Darwin Initiative Annual Report

Darwin Project Information

Project Ref Number	15/025
Project Title	Capacity building for biodiversity studies of freshwater insects, Argentina
Country(ies)	Argentina
UK Contract Holder Institution	Natural History Museum, London
UK Partner Institution(s)	None
Host country Partner Institution(s)	Museo de Ciencias Naturales de La Plata (UNLP) Centro Regional Universitario Bariloche (UNC) Administracion Parques Nacionales (APN) Universidad de la Patagonia, Esquel, Chubut (UNP) Agency Catedral Turismo (ACT)
Darwin Grant Value	£178,880
Start/End dates of Project	1 September 2006 – 31 August 2009
Reporting period (1 Apr 2006 to 31 Mar 2007) and annual report number 1	Reporting period 1 Apr 2006 to 31 Mar 2007 Annual report number 1 (covers the first six months of the project)
Project Leader Name	Stephen Brooks
Project website	In development
Author(s), date	S. Brooks, G. Spinelli April 2007

List of Abbreviations

APN Administracion Parques Nacionales

ACT Agency Catedral Turismo

CONICET Consejo Nacional de Investigationes Cientificas

GIS Global Information Systems

ILLP Instituto de Limnologia, La Plata

NHM Natural History Museum, London

NHNP Nahuel Huapi National Park

UNC Centro Regional Universitario Bariloche

UNLP Museo de Ciencias Naturales de La Plata

UNP Universidad de la Patagonia, Esquel, Chubut

1. Project Background

The freshwater insect biodiversity of Argentina is threatened by human impacts. Even in National Parks increasing pressure from tourism poses a threat. At present, the freshwater insect fauna is poorly known and knowledge is constrained by a lack of adequate identification guides and reference collections. In addition, there is poor public understanding of the importance of wetlands for biodiversity and providing basic human needs. Our project will address this need by: (a) building infrastructure in the Nahuel Huapi National Park, which has been identified as one of the most important conservation areas in Argentinean Patagonia; (b) providing a wetland interpretation centre where tourists, sport fishermen, students and researchers will be able to study freshwater insects and understand their role in freshwater ecosystems; (c) developing identification guides, reference collections and an inventory of freshwater insects for the National Park.

The Nahuel Huapi National Park (NHNP) is a biodiversity hotspot in northern Patagonia (Fig. 1) where Sub-Antarctic rainforest meets Valdivian rainforest. These forests are isolated from other similar forests within South America by orographic and climatic barriers. As a consequence, they have evolved a rich and largely endemic biota. In addition, NHNP includes the ecotone between temperature montane rainforest and arid steppe which further increases the biodiversity of the region. Consequently, NHNP contains a wide diversity of wetland habitats (Fig. 2). This pristine area is ideal for biodiversity and conservation studies. The area attracts many national and international tourists including eco-tourists, sport fishermen and skiers and the National Park Authority (APN) is concerned about the impacts of increased tourist pressure and climate change on these ecosystems. There have already been some studies of the terrestrial elements of the biota but little is known about the freshwater insects, so baseline data is essential. The Puerto Blest field station, situated in the heart of the Andean forest near Bariloche, was built by Universidad del Comahue in 2005 (Fig. 3) but needs equipping to be fully functional. It is the goal of this project to develop Puerto Blest field station into a centre of excellence for the study of freshwater ecosystems, the taxonomy of freshwater insects and the interpretation of wetland ecosystems.

There is currently poor knowledge of the regional fauna and flora of NHNP and the area is inadequately mapped so the full extent of wetlands is unknown. The project will provide an infrastructure for the collection of freshwater insect biodiversity data and vegetation associations. This data is essential because of the increasing pressure of tourism and fishing in the NHNP area. The current lack of awareness of conservation issues in local communities will be addressed by the training programmes and interpretive material that will be available at the field station. These are prerequisites for the conservation of Patagonian wetlands.

The project will provide a detailed database of freshwater insects from NHNP. The species distribution data will be linked to a vegetation classification using GIS and digital imaging to model freshwater insect data spatially and create a biodiversity data repository, the first of its kind in Patagonia. A fully curated synoptic reference collection of freshwater insects from NHNP will be established at the Puerto Blest field station for use by student classes. The remaining material will be deposited in the Natural History Museum, London (NHM) and Museo de Ciencias Naturales de La Plata (UNLP) and will be used to develop identification guides to freshwater insects of the region. These guides will be multi-tiered from technical keys to simple identification charts for use by visitors to the park, sport fishermen and community groups. These latter products will be used to generate interest in wetland conservation in local communities. The field station will be developed for use as an interpretive centre for wetlands promoting the value and sustainable use of wetlands to non-specialist visitors to the park. The centre will be equipped with microscopes, PCs and necessary infrastructure for its use by students from schools and universities to carry out research projects and learn about wetland biodiversity. Results will be disseminated through scientific publications, a dedicated website, reports to DI, posters and simple foldout identification charts, local and national media.

Figure 1. Sampling localities in central part of Nahel Huapi National Park, Argentina. See Annexe 4 for full list of sampling localities.

Figure 2. Typical wetland habitats in the central part of Nahuel Huapi National Park, Argentina (late October 2007). Clockwise from top left: lowland lake Los Juncos (10) in the dry Steppe; mid-altitude lake Lago Verde (8); river in temperate rainforest near Puerto Blest (1); Lago Mascardi (4). Numbers in brackets refer to sampling locations indicated on map.

Figure 3. Puerto Blest, Nahel Huapi National Park, Argentina (late October 2007). Clockwise from top left: Puerto Blest field station (exterior); Puerto Blest field station (interior) reception room prior to fit out; training field assistants; project team.

