



Submit by 13 January 2006

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 14 COMPETITION:STAGE 2

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

1. Name and address of organisation

Name: Durrell Wildlife Conservation Trust	Address: Les Augrès Manor, Trinity, Jersey, JE3 5BP
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2. Project title (not exceeding 10 words)

Conservation of the Mangrove Finch <i>Cactospiza heliobates</i>

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

Proposed start date: 1 st June 2006	Duration of project: 3 years	End date: 1 st June 2009			
Darwin funding requested	Total	2006/07	2007/08	2008/09	2009/2010
	£173,500	£64,500	£55,000	£54,000	£

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

<p>The key goal of this project is to conserve the critically endangered and geographically restricted Mangrove Finch (<i>Cactospiza heliobates</i>) in the Galápagos Islands. This will be achieved through focused field research on the last remaining population of the species, and by means of interventions to control the main recognised agents of decline (i.e. disease and predation). Through an active <i>in-country</i> head-starting and release programme, the project will establish a captive breeding population and investigate the possibilities of establishing new Mangrove Finch populations in localities from which they have been recently extirpated. The Durrell Wildlife Conservation Trust (DWCT), which has achieved the conservation and survival of critically threatened birds, including passerines, in other island ecosystems (including Mauritius, St. Lucia, Montserrat and Madagascar), will assist in skills transfer to build the required institutional capacity in Galápagos. Dr. Carl Jones of DWCT and Mauritius Wildlife Foundation will advise on strategies for restoring the finch population through direct management. In conjunction with Ecuadorian institutions, the project will implement a medium to long-term action plan to ensure the survival of this species beyond the project's lifetime, and thus help Ecuador meet its CBD obligations.</p>

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

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner or co-ordinator in host country
Surname	Young	Vargas	Tye
Forename (s)	Glyn	Hernan	Alan
Post held	Conservation Biologist	Researcher	Director of Sciences
Institution	Durrell Wildlife Conservation Trust	University of Oxford	Charles Darwin Foundation
Department	Conservation Science	Wildlife Conservation Research Unit	Charles Darwin Research Station

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

Durrell Wildlife - Devising Solutions To Bushmeat Exploitation In the Sanaga-Cross Region, W. Africa, Project Number 162/10/004, 2001- 2004.

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

Aims (50 words)

Activities (50 words)

Achievements (50 words)

8. Please list the UK (where there are partners in addition to the applicant organisation) and host country partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

1) Charles Darwin Foundation (CDF), and its scientific base the Charles Darwin Research Station (CDRS) located on Santa Cruz island in the Galápagos Islands, Ecuador, is the main partner within this project; 2) the Galápagos National Park (GNP) is the Ecuadorian Government body (part of the Ministry of Environment) directly responsible for the running of the national park and overseeing all scientific and other work undertaken within the archipelago. No activities can take part within the National Park without the permission and full support of GNP.

This proposal was developed and refined in consultation with senior officials from CDRS and GNP, including their respective directors, Dr G. Watkins and W. Tapia. Both organisations have provided assurances of support for the duration of the project (see accompanying letters of support). Protocols established during this project for monitoring and restoration of the Mangrove Finch population and its habitat will be developed into a CDRS and GNP management plan for this species. Captive breeding facilities will be maintained after this project by CDRS and GNP and, most importantly, skills established in population restoration and passerine husbandry will be used in continued work with this species and as a basis for further passerine conservation work in the archipelago if and when necessary. A steering committee will be established by representatives of CDRS, GNP, DWCT and other interested parties to oversee the recovery of the Mangrove Finch: this committee will continue to function after the duration of this project to ensure the long term survival of the species and to monitor status of other native passerines, highlighting conservation needs and taking action as appropriate.

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

Most project staff and students will be recruited from local communities on Isabela (Puerto Villamil) and Santa Cruz (Puerto Ayora), including existing staff at CDRS and GNP. There are, however, no human settlements close to the areas of Isabela (and Fernandina) that hold or have recently held Mangrove Finch populations. Project staff will undertake education awareness programmes within the community and in schools in Puerto Villamil, linking with an existing programme aimed at protecting Isabela's tortoises. This will further environmental awareness, and develop a local pride for the Mangrove Finch, endemic to Isabela.

