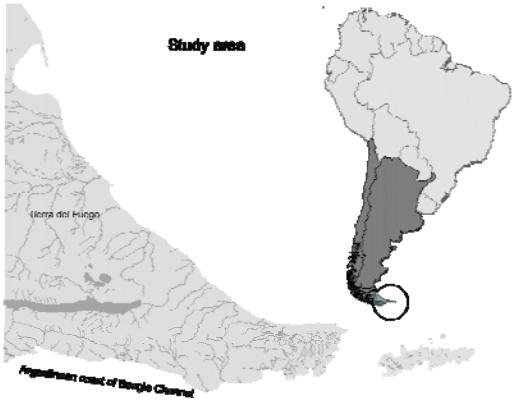
Darwin Initiative: Half Year Report

(due 31 October 2008)

Project Ref. No.	EIDPO021
Project Title	Implementing an otter action plan for marine environments of Tierra del Fuego, Patagonia
Country(ies)	Argentina
UK Organisation	University of Oxford
Collaborator(s)	PROFAUNA Organisation
Project Leader	David W. Macdonald
Report date	31st October 2007
Report No.	***HYR2***
Project website	www.wildcru.org/research/darwininitiative.htm www.profauna.org.ar/iniciativa darwin.htm

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

In the initial timetable we stated that the period April to September 2008 would be dedicated to "Data analysis with Geographical Information Systems, with molecular techniques and with diet analysis methods". This is being carried out with data collected during the first year of the project. We incorporated an additional component of the project that required more field work, this being an investigation of the behaviour of the American mink *Mustela vison*, an exotic species that may compete with otters. The progress made during this six month period are summarised below by type of research:



Diet analysis

We analysed a total of 228 faecal samples from the Beagle channel: 146 of these were from otters, 37 from mink, and 39 from coastal foxes. Diet analyses are in progress and we are following standard methods as follows:

- Faecal samples were dried at 60ºC until they reached a constant weight.
- Each dried sample was weighed using a sample-scale, to obtain the faecal dry weight.
- Faeces were then submerged in water to facilitate the separation of the faecal contents.
- Faecal components were separated (using pliers and dissection needles) into five categories: birds (feathers, bone fragments), mammal (hair, teeth, bone fragments), crustaceans (external skeleton fragments), fish (scales and otoliths (small calcareous bones from a fish's hearing system that are used for species identification)).
- Once the different items had been separated, taxonomic identification was conducted.

