



Submit by 21 January 2005

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 13 COMPETITION:STAGE 2

Please read the Guidance Notes before completing this form. Applications will be considered on the basis of information submitted on this form and you should give a full answer to each question. Please do not cross-refer to information in separate documents except where invited on this form. The space provided indicates the level of detail required. Please do not reduce the font size below 11pt or alter the paragraph spacing. Keep within word limits.

1. Name and address of organisation

Name: University College London	Address: Galton Laboratory, Department of Biology, University College London, 4 Stephenson Way, London NW1 2HE
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2. Project title (not exceeding 10 words)

Tropical Andean Butterfly Diversity Project

3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date: 1 January 2006		Duration of project: 3 years			
Darwin funding requested	Total	2005/06	2006/07	2007/08	2008/09
	£ 149,187	£ 17,723	£ 61,118	£ 53,871	£ 16,475

4. Define the purpose of the project in line with the logical framework

Our purpose is to establish a regional research and conservation programme on tropical Andean butterflies, by building national institutional capacity and providing a vital baseline of information on butterfly diversity, distribution and abundance. We have three main goals: **1)** to compile existing data on the distribution and abundance of 'true' butterflies (Papilionoidea - c. 3500 species) occurring in tropical Andean countries; **2)** to provide training to national institution staff and students, a network of taxonomic experts and the necessary tools (curated collections and databases) for butterfly diversity data to be maintained and augmented in the future; and **3)** analyse data to assign IUCN conservation status to species and together with project partners produce a clear strategy for future butterfly research and effective conservation throughout the region.

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

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner or co-ordinator in host country
Surname	Mallet	Huertas	Lamas
Forename (s)	James	Blanca	Gerardo
Post held	Professor of Biological Diversity	Research Assistant	Professor and Curator
Institution	University College London	University College London	Universidad Nacional Mayor de San Marcos, Lima, Peru
Department	Department of Biology	Department of Biology	Entomology, Museo de Historia Natural

6. Has your organisation received funding under the Darwin Initiative before? If so, give details

No.

7. IF YOU ANSWERED NO TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words)

UCL's mission is to achieve the highest quality of teaching and research. The Department of Biology (DB) is concerned with understanding the evolution of biological diversity through multiple approaches, both experimental and theoretical, and the DB has close links with the Natural History Museum in London.

Activities (50 words)

The DB has internationally recognised research programmes in molecular, cell and developmental biology, evolutionary biology, human and population genetics and plant biology. The DB also runs undergraduate courses in Biology, Genetics and Human Genetics, including options in Conservation, Ecology, Evolution and Zoology, and contributes to UCL's MSc in Conservation.

Achievements (50 words)

Research conducted by DB's group of 155 staff and students was rated internationally excellent in the 1992, 1996 and 2001 Research Assessment Exercises, and DB has a research income of £4 million per year. The Department achieved maximum rating in its 1999 Teaching Quality Audit and has 300 BSc undergraduates.

8. Please list the overseas partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

Venezuela: Museo del Instituto de Zoología Agrícola, Universidad Central de Venezuela, Maracay; **Colombia:** Instituto de Ciencias Naturales, Universidad Nacional de Colombia; **Ecuador:** Museo Ecuatoriano de Ciencias Naturales, Quito; **Peru:** Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima; **Bolivia:** Museo Noel Kempff M., Santa Cruz. **USA:** McGuire Center for Lepidoptera, Florida; **Andes Region:** Conservation International, Andes Center for Biodiversity Conservation.

South American institutions will be responsible for compiling and maintaining national specimen databases, assisting with training courses, helping to analyse and disseminate results, and providing a link to governmental organisations. The McGuire Center will provide taxonomic expertise, specimen information and be involved in data analysis. CI will assist with organising training courses, provide expertise and links to other national conservation organisations and help fund databasing, student scholarships and workshops. The Project Leaders and Andes Regional Coordinator, G. Lamas, have worked closely with these institutions and their staff for many years, and their primary needs are reflected in this project's goals. Each institution has been specifically consulted during project development concerning their commitment to the project and expected benefits. Our partners are major custodians of natural history information in each country and we are confident of their long-term commitment to biodiversity conservation, despite possible staff changes. The project's outputs will also be permanently preserved and accessible to users in the form of curated specimen collections, electronic databases and identification tools, and publications in taxonomy and conservation.

