

Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length, excluding annexes

Submission deadline 30 April 2008

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) Instituto de Limnologia de La Plata (ILPLA) Centro Regional Universitario Bariloche (CRUB/UNC) Administracion Parques Nacionales (APN) Universidad de la Patagonia, Esquel, Chubut (UNP)
Darwin Grant Value	£178,880
Start/End dates of Project	1 September 2006 – 31 August 2009
Reporting period	(1 Apr 2007 to 31 Mar 2008) Annual report number 2
Project Leader Name	Stephen Brooks
Project website	In development
Author(s), date	S. Brooks, G. Spinelli. April 2008

1. List of Abbreviations

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APN Administracion Parques Nacionales
CONICET Consejo Nacional de Investigaciones Cientificas y Tecnicas
GIS Global Information Systems
ILPLA Instituto de Limnologia, La Plata
NHM Natural History Museum, London
NHNP Nahuel Huapi National Park
CRUB Centro Regional Universitario Bariloche
UNC Universidad del Comahue
UNLP Museo de Ciencias Naturales de La Plata
UNP Universidad de la Patagonia, Esquel, Chubut

2. Project Background

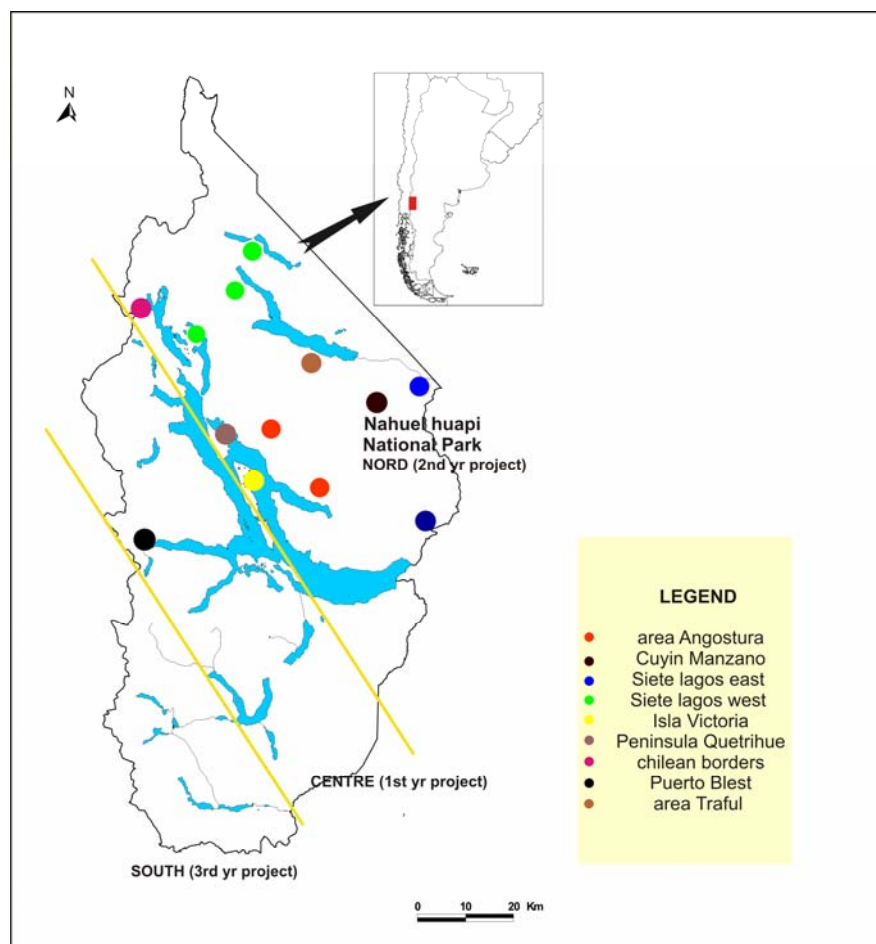
The freshwater insect biodiversity of Argentina is threatened by human impacts. Even in National Parks increasing pressure from tourism poses a threat. At present, the freshwater insect fauna is poorly known and knowledge is constrained by a lack of adequate identification guides and reference collections. 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 temperate 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.

