



Darwin Initiative for the Survival of Species

Annual Report

1 April 2005 – 31 March 2006

Falkland Islands Invertebrates Conservation Project

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1. Darwin Project Information

<i>Project Ref. Number</i>	<i>13/022</i>
<i>Project Title</i>	<i>Falkland Islands Invertebrates Conservation Project</i>
<i>Country(ies)</i>	<i>Falkland Islands</i>
<i>UK Contractor</i>	<i>Falklands Conservation UK</i>
<i>Partner Organisation(s)</i>	<i>Falklands Conservation FI</i>
<i>Darwin Grant Value</i>	<i>£115,173</i>
<i>Start/End dates</i>	<i>1 September 2004 – 31 August 2007</i>
<i>Reporting period</i>	<i>1 April 2005 – 31 March 2006</i>
<i>Project website</i>	<i>www.falklandsconservation.com</i>
<i>Author(s), date</i>	<i>Ann Brown & Dr A Jones</i>

2. Project Background

The UN Convention on Biological Diversity (CBD) was extended by ratification to the British Virgin Islands, the Cayman Is., Gibraltar, and St Helena and its Dependencies in 1994; the remaining UK Overseas territories (OTs), including the Falkland Islands (FI), are not yet signatories. The Falkland Islands are working towards the goal of CBD ratification and intrinsic to this process is a requirement to address the conservation needs of invertebrate species. Preliminary studies have revealed great bio-geographic significance of the Falklands invertebrate fauna and strong indications of a high level of endemism. However, as in most of the OTs, current knowledge of Falkland Island native insect species is far from complete, precluding the development of invertebrate Biodiversity Action Plans (BAPs). A conservation review of the OTs carried out by the UKOTs Conservation Forum (then known as the UK Dependant Territories Conservation Forum) in 1996 identified the necessity to prepare updated invertebrate species inventories and records of geographic distribution in order that the data was available to inform the process of CBD ratification. This Project will address this need by undertaking systematic surveys of the invertebrates of the Falkland Islands.

3. Project Purpose and Outputs

This Project will undertake a systematic survey of the invertebrates of the Falkland Islands, the largest of the UK's Overseas island Territories (ca. 12,000 km² or approx. half the size of Wales). It will be the first time that this has been attempted. It will significantly advance the knowledge of Falkland Island invertebrates as part of a programme to introduce the Convention on Biological Diversity in the Falklands, implement a Biodiversity Action Plan and the Falklands Environment Charter. It will identify key species, particularly endemics, including their distribution and ecology, in order to provide for their protection and recommend sustainable policies to ensure survival in the long term. It will educate and train Islanders and Falklands Conservation (FC) staff in the identification and monitoring of Falkland Islands' invertebrates. To support this purpose it will enable FC to introduce invertebrate collection into its programme of field trips and projects. It will support FC's staff taking on responsibility for an invertebrates database, with capture of data and records both during the course of the Darwin Project and well beyond.

The main outputs as highlighted in the logical frame work are:

1. Important invertebrate habitats and rare/threatened species, identified for protection.
2. A Falklands Invertebrates Conservation Plan agreed.
3. Resources produced to enable identification and long term monitoring.
4. 15 Falkland Islands residents trained in basic invertebrate identification techniques and curation of the Collection.

With respect to these outputs points 1, 3, and 4 remain unchanged. The Falklands Invertebrates Conservation Plan (2) will now be incorporated into a more comprehensive document to provide a resource for both conservation NGOs, Government, landowners and interested individuals. In addition to the Invertebrates Conservation Plan it will include:

- Taxonomic Check Lists (identifying species meeting Red List criteria)
- Basic Identification Keys
- Habitat type determination and assessment techniques
- Basic monitoring and conservation techniques
- Collection protocols
- Key Site Assessments (both locality and habitat based)
- Long term conservation recommendations

With respect to realisation of these outputs the following progress has been made (relate to the 4 points above):

