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Darwin Initiative
Annual Report

1. Darwin Project Information

Project Ref. Number	*162/13/016*
Project Title	*Endangered otter and invasive mink in Patagonia*
Country(ies)	*UK, Argentina*
UK Contractor	*Wildlife Conservation Research Unit (WildCRU), Oxford University*
Partner Organisation(s)	*PROFAUNA Organisation, University of Buenos Aires (UBA), Administracion de parques Nacionales (APN)*
Darwin Grant Value	*£ 89,664*
Start/End dates	*1 Apr 2004 to 31 Mar 2007*
Reporting period (1 Apr 2004 to 31 Mar 2005) Annual report number 2	*1 Apr 2005 to 31 Mar 2006* *Annual report 2*
Project website	www.wildcru.org/research/darwininitiative.htm www.profauna.org.ar/huillin.htm
Author(s), date	*D.W. Macdonald & M.H. Cassini (21 Mar 2006)*

2. Project Background

The southern river otter (*Lontra provocax*), or *huillin*, is one the most endangered mammals of the Southern Cone of South America; according to the IUCN, it is in danger of complete extinction. The *huillin* is found in just three areas of the Andean-Patagonian region of Argentina; the isolation of their populations and their apparent inability to expand their distribution are of particular conservation concern. Our pilot studies for this application (Aued *et al*. 2003) suggested that the geographic distribution of otters is related positively to prey abundance, and negatively to the presence of a potential competitor, the invasive American mink (*Mustela vison*). Human barriers could also affect dispersal.

By the 1970s, the native otter was already close to extinction. Feral populations of American mink (originally introduced in the 1950s) were spreading rapidly through the valleys of the Andean-Patagonian region. Where mink became established, they appear to be responsible for near eradication of several species of riparian bird and mammal through predation of adults, nests and nestlings. Our study of the food and habitat requirements of mink in Argentina demonstrated that they overlap closely with those of otters, suggesting great potential for competition between the two species (see Previtalli *et al.* 1998).

3. Project Purpose and Outputs

The purpose of this project is to protect vertebrate biodiversity in the Andean-Patagonian region of Argentina by reducing the impact of invasive American mink and by facilitating the range expansion of endangered native otters in National Parks.

The planned outputs are as follows:

1) Academic outputs – theses, scientific papers and technical reports. These will contribute towards the first indicator of Purpose achievement - the generation of new knowledge regarding which factors limit otter population expansion and how mink impact on vertebrate diversity. This knowledge is needed to underpin the otter's recovery.

2)(a) Practical management tools including management plans and training/implementation guides, computer databases, field reports, workshop records and formal agreements with the NPA. These will build Patagonia's capacity for otter reintroductions and mink removal - the second indicator of Purpose achievement.

2(b) Training and education - training future Argentine biologists, managers and wardens, educating stakeholders and policymakers, dissemination of results by a variety of methods and organisation of a permanent monitoring scheme. Trained personnel will be available to implement plans based on the aforementioned new knowledge. These will also build Patagonia's capacity for otter reintroductions and mink removal - the second indicator of Purpose achievement.

The major outputs of this project will be scientifically based plans designed for the national authorities, e.g. National Parks, to implement; their adoption of our plans will itself be a measure of our success, and when they do so it will be possible to measure the success of each milestone they reach against our predictions.

Neither the outputs, nor the proposed operational plan, have been modified over the last year.

4. Progress

Provide a brief history of the project to the beginning of this reporting period

The project was initiated on 1st April 2004. Work was originally divided into two phases: ecological study and action plan development. The work in the first year can be divided in three phases: (1) April-May 2004 - Organisation, including project planning and announcement, training students, a preliminary campaign and a Think Tank meeting in Patagonia; (2) June-December 2004 - Testing and development of the techniques required for molecular analysis, diet analysis, and Geographical Information System (GIS) analysis. These are complex techniques that in certain cases (e.g. extraction of DNA from faeces) required innovative developments; (3) January-March 2005 - Fieldwork, sample collection, and survey of mink, otter and environmental variables. We surveyed an area of 11,600,000 ha (116,000 km^2), measuring approximately 2000 km from north to south.

