



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 2009

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
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)
Other Partner Institution(s)	None
Darwin Grant Value	£178,880
Start/End dates of Project	1 September 2006 – 31 August 2009
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	(1 Apr 2008 to 31 Mar 2009) Annual report number 3
Project Leader Name	Stephen Brooks
Project website	In development
Author(s) and main contributors, date	S. Brooks, G. Spinelli, J. Massaferro. April 2008

List of abbreviations

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

1. Project background

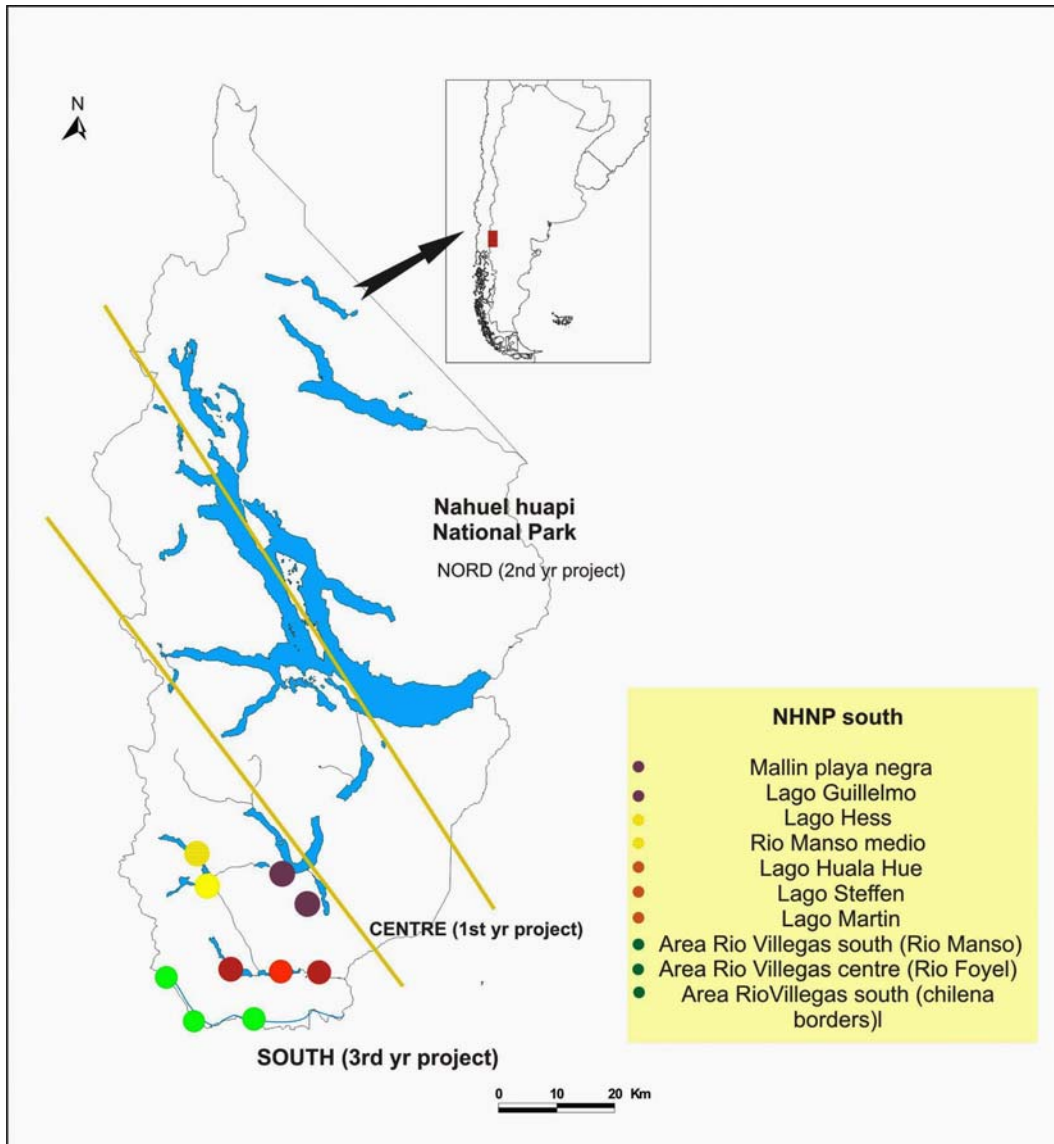
The freshwater insect biodiversity of Argentina is threatened by human impacts. Even in National Parks, increasing pressure from tourism poses a threat. At present, the freshwater insect fauna is poorly known and knowledge is constrained by a lack of adequate identification guides and reference collections. In addition, there is poor public understanding of the importance of wetlands for biodiversity and providing basic human needs. Our project addresses this need by: (a) building infrastructure for freshwater insect biodiversity studies 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 and field station 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 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. These data are essential because of the increasing pressure of tourism and fishing in the NHNP area and impacts of effluents from towns. The current lack of awareness of conservation issues in local communities will be addressed by training programmes and interpretive material that will be available at the field station, NHNP interpretation centres and in local schools. 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. The 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, ranging 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 2008/2009.



107 sites were sampling in the Southern area of the NHNP (see excel table). Twenty additional sites in the northern and centre of the park were sampled for Simuliids, Odonata, Chironomids, Ceratopogonids and Beetles

Fig 2. Examples of wetlands sampled during 2007/2008 in southern NHNP. Clockwise from top left: Analia Garré sampling Mallin Playa Negra; APN staff provide logistic support for sampling Lago Steffen; volunteer Erica Badura and research student Maria Save assist sampling Rio Nirihuau; Julieta Massafferro servicing malaise trap at Lago Martin.



Fig 3. During January and February 2009, Dr Pablo Pessacq gave a series of talks to tourists visiting Puerto Blest. He showed them Puerto Blest field station, freshwater insect collecting methods and described the wetlands in NHNP at the Interpretation Centre at Puerto Blest.

