



Darwin's Fox Research & Conservation Project

Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

Project title	<i>Conserving the critically endangered Darwin's fox on Chiloé Island, Chile</i>
Country(ies)	<i>Chile</i>
Contractor	<i>Institute of Zoology, Zoological Society of London</i>
Project Reference No.	<i>162/11/013</i>
Grant Value	<i>£158,006</i>
Start/Finishing dates	<i>21 June 2002 - 31 March 2005</i>
Reporting period	<i>21 June 2002 – 30 April 2003</i>

2. Project Background

- **Briefly describe the location and circumstances of the project and the problem that the project aims to tackle.**

*The Darwin's fox (*Pseudalopex fulvipes*) is almost entirely restricted to Chiloé Island, southern Chile. The species is critically endangered and is considered to have the highest extinction risk of any mammal in Chile. In addition to the threats posed by the rapid destruction of its obligate habitat - the unique southern temperate forests - and direct persecution by humans, the species faces a high extinction risk due to potential transmission of viral diseases from domestic dogs. Aside from limited ecological studies, no quantitative information on density and distribution, habitat use, population dynamics, social organization, population genetic structure and disease exists for Darwin's foxes on Chiloé island. Moreover, no data are available on density, distribution and disease status of the increasing sympatric domestic dog population.*

Being the largest carnivore species on the island, the Darwin's fox is a perfect model species for protecting biological diversity through environmental education and research on its ecology, epidemiology and genetics. The conservation of the Darwin's fox will, by acting as an umbrella, promote the conservation of its habitat –the pristine forest- and, hence, will conserve the biodiversity of entire and functional ecosystems.

3. Project Objectives

- **State the purpose and objectives (or purpose and outputs) of the project.** Please include the Logical Framework for this project (as an Appendix) if this formed part of the original proposal or has been developed since, and report against this.

To provide a range of essential information on fox density and distribution, population genetic structure and exposure to canine diseases of foxes, to assess the threat to fox conservation by feral dogs and to develop the capacity for demographic, genetic and disease monitoring of biodiversity on Chiloé Island. Using a mixture of basic genetic, epidemiological and ecological research on the fox and on rural dogs, combined with a proactive environmental education program, we will

1. *estimate fox density and distribution, determine its genetic structure and assess the risk to viral diseases transmitted by domestic dogs;*
2. *implement capacity and train a group of Chilean scientists and conservation managers to conduct independent field research and to use molecular techniques for conserving biodiversity;*
3. *increase awareness and raise enthusiasm of local communities, land users, conservation managers and students for conserving entire and functional forest ecosystems in a compatible way with the sustainable use of the resources.*

The Logical Framework is attached. (Appendix 1).

- **Have the objectives or proposed operational plan been modified over the last year and have these changes been approved by the Darwin Secretariat?**

Neither objectives nor the proposed operational plan were modified.

4. Progress

- **Please provide a brief history of the project to the beginning of this reporting period. (1 para.)**

The Canid Specialist Group (IUCN) held the Canid Biology and Conservation Conference in September 2001. Detailed discussions about the conservation status of canid species revealed that the Darwin's fox is together with the Cannel island Fox the most endangered canid species worldwide. Aside from limited ecological studies, no information on population structure and conservation threats posed by the increasing sympatric domestic dog population exists. Further, by being restricted mainly to the Island of Chiloé, the species is highly vulnerable to potential threats such as spill-over of viral diseases from sympatric domestic dogs, as has occurred in some other canid species. In addition, the wild population appears to be declining in non-protected settings, likely as the result of the rapid destruction of its habitat, the Valdivian forest, and persecution by humans. Subsequent to the conference, the two principle investigators joint their expertise in ecology, population genetics and epidemiology and set up a conservation and research proposal which eventually led to the Darwin Initiative grant to be offered.

- **Summarise progress over the last year against the agreed baseline timetable for the period. Explain differences including any slippage or additional outputs and activities.**

As consequences of the delayed start of the project and the subsequent administrative difficulties encountered (see paragraph on significant difficulties - below), significant

slippage occurred during the first year. However, we have filled in most of the gaps occurred due to these delays. This was achieved due to the exemplary enthusiasm of all staff employed. Remaining gaps will be filled in between May 2003 and March 2004. On the other hand, we have achieved significant progress in GIS mapping and have produced GIS habitat maps much in advance of the original schedule. Also, fieldwork has progressed significantly faster than anticipated following our decision to accept volunteers for fieldwork (see paragraph on significant difficulties, below). Progress over the last year is summarised in Table 0a.