Summarise progress over the last year against the agreed baseline timetable

We have achieved all of the milestones planned for this annual period, and have also brought forward, and transformed into an international meeting, the workshop that was originally planned as a local meeting.

The second year consisted of two main activities - data analyses and a workshop. The agreed baseline timetable for the annual period April 2005-March 2006 was:

- Apr 2005: Annual report
- May-Sep 2005: Diet, GIS and molecular analyses
- Oct 2005: Six month report
- Nov 2005-Jan 2006: Diet, GIS and molecular analyses
- Feb-Mar 2006: Data processing, stakeholder workshop, additional training.

Data analyses: We have almost completed the analysis of field data collected during January-March 2005 and during an additional field campaign conducted in January-February 2006 (see the section, on the enhancement of project design, below). These analyses provided fundamental information for the future of the conservation of Southern river otters and control of mink. Our results are outlined in the next section.

Workshop: The workshop occurred earlier than originally scheduled in order to take full advantage of the opportunity to involve international delegates. This bi-national workshop was held in Valdivia, Chile from 30 to 31 August 2005. The workshop was called 'Primera Reunión Binacional sobre Conservación del Huillín' (First Binational Meeting on Southern River Otter Conservation') and was sponsored by the Darwin Initiative and the Frankfurt Zoological Society. The aim of the workshop was to bring together all scientists and technicians working with these otters in both countries (the next meeting will incorporate all stakeholders). There were 28 presentations covering all aspects of otter biology (e.g. diet, distribution, interactions with

people, veterinary, genetics, conservation history and environmental education). The workshop programme is given in Appendix I.

Additional outputs and activities: We have produced additional outputs for dissemination, including new publications, and we have formed new collaborations. These are described in the following section.

Provide an account of the project's achievements during the last year.

We have succesfully conducted all aspects of the plan for the second year.

Research: Please see Appendix II for a full description of our methodology and results. An outline of our results follows:

1. The distribution of Southern river otters has expanded significantly over the last 20 years. In the 1970s, the distribution was reduced dramatically, mainly as a result of intense hunting pressure. Following this period, Aued et al (2003) provided evidence of a population increase in Nahuel Huapi National Park. We were able to survey almost the entire Andean-Patagonic area, and this work revealed a more optimistic situation for the otter population. We found a significant population increase with values for 'area of occupancy' and 'extent of occurrence' exceeding those for endangered species in accordance to IUCN criteria.
2. Unfortunately, the main population of otters, which is located in the Nahuel Huapi National Park, showed a slight, but significant decrease in total abundance. The underlying mechanism for this decline should be investigated in relation to the recent loss of coastal habitat arising from a new law permitting private owners to 'clear' the coast of vegetation.
3. Previous studies indicated that the main prey of otters in freshwater bodies were macro-crustaceans. However, most faecal samples used in those analyses were collected during the dry season when collection is easier. In this study, faecal samples were collected throughout the year, and our subsequent analyses showed that, in winter, otters also depend on fish. If this dependency is confirmed in the future, it will alter the widely accepted view of the environmental requirements of the species.
4. Our diet analyses also revealed that otter diet composition - in terms of large prey types ('crustaceans', 'fish', and 'other' categories) - has not changed significantly over the last 20 years.
5. The southern Patagonian otter population lives in a marine environment. Our analyses showed that the composition of their diet remains constant between years and between seasons, even when climatic conditions show substantial seasonal changes.
6. A comparison of successive surveys conducted in 1983, 1995, 2000, and 2005, suggested that otters disperse by land and to the north, at a rate of 2.1 km per year.
7. Mink showed an enormous increase in distribution. In only 30 years, released mink have expanded their distribution to 23400 km^2 (an area 7.7 km^2 larger than that of the otters).
8. Our results raise concern over the impact of mink on native bird species. We found that bird consumption occurred mainly in

watercourses where crustaceans were absent. In those basins with crustaceans, mink predation on birds occurred mainly in winter, probably as a result of reduced availability of macro-crustaceans at that time of year. This result suggests that mink control should be concentrated in areas and periods of the year with low crustacean densities.

