Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

Project title	**Conserving the rare flora of Central Argentina**
Country(ies)	**Argentina**
Contractor	**University of Sheffield**
Project Reference No.	**8/116**
Grant Value	**£122,275**
Start/Finishing dates	**April 1999-March 2002**
Reporting period	**April 2000-March 2001**

2. Project Background

- *Briefly describe the location and circumstances of the project and the problem that the project aims to tackle.*

Central Argentina is the meeting point of species belonging to different geographical regions and evolutionary histories (Andean, Chaquenian, Pampean, Patagonian, NW mountains). However, little is known about the community dynamics of the flora. The ecological characteristics and historical events that have determined the distribution of rarer species have not been described nor has their role in ecosystem function. Equally, we do not know what effect a change in management will have on vulnerability to invasion by alien species. Information on all these matters is essential in order to produce adequate guidelines for natural reserve management, which could also be applied to the sustainable management of farms outside protected areas. The present project seeks to study the conditions required for the survival of many of these species, and to make recommendations to conservation agencies for their future protection. As well as scientific and practical conservation objectives, the project also seeks to provide a lasting legacy in training both in conservation practice and theory, helping to increase awareness amongst the younger generation in Argentina of environmental issues, and the importance of the conservation of biodiversity in particular.

3. Project Objectives

- *State the purpose and objectives (or purpose and outputs) of the project. Please include the Logical Framework for this project (as an appendix) if this formed part of the original proposal or has been developed since, and report against this.*
- *Have the objectives or proposed operational plan been modified over the last year and have these changes been approved by the Darwin Secretariat?*

The main objectives of this project are :

- to survey two important but neglected vegetational types from Central Argentina (Dry Chaco and high-mountain grasslands and shrublands) ;

- to create a database of functional attributes for species of contrasted abundance and conservation interest;
- to train local scientists in relevant field survey methods, techniques for measuring autecological characteristics of plants, database management, resource assessment and conservation management
- to review and evaluate existing conservation measures and to make recommendations concerning management for biodiversity both within the two nature reserves studied and within Central Argentina in general.

Central to all these objectives is an ecological study of the distribution, habitat requirements and ecological characteristics of three groups of species: rare native species (of conservation interest), invasive aliens (a potential threat to the conservation interest) and common species (the 'backbone' of the vegetation of the two areas).

These original objectives remain intact. However, because the Argentine datasets have been created so as to be compatible with others collected in Iran (another Darwin project), Spain and UK, we will also attempt to combine these data sources to produce ecological papers that address global conservation issues. [Participants will commit additional 'unpaid' time and resources to this objective; no redeployment of resources from the other parts of the project is involved.]

4. Progress

- *Please provide a brief history of the project to the beginning of this reporting period. (1 para.)*
- *Summarise progress over the last year against the agreed baseline timetable for the period. Explain differences including any slippage or additional outputs and activities.*
- *Provide an account of the project's research, training, and/or technical work during the last year. This should include discussion on selection criteria for participants, research and training methodologies as well as results. Please* ***summarise*** *techniques and results and, if necessary, provide more detailed information in appendices (this may include cross-references to attached publications)*
- *Discuss any significant difficulties encountered during the year.*
- *Has the design of the project been enhanced over the last year, e.g. refining methods, indicators for measuring achievements, exit strategies?*
- *Present a timetable (workplan) for the next reporting period.*

Year 1

The project has two distinct elements, **science** and **education**. Although the same staff ran both, these two elements of the program are currently operating largely independently of each other. By year 3 we will have a greater understanding of the ecological problems and possible solutions and the 'conservation awareness' programme will have achieved its maximum impact. At this stage the necessary fusion of the two strands will take place to fulfil the conservation objects of the project.

The first year of the science element of the project included a strong training element particularly in field and laboratory techniques. Field surveys and functional measurements were carried out and a computer database set up incorporating floristic and functional data. During his visit to Argentina, Dr John Hodgson was shown the field sites and learnt about the practical ecological problems. He also gave two public

lectures and with his Argentine colleagues ran a two-day workshop for local scientists.