2. Project Partnerships

The lead UK institution is the Natural History Museum, London (NHM). Three staff are involved: Stephen Brooks (project leader, specialist in Chironomidae, Odonata, Ephemeroptera and Plecoptera), Luis Hernandez (specialist in Simuliidae) and Malcolm Penn (specialist in GIS and forest botany).

The lead institute in Argentina is Museo de Ciencias Naturales de La Plata (UNLP). Two staff are involved: Gustavo Spinelli (host country leader, Ceratopogonidae specialist), Mariano Donato (specialist in Chironomidae). In addition, three post-graduate students are working on research projects directly involved with this project. Three staff are employed on the project, using Darwin Initiative funds. Dr Julieta Massaferro is coordinating the project on the ground and has two field assistants (Fernanda Montes de Oca and Analia Garre) who are receiving training in field techniques, collection management and taxonomy. These staff are line-managed by Brooks and Spinelli.

Other Argentinean institutes involved include Universidad de la Patagonia, Esquel, Chubut (UNP). From here Dr Miguel Archangelsky coordinates work on Coleoptera and Pablo Pessaq is working on Ephemeroptera and Plecoptera. Dr Javier Muzon (specialist in Trichoptera and Odonata) from Instituto de Limnologia, La Plata (ILLP), is also actively involved in the project and is supervising one of the project field assistants (Analia Garre) who is registered for a PhD. Other key partners include Administracion Parques Nacionales (APN) who provide logistical support for fieldwork and Centro Regional Universitario Bariloche (UNC) who own and manage the Puerto Blest field station.

All the project partners are working closely together and are in frequent e-mail contact. All project partners met initially in October 2006 at the Puerto Blest field station. A subsequent meeting in London between NHM participants, Massaferro and Spinelli took place in April 2007. Darwin Initiative resources have enabled UNC to fully equip the Puerto Blest field station so it can now function as a wetlands interpretive centre. The project is providing infrastructure for training of post-graduate students from UNLP and UNP in freshwater insect taxonomy and ecology. The project is also providing infrastructure for the expansion and development of freshwater insect collections at UNLP. While in London in April 2007 Massaferro and Spinelli received training in GIS techniques. Purchase of appropriate software using project resources will enable them to pass on this expertise to colleagues in Argentina. Darwin Initiative resources have also enabled us to buy the full range of fieldwork equipment necessary to sample multiple sites.

The partners are working well together and all are fully committed to the project. The team is well rounded and provides a broad spectrum of relevant expertise. The partners have good links to the relevant and appropriate authorities in Argentina and as a result have received excellent cooperation whenever requested.

The project partnership has developed well over the first six months of the project. In particular, strong relationships have developed between NHM, UNLP and ANP. Taxonomists at UNLP have been fully engaged in the field work programme, have been active in studying the material collected and have encouraged the participation of several post-graduate students in the project. ANP have also been supportive. They have provided office and laboratory space in their headquarters at Bariloche for the project employees, and logistic support for the field work, by assigning park rangers to assist with transport and encouraging training for rangers in field collecting and identification skills. ANP have also provided resources to enable us to publicise the project and disseminate field guides and information about courses the project is running to school children, college students, fisherman and tourists. CONICET are fully behind the project and have agreed to provide printing costs for materials we wish to produce (e.g. posters, field guides) and they will disseminate information about public meetings, courses and other activities. We have also developed our relationship with Agency Catedral Turismo (ACT) who have provided free ferry transport to all project participants between Bariloche and the Puerto Blest field station. We have made new links with the University Mar del Plata, Buenos Aires, from where Massaferro and Donato will be running a newly developed training course on chironomid taxonomy and ecology. We have established contacts with Dr Maria Pacha who is working with the Argentinean partner of WWF.

The project partnership has supported host country institutions to build capacity to meet CBD commitments by providing resources to equip the Puerto Blest field station as a wetlands study and interpretive centre, by training students to collect and identify freshwater insects, and by providing baseline information about the distribution of freshwater insects in NHNP to ANP.

