Darwin Initiative for the Survival of Species

Final Report

1. Darwin Project Information

Project Reference No.	13-017 (formerly 268)
Project title	The Atelopus Initiative: Conserving Endangered Tropical Andean Amphibians
Country	Venezuela, Colombia, Ecuador, Perú and Bolivia
UK Contractor	Conservation International-UK
Partner Organisation (s)	*THE ATELOPUS INITIATIVE is a multi-national partnership of herpetologists from the following institutions: Conservation International, The Natural History Museum, IUCN, NatureServe, and many US, European and Andean institutions.*
Darwin Grant Value	£ 186,695
Start/End date	April 1, 2004 – March 31, 2007
Project website	*www.andescbc.org/atelopus*
Author(s), date	Ariadne Angulo, José Vicente Rodríguez-Mahecha, Patricio Jarrin, Robert Bensted-Smith

2. Project Background/Rationale

- Describe the location and circumstances of the project

The Atelopus Initiative is a regional project funded by a generous grant by the Darwin Initiative (DI), encompassing the five tropical Andean nations of Venezuela, Colombia, Ecuador, Peru and Bolivia. Following the results of the Global Amphibian Assessment (GAA) and the National Assessment processes developed in Venezuela, Colombia and Peru, which found that almost one third of all known amphibian species are currently considered to be threatened, the project team proposed the Atelopus Initiative as a response to address the amphibian population declines and extinction crisis in the tropical Andes. The crisis is of special concern in the region, given that it is considered to be a biodiversity hotspot and epicentre of amphibian richness especially in he upper Amazon basin.

- What was the problem that the project aimed to address?

The project aimed to address the amphibian population declines and extinction crisis in the tropical Andes Countries. Amphibian declines are a phenomenon that has been occurring at a global level at least over the last 15 to 20 years, affecting a wide array of amphibian species and covering a vast geographical area (e.g. Australia, the Americas, and Europe). The factors driving population declines are multiple and new evidence suggests that they may interact in complex ways (i.e., climate change and emergence of epidemic disease). The tropical Andes constitute one of the world's biodiversity hotspots, and it is no exception when it comes to amphibians: the five tropical Andean nations are home to 25 percent of the planet's amphibian species. As has occurred worldwide, the region has been experiencing a great loss of species, so this was a problem that required urgent and immediate attention.

- Who identified the need for this project and what evidence is there for a demand for this work and a commitment from the local partner?

In 2001, Conservation International (CI), International Union for the Conservation of Nature (IUCN), and NatureServe formed a partnership and set out to assess the status of amphibians worldwide in view of numerous reports and studies that suggested that amphibian populations across the globe were in trouble. As a part of this effort, called the Global Amphibian Assessment (GAA), the partnership conducted a regional workshop in Ecuador in 2003, prior to compiling the existing information to assess the status of amphibians in the tropical Andes. One of the outcomes of this workshop was the identification of the need for a project that would address the extinction crisis in this highly diverse part of the world. Results indicated that 39 percent of the region's 921 highland amphibians were considered to be Globally Threatened and 24 percent Data Deficient. However, it was also clear that a general lack of resources and capacity was hindering an effective response to the amphibian crisis. Herpetologists who attended the workshop recognized this, and were eager to address the issue with the development of an appropriate project.

3. Project Summary

- What were the purpose and objectives (or outputs) of the project? Please include the project logical framework as an appendix if this formed part of the original project proposal/schedule and report against it. If the logframe has been changed in the meantime, please indicate against which version you are reporting and include it with your report.

The project purpose was to address the amphibian extinction crisis through capacity building, gathering information and enacting conservation actions in the tropical Andes. The project's main objectives were:

1) To develop a Regional Amphibian Research and Conservation Strategy, in order to prioritise activities, and formulate effective and cost-efficient research and conservation action.
2) To increase institutional capacity, including training individuals and providing the taxonomic tools necessary to collect scientific data on the status of amphibians across the Tropical Andes.
3) To forge an alliance of national and regional research and conservation institutions within the tropical Andes, in order to combat the precipitous decline of amphibians and avoid imminent extinctions.