2. Project Partnerships

The lead UK institution is the Natural History Museum, London (NHM). Three staff members 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 institution in Argentina is Museo de Ciencias Naturales de La Plata (UNLP). Two staff are involved: Dr Gustavo Spinelli (host country leader, Ceratopogonidae specialist) and Dr Mariano Donato (specialist in Chironomidae). In addition, nine post-graduate students are working on research projects directly involved with this project (six under Spinelli and three under Archangelsky). Three people are employed on the project, using Darwin Initiative funds. Dr Julieta Massafiero is coordinating the project on the ground and has two field assistants (Fernanda Montes de Oca and Analia Garré) who were trained during the first 12 months of the project in field techniques, collection management and taxonomy. The two field assistants are line-managed by Brooks, Spinelli and Massafiero. During the year, under the supervision of Hernandez, Montes de Oca has successfully completed and submitted her *Tesina* on Simuliidae to the University of Comahue, Bariloche (UNC) (see publications for full citation). The management structure of the project has worked well and we have not needed to change it. The project partners are in regular e-mail contact with each other. Targets are agreed between the partners and Massafiero provides regular and frequent e-mail exchanges and updates to Brooks and Spinelli on progress and planning, resource use and requirements. There have also been eight exchange visits between UK and Argentinean partners during the course of the year which provides the opportunity for face-to-face meetings for planning, feedback and progress reviews.

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

Partnership development over the past year.

The close working relationship between partners and enthusiasm for common goals has continued to flourish. This provides strength and cohesion to the project. There have been no significant challenges when working with the partners, all the partners understand and have agreed the common goals of the project and have strived to achieve all agreed objectives within agreed deadlines and sought to develop new initiatives.

The building of scientific relationships during the project has resulted in the development of new scientific initiatives between the UK and Argentinean project members resulting in new grant proposals submitted for work on aquatic Diptera in the Falkland Islands and on Odonata in northern Argentina. In addition, Donato secured £7,150 additional funds to work at NHM for three months to begin taxonomic revisionary studies with Brooks on southern Hemisphere Chironomidae.

Montes de Oca will receive the oral examination of her *Tesina* during April 2009. Following this she plans to submit a proposal for a PhD studentship on aquatic Diptera. Melina Mauad started a PhD studentship working on material collected in the project under the supervision of Spinelli

APN continue to provide essential logistic support at no extra cost to the project including provision of drivers, vehicles, boats, medical insurance, accommodation for volunteers and students assisting with the project, transportation for school children for field demonstrations and tutors to help in schools presentations, and free ferry transport to Puerto Blest from Bariloche. In addition, APN have provided assistance with the production of posters, calendars, leaflets and rent-free accommodation in the Biodiversity Laboratory.

We have made formal contact with the head of the local education authority in Bariloche, Mrs Laura Margutti, so we will run courses in schools more frequently and in more schools.

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 Biodiversity Laboratory in ANP headquarters, Bariloche; 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. We have made formal links with the CBD coordinator Dr Victoria Lichtschein in Buenos Aires who is supportive of our project.

3. Project progress

3.1 Progress in carrying out project activities

Inventory of freshwater insects from NHNP

Sorting specimens, collected during field season 2007/2008, to major groups has been completed by the three Darwin Initiative staff at the Biodiversity Laboratory in Bariloche. All material has been sent to the project partners for specialist identification. Identified material has been incorporated into the reference collections at UNLP where it is stored in cabinets purchased by the project. Taxonomic work is revealing high species diversity in NHNP and many undescribed species. For example, work on aquatic Diptera to date has revealed the presence of 80 species of Chironomidae (including 39 new species), 66 species of Ceratopogonidae, including 18 new species, and 16 species of Simuliidae.

The third and final fieldwork campaign in the south of NHNP was completed between November 2008 and March 2009. All regions of NHNP have now been sampled using a standard sampling protocol agreed at the beginning of the project. During the field season samples were collected from 125 sites across a range of wetland types in the southern part of NHNP by the Darwin Initiative staff and also by project partners from Argentina and NHM who visited NHNP. Approximately 400 man-days were spent sampling during this field season. In addition to collecting specimens into 80% ethanol for standard taxonomic research, subsamples were also collected into 100% ethanol for DNA analysis.

Databasing of localities visited and specimens collected during the 2007/2008 fieldwork season has been completed.

Staff training

Training of the field assistants has continued during the year. Montes de Oca visited NHM for two weeks during October 2008 for additional training in Simuliidae taxonomic research and curatorial techniques under the supervision of Hernandez. Garré completed a statistical analysis course at UNLP during November 2008. Montes de Oca, Garré and Massaferro received training from a Leica technician on the digital imaging facility purchased by Darwin Initiative and installed at ILPLA.

Information products

Development of the project's own web page is at an advanced stage. Content and layout have been finalised. Unfortunately, the website is not currently live because of technical difficulties with the software. However, we expect these problems will be solved following consultation with IT specialists during the visit of Massaferro to the NHM during April 2009 and expect the website will be live by the end of June 2009. The website will continue to be kept up-to-date even after the end of Darwin Initiative funding in September 2009. The project currently has a web presence on five sites which display pages that highlight the project (see Annex 3).

The project again received significant media coverage during the year and articles appeared in two local newspapers, two national newspapers and two articles appeared in a national science and technology magazine. Massaferro was interviewed on three radio programmes and for two TV programmes. Full details are provided in Annex 3.

The project received significant exposure at two scientific conferences. Ten contributions were made by project partners at the VII Argentinean Congress of Entomology 21-24 October 2008. One day of this meeting was devoted to the project where project partners presented results and also highlighted the contribution that the Darwin Initiative has made towards building infrastructure, training and public outreach in NHNP. The papers were well-received by delegates and questions were received from several participants who were interested in setting up similar initiatives in other parts of Argentina. The scientific papers presented by project partners at the meeting are currently in press and will appear in a special issue of *Revista de la Sociedad Entomologica Argentina* edited by Muzon. Titles and authors of these papers are presented in section 3.2, table 2. Darwin Initiative resources were also used to support a conference on Biodiversity and Conservation in Patagonia held in Esquel from 23-25 October 2008 and co-organised by Archangelsky (see Annex 6). About 130 oral presentations and posters were made at the conference.