9. However, we discovered an unexpected type of negative and serious, potential impact of mink. Mink have invaded marine areas inhabited by otters, and have started to occupy the same burrows that otters use. Future studies should evaluate the consequence of this newfound means of direct competition between these two species.
10. We developed a method that allowed DNA extraction from dry faeces, even from samples collected 10 years ago.
11. We published the cytochrome b and mithocondrial DNA control region sequences of *L. provocax* with GENBANK (Appendix III & IV).
12. We used mitochondrial markers to confirm the expansion of the distribution of otters at the limits of their distribution. This included the analysis of faeces collected from De los Estados Island, which supports what is probably the last relict population in Argentina of another otter species, *L. felina*. Up until now, it has not been possible to discriminate between signs of the two species. However, the genetic technique that we have developed allowed us to reanalyse samples collected previously on the island. All of the faeces from which DNA could be extracted, corresponded to *L. provocax*. This implies that the areas sampled were inhabited by this species and that new surveys are necessary to establish the size of the remaining population of *L. felina* in the island.
13. We conducted an AMOVA analysis to determine whether northern and southern *L. provocax* populations, separated by more than 1000 km, could be distinguished genetically. We identified marginally significant differences, suggesting that the two populations could correspond to different genetic stocks.
14. We conducted the first macro-crustacean survey in Tierra del Fuego, which involved visiting 30 lakes and rivers on the island and sampling approximately 150 sites. We found no macro-crustaceans on Tierra del Fuego, which means that the freshwater bodies of this island do not provide the main type of prey available to otters in northern Patagonia.

Dissemination: We have collaborated with the Patagonian National Parks authorities to disseminate our results via items in local newspapers and a calendar with information on the project, included in Appendices V, VI, VII.

1. Item in the newsletter 'Noticias de Bariloche', Thursday 12th July 2005, http://www.bariloche2000.com.
2. Item in 'El Ciudadano de Bariloche', 4 July 2005, *http://www.elciudadanobche.com.ar/*
3. Publication and distribution of 1000 calendars in two formats, with the DI logo.

Collaboration: One key aspect of our project is the development of a network of local collaborations that enhance the quality of our work and, at the same time, help with the dissemination of our findings and personnel training. The following collaborations are now in place:

1. Lic. Claudio Chéhebar (National Parks Administration, Bariloche) provided faecal samples collected in northern Patagonia during the 1980s, over different seasons. These samples allowed us to compare the present diet with the prey consumed by otters more than 20 years ago, including a seasonal comparison.
2. Lic. Laura Malmierca (National Parks Administration, Ushuaia) provided faeces collected in southern Patagonia on a seasonal basis between 1999 and 2004. Again, this allowed annual and seasonal comparisons of the diet.
3. Dr. Victor Cussac (Comahue University, Bariloche) provided fish samples for diet composition analyses, and with data on the distribution and abundance of fish among Patagonian lakes. He is also a Co-supervisor of one of the undergraduate theses being conducted through our project.
4. Lic. Maximiliano Sepúlveda (CODEFF, Chile) organised the bi-national meeting in Chile and is Co-editor, with Dr. Cassini, of a book on *huillines* (Appendix VIII).
5. Dr. Adrián Schiavini (CADIC, CONICET, Ushuaia). We have formed a new key collaboration this year with Dr. Schiavini. He has conducted a number of marine vertebrate studies in southern Patagonia. He provided faecal samples that were collected in De los Estados Islands. This material is of fundamental importance due to the extreme logistical difficulties surrounding travel to this remote island. Dr. Schiavini and collaborators conducted two expeditions and, for the first time, were able to collect samples from all over the islands. He has agreed that we may use all of these samples in our genetic analyses, and has also provided us with a taxonomic key for fish bone identification - a valuable resource for dietary analysis.

