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**DEFRA**  
Department for  
Environment,  
Food & Rural Affairs

## DARWIN INITIATIVE

### APPLICATION FOR GRANT FOR ROUND 11 COMPETITION: STAGE 2

Please read the Guidance Notes before completing this form. Give a full answer to each section; applications will be considered on the basis of information submitted on this form. Please do not cross-refer to information in separate documents except where invited on the form. The space provided indicates the level of detail required but you may provide additional information on a separate A4 sheet if necessary. Do not reduce the font size below 10pt or the paragraph spacing.

Submit by 13 January 2003

#### 1. Name and address of organisation

Professor Michael W. Bruford, School of Biosciences

#### 2. Project title (not exceeding 10 words)

Genetic Diversity and Management Implications for Andean Guanaco Populations in Peru.

#### 3. Principals in project. Please provide a one page CV for each of these named individuals.

Details	Project leader	Other UK personnel (if working more than 50% of their time on project)	Main project partner or co-ordinator in host country
Surname	Bruford		Wheeler
Forename(s)	Michael W.		Jane C.
Post held	Professor		Vice President
Institution (if different to above)			CONOPA
Department	School of Biosciences		
Telephone			
Fax			
Email			

#### 4. Describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

##### Aims

The aim of the Biodiversity and Ecological Processes Group (BEPG) is to carry out innovative, fundamental research into the processes which drive changes in biodiversity, both of an anthropogenic nature and as a result of natural evolution. The aim of our department is to achieve excellence in research and teaching across a range of disciplines within the biological sciences.

##### Activities

Cutting-edge international research and teaching. BEPG has research strengths in global change biology, aquatic conservation, pest management and conservation genetics. Degree schemes in Biology, Ecology and Ecosystems Management are among those offered by the School of Biosciences, which comprises 90 faculty members. Professor Bruford serves as Head of the BEPG (19

##### Achievements

Cardiff University is a member of the Russell Group of universities and was ranked overall 7<sup>th</sup> in the 2001 Research Assessment Exercise, where Biosciences submissions were graded 4 and 5. Teaching is graded 'excellent' in over 20 subjects including biology. In 2001/2, Biosciences was awarded over £13 million and is the highest earning department within the University.

**5. Has your organisation received funding under the Initiative before? If so, please give details.**

N251- Vicuña Populations in Peru (while MWB was at the Institute of Zoology), 08/044 - Conservation of the Western Lowland Gorilla in Gabon (final report just submitted), 09/016- Conservation of the orang-utan in Kinabatangan, Sabah (in Year 3).

**6. Please list the overseas partners that will be involved in the project and explain their role and responsibilities in the project. The extent of their involvement at all stages in the project should be detailed, including in project development. Please provide written evidence of this partnership.**

The Peruvian partner, CONOPA, Coordinadora de Investigación y Desarrollo de Camélidos Sudamericanos, is a non-profit research and development organisation founded by co-recipients of a previous Darwin grant (N251, Genetic Diversity and Management Implications for Vicuña Populations in Peru) in order to continue research in conservation genetics of wild camelids and extend these techniques to the preservation of endangered domestic camelid breeds. CONOPA has been, and will be, actively involved in all stages of this project, from initial discussions, through proposal writing, execution in both the field, laboratory and organization of the training courses, as well as in development of the final management plan and liaison work with the Peruvian government. CONOPA's partner coordinator, Jane C. Wheeler, coauthored and managed the previous, successful Darwin vicuña grant for Peru, and has extensive experience in public education and working with the relevant Peruvian institutions and officials for both diffusion of the results and implementation of the management plan. CONOPA is presently serving as advisor to various commissions of the Peruvian congress in regard to drafting new legislation concerning vicuña conservation and management (a direct outcome of research conducted under the previous Darwin grant), creating a positive atmosphere for the acceptance of future results and recommendations concerning the guanaco produced by the present project.

**7. What steps have been taken to (a) engage at all appropriate levels within the host country partner organisations to ensure full support for the project and its outcomes; and (b) ensure the benefits of the project continue despite staff changes in these organisations?**

CONOPA is in constant consultation and collaboration with CONACS (National Council for South American Camelids) and INRENA (National Institute of Natural Resources), the two government organizations with legal responsibility for the guanaco. At the moment (early January 2003), both institutions are undergoing reorganisation with uncertain outcome. As a NGO, CONOPA will continue to work with the relevant government organisations as they have done very effectively to date. CONOPA has established a reputation for quality scientific research and their independence from political associations and other financial compromises, ensures continuity of the project both during its execution and after its conclusion.