Fig. 1. Map of Nahuel Huapi National Park (NHNP), northern Patagonia, showing areas sampled during 2007/2008.



83 sites were sampling in the Northern area of the NHNP (see excel table). Additional sites in the northern and centre of the park were sampling for Simuliids (51 sites), Odonata (4 sites) and Chironomids, Ceratopogonids and Beetles (10 sites)

Fig 2. Examples of wetlands sampled during 2007/2008 in northern NHNP. Clockwise from top left: APN rangers biomonitoring a river; Julieta Massaferró and Analía Garré sorting a kick sample; Fernande Montes de Oca preparing to kick sample a river; a malaise trap being serviced.



Fig. 3. Clockwise from top left: Participants on the introductory course to freshwater insects (tutor Pablo Pessacq third from left, front row); APN Ranger and vehicle seconded to Darwin project; bunks installed at Puerto Blest field station; Analia Garre at work in the Biodiversity Laboratory, Bariloche; Steve Brooks on a visit to the Biodiversity Laboratory.



3. 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 Dr 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: Dr Gustavo Spinelli (host country leader, Ceratopogonidae specialist), Dr Mariano Donato (specialist in Chironomidae). In addition, four 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 Massaferró is coordinating the project on the ground and has two field assistants (Fernanda Montes de Oca and Analia Garre) who were trained during the first 12 months of the project in field techniques, collection management and taxonomy. These staff are line-managed by Brooks, Spinelli and Massaferró. Hernandez is supervising the tesina of Montes de Oca on Simuliidae.

Other Argentinean institutes involved include Universidad de la Patagonia, Esquel, Chubut (UNP). From here Dr Miguel Archangelsky coordinates work on Coleoptera and Pablo Pessacq is working on Ephemeroptera and Plecoptera. Dr Javier Muzon (specialist in Heteroptera and Odonata) from Instituto de Limnología, La Plata (ILPLA), is also actively involved in the project and is supervising the PhD of Analia Garre (project field assistant) who is using material

collected during the project. Other key partners include Administracion Parques Nacionales (APN), lead contact is Susana Seijas, who provide logistical support for fieldwork and Centro Regional Universitario Bariloche (CRUB/UNC), lead contact Karin Heinemann, who manages the Puerto Blest field station.

The relationships between the project partners have developed considerably during the last 12 months of the project. A close working relationship has become established between the academic partners and an excellent *esprit de corps* between the project members has emerged, generated by increasing enthusiasm for the project as it has developed successfully. In particular, through the enthusiasm for the project of Susana Seijas, Coordinator of Environmental Programmes within APN in Bariloche, we have received increasing logistical support. This has included provision of a large room, which we have equipped as a laboratory, and conference facilities in the head quarters building for no rental, and allocating a ranger and 4x4 vehicle to assist with field work. APN have agreed to loan, at no cost, a 4x4 vehicle and boat to the project for the 2008/2009 field work season. APN are very enthusiastic about the results being generated by the project, because they previously had no information about freshwater insects in NHNP, have not had the opportunity to work with freshwater insect specialists before, and also value the training we are providing to their rangers on identification of freshwater insects and in techniques to biomonitor rivers to assess levels of pollution. The success of the project has also generated interest from UNC students who have been volunteering to participate in field and laboratory work where they receive training and useful scientific experience. ILPLA have demonstrated their support for the project by providing, at no charge, a room in their institute for the digital imaging equipment. ILPLA will also host Melina Mauad, a postgraduate student from UNLP, who will work on the project to biomonitoring rivers in NHNP area.

We are now at a stage in the project when we can begin to undertake outreach activities with schools local to NHNP. As a result, in the coming year, we anticipate building on initial contacts we have made with the Ministry of Education.

The project partnership has supported host country institutions to build capacity to meet CBD commitments by 1) providing resources to equip and furnish the Puerto Blest field station as a wetlands study and interpretive centre; 2) furnishing and equipping a room as a laboratory in ANP headquarters; 3) training students and park rangers to collect and identify freshwater insects and in biomonitoring techniques; 4) providing baseline information about the distribution of freshwater insects in NHNP to ANP; 5) providing courses to specialist and non-specialist audiences on freshwater insects and the importance of wetlands for biodiversity; 6) publishing guides for the identification of freshwater insects.