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

We are in contact with the governmental bodies in each country that are in charge of national conservation activities, and all relevant data generated by the project will be made available to them. We will also be working with universities in each country to select students who will receive funding to support research projects on butterflies. Where possible, we will direct these projects towards areas identified by governmental bodies and conservation NGOs as deficient in data, so that new collections and information are of maximum value. The workshop in the final year will bring together country coordinators, governmental and non-governmental conservation bodies, biologists and taxonomists to discuss the results and produce a future research and conservation strategy for Andean butterflies that is also effective and valuable at the national level. Andean butterfly taxonomists from a number of countries have already been consulted during project development and have pledged to assist in identification of specimens.

PROJECT DETAILS

10. Is this a new initiative or a development of existing work (funded through any source?) Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

This is a new initiative at an unprecedented geographic and taxonomic scale in terms of research into butterfly diversity and conservation. Nevertheless, it builds on and benefits from previous and current work being conducted by ourselves, CI, several partner institutions and individual researchers, with whom we have close contact. The Project Leader, Jim Mallet, is working with Gerardo Lamas on a GBIF-funded project to produce a taxonomic database of the world's butterflies. Keith Willmott and Dr Jason Hall (Smithsonian Institution, USA) are funded by the US National Science Foundation (end 2005) to inventory and describe the butterflies of Andean Ecuador. Project BioMap, managed by Paul Salaman (NHM and CI), is databasing select butterfly taxa (c. 300 spp) in tropical Andean countries. The Darwin Initiative Bolivian Important Biodiversity Sites Project is providing data for butterflies from their survey sites. Data on pedalioidines, a diverse group of Andean butterflies, will be shared with Angel Vilorio and colleagues, who are databasing these species. We are collaborating closely with all of these to our mutual benefit (see letters of support), but this project remains highly distinctive and novel in its broad geographic and taxonomic scope, provision of training and of electronic resources, and goal of providing a regional strategy for future research.

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 (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. 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.

This Project helps the 5 Andean countries meet their obligations to the CBD and its goals through:

- 1) Co-operation with Andean nations towards a regional conservation strategy (**Art. 5:** Co-operation, 20%).
- 2) Identifying and monitoring biodiversity (**Art. 7:** Identification and Monitoring, 70%).
- 3) International research and training of institution staff and students (**Art. 12:** Research and Training, 30%).
- 4) Disseminating information via the Project website and database (**Art. 17:** Exchange of information, 20%).
- 5) Linking partner countries and taxonomic experts (**Art. 18:** Technical and scientific co-operation, 20%).

The Project has strong relevance to the CBD's **Thematic Programmes** [100%] (Mountain Biodiversity; Forest Biodiversity) and **Cross-cutting issues** [20%] (Indicators; Global Taxonomy Initiative).

12. How does the work meet a clearly identifiable biodiversity need or priority defined by the host country? Please indicate how this work will fit in with National Biodiversity Strategies or Environmental Action Plans, if applicable.

The CBD requires signatory countries to identify and conserve globally important components of their biodiversity. Meeting this obligation requires knowledge of the diversity, distribution and ecology of species. While such knowledge might be available for some vertebrate groups, data are almost non-existent for insects, which make up 70% of terrestrial species, are often highly endemic and are vital to ecosystem health. The urgent need for such basic data has been highlighted by institutions and governments throughout the region, and a number of small-scale efforts to compile such information exist (e.g. by CI; project at MIZA, Venezuela). However, such efforts are hindered because taxonomic expertise and the world's richest sources of collections information still reside mainly in UK (the NHM has c. 20% of world specimens) and the USA. We will therefore help Andean countries obtain the basic data needed for effective biodiversity conservation by producing the first high-quality, regional distributional dataset for any insect group. We will also ensure that this dataset is of permanent use and continues to be updated through training of institution staff and students and through institutional capacity building.

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

This project will train 300 students in basic survey methods for biodiversity assessment and monitoring, and hopefully providing a foundation for future jobs in research institutions and NGOs. Training of museum staff in research methods and grant proposal writing will permit them to secure funding and in turn train others.