**8. What other consultation or co-operation will take place or has taken place already with other stakeholders such as local communities. Please include any contact with the government of the host country not already provided.**

Under Peruvian law, both the guanaco and vicuña belong to (are the property of) those communities on whose land the animals live. These "owners" are invested with the right to live-shear the wild camelids on their lands and sell this fibre on the world market with CITES approval, as well as responsibility to protect the animals from poaching and insure their well being. More than 780 such communities belong to the National Society of Vicuña and Guanaco Conservationists (SNVG), the legally recognized institution which oversees shearing and fibre collection, as well as the sale of these products on the world market. CONOPA has worked closely with the SNVG in diffusion of the results of the previous Darwin vicuña project, and will continue to do so for the current guanaco project, as this organization represents the majority of local stakeholders.

## **PROJECT DETAILS**

**9. Define the purpose (main objective) of the project in line with the logical framework.**

The main objectives are 1) To enable conservation management for the Peruvian population of the Andean guanaco by carrying out population surveys using both direct estimation and genetic analysis. Such an approach will characterise the demographic and genetic characteristics and viability of these fragmented populations and enable a rational management programme to be established based on ground-truthed data. 2) To build capacity in conservation genetics in Peru which currently requires augmentation, especially in animal conservation genetics, by training CONOPA scientists in non-invasive genotyping of wild guanaco populations. To our knowledge there is no other Peruvian laboratory carrying out animal conservation genetics, despite a great need for this science in-country. Plant-based expertise exists within the UN FAO's CGI International Potato Centre in Lima. 3) To train a cohort Peruvian scientists in conservation biology and population viability analysis - this is again, not a capacity that is obviously present in Peru, except for a few scientists at San Martin de Porras University in Lima, and these people, along with scientists from government and other universities, will participate in our two one-month long courses. 4) To carry out a Population Viability Assessment for the Andean guanaco in Peru through a workshop

**10. Is this a new initiative or a development of existing work (funded through any source)?**

This is a new initiative not currently funded through any source.

**11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD, thematic programmes and/or cross-cutting themes. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.**

The Peru CBD focal point is a staff member of the governmental department CONAM, Consejo Nacional del Ambiente. This department has informally indicated its support for our proposal and we hope to obtain a formal letter of support very soon.

This project has the profile of assessment and conservation of a poorly documented, fragmented and endangered species which is of potential economic importance to the local community and is potentially crucial to assist the Peruvian government manage its fragmented and endangered wild guanaco populations. It is therefore relevant to Article 7, especially - "Identify and monitor components of biological diversity, particularly those requiring urgent conservation." It is also relevant to Article 8, especially - "Regulate biological resources, promote protection of habitats; and recovery of threatened species; ensure compatibility between sustainable use of resources and their conservation." The project is also especially relevant to Article 10 - "Integrate conservation and sustainable use in national decisions; support local populations to implement remedial actions. Articles 12 (research and training), 16 and 17 (Access to and Transfer of Technology and Exchange of Information) will be well addressed in the programme. Finally, Article 15 is perhaps the most relevant to the project - "Scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits."

**12. How does the work meet a clearly identifiable biodiversity need or priority within the host country?**

Under Peruvian legislation the guanaco is classified as endangered, but as a subspecies it receives no protection from CITES because the Patagonian subspecies is abundant. The 2001 Peruvian census reported just 3,500 guanacos, far fewer than the record 5-10,000 low for vicuña in the late 1960's. Through concerted effort, and with international assistance, Peru has reversed the situation for the vicuña, rescuing an important element of the high Andean ecosystem from extinction, and insuring biodiversity preservation so that the present population totals some 140,000 animals. The high priority given to the vicuña in Peru relates in part to its importance as a national symbol on the coat of arms, but also to the extreme value of its fibre, which exploited under a live shearing program represents a major renewable source of legal income for the impoverished high Andean herders on whose lands the vicuña lives. Surviving in isolated, fragmented populations, the second wild high Andean camelid, the guanaco, is an equally important component of Andean biodiversity and potential source of sustainable income from live shearing as the vicuña. Yet because the guanaco numbers are so low and so little is known about this subspecies, the research proposed in this project will fulfill a clearly identified need in providing a management plan to insure its survival.

