

Darwin Initiative – Final Report

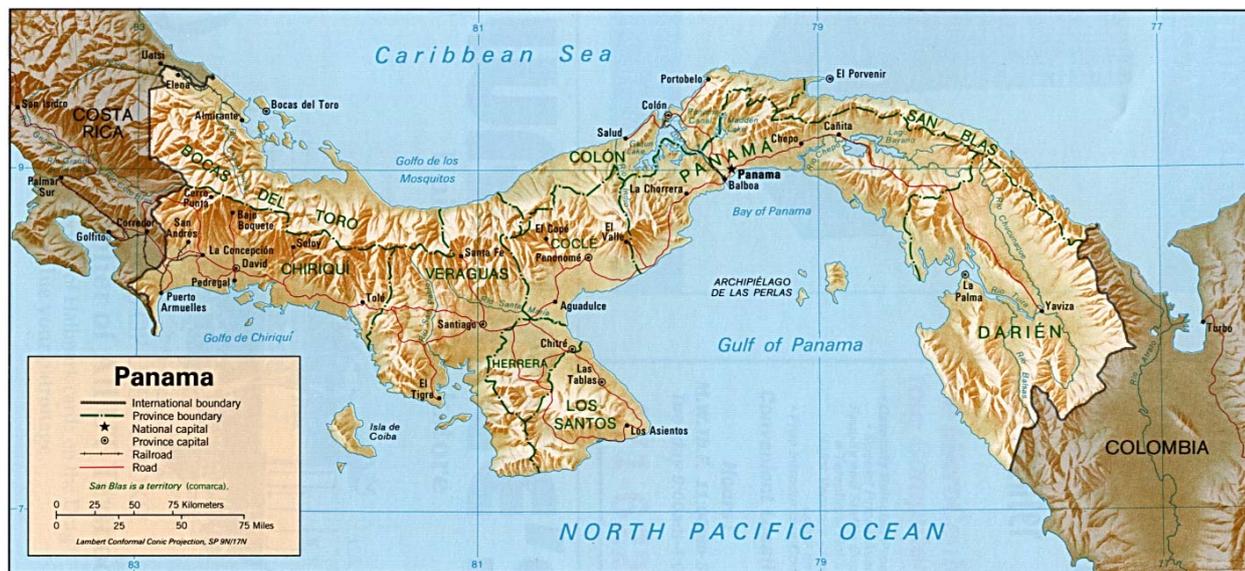
(To be completed with reference to the Reporting Guidance Notes for Project Leaders (<http://darwin.defra.gov.uk/resources/reporting/>) - it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin project information

Project Reference	Post-project EIDPO 17
Project Title	Conservation management zoning implementation and facilitation in Perlas Archipelago, Panama
Host country(ies)	Panama
UK Contract Holder I	Heriot-Watt University, Edinburgh
UK Partner Institution(s)	n/a
Host Country Partner	Smithsonian Tropical Research Institute, Panama
Darwin Grant Value	£93,944
Start/End dates of Project	1 May 2006 / 31 March 2008
Project Leader Name	Dr James Mair
Project Website	http://striweb.si.edu/darwin_initiative/
Report Author(s) and date	Dr James Mair & Dr Hector Guzman, 30 June 2008

1 Project Background

Las Perlas is the Archipelago in the Gulf of Panama (Tropical Eastern Pacific):



The main purpose of this Post-project was to ensure that the newly approved conservation area (“Las Perlas Special Management Zone”) was implemented properly and in a sustainable manner through continued guidance by the Darwin project team - advice based on sound scientific study and understanding of Las Perlas marine environment with the terrestrial interface. It was timely and logical for work to continue, without loss of momentum (i.e. Post-project started in May 2006 after main project -12/021, finished in March 2006 - http://striweb.si.edu/darwin_initiative/), especially since the authorities in Panama (AMP) currently rely heavily on Dr Guzman and DI project results/advice for specific zoning implementation and developing fishery regulations under new Law No. 18.

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

The Post-project continued and extended the work of the original Darwin project (12/021). CBD objectives were supported in that the Post-project contributed to: Articles 12 (research and training); 7 (identification and monitoring); 6 (measures for conservation); 10 (sustainable use of biological diversity); 18 (technical and scientific co-operation); 17 (exchange of information); 14 (impact assessment and minimizing adverse impacts); and 13 (public education / awareness). The project was relevant to the CBD thematic programme on 'Marine and Coastal Biodiversity' plus several cross-cutting themes such as 'Protected Areas'; 'Access and Benefit Sharing'; Biodiversity and Tourism; - and, through postgraduate student (PhD and MSc) research topics, – 'Climate Change and Biodiversity'; 'Indicators' and 'Ecosystem Approach'.

Las Perlas Archipelago is included within the humid forest eco-region of the Chocó-Darién, which is considered as one of the eco-regions with the highest diversity of species in the neotropics. Its biological importance, state of conservation, and current and potential threats place it as one of the sites in the Latin American Pacific with the highest priority for conservation initiatives. The continued combination and collaboration of UK and Panamanian expertise on this Darwin Initiative Post-project (to both carry out more vital scientific research and to work in stakeholder participation in management processes) therefore ensured that the implementation of several aspects of the Convention on Biological Diversity were assisted (as indicated above – plus see Table in Annex 3).