In year 1 the educational element of the project involved collaboration with different conservation bodies. Four workshops were organised, two of them at each of the protected areas. The National Parks Administration was directly involved in the organisation of one of the workshops held in Quebrada del Condorito National Park. The Provincial Environmental Agency participated in the workshops held at Chancaní Reserve. Two NGOs were also directly involved (ACUDE at Quebrada del Condorito and El Escondite at Chancaní). Conservation in Argentina depends critically on the co-operation of the local farmers. Accordingly, all members of rural families (adults and children) were actively involved in the workshops. The workshops were high profile events with newspaper and in one case television coverage.

Year 2

This was planned as a time of consolidation. The milestones promised were to complete (1) field work, (2) the ecological characterisation of species and (3) data entry into the computer. These milestones, which all relate to scientific objectives, have been achieved.

1. Vegetational data for 30 releves have been added to the database making a total of 292 in all. The areas recorded are different from those previously studied. They are relatively fertile and under more immediate threat from intensive agriculture. They also appear more open to invasion by aliens and contrast with the more pristine vegetation sampled previously. The process of entering up floristic data has been speeded up by sub-contracting technical staff to write a small program to convert data in Excel spreadsheet format into the form necessary for an Access database. (Would it be a good idea to advertise this small program in the Bulletin of the British Ecological Society and allow people to copy it via the Darwin website?) [There is, however, additional complementary vegetational data (135 releves) collected during the year. This was not a part of the Darwin project but in May we will enter up the information into the database before final analyses.]

2. Autecological data for a further 29 species (mainly weedy species of roadsides and aliens) have been added to the computer database making a total in all of 239 species (166 common, 46 rare and 27 aliens). Since they come from habitats that fall outside the range of site fertility hitherto sampled, all 29 of these species have been subjected to chemical analyses.

3. The work on aliens has received a major boost with the addition of a PhD student, Paula Tecco, to the Darwin team. She was awarded a scholarship by the Argentine National Research Council (CONICET) in May 2000 because of her academic excellence. She is working on aliens and has already started to measure ecosystem effects of selected major invaders.

The visit of British scientists to Argentina was delayed until March. It had proved impossible to find a suitable date in December when everyone was free. There were, nevertheless, face-to-face discussions in December. Sandra Diaz and Philip Grime were both attending the same scientific meeting in Paris. They discussed the scientific aspects of the project and agreed that things were going well.

John Hodgson visited Argentina from March 12th – 22nd. The visit had three main objectives (a) to assess progress and deal with any methodological problems, (b) to

explore further possible links between the Darwin project and other ecological research being carried out and (c) to plan the work schedule for year 3.

a. John Hodgson saw at first hand all aspects of data collection in the laboratory and in the field. All involved in the project showed a high level of technical competence and no methodological problems relating to measurement were detected. No large database is, however, error free and a few values seemed improbable. Nevertheless, a major exercise in re-measurement resulted in only a very small number of corrections, confirming the high quality of the laboratory practice operating at Cordoba.

b. Independently of the Darwin project, the Cordoba group has been looking at the way the natural vegetation of the region has become reduced in area and fragmented using digitised satellite images (LANDSAT TM), aerial photographs and vegetation maps. A semi-natural community is both a conservation resource and an under-exploited economic resource. Nutrient availability and dynamics have a critical impact on both ecosystem function and suitability of the site for agricultural exploitation. We therefore anticipate that functional attributes of vegetation relating to nutrient acquisition and dynamics will allow us to predict comparative rates of habitat destruction for the major vegetation types of the region. General rules linking the impacts of changing land use with the functional traits of plants would be a useful additional tool with which to devise general conservation policies for the region.

c. We agreed on a schedule of work that we would like to carry out, subject to approval by the Darwin Secretariat. It includes all of the original objectives but some new ones as well.

During his visit to Argentina John Hodgson also gave a talk to the research group outlining a similar collaboration with Germany ecologists. This provoked long discussions on the relationship between functional type and loss of habitat and of habitat quality and resulted in an additional project objective (see b above).

There was also a field trip during which additional field recording and plant measurement were undertaken. We carried out more vegetation recording and saw the type of species that invaded when. We also visited a number of sites where the native vegetation was destroyed and examined situations where invasion by aliens was a potential problem. [No such problems had been evident at the sites adjacent to nature reserves visited the previous year. In other, perhaps more typical areas, where agriculture is more intensive, aliens can be important components of the vegetation even in very xeric sites.] Particular scientific interest centred on the only two annual species seen that were common to UK and Argentina. They both showed very different phenologies in the two countries. Reasons for success and failure of potentially invasive annuals in Argentina, where there is no winter rain, and in California, where winters are wet, will therefore form a part of Paula Tecco's PhD project.

