. This success has been achieved through three key areas.
    - investing in people
    - technology transfer
    - networking and long-term relationship development

[4] Evidence of a reduced rate is not often measured or measurable.

The result has been to "jump start" a number of key programmes;

- marine and coastal
- endemic flora,
- invertebrates,
- wildlife disease threats,
- climate change impacts on major taxa.

- In the first three of these areas the projects focused on setting up basic programmes while the latter two are much more complex with a higher level of technical sophistication, and represent a maturing of the conservation programmes. Galápagos conservation initiatives appear at the global cutting edge in a number of areas and this leadership is being shared regionally by at least two projects.
- The reasons given for this by host country partners for the impact significantly greater than the percentage contribution to conservation funding would suggest area as follows:
    - The size of a Darwin Initiative grant is institutionally valuable, it is large enough to carry out effective pieces of work, but small enough not to destabilise the institution[5] (boom-bust cycle of development funding);
    - Darwin Initiative has funded some fundamental and essential components (basic data collection and taxonomy) that are both essential and form the basis of other work (MMP, TF, INV);
    - Support has gone to types of work that it is not normally easy to access funding such as taxonomy of endemic species
    - Human resources capacity building has been very important in supporting long and short-term training of key local staff and providing tools to do the work, and personnel stability to has allowed benefits to accrue.
    - The development of key contacts and networks, some of which are active five years after the project had closed.

Some of the success appeared to the reviewer to have stemmed from the intrinsic strength of the host country institutions. In terms of small island research institutions and protected area authorities both CFS and GNPS command unusual levels of human, financial and technical resources. Project teams have been strategic in focusing Darwin Initiative projects.

> *"Since funded projects (usually 3 yrs) are too short to effect long term management practice, we aim to orientate subject matter around achievable outputs that contribute to long-term sustainable outcomes." S. Banks MMP/COR,*

The institutional strength of host country partners is undoubtedly due, at least in part, to the iconic nature of the Galápagos and their wildlife, and the relative autonomy of the Galápagos Region from mainland Ecuador. Also important is the relatively high level of political will to support conservation activities on the islands. Both organisations have a high status in the administration of the region, and play an active role in development decision making.

[5] CDF is a relatively large institution for a small tropical island archipelago – Darwin Initiative funding could itself have boom-bust implications for smaller institutions.

Despite the Darwin Initiative overall objective to support host country implementation of the CBD, awareness of the CBD was relatively low at the project level. The programme of work on island biodiversity was not making an impact on guiding Galápagos activities, this may not be surprising given it is a relatively recent articulation.

Likewise the awareness of the Darwin Initiatives contribution to biodiversity conservation within Galápagos was also low within the CBD focal point. Knowledge of the number and range of the DI projects was limited as was the overall mechanism of DI programme delivery. The focal point was interested to learn more about the programme and requested the opportunity to submit additional projects for funding.

The greatest level of awareness of the overall contribution to CBD of Galápagos activities resided within National Park staff. Here it was recognised that Galápagos is meeting if not exceeding many CBD provisions. Again the Darwin Initiative has played its role and the work on disease threats appears to be ahead of CBD provisions.

The Darwin Initiative has a made a substantial contribution to the conservation of the Galápagos Archipelago. The funds available have been well used to develop human capacity, conservation infrastructure, methodologies and protocol and influence decision making, policy and law. UK expertise has been mobilised and strengthened, and long-term relationships and networks built.

Hernán Vargas reading PIT number (with scanner) of a marked Flightless Cormorant, Fernandina Island. March 2006. Photo. Glyn Young

Human resource Capacity Building.

Human resources capacity building has been one of the strong legacies of Darwin Initiative Projects, and plays a significant role in the careers of both UK and Host country personnel. Hernán Vargas represents one of a number of Galápagos examples of this, including training, gaining experience and then leadership. Hernán was involved in the surveys of the first marine survey project (MMP) and received GIS training in UK. He was the Galápagos leader of the climate change and birds project (CCB) and through this project gained a PhD, the first by a Galápaganian. He played a key role in the close collaboration with the wildlife disease project (DIS). Now based in Panama, he plays a leadership role in regional bird conservation efforts, and remains and advisor to The mangrove finch project (MF), as well as other similar work in Ecuador and beyond.