Table 0a. Timetable of project outputs over last year (following Table C in Project Schedule, Appendix 1).

proposed date	details	completion date	remarks
2002/05	<i>ULA staff training in sampling methods (2 weeks)</i>	√ 2002/06 & 2002/10	<i>Slippage</i>
2002/06	<i>ULA staff training in genetic methodology completed (14 weeks)</i>	-	<i>Slippage – to be completed in 2003/08 – see note 1)</i>
2002/07	<i>ULA staff training in analysis of serological and epidemiological data completed (2 weeks)</i>	-	<i>Slippage – to be completed in 2003/06 – see note 1)</i>
2002/09	<i>ULA staff training in genetic analysis methodology completed (2 weeks)</i>	√ 2003/04	<i>Slippage</i>
2002/10	<i>Information packs for adults and children and posters produced</i>	√ 2002/12	<i>Slippage</i>
2002/10	<i>Website created</i>	√	<i>See note 2) and Appendix 2</i>
2002/11	<i>Training courses at SDF completed (two one-week courses)</i>	<i>partial</i> 2003/03	<i>Partial achievement and slippage. Achieved at ULA. See note 3, table 1</i>
2002/11	<i>Course and workshop manual completed</i>	√	<i>Completed and distributed in form of PowerPoint presentations</i>
2002/11	<i>Training courses at ULA completed (one two-week workshop)</i>	√ 2003/03	<i>Slippage</i>
2002/12	<i>Field station created at Piruquina</i>	√ 2003/03	<i>Slippage; field station at lake Tepuhueico created instead at Piruquina</i>
2002/12	<i>Slideshow produced</i>	√	<i>See Appendix 3</i>
2002/12	<i>Equipping GIS laboratory at ULA completed</i>	√	
2002/12	<i>Lab facilities at SDF field station created and equipped</i>	√	
2003/12	<i>First round of faecal samples collected</i>	√	
2003/03	<i>First newsletters circulated</i>	<i>partial</i> 2003/04	<i>Part of a newsletter by FSD, attached in Appendix 4</i>
2003/03	<i>TV and radio features proposed to broadcasters</i>	√	<i>See note 3)</i>
2003/03	<i>Presentation given at conference</i>	√	<i>See note 4)</i>
2003/04	<i>First density estimation in four study sites</i>	√	<i>Density estimated in three study sites</i>
2003/04	<i>ULA training in GIS completed (3 weeks)</i>	-	<i>Slippage – to be completed in 2004/07 – see note 1)</i>
2003/04	<i>10 foxes captured in four study sites for genetic analysis</i>	√ (75%)	<i>12 foxes captured a total of 28 times in 3 sites – see note 5)</i>
2004/09	<i>GIS mapping of fox habitat across Chiloé Island completed</i>	√ 2003/03	<i>Completed well in advance; maps attached in Appendix 5</i>

Note 1) Slippage occurred primarily up to Oct 2002. Rescheduling of outputs was prioritised as follows: First any activity relevant for the main field season (i.e. summer: Oct 2003 – Mar 2003) was treated with highest priority. This included training of field personnel in radiotelemetry and sampling methods. Training courses were postponed to after the summer. All outputs, but the training for the GIS expert, will be achieved by Aug 2003. The GIS specialist employed on the project, Mr. Carlos Castillo Ramírez, has proved highly competent and, therefore, a longer-term delay of his training period can be justified. We will apply for training with the Environmental Systems Research Institute (ESRI), the world leader in GIS analysis, in July 2004. ESRI offers training in conjunction with the annual conference of the Society for Conservation GIS (SCGIS) and we will apply for Mr. Castillo Ramírez presenting a talk at that conference. Therefore, the delay of the training period to July 2004 allows us to jointly achieve both training and a presentation at a conference at the cost of a single journey.

Note 2) A first web-page was hosted at the website of Fundación Senda Darwin (Appendix 2). Since, we have developed an own website, which is directly managed by the project: www.darwinfox.org (see also Appendix 6 for technical details).

Note 3) Two radio and one TV feature were proposed to broadcasters. Radio "Estrella del Mar", Chiloé's local radio station, was approached in March 2003. The directors of the radio were enthusiastic and agreed a series of interviews. The first short interview (10 minutes) was broadcasted in May 2003. In May 2003, the station also broadcasted a message that the project was offering free health examinations of domestic dogs in one of our study sites, the Cucao area. One TV documentary was proposed to a producer of nature documentaries (Top TV, Germany). The company recently produced a 30-minute documentary on jackals with the principle investigator, which was broadcasted on German TV (Vox) early 2003. Top TV has expressed high interest and is currently assessing economic viability for the production.

Note 4) A 30-minute presentation was given at the 1st Workshop On Research And Conservation of Neotropical Carnivores, May 13 - May 18 2003, São Paulo, Brazil. Title of the talk: 'Impact of viral infections in wild carnivore populations, S. Cleaveland, S. Funk, C. Packer and M.K. Laurenson.