Close links were maintained by the host-country Darwin project Co-ordinator with the Panamanian government's Environmental Authority (ANAM - www.anam.gob.pa/portada.htm) and CBD national focal point - original Darwin link with NFP was established through project 162/10/023 and continued with 162/12/021 and EIDPO17. The host-country Darwin project co-ordinator has also been instrumental in advising the Panamanian government in its dealings with the Inter-American Development Bank for its loan to the Government to implement funds for developing further management plans for Las Perlas Archipelago (Loan/Credit Number: PN-0152/ Préstamo No. 1724/OC-PN/Llamado N°: 001. PROGRAMA DE FORTALECIMIENTO DE LA CAPACIDAD DE GESTION DE LA AUTORIDAD MARITIMA DE PANAMA PARA EL MANEJO COSTERO INTEGRADO). This loan (call issued October 2007) is still under protracted negotiations between the IADB and the Panamanian government but the award to contractor consultants should be announced very soon. The Darwin Post-project's main aims were concentrated around Las Perlas Archipelago and the newly designated boundaries of the Special Management Zone (Law No. 18 May 2007) and Hydrological Reserve (Decree No. 5 December 2006) created on El Rey (the largest of the Archipelago's islands). Nevertheless, research work associated with the Post-project has been on migratory species such as turtles, humpback whales, whale-sharks and other species. The project was therefore supporting and contributing to aspects of other conventions such as the Convention on Migratory species (see http://striweb.si.edu/darwin_initiative/ - Darwin project website for further details).

3 Project Partnerships

The well-established relationships between Heriot-Watt University and the Smithsonian Tropical Research Institute (STRI), and the Project Leaders, Drs Mair and Guzman, have been further strengthened during the 2-year Post-project, and the original MoU was continued. The original project had established a Network of links with other current and previous Darwin project team members and this networking has been continued and developed (see below). Dr Guzman at STRI has already all the appropriate contacts with the Panamanian government departments and the CBD national focal point. The original partnership grew from the accepted need for the natural resources and environment of Las Perlas Archipelago to have some form of protection and the observation by the partners that a suitably designed Darwin project could assist in establishing protection status. The Darwin projects (first 3 years and second 2 years) have supplied the scientific information required for appropriate assessments/decisions to be made and which enabled the Panamanian government to establish the two protected areas (Las Perlas Special Management Zone and El Rey Hydrological Reserve). As advisor to the Panamanian government, the Darwin project host-country co-ordinator (Dr Guzman), was also instrumental in the important follow-through aspects of lobbying and guiding the various stakeholders and government officials through the very protracted debates leading up to the eventual approval of the laws establishing the protected areas.