4. Project progress

4.1 Progress in carrying out project activities

Inventory of freshwater insects from NHNP

From April to October 2007 freshwater insect material collected during the preceding fieldwork campaign in the central part of NHNP was sorted, curated and databased at the laboratory we have set up in ANP headquarters in Bariloche, by the three project employees. When this process was complete the material was transferred to UNLP, where it is stored in cabinets purchased by the project, prior to distribution to the specialists working on the project for species-level identification. Identification of this material is now largely complete and the taxonomic information has been incorporated into the database. The collection has been divided so that half can ultimately be transferred to the NHM, while half will remain at UNLP. A

database has been established which includes information on collecting localities, environmental variables and species lists. This information will be analysed using GIS.

The second fieldwork campaign covered the period from November 2007 to March 2008 and focussed on collecting material and locality data from a range of representative wetland sites in the northern part of NHNP using a wide variety of techniques to collect all life stages of a wide diversity of insect groups. Field work is carried out on a day to day basis by the two field assistants and coordinator employed on the project, supported by a ANP park ranger. This activity was supplemented by frequent field visits by Argentinean specialists associated with the project and 2-3 week international visits by two NHM specialists, all of whom also provide training to the field assistants. During the reporting year two Argentinean specialists (Spinelli and Donato) visited the NHM for two weeks for taxonomic studies of the collections. The NHM collection is rich in type material from this region of northern Patagonia.

A workshop was held in February 2008 at ANP, HQ Bariloche, involving all partners where we reviewed progress so far, including sampling and storage protocols and strategies, databasing, production of identification guides, media and dissemination, targets for the coming year. All partners felt that the project had been successful and was achieving its goals and seemed on course for a successful conclusion. The participants were pleased and grateful for the level of input from the partner organisations which had exceeded our initial expectations (especially from ANP) and felt that the outputs were making a valuable contribution to wetland conservation studies in northern Patagonia.

Information products

The website is at an advanced stage of development. The layout has been determined and most of the pages are now complete. However, we have not yet concluded an agreement with one of the relevant organisations concerning hosting of a dedicated project website, although we anticipate it will go live early in the next reporting year. We have a presence on nine national websites which display pages describing the project.

We have continued to promote the project through press releases and achieved coverage in national and local newspapers and on the radio. Coverage has not been as great as in the first six months of the project, when media interest on the new project was high. During the last year media has focussed on publicising our courses. We anticipate greater media coverage in the coming year as biodiversity data begins to emerge.

The project was featured in a poster presented by APN at *II Congreso Latino Americano de Parques Nacionales y Otras Areas Protegidas* 30 September – 6 October 2007. At the forthcoming *VII Congreso Argentino de Entomología* 21-24 October 2008 a whole day will be devoted to presentations and posters about the project given by the project partners. This will be a great opportunity to highlight the work we have been doing, to publicise the facilities the project has made available in NHNP, to give experience to staff and students of making scientific presentations, and to make contacts and future collaborations with other entomologists in Argentina. The project partners are currently preparing the input to this meeting.

A protocol for storing environmental, taxonomic and locality information on a database has been agreed and the database is now populated with data from the first field season. The database is compatible with our GIS system and analysis will begin in the coming year. Massaferro attended training courses on SQL and ORACLE but we decided that these systems were too difficult to use so have decided to store data on EXCEL which is easy to use and adequate for our current needs.

A fold-out chart identification guide to the freshwater insects of northern Patagonia has been published and distributed through ANP and to schools (see Annex 6). A leaflet on freshwater insects and wetlands has been published by ANP. Both were written by Massaferro. The project partners have published several scientific papers based on material collected in the project. Designs for posters and related interpretative material on wetlands and freshwater

insects are in progress for use by APN, in particular for display in the interpretative centre at Puerto Blest near the project field station. We anticipate these will be ready for the coming southern summer. The calendar that was planned for 2008 proved to be too expensive to produce but we have new plans to produce a 2009 calendar through APN focussed on wetlands, biodiversity and people.