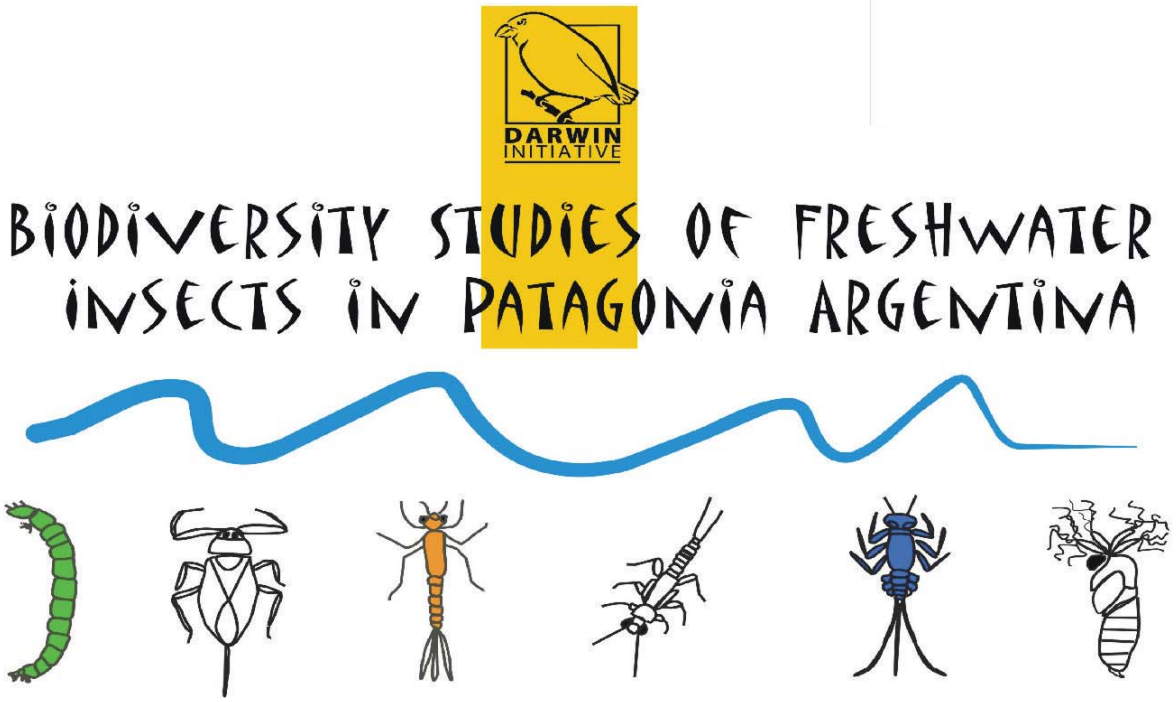
3. Project progress

3.1. Progress in carrying out project activities

Media coverage/publicity

We have actively promoted the project and as a result we have has generated considerable media interest. A full list of media articles appears in Annexe 5. We have designed a logo (Fig. 4) which we have printed on T-shirts worn by project partners while working in the field and will be used on the project vehicles and on all communications, posters and information boards. We are planning to produce a calendar which will feature the logo and images of wetlands and freshwater insects and will promote the conservation of wetlands and the project.

Figure 4. Project logo.



Newsletter

A newsletter has been posted on the CONICET website.

First workshop

The first project workshop involving all partners and staff took place between 16-30 October 2006. The three NHM staff first travelled to Buenos Aires where we met Spinelli, Donato, Muzon and Massaferro at UNLP. We were introduced to Dra S. Ametrano, Director of UNLP, who gave her full support to the project and showed us the large area that had been allocated in the UNLP to store the material generated during the project. We then travelled to Bariloche and Puerto Blest where we met all the other participants in the project. In addition, at a specially convened meeting at the Puerto Blest field station, we met many students and research staff from UNC who will be using the field station and our results. In particular, we were made very welcome by Susana Seijas, Coordinator of Environmental Programmes within APN, who offered and provided us full support for field work logisitics. At the workshop we agreed strategies for fieldwork, laboratory analysis, collections curation, training programme, publications and media campaign. We also visited and sampled a cross section of potential sampling sites in the central part of NHNP.

Training staff (entomological techniques, databasing, digital imaging)

The three staff employed on the project have received full training in field sampling techniques, specimen rearing from larvae to adult stages, collection sorting and preservation, collection curation, and databasing. Digital imaging equipment has only recently been purchased and installed so training in this technique has been postponed for a few weeks and will take place by the end of June 2007.

Equipment purchases

All capital equipment has now been purchased (for a breakdown see Annexe 3). The Puerto Blest field station is now fully functional and equipped with furniture (including desks, tables, chairs and beds) and laboratory equipment (including microscopes, storage cabinets, computers, multimedia, glassware, preservatives and a digital imaging facility). It has already

been used extensively by the project and by visiting researchers from UNC. A project office has been established in ANP headquarters in Bariloche and has been furnished and equipped with computers and communications. In addition, a project office and laboratory has been set up in UNLP. A large amount of field equipment (for a breakdown see Annexe 3) has been purchased including a vehicle, which has been supplied with a Darwin Initiative logo, collecting equipment, GPS and meters for water analysis. Maps, satellite images and software have been purchased for GIS.

Field work, collection development

In order to collect adult and larval stages of freshwater insects a wide range of collection techniques have been employed. These include kick sampling in fast flowing water, sweep netting in slow or standing water, drift netting, malaise trapping, light trapping, pitfall trapping, and sweep netting for adults in bushes.

A field work strategy has been devised to maximise the diversity of sites from which to make collections. Sites are being sampled throughout NHNP covering all climatic gradients. All types of standing and flowing waters are being sampled on a seasonal basis, and several samples from each site are taken from all available microhabitats. All the various sampling methods are employed at each sampling site. During the first year's field campaign (November to March) we have focused on the central region of NHNP. In the second year the northern part of NHNP will be sampled and in the third year the southern part of NHNP will be sampled.

The field work season is between November and March. The material collected actively in the field is rough sorted at Order level in the field. Fine sorting, sorting of trapped material, and species level identification will mostly take place during April to October. The first year's field season has already generated a large amount of material.

3.2 Progress towards Project Outputs

Inventory of freshwater insects. The first field season is now complete. Large numbers of adult and larval insects have been collected from all orders from wide range of habitats (Fig. 1). Many larval stages have been reared thorough to adults in the laboratory. Preliminary identification has started for all groups. The main thrust for species level identification will take place from April – October 2007. Simuliidae and Chironomidae larvae are being processed in London, the remaining material will be processed in Argentina. As species distribution data emerges it will be added to the database.

Staff training. Staff employed on the project have been trained in sampling, rearing and preparation techniques. Basic-level taxonomy training has also been completed, so the field assistants are able to sort accurately specimens to Order and where appropriate to family-level, prior to material being sent to specialists for species-level identification. Basic GIS training of Spinelli and Massaferro was completed during their visit to London in April 2007. They will return to Argentina with software and pass on their knowledge. Training in collections maintenance has not yet started but will begin in May 2007 as material starts to accumulate. One of the field assistants, Fernanda Montes de Oca, has registered for and begun work on her *Tesina* (similar to BSc) on Simuliidae. She will be supervised by Hernandez. The other field assistant, Analia Garre, has presented a proposal for a PhD thesis on Odonata and will be supervised by Muzon.

Following their training, the Field Assistants have trained three ANP rangers and four students working voluntarily for ANP, in field work techniques. Spinelli has three PhD students working on Ceratopogondae and has submitted a proposal for another PhD studentship to work on Ceratopogonidae and Chironomidae.

Identification guides. A simple entry-level guide to Patagonian freshwater insects has been written and is ready for printing by CONICET. The guide will be disseminated to schools in the Bariloche area.