- Were the original objectives or operational plan modified during the project period? If significant changes were made, for what reason, and when were they approved by the Darwin Secretariat?

Yes, there were modifications to objective 1, "to develop a Regional Amphibian Research and Conservation Strategy, in order to prioritise activities, and formulate effective and cost-efficient research and conservation action" in the course of project development and implementation. While guidelines for elaboration of a strategy were developed and published, the institutional, social, economic and cultural differences--as well as varying degrees of participation--among the five tropical Andean nations, made the development of a regional strategy by consensus a difficult task, especially given that none of these nations had an established strategy dealing specifically with the amphibian crisis. Nonetheless, Venezuela took action on this matter, and is publishing a National Amphibian Conservation Strategy. A team of four institutions including the national government of Venezuela and Conservation International-Venezuela, with the strong participation of the scientific community—spearheaded the development of this strategy. Colombia has followed Venezuela's example by initiating efforts for the development of a national amphibian action plan. Atelopus Initiative staff have played a leadership role in the development and coordination of this initiative. The other three countries, however, have not yet taken similar steps. In their case, the project staff initiated the development of a regional research and conservation strategy for the highly endangered Andean frog genus, *Telmatobius*. In the last two cases, the development of these strategies is ongoing, as numerous rounds of consultation and involvement of different stakeholders are required, Venezuela is in the publishing process. These changes were not approved by the Darwin Secretariat, although some related aspects were discussed in previous reports.

With regard to the operational plan, in 2005 the project team decided that research grants would be administered under the Threatened Species Initiative (Iniciative de Especies Amenadas or IEA for its acronym in Spanish). This initiative is a regional initiative of CI's Andes Centre for Biodiversity Conservation that offers small grants for threatened species research. A local NGO partner administers the initiative in each of the tropical Andean countries (PROVITA in Venezuela, Fundación Omacha in Colombia, Ecociencia in Ecuador, APECO in Peru, and Fundación PUMA in Bolivia). The partner commits to doubling the amount of resources available from CI (including the Darwin Initiatve resources) for threatened species research. With these leverage funds, it issues calls for proposals and receives and processes applications. A panel comprised of Atelopus Initiative staff and independent experts then assesses these applications. In this way, through combining forces with the IEA, the Atelopus Initiative has been able to significantly leverage Darwin Initiative funds available for field research on endangered and threatened species. These changes were previously discussed in previous reports to the Darwin Secretariat.

Further changes to the operational plan involve the species regional assessment. Several colleagues from the region and the Colombian Society of Herpetology (Asociación Colombiana de Herpetología or ACH) are currently working on assessing or re-assessing, as appropriate, the level of threat assigned by the IUCN to recently studied species. Under this new scenario, there are 11 newly described species and 21 under description process, and another 61 that has new information from IEA projects for a total of 103 species that needs to be assigned or re-assigned in an IUCN category, ten of them reassessed at a lower threat level than that originally assigned in the GAA.

- Which of the Articles under the Convention on Biological Diversity (CBD) best describe the project? Summaries of the most relevant Articles to Darwin Projects are presented in Appendix I.

This initiative helps the parties to the CBD meet their obligations specifically with regards to the following Articles:
Article 7: Identification and Monitoring (18%); **Article 12**: Research and Training (20%); **Article 6**: General measures for Conservation and Sustainable Use (8%); **Article 8**: In-situ Conservation (10%); **Article 9**: Ex-situ conservation (9%); **Article 13**: Public education and awareness (10%); **Article 10**: Sustainable use of components of Biological Diversity (5%); **Article 14**: Impact assessment and minimizing adverse impacts (5%); **Article 17**: Exchange of information (15%).

- Briefly discuss how successful the project was in terms of meeting its objectives. What objectives were not or only partly achieved, and have there been significant additional accomplishments?

In broad terms, the project was extremely successful. Of course, the project has had to adapt to on-the-ground realities. The specifics of this are discussed below.