1. Based upon previous identification of major habitat types for invertebrates, and the identification of rare or potentially threatened species in 2004-5, fifteen main sites were selected for survey in 2005-06. These were spread, 5 each, between East and West Falkland (introduced rodents present) and Carcass Island (rodent free) to obtain baseline data on species presence/absence. This includes important high altitude sites such as are found in the only Falklands National Park, Hill Cove, and tussac grasslands such as on Carcass Island. In addition, further qualitative surveys have been carried out in localities and habitats of specific interest across the Falkland Islands. These include notable surveys on New Island and Sea Lion Island (Ramsar site) (see map page 11).
2. The construction of the expanded Invertebrates Conservation Report continues with on-going input from continuing taxonomic study and in-coming survey data.
3. The photographic database of insects has been substantially developed. Further keys constructed for morphospecies identification as more species are identified and described.
4. 20 Falkland Islands residents (5 more than the original final target) have so far completed the two-week course in basic invertebrate taxonomy and have been awarded their certificates.

With the exception of the planned expansion of the Invertebrates Conservation Report there has been no change to the proposed operational plan for this Project.

4. Progress

The Project began on 1st September 2004. The Project started 5 months later than stated in the Application timetable as a result of a late decision to approve this Project, which was on a reserve list. From September 2004 to December 2004 we reviewed the known data, planned the first field season and purchased the required equipment. The first field season ran from January to the end of March 2005. Numerous sites were surveyed across the following five islands: Steeple Jason, Grand Jason, Carcass Island, East Falkland and Pleasant Island. The first of three planned training courses in invertebrate taxonomy and survey work was carried out in March 2005.

The material collected in the first field season provided the basis for taxonomic work carried out during April-December of the current recording period, with the months January-March comprising the second field season of data collection. The Project has achieved the key milestones expected by March 2006. These comprise taxonomic analysis of samples, the establishment of a Falklands Conservation Invertebrates Advisory Group, setting up an invertebrates database, and completion of a second field season. The second Invertebrates Conservation Course has been run. The amount of planned site survey work has been exceeded with a good geographic spread of the archipelago. Links have been developed and strengthened between the Project, and the Falkland Islands Government, including its Education, Agriculture and Environment/Planning Departments, and landowners. The Project's profile has been promoted through the presentation of lectures, local radio interviews, local press articles, teaching at the Community School and distribution of a free 2006 invertebrates recording calendar to all farmers, landowners and other interested parties. The schools pack, developed during the previous year, is now in use at the community school.

The main achievements of the last year have been the ongoing taxonomic work and completion of a second field season. Highlights of the taxonomic work include a completed description of the Annelid worm portion of the collection (in press, see table 2), the completion of a molecular analysis of Falkland beetle species (publication in prep), and a taxonomic review of Falkland Coleoptera (in preparation). The second field season surveyed 15 main sites comprising 5 habitat types as follows: 3 beach sites, 3 tussac grassland sites, 3 oceanic heath sites, 3 feldmark sites and 3 settlement sites. These 15 sites were separated between three Islands, East Falkland and West Falkland (both having introduced rodent populations), and Carcass Is (rodent free), such that each island had a full set of sites covering each one of the 5 main habitat types; so we had representatives of all main habitat types, with and without introduced rodents. Additional samples were collected opportunistically on New Island, Sea Lion Island, and whilst travelling in East Falkland and West Falkland (see map page 11). For each of the 15 main sites the following was undertaken: a malaise trap was run for 5 days, 20 pitfall traps were run for 5 days, 4 Tullgren funnels extractions were run for 5 days (containing *Senecio littoralis* for the beach site, *Poa flabellate* for the tussac site, *Cortaderia pilosa* or *Empetrum rubrum* for the oceanic heath site, and *Bolax gummifera* for the feldmark site; Tullgrens were not used for the settlement sites), 5 hours hand collecting, and 2x 3-hour moth trapping sessions. Including all 15 main sites, plus all additional collections, the last field season comprised approximately 150 malaise trap days, 3000 pitfall trap days, 360 Tullgren days, 200 hours hand collecting and 100 hours moth trapping. All macroscopic invertebrate groups were collected including Acari and Collembola. This resulted in a collection of ca. 2500 vials each containing between 1 to 100's of individuals, which have been returned to the UK for analysis.