Equip field station. All capital equipment purchased and installed (listed in Annex 3).

Training courses. Student-level courses will be developed later in the project but courses on basic identification of freshwater insects have been organised for sport fisherman and ANP Rangers. The tutors will be Massaferro, Pasque and the Field Assistants and are due to take place in July. School visits have been planned by Massaferro and the Field Assistants. A new course on Chironomidae has been developed by Massaferro and Donato and will be held at the University Mar del Plata. While on field work the staff have taken the opportunity to give informal presentations to tourists being taken on guided walks to explain their work and why they are doing it.

Freshwater insect collections. The collections are in the preliminary stages and will be further developed over the next six months. Storage cabinets and drawers have been purchased. A curation strategy has been developed and agreed on standardisation of tubes, slides, storage jars, and drawers. Space for the collection has been allocated in UNLP. Cabinets are colour-coded to indicate material that has been collected during this project. All specimen labels have a special project code. A database containing images of collecting sites is being compiled.

Freshwater monitoring programmes. At this stage in the project it is too early to develop volunteer freshwater monitoring programmes. However, the concept is being introduced on courses being given to schools and park rangers.

3.2. Standard Output Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
Established codes						
4C	Number of postgraduate students receiving training	6				
4D	Number of training weeks	8				
8	Number of weeks spent by UK project staff on project work in host country	6 man weeks				
11	Number of papers published or submitted to peer reviewed journals	3				
14	Workshop	1				
15	Number of national press releases in host country	5				
16	Number of newsletters	1				
19	Number of radio interviews in host country	1				
20	Estimated value of physical assets	£20,000				

	handed over to host country					
22	Number of field plots sampled	65				
New - Project specific measures	Number of websites with pages on the project	7				
	Number of courses organised by project members	1				

Table 2 Publications

Spinelli, G.R., P.I. Marino & P. Posadas. 2006. The patagonian species of the genus *Atrichopogon* Kieffer, with a biogeographic analysis based on Forcipomyiinae (Diptera: Ceratopogonidae). Insect Systematics and Evolution, Copenhagen, 37: 301-324.

Cazorla, CG and GR Spinelli. A new species of Patagonian *Stilobezzia* (*Acanthohelea*) and a redescription of *S*. (*A*.) *nigerrima* Ingram & Macfie (Diptera:Ceratopogonidae). Submitted to Trans. of the Am. Entomol. Soc

Von Ellenrieder, N & J Muzon. 2006. The genus *Andinagrion*, with description of *A. garrisoni* sp. nov. and its larva from Argentina (Zygoptera: Coenagrionidae). International Journal of Odonatology **9** (2) 2006: 205-223

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £ (if applicable)

3.4. Progress towards the project purpose and outcomes

The purpose level assumptions hold true and indicators are adequate to measure outcomes. The project is on track to deliver the outcomes.

3.5. Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The project is contributing to the strategic goals of ANP by providing baseline data on freshwater insect diversity and distribution. Information provided to schools, tourists and sport fishermen promotes an appreciation of the importance of wetlands and encourages their sustainable use.

4. Monitoring, evaluation and lessons

Progress of the project is monitored and evaluated as follows:

1. NHM annual performance review of UK participants

2. Darwin Initiative biannual reporting requirements

3. Biannual meetings in Argentina and UK between UK and Argentinean partners

4. Consolidated monthly progress reports of UK and Argentinean co-ordinators distributed to all partners

5. Regular communication between partners via e-mail and telephone

Indicators of achievements: The project has generated much media interest (Annexe 5). Now the field station is fully furnished and equipped it is already in frequent use. The project is being enthusiastically supported by ANP, UNLP, and CONICET (who have provided web space for the project). The project has also generated interest from tourists and local users of the park, fishermen and local schools. We have been contacted by other Argentinean universities who would like to collaborate in the project. The first season of field work has generated a large amount of material which is now stored at UNLP and NHM. Three papers have been published or submitted for publication in peer-reviewed scientific journals on work directly related to the project.

Problems: One problem that we had not foreseen is that it is expensive to import equipment that has been purchased outside Argentina. Import duties are nearly as expensive as the amount it costs to purchase the equipment. However, much of the specialist collecting equipment is not available inside Argentina and so has to be imported. An additional problem is the long time (up to two months) after import before customs will release the equipment. It has also proved expensive to use a credit card in the country and there is a high cost for money transfer between UK and Argentina. Some items have been difficult to purchase in Bariloche, so we have often needed to purchase things in Buenos Aires and transport them by car to Bariloche.

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

N/A

6. Other comments on progress not covered elsewhere

It has not proved necessary to alter the design of the project.

No particular risks have emerged.

7. Sustainability

The project is well-known within Argentina. We have been actively promoting our work and have achieved national media coverage and a prominent website presence. The project is well known within the science community and with the public and we have been receiving frequent enquiries about what we are doing. Our work has increased the interest in wetlands within APN who have already diverted significant resources to support the project, including rangers, vehicles and accommodation. The office space made available at APN headquarters for project personnel will continue to be available after the end of Darwin Initiative funding. The two assistants currently employed on the project will register for PhDs on themes directly associated with the work of the project. UNC is beginning to receive bookings from people

wishing to use the field station as a base for study within NHNP. Revenue generated from these bookings will help to maintain the viability of the field station into the future. UNC staff are currently developing courses that will be based at the field station for graduate and undergraduate students. The field station is owned by APN and there is a management agreement with UNC who will continue to run the field station beyond the end of the Darwin Initiative project.

The Director of UNLP is very supportive of our project and has provided permanent space and housing for collections generated from the project. Staff at UNLP will continue to work and publish on this material beyond the end of Darwin Initiative funding. In addition, three students have already registered for PhDs to work on this material and other studentships are being planned.