Sandra Diaz and Marcelo Cabido are both very experienced and respected ecologists, who contribute regularly to international conferences and workshops. As well as having a major commitment to conservation they have throughout also been keen to do some major 'high-impact' science either within the project itself or as a spin-off from the Darwin collaboration. To these ends we have instituted a new, international element to the work, combining the Darwin dataset with other similar data. We are looking for general rules relating to ecological specialisation and to conservation and

biodiversity. Our first 'international' paper is now in preparation. It relates to functional datasets from Argentina, Iran (another Darwin project), Spain and UK. Using Principal Component Analyses we have identified the same major axes of variation in functional traits in each of the four floras. Moreover, there is evidence of a link between functional traits and biodiversity. [It should be noted that no resources are being taken from other parts of the Darwin project; we are simply putting more time into the collaboration.]

We can also report two examples of forward planning:

1. One potential problem with data analysis has been resolved. In order that a large quantity of existing Argentine floristic data could be incorporated into the project, vegetation recording has differed from that we have routinely in UK. John Hodgson carried out some work with similarly collected German data and has established suitable protocols for analyzing the Argentine data.

2. A start has been made by Gregory Spring, a former member of the Sheffield research group, on preparing computer programs for interpreting floristic change in Argentine vegetation. He is preparing a 'shell' using a dummy set of data. Computer programs are not scheduled until the third year but it seemed important that development of the product was not delayed by problems with programming

None of the milestones for this year relate to the educational component of the project. The major activities at Chancaní Reserve, took place on 29 March and 3-4 May and as described in last years report the two environmental workshops had a major impact both in newspapers and on television. There are now available two outputs illustrating the work at the workshop - a poster based upon drawings by local children and a video. The video is an inspection copy. Re-recording at low speed will improve the quality of the pictures. Nevertheless, it provides an interesting account of what has gone on particularly to those fluent in Spanish. [Activities with an environmental theme for primary schools included making posters, puppets and kites, puppet and kite shows, discussing their environment using pictures of trees and erosion, writing letters and role playing (hunter, warden etc.). Following the guided visit to the reserve, they made models of reserve and non-reserve landscapes. They wrote letters, made up questionnaires and interviewed different people involved with the environment (e.g. hunters and the elderly – what were things like fifty years ago?) Teenagers from the secondary school also analyzed photographs, debated conservation issues, painted a large 10m mural and prepared a public programme with loud speakers, commentary and music. Everyone attended including the Press.]

The policy of the provincial governmental has been to exclude people; people hunt, graze, cut timber and destroy nature. For their part, the local population saw the nature reserve as a haven for foxes that ate their chickens and for puma that ate larger livestock. Therefore, one of the most significant events was a visit to the reserve. It was the first time that the people of Chancani had entered the reserve for 20 years, even though the reserve is only 8 km from their village. None of the children had previously seen undestroyed chaco vegetation. The visit has had a positive effect. Everyone appreciated the abundance of trees and of grass. The children understood much better about the changes to the countryside in recent times (e.g. the demise of the charcoal industry because no trees were left). The farmers recognized, and were envious of, the better fertility of the soils in the reserve and the continuing survival of medicinal plants, long extinct from the surrounding countryside. Thus, there was a general consensus that current management practices outside the reserve could be and

should be improved both for the farmer and for the conservation of biodiversity. The provincial governmental also became aware for the first time of the resentment of local people due to loses of livestock. A dialogue is now taking place. [The issues and discussion initiated during last year workshops will be continued.during two further workshops at Chancaní (27-28 April and 4-5 May 2001). The workshops will be attended by c. 29 high school students.]

A small illustrated field guide to the flora of Chancani (The Flora and Vegetation of Chancani Provincial Reserve) has been prepared by Marcelo Cabido. It was ready for publication in August. The local government liked it and offered to publish it. They have insisted upon paying the full publication costs. The Darwin logo will still be included but because of government involvement publication of this additional output has been delayed. A similar guide has also been written about the flora and vegetation of the other study area, Condorito National Park. It will be published later this year.

Marcelo Cabido has just signed a new contract with the National Park Administration to provide information on biodiversity in Quebrada del Condorito National Park and to prepare a monitoring programme. These activities are directly linked to the objectives of the Darwin project.