**13. If relevant, please explain how the work will contribute to sustainable livelihoods in the host country**

In 1981, Peru's previous vicuña protectionist policy was substituted by a sustainable utilization policy based upon live shearing and sale of vicuña fibre with CITES approval, and in 1994, after a 30 year hiatus, 2000 tonnes of vicuña fibre were sold for 1.3 million dollars. Since then, the price has varied between 500 and 850 US\$ per kilo providing a major new source of income for the impoverished high Andean residents who legally own the animals. With an identical legal framework in place for the guanaco, and a current market value of US\$ 400 per kilo, guanaco fibre represents an equally important, and presently unexploited, potential resource. Development of management plans which ensure sustainability of the guanaco and vicuña fibre harvest are essential to ensure survival of both species as well as the sustainable livelihoods of rural high Andean herders.

**14. What will be the impact of the work, and how will this be achieved? Please include details of how the project outputs will be disseminated and put into effect to achieve this impact.**

The Peruvian guanaco is both critically endangered and virtually unknown to science. This project will provide a first ever evaluation of the its status, providing crucial data on genetic diversity required for management planning. The results will be disseminated in the form of a management plan supplied to the appropriate government authorities, through popular media articles, consultation with appropriate congressional commissions as part of a concerted public education campaign and through the IUCN Species Survival Commission's Conservation Breeding (MWB) and South American Camelid (JCW) Specialist Groups. Continued collaboration with Peru's governmental authorities will enable implementation of the management plan on the ground. This has already happened with our recent Darwin vicuña project where the management recommendations for specific and regional populations are already being followed. A full population viability analysis (carried out in collaboration with the Conservation Breeding Specialist Group) will enshrine population specific management goals at the conclusion of the project. Human capacity in conservation will have a lasting impact - both trainees have committed their future to in-country conservation. An enlarged cohort of trained conservation biologists will reinforce and rapidly establish this capacity.

**15. How will the work leave a lasting legacy in the host country or region?**

One of the most important legacies of this project will be the first ever scientific study of the critically endangered high altitude guanaco, including a full Population Viability Assessment and development of a management plan. This project will further build on the legacy of a previous Darwin project (N251), strengthening the ongoing work of CONOPA in conservation genetics through the training of two scientists (Katherine Yaya and Jorge Rodriguez) in molecular genetics and population variability analysis. Two training courses in conservation biology will produce a cohort of 20 Peruvians capable of working towards the establishment of rational management systems on a variety of species in different regions of the country. Among those attending the courses will be scientists from universities, NGO conservation institutions and government offices, working in the areas of Amazonian biodiversity and zoology, in the threatened tropical coastal habitats of extreme northern Peru, the Andean cloud forests, interAndean valleys, the coastal desert, and of course the fragile high elevation puna ecosystem.

**16. What steps have been taken to identify and address potential problems in achieving impact or legacy?**

CONOPA is already a Darwin legacy (from Project N251) and its independence from political and commercial funding and the inevitable compromises this entails in Peru ensures continuity of the the organization on a long term basis. However, it is an organisation uniquely placed to collaborate with and provide relevant information to the the current governmental organisations (INRENA, CONACS and CONAM) and will continue to do so in the future.

**17. How will the work be distinctive and innovative? How will the project be advertised as a Darwin project and in what ways would the Darwin name and logo be used?**

This project has several distinctive and unique elements. The application of modern non-invasive genetic census techniques, which would have been an impossible capacity to transfer even 3 years ago, is now a reality in countries such as Peru. The development of low-cost, highly effective commercial kits for genetic population census is an important output from the Project co-ordinator's laboratory over the last five years. These can now be applied to guanaco and augment population census estimates for a wild species in the Andes in ways that were not developed at the time, for example, of N251. Guanaco are virtually impossible to capture and disperse rapidly, thus our approach is the only feasible one. The Darwin name and logo will be found on all materials, posters and vehicles associated with the project. The Darwin contribution to CONOPA's research on vicuña genetics and conservation (grant N251) will also be featured in a programme being organized by the British Embassy in Lima to celebrate the 50th anniversary of the discovery of DNA for May 2003.