CONICET continue support the project by printing materials and providing space on their website. They have committed to continue this support after the end of Darwin Initiative funding.

8. Dissemination

Information about the project is being disseminated through various media (Annexe 5).

Websites. Details of the project have been featured on the following websites: CONICET, University of Argentina, UNLP, NHNP, University of Misiones, Aimdigital electronic newspaper.

Printed media. Five articles, features and interviews have appeared in the Argentinean national newspaper *Hoy* and in the local newspapers *El Cordillerano*, *Ecos del Parque*, *El Andino*.

Massaferro was interviewed on national Radio UNO by national celebrity ‘Pinky’ about the project.

T-shirts featuring the project logo are in production and will be worn on fieldwork by project participants.

A small desk calendar featuring the project logo and images of wetlands and freshwater insects in production and will be printed by CONICET.

9. .

10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

The Puerto Blest field station, in the Nahel Huapi National Park, northern Patagonia, is now open for business! Thanks to resources provided by the Darwin Initiative and the hard work, in particular, of Dr Julieta Massaferro and other members of the project team, the field station is now fully equipped and available for use by field biologists and groups of students. Puerto Blest field station is situated in Andean temperate rainforest and is one hour away by ferry from the town of Bariloche, Argentina. The field station has been fitted out with a laboratory, a dormitory, a kitchen and a meetings room and is ideally placed for biodiversity studies in the ecotone between Subantarctic and Valdivean rainforest and the dry steppe.

During the first six months, the project has attracted considerable media attention. The Argentinean and British members of the project team (from La Plata Museum and Esquel University in Argentina, and the Natural History Museum, London, with the support of the Argentinean National Park Administration) have already begun to sample and catalogue the diversity of freshwater insects in the Nahel Huapi National Park. Over 50 localities in the central region of the park have been sampled using a wide variety of collecting methods and initial sorting of this material has begun.

Fulfilling a central aim of the project, National Park Rangers have been trained in sampling and basic identification skills of freshwater insects, and a similar course is planned for sport fishermen. The courses are supported by a simple identification guide to freshwater invertebrates, the first of its kind for Patagonia, which is currently in press. Two field assistants employed on the project have been fully trained and are registered for higher degrees. In addition, three PhD students based at La Plata Museum are associated with the project.

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

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2006/07

Project summary	Measurable Indicators	Progress and Achievements April 2006 - March 2007	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 constrained 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*			*(do not fill not applicable)*
Purpose To develop capacity in northern Patagonia for the identification, surveying, monitoring and mapping of freshwater insects.	Infrastructure for study of freshwater insects and interpretative centre focussing on wetland ecosystems established at Puerto Blest	Puerto Blest field station is now equipped with furniture and laboratory equipment. It has already been used by project personnel during fieldwork and UNC staff	
Output 1. Inventory of freshwater insects in the NHNP available on database	Database and website detailing distribution of freshwater insects	Insects sampled from 50 sites in central region of park. Further sites will be sampled from northern section of park in next field season (Nov 07 – March 08). Material collected during last field season will be sorted, identified and databased during period April – Oct 2007.	
Activity 1.1			
Activity 1.2,			

Output 2. Darwin-funded staff trained in freshwater insect taxonomy, sampling methods, GIS, collections maintenance.	Darwin-funded staff trained. Engaged in sampling, identification, databasing, developing interpretative material.	Training of staff complete. Staff engaged in sampling, identification, databasing and developing interpretative material. This activity will continue throughout the next period.
Activity 2.1.		
Activity 2.2.		
Output 3. Specialist and non-specialist guides to Patagonian freshwater insects.	Identification guides available and widely disseminated.	Simple guide to freshwater invertebrates for non-specialist audiences ready in draft form. Progress on more technical guides will be made later in the next period when species list start to accumulate
Output 4. Establishment of Puerto Blest field station as centre for studying freshwater insects and freshwater ecology.	Puerto Blest regularly used by students, specialists, community groups and tourists to learn about wetlands.	Puerto Blest is ready to accommodate student groups and has been used. The field station will be open to community groups and tourists when interpretive material has been produced later in the project.
Output 5. Training courses for students, Park Rangers local groups, fishermen in freshwater monitoring, surveying and insect identification	Groups involved in river monitoring, media interest and coverage to promote river monitoring schemes.	Training courses for Park Rangers local groups, fishermen in freshwater monitoring, surveying and insect identification have been organised and the first will be held on 7-8 June 2007. More will be planned for later in the project
Output 6. Freshwater insect collection established with accompanying taxonomic database,	Collections of freshwater insects accumulating, properly curated and stored, expandable database	Collections of freshwater insects are being stored and curated at UNLP. The collection will be databased as the material is identified in the next

GIS database, digital image archive.	operational.	period. GIS training is complete. Digital imaging equipment has been purchased and an archive of digital images has been begun.
Output 7. Freshwater insect monitoring programmes run by local communities established	Trained local people running monitoring programmes on local rivers	No progress. Local monitoring programmes will be established later in the project following the courses that have been planned for later this year.