Training

During the year the field assistants received training in taxonomy, biomonitoring, collection curation and databasing techniques and also attended a course on insect ecology. They are now fully trained in field sampling, rearing and laboratory techniques and can carry out field and laboratory work without supervision. The staff have now themselves run practical training sessions with APN rangers and students on field and biomonitoring techniques.

Freshwater insect collection

Material is being sorted, preserved and curated according to agreed protocols and standard practice. Material collected during the 2007-2008 field season is deposited in UNLP, material collected in the 2007-2008 field season is currently stored in the laboratory at ANP Bariloche prior to moving to UNLP.

GIS

Basic training on GIS has been provided and data from the first field season is currently being inputted. Analysis will begin in the coming year.

4.2 Progress towards Project Outputs

Inventory of freshwater insects. A large number of adult and larval insects were collected from 83 different localities on 130 sampling occasions during the 2007-2008 field season in the northern part of the park. Fewer different collection sites were visited than in the first season, which focussed on the central part of the park, because fewer wetlands exist in the northern part of the park, distances are further, and following a prolonged drought from January to March several of the localities dried up and could not be re-sampled. This material will be sorted in the coming months of the southern winter. Some sites sampled in the previous year were re-sampled to obtain further specimens of rare or new species.

Material collected in the central part of the park during the first field season has now been identified by specialists and entered onto the database. We now have species lists for seven key taxonomic groups of freshwater insects (see annexe 8). As a result of this analysis some biodiversity hotspots have been identified and will be targeted for further visits, several rare or undescribed species have been recognised, and new distribution records have been established. The data will be made available to ANP, will be available on the project website and checklists for NHNP will be published. These data are now ready for import into GIS and include information on locality, collection method, environmental data and species.

Staff training. Staff have been fully trained in sampling, sorting, rearing, preparation and collections maintenance techniques and can work independently to produce high quality, well curated collections that can be passed onto specialists for species level identification or long-term archiving. Furthermore, the staff have now trained several students and park rangers in these techniques who have been helping with the project. They have also received training in biomonitoring and will be carrying this out during the next year at a site identified by APN and possibly heavily impacted by a nearby town. Training has also been provided in databasing. Susana Seijas, Coordinator of Environmental Programmes within APN, who is in a key position to further promote the study of wetlands within APN, has also received training. Field Assistant Fernanda Montes de Oca is nearing the end of her *tesina* and she will apply for a PhD

fellowship in September 2008 under the supervision of Hernandez (NHM) working on the taxonomy of Simuliidae collected in this project. Field Assistant Analia Garre has begun her PhD thesis on Odonata collected in the project under the supervision of Muzon (ILPLA). Spinelli has four PhD students working on Ceratopogonidae and Chironomidae collected in the project, one of which submitted and successfully defended her thesis during the year.

Identification guides. A simple entry-level guide to Patagonian freshwater insects has been written and printed by CONICET (see Annex 6). The guide has been disseminated through APN and to schools in the Bariloche area. Our staff are arranging school visits for the coming year. The contents for a book, providing a detailed family level guide to freshwater insects, with contributions from all the specialists, have been agreed and work will begin during the coming months. Specialist keys, checklists and taxonomic works are also in production. Interpretative material on wetlands for display in Puerto Blest is currently under development.

Capital equipment, laboratories and field station. Most capital expenditure was completed during the previous reporting year. The Puerto Blest field station is now fully furnished and equipped and has been used as a base by visiting field biologists and students. It has also served as the venue for two international courses (on tree rings and pollen). APN have provided a room in their headquarters in Bariloche which we have furnished and equipped as a Biodiversity Laboratory to process material collected during the project. This laboratory is also available for use by APN and students. Storage cabinets have been purchased and installed at UN LP to house material collected during the project. Digital imaging equipment was purchased last reporting year but lack of suitable space prevented this being installed at ILPLA until February 2008. Training in Digital imaging is due in April 2008.