The future of Galápagos and its iconic wildlife is not, however, secured and much work needs to be done. Within the context of Ecuador, the economic successes of Galápagos's biodiversity economy are driving a tourist boom and high levels of arrivals of both tourists and immigrants from the mainland. This not only makes the arrival of new invasive species a regular occurrence, but means a new Galapaganian community that is looking for short term economic gains. In the recent past, conflicts have been high. The future challenge for Galápagos is to create a long term sustainable social, cultural, environmental and economic model. Given the connection between Galápagos, the figure of Darwin and the UK, it is hoped the Darwin Initiative will be able to play a supporting role to achieve this end.

3.1 Lessons learnt

- All the projects have successfully met their objectives and have had positive outcomes and impacts. The longer term legacy of the earlier projects has been very significant
- Despite the relatively small contribution to the overall funding of Galápagos the projects have had significant impact in biodiversity conservation programmes
- Initial projects have been of foundation nature focusing on taxonomic and basic survey, while later projects have been more technically sophisticated, showing an evolution in project development
- Projects have benefited from each other and a number have built upon the achievements of there predecessors.
- The Darwin project model develops long term conservation partnerships and networks that are functional beyond the life of individual projects.
- Successes have in part stemmed from the institutional strengths of the host country institutions
- While the Darwin Initiative has made contributions to the conservation of the Islands they still face some formidable challenges to retain and maintain the exceptional biodiversity

3.2 Best Practice

As one might expect given the very high global values of the Galápagos Islands, there are a number of elements of the programme that are cutting edge of these the following are supported by the Darwin Initiative or are ongoing activities which have developed from earlier DI initiatives.

- The establishment of a wildlife disease laboratory examining disease, disease vectors, parasites and other aspects of wildlife health is probably globally unique for an island archipelago of this size.
- Projects that are focusing specifically on aspects of climate change, as well linking the populations of marine birds and corals directly to measurement of sea temperature and other physical components of the environment are at the cutting edge of climate change monitoring, and will have lessons for other projects.
- Based on earlier support to invertebrate taxonomy, current efforts at community based invasive invertebrate identification, work with quarantine agencies on invasive species is probably some of the best practice world wide.
- Projects on the Galápagos are beginning to play a regional leadership role in biodiversity conservation and the impacts are therefore being shared over a wider geographical range

3.3 Recommendations

- The Galápagos Islands remain very suitable area for Darwin investments through projects
- Projects should receive clearer guidance as to how to interact with host country institutions to ensure that decisions are made transparently.
- Promoting and supporting greater regional learning between projects would help extend the positive lessons and best practices of individual projects
- The programme should retain its flexibility as well as support to areas that is it difficult to fund from other sources
- Better contacts with CBD focal points may improve the profile of the DI programme within host countries.

Annex 1. Terms of Reference ECP – Galápagos, Ecuador

Post Project Evaluation	Evaluation of Closed Darwin Initiative Projects located in Galápagos				
Project No's.	6-174	7-078	9-010	12-017	12-018
UK Institution and Project Leader/Contact	University of Southampton, Southampton Oceanography Centre Ken Collins	Galápagos Conservation Trust Alan Tye	National Museums & Galleries of Wales, Dept of Biodiversity and Systematic Biology Mike Wilson	ZSL, IOZ Simon Goodman (now with U of Leeds)	University of Oxford, WildCRU David MacDonald (Hernan Vargas main contact)
Partner Institution(s)/ Contact(s) per project	Charles Darwin Research Station(CDRS), the National Fisheries Institute, Galápagos National Park Service (GNPS) and universities in Ecuador	CDRS, GNPS	CDRS, GNPS	GBNPS & University of Guayaquil	Charles Darwin Foundation
Project Grant Values/project	£123,700	£124,500	£159,765	£195,381	£120,000
Project's Start / End Date:	1/6/97 – 31/5/00	1/4/98 – unclear, but likely 31/3/01	1/4/00 – 31/3/03	1/7/03 – 31/8/06 Now with Post Project funding. AR3 not received. FR due 30/11/06	1/8/03 – 30/11/06 Completed early
Reviewer	Rob Wild, ECTF				