1) Objective 1: To develop a Regional Amphibian Research and Conservation Strategy, in order to prioritise activities, and formulate effective and cost-efficient research and conservation action.

The project was incredibly successful in developing consistent, national amphibian research and conservation strategies and species-specific strategies for those countries not yet ready to develop a national plan, even though it was not possible to develop a region-wide strategy. This switch in strategy occurred because, after an initial draft of a regional strategy was developed in the project's first workshop, it became clear that there were important differences between the five tropical Andean nations with regard to their national reality, priorities, legislation, capabilities, and understanding of the amphibian crisis. Given these circumstances, national strategies are a more appropriate, immediate and much-needed contribution to amphibian conservation that can provide a basis for a regional strategy when that is appropriate.

The project team then engaged in aiding the development of national strategies where possible. A national action plan for Venezuela is currently being published by four key partners (Ministry of the Environment and Natural Resources, La Salle Museum, Venezuelan Institute for Scientific Research (IVIC) and Conservation International-Venezuela) and a national action plan for Colombia is being spearheaded primarily by the project team, with several contributing institutions, including CI- Colombia. However, the other three countries (Ecuador, Peru and Bolivia) are in earlier stages of plan development and in their commitment to amphibian conservation. In these cases, the project has led the development of a regional action plan and project proposal targeting the highly threatened Andean genera *Batrachphrynus* and *Telmatobius* which occur in the three southern tropical Andean nations (Ecuador, Peru, and Bolivia), in addition to Argentina and Chile, the process is well advanced and a preliminary project is under consultation.

2) Objective 2: To increase institutional capacity, including training individuals and providing the taxonomic tools necessary to collect scientific data on the status of amphibians across the Tropical Andes.

The project has been highly successful in increasing institutional capacity via its four field-based training courses in amphibian survey and monitoring techniques. Beyond the Darwin-sponsored work, concern in the region about the amphibian crisis is now high enough that three training courses planned and financed by partners and CI will take place in September and November of this year and February 2008. Another outstanding success of the project has been the provision of key taxonomic tools through the development and some already publishing of six special publications (Two field guides published, one more almost finished and two under advanced preparation steps, additionally one manual for Amphibians Inventory and Monitoring Techniques) all oriented to provide capacity for the collection, monitoring and appropriate identification of the species and scientific data. Another tremendous success of the project was the scientific production of papers by partners, investigators, students, and the project team members (47 articles, abstracts and theses and documents produced and 7 under preparation). The team produced twenty-five national, local and international press releases as part of a media campaign (please see the annex III and V for details).

3) Objective 3: To forge an alliance of national and regional research and conservation institutions within the tropical Andes, in order to combat the precipitous decline of amphibians and avoid imminent extinctions.

The project has also been very successful in meeting this objective in forming this alliance, given its now well-established electronic website network, with a membership of 200 subscribed parties. The network has proven a huge contribution towards increasing collaborations and the exchange of information, as well as a way of facilitating partnerships between members working in the same general areas or with the same species groups.

4. Scientific, Training, and Technical Assessment

- Please provide a full account of the project's research, training, and/or technical work.
- **Research** - this should include details of staff, methodology, findings and the extent to which research findings have been subject to peer review.

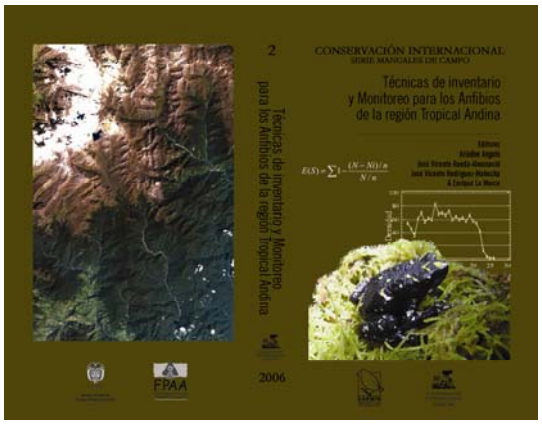
As discussed previously, research conducted under the auspices of the Darwin Initiative was channelled through the well-known Endangered Threatened Species Initiative (IEA) of Conservation International's Andes Centre for Biodiversity Conservation. The IEA is a small grants program for species research that provides highly targeted and leveraged funds for young scientists, amphibian researchers and students interested in the amphibians.