Training: Training this year related mainly to student thesis development. The five students have been working intensively and two have almost finished their theses (Appendix IX):

1. Juan Muzio conducted an undergraduate study on 'Seasonal changes in mink diet in Moreno Lake, Nahuel Huapi National Park'. He will defend in May.
2. Leonardo A. Di Franco conducted a 'final work' (similar to a undergraduate thesis) on the 'Application of GIS to wildlife conservation and spatial ecology'. He will also defend in May.
3. Cecilia Gozzi conducted an undergraduate thesis on 'Diet of the southern river otter in marine environments of Tierra del Fuego'. She has already analysed the faecal samples for large-scale dietary categories, and will refine her identifications to species level over the next few months.
4. Benjamín Ramirez has worked with us since the beginning of the molecular work, acquiring important skills in the use of different techniques.
5. Lic. Laura Fasola is conducting a Ph.D thesis on the regional and local distribution and diet of both species, and on the conservation of otters and impact of mink.

Publications:

We have published DNA sequences for *L. provocax* with GENBANK (Appendix III & IV).

We have produced an advanced draft of a book called 'Ecología y Conservación de una nutria patagónica amenazada de extinción, el Huillín *Lontra provocax*' (Ecology and conservation of an endangered otter from Patagonia, the *huillín*, *Lontra provocax*. This will be an important resource – summarising, in Spanish, current knowledge on the ecology of southern river otters. The book will contain 21 chapters, some of which are almost complete (the Index is listed in Appendix VIII).

The following manuscripts are in preparation for publication in peer-reviewed journals:

1. Distribution of southern river otters (*Lontra provocax*) in Argentinean Patagonia.
2. Diet of southern river otters in freshwater and marine environments of Argentina.
3. Habitat requirements of southern river otters.
4. Distribution and impact of mink on the native fauna of Argentina.
5. Distribution of macro-crustaceans in Patagonia at different ecological scales.

Discuss any significant difficulties encountered during the year and steps taken to overcome them.

The main difficulty encountered during the year related to the administration of finances, including some delay in receiving money in Argentina, and an unavoidable need to make changes to the distribution of resources between budget items.

Has the design of the project been enhanced over the last year

The project design has been enhanced in several ways:

1. We have been able to expand substantially our analyses of dietary requirements, as a result of gaining access to very important sets of faecal samples through agreements with researchers of the National Parks administration.
2. We have also expanded our genetic analyses, to include a key set of faecal samples provided by the only team to have surveyed Isla de los Estados.
3. We expanded the scope of the first year's workshop, transforming it into an international meeting.
4. The two senior members of the Argentinean team (Dr. Cassini and Dra. Centrón) visited Oxford to meet with the Principal Investigator, Prof. Macdonald, and members of his team, the Wildlife Conservation Research Unit.
5. Financed locally, an additional survey was conducted in Tierra del Fuego between January and February 2006. This survey was undertaken because our analyses of data from the previous field

session suggested that it might be worth searching two additional areas for otter signs. This survey was extremely worthwhile because we found signs of otters in new areas, indicating substantially greater population dispersal than previously thought.

6. We have expanded our collaborations to include members of the most important research institute in southern Patagonia, the Centro Austral de Investigaciones Científicas (CADIC).

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

Between May 2006 and August 2006, we will complete the remaining data analysis for the project. Two students will defend their theses, and two others will submit theirs.

From May 2006, we will also begin planning the second workshop. This will take place in October 2006 at Bariloche, a major city in Argentinean Patagonia. The majority of stakeholders involved in otter conservation and mink control in Patagonia will be invited to attend / participate. The workshop will be organised in collaboration with the National Parks Administration. A new student, 'Technician in Environmental Information', will be selected and trained to help in the organisation of the workshop and will use that work as the content of an undergraduate thesis.