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
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 benefits arising out of the utilisation of genetic resources**			
Purpose To develop capacity in northern Patagonia for the identification, surveying, monitoring and mapping of freshwater insects.	Infrastructure for study of freshwater insects and interpretative centre focussing on wetland ecosystems established at Puerto Blest	Puerto Blest field station equipped and in use as a base for field studies of wetlands	Continued national and institutional recognition of importance of freshwater studies to national conservation and biodiversity goals
Outputs Inventory of freshwater insects in the NHNP available on database	Database and website detailing distribution of freshwater insects	Database and website accessible, copy of inventory sent to Darwin.	Representative freshwater biotopes are accessible to surveyors.
Darwin-funded staff trained in freshwater insect taxonomy, sampling methods, GIS, collections maintenance.	Darwin-funded staff trained. Engaged in sampling, identification, databasing, developing interpretative material.	Reports sent to Darwin, NHM and La Plata University, training protocol published for wider dissemination.	Darwin-funded staff become familiar with diverse insect groups and have multi-tasking abilities.
Specialist and non-specialist guides to Patagonian freshwater insects.	Identification guides available and widely disseminated.	Copies of identification guides sent to Darwin and lodged in libraries of NHM and UNLP.	Taxonomy is tractable so species level keys can be produced within three years for all groups.
Establishment of Puerto Blest field station as centre for studying freshwater insects and freshwater ecology.	Puerto Blest regularly used by students, specialists, community groups and tourists to learn about wetlands.	Darwin informed of number of courses and visitors to Puerto Blest.	Support of field station by local Universities and local communities.
Training courses for students, Park Rangers local groups, fishermen in freshwater		Reports on number of courses established and	

monitoring, surveying and insect identification	Groups involved in river monitoring, media interest and coverage to promote river monitoring schemes.	people trained sent to Darwin.	Active participation by universities, Park Rangers, fishermen and local community groups in freshwater biodiversity projects.
Freshwater insect collection established with accompanying taxonomic database, GIS database, digital image archive.	Collections of freshwater insects accumulating, properly curated and stored, expandable database operational.	Accessible collections.	Local contribution of resources sufficient to maintain and house expanding collections and databases.
Freshwater insect monitoring programmes run by local communities established	Trained local people running monitoring programmes on local rivers	Report to Darwin on number of monitoring programmes in operation.	Continuing support of local projects by Argentinean partners

ANNEX 3. Capital equipment purchased

Description	Quantity	Where equipment housed
Compound microscopes LANDSAT	8	Bariloche lab, EBPB, La Plata lab
Stereo microscopes LANDSAT	9	Bariloche lab, EBPB, La Plata lab
Desktop PC PENTIUM 4/standard	5	Bariloche lab, La Plata lab, La Plata Museum
Notebook SONY VAIO	1	La Plata lab
Printers EPSON	2	La Plata lab, Bariloche lab
CAR Peugeot PARTNER van	1	Bariloche
Digital Imaging LEICA + software	1	La Plata lab
Digital camera OLYMPUS	1	Bariloche
Tent and camping equipment		Bariloche
Cabinets for insect collection	2	La Plata Museum
Furniture		La Plata lab, Bariloche lab and EBPB
GPS	2	Bariloche lab
Malaise traps	5	Bariloche lab
Light traps	5	Bariloche lab
Lab material		Bariloche and La Plata labs

ANNEX 4. Sampling localities in central part of Nahel Huapi National Park, Argentina

DARWIN SITES AND MAP LOCATION

SITES	COORDINATES	ALTITUDE	DATE	METHODS	MAP LOCATION
#1 Aº Temporario (Pto. Blest)	S-41º 1' 31.5'' W- 71º 49' 21.4''	ALT. 787 m	20/ X/ O6	Nets	#1
# 2 Cascada Piedras (Pto. Blest)	S- 41º 1' 9.6'' W- 71º 49' 32.7''	ALT. 850 m	20/ X/ O6	Nets	#1
# 3 Pozón Alegre (Pto Blest)	S-41º 1' 45.2'' W- 71º 48' 37.7''	ALT. 782 m	22/X/06 9/I/07	Kick sample, Sieve	#1
# 4 Challhuaco	S-41º 15' 30'' W- 71º 17' 0.6''	ALT. 1326 m	24/X/06	Light trap, Kick	#8
# 5 Río Ñirihuau St 1	S-41º 17' 35.5'' W- 71º 14' 23''	ALT. 1054 m	25/X/06	Light trap, Kick	#9
St 2	S-41º 17' 35.6'' W- 71º 14' 28.5''	ALT. 1048 m	19/I/07	Kick	#9
	S-41º 17' 35.1'' W- 71º 14' 26.3''	ALT. 1044 m	19/I/07	Malaise	

St 3	S-41º 17’ 22.5’’ W- 71º 14’ 8.5’’	ALT. 1023 m	20/I/07	Kick	#9
#6 Laguna Los Juncos .					#10
St 1	S-41º 3’ 33.8’’ W- 71º 0’ 10’’	ALT. 908 m	25/X/06	Kick, Nets	#10
St 2	S-41º 3’ 37.9’’ W- 71º 0’ 34.3’’	ALT. 906m	12/XII/06	Sieve, Nets, Malaise	#10
#7 Cascada Los Alerces	S-41º 22’ 48.6’’ W- 71º 43’ 59.4’’	ALT. 1058 m	26/X/06	Light trap, Simuliids attacking man	#3
# 8 Aº Alerce	S-41º 22’ 54.1’’ W- 71º 44’ 9.8’’	ALT. 757 m	26/X/06	Kick	#3
# 9 Pte. Rápidos	S-41º 21’ 39.5’’ W- 71º 33’ 44’’	ALT. 817 m	26/X/06	Simuliids attacking man	#3
# 10 Mallín Playa Negra	S-41º 21’ 39.5’’ W- 71º 34’ 12.6’’	ALT. 808 m	26/X/06	Sieve	#3
# 11 Aº Lloconto	S-41º 21’ 39.5’’ W- 71º 33’ 44’’		26/X/06	Kick	#3
# 12 Aº Cascada de	S-41º 7’ 49.7’’	ALT. 835 m	31/X/06	Kick	#3