INTRODUCTION

The Darwin Initiative seeks to help the safeguard of the World's biodiversity by drawing on UK biodiversity expertise to work with local partners in countries that are rich in biodiversity but poor in financial resources. Particular emphasis is placed on:

- Conserving biological diversity within the context of the Convention on Biological Diversity, including sustainable use and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources;
- Improving collaboration with host country/ies and strengthening their capacity to carry forward Darwin funded initiatives;
- Enhancing the overall legacy of Darwin projects.

The Darwin Initiative supports projects led by UK institutions, in partnership with host country institutions, which support biodiversity conservation over a range of ecosystems and locations. Five priority areas for Darwin funding include:

- Institutional capacity building.
- Training
- Research
- Work to implement the Convention on Biological Diversity
- Environmental education and awareness

In order to inform on the impact and legacy of the Darwin Initiative, the Darwin ECTF Monitoring and Evaluation component is commissioning evaluations of projects that previously received funding from the Darwin Initiative (ie "closed" Darwin projects). Issues of sustainability are also integral components in the analysis of impact and legacy.

The approach applied by the Darwin Initiative M&E component is to select *clusters* of "closed" projects based on either a country, theme or eco-region. Such missions shall be undertaken in close consultation with UK based and host country institutions, and involve relevant in-country beneficiaries and stakeholders.

Objectives for the Evaluation of Closed Darwin Initiative Projects

The Evaluation of Closed Projects (ECP) is primarily intended to provide an external perspective on the legacy and impact of Darwin Projects, and to draw out lessons learned and best practices that account for positive legacy and impact.

Legacy and impact shall be accessed at different levels:

- At the **project level** – in terms of host country institutions and local partners and beneficiaries, and in terms of conservation achievements.
- At the **national & eco-region level** – in terms of host country policies and programmes, and if relevant at cross-boundary and eco-region level.
- At the **international level** – in terms of emerging best practices, and the CBD itself.
- At the **UK level** – in terms of legacy and impact within UK institutions.

Within the context of the above, the evaluation shall comment on how the clusters of projects evaluated have contributed towards achieving Darwin Initiative objectives.

Background of Projects to be evaluated

The Galápagos Islands have been the focus of a number of Darwin projects (see below). The 5 completed (or nearly completed) projects present an opportunity to evaluate the long-term impact and legacy of Darwin projects in Galápagos.

Project No.	Title	Purpose
6-174	Revision of the Galápagos Marine Management Plan	To produce a computer based database to help the authorities in zoning the Galápagos Marine Reserves.
7-078	Threatened flora of Galápagos: a scientific basis for conservation	To collect the necessary data for the design and implementation of a comprehensive conservation programme for the flora of Galápagos.
9-010	Terrestrial invertebrate biodiversity in Galápagos: training and collection rehabilitation	To provide training in sampling and identification of the invertebrate groups to provide baseline data for a) a self-sustaining monitoring programme and b) identifying future conservation actions.
12-017	Building capacity and determining disease threats to endemic Galápagos fauna	To establish the ability of researchers and managers in the Galápagos national park to determine the nature and prevalence of disease threats to endemic fauna (with a focus on birds) stemming from the introduction of novel pathogens and vectors, and to build a capacity for the continued monitoring of introduced diseases in these populations.
12-018	Climate change and conservation of Galápagos endemic bird species	To increase local expertise for scientific research, ecological monitoring and sustainable management in the Galápagos Islands. To understand the mechanisms of natural and anthropogenic factors on the conservation of threatened endemic bird species and associated biodiversity in rich upwelling ecosystems of the Galápagos Islands.