Note 5) We worked in three study sites (Ahuenco, Lake Tepuhueico and Quilan). Originally, we intended to have established four main study areas, but this was not possible due to the delayed start of field work (see 'significant difficulties – below).

- **Provide an account of the project's research, training, and/or technical work during the last year.** This should include discussion on selection criteria for participants, research and training methodologies as well as results. Please **summarise** techniques and results and, if necessary, provide more detailed information in appendices (this may include cross-references to attached publications).

Research: Three main topics were addressed by research during 2002/3. Despite the initial start-up problems of the project (see paragraph on significant problems – below), we made significant progress in all research areas. Especially the project goals for GIS mapping have been achieved faster and more comprehensively than expected.

1. *Density of foxes in three representative study sites on Chiloé Island. Foxes were trapped using cage traps. Indices of trapping success provide estimators for relative density. Relative density was also estimated using scent station*

methodology and the comprehensive sampling of fox faeces along predefined transects (trails). Faecal samples will subsequently be used for genetic analysis, allowing to estimate absolute densities and thus acting as a baseline for the estimates of relative density. For more details see Appendix 7.

2. *Spatial and social organisation of foxes in three main study sites. Trapped individuals were fitted with radio-transmitters allowing intensive radiotracking. These data provide information on space use and habitat preferences, which will be used to extrapolate fox density and distribution using habitat maps produced by GIS. For more details see Appendix 7.*
3. *GIS mapping. GIS mapping of study areas, capture sites, scent stations and locations of faeces was carried out. For more details see Appendix 8.*

Training, institutional capacity building and environmental education: *We provided training in sample collection, density estimation (radiotracking, scent stations) and genetic analysis to all staff members and the volunteers on a one-to-one basis. One one-week course on conservation biology, one one-week course on conservation genetics and a two-week workshop on conservation biology was established. The course consisted of lectures and the workshop consisted of discussions based on pre-selected representative articles published in high-ranking journals. Lectures and discussion meetings consisted of four hours day⁻¹. At this initial stage, we applied no selection criteria for participants other than having an academic background on the level of undergraduate level or above. Although students at ULA (a teaching university) are rarely exposed to any research including research in conservation biology, all attending participants showed high interest, actively participated and successfully completed the courses (grade for MSc students, not graded for undergraduate students).*

- **Discuss any significant difficulties encountered during the year.**

We encountered a variety of problems during the first year of the project.

Problem: delays in set-up of the project. *Although the project was designed to start on April 1st, 2002 (see application), detailed work could only begin after the arrival of the offer of grant (1st version dated 31 May 2002, 2nd version dated 20 June 2002). Since the project requires transferring significant funds to our partner university (Universidad de los Lagos, ULA), and, to a lesser extent, Fundación Senda Darwin, we negotiated a detailed Memorandum of Understanding (MoU) with each of the partner institutions. The MoU between ZSL and ULA was finally accepted and signed by 9th Sept 2002. The MoU between ZSL and FSD was signed by 2nd Oct 2002. Although work was carried out before the final signature (e.g. training of the main collaborator on field techniques), recruitment of staff and data collection in the field started only in Oct 2002. Both MoUs are attached (Appendix 9).*

Problem: general administration at Universidad de los Lagos, ULA. *ULA is almost exclusively a teaching university for undergraduate students and postgraduate students (up to the degree of 'magister'). Consequently, the infrastructure for administering a research/conservation project is not well adapted to the specific needs of such a project. As a result, our project employees had to spend significant amounts of time (up to 40% of working time) on bureaucratic matters. *Solution:* Since 1st of May 2003, we employ a trainee secretary for one day per week. This is economically viable since only the costs for local travel and a per-diem needs to be covered from project funds (approx. £40/month). Moreover, this trains an additional person in the basics of conservation, who otherwise would not have been exposed to issues of conservation.*

Problem: employment status of project employees. ULA has so far employed staff on the basis of free-lance contracts ('a honorario'). This status does not offer employees any social benefits or insurance. Moreover, the status of 'a honorario' does not allow to use any university vehicles, which is essential for fieldwork. Solution: Instead of using university-owned vehicles for fieldwork, personnel use public transport for travel to the field and mountain bikes for local transport. We intend to continuously use these means of transport wherever possible. However, two research topics require access to vehicles. Firstly, the investigation of range use by feral dogs by traditional radio-tracking (i.e. radiotracking on foot or by car) makes vehicles necessary because dogs are likely to cover much larger home ranges as compared to foxes. We are currently switching to modern GPS (global positioning system) radiotracking, which will make manual radiotracking and the use of vehicles unnecessary (see paragraph "project design" - below). Secondly, health screening of domestic dogs and estimation of density and distribution of foxes requires access to vehicles due to distances covered or material transported, which can not be replaced by public transport. Hiring transport from local companies is not cost efficient. We are in continuous negotiation with the university authorities to change the status of staff to a 'a contrata' status (i.e. full-time employment), which will allow access to vehicles. Since the recent intervention by the director of research (Mrs Pilar Alvarez-Santullano Busch), it appears likely that this will be achieved within the next month.