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

The impact of the work will be to provide a foundation for future research and conservation of a large group of Andean insects. This will ultimately raise the profile of butterflies as a focal taxon and result in more effective conservation of Andean biodiversity. This impact will be achieved through:

- 1) Publication of results on the internet, at the project website, CI, www.andes.biodiversity.org, AndinoNET, GloBIS and LepINDEX, the Natural History Museum's global taxonomic names index, among others.
- 2) Capacity building: provision of resources to Andean institutions and training of staff and students to ensure that butterfly biodiversity data continue to improve and accumulate after the project's conclusion.
- 3) Discussion and analysis of results at the final workshop to produce a regional research and conservation strategy and define the 50 priority Key Butterfly Areas. We will work closely with national institutions and CI to ensure future research and conservation efforts will target taxa and areas identified as high priorities.

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

Research and conservation tools: the database for 3500 butterfly species will be the first of its kind and permanently available on the internet, as well as partner institutions, with photographs of taxa. Curated national collections will be of global importance and a permanent record of the country's biodiversity, as well as a tool for education, identification and a resource for taxonomic and ecological research. Key Butterfly Areas will guide the location of future research and conservation efforts.

Capacity building: curatorial staff and students trained in butterfly taxonomy, field methods, data analysis, and grant proposal writing will provide much-needed national expertise for future research.

Collaboration: the website, e-newsletter, final workshop and exchange of information between institutions and experts during the project will establish a network of international researchers with Andean countries.

16. Please give details of a clear exit strategy and state what steps have been taken to identify and address potential problems in achieving impact and legacy.

Our exit strategy is to provide national institutions and conservation organisations with the necessary knowledge, resources, contacts and future strategy to advance butterfly research in the region beyond the project's conclusion. We will build national institution capacity by providing training, curated collections, electronic databases, and contacts with international experts. Identified research priorities will help host institutions establish a long-term strategy and secure funding from national and international organisations. Post-project, CI will help in maintaining data gathering and dissemination and implementing research and conservation actions. National coordinators will meet at the start of the project in Gainesville, which will foster trust and willingness to collaborate, and at the final workshop, with other interested parties, ensuring that the resulting programme is acceptable to all. Dr Gerardo Lamas (Lima) is an internationally renowned Lepidoptera taxonomist and will serve a regional coordinator, which will help resolve any unforeseen issues.

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

The results will be disseminated principally via the project website, which will display the Darwin name and logo on the home page. The "Darwin Andean Butterfly Database" will contain most of the project's data and users will be required to cite this as their information source. The Darwin Initiative will be advertised as project sponsor in all resulting publications, scientific and popular articles and in all media coverage.

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and what the level and content of training will be. 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?

We will train 1-2 curatorial staff from each partner institution in taxonomic methods, field collecting techniques and report and grant proposal writing. Training will take place at the MCLB (2 weeks) and at each institution (2 weeks/year). Training effectiveness will be indicated by each person submitting a taxonomic paper for publication in a peer-reviewed entomological journal by the end of the project. We expect that trainees will be able to train others. One week undergraduate training courses in butterfly survey methods and data analysis will take place in each country in each of the first two years (total 300 students). Students will be selected from submitted CVs and statements of interest. Based on these courses 4 students (total 40) will be selected to receive scholarships and further supervision to help with dissertation research.