PROJECT DETAILS**10. Is this a new initiative or a development of existing work (funded through any source)? Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar**

work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

This project is a new initiative but builds on the results of previous visits to Mangrove Finch sites on Isabela by Hernan Vargas (then of CDRS) and co-workers over several years. Since 1996, Vargas has undertaken preliminary studies on the ecology and status of the species and his work has highlighted its plight, and has led directly to the development of the current project. This project will extend the existing skill base of CDRS and GNP in ecological monitoring, research and census techniques for passerines, and will establish new techniques, such as direct management and manipulation of a wild passerine, control of nest parasites, captive husbandry and propagation and translocation and release, not previously used in the archipelago. The skill base established by this project in restoration of the Mangrove Finch population will subsequently become available for further passerine conservation if necessary (other passerines are known to be affected by insect-borne Avian Pox and nest parasites such as *Philornis*, while other diseases such as West Nile Virus and Avian Malaria may also affect Galápagos bird populations in the near future).

Hernan Vargas is about to complete his doctorate, partly financed by the Darwin Initiative project to assess the impacts of climate change on bird species in the archipelago, namely Galápagos Penguin and Flightless Cormorant, (DI Project 162-12-018). A number of park guards who will participate in this project, have been involved and trained in the monitoring and control of invasive species within Hernan Vargas' project. The latter project has also included a number of volunteers (university students) who may be recruited for the current project. Additionally, the Hernan Vargas project has initiated the collection of data from a number of automatic rain loggers. Data from these will be used in the current project to assess the effect of El Niño and La Nina events on the population dynamics of the finch.

Dr Birgit Fessl has undertaken research into the effects of *Philornis downsi* parasitism on passerine chicks in the Galápagos and accompanied the Darwin Fellows (Glyn Young and Hernan Vargas) to the finch sites on Isabela and Fernandina in 2005. Dr. Fessl has assisted during planning and will continue this role throughout this project.

Blood samples will be collected from all captured finches during ringing work and used to determine levels of relatedness amongst the population and between sites. The further relationship between Mangrove Finch and its sister species Woodpecker Finch *C. pallida* will be investigated and possible hybridisation between these species and other finches identified.

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

This project will cover several of the Articles under the Convention on Biological Diversity including: Articles 7 (identification and monitoring), 8 (*in situ* conservation) including sections 8d (promotion of the protection of ecosystems), 8f (rehabilitation and restoration of degraded ecosystems and recovery of threatened species) and 8h (control of alien species), 12 (research and training), 13 (public education and awareness) and 14 (impact assessment and minimizing adverse impacts).

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

This project is regarded as top priority by CDF as the Mangrove Finch is IUCN Critical. Conservation of this species is a priority as defined in the Management Plan of GNP. In addition, this project will contribute to achieving key objectives of the Ecuador National Biodiversity Strategy in evaluating the country's biological resources and factors affecting their survival.

Mangrove habitat is naturally scarce in the Galapagos and vulnerable to stochastic events. The finch is further threatened by exotic animals (e.g. cats, black rats, anis, fire ants and *Philornis*). In order to assess any natural changes in mangrove habitat that may be affecting finch survival, permanent plots in the mangroves will be established to monitor change. Staff from CDRS Botanical Department will spend *c.* one month each year monitoring these plots. Control of alien species may be undertaken as found necessary, and mangrove

restoration planned according to results from the vegetation monitoring programme. These activities will contribute to the long-term survival of the Mangrove Finch and its unique habitat.

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

The main source of income for inhabitants of the Galápagos, and one of the top four foreign exchange earners for Ecuador, is tourism. Galapagos is the main tourist attraction in Ecuador, and the attraction of Galápagos for tourists is the unique wildlife and pristine ecosystem (an oceanic archipelago with no major bird extinctions). Therefore, conservation and maintenance of biodiversity in the archipelago have direct economic benefits to Ecuador and to the inhabitants of the Galápagos.

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

This project aims to halt the decline of the Mangrove Finch, and restore the ecosystem of the remnant mangrove forests of western Isabela by identifying threat factors, controlling them, and safeguarding the unique niche occupied by the finch. It will further assist in decision-making and future planning for the conservation of passerines in the Galápagos Islands, a unique global biodiversity area. This will be achieved by: 1) providing training in monitoring mangrove habitat, passerine populations and alien threats including disease; 2) building staff capacity using specific techniques provided by the project; 3) controlling direct threats to the finch and the mangrove ecosystem; and 4) preparing the establishment of the Mangrove Finch in former sites through direct management. The return of the species to former sites will allow tourists to view this unique inhabitant of the Galápagos Islands, through targeted interpretation and awareness. The results of the project will be presented at a Population and Habitat Viability Assessment workshop in Year 2, and disseminated through regular reports, and by the steering committee's involvement with relevant funding agencies, government and non-government organisations, tourist guides and the local community.

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

A lasting legacy will be achieved by: 1) developing a team of well trained CDRS and GNP staff in passerine and mangrove monitoring and management; 2) improving the quality and reliability of monitoring data for finch and mangroves; 3) restoring Mangrove Finch to former sites on Isabela and Fernandina; 4) implementing standardised annual status reporting and employing these reports for making appropriate management decisions; 5) implementing strategies for assessing status of endemic passerines throughout the archipelago and determining threats; 6) developing protocols for direct management of wild population; 7) providing skills in captive husbandry of passerines and release of captive bred birds.