Problem: financial administration at ULA: Using funds, that were transferred by ZSL to ULA according to the budget and the MoU, for the requirements of the project is problematic. Any purchase requires the advance completion of several forms and is in general a very slow process. Applying for and receiving advance funds for fieldwork (such as costs for transport, consumables, etc.) is impossible not only because of the bureaucracy involved, but also because advance funds are not considered because staff is employed on a free-lance status (see above). Solution: Currently, expenses for field work are covered in advance from personal funds of the principle investigators. These expenses are then claimed back after completion of fieldwork. Moreover, ULA is slowly adjusting to the specific requirements of conservation-related research projects. Consequently, some regulations were modified making financial management easier.

Problem and solutions: qualification and turnover of staff. From the four positions for the project, we experienced significant problems in two cases. For the veterinarian, a position crucial for the project, the overall qualifications of Chilean applicants were rather low (the position was advertised nation-wide). For example, none of the applicants was holding a PhD or any similar qualification such as relevant working expertise. Initially, we employed Mr. Maximiliano Sepúlveda Terán (Licenced, Veterinary Sciences, Universidad de Chile, 2000). However, Maximiliano resigned as a consequence of the bureaucratic structure at ULA. His replacement is Cristóbal Briceño Urzúa (Licenced, Veterinary Sciences, Universidad de Chile, 1999; DVM 2002). Although Cristóbal does not have any relevant working experience, he is a bright young veterinarian with strong interest in conservation. He requires much more guidance and supervision as originally proposed for the position, but he promises to develop the capacity in conservation biology and conservation medicine, Chile urgently requires. Mr. René Monsalve, the only candidate with relevant work experience, was initially employed as the field assistant. However, René also resigned as a consequence of the bureaucratic structure at ULA. We now employ Mrs. Carolina Jara Vergara and the first experience indicates that Carolina is a suitable field assistant, but she also needs intensive training and supervision. CVs are attached in Appendix 10.

Problem: Weather conditions. The field season over summer (Oct 2002 – Mar 2003) was exceptional wet and windy on Chiloé Island. As a consequence, our method of choice for the estimation of relative fox abundance failed. The method is based on scent stations, but continuous heavy rain and/or wind made these stations unusable (see Appendix 7). Solution: As an alternative, we have now ordered automated camera traps, which have recently been very successfully applied for estimation of tiger densities in dense rainforest.

Problem: Use of study site at Comunidad Ahuenco (CA). Initially, we collaborated with Comunidad Ahuenco (CA) by using their property as a study site. However, the originally proposed building of a field station was abandoned as a consequence of spiralling costs. Solution: As an alternative, we established two new study sites in the central part of the island on the property of a private landowner, Mr. Patricio Aguirre (MoU attached in Appendix 9). Advantages of these two study sites are not only that Mr. Aguirre made a building available, that required only minor renovation work to be usable as a field station (well within the budget), but also that the new study sites are located in areas on Chiloé island where no ecological data on foxes are available (CA was being used as a study site prior to this project and previously published data are available).

Problem: communication and line-management of staff. Up to December 2002, we used an informal reporting mechanism between the principle investigators and staff and between the three institutions involved. However, this type of information flow was inefficient, especially because communication difficulties were exacerbated by regular problems with the e-mail system. Moreover, Chilean staff is not used to work proactively and under 'loose' supervision. Solution: Since January 2003, we have adopted formal procedures for line management and communication. All members of staff, students and volunteers submit reports to their respective line-managers at least twice a month and the principle investigators are immediately appraising progress. The same scheme of twice-monthly reporting between the three organisations is currently being implemented.

- **Has the design of the project been enhanced over the last year, e.g. refining methods, indicators for measuring achievements, exit strategies?**

Refinement of methods: GPS collars and camera traps introduced to replace traditional radiotracking of dogs (time consuming and expensive) and scent stations (unreliable because of weather conditions).

Introduction of new methodology: We introduced the assessment of human attitudes by questionnaires into the project (see section 6 for rationale).

Volunteers and project students: As a consequence of the unforeseen extend of administrative duties of staff (see paragraph 'significant difficulties' – above) and the high interest we received for volunteer positions, we now allow volunteers to participate in the project. This is a win-win situation since it helps us to achieve the goals of data collection more efficiently and it provides additional expertise of international volunteers in conservation biology. So far, we have offered four volunteer positions to Hector Bahamondes (Argentina), Vitek Lukas (Czech Republic), Kristina Killian (Germany) and Eve Leegwater (UK). Moreover, we created the position for a trainee secretary (see paragraph 'significant difficulties' – above). We also are now offering placements for Chilean project students (see section 6 – below). This makes the project more efficient and offers additional opportunities for training and capacity building.