An additional project output was the production of an 'Insects of the Falkland Islands' butterfly recording calendar (a pdf of which is attached with this report). This was distributed freely to all landowners in the Falkland Islands in order to both raise Project

awareness in the Islands and obtain valuable data on the flight times of native butterfly species.

The work plan for the next 6 months is as follows:

- Continue and ongoing taxonomic analysis of samples.
- Production of an illustrated identification key to FI Invertebrates
- Ship collection cabinet to the Falkland Islands; this will be stored at the offices of Falklands Conservation in Stanley
- Detailed planning for third field season (September – November 06)

5. Actions taken in response to previous reviews (if applicable)

In line with recommendations made in the 2005 annual report review concerning our reporting, we have tried to include more detail in this report, particularly concerning specific survey work carried out, the effort involved, and the rationale behind the work.

No recommendations were made as to changes in the project work itself.

6. Partnerships

There has been regular contact and consultation with the Falkland Islands operations base of Falklands Conservation. Logistical support and office facilities were provided for the 10 week field work visit (January – March 2006). The Project Officer has liaised with the Falkland Islands Government Environment Planning Department and its Officer (who attended the 2006 Project training course) with respect to collaboration on future management plans and input in developing the Islands' Biodiversity Strategy. A specific example of current collaboration involves input into a management plan for the Gypsy Cove area (an important and popular wildlife site close to Stanley).

The Natural History Museum (London) and the University Museum of Zoology Cambridge are supporting the project by providing access to specimens and resources in the UK. The project officer is based at the University Museum in Cambridge.

The Project is providing taxonomic materials for researchers in the following countries: Canada, the USA, Switzerland, Norway, Finland, the Czech Republic, Australia, and New Zealand.

Since the last annual report, the Project Officer has given two project update talks to inform the South Atlantic Working Group of the Overseas Territories Conservation Forum.

7. Impact and Sustainability

Every opportunity has been made to raise the profile of the Project using local Falkland media sources. During the past 12 months two radio interviews, three articles in the local press and one lesson at the Community School have been conducted. In addition posters about the project are being displayed in the Jetty Visitor Centre, Stanley. A free 2006 invertebrates recording calendar was distributed to all farmers and other interested parties.

The effect of this promotion was evident from the continued demand for places on the Invertebrates Taxonomy Course (so far 20 Islanders have completed the course).

The training course itself has laid the foundation to increase capacity in management and protection of invertebrate biodiversity in the Falklands. Initial steps have been taken to set up a local Invertebrates/Entomology group within the Islands founded by course graduates. The expertise provided by these individuals (20 so far) will support long term monitoring of invertebrate populations. At the end of the project Falklands Conservation will incorporate the role of 'Invertebrates Officer' into the job description of a current staff

member within the Falkland Islands. This person will then be responsible for organising 2-5 yearly surveys of the 15 main sites surveyed during the last field season, using the collections and materials provided by this Project as a resource. Four of the current Falklands Conservation staff team have completed the Project course.