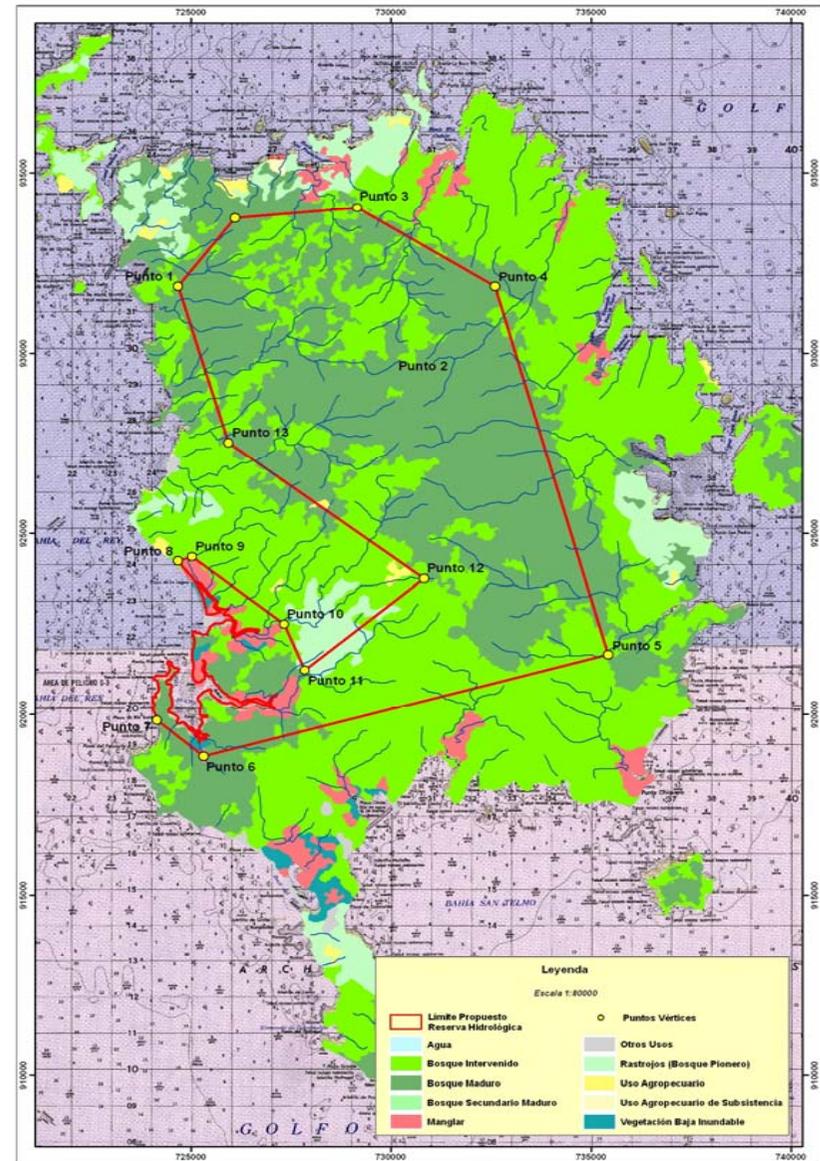
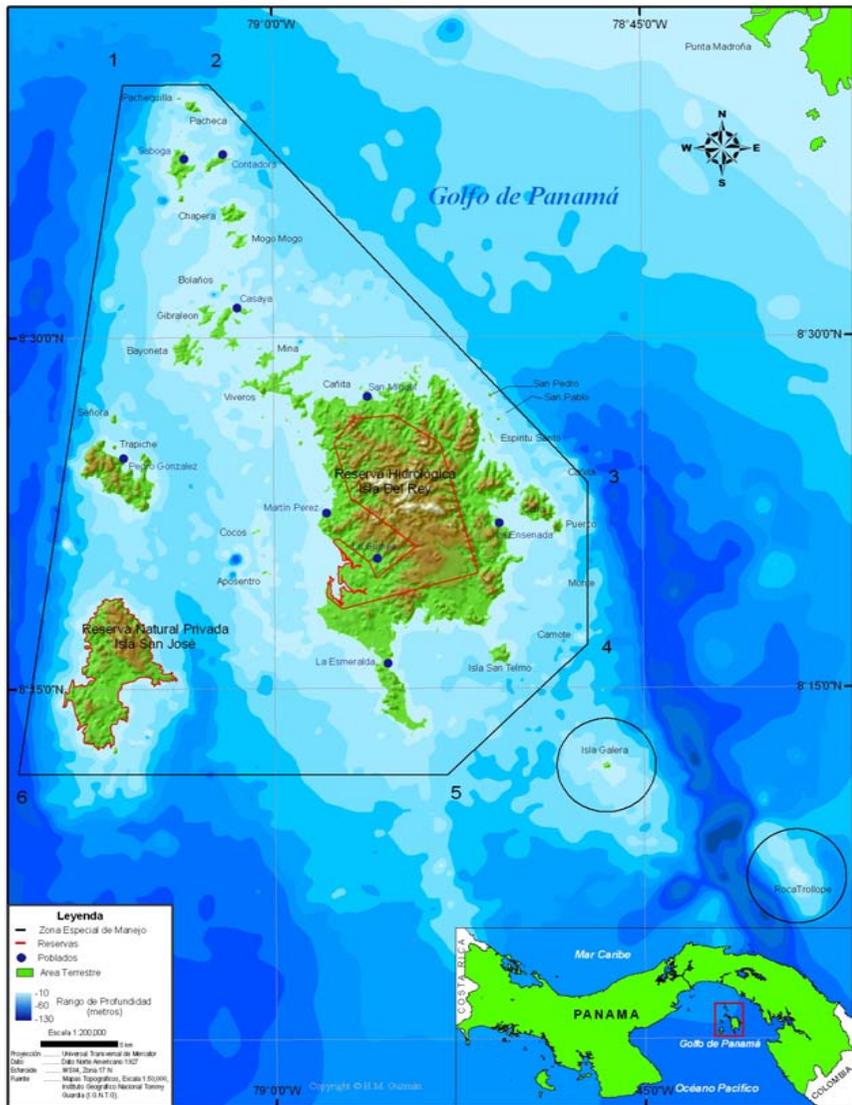
Throughout the original project and during the Post-project, considerable support has been given to the Darwin project team by the staff at the British Embassy in Panama. This has not only included behind-the-scenes support but also included direct contacts with other interested parties. The British Embassy also kindly provided small-grant support for two projects to supplement the work of the Darwin project. The first Project was to produce educational and promotional material for studies of migratory and resident turtles in the Gulf of Panama (and the nesting sites on Las Perlas – see attached leaflet produced and Panama Darwin project website), and a current project on similar educational and promotional material supporting awareness of climate change impacts (material currently being collected and prepared for pamphlets). The Darwin Post-project has also supported (and with grants from the International Community Foundation (ICF) and Conservation International (CI)): 1) the creation of new NGO for Las Perlas; '*Fundacion Las Perlas*', run by local stakeholders, for them, for Las Perlas; 2) involvement in, and founder member of, the creation of a new regional network, Migramar (Migramar is a network of marine research and conservation institutions and teams working together to understand the dynamics of sharks and other pelagic species in the eastern tropical pacific; www.migramar.com).