LOGICAL FRAMEWORK

19. 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
Goal:			
To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve <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 			
Purpose			
To establish a regional research programme and conservation priorities for tropical Andean butterflies, through improved knowledge of their diversity, distribution and abundance.	Enhanced institutional capacity for butterfly research and conservation. Synthesised knowledge of butterfly diversity, distribution and abundance. Current and future priorities for research and conservation identified.	Institutions capable of securing funding and conducting research into butterfly diversity and conservation. Distribution and taxonomic data from collections and literature compiled into a single database. Published "Regional Strategy for Butterfly Research and Conservation in the Tropical Andes".	Partner institutions and taxonomists remain committed to research and conservation work on tropical Andean butterflies.
Outputs			
Enhanced institution staff capacity for butterfly research. Students trained in butterfly systematics, field survey methods and data analysis. Curated national collections. Darwin Andean Butterfly Database. Taxonomic revisions. Regional research and conservation strategy, with 50 Key Butterfly Areas identified.	10 staff from 5 partner institutions trained in identification, curation, databasing and grant proposal writing. Field survey manual; 2 student training workshops of 1 week per country (30 students per course, total 300 students). 40 students receive further training and support for dissertation research. National collections (minimum of 5, 1 per country) curated and identified. Taxonomic and photographic database established; NHM, MCLB and partner collections databased (3500 species, 150,000 specimens). 10 taxonomic papers submitted to peer-reviewed journals. Workshop (Yr 3) in Gainesville; data analysis complete; publication detailing regional research and conservation strategies.	Annual report by national co-ordinators. Annual student supervisor reports and national co-ordinator reports. Six-monthly reports by national coordinators; data in database. Six-monthly reports by national coordinators; database online and CD, also sent to DI. Pre-prints/reprints at project website. Published strategy in hard copy and CD, sent to DI, and available on project website.	Andean institutions continue to employ staff who pass on knowledge. At least some students use knowledge gained to take higher degrees and become next generation of butterfly researchers. Institutions maintain collections. Data quality sufficient for achieving conservation and research goals; database maintained in future. - Strategy is followed by major research institutions and conservation organisations within the region.
Activities	Activity Milestones (Summary of Project Implementation Timetable)		
Institution staff training and student workshops. Databasing, development of digital products. Curation of collections. Taxonomic revisions. Data analysis and development of long-term research and conservation strategy.	Project planning workshop to establish methods, goals and develop training programme (Yr 1, Apr 06). 1 st student training courses completed (Yr 1, Aug 06). 2 nd student training courses completed (Yr 2, Aug 07). Staff training in identification, curation and databasing complete (Yr 2, Aug 07). Database structure complete. WORLDMAP software developed. Website established. Digital photograph collection established (30% complete) (Yr 1, Mar 06). Online database with Ithomiinae, Limenitidinae (Yr 1, Dec 2006). Photography complete (Yr 2, Jul 07). Database complete (Yr 3, Feb 08) and online (Dec 08). MCLB complete (Yr 1, Jun 06). Preliminary curation of Andes collections complete (Yr 1, Jul 06). NHM complete for focal groups (Yr 2, Jul 07). Andes countries curation complete (Yr 2, Jul 07). 5 papers submitted to peer-reviewed journals (Yr 2, Jul 07). 5 papers submitted (Yr 3, Nov 08). Analysis of results (Yr 3, Apr 08). Strategy planning workshop with project members, taxonomists and conservation organisations (Yr 3, May 08). 50 Key Butterfly Areas identified (Yr 3, May 08). 2 papers submitted on Andean butterfly diversity and conservation. "Regional Strategy for Butterfly Research and Conservation in the Tropical Andes" published (Yr 3, Dec 08).		

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

Project implementation timetable		
Date	Financial year Apr-Mar 2005/6 Apr-Mar 2006/7 Apr-Mar 2007/8	Key milestones
Mar 2006	Apr-Mar 2005/6	Database structure and WORLDMAP software complete. Digital photograph collection 30% complete. Project website established with links to organisations and taxonomists.
Apr 2006	Apr-Mar 2006/7	Project planning and training workshop at MCLB, Gainesville, for national coordinators and UK members, to finalise methods, goals, and develop training programmes. 1 st student training courses advertised in Andean universities.
May 2006	Apr-Mar 2006/7	Students for 1 st training courses selected from submitted CVs and statements of interest.
Jun 2006	Apr-Mar 2006/7	Curation of MCLB complete. Standard field survey techniques manual published and online.
Jul 2006	Apr-Mar 2006/7	Preliminary curation of Andean collections (c. 80,000 specimens) complete.
Aug 2006	Apr-Mar 2006/7	1 st student training courses completed (150 students in 5 countries). Staff training in identification, curation and databasing.
Dec 2006	Apr-Mar 2006/7	Online database live for Ithomiinae, Limenitidinae. Curation of NHM focal groups (Papilionidae, Pieridae, Nymphalidae).
Apr 2007	Apr-Mar 2007/8	2 nd student training courses advertised in Andean universities.
Jul 2007	Apr-Mar 2007/8	Curation of NHM (focal groups) and Andean collections complete (c. 150,000 specimens).
Jul 2007	Apr-Mar 2007/8	5 taxonomic papers submitted to peer-reviewed journals for publication.
Aug 2007	Apr-Mar 2007/8	2 nd student training courses and staff training completed.
Aug 2007	Apr-Mar 2007/8	Digital photographic collection completed (c. 10,000 photographs of 5000 taxa)
Dec 2008	Apr-Mar 2007/8	Online database live for Papilionidae, Pieridae, Nymphalidae.
Feb 2008	Apr-Mar 2007/8	Final compilation of data; database complete for Papilionoidea (MCLB, Andes collections) and focal groups (NHM).
Apr 2008	Apr-Mar 2008/9	Preliminary analysis of results.
May 2008	Apr-Mar 2008/9	Gap analysis and “Andean Butterfly Diversity Workshop” (Quito) with project members, taxonomists and conservation organisations to identify future priorities.
Nov 2008	Apr-Mar 2008/9	5 taxonomic papers submitted to peer-reviewed journals for publication.
Dec 2008	Apr-Mar 2008/9	2 papers submitted to peer-reviewed journals on Andean butterfly diversity and conservation.
Dec 2008	Apr-Mar 2008/9	50 Key Butterfly Areas for conservation and research identified and “Regional Strategy for Butterfly Research and Conservation in the Tropical Andes” published. Final reports (2) completed.
Dec 2008	Apr-Mar 2008/9	Database (c. 3500 species, 150,000 specimens) accessible online at project website.