After the workshop, until the end of the project, we will be involved in the production of an Action Plan, to provide guidelines for a management programme, in agreement with the relevant authorities.

Throughout the year we be will dedicated to disseminating our results through the production of scientific manuscripts for publication.

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

The reviewer was very positive regarding our first annual report. We have acknowledged their useful point that mink might predate on neonate otters. The main query raised by the reviewer related to our internal monitoring arrangements. The various members of the team maintain regular, fluent communication via email, e.g. between Prof. Macdonald (the Principal Investigator) and Dr. Cassini (the project leader in Argentina), between Dr. Cassini and the diverse collaborators that have joined the project over the last two years in both Argentina and Chile, and between Argentinean partners that work in separate teams. Internal monitoring was reinforced efficiently during a visit to the UK by the two senior scientists from Argentina, Dr. Cassini and Dr. Centrón. During this trip, Prof. Macdonald and other members of the Wildlife Conservation Research Unit had fruitful meetings, as well as informal discussions, with Dr. Cassini and Dr. Centrón. The efficiency of internal monitoring is implicit in the large quantity of results achieved in the first two years of this project.

6. Partnerships

The collaboration between WildCRU, University of Oxford and PROFAUNA has worked very smoothly. Regular email contact has allowed us to keep each other informed of progress and to develop plans. No difficulties or unforeseen problems have arisen. Dr. Cassini and Dr Centrón's visit to WildCRU's new headquarters at Tubney House, just outside Oxford, was very important in reinforcing the links between our institutions.

We are collaborating with several organisations involved in biodiversity conservation, including the Argentinean National Parks Administration (the main organisation involved with protected areas in the country), the CODEFF (an NGO from Chile that is involved in otter conservation there) and several academic organisations with specialists conducting research on conservation biology, such as the University of Comahue, or the CADIC from the Argentinean Research Council.

7. Impact and Sustainability

We will be in a position to assess the full impact of our project after publication of our results. However, we have made some progress related to dissemination, as already described. Probably the largest success in terms of the impact of the project, during the last year, was obtaining the cooperation of the National Parks Administration (NPA) authorities and guards. The NPA is the main institution related to protected area management and biodiversity conservation in Argentina, and we successfully involved key members of the NPA in various different aspects of the project. Guards are systematically searching for otter signs and NPA technical support personnel are collaborating closely with us, and even donating their samples and data sets.

The exit strategy will be defined next October, during the final workshop - from which the action plan and the monitoring programme will emerge. We will also apply for a two-year extension of the project, to conduct intensive surveys of the new areas in which we discovered otter activity. This will enable us to analyse the impact of coastal habitat deterioration on otter abundance, and to organise a plan to protect at least some areas, that are presently occupied by the species but are not within National Parks.

8. Outputs, Outcomes and Dissemination

We adhered to the original Project Implementation Timetable, and all planned Project Outputs (see Table 1) were accomplished, with some improvements and addtional outputs, as described earlier:

1. More students were trained. During the first year, two students (Marcelo Bello and Leonardo Leggieri) gained field experience, and three students started honours projects (Lic. Laura Fasola, Ana Cecilia Gozzi and Juan Muzio). Two of these students submitted their theses in the current year of the project. Also during the current year, three more students were incorporated into the project. Carolina Blügermann and Benjamín Ramirez gained experience in genetic work, and Leonardo A. Di Franco gained experience in GIS work. A sixth student will be incoporated in the third year.

2. The planned small meeting was transformed into an international workshop.
3. Dissemination was originally programmed to take place mainly in the third year (post data collection and analysis). However, we have already achieved additional dissemination in the form of two web pages, a project calendar (1000 copies), 2 items in local newspapers and 2 papers submitted to a local scientific meeting.