Line-management structure: We introduced a formal line-management, reporting and appraisal system in order to optimise supervision and training, support team building, maximise information flow and minimise misunderstandings within the team and between institutions (see paragraph 'significant difficulties – above).

- Present a timetable (workplan) for the next reporting period.

Table 0b. Project implementation table for year 2003/4 (following Table D in Project Schedule, Appendix 1; modified according to slippage as outlined in Tables 01 and 1).

proposed date	details	remarks
2003/08	Expanded 1 st newsletter released	The 1 st newsletter (Appendix 4) was jointly produced with FSD and was not a newsletter dedicated to foxes exclusively. Therefore, a project-specific newsletter will be released
2003/08	Mitochondrial DNA and microsatellite analysis of samples collected so far	Will be achieved earlier (originally 2003/09)
2002/09	ULA staff training in genetic methodology completed (14 weeks)	Carry-over from 2002/3
2002/09	ULA staff training in analysis of serological and epidemiological data completed (2 weeks)	Carry-over from 2002/3
2003/09	Density and distribution of dogs estimated	We will use four villages
2003/10	Field station at SAG created	We are currently exploring whether there are more suitable and useful sites (especially in the south of the island)
2003/10	Campsite at Quellon created	As above
2003/10	Second half-year report completed	
2003/12	Target for slideshow achieved (2 hours * 16)	
2003/12	First round of non-invasive sampling for 2003/4 completed	
2003/12	ULA staff trained in genetic methodology (analysis)	Delay cause by delay of training of laboratory assistant in 2002
2003/12	Missing UK press release from 2003/4	Carry-over from 2002/3 (see Table 1)
2003/12	Missing TV feature from 2003/4 proposed	Carry-over from 2002/3 (see Table 1)
2003/12	50% of press articles published	

Table 0b. Continued

proposed date	details	remarks
2004/01	2*1 week training courses at FSD completed	<i>Delayed from 2003/11: December/January is more suitable for Chilean students because of restrictions of the university schedule</i>
2004/01	2 week workshop at ULA completed	<i>As above</i>
2004/03	Equipping of genetics laboratory at ULA completed	
2004/03	Second round of non-invasive sampling for 2003/4 completed	
2004/03	Second newsletter circulated	
2004/04	Second density estimate in four study sites completed	
2004/04	10 foxes captured in four study sites	<i>We will use five study site (in 2002/3, only three instead of four were used)</i>
2004/04	Analysis methods for non-invasively sampled DNA established	
2004/04	Feral dog activity and space-use patterns (radiotracking) completed	
2004/04	All dog samples collected for serology	
2004/04	All fox samples collected for serology	
2004/04	Manuscript submitted in peer reviewed journal	<i>Delayed from 2003/09: The original target was too optimistic.</i>
2004/04	Second annual report submitted	
2004/07	ULA training in GIS completed (3 weeks)	<i>Carry-over from 2002/3 (see note 1, Table 0a)</i>
2004/07	2 nd presentation at conference	<i>Date and location of conference was not fixed in project Schedule. The GIS conference is targeted (see note 1, Table 0a)</i>

5. Partnerships

- **Describe collaboration between UK and host country partner(s) over the last year.** Are there difficulties or unforeseen problems or advantages of these relationships?

The collaboration with the main Chilean project partner (Prof. Jaime E. Jiménez, ULA) and the second partner (Prof. Juan Armesto, FDS) has worked very well. However, we encountered significant administrative problems with the main partner institution, ULA (for details see above). Despite the administrative difficulties, ULA has made any effort to support the project. The university renovated and equipped new offices for the project (inaugurated in March 2003) and contributed to the expenses of the training course at ULA (£250 in kind). Moreover, there has been high interest for our conservation-related work from departments, which not normally contribute to such projects. The department for English will send several students on our courses in order to specialise in conservation-specific terminology. Mrs Pilar Alvarez-Santullano Busch (Research Division Head) will collaborate in assessing perceptions of indigenous people (Maputche) of Darwin's foxes.

- **Has the project been able to collaborate with similar projects in the host country or establish new links with / between local or international organisations involved in biodiversity conservation?**

During the first year, we focussed our attention on establishing and developing the project. Therefore, we did not actively pursue the establishment of new links. Within Chile, we established a link with CONAF, the forestry department, which administers the National Park on Chiloé Island. CONAF offered logistic support to work in the park. We also established contacts with the “Channel Island Fox Project” (Dr. S. G. Kohlmann, Institute for Wildlife Studies, CA, USA, www.iws.org). Since both species, the Darwin’s fox and the Channel Island fox, are highly endangered species and occur under similar ecological conditions, we intend to intensify contacts in the near future.