Issues to be evaluated

The Evaluation of Closed Projects (ECP) shall review outcomes of Darwin Initiative funded projects against the original logical framework and Darwin proposal, Project reports and products, and through the following evaluation criteria:

Relevance:

The extent to which the project outcomes correctly addressed identified problems and needs at the time of design, and whether these problems and needs were addressed as a result of the project. Guiding issues include:

- Appropriateness of the project design to the identified problems and towards supporting the implementation of the CBD.
- Complementarity and coherence with other related programmes and activities at national or local levels.
- Overall design strengths and weakness as reflected in the original logical framework.
- Extent of participation by host country institution and beneficiaries in initial consultations, and identification of problems and needs.

Efficiency:

An assessment of how well the projects transformed their available resources into intended outputs in terms of quantity, quality and timeliness. Guiding issues include:

- Appropriateness and suitability of the technical methodology applied by the project and overall delivery of the technical assistance
- Review of project costs and value for money.
- Level of Partner country contributions in the project
- Extent of monitoring systems to assess progress and impact.
- Extent of the project's ability to adapt its programme and approach in response to changing assumptions and risks.

Effectiveness:

To what extent the project outputs were achieved and to what extent they contributed to achieving the project purpose. In other words what difference the project has made in practice with the intended beneficiaries. Guiding issues include

- Extent of the technical advances made by the project.
- Extent of institutional change within beneficiary institutions as a result of the project outputs and purpose.
- Validity of the assumptions and risks of the project at the purpose level, and how did these change during the course of the project
- Extent of the project's ability to adapt its programme and approach during the course of implementation in response to changing assumptions and risks.

Impact:

To what extent the project purpose was achieved and thus contributed to the overall project goal (ie 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 the benefits arising out of the utilisation of genetic resources.). Guiding issues include:

- To what extent has conservation of biological diversity benefited (or expected to benefit) from the achievements of the projects.
- Have there been unplanned impact resulting from the projects and what have been their consequences.
- Have there been gender-related or poverty related impacts rising from the project.
- Have there been impacts on host country ability to implement the Convention on Biological Diversity.

Sustainability:

Extent to which the outcomes of the projects, at either output or purpose level, have continued on after the end of the project. Guiding issues include:

- Extent of the ownership of the project purpose and achievements, and means for ensuring this ownership.
- Extent of the policy environment being in support of the project purpose and achievements.
- Extent of the institution capacity of host country and beneficiary institutions to carry forward project outcomes post project support, at the level of scientific, technological and financial considerations
- Extent of the socio-cultural factors being in support of project outcomes, and whether the project outcomes are well grounded.

Methodology

The ECP shall be undertaken in close collaboration with Darwin Team Leaders and host country institutions, and engage with project stakeholders and beneficiaries. Wherever possible, ECP consultants should consultant with National CBD focal points.

The ECP consultant shall ensure that the ECP is informed through consultative and participatory work sessions and semi-structured interviews with project team members, project beneficiaries and other project stakeholders. Use of participatory assessment tools should be used where ever possible (eg timelines, mapping, stakeholder analysis)

Timetable

The ECP in Galápagos shall be undertaken according to the following schedule:

- Preparation and review of documentation – 1 days
- Field mission and travel - 6 days
- Report preparation – 3 days

Reporting and Feedback

No later than two weeks after the end of the field mission, the ECP consultant shall submit a **draft report** to the Team Leaders and the Darwin Programme Director. Thereafter, the Team Leader, host country institution(s) and the Darwin Programme Director shall have up to two weeks to submit comments to the ECP consultant. The ECP consultant shall finalise the ECP report no later than one week after receiving comments on the draft report.

As a guide, the ECP draft and final report should be no more than 15 pages (excluding annexes) and reflect the following outline.