21. Set out the project's measurable outputs using the separate list of output measures.

PROJECT OUTPUTS		
Year/Month	Standard output number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
Jul 06-Jul 08	4A, 4B	300 undergraduate students (60 each from Venezuela, Colombia, Ecuador, Peru, Bolivia) to attend 10 one-week training courses in field techniques, data analysis, report writing. 40 students selected to receive dissertation scholarships and further supervision by e-mail and during country visits.
Apr 06-Aug 07	6A, 6B	10 institution staff (2 per Andean country). Total 22 weeks, including 2 week initial course for 5 persons in USA, 4 weeks per country subsequently. Supervision and training via e-mail.
Jun 06	7	Butterfly survey, collection, specimen preparation and curation methods on website. Field techniques manual published, online.
Jul 06, May 07	8	17 weeks divided between 4 countries
Jul 07, Nov 08	11AB	12 papers on taxonomy, macroecology, species conservation status, and conservation priorities in tropical Andean butterflies.
Mar 06, Aug 07	12A	4 per country (in a single Access database): taxonomic database (10,000 taxa); locality database (4,000 localities); specimen and literature record database; photograph database (10,000 photos).
Jul 07	13B	Minimum of 5 (1 per country). Identified and curated host institution in each country, + 1-3 other institutions per country.
May 08	14A	1, "Andean Butterfly Diversity Workshop" organised by project to discuss results and produce regional plan for future work.
Apr 06, 07, 08	14B	Minimum of 5 (3 x annual meeting of the Association for Tropical Lepidoptera; 2 x seminars at UCL and NHM, London).
Jun 07, 08	15A, 15C	12 (1 per Andean country and UK, in 2006 and 2007)
Dec 07, 08	16A, 16B, 16C	Annual e-newsletter detailing project's progress, circulated to c. 1000 individuals and organisations and on project's website.
Dec 06, 07, 08		Project website linking organisations and individuals, maintained by Project Leader and AndinoNET, also available via www.andesbiodiversity.org .
Mar 06 -	17A	
Apr 06	20	£6,000: collecting equipment, computers and digital cameras.
Jan 06 - Dec 08	23	£139,087 in contributions from CI, institutions, professional taxonomist expertise and overheads, plus unquantified time and expertise of host institution staff and other taxonomic experts.

MONITORING AND EVALUATION

22. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

Project progress will be monitored by the project leaders, regional coordinator, national coordinators and CI (Andes Center), through formal reports, tangible outputs and informal discussions. National coordinators will report to the project leaders every six months on progress in curation, identification and databasing of collections, and each year on training of institution staff. Participating universities will be asked to report annually on training received by students. The project leaders will submit six-monthly reports to DI and project partners documenting overall progress towards achieving outputs, by assessing numbers of students trained in courses, specimens curated, identified and databased, taxa represented by digital images in the database, and papers submitted for publication. At the workshop in 2008, all participants will be involved in evaluating the success of the project in achieving its overall purpose as well as its expected outputs, and this assessment will be included in the final project report.