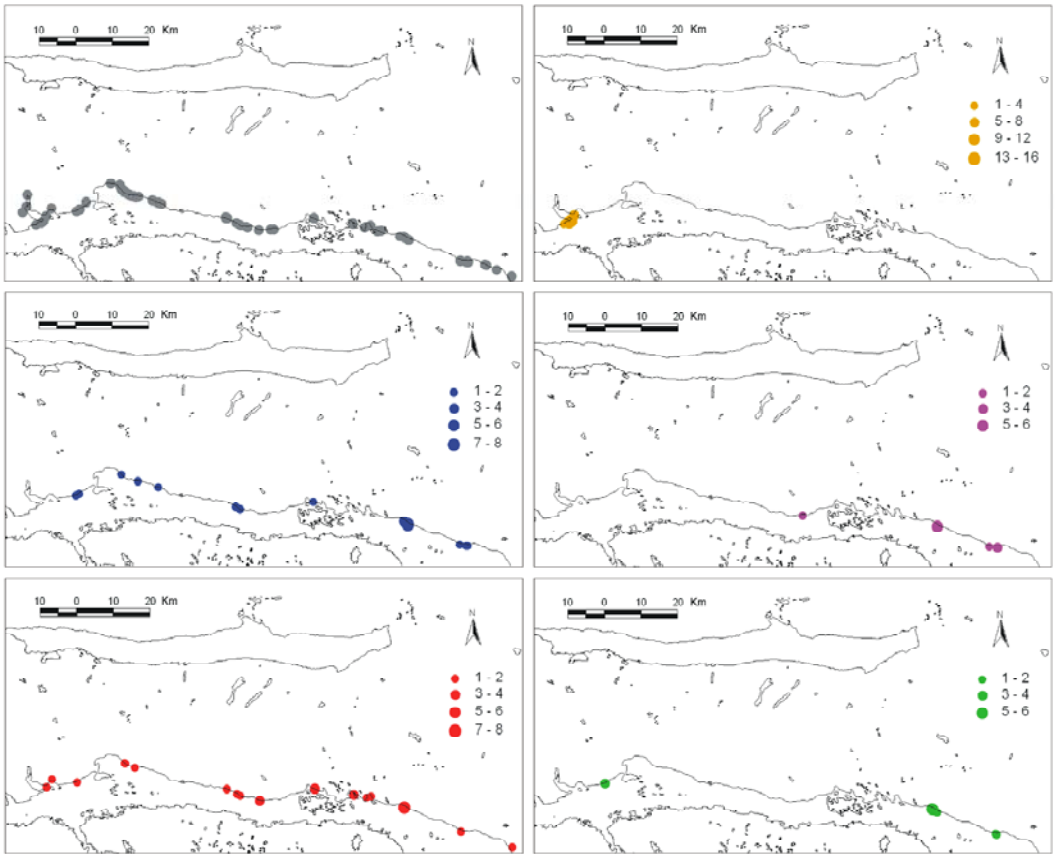
Genetic study for identifying otters

DNA was extracted from 87 faecal samples collected along the Argentinean coast of the Beagle channel

during 2007/8. A total of 1171 PCR reactions were conducted. DNA extractions were carried out using the method proposed by Centrón et al. (2008) without modifications. PCR was carried out in order to amplify the cytochrome b sequence for *Lontra provocax* available from GenBank, using the primers described in Centrón et al. (2008). The PCR program consisted of 3mins at 94ºC; 35 cycles of 1min at 94ºC, 30sec at 50ºC, 1min at 72ºC and a 5min final extension at 72ºC. We only obtained two PCR products, both from Bahía Lapataia. Both of the sequences were compared with the sequences available in GenBank using the BLAST program and showed greatest similarity with *L. provocax*. The extractions were repeated between two and five times for each sample, depending upon the amount of sample available. New primers were designed to amplify portions of about 300bp at both terminal regions of the cytochrome b gene.

GIS analysis

A total of 69 sampling points were surveyed along the Argentinean coast of the Beagle Channel. We incorporated this data in to GIS using the ArcView program. Overall, otter signs were found in five different sectors which cover the length of the channel. Information available prior to the beginning of our study suggested that otters were found only in one of these points. Previous field analysis suggested that otter sites were strongly related to specific characteristics of the coast. GIS analysis is currently underway to validate this hypothesis. We are working on additional methods for identifying species of otter, including differentiation of hair samples and direct observation of the animals.



Preliminary GIS analyses of the distribution of coastal mammals in the Beagle Channel. Grey = sampling points; Yellow = *L. provocax*; Blue = mink; Purple = *L. felina;* Red = foxes (; Green = *L. provocax* or *L. felina*.

Diving behaviour of introduced American mink on Beagle Channel coast-use of Temperature depth recorders (TDR)

From 1st July to 30th of September 2008 we conducted the first phase of this part of the project. Two sign surveys were conducted at Tunel Farm and Tierra del Fuego National Park to record places with mink sign (scats, footprints) and select places for trap allocation (mainly based on footprints presence). 9 traps were placed 200 to 500m apart (on rocks, buried and on rafts) covering a total length of 4 to 5 km. Trap effort for the winter site was 47 nights of successful trapping from 250 trap nights. Weather and road conditions meant we had to close all or some of the traps often, since driving and/or walking to the traps became impossible due to snow storms or iced surfaces (as a consequence, an average of 5 open traps per night). Despite efforts to overcome various issues with the traps (e.g. bait in traps getting frozen, other carnivore species entering the traps, traps being stolen), no mink were trapped during winter. Difficulties and solutions were already discussed with experts and along with winter experience, we are confident and we have tools to improve trapping next summer that will allow us to deploy TDRs and gather information from individuals' use of aquatic environment.

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. None
Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement? No
Discussed with the DI Secretariat: no no/yes, in……. (month/yr)
Changes to the project schedule/workplan: no no/yes, in…….(month/yr)
3. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures? No