Although not specific to the Darwin project itself, the Darwin project host-country collaborator and his institution (and on behalf collaborators on the Darwin project where appropriate) have developed MoUs with Marviva, Conservation International, The University of California-Davis, and The Nature Conservancy for long-term work that links the studies in Las Perlas Archipelago into wider regional initiatives.

4 Project Achievements

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

Please see attached Annex 1 (Project Logframe) for summary. The Darwin Post-project nurtured to completion the main objectives of the original Darwin project (12/021 – 2003-2006). The final signing into law of the Las Perlas Special Management Zone took place on 31st May 2007 (Law No. 18). It should be noted that, as with many pieces of government legislation, this took longer than anticipated when debates on the legislation started in late 2005. This was partly because of suspension of debates due to other government business. On the other hand, it had been expected (at the outset of the original Darwin project in 2003) that such legislation might take longer to achieve. During critical periods in 2006 and 2007, the Darwin project host-country co-ordinator maintained his lobbying efforts and provided government officials and key stakeholders with information and advice to keep the progress of guiding the legislation through Congress on track. Although the original Darwin project (2003-2006) was able to claim its original objectives had been achieved, it could more properly be considered that the original Darwin project and Post-project together saw through the Project's visible impact achievements to actual fruition ('*Isla del Rey Hydrological Reserve*' in 2006 and Las Perlas '*Special Management Zone*' in 2007- see attached documents). The Panamanian government's obligations to develop detailed individual management plans for the 'Special Management Zone' to meet the different objectives of the legislation are currently being put in place and these will be greatly assisted by the IADB loan soon to be granted for this purpose. The scientific information collected over the last 5 years by the Darwin project team (e.g. in local fish stock status, habitat health, and better understanding of the ecology of important migratory species within Las Perlas and Gulf of Panama, etc.) will enable appropriate management plans to be developed on soundly-based information. Continuing research initiated by the Darwin projects (and being developed further where other funding permits) will also help guide into the future the developing detailed management plans for the MPA. Please see maps on next page illustrating the areas now under protection, as enacted by the creation of the 98.2 km² '*Isla del Rey Hydrological Reserve*' (Municipal Decree No. 1, October 25th 2006) and the 1,688 km² marine protected area of Las Perlas '*Special Management Zone*' (Law No. 18, May 31st 2007). Apart from the achievements identifiable directly by the implementation of legislation, there are also less 'visible' impacts achieved by the Darwin project. These include the training provided for numerous Darwin short-term Fellows (see below) and the continuing contacts that Dr Guzman and the Darwin project team have with the local village inhabitants of Las Perlas Archipelago. Through maintaining these people as key stakeholders on the process, they continue to have an important say in the development of species- or site-specific management plans within the implementation of the legislation.



Legislative outcomes from the Darwin projects: the establishment of defined boundaries for the 'Special Management Zone' MPA and the 'El Rey Hydrological Reserve' in Las Perlas Archipelago, Panama.

4.2 Outcomes: achievement of the project purpose and outcomes

It is considered that the Post-project has fully achieved the purpose and outcomes originally envisaged (see Annex 1 Project Logframe).

4.3 Outputs (and activities)

Similarly, as stated above, it is considered that the Post-project has fully achieved the outputs and activities originally envisaged (e.g. Field Research Programme, Participatory Workshops, Educational Material Production, and Research Publication and Networking). With regards to the overall output/purpose (i.e. the Panamanian government decree legislating for the Las Perlas 'Special Management Zone'), problems were encountered in that there were delays of several months in getting this legislation finally approved. Whilst this was frustrating for the Darwin project team, and created additional work for Dr Guzman, such delays are not unusual in these circumstances and this 'minor' problem was resolved by persistence and patience.

4.4 Project standard measures and publications

Please see attached Annex 4 and Annex 5 for details.

4.5 Technical and Scientific achievements and co-operation

Please see attached Annex 5 for details of peer-reviewed research findings. Technical and scientific co-operation was a large part of this Darwin Post-project and much was achieved by employing numerous young Latin-American scientists (on short-term work/research experiences) in the rolling position of the Darwin Fellow A post of the project. Through the workshop programme run by Dr Guzman, indigenous knowledge of the islands possessed by the local village fishermen and farmers was integrated into the social science studies aspect of the project and, as described above, the local inhabitants of the Archipelago (as key stakeholders) were closely involved in, and supportive of, the development of the legislation which was enacted.

4.6 Capacity building

The Smithsonian Tropical Research Institute (STRI) in Panama is an extremely well-established and acknowledged centre of excellence in tropical science and conservation work. The main increase in capacity building has been achieved by enabling young scientists from the region be actively involved in the work of the Darwin project team through the Fellow appointments and through associated short-term STRI intern links. The holders of the Darwin Fellow A positions were: Ivania Ceron, PhD - University of Puerto Rico (Colombian); Cristina Ordóñez, BSc - Caribbean Conservation Corporation (Mexican); Juan J. Capella, BSc - Fundación Yubarta (Chilean); Roberto Cipriani, PhD - Universidad Simón Bolívar (Venezuelan); and Lenin Oviedo, MSc - Universidad Nacional de Costa Rica (Venezuelan). Local networks that have developed out of the Darwin project team's work have also increased capacity in biodiversity issues (see Section 2). Heriot-Watt University has benefited greatly from the Darwin project partnership and is now able to build on these experiences and close contacts with STRI in Panama to apply for other funding sources.