The IEA is a regional initiative which strives to maximise resources for field research on endangered species by securing matching funds, allowing the project to best capitalize on the resources provided by the Darwin Initiative. The IEA is managed by a local partner/NGO in each of the tropical Andean countries (PROVITA in Venezuela, Fundación Omacha in Colombia, Ecociencia in Ecuador, APECO in Peru and Fundación PUMA in Bolivia), which issues calls for proposals and receives and processes applications. As comprised during the Atelopus Initiative, a panel comprised of Atelopus Initiative staff and independent experts then assessed these applications.

IEA grant recipients that conducted amphibian research use the accepted references and methodologies listed below (the 3th produced under the present project):

1) Heyer, W.R., M.A. Donnelly, R.W. McDiarmid, L.C. Hayek and M.S. Foster.1994. *Measuring and Monitoring Biological Diversity. Standard Methods for Amphibians.* Washington: Smithsonian Institution Press;

2) Lips, K.R., J.K. Reaser, B.E. Young and R. Ibáñez. 2001. *Amphibian Monitoring in Latin America: A Protocol Manual.* Herpetological Circular No. 30, Society for the Study of Amphibians and Reptiles;



3) Angulo, A., J.V. Rueda-Almonacid, J.V. Rodríguez-Mahecha and E. La Marca. 2006. *Técnicas de Inventario y Monitoreo para los Anfibios de la Región Tropical Andina.* Série Manuales para la Conservación No. 2, Bogotá: Conservation International.

The most popular methodology employed in field-based projects was the Visual Encounter Survey (VES) technique. For further information on accepted/funded projects and their executors please refer to enclosed spreadsheet (Actions on Amphibians in the Andean Countries. xls).

- **Training and capacity building activities** – this should include information on selection criteria, content, assessment and accreditation.

The regional field-based course on amphibian survey and monitoring techniques developed by the Atelopus Initiative has become a well-known and established project activity in its own right. Throughout the project, the team carried out four field courses: the first in Peru (February 25-March 4, 2005, with 37 students), the second in Venezuela (June 25-July 2, 2005, with 35 students), the third in Bolivia (April 8-15, 2006,with 31 students) and the fourth and last course in Colombia (November 19-25, 2006, with 42 students). The first two courses were regional in nature, with participants from different countries within the region, whereas the last two courses were national in scope, directed primarily at the citizens of the host country. This is because it was more cost-effective to fund a course for national citizens rather than for participants from other parts of the region.

All applicants to all courses were expected to fill out an application form, including their CSV's, and provide two references. Once all application materials were received and the calls for applications were closed, three people assessed the applications: usually one or two project staff, the country coordinator for the project and a Conservation International employee. Bearing in mind that the courses were aimed at young researchers in either undergraduate or postgraduate programmes, the following six criteria were chosen to select applicants, on a scale of 0-5 each (5 being the maximum score possible for each criterion and 30 being the maximum score possible per applicant):

1: Potential to apply course content to research projects related to amphibian declines in the tropical Andes;

2: General amphibian knowledge, basic knowledge in aspects relating to ecology, statistical methods and experimental design;

3: Capacity for critical and independent thought;

4: Communication skills (both written and oral) and general disposition towards

collaboration and exchange of information;

5: Participation and contributions to discussions; and

6: Field work experience

Course contents included a) a core set of "fixed" lectures provided in every course and b) a series of lectures that changed depending on the location and the expertise of collaborating colleagues who kindly agreed to instruct in these courses. The core lectures of the course included the following topics:

- Background and context of amphibian declines
- Biosafety protocols in the field
- Preparation and preservation of scientific material
- Introduction to local herpetofauna
- Survey and inventory techniques
- Monitoring techniques
- Experimental design and statistical analysis
- Elementary bioacoustics and introduction to audio field recordings
- Ex-situ conservation of endangered species