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

Code No.	Description	Year 1 Total	Year 2 Total	Total
1A	Theses submitted		2	
4a	8 students were trained	5	3	
4b	Training hours	32	136	
7	Items of training materials for student training	2		
10	Field guide on monitoring techniques		1	
12	Computer based databases		3	
11	Publications with GENBANK		2	
14a	Think Tank meeting with stakeholders and a Chilean-Argentinean workshop	1	1	
14b	2 papers submitted to the Argentinean Ecological Meeting		1	
15	2 articles in local newspapers		2	
16	1000 calendars promoting otter conservation		1	

Table 2. Publications

Type *	Detail (title, author, year)	Publishers (name, city)	*Available from*
Internet publication	*Parques halló huillines en el río Limay '* El Ciudadano' (2006)	El Ciudadano (Bariloche)	*http://www.elciudadanobche.com.ar/*
Internet publication	*Larga vida al huillín* Newspaper 'Noticias de Bariloche' (2006)	Noticias de Bariloche, Bariloche	*http://www.barilochee2000.com*
Internet publication	*Lontra provocax* ***cytochrome b*** *gene, partial cds; mitochondrial* Centron,D.,Ramirez,B.A.,Castaneda,N. C.,Tunez,J.I., Chehebar,C., Malmierca, L.,Macdonald, D. and Cassini, M.H (2006)	GenBank	*http://www.ncbi.nlm.nih.gov/BLAST/Blast.cgi*
Internet publication	*Lontra provocax* ***D-loop****, partial sequence; mitochondrial* Centron,D.,Ramirez,B.A.,Castaneda,N. C.,Tunez,J.I., Chehebar,C., Malmierca, L.,Macdonald, D. and Cassini, M.H (2006)	GenBank	*http://www.ncbi.nlm.nih.gov/BLAST/Blast.cgi*

9. Project Expenditure

Table 3: Project expenditure <u>during the reporting period</u> (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate which document you refer to if other than your project schedule)	Expenditure	Balance

Expenditure on travel and subsistence came to £4,321 against a budget of zero for this category, producing a variance under this category of 10% of the total budget. Travel and subsistence was not budgeted for in year 2 because fieldwork was planned to finish by March 2005 (year 1), however the field vehicle was involved in an accident that month, so fieldwork was postponed until May 2005 (year 2). The remainder of the £4,321 expenditure on T&S constituted Dr Cassini and Dr Centron's trip to the UK in September-October 2005. This visit was made to facilitate internal monitoring of the project and planning for the final year.

10. Monitoring, Evaluation and Lessons

The purpose of this project is to protect vertebrate biodiversity in the Andean-Patagonian region of Argentina by reducing the impact of invasive American mink and by facilitating the range expansion of endangered native otters in National Parks. Although data analyses are still in progress, preliminary results suggest very important contributions towards this goal. In summary, these contributions are:

1. Our new data have increased the information upon which the conservation status of *L. provocax* may be based (their status seems to be better than previously thought). It is possible that IUCN should change the species' conservation designation from 'endangered' to 'vulnerable'.
2. Our new data suggest that the conservation status of the other Patagonian otter *L. felina* in Argentina is worse than previously thought.
3. The distribution of American mink has expanded. Their impact on native wildlife, mainly freshwater birds, appears to be of concern in watercourses that do not provide sufficient alternative foods in the form of macro-crustaceans.

4. In contrast, our results suggest a significant impact on marine environments. Mink have initiated the expansion of their marine distribution towards Chile, where the most important population of *L. provocax* is located, and with which it may be competing. It is possible that mink predate upon neonate otters.
5. We identified, for the first time, that fish are an important food source for otters during winter. Large freshwater basins fulfil these requirements but are currently inaccessible to otters (see Appendix II). These basins are potentially suitable locations for otter reintroductions.

We have developed contacts with national and local institutions responsible for wildlife conservation in the areas where *huillin* are distributed. Representatives from these institutions will be invited to the October workshop in Bariloche. We are confident that the workshop will provide an excellent opportunity to develop an effective action plan, using our scientific results as a baseline, and through interaction with stakeholders.