Training courses. A training course in freshwater insect survey, identification and biomonitoring for 15 Park Rangers and fishermen was held at APN HQ 21-23 November 2007. Ad hoc training of APN rangers has also been held during the course of the year. A course on insect form and function was held by Archangelsky and Pessaq in September 2008 at Esquel University. A course on Chironomidae for 12 people was held by Massaferro and Donato at University of Mar del Plata, Buenos Aires, in August 2007. The field assistants have planned a course on freshwater insects and wetland conservation which they will be taking into local schools in the coming reporting year.

Freshwater insect collections. A fully curated and databased collection has been established at UNLP and will be built on in the coming years. A GIS database and digital image archive has been planned and will be started in the coming reporting year.

Freshwater insect monitoring programme. ANP rangers will be biomonitoring the Rio Villegas in the south of NHNP during the coming reporting year to assess the impact of a nearby town. The data will be analysed by a UNLP student as a Masters project. UNLP will give a year's financial support for this study

4.3 Standard 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						
3	Number of people to attain other qualifications	0	1			
4A	Number of undergraduate	0	3			

	students to receive training					
4B	Number of training weeks to be provided	0	3			
4C	Number of postgraduate students receiving training	6	31			
4D	Number of training weeks	8	9			
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above) *	2	2			
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above) *	2	1			
6B	Number of training weeks to be provided	2	4			
7	Number of (ie. different types - not volume - of material produced) training materials to be produced for use by host country	0	2			
8	Number of weeks spent by UK project staff on project work in host country	6 man weeks	4 man weeks			
11	Number of papers published or submitted to peer reviewed journals	3	5			
13B	Number of species reference collections to be enhanced and handed over to the host country(ies)	0	6			

14A	Workshop	1	1			
14B	Number of conferences/seminars / workshops attended at which findings from Darwin project work will be presented/ disseminated	0	5			
15A	Number of national press releases in host country	5	3			
16	Number of newsletters (on-line)	1	1			
17B	Number of dissemination networks to be enhanced/ extended		1			
19A	Number of national radio interviews in host country	2	0			
19C	Number of local radio interviews/features in host country(ies)	0	1			
20	Estimated value of physical assets handed over to host country	£20,000	£3483			
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	1	1			
22	Number of field plots sampled	80	130			
23	Value of resources raised from other sources (ie. in addition to Darwin funding) for project work	£5300	£7000			
New - Project specific measures	Number of websites with pages on the project	7	9			

	Number of courses organised by project members	1	3			
	Number of weeks to be spent by Argentinean project members on project work in the UK	0	8			

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, eg title, name of publisher, contact details, cost. Mark (*) all publications and other material that you have included with this report.

Table 2 Publications

Borkent, A. & G.R. Spinelli. 2007. *Neotropical Ceratopogonidae (Diptera: Insecta)*. In: Adis, J., Arias, J.R., Rueda Delgado, G. & K.M. Wantzen (Eds.): *Aquatic Biodiversity in Latin America (ABLA)*. Vol. 4. Pensoft, Sofia-Moscow, 198 pp.

Cazorla, C.G. & G.R. Spinelli. 2007. A new species of Patagonian *Stilobezzia (Acanthohelea)* and a redescription of *S. (A.) nigerrima* Ingram and Macfie (Diptera: Ceratopogonidae). *Trans. Amer. Ent. Soc., Philadelphia* 133 (1+2): 181-187.

Chehébar, C., K. Didier, M. Mermoz, S. Walker, A. Scolaro, J. Muzón, G. Spinelli & S. Lambertucci. 2007. Áreas de importancia para la Conservación de la Biodiversidad en la Estepa y el Monte patagónicos, Argentina. *II Congreso Latinoamericano de Parques Nacionales y Otras Áreas Protegidas*. Bariloche, 30 de Septiembre-6 de Octubre, 2007 [abstract].

Diaz, M.F. 2007. *Revision de las Especies del genero Dasyhelea Kieffer de la Patagonia (Diptera: Ceratopogonidae)*. Doctoral Thesis. Universidad Nacional de la Plata, Facultad de Ciencias Naturales y Museo.