We were grateful to the Darwin Secretariat for permission to buy a vehicle for fieldwork. We had hoped to take advantage of a special scheme in place for buying cars at a discount. Because of Argentina's economic problems there was provision to buy a vehicle that normally costs £7,500 for only £5,000. This scheme was, however, discontinued with no notice before we had had an opportunity to purchase a vehicle. The only cars now affordable are inappropriate for the heavy demands of fieldwork and no car has been bought.

We have no real problems with the scientific component of the project, other than disseminating information at an international conference (see heading 6 below). There is, however, a problem with the educational component. This initiative has had a much greater impact than initially anticipated. There is now a genuine desire amongst the people of Chancani to improve their management procedures.

The initial plan of work set out in the proposal was a visit by an Argentine 'Darwin Fellow' April-June 2001 to set up the database and help in the development of relevant computer programmes. Subsequently (July-August) in house testing of the data interpretation system was to be carried out for reliability and ease of use. The product would be tested during the summer (October-February).

John Hodgson has health problems, about which the Secretariat are aware. Also, there is the problem of foot and mouth. It is not essential for Argentine visitors to see experimental sites and those of conservation interest. Nevertheless, their visit would be greatly enriched by being able to see at first hand UK approaches to conservation problems. This will necessitate changes to the timetable for year 3. The Darwin Secretariat will be kept fully informed of developments but no major slippage in achieving milestones is envisaged.

Our planned outputs for the third year of the project remain:

- to re-check the vegetation and functional databases and to incorporate them into a single Access database;
- to develop computer programs for interpreting vegetation change and its consequences for biodiversity;

- to continue the educational programme. After consultation with the local teachers, it was agreed that follow-on activities from March-May 2000 should be delayed until after the start of the new school year (April-May 2001). [Marcelo Cabido reports that workshops in Chancaní. were excellent with another poster and renewed media interest.];
  Another workshop (poster included) is planned for Condorito National Park in October-November;
- to put forward an action plan for conservation in the region. The involvement of Marcelo Cabido in a monitoring programme at Condorito for the National Pak Authority will add weight to this output;
- to submit 3 scientific papers relating to the Darwin project;

with additionally

- a study of the importance of plant functional type and other factors on the extent and fragmentation of semi-natural communities;
- studies of relationships between functional type and biodiversity in Argentina, Iran, UK and Spain.

5. Partnerships

- *Describe collaboration between UK and host country partner(s) over the last year. Are there difficulties or unforeseen problems or advantages of these relationships?*
- *Has the project been able to collaborate with similar projects in the host country or establish new links with / between local or international organisations involved in biodiversity conservation?*

Collaboration has been excellent. Both CONICET in Argentina and the UK partners have a similar philosophy towards how ecological research should be conducted. Moreover, both groups include good taxonomists and good ecological theoreticians, which engenders complementary enthusiasms. Association with the Darwin Initiative has provided much kudos to CONICET helped by the fact that both Argentine prime movers appear 'in action' on the front cover of the last Darwin Annual Report. Through the project, strong links have been established between host country partners and governmental agencies, both national and provincial. In Quebrada del Condorito National Park educational work has been carried out together with the park guards and with the regional delegate of the national park administration. In the Chancani provincial reserve there has been active collaboration between the host country partners and provincial technicians and guards, not only in the workshops, but also in different conservation activities and practices.

Since the Argentine and UK partners have complementary datasets and we have good contacts with Iranian and Spanish ecologists with similar datasets, it is now possible to address ecological and conservation issues at a more global level. High profile papers are planned.

6. Impact and Sustainability

- *Discuss the profile of the project within the country and what efforts have been made during the year to promote the work. What evidence is there for increasing interest and capacity for biodiversity resulting from the project? Are satisfactory exit strategies for the project in place?*

The conservation and educational activities have had a major impact in Argentina because of intensive media coverage. The impact of the science has to date been low. As more papers are published and other outputs become available, hopefully this will change. One possibility to increase the scientific impact would be to host a conference in Cordoba relating to the work that we have carried out on the Darwin Initiative. This would also get round the problem of a Darwin output that is very difficult to achieve, dissemination of results at an international conference. The problem is that for major conferences one has to offer papers about two years in advance. We do not regard this as a feasible option since we cannot predict scientific outputs so soon after the start of the Darwin project.

