Darwin Scholarship - Interim Report

(Submit within one month after 3 or 6 month period, max 3 pages.)

Darwin Project Ref No.	EIDPS9
Darwin Project Title	Capacity building in molecular genetics and immunology for biodiversity conservation in Chile.
Name of Darwin Scholar	Cristóbal Briceño Urzúa
UK Organisation	Cambridge University
Your Organisation(s)	Universidad de los Lagos
Your role within your Organisation	Darwin's Fox Project Co-ordinator
Start/end date of Scholarship	1st September 2005 to 31st August 2006
Location	Chile and Cambridge, UK.
Darwin scholarship funding (£)	£14,560.00
Type of work (e.g. research, training, other, please specify)	Research in molecular genetics on the endangered Darwin's fox (Pseudalopex fulvipes) mainland population.
Main contact in UK Organisation	Dr. Leslie A. Knapp
Author(s), date	25th of April 2006

Background

- Briefly describe your involvement in the Darwin project before the start of your scholarship.

  I have been employed via Universidad de los Lagos as project co-ordinator of the DI project 11-013 between 2003 and 2005, being responsible of animal capture, animal welfare, health screening and serology of Darwin's foxes and domestic dogs. As project coordinator, I was involved in the articulation of the project staff, supervision of volunteers, field data collection, general logistics and the collaborations made with local institutions/communities.

- Describe aim and objectives of the Scholarship, and programme of work

  The scholarship aims to provide training and capacity building in molecular screening of loci involved in the immune system (MHC) of Darwin's foxes. This methodology will provide important information for further conservation planning and this knowledge will be disseminated in Chile.
  The current scholarship was structured as follows:

  -Sept-Oct 2005: Field work in Chile for animal capture and student training.

  -Nov 2005 to May 2006: Cambridge University. Research and training of scholar.

  -Jul-Aug 2006: Osorno and Santiago, Chile. Dissemination and training by scholar.

- Briefly describe the roles of the UK and Scholar's institutions

  University of Cambridge, via its Biological Anthropology Department and Dr. Knapp's lead, has provided infrastructure and guidance for the molecular analysis and research. Besides the administration of resources, the University has provided support and facilities for the scholar's research, such as an office, libraries and online access to journals.
  Nature Heritage, has provided with some field equipment but most important has been an overall guidance and support in particular matters such as the difficulties found into obtaining capture authorisations in the National Park.
  Universidad de los Lagos has supported with equipment necessary to conduct the field session such as tomahawk traps, GPS devices, walkie talkies and camping equipment.

Progress

- Provide a brief account of your work since the start of your scholarship, showing progress against the programme of work.

  A field session was conducted for trapping foxes in Nahuelbuta national park in Nov-Dec 2005. One veterinarian, two veterinary students and one park ranger were trained in the field in trap setting, wildlife tracking, dog health screening, sampling and processing of biological samples. 25 dogs were examined and owners interviewed whilst awareness for good dog management practices were given together with outreach material (posters, leaflets, story books for kids) in every house visited, local grocery stores and people in the roads.
  Additionally, a good relationship was established by giving talks to the scientific community, students and governmental Chilean bureaus. 8 talks were given targeting 235 people (60 school students; 80 people from scientific community; 40 university students; 15 governmental authorities and 40 local community leaders and authorities). In this same regard, four press reports were released in local newspapers and their web portals.
  Since January 2006 to date, the research has been conducted in Cambridge focused on DNA extraction from the biological fox samples, DNA amplification improving PCR techniques, selection of alleles with TTGE and sequencing for phylogenetic analyses.

- Provide an account of any problems encountered and how you have or are planning to overcome them.

  The first problem encountered was reluctance from the national park to provide authorisation to conduct research because of bad previous experiences with other researchers in the park. This was solved by providing comprehensive information about research plan, as well as by giving two talks on the project aims for CONAF (Corporación Nacional Forestal; national GO in charge of national parks) authorities and park rangers.
  The second problem was that (possibly due to the fact that the endangered mainland population targeted is very small -only 50 individuals- and sympatric with two other fox species) I could not trap any fox in the field session. Initially, it seemed as though no genetic research could be performed without samples. However, this problem was solved by using faecal samples of foxes collected in the field (suitable for genetic analyses), as well as obtaining 4 museum skin samples of foxes from the park. In a way, this problem has become an advantage since we are now able to analyse non-invasive archive samples as well. At this stage, I am trying to obtain more skin samples from other museums and more faeces to increase the sample size.

- Any issues you would like to rise?

  The only problem encountered so far has been internal financial questioning from the financial department of the University of Cambridge in April. This caused the delay in 20 days of obtaining my stipend whilst the University requested the payment of taxes.

This caused a big delay and wasted of time explaining the situation and even requiring intervention from DI through Margaret Okot. Everything seems to have been sorted out now, even though financial department requests that my stipend be given against receipts of my living expenses. I have a good value for money and always try to maximise resources, but because it is a stipend for personal living expenses (some of which are difficult to obtain receipts for –e.g. a cola from a vending machine), I find this to be very inappropriate.

Achievements and Outcomes

- What have been the main achievements and outcomes to date, and how do they related towards the overall aim and objectives of the Scholarship.

1) The fieldwork session, although lacking captures, provided a very good opportunity to set up a fertile background for future collaboration and research with the local governmental authorities. In this regard, two talks were given and a workshop for park rangers has been set up before the completion of the project. Four people were trained in the field, 25 dogs examined and sampled, and about 60 people reached one-to-one and with outreach material.
2) A good dissemination has been achieved with 235 people attending talks up to date. This excludes the people targeted in the field such as local farmers, community leaders, dog owners and park visitors.
   A very good reception was achieved from local communities, which can make a difference in an area where foxes are systematically hunted.
3) Capacity building in molecular screening techniques, has been very intensive and has given good preliminary results. From general knowledge, I have learned and performed specific laboratory techniques such as DNA extraction, amplification of DNA using PCR and isolation of alleles with TTGE. This has demanded deep research in what has been done in other canids. Additionally, extraction from museum skin samples (where DNA is often highly degraded) represents an extra challenge that has been successfully overcome with trial/success approaches.
4) As a tangential benefit, I have been able to get involved with local UK organisations. I attended to the DI workshop in February, meeting interesting people and learning about other projects. I have had the chance to attend scientific seminars at the ZSL, allowing me to exchange experiences whilst interacting with colleagues. I have had interaction with the people of the Zoology Department at Cambridge University and colleagues doing conservation all around the globe at the Cambridge Student's Conservation Seminar in late March.

Next Steps

- Briefly describe forthcoming activities, events, milestones

During the coming three months the molecular research in genetics and subsequent analysis of data has to be finished. Once completed, I could begin the writing of a manuscript to be passed and review by the supervisors.

On the 3rd of May I will be giving a talk of the project to veterinary staff and students from Jersey University at the Durrell Wildlife Conservation Trust.

I am setting up another talk to be given at Oxford University soon.

I am preparing a press release for a British media.

Finally, I just want to mention that in every talk or press release performed, DI and DEFRA have been fully acknowledged.

Cristóbal Briceño U