**18. Are you aware of any other individuals/organisations carrying out similar work? Are there completed or existing Darwin Initiative projects which are relevant to your work? Please give details, explaining the similarities and differences. Show how the outputs and outcomes of this work will be additional to any similar work, and what attempts have been/will be made to co-operate with such work for mutual benefits.**

We are not aware of any individuals/organisations carrying out both laboratory and field work in conservation genetics in Peru. Darwin project N251 was very similar and involved the same partners (although CONOPA personnel were then located in the Veterinary School of San Marcos University) but focused on the vicuña in Peru. Initially, this project was to analyse both the guanaco and the vicuña. Although the El Niño event of 1993 caused an initial delay in roundups and sampling of the vicuña, adequate techniques for the capture of guanaco had not then, and still have not been developed, making sampling an impossibility. With modern molecular methods to extract DNA from faecal matter, this is no longer a problem. Outside Peru we are collaborating with Dr. Juan Carlos Marin who is conducting research on vicuña and guanaco mitochondrial DNA in Chile.

- 19. Will the project include training and development? Please indicate who the trainees will be and criteria for selection. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?**

The project will include training. Two Peruvian scientists from CONOPA, Katherine Yaya and Jorge Rodriguez will work and receive training both in Peru and at Cardiff. Both Yaya and Rodriguez are recently graduated veterinarians who have considerable experience with both domestic and wild camelids, as well as in CONOPA's genetics laboratory. Both will leave with a signed commitment to return to Peru to implement the techniques they have learned and to train others both at CONOPA and from other institutions. In addition, Willy Victorio, another recent veterinary graduate actively working with CONOPA, Dr. Amparo Zavaleta (PhD in molecular biology, University of Alicante, Spain) and Mr. Lenin Maturrano who works with Dr Zavaleta and is currently finishing his PhD in molecular biology in Spain (returns October 2003) will receive training from the UK postdoc, Ms. Yaya and Mr. Rodriguez, but will not be paid through Darwin funds. The progress of these individuals will be monitored directly since they will be employed by or work in collaboration with CONOPA after the end of this project. These individuals will also receive specialist training in population viability assessment and statistical analysis of population data - a capacity which is currently absent. We will provide also two training courses in conservation biology for a total of 20 scientists (academic and practitioners) from throughout Peru. These scientists will be trained in the principles of pure and applied population biology and conservation, including genetics. The two month-long courses are scheduled to occur during the month of July in 2004 and 2005. The trainees will be taught and monitored using methods developed by the project coordinator for his popular final year degree course in conservation biology at Cardiff (average student role = 70) and modifications made for similar courses successfully taught in two other DI projects in Gabon (08/044) and Malaysia - Sabah (09/016). Students are awarded diplomas based on successful completion of the course and satisfactory performance in continuous and project assessment. In country trainee outcomes will be monitored through an email alumnus system managed through CONOPA and by CONOPA acting as a focal point for further training development.

- 20. How are the benefits and/or work of the project expected to continue after the end of grant period? Please provide a clear exit strategy.**

CONOPA is already a recognized independent research institution which has recently started working in the area of conservation genetics. Building on the legacy of a previous Darwin project on vicuña (N251), they currently have funding from 1) EU Framework V programme Sustainable Utilization of Wild Camelids (MACS), an INCO project with partners in Chile, Argentina, UK, Norway, Germany and Spain where CONOPA is determining vicuña population genetics and diversity in Argentina, Bolivia, Chile and Peru using genetic markers developed under Darwin grant N251, and 2) World Bank (via Incagro-Peru): Identification and Rescue of Genetically Pure Alpacas from the Threat of Extinction, involving survey and sampling of alpaca populations in Canchis province, Cusco, in order to identify genetically pure alpacas. Much of this work has been carried out in collaboration with Cardiff and there is a quality publication record to document the outcome which has extended beyond the time frame of previous projects. Completion of the guanaco research will further strengthen and ensure continuation of this ongoing fruitful collaboration. CONOPA will work to enable the guanaco management plan after the Darwin project, just as with the previous project on vicuña. The guanaco management plan will be just the start of conservation activities for this animal.