An additional 20 scientific papers have been published or submitted for publication during the year by project partners based on material collected during the project. Full details of these papers are listed in section 3.2, table 2. The project has also raised public awareness of wetlands biodiversity through the publication of a second APN leaflet on freshwater insects in NHNP (leaflet enclosed), which is freely available to visitors to NHNP, and a 2009 calendar featuring views of wetlands (copy of calendar enclosed). Progress towards completion of a non-specialist guide to freshwater insects field guide is at an advanced stage (Annex 7). This guide will be available on-line through the project website and will be linked to the APN website. Project partners have so far contributed 21 sections describing the diagnostic features and ecology of the families of their own specialist group of insects. A general introductory chapter to wetland types of NHNP and the insects that occur in them is also being developed. The guide will be illustrated with colour images captured using the imaging equipment purchased through the Darwin Initiative grant.

Use of Puerto Blest field station and biodiversity laboratory

The Puerto Blest field station, which has been equipped and furnished by the project, continues to be in high demand and is regularly visited by student groups, particularly from UNC. A booking system is now in operation. UNC has purchased additional furniture for the field station. This investment by UNC into the field station would never have happened had the Darwin Initiative not first put resources into the field station to make it viable. For the second year, the field station has also been used by an international workshop on tree ring analysis. The international *Southern Connections* conference, to be held in Bariloche in 2010, has booked the field station for a field excursion for delegates.

The imaging equipment installed at ILPLA has experienced high demand from project partners, students and staff at ILPLA and UNLP and to illustrate the field guide under preparation. A booking system for the equipment has been instigated.

Freshwater insect collection

Curation, storage and databasing of specimens collected during the project continues according to agreed protocols and standards. Specialists are currently working on specimens collected during the first two field seasons. Much of the material collected and processed during 2006/2007 and some from 2007/2008 has been deposited in the reference collections at UNLP. Material collected during 2008/2009 is currently being sorted at the Biodiversity Laboratory in Bariloche and at ILPLA. Material is being prepared for shipping to NHM before September 2009.

GIS

Considerable progress has been made on the GIS aspects of the project during the year. This is despite a set back in May 2008 when Malcolm Penn's (NHM) field visit to NHNP had to be cancelled because no flights were available from Buenos Aires to Bariloche due to a volcanic eruption. However, Penn was able to complete a successful visit in February 2009. The GIS Research has continued to improve the accuracy of a newly derived vegetation classification for NHNP. Satellite imagery (Landsat 7 TM – 15m resolution) was used as a basis for the work. The vegetation classification was based on principal components analysis and on both a non-supervised cluster classification and a supervised Maximum Likelihood Classifier. A total of 27 vegetation classes have been defined geographically, structurally and spectrally and, where possible, classes have been compared to earlier classifications and field-based observations. Recent work has helped to assess and refine the classification by systematically collecting and including ground-truthing data. In February 2009, 70 sites throughout NHNP were visited. At each site an accurate GPS location was taken and an assessment of the vegetation was made. This assessment included the altitude of the location, a categorisation of each vegetation assemblage, dominant species cover and forest height (where appropriate). To aid identifications, video footage of each location was taken, as well as photos, and a record of the size of the patch.

This information has now been downloaded and integrated into a GIS, where the spatial coverage of the sampling can be seen, and an assessment of each recorded class is being conducted.

Legacy

The Biodiversity Laboratory in Bariloche, equipped using funding from our Darwin Initiative project, is now receiving funding support from CONICET in agreement with APN. A management committee has been established composed of representatives from APN, UNC and Darwin Initiative to coordinate future long-term use of this facility. The Laboratory is used by the Darwin Initiative staff to process specimens and is also used by UNC staff and students for a wide variety of biodiversity research projects.

Capital investment into the Puerto Blest field station by UNC demonstrates its intention of long-term commitment for this facility.

Increasing numbers of volunteers have become involved in the project which provides an indication of longer term involvement in freshwater insect studies and conservation in NHNP, supported by APN.

Education

Darwin Initiative staff members have maintained contacts with local Bariloche schools. A workshop for 10-year old children was held in March 2009. Contacts have now been made with three schools in the Bariloche area. Most schools in Bariloche are private but we been focussing our efforts by targeting schools in poor areas of the town.

A series of six guided tours, focussing on freshwater insects and wetland habitats, close to Puerto Blest were held by Pessacq for touristic visitors to NHNP. Following these tours some volunteers came forward to assist in the Biodiversity Laboratory.

Posters illustrating freshwater insects and the importance of the conservation of wetland habitats have been designed, printed and placed in interpretation centres around NHNP. These have resulted in enquiries to APN from potential volunteers for biodiversity tasks.

Local people, who had previously met project staff while they were sampling at Lake Mascardi, contacted APN when they saw a large amount of foam accumulating on the lakeside. Montes de Oca and Garré met locals, sampled and analysed the foam, and later explained that this was a harmless biofoam generated by strong winds and wave action. However, this illustrates increasing awareness about wetland pollution that the project has generated amongst local people who previously had little consciousness of wetland conservation issues.

As a result of our activities a local commercial rafting company has become enthusiastically involved in biomonitoring and now explain the importance of wetland conservation to tourists.

Progress towards Project Outputs

Inventory of freshwater insects. A large number of adult and larval insects were collected from 127 different localities during the 2008/2009 field season in the southern part of NHNP. This completes our planned survey of wetland habitats in NHNP. Once again the summer was relatively dry and some wetland habitats had dried up and streams were running with low water. The material will be sorted during the remaining five months of the project and sent to the specialists for identification. GPS, water chemistry and environmental details of all 125 localities sampled during the 2008/2009 field campaign have been data-based. Species lists have been compiled and data-based for Chironomidae, Ceratopogonidae, Simuliidae and Coleoptera collected during 2007/2008. Work is continuing on other insects groups collected during the second field season. GPS ground-truthing of vegetation types was completed in February 2009.

Staff training. Montes de Oca submitted her Tesina on Simuliidae of NHNP to UNC. Her oral examination is due in April 2009. Garré received further funding for a fellowship to complete her PhD studies on Odonata under the supervision of Muzon (ILPLA).