Donato, M., J. Massaferrero & S.J. Brooks. (submitted) Checklist of Chironomidae (Diptera: Nematocera) of the Nahuel Huapi National Park. *Revta. soc. Entomol. Argent.*

von Ellenrieder, N & J. Muzón. 2007. An updated checklist of the Odonata from Argentina. *5th WDA International Congress of Odonatology*. 16-20 Abril 2007, Swakopmund, Namibia. Worldwide Dragonfly Association & National Museum of Namibia, Windhoek, pp 76. [abstract].

Garré, A. y F., Lozano. 2007. Descripción del último estadio larval de *Micrathyria unguata* (Odonata: Libellulidae). *RSEA* 66 (1-2): 5-9.

Garré, A; Ardohain, M & Muzón, J. 2006. Descripción del último estadio larval de *Erythrodiplax corallina*, Brauer 1865 (Odonata: Libellulidae). IX *Jornadas de Ciencias Naturales del Litoral y Reunión Argentina de Ciencias Naturales*. Parana, 22-24 November 2006. [abstract].

Lozano, F., A. Garré & Pessacq Pablo. 2007. Descripción del último estadio larval de *Acanthagrion eapiolum* (Odonata: Coenagrionidae). *RSEA* 66 (1-2): 1-4.

Massaferrero J and Rojas, F. 2007. *Guía para la identificación de macroinvertebrados acuáticos de Patagonia*. CONICET 300 copies published.

Darwin Initiative (DI), Nahuel Huapi National Park (NHNP), University of Comahue (APN) members. *Fauna Nativa: Invertebrados*. Leaflet 2 sides. 2000 copies published.

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

4.4 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.

4.5 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. Training this year of APN Rangers in biomonitoring techniques will allow them to monitor the impact of pollution on rivers in the coming year and permit APN to take mitigating action.

Also CONICET recently mentioned our project (see web sites) as an example of studies that implements the CBD. In fact our project contributes to Article 10 (sustainable use of components of biological diversity), Article 16 (access to and transfer of technology) and Article 18 (technical and scientific cooperation) of the CBD. Our project also supports the GTI (Global Taxonomy Initiative) as it focuses on taxonomic knowledge, by working on the gaps and lack of information related to aquatic insect species in Patagonia.

The National Biodiversity Strategy and Action Plan in Argentina mentioned as important goals for the millennium:

*To promote the conservation of biological diversity of the different ecosystems in protected areas,

*To increase the knowledge of biological diversity

*To communicate, share, educate and train the people in biodiversity issues

*to assess environmental impacts and taking measurements to minimise environmental damage

Our project is meeting all of these goals.

5. 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 plus updates during international visits to partner institutions; 4) Consolidated bi-monthly reports on progress and future planning strategy of UK and Argentinean co-ordinators distributed to all partners; 5) Regular communication between partners via e-mail and telephone

The purpose of the project is to 'develop capacity in northern Patagonia for the identification, surveying, monitoring and mapping of freshwater insects.' The project outputs clearly contribute to this purpose by: 1) building a reference collection of freshwater insects in UNLP; 2) producing non-specialist to specialist identification guides; 3) training students and APN

rangers in surveying monitoring and curatorial techniques; 4) building a database of the distribution of freshwater insects in NHNP which will be analysed through GIS; 5) receiving enthusiastic support for the project from all project partners and also local users of the NHNP, including schools, tourists and fishermen; 6) APN is providing considerable logistic and in-kind support for the project; 7) building an infrastructure for biodiversity studies and the field station and laboratory are being used and are available for future use.

The value of team building between project partners through regular contact, meetings, tangible outputs and participation has been very important for the success of the project during the last year.

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

1. The system of classifying the wetlands sampled in the project is provided in Annex 7.
2. We see fishermen as a particularly useful group because they have an interest in rivers but most have only a rudimentary knowledge of freshwater insects and the role they play in freshwater ecology and how they can be used to monitor water quality. Once trained in these skills, fishermen can be an important resource for the conservation of rivers. Fishermen are unlikely to have a negative impact on freshwater systems. Introduction of exotic fish is a problem in Patagonia but most of the damage has already been done as the fish were introduced decades ago.
3. Non-insect freshwater invertebrates are not being collected on a routine basis.
4. The problem of equipment import cannot be overcome, we must allow more time for the equipment to arrive. We have reduced credit card transactions.