**21. Provide a project implementation timetable that shows the key milestones in project activities.**

Project implementation timetable	
Date	Key milestones
Mid-end May 2003	Initial workshop at CONOPA in Lima - identification of sampling issues, priority areas and to bring stakeholders together. Sampling commences after this meeting.
June 2003	Peruvian trainee 1 comes Cardiff to work with Cardiff postdoc on current samples. Trainee 2 will start sampling at Santuario Nacional del Guanaco, Calipuy, La Libertad.
October 2003	Trainee 1 attends MWB final year course in conservation biology and is assessed.
January 2004	Trainee 1 and Cardiff postdoc go to Lima to set up analysis in lab at CONOPA, assist in sampling and commence training Trainee 2 and additional scientists - prepare, advertise and seek recruits for first course.
June 2004	First one month course in conservation biology, conducted by Darwin team, involving ten Peruvian scientists.
July 2004	Trainee 1 returns to Cardiff with Cardiff postdoc to continue analysis with new samples, Trainee 2 continues sampling in five populations outside reserves in the Peruvian Andes (Ica - Puno).
January 2005	Trainee 1 returns to Lima to continue work and establishment of lab protocols at CONOPA with Trainee 2. Cardiff postdoc finishes mitochondrial analysis and writes first paper.
April 2005	
June 2005	Cardiff postdoc goes to Lima to troubleshoot in the lab, and prepare for second course.
July 2005	Second course in conservation biology - involving whole team.
October 2005	Cardiff postdoc and Trainee 2 return to Cardiff for additional (microsatellite) analysis and training in automated genotyping. Trainee 1 stays in Lima to further analyse new samples and train other scientists. Trainee 2 takes MWB final year course in conservation biology and is assessed.
January 2006	
February 2006	Cardiff postdoc and Trainee 2 return to Lima with all methods and samples complete and ready for hand-over. Preparation for final workshop (Population Viability Assessment). Population Viability Assessment (PHVA) in Lima (involving entire Darwin team) - management plan produced.
March 2006 - end	PHVA report writing, Darwin report finalised and microsatellite paper completed. Final troubleshooting in CONOPA lab.

**22. How will the most significant outputs contribute towards achieving the purpose of the project? (This should be summarised in the Log Frame as Indicators at Purpose level)**

The management plan will form the basis of conservation action for the guanaco in Peru - this is the main output of the project. The genetic and demographic census analysis will underpin this plan and peer-reviewed papers in this area will provide the credibility to the science which underlies the plan. The trained conservation biologists at CONOPA will form a core output of this project - they will be trained in conservation genetics and conservation/population biology. They also form a core element of future development of conservation biology in Peru and will act as focal points for the 20 scientists trained during the two one-month courses. They will deliver the long-term promulgation and training to the community in Peru. The 20 scientists who will be trained in conservation biology will be another significant output and will form a cohort of conservationists able to put into action modern conservation programmes in Peru.

**23. Set out the project's measurable outputs using the attached list of output measures**

<b>PROJECT OUTPUTS</b>		
<b>Year/Month (starting April)</b>	<b>Standard Output Number (see standard output list)</b>	<b>Description (include numbers of people involved, publications produced, days/weeks etc)</b>
May 2003	14a (1), 15a (1), 15c (1)	Initial workshop (two-three days), accompanying press releases
December 2003	5 (1), 6a (10 wk), 6b (6 months)	Trainee 1 receives laboratory training plus participates in conservation biology course
May 2004	8 (20 wk), 5 (2), 6b (2 x 5 months)	Cardiff postdoc goes to Lima and trains Trainees 1 and 2 in lab work and conservation biology (for course preparation)
June 2004	3 (10), 7 (1), 8 (6 wk)	Month-long course in conservation biology run for 10 students - materials produced in English and Spanish - Coordinator visit and teaching for two weeks
December 2004	5 (1), 6b (6 months)	Trainee 1 completes training in Cardiff
April 2005	11a (2)	Papers accepted on mitochondrial diversity of guanacos and population census study
May 2005	8 (4 wk), 5 (2), 6b (2 x 4 weeks)	Further lab training by Cardiff postdoc and preparation for second course
June 2005	3 (10), 8 (6 wk)	Second one-month course in conservation biology run for 10 students. Coordinator visit and teaching for two weeks
December 2005	5 (1), 6a (10 wk), 6b (6 months)	Trainee 2 to Cardiff to train with postdoc and take MWB conservation biology course
January 2006	10 (1), 12a (1); 12b (1), 13b (1)	Hand-over of samples, sample database, genetic database (microsatellite and mitochondrial) and research report to CONOPA from Cardiff work.
February 2006	9 (1), 14a (1) 15 a,b,c,d (1), 19 a,b,c,d, 8 (6 + 2 weeks)	Population Viability Assessment for the Peruvian guanaco (Lima) and attendant publicity, management plan produced
end April 2006	8 (8 weeks), 5 (2), 6b (4 months),	End of project, PHVA report, final report, microsatellite paper.

## MONITORING AND EVALUATION

24. Describe how the progress of the project, including towards delivery of outputs, will be monitored and evaluated in terms of achieving its overall purpose. This should be both during the lifetime of the project and at its conclusion. Please make reference to the indicators described in the Logistical Framework.