8. Outputs, Outcomes and Dissemination

Table 1. Project Outputs (According to Standard Output Measures)

Code No.	Quantity	Description
15A/15B	3	Articles in 'Penguin News', local Falklands newspaper
15B	1	News Release on FC website
19A	2	2 interviews on Conservation Conversations, Falkland Islands Broadcasting Service
16A	4	Quarterly Project Newsletter now up to issue 6 Circulation more than 250.
6A	1	A two week training course run for 8 Falkland Island residents
6A	1	School Lectures given at Community School
8	10 weeks	Fieldwork in the Falkland Island January-March 06
12A	1	Invertebrates database expanded
14B	2	Project talk presented to the South Atlantic Working Group of the UK's Overseas Territories Forum
14B	1	Project talk presented to the Cambridge Wildlife Trust
14B	1	Project talk presented at the British Ecological Society Annual meeting
14B	1	Project talk presented to the National Meeting of the Royal Entomological Society
14B	2	Project talk presented at the University of Cambridge, Dept of Zoology

Table 2: Publications

Type *	Detail	Publishers	Available from	Cost £
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	
Journal (Megadrilogica, 10 (10):75-87)	The earthworms (Oligochaeta: Acanthodrilidae, Glossoscolecidae and Lumbricidae) of the Falkland Islands, South Atlantic Ocean, J. W. Reynolds & Jones A. G. , 2006	Oligochaetology Lab, Ontario	http://www.inhs.uiuc.edu/~mjwetz/Megadrilogica.home.html	N/A
Journal (Oryx, 40 (1):12-13)	Invertebrate conservation in the Falkland Islands, Jones A., 2006	Cambridge University Press, New York	http://journals.cambridge.org/action/displayJournal?jid=ORX	N/A
Journal (Antenna, 30 (1):14-29)	Insects in the UK Overseas Territories: a short review of endemism with an introduction to the `Falkland Islands Invertebrates Conservation Project, Jones A. G., 2006	Royal Entomological Society, London	http://www.royensoc.co.uk/	N/A
Calendar*	2006 Calendar 'Insects of the Falkland Islands'	Falklands Conservation		Free to Falkland Landowners

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2005/2006

Project summary	Measurable Indicators	Progress and Achievements April 2005-Mar 2006	Actions required/planned for next period
<p>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</p> <ul style="list-style-type: none"> • 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 			
<p>Purpose</p> <p>To advance the knowledge of Falkland Island invertebrates in order to provide for their protection and to develop sustainable policies to ensure their long term survival.</p>	<p>Key areas given statutory protection as nature reserves, national parks or sanctuaries.</p> <p>Key species on statutory list of protected species.</p> <p>Invertebrates included as part of the Falkland Islands' Biodiversity Action Plan</p> <p>Expertise established within the Islands to effect long term monitoring.</p>	<p>It is too early for points 1-3 to be effected.</p> <p>Expertise is being established with 20 participants completing the Invertebrates Conservation Course. This has been improved based on feedback from participants (e.g. A course booklet has now been produced).</p>	<p>Continue to feed information to relevant NGOs, landowners and Government.</p> <p>All course graduates to attend a final workshop leading to the development of a Falklands Invertebrates Group to ensure involvement in long term monitoring programmes at key sites.</p>
<p>Outputs</p> <p>Important invertebrate habitats and rare/threatened species, identified for protection.</p>	<p>Database established recording invertebrate distribution and 'hot spots' of conservation importance. Local Red Data List published.</p>	<p>Database expanded.</p> <p>High altitude and tussac grassland habitats identified as of particular conservation importance.</p>	<p>Original databases are not compatible with other FI wildlife databases. These will be dropped in favour of a specially adapted 'Recorder' programme.</p>
<p>A Falklands Invertebrates Conservation Plan agreed.</p>	<p>Consultation on Plan under-taken and presented to Falkland Islands Govt.</p>	<p>After consultation the Conservation Plan is to be expanded as a more comprehensive resource.</p>	<p>On-going input from continuing taxonomic study and in-coming survey data will inform an expanded Invertebrates Conservation Report.</p>
<p>Resources produced to enable identification and long term monitoring.</p>	<p>A Falkland Invertebrates Collection established and identification publications written.</p>	<p>Taxonomic work continues apace!</p> <p>Collection now comprises ca. 350 pterygote species. Cabinet purchased</p> <p>Annelid worms paper in print. Further taxonomic papers in prep.</p>	<p>Cabinet for the Falkland Islands Invertebrates Collection will be shipped to the Islands in October 06.</p> <p>Laminated id key produced for all FIs terrestrial invertebrate orders.</p>
<p>15 Falkland Islands residents trained in basic invertebrate identification techniques and curation of the Collection.</p>	<p>Training Programme undertaken.</p>	<p>Second training course completed. 20 Falkland Island residents graduated so far.</p>	<p>Third and final course taught.</p>