6. Impact and Sustainability

- Discuss the profile of the project within the country and what efforts have been made during the year to promote the work. What evidence is there for increasing interest and capacity for biodiversity resulting from the project? Are satisfactory exit strategies for the project in place?

Intensive promotion of the project was carried out locally and nationally. The targets of newspaper articles exceeded the original schedule. Circumstantial evidence indicates that there is increasing interest for conservation biology. We had many requests from Chilean and international students to volunteer on the project and to carry out field-work for university theses. However, there is the fundamental problem of quantification of human attitudes to nature conservation, which is required if changes in attitudes due to our information campaigns and education programs should be assessed. This problem was not addressed in the original proposal in line with most studies, which in general do not quantitatively assess the impact of education and information programs. We have now designed a questionnaire that is suitable for quantifying human attitudes and changes of thereof (Appendix 11; details in attachment a11e.pdf). We have accepted Verónica Díaz (Universidad Católica de Temuco) as a Biology student to assess human attitudes using this questionnaire.

With regard to the exit strategy, no changes were made from the exit strategy as outlined in the original proposal. After completion in 2005, the project will have established local expertise (GIS, population genetics, epidemiology and veterinary medicine) and local infrastructure (laboratories for GIS and population genetics, field stations). The exit strategy is based on the principle investigator’s and the main project partner’s intention of long-term collaborations that will involve exchange of students between ULA and ZSL (Institute of Zoology). Although Universidad de los Lagos is primarily a teaching university, it has acknowledged the need for future research in conservation biology. The intention to intensify this line of research was exemplified by ULA’s granting of a visiting professorship (not enumerated) to the principle investigator.

7. Post-Project Follow up Activities (max 300 words)

This section should be completed ONLY if your project is nearing completion (penultimate or final year) and you wish to be considered for Post Project Funding. *Each year, a small number of Darwin projects will be invited to apply for funding. Selection of these projects will be based on promising project work, reviews to date, and your comments within this section. Further information on this scheme is available from the DEFRA website.*

- From project progress so far, what follow-up activities would help to embed or consolidate the results of your Darwin project and why would you consider these as suitable for Darwin Post Project Funding?
- What evidence is there of strong commitment and capacity by host country partners to enable them to play a major role in follow-up activities?

8. Outputs, Outcomes and Dissemination

- Please expand and complete Table 1. **Quantify** project outputs over the last year using the coding and format from the Darwin Initiative Standard Output Measures (see website for details) and give a brief description. Please list and report on appropriate Code Nos. only. The level of detail required is specified in the Guidance notes on Output Definitions, which accompanies the List of Standard Output Measures.

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

Code No.	Quantity (achieved / targeted)	Description (target and remarks)
5	1 / 3	Training for field assistant, laboratory assistant and veterinary post-doc for 2, 16, and 2 weeks respectively. Remarks: field assistant trained for two weeks; laboratory assistant trained for two weeks. See note 1)
7	6 / 5	5 types of training/information materials: information leaflets, posters, information pack for adults, information pack for children, web-site. Remarks: see note 2)
7	2 / 1	1 type of training/information materials: slideshow Remarks: 2 slideshows produced (see Appendix 3)
4A/B/C/D	A16, B3, C6, D3 / A16, B3, C8, D3	A total of 16 Chilean undergraduate students at courses and 8 international students at workshops for 6 weeks Remarks: see note 3)
8	10 / 8	UK project leader to host country for 8 weeks: Remarks: 29 May - 17 June 2002, 4 Oct - 12 Oct 2002, 12 Feb - 28 Feb 2003, 27 March - 12 April 2003 include. 2 days vacation and 8 days travel = 53 working days
11A/B	1(?) / 1	1 paper submitted to peer reviewed journal. Remarks: see note 4)
14A/B	A4, B0 / A4, B0	4 Conferences/seminars/workshops organised. Remarks: See note 5)
15A	2 / 1	National press release in host country (see Appendix 13)
15B	3 / 1	Local press release in host country (see Appendix 13)

Table 1. Continued

Code No.	Quantity (achieved / targeted)	Description (target and remarks)
15C	0 / 1	National press release in UK. Remarks: see note 1)
16A/B/C	A1, B400, C0 / A1, B400, C100	1 newsletter produced - 400 copies circulated in host country; 100 copies circulated in UK Remarks: part of a newsletter by FSD, attached (Appendix 4)
17B	1 / 1	Website created. Remarks: First website on website of FSD (see Appendix 2); this was developed into our own webpage at www.darwinfox.com (see Appendix 6)
18A/B/C/D	1 / 2	National and local TV feature in UK and host country See note 6)
19A/B/C/D	2 / 2	National and local radio feature in UK and host country See note 6)
21	2 / 2	GIS lab set up at ULA and field lab at FSD
22	1 / 1	Field station and campsite created
23		Contributions in kind and equipment to value £88,663.77. Remarks: see note 7)
12A	1 / 1	GIS computer databases well in advance (scheduled for 2004/09)

Underachievement in *red* and overachievement in *blue*

Note 1) Table 0a, note 1 outlines the rationale for the slippage and our strategy to compensate. New completion dates are given in Table 0b.