The UK Project Leader is an experienced Darwin Initiative grant holder and the role of regular and consistent contact, despite any logistical difficulties, cannot be overestimated. With ongoing projects, email discussion involving all of the team, has been set up and takes place on one defined day per week. Problems are raised, issues discussed and the team have 48 hours to respond. This results in an efficiently run operation and rapid response times. In Cardiff the Project Leader will provide supervision, which involves weekly meetings for problems in the lab, journal clubs and seminar series. The aim is to provide a rich environment in which problems are encouraged to be discussed at source. After the project, the Peru coordinator and UK project leader will schedule post-project scientific and management meetings with the aim of ensuring the objectives are fully met and the exit strategy is implemented. We will ensure that the project achieves value for money by evaluating the effectiveness of all potential outputs in adding value to the original objectives of the project. For example, our aim is to disseminate our scientific results through the usual primary scientific literature, but where appropriate we will publish additional papers (reviews and syntheses of our work) in Spanish so that the impact of these studies is maximised within the scientific community and decision making levels in Peru. Aside from the above, our results will be disseminated via reports to INRENA. We will ensure that the data inform management and reach the decision makers and public. The PHVA will be the

25. How will host country partners be involved in monitoring and evaluation of the project?

As previously stated, CONOPA, as an independent yet powerful NGO in Peru, will ensure that monitoring will occur on a constant on going basis, especially with Trainee 2, who will spend a considerable amount of time in the field in Years 1 and 2 and who will be collecting samples throughout the country. Constant back-up is essential in a harsh environment and this element will form a substantial proportion of the in-kind contributions made by CONOPA. In the laboratory, the Peruvian coordinator will conduct weekly lab meetings involving the team (which will vary between two and four scientists) carrying out genetic research in the lab. Troubleshooting will occur at this point and problems referred back to Cardiff for advice.

26. How will you ensure that the project achieves value for money?

All costs will be kept to a minimum (flights, accomodation both in Cardiff and Lima) and sampling costs will be partly covered through the ongoing work of CONOPA through its other projects. Laboratory consumables will be bulk-ordered with other grants to minimise shipping and achieve discounts. Where possible, additional funding sources will be sought for conference attendance, flights and publication costs. Production of all necessary outputs combined with frugal project finance management and in-kind contribution will ensure that this will be another outstanding value-for-money project like the previous project (N251) and ongoing Cardiff DI projects.

27. Reporting Requirements. All projects must submit six monthly reports (by 31 October each year) and annual reports (by 30 April each year). Please check the box for all reports that you will be submitting, dependent on the term of your project. You must ensure that you cover the full term of your project.

Report type	Period covered	Due date	REQUIRED?
Six month report	1 April 2003 – 30 September 2003	30 October 2003	Yes
Annual report	1 April 2003 – 31 March 2004	30 April 2004	Yes
Six month report	1 April 2004 – 30 September 2004	30 October 2004	Yes
Annual report	1 April 2004 – 31 March 2004	30 April 2005	Yes
Six month report	1 April 2005 – 30 September 2005	30 October 2005	Yes
Annual report	1 April 2004 – 31 March 2005	30 April 2006	Yes
Six month report	1 April 2006 – 30 September 2006	30 October 2006	Yes
Final report	1 April 2004 – project end date	3 months after project completion	Yes



## LOGICAL FRAMEWORK

28. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes.