Identification guides. A second non-specialist leaflet on freshwater insects of NHNP has been published and is available at interpretation centres around NHNP and has also been sent to local schools. In addition we have produced a poster and a 2009 calendar on wetlands and freshwater insects which are on display around NHNP and are available for purchase by visitors to NHNP (see Annex 5). Project partners have continued to produce specialist keys, checklists and taxonomic works during the year and a non-specialist field guide to freshwater insects of Patagonia is currently in an advanced stage of development. We expect to complete this before the end of the project.

Capital equipment, laboratories and field station. Most capital equipment purchases were made earlier in the project, however, some equipment has been purchased to replace field equipment lost or damaged during the field season.

Training courses. Fifteen students attended a course on chironomid taxonomy and ecology at University of Mar del Plata (UNMLP) during October 2008. Course tutors were Donato and Massafarro. Massafarro also teaches chironomids on two final-year undergraduate courses at University of Buenos Aires to about 50 students. Undergraduate courses are also taught by Spinelli, Donato and Muzon at UNLP drawing on work done in the project.

NHNP Rangers continued to receive training in biomonitoring and water chemistry techniques. These rangers now routinely record water chemistry and GPS data at each wetland site they visit during the course of their patrol work in NHNP.

Freshwater insect collections. Curation and databasing of the freshwater insect collection at UNLP continues and the collections will be added to during the coming year. Population of GIS database is in progress.

Freshwater insect monitoring programme. The Rio Villegas biomonitoring programme, carried out by project-trained APN Rangers, began during this year. This work also forms part of PhD thesis by a UNLP student (Melina Mauad) under the supervision of Spinelli. The river has recently become seriously polluted by effluent from a nearby town. The river biota is severely depleted downstream of the town. The population of the town has significantly increased recently and there are no restrictions in place regarding discharges into the river. APN supports the biomonitoring initiative and our staff have visited local schools to raise awareness. However, much of the town is a shanty with no sewage treatment facilities.

3.2 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	6		7
4A	Number of undergraduate students to receive training	0	3	4		7
4B	Number of training weeks to be provided	0	3	4		7
4C	Number of postgraduate students receiving training	6	31	6		43
4D	Number of training weeks	8	9	4		21
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	2	2	2		6
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	2	1	9		12
6B	Number of training weeks to be provided	2	4	1.5		7.5
7	Number of (ie. different types - not volume - of material produced) training materials to be produced for use by host country	0	2	5		7

8	Number of weeks spent by UK project staff on project work in host country	6	4	5		15
11	Number of papers published or submitted to peer reviewed journals	3	5	30		38
13B	Number of species reference collections to be enhanced and handed over to the host country(ies)	0	6	7		7
14A	Number of conferences/seminars / workshops to be organised to present/disseminate findings	1	1	12		14
14B	Number of conferences/seminars / workshops attended at which findings from Darwin project work will be presented/ disseminated	0	5	2		7
15A	Number of national press releases in host country	5	3	11		19
16	Number of newsletters (on-line)	1	1	1		3
17B	Number of dissemination networks to be enhanced/ extended	0	1	4		5
18A	Number of national TV programmes/features in host country(ies)	0	0	1		1
18C	Number of local TV programmes/features in host country(ies)	0	0	1		1
19A	Number of national radio interviews in host country	2	0	3		5
19C	Number of local radio interviews/features in host country(ies)	0	1	1		2
20	Estimated value of physical assets handed over to host	£20,000	£3,483	£517		£24,000

	country					
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	1	1	2		2
22	Number of field plots sampled	80	130	127		337
23	Value of resources raised from other sources (ie. in addition to Darwin funding) for project work	£115500	£117250	£117,400		£350,150
New - Project specific measures	Number of websites with pages on the project	7	9	5		21
	Number of courses organised by project members	1	3	6		10
	Number of weeks to be spent by Argentinean project members on project work in the UK	0	8	22		30

3.3 Publications

Archangelsky, M. 2008. Diversidad de coleópteros acuáticos (Insecta: Coleoptera) de la Patagonia argentina: estado de conocimiento y necesidades. Poster, 1ras Jornadas de Ciencias Naturales de la Patagonia. Esquel Chubut. 22 al 25 de octubre. Libro de resúmenes pág. 127.

Díaz, F., M.M. Ronderos & G.R. Spinelli. (in press) Biting midges of the *Dasyhelea cincta* group from Patagonia (Diptera: Ceratopogonidae). Deut. Entomol. Zeitsch., Berlin.

Donato, M, Massaferró, J. and Brooks, S J. 2008. Chironomid (Chironomidae: Diptera) checklist from Nahuel Huapi National Park, Patagonia, Argentina. *Rev. Soc. Entomol. Argent.* 67 (1-2): 163-170.

Donato, M, Brooks, S J and Massaferró, J. (submitted) Revision of *Metriocnemus longicostalis* Edwards, 1931 and *Metriocnemus ancudensis* Edwards, 1931 (Diptera: Chironomidae) from Patagonia. *RSEA*

Marino, P.I. & G.R. Spinelli. 2008. The *Forcipomyia (Forcipomyia) argenteola* group in southern South America, with a key to the Neotropical species (Diptera: Ceratopogonidae). *Rev. Biol. Trop.*, San José de Costa Rica, 56(2): 789-794.

Montes de Oca, F. 2009. Biología y taxonomía de Simulidos (Diptera: Simuliidae) del Parque Nacional Nahuel Huapi, Patagonia, Argentina. Universidad Nacional del Comahue. 94 pp.