Note 2) We produced one leaflet for adults, one short story for children (distributed as leaflet), one poster, and one bookmark with endemic/emblematic species of Chiloé Island. The information material is currently being distributed in educational corporations, NGOs, CONAF, landowners on Chiloé Island. The two questionnaires for local residents and for dog owners can be regarded as training material. The questions not only allow us to quantify human attitudes to foxes and biodiversity conservation, but they also will train interviewees by providing answers to the questions about knowledge (see section B of the questionnaire). Details on all information material are given in Appendix 11.

Note 3) Despite intensive proof reading, we did only now discover a slight discrepancy between the original application and the offer of grant. The offer of grant worded: "16 Chilean undergraduate students at courses and 8 International students at workshops for 6 weeks". The original application proposed 16 undergraduate students at courses and 8 undergraduate students at workshops at a total of 3 weeks per year as well as 16 graduate students at courses and 8 graduate students at workshops at a total of 3 weeks per year. The ratio between national and international students was given as "approx. 2/3 Chilean & 1/3 international".

Two one-week courses were held at ULA in March/April 2003 with 4 hours lectures day⁻¹ over a total of 10 days. Attendance was 12 students (4 graduate and 8 undergraduate) and 14 students (4 graduate and 10 undergraduate), respectively. One two-week workshop was held in parallel at 4 hours day⁻¹ over a total of 10 days. Attendance was 8 students (4 graduate and 4 undergraduate) and 10 students (4 graduate and 6 undergraduate), respectively. The ratio of national and international

students was approx. 2/3 to 1/3 with international students from Argentina, Germany, UK, and Venezuela.

A two-day course was held as part of the Conservation Biology Training Course of the Durrell Wildlife Trust, Jersey at 8 hours day⁻¹ for 12 international students of which two were postgraduates. The equivalent in terms of the Darwin Initiative Standard Output Measures (number of students and number of weeks) is difficult to calculate exactly, but can be approximated as 16 undergraduate students (A16) for 3 weeks (B3) and 6 graduate students (C6) for 3 weeks (D3). The slight underachievement with regard to the target (A16, B3, C8, D3) will be compensated for during two parallel courses at one week each and one two-week workshop announced for July.

Note 4) Following the presentation at the 1st Workshop on Research and Conservation of Neotropical Carnivores, May 13 - May 18 2003, São Paulo, Brazil, a manuscript for publication in the proceedings volume was requested by the organisers. Technically, this is not a peer-reviewed journal.

Note 5) One seminar organised at Universidad de los Lagos (1 hour; number of attendants can not be estimated because the presentation was transmitted to universities in Chile and South America via videoconference); one seminar organised at the Biology Faculty at Zagreb University (1.5 hours; approx 40 participants); one seminar organised at Universidad de Chile (two talks at one hour each; approx. 30 participants); one talk [Efforts to conserve the Darwin's fox] organised at Instituto de Ecología Austral, Osorno (Sep. 24th 2002; 29 attendants). Invitations to the first three seminars are presented in Appendix 12.

Note 6) Two radio features and one TV documentary were proposed. Of these, only one radio feature has been broadcasted as yet. For details, see note 3 in Table 0a.

Note 7) Despite intensive proof reading, we did only now discover a slight discrepancy between the original application and the offer of grant. The amount of £88,663.77 for contributions in kind and equipment is for the three-year project and not for the first year. Contributions in kind were contributed in form of salaries from ULA, FDS as budgeted. At ZSL, the budgeted amount of time (salaries in kind) spent by the collaborators Dr Andrew Cunningham (4% of time) and Dr Chris Carbone (6% of time) was not achieved as a result of the delayed staff training in London. This will be achieved during 2003/4. On the other hand, the principle investigators spent approx 45% of their working time on the project instead of the originally budgeted 30%. In total the contribution in kind for salaries for the principle investigator (£12,229.19) exceeded the originally budgeted contribution in kind for the salaries of the principle investigator plus Drs Cunningham and Carbone (£10,643.18). Equipment has been provided by ZSL and ULA to the project as a contribution in kind according to Table B in the grant application (Traps: £440, telemetry receivers £2500, liquid nitrogen container £1500, electrophoresis equipment £800; total: £5240). Equipment purchased on the project, as outlined in Table B in the grant application (total £15,678), will be formally handed over to the ULA and FSD after completion of the project.