Piedra	W- 71º 27’ 8.3’’				
# 13 Aº Blanco	S-41º 12’ 18’’	ALT. 921 m	1/XI/07	Kick	#2
St 1	W- 71º 49’ 14’’				
St 2	S- 41º 14’ 28.4’’		15/I/07	Kick, nets	#2
	W- 71º 44’ 12.6’’				
St 3	S- 41º 14’ 8.1’’		7/II/07	Malaise	#2
	W- 71º 46’ 58.5’’				
# 14 Río Manso Superior					
St 1	S-41º 13’ 59.7’’	ALT. 837 m	1/XI/06	KICK	#2
	W- 71º 45’ 46.2’’				
St 2	S-41º 14’ 28.4’’		16/I/07	Kick, Nets	#2
	W- 71º 44’ 12.6’’				
# 15 Aº Llum	S-41º 18’ 1.7’’	ALT. 816 m	3/XI/06	Kick,Nets.	#4
	W- 71º 30’ 40’’				
# 16 Aº Tuqueco	S-41º 16’ 28.4’’	ALT. 800 m	3/XI/06	Kick	#4
	W- 71º 30’ 55’’				
# 17 Aº Fresco	S-41º 16’ 12’’		3/XII/06	Kick	#4

# 18 Aº Ñireco St 1	W- 71º 30’ 38.8’’ ALT. 831m S-41º 13’ 2.3’’ W- 71º 21’ 23’’	ALT. 997 m	18/I/07	Kick	#7
st 2	S-41º 12’ 15.7’’ W- 71º 20’ 31.1’’	ALT. 1036 m	4/XI/06	Kick	#7
st 3	S-41º 11’ 51.9’’ W- 71º 19’ 40.5’’	ALT. 962 m	23/I/07	Kick, nets	#7
# 19 Laguna Llao-Llao	S-41º 2’ 57.6’’ W- 71º 34’ 00’’	ALT. 839 m	18/XII/06	Sieve	#11
# 20 Laguna Verde (Challhuaco)					#8
Estación 1	S-41º 15’ 38.3’’ W- 71º 17’ 52.2’’	ALT. 1526 m	10/XII/06	Sieve, nets, Malaise	#8
Estación 2	S-41º 15’ 35.7’’ W- 71º 17’ 51.8’’	ALT. 1525m	29/I/07	kick	#8
# 21 Aº Verde (Challhuaco)	S-41º 15’ 41.9’’ W- 71º 17’ 49.2’’	ALT. 1510 m	10/XII/06	Kick	#8

# 22 Manso medio La Cantera	S-41º 21’ 16’’ W- 71º 42’ 27.3’’	ALT. 764 m	11/XII/06	Malaise, Kick , Sieve	#2
# 23 Aº Blest (Prto. Blest.)	S-41º 1’ 24.8’’ W- 71º 49’ 21’’	ALT. 790 m	13/XII/06	Kick	#1
# 24 Aº La Araña (Prto. Blest.)	S-41º 1’ 18.3’’ W- 71º 49’ 0.5’’	ALT. 766m	13/XII/06	Kick, Nets	#1
# 25 Mallín La Cortadera	S-41º 0.5’ 13’’ W- 71º 48’ 26’’	ALT. 769 m	14/XII/06 8/I/07	Malaise, Kick	#1
# 26 Aº Colorado	S-41º 4’ 57’’ W- 71º 48’ 9’’	ALT. 755 m	14/XII/06	Kick	#1
# 27 Río Frias st 1	S-41º 2’ 10’’ W- 71º 48’ 31’’	ALT. 744 m	16/XII/06	Kick, nets	#1
st 2	S-41º 5’ 14.9’’ W- 71º 48’ 19.9’’	ALT. 843 m	8/I/07	Kick, nets	#1
st 3	S-41º 2’ 24.8’’ W- 71º 48’ 2.9’’	ALT. 788 m	3/II/07	Kick, nets	#1
# 28 Aº Las Turberas (camino a Prto. Alegre)	S-41º 2’ 24’’ W- 71º 48’ 27’’	ALT. 787 m	16/XII/06	Sieve, simulid larvae manual	#1
# 29 Aº Grande (camino a Prto. Alegre)	S-41º 2’ 21.6’’ W- 71º 49’ 27’’	ALT. 763m	16/XII/06 4/II/07	Kick, Malaise	#1

# 30 Mallín La Heladera					#1
St 1	S-41º 00’ 56’’ W- 71º 49’ 45.4’’	ALT. 878 m	15/XII/06	Malaise	#1
			7/I/07	Sieve, nets.	
St 2 La Heladera	S-41º 00’ 6.4’’ W- 71º 49’ 40.6’’	ALT. 859 m	7/I/07	Kick	#1
# 31 Mallín Los Patos (Challhuaco)	S-41º 15’ 32.9’’ W- 71º 17’ 50.3’’	ALT. 1020 m	10/XII/06	Malaise	#8
			3/I/07	Kick, nets	
# 32 Aº Callhuaco	S-41º 13’ 32.9’’ W- 71º 17’ 49.8’’	ALT. 1045 m	3/I/07	Kick, manual	#8
# 33 Lago Cántaros (Prto. Blest.)					#1
st 1	S-41º 00’ 23’’ W- 71º 49’ 19.4’’	ALT. 887 m	7/I/07	Sieve, nets	#1
st 2	S-41º 00’ 39.3’’ W- 71º 49’ 6.6’’	ALT. 695 m	13/I/07	Sieve, nets	#1
st 3	S-41º 00’ 34’’ W- 71º 49’ 19.7’’	ALT. 873 m	11/I/07	Sieve, nets	#1
# 34 Lago Frias					#1
st 1 Pto. Alegre	S-41º 2’ 44.5’’ W- 71º 47’ 56.4’’	ALT. 829 m	12/I/07	Kick	#1