- Muzón, J., von Ellenrieder, N., Pessacq, P. 2008. Odonata de los Esteros de Iberá (Corrientes, Argentina). Inventario Preliminar y Biodiversidad. *Revista de la Sociedad Entomológica Argentina*, 67(1-2): 59-67.
- Pessacq, P. 2008. Phylogeny of Neotropical Protoneuridae (Odonata: Zygoptera) and a preliminary study of their relationship with related families. *Systematic Entomology*, 33: 511-528.
- Pessacq, P. & M.L. Miserendino. 2008. Ephemeroptera and Plecoptera biodiversity in central Patagonia, Chubut province, Argentina. *Zootaxa*, 1817: 27-38.
- Pessacq, P. Descripción del último estadio larval de *Neofulla biloba* (Plecoptera: Notonemouridae). 2008. *Revista de la Sociedad Entomológica Argentina*, 67(3-4): 61-64.
- Pessacq, P. & Brand C. (accepted). Description of the larva of *Phyllopetalia apollo selys*, 1878 and redescription of the larva of *hypopetalia pestilens mclachlan*, 1870 (Odonata: Austropetaliidae). *Odonatologica*.
- Pessacq, P. El estado de conocimiento de los Ephemeroptera de Patagonia. (accepted) *Revista de la Sociedad Entomológica Argentina*.
- Pessacq, P. El estado de conocimiento de los Plecoptera de Patagonia. (accepted) *Revista de la Sociedad Entomológica Argentina*.
- Ronderos, M.M., G.R. Spinelli & A. Borkent. 2008. A description of the larva and pupa of *Culicoides charruus* Spinelli & Martínez (Diptera Ceratopogonidae) from leaf axils of *Eryngium pandanifolium* (Apiaceae) in Argentina. *Russian Entomol. J.*, Moscow, 17: 115-122.
- Ronderos, M.M., C.G. Cazorla, G.R. Spinelli & D. Silveira Carrasco. 2008. Description of immature stages and adult diagnosis of *Stilobezzia coquilletti* Kieffer 1917 (Diptera: Ceratopogonidae). *Zootaxa*, Auckland, 1958: 31-40.
- Salomón, O.D., J.R. Rosa, M. Stein, M.G. Quintana, M.S. Fernández, A.M. Visintin, G.R. Spinelli, M.M. Bogado de Pascual, M.L. Molinari, M.L. Morán, D. Valdez, M. Romero Bruno. 2008. Phlebotominae (Diptera: Psychodidae) fauna in the Chaco region and cutaneous leishmaniasis transmission patterns in Argentina. *Mem. Inst. Oswaldo Cruz, Rio de Janeiro*, 103(6): 578-584.
- Spinelli, G.R., E. Santamaría, O. L. Cabrera, M.M. Ronderos & M.F. Suárez. 2009. Five new species of *Culicoides* Latreille described from Colombia, yielding a new species list and country records (Diptera: Ceratopogonidae). *Mem. Inst. Oswaldo Cruz, Rio de Janeiro*, 104(1): 81-92.
- Spinelli, G.R., W.L. Grogan & M.M. Ronderos. (in press) A revision of the Patagonian predaceous midges of the genus *Palpomyia* Meigen (Diptera: Ceratopogonidae). *Ins. Syst. Evol.*, Copenhagen.
- Spinelli, G.R., P.I. Marino & A. Borkent. (in press) First description of the male of the predaceous midge genus *Notiohelea* Grogan & Wirth (Diptera: Ceratopogonidae). *Entomol. News*, Philadelphia.
- Tothova, A., G.R. Spinelli & P.I. Marino. 2009. A new Nearctic species of *Atrichopogon* (*Melohelea*) and a redescription of *Atrichopogon* (*M.*) *chilensis* Ingram & Macfie (Diptera: Ceratopogonidae). *Zootaxa*, Auckland, 2023: 47-54.

Darwin Initiative sponsored special edition of *Revista Entomologica Argentina* 2009. The following articles are currently in press:

- Brooks, S. Hernandez, L. Massaferro, J. Spinelli, G. & Penn, M. Capacity building for freshwater insect studies in northern Patagonia, Argentina.

Pessacq, P. El estado de conocimiento de Ephemeroptera en Patagonia.

Muzon, J. Esstado de Conocimiento del orden Odonata en Patagonia.

Melo, M. Biodiversidad de Heteroptera acuáticas y semiacuáticas de Patagonia (Argentina) .

Hernandez, L, Montes de Oca, F., Penn, M., Massafarro, J., Garre, A. & Brooks, S. "Jejenes" (Diptera: Simuliidae) of Nahuel Huapi National Park, Patagonia, Argentina: Preliminary Results.

Spinelli, G. & Marino, P. Estado actual del conocimiento de la familia Ceratopogonidae en la Patagonia (Diptera: Nematocera).

Donato, M. Estado del conocimiento taxonómico de la fauna de Chironomidae (Diptera: Nematocera) de la Patagonia.

Cheli, G. & Corley, J. Descripción preliminar de la estructura y composición del ensamble de artrópodos terrestres en Península Valdés.

Seijas, S. & Pozzi, C. La investigación biológica en el Parque Nacional Nahuel Huapi: Proyecto Darwin Biodiversidad de Insectos Acuáticos de la Patagonia.

Massafarro, J. Paleoecología: el uso de los quironómidos fósiles (Insecta Diptera) en reconstrucciones paleoambientales durante el Cuaternario.

3.4 Progress towards the project purpose and outcomes

The project is on track to deliver the outcomes. The purpose level assumptions hold true and indicators are adequate to measure outcomes. A large amount of freshwater insect specimens have been collected during the project and it seems unlikely that all will be identified by the end of the project in September 2009, especially material collected during the 2008/2009 field season. However, material collected during the project forms the basis for the taxonomic research of the project partners who will continue to work on and publish this material in the coming years.

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

The project is contributing to the strategic goals of APN by providing baseline data on freshwater insect diversity and distribution in NHNP. Information provided to schools, tourists and sport fishermen promotes an appreciation of the importance of wetlands and encourages their sustainable use. APN rangers have been trained in biomonitoring techniques and are now routinely collecting water chemistry data. The biomonitoring programme instigated at Rio Villegas during the year has highlighted the serious pollution problems at this site and an educational programme has been initiated by APN to raise awareness amongst local people.

CONICET has acknowledged our project as an example of studies that implements the CBD. 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

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 twice-yearly reporting requirements; 3) meetings in Argentina and UK between UK and Argentinean partners plus updates during international visits to partner institutions; 4) reports on progress and future planning strategy agreed between and 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 and NHM; 2) producing non-specialist and specialist identification guides to freshwater insects; 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 through the field station and laboratory which are currently in frequent use and the establishment of a management committee of stakeholders to ensure 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.