- Executive Summary: A free-standing executive summary mainly on the key fey findings of the ECP. It should be short and no more than four pages.
- Main Text: Should start with an introduction describing the projects being reviewed and the evaluation objectives. The body of the report should follow the five review criteria described in the methodology with emphasis on describing status of project outcomes and achievements.
- Conclusions on lessons learned and best practice.
- Annexes should include:
    - The TORs for the ECP
    - Logical Framework of projects evaluated indicating original intended purpose and outputs, actual achievements by the end of the project, and outcomes at the time of the ECP.
    - Sources of evidence of achievement, impact and legacy from Darwin projects.
    - List of persons/organisation consulted
    - Documentation consultant
    - Other relevant annexes

Current Projects

While you are not required to interact with current projects in the country/region, you might find it helpful to know that the following Darwin projects are currently active in the Galápagos Islands since there may be an element of overlap of partners in particular.

Project Ref	Title	PL	Organisation	Partners	Dates
14-048	Galápagos Coral Conservation: Impact Mitigation, Mapping and Monitoring (building on 6-174)	Terry Dawson	University of Edinburgh	Conservation International	1/5/05 – 30/4/08
15-005	Conservation of the Mangrove Finch (Cactospiza heliobates)	Glyn Young	Durrell Wildlife Conservation Trust	Charles Darwin Foundation (CDF); Charles Darwin Research Station (CDRS); Galápagos National Park (GNP)	1/6/06 – 31/5/09

Annex 2 List of Persons Consulted

NAME	TITLE	INSTITUTION	PROJECT
Alan Tye (by telephone)	Incoming Head of Science	CDF	TP
Alizon Llerena	Research Associate	CDF	CCB
Antonio Matamoros	CBD Focal Point	Min Amb. Quito	
Brigit Fessl	Researcher	CDF	MF
Bryan Milstead	Head of Vertebrates	CDF	CCB & MF
Charlotte Causton	Ag. Head of Science	CDF	INV
Danny Rueda Córdova	Natural Resources	GNPs	DIS & CCB
Diego	Research Assistant	CDF	COR
Simon Goodman	Lecturer, (UK project Leader)	School of Biology, Uni. of Leeds	DIS
Felipe Cruz	Director of Technical Assistance	CDF	
Fernando Ortiz	Galápagos Programme Coordinator	Conservation International	
Frauke Ziemmeck	Research Assistant	CDF	
Graham Watkins	Director CDF	CDF	
Lazaro Roque-Albelo	Head of Native Insect Research Programme and Head Curator of Insect Reference Collection	CDF	INV
Maria Del Carmen Barragán	Directors Office	CDF	
Mariana Vera	Research Assistant	CDF	COR
Patricia Jaramillo	Curator of Herbarium	CDF	INV
Pippa Heylings	IUCN Task Force on Island Conservation and PAs		
Rachel Atkinson	Plant introduction Investigator,	CDF	
Roslyn Cameron	Development Manager Institutional Development	CDF	MF
Ruben Carrión	Head Tourism Planning, Isabela	GNPs	CCB
Ruth Boada	TA to NP Insect Programme	CDF	INV
Sandra Landazuri	Research Associate	CDF	COR
Fernando Octiz	Galápagos Program Coordinator	Conservation International	COR
Scott Henderson	Regional Marine Programme Coordinator CBC Andes/Eastern Tropical Pacific	Conservation International	COR
Simon Goodman	Lecturer, (UK project Leader)	School of Biology, Uni. of Leeds	DIS
Stuart Banks	CDF Head Marine programme	CDF	MMP & COR

NAME	TITLE	INSTITUTION	PROJECT
Susana Cardinas	Research Associate	CDF	CCB
Timothy Silcott	Director of Information and Development	CDF	COR
Victor Carrión	Coordinator (Deputy Director)	GNP	DIS
Virna Cedeño	Laboratory Coordinator	GNP– Uni. Guayaquil	DIS