4.7 Sustainability and Legacy

The project partners are committed to continued collaboration and several joint proposals have been submitted and are currently under review whilst other proposals for future funding are being prepared (see http://striweb.si.edu/strinews/PDFs/May_30_2008.pdf). The main project staff continue in their current positions and the Darwin Post-project Capital items obtained (satellite imagery) remain with the host organisation. The main project achievement of ensuring protective legislation for Las Perlas Archipelago will endure and continued efforts to influence the detailed management plans within this legislation will also have a long-term legacy. Under provisional IADB funding two small patrol boats have been purchased for Perlas islands and also the ARAP (Autoridad de los Recursos Marinos de Panama) is about to launch a civil program called "Vigilantes del Mar" as a pilot for Las Perlas where all trained in conservation citizens with boat and yachts will enforce the new Law. Prior to these Darwin projects the main association with the 'UK Brand' in Panama was on large business, ports, telecommunications and banking. Now there has been a change of attitude with 'Conservation' being high on the agenda and associated with UK activities in Panama.

5 Lessons learned, dissemination and communication

The key lessons learned from this Post-project are mainly those that reinforce the lessons learned from the original Darwin project. In addition to these, however, it is now appreciated that the extra time (2 years) of Darwin Initiative funding support has significantly increased the impact that the overall Darwin project has had. The target audience for the project achievements was wide (from Panamanian government officials and key stakeholders in Las Perlas Archipelago to the wider scientific audience targeted by peer-reviewed journal publications). Dissemination will continue through further publications (scientific journal articles currently in press or in preparation) and through activities of the local networks established.

5.1 Darwin identity

The Darwin logo was used on all appropriate material and websites produced during the project (see some examples in Annex to this report). Through the Darwin Project network, there is now increased awareness of the potential for future Darwin (and other) funding opportunities for related and collaborative projects. These ideas are regularly circulated by email amongst Network partners. The designation for the “Special Management Zone” for Las Perlas has also been intimately associated with the “Darwin Project” in Panama. STRI and the host-country coordinator (Dr Guzman) have taken every opportunity to associate the Darwin project with the consultation process with all stakeholders. Drs Mair and Guzman held regular meetings with staff at the British Embassy and this also helped greatly in the wider explanation of Darwin Initiative and Darwin project aims within Panama. In the general context of biodiversity conservation in Panama, this particular Darwin Post-project was closely associated with the Las Perlas situation and so was readily regarded as a distinct project with a clear identity. The achievements of the Project, in providing sound scientific guidance to managers in this case, will undoubtedly be seen as a model for similar programmes in Panama and the region.

6 Monitoring and evaluation

There were no major changes required in this Post-project from what was the original project design in 2006. Evaluation of the project’s outputs and activities is given in Annex 1 (compared with the original proposed full project logframe – Annex 2). Due to a change in Darwin Fellow B’s personal circumstances (need to care for terminally ill mother) Ms Inez Campbell (also Darwin Fellow 3 on original Darwin project) had to withdraw from the project for the last 6 months, and also had to cancel her planned part-time PhD registration with Heriot-Watt University (fees supported by the project). These unused fees were recovered and the savings made from the last 6-months the Darwin Fellow B salary were diverted to enable a Heriot-Watt University Research Associate to assist in work on the Darwin Project. These required changes were fully explained and discussed with (and approved by) the Darwin Secretariat (see further explanation on Budget Table – Section 6). It is considered that, on reflection, the M&E system for this Post-project was practical and helpful, although (since the Post-project was a continuation of a successful original Darwin project) perhaps the M&E system was not as essential/critical as one would be for a new project that was developing. During the Post-project period (2006-8) there were three Darwin Initiative reviews in which the Panama Darwin project contributed or was associated. All reports were positive. These included the reviews of completed projects in Panama and Costa Rica in which Dr Guzman hosted the Darwin Initiative programme reviewer (Ana Karp) during her visit to Panama and Las Perlas Archipelago (2007). The project’s impacts have also been included in the Thematic reviews of Darwin projects, carried out by ECTF, relevant to island conservation and to understanding of climate change (see http://darwin.defra.gov.uk/reports/thematic_review_islands.pdf and page 4 of http://darwin.defra.gov.uk/reports/briefing_note.climate_change.pdf).

6.1 Actions taken in response to annual report reviews

The message from ECTF following the Year 1 Annual Report review indicated that ‘*overall review is positive, with no major queries from the reviewer*’. No response was therefore required. The Year 1 Annual report (of the 2-year post-Project) was prepared jointly by the project leader (James Mair) and the host-country coordinator (Hector Guzman) and Dr Guzman was informed of the response about the Year 1 report review.