st2 Prto. Frias	S-41º 4’ 44.1’’ W- 71º 48’ 28.7’’	ALT. 829 m	8/I/07	Kick	#1	
# 35 Aº Los Cántaros	S-41º 1’ 0.8’’ W- 71º 49’ 27.9’’	ALT. 784 m	9/I/07	Kick	#1	
# 36 Laguna Los Clavos	S-41º 2’ 48.6’’ W- 71º 49’ 33.9’’	ALT. 1194 m	5/II/07	sieve, Malaise	#1	
# 37 Aº Los Clavos	S-41º 2’ 25.6’’ W- 71º 49’ 28.9’’	ALT. 993 m	10/I/07	Kick	#1	
# 38	S-41º 1’ 34.4’’ W- 71º 48’ 55.7’’	ALT. 791 m			#1	
# 39 Estación Biologica	S-41º 1’ 31.5’’ W- 71º 49’ 21.4’’	ALT. 787 m	11/I/07	Light trap, nets	#1	
# 40 Charca Alegre (Camino a Prto. Alegre)	S-41º 2’ 32.9’’ W- 71º 48’ 3.5’’ ALT.	ALT 780 m	12/I/07	sieve, Malaise	#1	
# 41 Manso medio, Río Manso	S-41º 21’ 15’’ W- 71º 42’ 26.1’’	ALT. 780 m	15/I/07	Kick, nets	#2	
# 42 Mallín Superior (Manso superior)	S-41º 14’ 28.6’’ W- 71º 44’ 44’’	ALT. 828 m	16/I/07	Kick, nets	#3	

# 43 Aº Tristeza (Ñirihuau)	S-41º 17’ 55.5’’ W- 71º 15’ 11.9’’	ALT. 1075 m	19/I/07	Kick	#9
# 44 Agua Camping (Ñirihuau)	S-41º 17’ 17’’ W- 71º 14’ 8’’	ALT. 1064 m	20/I/07	Sieve	#9
# 45 Aº Botella (Ñirihuau)					#9
St 1	S-41º 16’ 19.7’’ W- 71º 13’ 16.8’’	ALT. 1015 m	20/I/07	Kick	#9
St 2	S-41º 16’ 17.9’’ W- 71º 12’ 57.4’’	ALT. 1009 m	20/I/07	Kick	#9
# 46 Frey Laguna Schmoll	S-41º 11’ 36.7’’ W- 71º 29’ 51.2’’	ALT. 1925 m	24/I/07	Kick, Malaise	#5
# 47 Frey Aº Vantiter	S-41º 11’ 53.8’’ W- 71º 29’ 47.3’’	ALT. 1748 m	24/I/07	Kick, Malaise, nets	#5
# 48 Frey Laguna Toncek	S-41º 11’ 54.2’’ W- 71º 29’ 12’’	ALT. 1747 m	24/I/07	Exuviae, Simulid pupae	#5
# 49 Aº Tranquera	S-41º 17’ 5.8’’ W- 71º 30’ 56.7’’	ALT. 889 m	31/I/07	nets	#5
# 50 Aº La Heladera	S-41º 1’ 31.5’’	ALT. 787 m	4/II/07	Kick, Malaise, nets	#1

(Prto Bles)	W- 71º 49’ 21.4’’				

ANNEX 5. Media articles

Newspaper

***Tues 24 Oct 2006* / proyecto Internacional con cientificos locales: Un mapa digital de los insectos acuaticos/ *Hoy,* Buenos Aires. (1 page)**

Sat 18 Nov 2006/ Patagonia: platenses desarrollan un studio "estrategico"/ by E. Trebuq. *Hoy,* Buenos Aires (2 pages)

Thurs 18 Jan 2007 / Comenzaron trabajos para conserver la Biodiversidad de insectos acuaticos / by J Massaferro. *El Cordillerano* , Bariloche (1/3 page)

February 2007/ Proyecto de Cooperacion Internacional INICIATIVA DARWIN para el studio de la Biodiversidad e Insectos acuaticos en Patagonia/ by J Massaferro. *Ecos del Parque*, Bariloche. (2/3 page)

10 April 2007/ Avanza el estudio de insectos acuáticos patagónicos/ *El Andino*, Bariloche (1/2 page)

Radio

Radio UNO/ Hablando con Pinky/ Julieta Massaferro. November 2006

Online links

http://www.conicet.gov.ar/NOTICIAS/2006/octubre/011.php (Consejo de Investigaciones Cienticficas CONICET)

http://www.conicet.gov.ar/diarios/2006/noviembre/062.php (Consejo de Investigaciones Cienticficas CONICET)

http://www.universia.com.ar/portada/actualidad/noticia_actualidad.jsp?noticia=19433 (Argentinean University press web page)

http://www.fcnym.unlp.edu.ar/museo/divisiones/entomologia/abaentomo_archivos/noticias_entomo.htm (University of La Plata, UNLP)

http://www.nahuelhuapi.gov.ar/paginas/Noticias/noticias.htm (Nahuel Huapi National Park)

http://www.unam.edu.ar/index.php?option=com_content&task=view&id=472&Itemid=183 (University of Misiones, Argentina)

http://www.aimdigital.com.ar/ver_suple.php?id=760 (electronic newspaper from NE argentina)

ANNEX 6. Training courses

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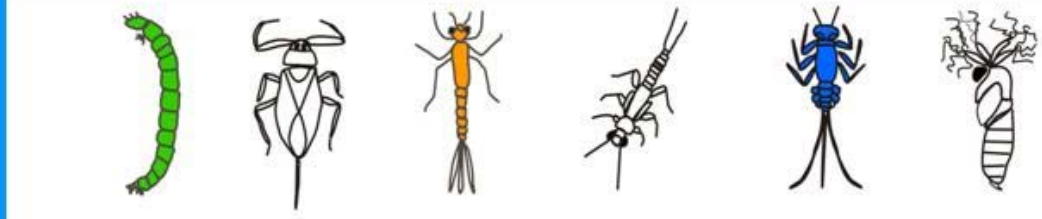

A cargo del Dr Pablo Pessacq Universidad Nacional de la Patagonia UNP, Esquel

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