The Darwin project deals with two important but little appreciated vegetation types in Argentina, chaco and montane grassland. At the start of the project the Argentine scientists had a small advisory role on conservation management within the region and there was little appreciation within the local communities of the conservation importance and biodiversity of their areas. The excellent work done by social scientists, teachers and agronomists within the local communities has raised the profile of the sites and increased awareness of issues relating to management both for sustainable agriculture and for conserving biodiversity. Locals now know, and are proud of the fact, that the landscapes in which they live have species that don't occur anywhere else in the world. Moreover, conservation authorities and the local population are now talking to each other. Children are beginning to learn about the plants and animals of the region and what they do in the landscape. There are discussions taking place that will hopefully lead to the incorporation of a taxonomic, ecological and conservation element within the school syllabus. Guide books to the flora of the area are being written and there may be opportunities for a few taxonomically competent and conservationally aware children to obtain employment as guides or wardens. These, and related events have created a much more positive attitude on the part of the local people and by the conservation authorities to the conservation value and biodiversity of the region.

The improvisational skills so necessary to getting to this point will continue. There is no well-defined exit strategy, however, because the project will continue in one form or another after Darwin funding ceases. The Argentine ecologists have spent many years studying the flora of the region and have been in regular contact with conservation authorities. They will continue to do so, but with better communications with the regional government. Those involved solely with educational aspects were chosen because they were known to and trusted by the local community. They have a commitment to those communities. Educational and management tools are being produced to aid sympathetic management of the habitats and at the end of the Darwin Initiative project proposals will be submitted for maintaining or increasing the conservation value and biodiversity of the region. If these are not accepted, and even if they are, we will continue to build upon the good start that has already been made and the slow process of influencing people and events will continue.

7. Outputs, Outcomes and Dissemination

- *Please expand and complete Table 1. **Quantify** project outputs over the last year using the coding and format from the Darwin Initiative Standard Output Measures (see website for details) and give a brief description. Please list and report on appropriate Code Nos. only. The level of detail required is specified in the Guidance notes on Output Definitions which accompanies the List of Standard Output Measures.*

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

Code No.	*Quantity*	*Description*
1	*3 Paula Tecco, Marcelo Zak, Diego Gurvich*	*One student has started a PhD on aliens; another, is studying the spatial patterns of natural vegetation included the target areas of the project; the third is measuring growth rates of key species, has finished practical work and is about to submit her thesis.*
2	*1 María José Pacha*	*She got her Master degree in the University of Lancaster, but worked during the second year in our team within the Darwin Project. At the moment she is at Lancanster and is involved in a Ph Thesis.*
3	*2 Cecilia Blundo, Lucas Enrico*	*Undergraduate Thesis in topics related to species and vegetation of target areas of the Darwin Project*
4A	*3*	*Students in Biology (National University of Córdoba) that participated in workshops for guards.*
4 B	*Two weeks*	
4C	*11*	*Postgraduate students (PhD students) participating in courses with credits for PhD careers.*
4D	*Three weeks*	
6A	*17 + 11*	*High school and primary school students in schools in the target areas or surroundings. Also other people (peasants, and people in general) should be considered in this topic. Participants in workshops and training sessions held in the target areas.*
6B	*2 weeks divided into3 different events*	
7	*1 video 1 poster 2 books*	*All the material is related to the diversity of the protected areas, and to the worshops and activities developed in the areas.*

DARWIN INITIATIVE FOR THE SURVIVAL OF SPECIES

STANDARD OUTPUT MEASURES

The Initiative uses a series of indicator measures to assess the achievements of its projects. These may be grouped as training, research, dissemination, publicity and financial outputs. They are not designed to be definitive but to give an indication of easily identifiable measures of the projects' progress and final achievements. Some existing projects report additional outputs that are unique to their work.

The tables below list the output measures that are most common. The notes explain what each covers.

To give some indication of the direction of applications and to highlight what key features will be present, applicants should enter the relevant output number and any relevant text on their application form. If a key output in your proposal is not listed here, please include it as an additional output on your application form.

TRAINING OUTPUTS

General points

- The nationality of students/trainees should be reported
- Double counting of outputs must be avoided
- Workshops can only be claimed as providing training if the duration of the workshop is at least 3 days and if participants are gathered principally to work on, or in association with, the project. Otherwise workshop activities come under output 14.
- A training week is defined as one that involves at least 30 hours of tuition/training per week. Below 30 hours, training weeks should be calculated on a pro-rata basis.