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

The infrastructure and protocols developed during this project will remain in place, to be managed directly by CDRS and GNP after the duration of the project. DWCT will participate as a permanent advisor. Continued work with the Mangrove Finch will be overseen by the established steering committee and undertaken by CDRS, GNP and DWCT; skills and protocols developed may be further used by these bodies elsewhere in the Galápagos.

The project is incorporated into CDRS and GNP priorities and work plans.

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

The Darwin Initiative will be fully acknowledged in all reports and scientific papers and the logo displayed on the cover of all reports and on materials used throughout the project. The connection between Charles Darwin and the Galápagos Islands and use by DI of a Darwin's finch as their logo is a coincidence that will be fully exploited. Press offices in DWCT and CDF who are regularly involved in publicising projects will make reference to the contribution made by DI in all publications and on their websites.

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. How many will be involved, and

from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?

Training and development are considered pivotal to the success of the project. All trainees will be recruited locally from CDRS and GNP staff and from Ecuadorian universities. From within CDRS and GNP staff, we will select personnel directly linked to wildlife management within the park for training. The project will follow recommendations of these organisations in selection. CDRS and GNP have well established programmes of student internships and students selected for this project will be undertaken under this process. Training will include ecological monitoring and census techniques, bird behavioural studies, population restoration and captive husbandry for passerines. Many Ecuadorian universities require biology students to do a masters-level thesis for their first degree requiring 12 months field work and six months writing. The project will employ two such students during three years.

Outcomes will be measured through constant monitoring by the project manager and field ecologist. Regular status reports will be produced, which will be distributed to members of the participating organisations and steering committee. Existing CDRS and GNP student monitoring processes will be maintained by this project. The training will be further monitored by visits from the Project Leader (G Young) and advisors.

LOGICAL FRAMEWORK

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve <ul style="list-style-type: none"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
Purpose 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	Stakeholders meeting between key partners held at start of Y1 to identify research priorities. Understanding of species ecology and demography by end Y2. If required, captive management facility set up at CDF HQ mid or end of Y2. PHVA at end Y2 to design species conservation action plan and establish requirements for captive population. CDF & GNP successfully implemented species conservation action plan by beginning Y3. Evidence of stability or growth in Mangrove Finch population and historical sites recolonised by project end	Species conservation action plan; Project reports from partner institutions; Published scientific papers Monitoring programme results Mangrove Finch conservation activities included in long term workplan of CDF and GNP end Y3.	Full cooperation from GNP and CDF will be required
Outputs 1. Institute system for monitoring species' ecology, habitat, genetic status and determinants of population growth.	Protocols for repeatable monitoring established by end Y1. All partners agree key findings of field research at PHVA end Y2; Successful testing of invasive species control measures by end Y2; Genetic analysis completed by end Y2.	Project reports; Published papers; Microsatellite library results published.	Trained staff remain working on project Effective collaboration between project partners

2. Technical skills in GNP & CDF are strengthened to enable long term conservation of Mangrove Finch. Minimum of 2 personnel trained in captive management skills that can be transferred to other species.	4 GNP & CDF staff and 2 university students fully trained by Project Leader in field research, invasive species control and captive management techniques, creation of database management by end Y2; Training workshops, on the job training Y1-2; PHVA run by GNP/CDF to design species conservation action plan end Y2; Meeting to agree on future fund-raising strategy mid Y3; Action plan initiated and led by GNP/CDF in Y3	Project reports; On the job evaluation and at workshops	
3. Species conservation action plan implemented	Monitoring programme running successfully by end Y3; Invasive species control measures tested (Y1-2) and implemented in Y3; Captive rearing and management facility run by GNP at end Y3; Successful trial release of captive reared birds in Y3	Project evaluation at end Y3; Copies of action plan and project reports sent to Darwin Initiative	
4. Population limits established and declines halted.	Monitoring programme will provide data to show trends in population size by end Y3	Published papers; End project report	
5. Awareness of Mangrove Finch raised in local and international community	Radio interviews held; Press releases; International newspaper articles; Reports and scientific papers published; Website created. Community based projects in Isabella and links with existing tortoise programmes and children's clubs here	Transcripts, papers, reports sent to Darwin Initiative	
6. Post-project workplan is in place to continue conservation action plan	CDF & GNP to produce workplan for the continuation of species conservation action plan at end Y3	CDF & GNP annual workplan; End of project evaluation report; DW visit end Y4	
Activities	Activity milestones (summary of project implementation timetable)		
1. Field research programme	Y1: research protocols agreed at workshop. Implementation of monitoring. Y1-2: population surveys, bird ringing and blood sampling, nest success study, habitat surveys and monitoring, impact of invasive species study; genetic analysis. Assessment of sites for release of captive reared birds. Y3: continuation of monitoring in all sites including released birds.		
2. Captive rearing programme	Y2: facility built, birds caught, protocols established. Y2-3: captive rearing. Y3: release of captive reared birds to historical sites.		
3. Conservation action	Y2: invasive species controls tested, action plan agreed at workshop. Y3: invasive species control activities implemented.		
4. Capacity building	Y1-3: assess training needs, on the job training. PHVA and conservation action plan workshop. Y3: conservation action plan initiated and led by CDF & GNP.		
5. Public awareness	Y1-3: radio interviews, press releases, newspaper articles, website established. Y2-3 papers written and submitted to peer-reviewed journals. Community based activities on Isabela.		