11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum)

■ **I agree for ECTF and the Darwin Secretariat to publish the content of this section**

This project has produced very important and concrete findings in relation to the conservation of the southern river otter and, more generally, to the biodiversity of Patagonia. We considerably expanded the surveyed area that was originally proposed, covering the entire Andean-Patagonian region. We discovered that otters presently occupy a significantly larger area in Argentina than was thought before our study. This area exceeds the threshold at which the IUCN considers a species at risk of extinction. Additional research would need to be conducted to confirm the limits of distribution and trends in local abundance, and an action plan needs to be developed for protecting the species outside National Parks.

We have developed several new collaborations that significantly improve the scope of this project. One example is an agreement with a researcher from the Argentinean Research Council, who provided us with faecal samples collected in 1995 from a remote island at the very south of Argentina. By applying a new molecular method that we have developed, we were able to demonstrate that these samples correspond to *L. provocax*. This result was good news for our target species, but at the expense of the closely related *L. felina*, because there is almost no evidence of the presence of this marine otter in Argentina.

We have also supplied evidence that there are at least two different genetic stocks of *L. provocax* in Argentina, one with substantially less genetic variability than the other, although it occupies a larger area - probably as a result of a population bottleneck.

We discovered that mink have invaded the Andean-Patagonian region of Argentina at an incredible speed, occupying 23400 km^2 in only 30 years. The main concern with mink is their impact on native bird species. We found that mink impact on birds is dependent on the availability of an alternative prey:

macro-crustaceans. Mink control should be reinforced in places or periods when crustacean populations decrease. We discovered that mink have invaded the marine coast and that they use otter burrows there. This is the main, and an unexpected, threat from mink to otter populations.

We expanded a planned local workshop into an International meeting (which we then co-organised) on the species in Chile. We are editing a Chilean-Argentinean book on *L. provocax*.

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
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 • 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			
Purpose *(insert original project purpose statement)* To protect the vertebrate biodiversity of Argentina's Andean-Patagonian region by reducing the impact of invasive American mink and by facilitating the range expansion of endangered native otters in National Parks.	**New knowledge** regarding which factors limit otter population expansion and how mink impact on vertebrate diversity. Identification of key sites for otter reintroductions and mink removal by yr 2. **Increased capacity** for researchers, wildlife managers and Park wardens to implement effectively otter reintroductions and mink removal. Permanent monitoring of otter status and mink impact by yr 3. Ultimately**, expansion of otter population numbers** and distribution range and concomitant **reduction of mink.**	We have achieved all the planned targets for yr 2, as described in detail in the main report and appendices.	We have improved substantially on the previously existing knowledge on the conservation status of the Patagonian otter. This provides a good basis for developing the action plan. We also obtained important new information of the main impacts of American mink on native Patagonian wildlife.
Outputs			

Training of future Argentine biologists and managers and wardens of National Parks of Patagonia. T Education of stakeholders, policy makers via workshops/Think Tanks.	*(insert original output level indicators)* 5 (3, undergraduate theses), 8 (4a&c) receiving 32 (4b&d). 4 (7), workshops with 20 (6A) receiving 20 (6B).	We completed fieldwork and most of the data analyses. Two students have finished their theses.	Data analyses have provided a clear baseline for planning the future conservation of otters and control of mink.
Action plans and other research products for the conservation of vertebrate biodiversity in Patagonia. Academic output.	2 (9) on otter conservation & mink control, 1 (10) on monitoring, 3 (12) on mink, otter and prey distribution. 7 (11), 7 (14).	The action plan will be produced in yr 3. A book on otters will be completed in May. Several articles are being prepared for publication.	
Several methods of result dissemination.	3 (*15*), 1 (*16*), 1 (*18*), 2 (*19*).	We have produced articles in newspapers and other dissemination products as described in detail in this report.	
Organisation of a permanent monitoring scheme.	1 (20) on mink impact and otter distribution.	The monitoring scheme will be developed during yr 3.	

Note: Please <u>do NOT expand rows to include activities</u> since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.