7. Other comments on progress not covered elsewhere

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

No particular risks have emerged.

8. Sustainability

The profile of the project within Argentina remains high and we have been promoting our work through press releases, websites, leaflets, and posters and presentations at conferences and workshops. We have received invitations to make presentations at conferences and were recently contacted by a national TV channel for an interview about the project for a conservation theme programme. The interview and broadcast will take place soon. APN are very supportive of the project and have provided significant resources, which we anticipate will continue, especially once they have received information about biodiversity hotspots within the NHNP. The furnishing and equipping of Puerto Blest field station and the Biodiversity Laboratory will continue to be available for biodiversity studies in NHNP after the end of the project. At UNLP a large floor area has been allocated for cabinets to store the material collected during the project and four PhD students have begun projects to work on the material we have been collecting. Digital imaging equipment purchased through the project is now installed at ILLP which will improve the capacity of that institution for biodiversity studies and the dissemination of information.

9. Dissemination

Information about the project is being disseminated through various media (Annex 4). The target audiences are members of the public, tourists, APN staff, academics and students.

Websites. Details of the project have been featured on the following websites: CONICET, University of Argentina, UNIVERSIA electronic newsletter for students, PUBLICA online newsletter (sequel), Blogalaxia online newsletter (Bolson) University of Misiones, Aimdigital electronic newspaper, UNLP and UNC web sites.

Printed media. Articles, features and interviews have appeared in the local newspapers *Ecos del Parque (APN)*, *El Andino (Bariloche)*. An information leaflet on freshwater insects has been published through APN.

T-shirts featuring the project logo have been produced and are worn on fieldwork by project participants. APN jackets have been issued to the field assistants that bear the APN and Darwin Initiative logos.

10. Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 01 April 2007 to 31 March 2008)

Item	Budget (please indicate which document you refer to if other than your project application)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Lab Consumables			
NHM Indirect			
Estates			
Audit			
Salaries (specify)			
Local coordinator			
Two local field assistants			
TOTAL			

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

The balance of £1717.5 has been carried forward into financial year 2008/2009 in agreement with Darwin Initiative secretariat.

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

The Nahuel Huapi National Park (NHNP) in northern Patagonia, Argentina, contains part of the Valdivian Rainforest, the largest temperate rainforest in South America. This biodiversity hotspot has recently been included among the most threatened eco-regions in the world by the Global 2000 initiative, launched by WWF and the World Bank.

Our project is a collaboration between scientists at the Natural History Museum, London, and Argentinean specialists and conservationists interested in wetland insects. The target is to deliver, by the end of 2009, an infrastructure for the study and interpretation of wetlands in NHNP, identification guides, and a database of freshwater insects. 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.

One aim of our project is to create a centre of excellence for the study of freshwater ecosystems, the taxonomy of freshwater insects and the interpretation of wetland ecosystems at the biological station in Puerto Blest (EBPB). The EBPB, situated in the heart of the Andean forest near Bariloche, was built by Universidad del Comahue in 2005 but was not fully functional. We have now equipped the field station with 12 microscopes, PCs, multimedia equipment and furniture, which was transported to the station with the help of the national park authority (APN). Several international and national courses and visits have already taken place in the field station. The field station also functions as an interpretive centre, promoting the value and sustainable use of wetlands to visitors to the park.

Another important achievement of the project has been the development of a network of people working together on biodiversity issues. We have trained students, park rangers, fishermen, teachers and other members of the public on sampling, identification and collection techniques to get them involved in biodiversity and conservation topics. We now have an enthusiastic team of people working closely together, assisting the specialists and training more volunteers. We have received invaluable cooperation from the park rangers and the NHNP team. They have provided not only logistic support but also have great commitment towards environmental issues and are now participating in our biomonitoring program in NHNP.

In October 2008 our DARWIN Initiative project will sponsor a symposium within the XII Argentinean Congress of Entomology. It will be a good opportunity to communicate our results and discuss our aspirations with scientists working in other biodiversity hotspots in Argentina and neighbouring countries. This is essential for the conservation of the region's biodiversity.