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

Project implementation timetable		
Date	Financial year	Key milestones
<i>Year 1</i>	<i>Apr-Mar 2006/7</i>	
June 06		Project field ecologist and Year 1 Masters student intern recruited
July 06		Steering committee established and stakeholders workshop held to develop working relationships, agree research requirements and protocols, and to design monitoring programme
July-August 06		Field camp established
July-August 06		Pilot study of field research methods and protocols completed
July-August 06		Field research and invasive species control training workshops held. Field data recording sheets designed, electronic databases and GIS installed on CDF network. Remote sensing data collated
December 06		Project area added to existing DWCT and CDF websites, first newsletter distributed and public awareness campaign started
December 06		Captive facilities built and operational
<i>Year 2</i>	<i>Apr-Mar 2007/8</i>	
April 07		First fieldwork season completed and monitoring programme implemented
April 07		End of year steering committee meeting held
April 07		End of year newsletter distributed
April 07		Year 2 Masters student intern recruited
June 07		Captive rearing protocols finalised
June 07		Invasive control measures fully tested and implemented
July 07-ongoing		Aviary staff trained
December 07- April 08		Chicks/eggs harvested and successfully reared
April 08		Second fieldwork season completed
April 08		Genetic analysis completed
April 08		End of year steering committee meeting held
April 08		End of year newsletter distributed
<i>Year 3</i>	<i>Apr-Mar 2008/9</i>	
March 08		Final field and captive data analysed and written up
		2 papers submitted for peer-review publication
June 08		Conservation action plan workshop (PHVA) held
June 08		Conservation action plan report produced and sent to Darwin Initiative
June 08		5-year conservation action plan implemented
June 09		End of year steering committee held
June 09		End of year newsletter distributed
June 09		Final project report submitted to Darwin Initiative

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

PROJECT OUTPUTS		
Year/Month	Standard output number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
June 2006	17A	Steering committee formed
June 2006	14A	Stakeholders meeting establishes project protocols

June 2006	16A	Report from Stakeholders meeting produced and circulated
December 2006	22	Captive facilities built and functioning
December 2006	12A	Electronic databases established
December 2006	12A	GIS of all sites developed
	12A	Standardised data collection forms produced
December 2006	9	Habitat assessment report produced
July 2006, January 2008	2	2 MSc Students trained
2006-2009	16A	Steering committee reports published and end of year summaries circulated
June 2008		Results of genetic analysis produced
July 2008	14A	PHVA held in Galápagos
July 2008	9	Mangrove Finch Conservation Action Plan published
December 2006- June 2009	11B	4 Scientific papers produced and submitted
June 2006-June 2009	15A	Articles produced in UK and National press and for radio broadcasts
June 2006	17A	Website area in DW and CDF websites established
Throughout	18A	National TV interviews
	15A	National and UK press features

PROJECT BASED MONITORING AND EVALUATION

22. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

Project progress will be monitored in conjunction with CDRS and GNP through: 1) evaluating the reception, satisfaction and impact of an effective long-term action plan for the species and its habitat; 2) the quality of training manuals and posters and their effective use; 3) completion of field research on the status of the finch in the wild; 3) the completion of information and GIS databases on mangrove habitats in Isabella; 4) the training and mentoring of Ecuadorian students; 5) the number and quality of biodiversity and environmental education and community awareness material produced and used; 6) the number of local school teachers, school children and relevant park staff and members of local groups and NGOs involved in environment education; 7) the number of scientific papers produced and sent for publication in peer-review journals; 8) details of newspaper articles disseminating the work undertaken by the project; 9) number of local radio broadcasts; 10) number of presentations and lectures given by the Darwin fellows in Ecuador and the UK; 11) adequate reporting to Darwin Initiative.