7 Finance and administration

7.1 Project expenditure

Item	Budget (original project Schedule submitted in 2006) £	Expenditure (Actual) £	Balance - £
Rent, rates, heating, overheads etc			
Office costs			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment (Satellite/aerial imagery)			
Others (Field sampling costs – boat time) (STRI Lab Bench fees) * (HWU PG fees for Darwin Fellow B) (Audit costs)			
Salaries (James Mair) UK (Julio Aguetas) UK (Darwin Fellow) A Panama *(Darwin Fellow) B Panama *(Short-term additional HWU RA) UK			
TOTAL			

* Due to a change in Darwin Fellow B's personal circumstances (need to care for terminally ill mother), Panamanian Inez Campbell had to withdraw from the project for the last 6 months, and also had to cancel her planned part-time PhD registration with Heriot-Watt University (fees supported by the project). These unused fees were recovered and the savings made from the last 6-months of Darwin Fellow B salary were diverted to enable a Heriot-Watt University Research Associate to assist in work on the Darwin Project. These required changes were fully explained and discussed with (and approved by) the Darwin Secretariat (email confirmation of approval from Margaret Okot received on 21 September 2007 – email message title 'Request for minor change to Darwin Project EIDPO17').

Variations greater than +/- 10% for sub-budgets. There was a 55% under-spend in capital items category (£1,796 spent against initial budget of £4,000). This was achieved through the obtaining of much of the anticipated imagery actually required through free and low-cost sources for academic research purposes (mainly related to Darwin worker Julio Aguetas and his registration as a PhD student). It was considered (during Year 2 when the need for further imagery was understood) that, rather than spend more on other capital items which were not previously envisaged, it would be more beneficial for the project to spend this saved money in Year-2 field work.

7.2 Additional funds or in-kind contributions secured

Additional funds have come from: a) The British Embassy (small project grants of £3,000 and £5,000 – described in Section 3); b) International Community Foundation (ICF) \$155,000, including \$5,600 for creating the new NGO and recently \$15,000 for a full radio and newspaper awareness campaign to inform about the long-lasting detrimental effects of coastal development on the islands. Conservation International also contributed \$35,000.

7.3 Value of DI funding

It is recognised in Panama, by the government officials and key stakeholders that the 2 pieces of conservation protection legislation passed would not have come about (possibly for many years or never) had it not been for the information and lobbying provided by the Darwin projects and the Darwin project team. The Darwin projects have also enabled the UK and Panama partners to apply for more collaborative funding based on the strong links developed.

Annex 1 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008 (Year 2 of project)	Actions required / planned for next period
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve: * The conservation of biological diversity, * The sustainable use of its components, and * The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources		Main achievement was the writing into law of the Las Perlas 'Special Management Zone' (Panamanian Law 18, enacted 31 May 2007) ensuring conservation of the area's biological diversity and sustainable use for its main stakeholders	(do not fill, not applicable)
Purpose Conservation management zoning structure implemented sustainably – through continued guidance based on sound scientific study and understanding of Las Perlas marine environment	- Site condition and exploited species monitoring programme functioning efficiently; - Effective participation by local stakeholders in productive workshops and resulting action agreements	Since enactment of Law 18 (May 2007) further guidance has been provided and advice given for application of IADB funding for implementation of specific management plans	Since the Post-project finished on 31 March 2008 there are no further actions required within the project although plans are in place for continued collaboration
Output 1. Selected site and species monitoring programmes set up from previous baseline surveys	Site condition and species population health assessments produced and used for action plans	5 coral reef sites continue to be monitored each year (others added as further information becomes available)	
Activity 1.1 Field Research Programme		Successful main field study survey completed in May 2007 and other monthly studies completed by PhD student until December 2007	
Output 2. Participatory workshop programme for archipelago communities enhanced and developed	Stakeholders' active attendance / participation and demonstrated support for programme	Continued programme of meetings with stakeholder undertaken in Year 2	
Activity 2.1. Participatory Workshops		10 workshops/meetings completed	
Output 3. Issue-specific educational material produced for fishermen, schools and tourism developers/visitors	Draft material approved by all relevant stakeholders and zone communities	Continued programme of issuing and distributing educational material	
Activity 3.1. Educational Material Production		5 items (posters and leaflets) produced – see attached documents with final report	
Output 4. Research Publication and Networking	Quality manuscripts reviewed & collaborative networking formalised	Continued programme of publications and networking	
Activity 4.1. Research Publication and Networking		8 peer-reviewed publications produced (see Annex 4 and 5 for details) plus networking (started in 2003 during main Darwin project) further enhanced	

Annex 2 Project's final logframe, including criteria and indicators (original project logframe submitted/proposed in January 2006)