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

Educational outreach to schools

So far we are in contact with three primary schools in the Bariloche area but through our links with the head of education we hope to expand our visits to schools. We have focussed on schools from poor areas because it is in these areas that the most serious pollution of wetlands is occurring and awareness of sustainable use of water resources is least understood. The Darwin Initiative team, together with APN representatives, have run classes in these schools and also taken the children on field excursions to demonstrate insect biodiversity in wetlands and also how insects can be used to monitor water quality by contrasting the biodiversity of insects in unpolluted stretches of rivers with those in polluted stretches.

Best practice in wider area

The one-day mini-symposium which we organised as part of the VII Argentinean Congress of Entomology in October 2008 was well attended and generated much interest amongst delegates. The feedback we received indicated that delegates were impressed with what we had been able to achieve with Darwin Initiative resources and expressed an interest in developing similar initiatives in other parts of Argentina and beyond. In particular, it was the cooperative links that we have built between university researchers and APN that impressed delegates and the way that this can result in developments in biodiversity research for the academics and how APN can use these results to help develop conservation strategy and focus and train their Rangers, because this is unusual in Argentina.

Response from tourists

We have received a positive response from tourists to our activities in NHNP. All the partners and field assistants wear specially designed T-shirts and sweat-shirts, featuring the Darwin Initiative logo, when working in the field and their activities draw questions from curious tourists. Similarly, the posters which we now have displayed at information centres around NHNP have also drawn a response, especially in the form of several people offering voluntary help to the project. The guided walks lead by Pablo Pessacq have proved popular and generated an increased awareness of wetlands conservation and freshwater insects in particular and again have generated some voluntary support. We hope to increase and formalise the number of these tours in the future and hope to involve APN staff as tour leaders.

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 profile of the project within Argentina remains high and we have been promoting our work through press releases, websites, leaflets, posters and presentations at conferences and workshops. These activities have resulted in continued invitations for interviews with local and national press, radio and television. In addition, usage of the field station for student groups, and national and international workshops has increased so that now a booking system has been introduced. Local publicity has also resulted in an increase in the number of volunteers coming forward to help with the project. 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 ensures they will continue to be available for biodiversity studies in NHNP after the end of the project. The formation of a management committee for the Biodiversity Laboratory between stakeholders will ensure the continued use of this facility well after the involvement of Darwin Initiative has ended. At UNLP a large floor area has been allocated for cabinets to store the material collected during the project and PhD students continue to be recruited to work on the material we have been collecting. The project has generated a large quantity of freshwater insect material which will provide material for post-graduate projects on taxonomy, biogeography and ecology for many years to come. Digital imaging equipment purchased through the project is now installed and functioning at ILPLA which will improve the capacity of that institution for biodiversity studies and the dissemination of information.

8. Dissemination

Information about the project is being disseminated through various media (see Annex 3). The target audiences are members of the public, tourists, APN staff, academics and students.

Websites. The project has been featured on the following websites: University of Chaco, Museum of Natural Sciences La Plata, University of Cordoba, University of Santa Fe, Italian National Parks. Links are listed in Annex 3 and copies are enclosed with this report.

Media. Articles, features and interviews have appeared in local newspapers *Rio Negro*, *Ecos del Parque*, *BariNoticias* and the national newspaper *La Nacion*, and two articles have appeared in the science magazine *Naturaleza y Tecnologia*. In addition Julieta Massaferro gave three radio interviews, one for each of the following: *Radio 6 Bariloche*, *Radio Provincia*, *Radio Universidad de la Plata*. Massaferro has also provided information for an article to appear in *Muy Interesante*, a popular national science magazine, and conducted two television interviews, one to be screened later in 2009. Full details are provided in Annex 3.

Information products. Posters and leaflets about freshwater insects and wetland habitats have been designed and produced by Massaferro and printed by APN with support from Darwin Initiative. These are now available and on display at NHNP information centres and have been distributed to local schools.

9. Project Expenditure

Table 1. Project expenditure during the reporting period (Defra Financial Year 1 April 2008 to 31 March 2009)

Item	Budget (please indicate which document you refer to if other than your project application or annual grant offer letter)	Expenditure	Variance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment (specify) Replacement collecting equipment.			
Others (specify) Lab Consumables NHM Indirect Estates Audit			
Salaries (specify by individual) Local Coordinator (J Massafferro) Local Project Assistants			
TOTAL			

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

[I agree for LTS and the Darwin Secretariat to publish the content of this section](#)

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2008/09

Project summary	Measurable Indicators	Progress and Achievements April 2008 - March 2009	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 on collecting localities from all three field seasons</p>	<p>Complete species-level databasing from field seasons 2 and 3</p>
<p>Activity 1.1 Collection of freshwater insects from southern part of NHNP</p>		Complete	
<p>Activity 1.2 Freshwater insects collected during previous (2007/2008) field season identified</p>		Lists available for aquatic Diptera and Coleoptera, others still in progress.	

Activity 1.3. Database populated with information from second and third field season including collection localities and species found there		Locality information complete, some species data entered, others pending.	
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. Montes de Oca submitted tesina. Garré PhD studies on-going. Montes de Oca trained in research and curation techniques during visit to NHM. Garré received training on statistical techniques.	Montes de Oca to register for 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.	Second non-specialist leaflet to freshwater insects available and disseminated through APN outlets and local schools. <i>Field guide to freshwater insects of Patagonia</i> has most sections in advanced draft. 30 specialist taxonomic works published in scientific literature.	Complete <i>Field guide to freshwater insects of Patagonia</i> .
Activity 3.1. Research and writing of identification guides		Most complete, 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.	Achieved.	Continued use of Puerto Blest and Biodiversity Laboratory