Project summary	Measurable indicators	Means of verification	Important assumptions
<p><b>Goal:</b></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"> <li>the conservation of biological diversity,</li> <li>the sustainable use of its components, and</li> <li>the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>			
<p><b>Purpose</b></p> <p>To enable conservation management for the Peruvian population of the Andean guanaco.</p> <p>To build capacity in conservation genetics in Peru.</p> <p>To train a cohort Peruvian scientists in conservation biology and population viability analysis.</p> <p>To carry out a Population Viability Assessment.</p>	<p>The production of the management plan (at latest by the end of Year 3).</p> <p>The successful training two Peruvian scientists in conservation biology.</p> <p>The courses having been successfully held and the trainees having earned their diplomas.</p> <p>The production of a risk assessment for the guanaco. To have held the workshop</p>	<p>That the management recommendations are produced and handed over to the CONACS/INRENA.</p> <p>The competence, knowledge and independence of these scientists at the end of the project.</p> <p>The students pass the course and demonstrate knowledge of the field by other assessment.</p> <p>Production and dissemination of the PHVA report.</p>	<p>That the management plan will be useful in population management and that the recommendations are clear.</p> <p>That the Peruvian scientists establish active research and training programs.</p> <p>That the course is able to deliver its aims and the trainees understand it.</p> <p>That the PVA workshop is feasible and enough data is available for the modelling.</p>
<p><b>Outputs</b></p> <p>The production of six management plans INRENA can use to guide guanaco conservation.</p> <p>Two scientists who can produce genetic data, analyse it and write scientific papers and management plans.</p> <p>Two training courses in conservation biology.</p> <p>A full population viability assessment.</p>	<p>The plans themselves should be easily translated into specific action.</p> <p>The scientists' increased knowledge and hands-on capability at conservation genetics should be verified.</p> <p>The students should be able to pass an exam at the end of their course or demonstrate increased knowledge.</p> <p>The PVA can run successfully and provide useful indicators of specific threats and solutions for populations.</p>	<p>Project management for the development of the plan by monitoring progress by the management team including the reports.</p> <p>Evaluation of the work and future plans of the scientists during and after the project.</p> <p>Interaction with trainees by the Project Leader and Host Coordinator after the course.</p> <p>Involvement of CBSG in production, analysis and dissemination of the report.</p>	<p>That the data produced are of sufficient resolution to answer questions of gene-flow and phylogeography.</p> <p>That the scientists have sufficient application and suitability for the science they are training to do.</p> <p>That the courses are able to be run at CONOPA.</p> <p>That a PHVA involving all stakeholders is feasible, and that all parties agree to implement the results.</p>

<p><b>Activities</b></p> <p>Molecular analyses on six guanaco populations, measure gene-flow and phylogeography. Employment of 2 Peruvian scientists for training in Peru and Cardiff.</p> <p>To hold two courses of four week's duration at CONOPA in Yrs 2 and 3.</p> <p>To run a population viability assessment in conjunction with CBSG.</p>	<p><b>Activity Milestones (Summary of Project Implementation Timetable)</b></p> <p>Year 1: May - Initial workshop at CONOPA to identify sampling issues and priority areas - sampling starts (6 mths - Trainee 2). June - one Peruvian (Trainee 1) scientist to Cardiff for six month's training, course and analysis. January - Cardiff-postdoc and Trainee 1 return to train scientists, establish lab in Lima and prepare course</p> <p>Year 2: June - One month course in conservation biology. July - four months additional sampling (Trainee 2) and training (Trainee 1) in Cardiff. January - Trainee 1 returns to Peru to commence analysis with second batch of samples with Trainee 2. April - Cardiff postdoc returns to Peru having written first paper.</p> <p>Year 3: June - second course. July - postdoc and Trainee 2 return to Cardiff - final training and technical analysis (6 months). January - Trainee 2 and Cardiff scientist returns to hand over materials and establish routine analysis. February - Population Viability Assessment. March and April, write-up PHVA, final report and publications.</p>
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## FINANCIAL ASPECTS

29. Please state costs by financial year (April to March). Use current prices - do not include any allowance for assumed future inflation. For programmes of less than 3 years' duration, enter 'nil' as appropriate for future years. Show Darwin funded items separately from those funded from other sources.

Table A: Staff time. List each member of the team, their role in the project rate and the percentage of time each would spend on the project each year.

	2002/2003 %	2003/2004 %	2004/2005 %
<b>United Kingdom project team members and role</b>			
Professor Michael W. Bruford, Head of laboratory	10	10	15
Dr Ciara Dodd, postdoctoral scientist	100	100	100
<b>Host country/ies project team members and role</b>			
Dr. Jane C. Wheeler, Director	20	20	20
Dr. Raul H. Rosadio, laboratory head	5	5	5
M.V. Katherine Yaya, scientist trainee	100	100	100
M.V. Jorge Rodriguez, scientist, trainee	100	100	100
M.B.A. Eugenio Artaza, Administrator	10	10	10

Table B: Salary costs. List the project team members and show their salary costs for the project, separating those costs to be funded by the Darwin Initiative from those to be funded from other sources.

Project team member	2003/2004 £		2004/2005 £		2005/2006 £	
	Darwin	Other	Darwin	Other	Darwin	Other
Ciara Dodd						
Katherine Yaya						
Jorge Rodriguez						
Michael Bruford						
Jane Wheeler						
Raul Rosadio						
Eugenio Artaza						
<b>TOTAL COST OF SALARIES</b>						

Table C. Total costs. Please separate Darwin funding from other funding sources for every budget line.