Project summary	Measurable indicators	Means of verification	Assumptions
<p>Goal: To work with local partners in countries rich in biodiversity but poor in resources to achieve: i) the conservation of biological diversity; ii) the sustainable use of its components; and iii) the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</p>			
<p>Purpose:</p>			
<p>Conservation management zoning structure implemented sustainably – through continued guidance based on sound scientific study and understanding of Las Perlas marine environment</p>	<p>- Site condition and exploited species monitoring programme functioning efficiently; - Effective participation by local stakeholders in productive workshops and resulting action agreements</p>	<p>- AMP written official endorsement of finalised management plans for protected zones; - Field study reports; - Scientific peer-review publications; - Village meetings and stakeholder discussion reports</p>	<p>Government bodies and local stakeholders provide continued support for bioresource conservation through the new implemented Special Management Zone structure</p>
<p>Outputs:</p>			
<p>Selected site and species monitoring programmes set up from previous baseline surveys</p>	<p>Site condition and species population health assessments produced and used for action plans</p>	<p>PG dissertations/theses and local reports to AMP</p>	<p>Host institution staff remain in post to carry out and supervise studies</p>
<p>Participatory workshop programme for archipelago communities enhanced and developed</p>	<p>Stakeholders' active attendance/participation and demonstrated support for programme</p>	<p>Records of participation in workshop meetings and minuted actions</p>	<p>Identified local communities remain committed to continued participation</p>
<p>Issue-specific educational material produced for fishermen, schools and tourism developers/visitors</p>	<p>Draft material approved by all relevant stakeholders and zone communities</p>	<p>Copies of final material sent with DI annual project reports</p>	<p>N/A</p>
<p>Research findings published and experiences shared through enhanced networking</p>	<p>Quality manuscripts reviewed & collaborative networking formalised</p>	<p>Publication copies sent to Darwin, correspondence files/network websites available</p>	<p>Networking partners actively participate in experience exchange</p>
<p>Activities:</p>	<p>Activity Milestones (Summary of Project Implementation Timetable)</p>		
<p>Field Research Programme</p>	<p>May-June of Years 1 & 2 – UK Darwin project team (plus other PG research students) travels to Panama to join STRI personnel and Darwin Fellows in scientific survey work around Las Perlas. UK PhD Researcher (Agujetas) carries out fieldwork also in March of Year 2 and at other opportunities as appropriate. Throughout project, Panama team & Darwin Fellows undertake other fieldwork.</p>		
<p>Participatory Workshops</p>	<p>Under guidance of Dr Guzman (STRI Darwin Post-project co-ordinator) 'Darwin' workshops arranged at regular intervals as required, and when judged most appropriate (around 5 per year). Arrangements made for Darwin team members to be involved in other workshop/extension activities supported by other agencies.</p>		
<p>Educational Material Production</p>	<p>From October 2006 onwards, Darwin Fellow B (I Campbell) starts major effort to design and produce information leaflets and material on conservation/biodiversity aspects of Las Perlas for different target audiences and integrates this activity into STRI's Marine Education Program.</p>		
<p>Research Publication and Networking</p>	<p>Planned peer-reviewed journal manuscripts and papers produced as soon as first major survey work (May-June 2006) is carried out, and subsequently over the Post-project period as further data and field results are analysed. Networking activity enhancement starts immediately and continues throughout and after Post-project.</p>		

Annex 3 Project contribution to Articles under the CBD

Project Contribution to Articles under the Convention on Biological Diversity

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	40	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	*(< 5)	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation		Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation		Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	*(< 5)	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	40	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	*(< 5)	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts	*(< 5)	Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.

Article No./Title	Project %	Article Description
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	*(< 5)	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Other Contribution	*20	Smaller contributions (eg of 5%) or less should be summed and included here.
Total %	100%	Check % = total 100

Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1a	Number of people to submit PhD thesis	1
1b	Number of PhD qualifications obtained	1
2	Number of Masters qualifications obtained	26
4c	Number of postgraduate students receiving training (not 1-3 above)	6 (Darwin Fellows)
4d	Number of training weeks for postgraduate students	180 weeks (average 30 weeks each)
6a	Number of people receiving other forms of short-term education/training (ie not categories 1-5 above)	4 (2 Ecuadorians and 2 Costa Ricans)
6b	Number of training weeks not leading to formal qualification	9 weeks
7	Number of types of training materials produced for use by host country(s)	2 (i- Posters, and ii- leaflets) produced – see electronic and paper attachments

Code	Description	Totals (plus additional detail as required)
Research Measures		
8	Number of weeks spent by UK project staff on project work in host country(s)	6 weeks by Project Leader (J Mair) 56 weeks by HWU/UK project assistant (J Agujetas)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	2; Law 18 from May 2007 and Decree 5 from December 2006 (see attachments)
10	Number of formal documents produced to assist work related to species identification, classification and recording.	4 journal papers -see publication list - Benfield et al., Guzman et al., Breedy & Guzman (2)
11a	Number of papers published or accepted for publication in peer reviewed journals	9 (see list below – Annex 5) 8 in preparation (see Annex 5)
13b	Number of species reference collections enhanced and handed over to host country(s)	1 - Listed in four publications
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	15 workshops;
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	6 - seminars at Stirling (Scottish Marine Group) and at Heriot-Watt University, Conference in Smithsonian in Washington and Conference in Spain
15a	Number of national press releases or publicity articles in host country(s)	12 (as described on project website)
15c	Number of national press releases or publicity articles in UK	2 - on BBC News website: (see attachments)
15d	Number of local press releases or publicity articles in UK	2 in HWU and in 2 Darwin Newsletters (see attachments)
16a	Number of issues of newsletters produced in the host country(s)	4 (STRI Newsletter)
16b	Estimated circulation of each newsletter in the host country(s)	> 800
17b	Number of dissemination networks enhanced	1
18a	Number of national TV programmes/features in host country(s)	19
19a	No. of national radio features in host country(s)	1
Physical Measures		
20	Estimated value (£s) of physical assets handed over to host country(s)	£1,796 (satellite imagery)
22	Number of permanent field plots established	5 reef monitoring sites
23	Value of additional resources raised for project	\$190K (plus \$600K for IADB loan)