Activity 4.1 Purchase furniture and equipment for laboratory and field station		Complete. Puerto Blest field station, Biodiversity Laboratory, collections storage area at UNLP and digital imaging facility fully equipped and in use.	
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.	Biomonitoring on-going at Rio Villegas. More APN trained in biomonitoring techniques. APN Rangers undertaking water chemistry monitoring during routine site visits. Media interest sustained.	Continuation of biomonitoring programme. Continue media contacts an press releases.
Activity 5.1 Training courses held		Complete. See Annex 4 for list of courses	
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 second field season curated, databased and stored in purpose-allocated cabinets at UNLP, or still being worked on by specialists. Database in operation. GIS database populated with information from first field season. GIS ground-truthing postponed until Febraury 2009 because NHNP inaccessible following volcanic eruption in May 2008. Training on digital imaging facility complete.	Continuation of taxonomic work on specimens collected. GIS database populated with information from second and third field seasons. Digital imaging facility will be used to illustrate <i>Field guide to freshwater insects of Patagonia</i> .
Activity 6.1. Curation, storage and databasing of freshwater insects collected during second and third field campaigns.		On-going	
		Biomonitoirng programme run by	Broaden biomonitoring programme

Output 7. Freshwater insect monitoring programmes run by local communities established	Trained local people running monitoring programmes on local rivers	APN and local students on-going. Local people expressing interest in water quality issues.	to involve local people.
Activity 7.1. Training APN rangers and students on biomonitoring techniques		On-going	

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>
<p>Outputs</p> <p>Inventory of freshwater insects in the NHNP available on database</p>	<p>Database and website detailing distribution of freshwater insects</p>	<p>Database and website accessible, copy of inventory sent to Darwin.</p>	<p>Representative freshwater biotopes are accessible to surveyors.</p>
<p>Darwin-funded staff trained in freshwater insect taxonomy, sampling methods, GIS, collections maintenance.</p>	<p>Darwin-funded staff trained. Engaged in sampling, identification, databasing, developing interpretative material.</p>	<p>Reports sent to Darwin, NHM and La Plata University, training protocol published for wider dissemination.</p>	<p>Darwin-funded staff become familiar with diverse insect groups and have multi-tasking abilities.</p>
<p>Specialist and non-specialist guides to Patagonian freshwater insects.</p>	<p>Identification guides available and widely disseminated.</p>	<p>Copies of identification guides sent to Darwin and lodged in libraries of NHM and UNLP.</p>	<p>Taxonomy is tractable so species level keys can be produced within three years for all groups.</p>
<p>Establishment of Puerto Blest field station as centre for studying freshwater insects and freshwater ecology.</p>	<p>Puerto Blest regularly used by students, specialists, community groups and tourists to learn</p>	<p>Darwin informed of number of courses and visitors to Puerto Blest.</p>	<p>Support of field station by local Universities and local communities.</p>

	about wetlands.		
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.	Reports on number of courses established and 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 Media coverage

Newspapers

Rio Negro, May 2008, Bariloche. LA INICIATIVA DARWIN EN NAHUEL HUAPI
<http://www.bariloche2000.com/article.php?story=20080522032329399>

Ecos del Parque , June 2009. Bariloche. PROYECTO DARWIN. BIODIVERSIDAD DE INSECTOS ACUATICOS DEL PARQUE NACIONAL NAHUEL HUAPI. PRIMEROS RESULTADOS Y ACCIONES www.ecosdelparque.gov.ar

Diario La Nacion, February 2009. Buenos Aires DESCUBREN 50 NUEVAS ESPECIES DE INSECTOS http://www.lanacion.com.ar/nota.asp?nota_id=1100461

BariNoticias, 17 March 2009. BIODIVERSIDAD DE INSECTOS ACUÁTICOS DEL PARQUE NACIONAL NAHUEL HUAPI
http://www.barinoticias.com.ar/index.php?option=com_content&task=view&id=12866&Itemid=2

Science and Technology Magazine

N&T. Naturaleza y tecnologia. August 2008. CAMBIOS CLIMATICOS E INSECTOS FOSILES. TESTIGOS MILENARIOS DEL CAMBIO CLIMATICO. PARTE 1

N&T. Naturaleza y tecnologia. October 2008. CAMBIOS CLIMATICOS E INSECTOS FOSILES. TESTIGOS MILENARIOS DEL CAMBIO CLIMATICO. PARTE 2

Radio programmes

21 May 2008. Radio 6 Bariloche

20 February 2009. Interview for Radio PROVINCIA

21 February 2009. Interview for Radio Universidad de la Plata

TV programmes

Canal 7. Recurso Natural (to be screened later in 2009)

Pantalla Solar. Cable channel, Bariloche. Screened two days per week at 13:30 hrs.

Internet links

Italian site <http://www.parks.it/world/AR/parco.nazionale.nahuel.huapi/Snov.html>

Argentinean site (Universidad de Chaco) <http://apeyus.blogspot.com/2009/02/descubren-50-nuevas-especies-de.html>

Argentinean site (Museo de Cs Naturales de la Plata)

www.fcnym.unlp.edu.ar/museo/divisiones/entomologia/abaentomo_archivos/noticias_entomo.htm

Argentinean site (Universidad de Cordoba)

<http://www.unc.edu.ar/institucional/dossier/2009/febrero/martes-17-de-febrero-de-2009>

Argentinean site (Universidad de Santa Fe)

http://www.mercosurradio.com.ar/joomla/index.php?option=com_content&view=article&id=822:ciencia-y-salud&catid=1:latest-news&Itemid=50

Annex 4. Training courses

Courses drawing on work done during Darwin Initiative project.