- **Explain differences in actual outputs against those agreed in the initial 'Project Implementation Timetable' and the 'Project Outputs Schedule', i.e. what outputs were not achieved or only partly achieved? Were additional outputs achieved?**

Details on not achieved or partially achieved outputs are given in notes to Table 1. GIS mapping was achieved well in advance (see paragraph “account of the project’s research, training, and/or technical work” in section 4).

- **In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed.** Details will be recorded on the Darwin Monitoring Website Publications Database. Mark (*) all publications and other material that you have included with this report.

All publications produced over 2002/3 (information materials as outlined in Table 1) are in press since May 2003. The conference proceedings including a manuscript outlined in note 4 of Table 1 is scheduled to be published end of 2003 /early 2004. Publication details will follow in subsequent reports.

Table 2: Publications

Type *	Detail	Publishers	Available from	Cost £
(e.g. journal paper, book, manual, CD)	(e.g. title, authors, journal, year, pages)	(name, city)	(e.g. contact address, email address, website)	

- **Provide details of dissemination activities in the host country during the year.** Will these activities be continued by the host country when the project finishes, and how will this be funded and implemented?

Details on dissemination activities are given in Table 1 (seminars, TV and radio features, press releases, information material).

9. Project Expenditure

- Please expand and complete Table 3.

Table 3: Project expenditure during the reporting period

Item	Budget	Expenditure

Table 3: Continued

- Highlight any recently agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget

10. Monitoring, Evaluation and Lessons

- **Discuss methods employed to monitor and evaluate the project this year.** How can you demonstrate that the outputs and outcomes of the project actually contribute to the project purpose? i.e. what are the indicators of achievements (both qualitative and quantitative) and how are you measuring these?

Monitoring progress of all research activities, teaching, and capacity building follows standard criteria such as number of press releases achieved or number of foxes trapped (these are also the baseline criteria for the Darwin Initiative Standard Output Measures) and are detailed in sections 4 and 8. These criteria can also be applied for monitoring efforts in environmental education (e.g. number of lectures given). However, these measures do not allow monitoring the impact of environmental education, as outlined in section 6. We have adopted methods of research in 'human dimensions', which we hope will allow us to assess and monitor the impact of the environmental education and information campaigns (see section 6 for details).

- Are there lessons that you learned from this years work and can you build this learning into future plans?

We outline in detail all significant difficulties encountered over 2002/3 and our strategies to deal with these in section 4.

11. Author(s) / Date

Stephan M Funk

Cristóbal Briceño, Carlos Castillo, Claudia Hernández, and Jaime E. Jiménez

25 May 2003

12. Appendices

1. *Project Schedule of June 2002 ([a01.pdf](#))*
2. *Darwin's fox page at webpage of Fundación Senda Darwin ([a02.pdf](#)). For technical details on the new website www.darwinfox.org, see Appendix 6.*
3. *Slide show for audience with academic background ([a03a.ppt](#)) and without academic background ([folder a03b](#) containing jpeg files of each slide and a pdf file with comments).*
4. *Newsletter produced by Fundación Senda Darwin with article on Darwin's fox conservation, published May 2003 ([a04.pdf](#)).*
5. *Topographic and habitat map of the Chiloé Island, produced by GIS ([a05a.bmp](#) and [a05b.bmp](#)). For technical details see Appendix 8.*
6. *Technical details for website www.darwinfox.org ([a06.pdf](#)).*
7. *Account of field research and results ([a07.pdf](#)).*
8. *Technical details for GIS mapping ([a08.pdf](#)).*
9. *Memorandum of Understanding with Universidad los Lagos ([a09a.pdf](#)), Fundación Senda Darwin ([a09b.pdf](#)) and Patricio Aguirre ([a09c.pdf](#)).*
10. *CVs of current staff Patricia Beristain Ruiz (laboratory assistant), Cristóbal Briceño Urzúa (veterinarian and project co-ordinator), Carlos Castillo Ramírez (GIS specialist), Claudia Hernández Pellicer (education specialist), and Carolina Jara Vergara (field assistant) are to be found in [a10.pdf](#).*
11. *Information material (poster: [a11a.jpg](#), information leaflet for adults: [a11b.pdf](#), information leaflet for children: [a11c.pdf](#), bookmarker: [a11d.jpg](#)) and two questionnaires ([a11e.pdf](#)).*
12. *Invitations for seminars ([a12.pdf](#))*
13. *Articles published in newspapers ([a13.pdf](#))*