Code Number	Output description (* indicates that the nationality of trainees should be stated)	Definitions
1A	Number of people to submit thesis for PhD qualification *	These outputs are included in the table as funding for early projects included PhD training. They are unlikely to feature in new Darwin projects, given the more recent guidance issued by this Department.
1B	Number of people to attain PhD qualification *	
2	Number of people to attain Masters qualification (MSc, MPhil etc) *	
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above) *	"Other qualifications" may include diplomas, NVQs or other qualifications awarded through accredited courses.
4A	Number of undergraduate students to receive training *	This category covers short periods of work experience/training for post and undergraduates.
4B	Number of training weeks to be provided	
4C	Number of postgraduate students to receive training *	
4D	Number of training weeks to be provided	
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above) *	Training of over one year which does not fall in outputs 1-4 above. For example, fieldwork and analysis in the host country where extensive

		training and guidance is given to host partners. British staff employed to work on a Darwin project should not be included.
6A 6B	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above) * Number of training weeks to be provided	Training of under one year which does not fall in outputs 1-4 above. British staff employed to work on a Darwin project should not be included. The quantity and nature of the training must be included.
7	Number of (ie. different types - not volume - of material produced) training materials to be produced for use by host country	Training materials may take many forms but may include videos, information leaflets or posters providing advice or guidance on specific topics, or guides and manuals which are to be translated by project staff for wider use in host countries. Training materials are those to be developed directly by the project. They will not include materials donated to the project, those items to be included at outputs 10 or 20 or lecture notes to be distributed to course participants.

RESEARCH OUTPUTS

General points

- Outputs will only be reported when they have been completed ie. only final reports are reported as outputs. Most research outputs will therefore occur at/towards the end of the project
- Any types of research outputs not mentioned below should be listed without a code number.

Code Number	Output description	Definitions
8	Number of weeks to be spent by UK project staff on project work in the	Only individuals in the UK organisation should be included but excluding students or administrative staff

	host country	
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	The type of document will be final reports produced for scientific / public authorities in the host country(ies) to manage specific habitats/species. They will include specific practical recommendations/action points/ targets.
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording	Only final versions are to be included.
11A 11B	Number of papers to be published in peer reviewed journals Number of papers to be submitted to peer reviewed journals	
12A 12B	Number of computer based databases to be **established** and handed over to the host country Number of computer based databases to be **enhanced** and handed over to the host country	Computer databases to be included where the material is capable of being interrogated in a variety of different ways. It is the number of different types of databases that should be entered, rather than information collected in the same way for say four different geographical areas.
13A 13B	Number of species reference collections to be **established** and handed over to the host country(ies) Number of species reference collections to be **enhanced** and handed over to the host country(ies)	The number of collections should be entered rather than the number of entries in the collection.

DISSEMINATION OUTPUTS		
14A 14B	Number of conferences/seminars/ workshops to be **organised** to present/disseminate	There should be a clear distinction between those events to be organised by the project for the project and those which are to be organised by others but used by project members. They should be distinct from

	findings Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	training events and attendance by others outside the project is planned.
15A 15B 15C 15D	Number of national press releases in host country(ies) Number of local press releases in host country(ies) Number of national press releases in UK Number of local press releases in UK	Press releases may be a short statement on the progress of the project or its key findings to the press, a short publicity article in either a popular or an institution's magazine. National press releases will include those which have an international circulation.
16A 16B 16C	Number of newsletters to be produced Estimated circulation of each newsletter in the host country(ies) Estimated circulation of each newsletter in the UK	Only newsletters to be produced primarily to provide and exchange information on activities related to the project may be included. Newsletters can only be included if they have not already been entered under another output.
17A 17B	Number of dissemination networks to be **established** Number of dissemination networks to be **enhanced/ extended**	Only dissemination networks to be established or enhanced through the Darwin project should be included. The networks must comprise groups or individuals who are committed to continue the exchange of information, news and ideas after the end of the project. Networks established by students on Darwin training courses should be included.
18A 18B 18C 18D	Number of national TV programmes/features in host country(ies) Number of national TV programmes/features in UK Number of local TV programmes/features in host country(ies) Number of local TV programmes/features in UK	Full length documentaries or news items planned should be included.
19A 19B	Number of national radio interviews/features in host county(ies) Number of national radio	