Undergraduate

Arthropods of medical and veterinary importance. G. Spinelli (UNLP)

Invertebrates. J. Muzon (UNLP)

Biogeography. M. Donato (UNLP)

Reconstructing palaeoclimates. J. Massaferro (University Buenos Aires)

Micropalaeontology. J. Massaferro (University Buenos Aires)

Postgraduate

Historical biogeography M. Donato (UNLP)

Taxonomy and biology of Chironomidae Donato and Massaferro (UNMDP)

Annex 5. Poster of freshwater insects and wetlands placed in interpretation centres and touristic points around NHNP

INSECTOS ACUÁTICOS DEL PARQUE NACIONAL NAHUEL HUAPI

EFÍMERAS (MAYFLIES)
(Orden Ephemeroptera)

"MOSCAS CON PELOS" (CADDISFLIES)
(Orden Trichoptera)

MOSQUITOS
(Orden Diptera)

LIBÉLULAS, AGUACILES (DROGONFLY and DAMSELFLY)
(Orden Odonata)

MOSCAS DE LAS PIEDRAS (STONEFLIES)
(Orden Plecoptera)

CHINCHES DE AGUA
(Orden Hemiptera)

JEJENES (MIDGES)
(Orden Diptera)

ESCARABAJOS DE AGUA
(Orden Coleoptera)

RÍO DEL BOSQUE DE NOTHOFAGUS

LAGO DEL BOSQUE

LAGO DEL BOSQUE HÚMEDO

RÍO DEL BOSQUE HÚMEDO

RÍO DE ECOTONO

MALLIN

0 10 20 Km

Annex 6. Poster advertising Darwin Initiative-sponsored conference. See also http://www.sea.org.ar/VII_cae

1º Jornadas de Ciencias Naturales
en la Patagonia

ESQUEL - CHUBUT

Biodiversidad y Conservación

Esquel



23 - 25 de Octubre 2008

Organizado por:
Fac. de Cs. Naturales
Universidad Nacional de la Patagonia
San Juan Bosco



**Contacto: Tel.: 02945-450807 - e-mail: jcnpat@gmail.com
Comisión Organizadora: Ruta Nacional 259 km.16,5 - C.P: 9200**

Annex 7. Example page from *Guide to freshwater insects of northern Patagonia*.

Orden Plecoptera, características generales

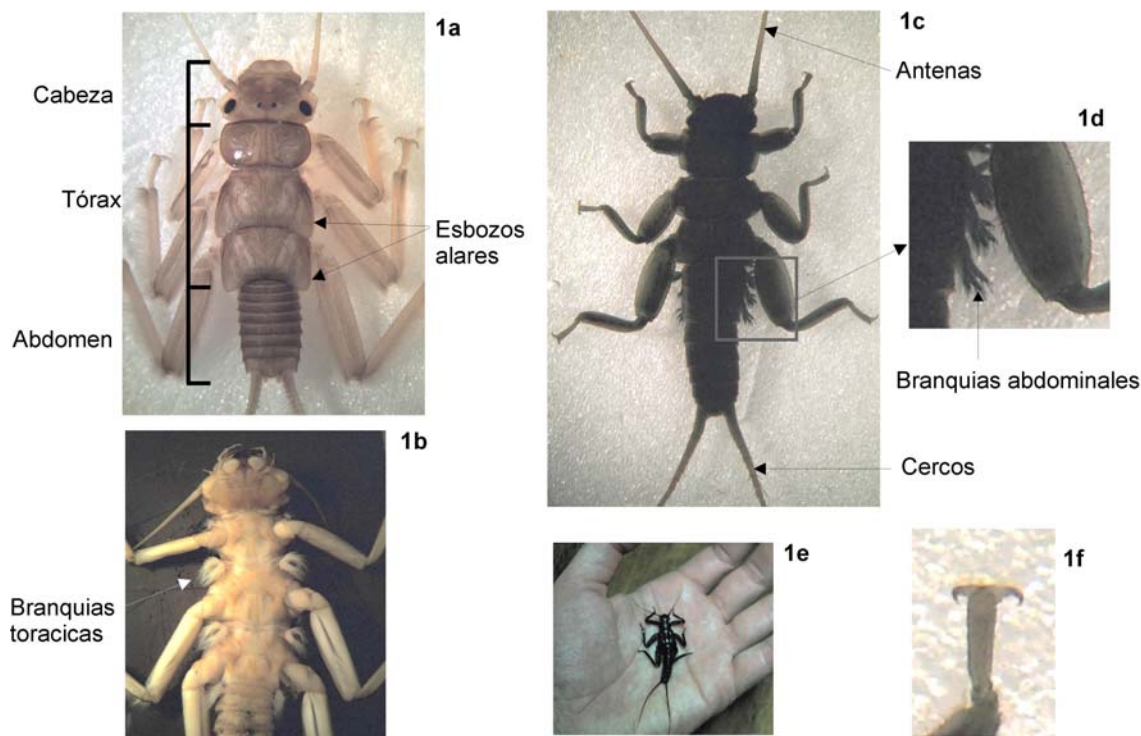


Figura 1: 1a: *Pictetoperla gayi*, vista dorsal. 1b: *P. gayi*, vista ventral, branquias torácicas. 1c: *Diamphipnopsis samali*, vista dorsal. 1d: *D. samali*, detalle de las branquias. 1e: *Diamphipnoa* sp., una de las especies de mayor tamaño de la patagonia. 1f: detalle de las uñas de *D. samali*.

Caracteres diagnósticos

Insectos pequeños a grandes (5-50 mm), de colores variados. Patas con dos uñas (fig. 1f), cercos presentes, usualmente largos (fig. 1c), antenas filiformes (largas y delgadas, afinándose progresivamente hacia la punta, fig. 1c). Larvas con branquias de forma variada en tórax (fig. 1b), abdomen (fig. 1c) o sin ellas, con esbozos alares externos (pequeños o ausentes en los individuos jóvenes). Adultos con dos pares de alas (las posteriores más anchas) que pliegan planas sobre el abdomen.

Ecología y distribución

Este grupo se encuentra representado en ríos de aguas claras y frías de la cordillera andino-patagónica y en menor medida la estepa, generalmente son herbívoros o detritívoros y en pocos casos carnívoros.

Referencias bibliográficas

- Illies, J. (1963) Revision der südamerikanischen Gripopterygidae (Plecoptera). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 36, 145-248.
Pessacq P. & M.L. Miserendino. 2008. Ephemeroptera and Plecoptera biodiversity in central Patagonia, Chubut province, Argentina. *Zootaxa*, 1817: 27-38.

Documents enclosed with Annual Report

APN freshwater insect information leaflet

Calendar

Title pages of Esquel conference part sponsored by Darwin Initiative

Copies of some newspaper articles on the project

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	
Is your report more than 5MB? If so, please advise Darwin-Projects@ltsi.co.uk that the report will be send by post on CD, putting the project number in the Subject line.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	