[I agree for ECTF and the Darwin Secretariat to publish the content of this section](#) (please leave this line in to indicate your agreement to use any material you provide here)

ANNEX 1. Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
<p>Goal: <i>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</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>			(do not fill not applicable)
<p>Purpose To develop capacity in northern Patagonia for the identification, surveying, monitoring and mapping of freshwater insects.</p>	<p>Infrastructure for study of freshwater insects and interpretative centre focussing on wetland ecosystems established at Puerto Blest</p>		
<p>Output 1. Inventory of freshwater insects in the NHNP available on database</p>	<p>Database and website detailing distribution of freshwater insects</p>	<p>Database populated with information from first year field work. Website in development. Project pages feature on nine websites</p>	
<p>Activity 1.1 Collection of freshwater insects from northern part of park</p>		<p>Complete</p>	

Activity 1.2 Freshwater insects collected during previous field season identified		Complete
Activity 1.3. Database populated with information from first field season collection localities and species found there		Complete
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.	Staff fully trained and capable of successfully completing tasks unsupervised. Since the beginning of the project Montes de Oca has been working on a tesina studying Simuliidae taxonomy, supervised by Hernandez, and is expected to complete in September 2008. She will then register for a PhD.
Activity 2.1. Training of staff		Complete
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 available and disseminated to schools and through APN. Work on more technical guides in progress. Specialist taxonomic papers published. APN leaflet on freshwater insects published and distributed.
Activity 3.1. Research and writing of identification guides		Some completed others in progress
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 in use by students, for academic workshops and by specialists for field work. Two international meetings were held at the field station: 4th South American Dendrochronological Fieldweek (EBPB) January 13-20, 2008. This field course is part of a series of dendrochronology and dendroecology courses taught throughout South America since 2000 SPONSORING INSTITUTIONS: Inter-American Institute for Global Change Research (IAI); Universidad Nacional del Comahue.

		<p>30 Sept / 3 Oct 2007. Fieldwork of the II Latinamerican Congress of National Parks and other Protected Areas was developed at EBPB , organised by APN, UICN, PNUMA.</p> <p>Biodiversity Laboratory furnished and equipped and used by project and APN personnel for working on material collected on field work.</p>
Activity 4.1 Purchase furniture and equipment for laboratory and field station		Complete
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 students, Park rangers and fishermen held. River biomonitoring, surveying and insect identification by APN rangers begun.
Activity 5.1 Training courses held		Complete
Output 6. 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.	Collections from first field season curated, databased and stored in purpose allocated cabinets at UNLP. Expandable database in operation. GIS database set up and ready for data population. Digital imaging equipment purchased and installed at ILPLA, ready for use after training.
Activity 6.1. Curation, storage and databasing of freshwater insects collected during first and second field campaigns.		Complete. GIS analysis ongoing, first results expected by September 2008. Digital imaging archive will begin in April 2008.

Output 7. Freshwater insect monitoring programmes run by local communities established	Trained local people running monitoring programmes on local rivers	APN rangers and students trained in biomonitoring techniques. Initial samples taken, biomonitoring programme to continue in the coming year. Data to be analysed as part of MSc project.
Activity 7.1. Training APN rangers and students on biomonitoring techniques		Complete

ANNEX 2. Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>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</p> <ul style="list-style-type: none"> • 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 			
<p>Purpose</p> <p>To develop capacity in northern Patagonia for the identification, surveying, monitoring and mapping of freshwater insects.</p>	<p>Infrastructure for study of freshwater insects and interpretative centre focussing on wetland ecosystems established at Puerto Blest</p>	<p>Puerto Blest field station equipped and in use as a base for field studies of wetlands</p>	<p>Continued national and institutional recognition of importance of freshwater studies to national conservation and biodiversity goals</p>

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	Groups involved in river monitoring, media interest and coverage to promote	Reports on number of courses established and people trained sent	Active participation by universities, Park Rangers, fishermen and local community groups in freshwater

freshwater monitoring, surveying and insect identification	river monitoring schemes.	to Darwin.	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