Annex 2. LOGICAL FRAMEWORK

Project summary	Measurable indicators	Means of verification	Important assumptions
<p>Goal:</p> <p>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</p> <ul style="list-style-type: none"> • 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 			
<p>Purpose</p> <p>To advance the knowledge of Falkland Island invertebrates in order to provide for their protection and to develop sustainable policies to ensure their long term survival.</p>	<p>Key areas given statutory protection as nature reserves, national parks or sanctuaries.</p> <p>Key species on statutory list of protected species.</p> <p>Invertebrates included as part of the Falkland Islands' Biodiversity Action Plan</p> <p>Expertise established within the Islands to effect long term monitoring.</p>	<p>Appropriate areas of invertebrate importance declared protected areas.</p> <p>Wildlife legislation amended to include key species.</p> <p>Biodiversity Action Plan published.</p> <p>Invertebrate Advisory Group set up.</p>	<p>Falkland Is. Government allocates adequate time and resources to effect declarations, amend legislation and produce Biodiversity Action Plan.</p> <p>Sufficient interest is generated about invertebrates to recruit, train, and maintain a long term interest by a number of Falkland residents.</p>
<p>Outputs</p> <p>Important invertebrate habitats and rare/threatened species, identified for protection.</p> <p>Resources produced to enable identification and long term monitoring.</p> <p>15 Falkland Islands residents trained in basic invertebrate identification techniques and curation of the Collection.</p>	<p>Database established recording invertebrate distribution and 'hot spots' of conservation importance.</p> <p>Local Red Data List published.</p> <p>A Falkland Invertebrates Collection established and identification publications written.</p> <p>Training Programme undertaken.</p>	<p>Database operational and an invertebrate Local Red Data List published.</p> <p>Key species selected for legal listing.</p> <p>Conservation Plan accepted as part of Islands' Biodiversity Action Plan.</p> <p>Invertebrates Collection in place and available to public.</p> <p>15 or more Islanders actively contributing to invertebrates programme</p>	<p>Sufficient data can be collected and processed over an adequate area of the Falkland Islands.</p> <p>Islanders are interested in learning more about Falkland Islands invertebrates.</p>
<p>Activities</p> <p>Fieldwork Programme</p> <p>Training</p> <p>Collections</p> <p>Publications</p> <p>Events/Publicity</p>	<p>Activity Milestones (Summary of Project Implementation Timetable)</p> <p>Three 2-month fieldwork seasons completed resulting in an invertebrates database established, distribution of species recorded, samples identified leading to taxonomic keys and descriptions of Pterygote insect fauna and a species check list and Red List produced for the Islands.</p> <p>15 Islanders take part in 3 training courses and support survey/collection work.</p> <p>Teacher training course held for Schools Invertebrates Pack</p> <p>Reference Collection established in Falkland Islands and available to the public.</p> <p>Dedicated Falklands collection donated to Natural History Museum.</p> <p>Schools Invertebrates Pack produced. Scientific papers published.</p> <p>Falklands Conservation Plan and Invertebrates Conservation Manual produced.</p> <p>Public launch of Project. 2 FI radio broadcasts per year. Display produced for Falkland events. Information to FI local press on regular basis. Report in annual 'Wildlife Conservation in the Falkland Islands'. Invertebrates web section on line. 5 articles/presentations outside the Islands.</p>		



Annex 3: Map of the Falkland Islands showing localities mentioned in report sections 3 and 4