Annex 5 Publications

Scientific journal (and other) publications are listed in full on Panama Darwin project website (http://striweb.si.edu/darwin_initiative/). MSc dissertations and PhD publications are available as pdf files on this website also.

Type *	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal (2008)	Benfield, Baxter, Guzman & Mair	J. Mar. Biol. Ass. UK. (in press).	Academic journal access	n/a
Journal (2008)	Guzman, Cipriani, Vega, Lopez & Mair	J. Shellfish Res. (in press).	Academic journal access	n/a
Journal (2008)	Cipriani, Guzman, Vega & Lopez	J. Shellfish Res. (in press).	Academic journal access	n/a
Journal (2008)	Cipriani, Guzman, Lopez	J. Shellfish Res. (in press).	Academic journal access	n/a
Journal (2008)	Barrios Chambers, Ismail, Guzman, & Mair	Zootaxa (in review/final corrections)	Academic journal access	n/a
Journal (2008)	Guzman, H.M., S. Benfield, Breedy & Mair	Environm. Conserv. 35: 46-54.	Academic journal access	n/a
Journal (2007)	Breedy & Guzman.	Zootaxa 1419: 1-90.	Academic journal access	n/a
Journal (2007)	Benfield, Guzman, Mair & Young.	Int. J. Remote Sensing 28: 5047-5070.	Academic journal access	n/a
Journal (2007)	Medina, Guzman & Mair.	J. Shellfish Res. 26: 9-15.	Academic journal access	n/a
Manuscripts ready to submit or in preparation (near completion)			Title:	
Journal (2008 or later)	Mair, Benfield, Sibaja-Cordero, Guzman, Arroyo, Merino & Vargas	Submission to: Mar. Poll. Bull.	Mapping benthic faunal communities in the shallow and deep sediments of Las Perlas Archipelago, Pacific Panama	n/a
Journal (2008 or later)	Guzman, Agujetas, Ketchum, Mair & Pimiento	Submission to: Biol. Conserv.	Movement pattern of whale sharks in Pacific Panama	n/a
Journal (2008 or later)	Oviedo, Guzman, Mair, Capella & Florez	Submission to: Aquatic Mammals	The Song of the Southeast Pacific humpback whale off Las Perlas Archipelago, Panama: Preliminary characterization	n/a
Journal (2008 or later)	Guzman, Capella, Mair & Flórez- González	Submission to: (to be decided)	Winter-breeding area for humpback whale (<i>Megaptera novaeangliae</i>) in Las Perlas Archipelago, Panama.	n/a

Manuscripts ready to submit or in preparation (near completion)			Title:	
Journal (2008 or later)	Guilbert, Guzman & Mair	Submission to: (to be decided)	State of the <i>Anadara tuberculosa</i> (Bivalvia: Archidae) fishery in Las Perlas Archipelago, Panama.	n/a
Journal (2008 or later)	Anderson, Guzman, Mair, Benfield & Vega	Submission to: (to be decided)	The small-scale snapper fisheries (<i>Lutjanus peru</i> and <i>Lutjanus guttatus</i>) of Las Perlas, Pacific Panama	n/a
Journal (2008 or later)	Kennedy, Simpson, Guzman & Mair	Submission to: (to be decided)	Reef-generated noise provides reliable information about habitats and communities: evidence from a Panamanian case study	n/a
Journal (2008 or later)	Mair, Cipriani, Guzman & Usan	Submission to: (to be decided)	Assessment of the green jack <i>Caranx caballus</i> (osteichthyes: carangidae) artisanal fishery from Las Perlas Archipelago, Pacific Panama	n/a

Annex 6 Darwin Contacts

Ref No	EIDPO 17
Project Title	Conservation management zoning implementation and facilitation in Perlas Archipelago, Panama
UK Leader Details	
Name	Dr James Mair
Role within Darwin Project	Overall project manager (UK co-ordinator) and joint researcher
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Fax	
Email	
Other UK Contact (if relevant)	n/a
Partner 1	
Name	Dr Hector M. Guzman
Organisation	Smithsonian Tropical Research Institute
Role within Darwin Project	Host country project manager/coordinator and joint researcher
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Partner 2 (if relevant)	n/a