	2003/2004	2004/2005	2005/2006	TOTAL
<b>Rents, rates, heating, lighting, cleaning, overheads</b>				
• Darwin funding				
• other funding				
<b>Office costs e.g. postage, telephone, stationery</b>				
• Darwin funding				
• other funding				
<b>Travel and subsistence</b>				
• Darwin funding				
• other funding				
<b>Printing</b>				
• Darwin funding				
• other funding				
<b>Conferences, seminars etc</b>				
• Darwin funding				
• other funding				
<b>Capital items/equipment (please break down)</b>				
• Darwin funding lap top comouter for Peru				
• other funding N/A				
<b>Other costs (please specify and break down)</b>				
• Darwin funding - Laboratory consumables (chemicals including DNA extraction kits, DNA polymerase, primers and sequencing costs) - Field costs (car rental, petrol, tolls, per diems)				5
• other funding - Laboratory consumables (chemicals including DNA extraction kits, polymerase, primers and sequencing costs) - Field costs (car rental, petrol, tolls, per diems)				

<b>TOTAL PROJECT COSTS</b>				
<b>TOTAL DARWIN COSTS</b>				
<b>TOTAL COSTS FUNDED FROM OTHER SOURCES</b>				

**30. How is your organisation currently funded?**

Cardiff University is the public name of the University of Wales, Cardiff. As such it receives its infrastructural funds from the Higher Education Funding Council for Wales. Other infrastructural support has recently come from the JIF and SRIF support rounds. Research income from contracts and grants come from sources as diverse as the Natural Environment Research Council and the Welsh Development Agency.

**31. Provide details of all other funding sources identified in Question 29 that will be put towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity. Please include any additional funding the project will lever in to carry out additional work during or beyond the project lifetime. Indicate those funding sources which are confirmed.**

Salaries: In Cardiff, Professor M. W. Bruford's time (10%) and in Lima Dr Jane Wheeler (20%), Dr Raul Rosadio (5%) and Mr Eugenio Artaza (10%)'s time will be given in-kind to the project.

Overheads: In Cardiff overheads are charged at standard as 46% of salary costs. Prof MJ Evans (Director of School of Biosciences) has agreed to reduce this to 20% for the postdoctoral position (Ciara Dodd).

Postage and stationery: Prof. Bruford will use his departmental allocation and additional grant funds to cover this cost.

Laboratory consumables: Both Cardiff University and CONOPA will utilise resources gained from other grants (bulk purchases and in Prof Bruford's case, additional grant income) to subsidise this project.

Field costs: CONOPA will provide 2 additional personnel to assist in field work and will provide a vehicle for some of the field trips required by the project.

**32. Please give details of any further resources sought from the host country partner institution(s) or others for this project that are not already detailed in Questions 29 and 31. This will include donations in kind and un-costed support e.g. accommodation.**

A programme being organized by the British Embassy in Lima to celebrate the 50th anniversary of the discovery of DNA for May 2003 will feature the team if this application is successful. Such a programme will provide a high profile start to the project in local terms, and will feature a number of in-kind contributions to the project by the Embassy - details are still being worked out.

33. Please separately indicate in Table D the amounts of grant requested under the Darwin Initiative and any confirmed funding/income from elsewhere (where these may be costed). Add together to show total project costs.

Table D Darwin funding request

	2003/2004	2004/2005	2005/2006
<b>Amount of Darwin Initiative funding requested</b>	<b>68,408</b>	<b>69,401</b>	<b>60,077</b>
<b>+ Funding/Income from other sources</b>	<b>12,942</b>	<b>15,180</b>	<b>13,430</b>
<b>= Total project cost</b>	<b>81,350</b>	<b>84,581</b>	<b>73,507</b>

### 34. FCO NOTIFICATION

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the Darwin competition in the host country

### CERTIFICATION 2003/04

On behalf of the trustees/company (*delete as appropriate*) \_\_\_\_\_

I apply for a grant of £197,886 in respect of expenditure to be incurred in the financial year ending 31 March 2004 on the activities specified in paragraphs 21 and 23.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

I enclose a copy of the organisation's most recent audited accounts and annual report, CVs for project principals and letters of support.

Name (block capitals)	G.J. Jones
Position in the organisation	Director of Research and Consultancy Division

Signed

Date:

Please return completed form to Defra by **13 January 2003** by e-mail to [darwin@defra.gsi.gov.uk](mailto:darwin@defra.gsi.gov.uk) or in paper form to Zone 4/A2 Ashdown House, 123 Victoria Street, London SW1E 6DE.