19C	interviews/features in UK Number of local radio interviews/features in host country(ies)	
19D	Number of local radio interviews/features in UK	

PHYSICAL OUTPUTS		
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	Physical assets may include buildings, vehicles, computers and computer software, scientific equipment and reference material.
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	Facilities or organisations should only be included where their establishment will come as a direct result of the Darwin project. They may include facilities such as research laboratories or outreach facilities or formalised societies or organisations co-ordinating and administering aspects of training or research. Informal groups should be entered under output 17.
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	Field plots are those to be established for the purposes of field research under the Darwin project.

FINANCIAL OUTPUTS		
23	Value of resources raised from other sources (ie. in addition to Darwin funding) for project work	Funding from all other sources are to be included including contributions in kind which should be quantified.

- *Explain differences in actual outputs against those agreed in the initial 'Project Implementation Timetable' and the 'Project Outputs Schedule', i.e. what outputs were not achieved or only partly achieved? Were additional outputs achieved?*
- *In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications database which is currently being compiled. Mark (*) all publications and other material that you have included with this report*

Table 2: Publications

Type	***Detail***	***Publishers***	***Available from***	**Cost**
Scientific paper	Vendramini F., Díaz S., Pérez – Harguindeguy N., Cabido M., Llano - Sotelo J.M. & Castellanos A. 2000. Composición química y caracteres foliares en plantas de distintos tipos funcionales del centro-oeste de Argentina. *Kurtziana* 28 (2): 181 - 193	-		-
Scientific	Díaz S., Noy-Meir I. & Cabido M. 2001. Can grazing	-		-

paper	response of herbaceous plants be predicted from simple vegetative traits? *Journal of Applied Ecology* (in press)		
Computer program	Askew A. Computer program for converting relevant data in Excel spreadsheet into format for Access database	-	?Darwin - website
Scientific-field guide	The flora and vegetation of Chancaní Reserve	Provincial Environmental Agency	

(These scientific publications include data derived from the Darwin project and an acknowledgement to the Darwin Initiative is included.)

- *Provide details of dissemination activities in the host country during the year. Will these activities be continued by the host country when the project finishes, and how will this be funded and implemented?*

The activities will be continued. Projects will be financed by national (national fund for science and technology) and provincial (scientific provincial agency) institutions.

8. Project Expenditure

- *Please expand and complete Table 3.*

Table 3: Project expenditure during the reporting period

Item	*Budget*	*Expenditure*
Total		

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

9. Monitoring, Evaluation and Lessons

- *Discuss methods employed to monitor and evaluate the project this year. How can you demonstrate that the outputs and outcomes of the project actually contribute to the project purpose? i.e. what indicators of achievements (both qualitative and quantitative) and how are you measuring these?*
- *Are there lessons that you learned from this years work and can you build this learning into future plans?*

There are three main aspects to our monitoring and evaluation procedures. First, we keep a regular check on progress in carrying out the tasks required for the project. If proposed outputs cannot be delivered on time, some procedures may be taking longer than anticipated and a review may be necessary. Such problems could be

misinterpreted as a lack of commitment to the project. Secondly, Sandra Diaz and Marcelo Cabido have previous experience of most of the methodologies adopted and have taken a very 'hands-on' approach to ensure that laboratory measurements and field taxonomy are both of a high standard. In accordance with good laboratory practice, replication of measurements, checking for errors and some re-measurement are routinely used to ensure that the database is of high quality. Thirdly, we assess whether the procedures undertaken will maximize the conservation and scientific of the project. This means we are constantly looking for 'added relevance' of conservation outputs by consultation and 'added value' by increasing scientific outputs.

It is too early to predict the scientific worth of the project. This will only become apparent when papers are published. Furthermore, we have not attempted to formally evaluate the educational work carried out at the two study sites. We consider that the large amount of publicity and enthusiasm that has been generated speaks for itself.

If there is a lesson to be learnt from this years work, it may not be apparent until next year. We have set ourselves an ambitious program for the final year. We intend to include additionally studies of habitat destruction in relation to the functional type of the vegetation and global studies involving four different databases (Argentina, Iran, Spain and UK) as well as our promised outputs from the initial proposal. Perhaps we are trying to do too much.

10. Author(s) / Date

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