Other subjects taught depending on the strengths and expertise of collaborating colleagues were as follows:

- Photography techniques for scientific publication
- Monitoring of Rancho Grande harlequin frog *(Atelopus cruciger)*
- Monitoring of Mucubaji harlequin frog *(Atelopus mucubajiensis)*
- Epidemiology of amphibian pathogen, *Batrachochytrium dendrobatidis* (Bd)
- Amphibian assemblages
- Climate change and its effects on complex biological interactions

Assessment was based on group projects, in which each group (of up to 8 students) was required to develop a research question and project design, conduct fieldwork and data collection, analyze data, and later present the main results and conclusions to their peers and instructors, along with a written project report. This assessment was on a pass/no pass basis. The first three courses were not accredited; however, an agreement was reached between a partner university (Universidad del Magdalena) and Conservation International to give two credits for successful completion of the last course (in Colombia). The same model will be used with the Universidad de Azuay for a planned course in Ecuador, and for the following two courses in Colombia, in Popayán, the Initiative will work with the Universidad del Cauca in November 2007 and in Bogotá with the Universidad Javeriana in early 2008.

Another training course co-financed by the Darwin Innitiatve and other CI donors was an international training course in *ex situ* conservation techniques in Cali, Colombia, in February 2007.

5. Project Impacts

- What evidence is there that project achievements have led to the accomplishment of the project purpose? Has achievement of objectives/outputs resulted in other, unexpected impacts?

The project's main purpose was to address the amphibian extinction crisis through capacity building, gathering information, and enacting conservation actions in the tropical Andes. Through field courses, the project has trained 145 participants from across the region on amphibian survey and monitoring techniques. Regional institutions have adopted the curriculum and course methodology and will now develop three more courses during the next two years for 100 additional students, who will receive academic credits. These activities have increased the institutional capacity needed to boost amphibian research and data gathering. Several of these alumni have gone on to apply for seed grants for amphibian research via the Threatened Species Initiative (IEA), which provides an opportunity for alumni to put into practice what they learned in the field courses. It is through one of these seed grants that (Marinkellei´s harlequin frog) *Atelopus ebenoides marinkellei*, a species feared to be extinct, was rediscovered in Colombia, and it is also through one of these seed grants that a new species of poison arrow frog was found in Colombia as a consequence of field work in the search for an endangered species of harlequin frog. The re-discovery of such and others species was not anticipated in the project purpose, but is a very welcome result that shows the value of having trained amphibian scientists doing research in the region.

In addition, the recent publication of a manual on survey and monitoring techniques for amphibians of the tropical Andes provides a useful tool for fieldwork, for alumni as well as those who were not able to attend a field course. Although it is too soon to measure the impact of the field manual on amphibian research in the region, we predict that it will become a useful tool and an often cited reference given that a) it provides an updated compilation of important and relevant tools and information for amphibian research, with a special focus on the needs of the tropical Andean region, b) hard copies are available free of charge to alumni and at a very low cost (£ 2.5) to interested parties, c) it is also available electronically as a pdf, and d) it is in Spanish, making access to information easier to those interested in amphibians but who lack the language skills to process other sources of information which are typically in English. These attributes have already made this reference a sought-after source of information, as requests for it have arrived from well beyond the tropical Andes.

Another publication which has received much attention is the *Atelopus* mini-guide, a full colour-illustrated pocket guide written in language accessible to the general public. It was published in substantial quantities (80,000 copies) in 2005 with ample regional participation. This product has been instrumental in communicating the plight of the genus *Atelopus* to the public at large and has, at the same time, aided researchers and inhabitants of rural communities to identify the species that were the subject of field studies. The project donated several dozen copies to schools and communities close to the geographic areas where these endangered species occur in the five Andean countries, allowing community members to become familiar with the issue of amphibian declines . At least three new species were discovered through information sent by the general public or students using the mini guides; and other information sent to the Noah´s Ark email address listed in the guides (arcadenoe@conservation.org) facilitates the search for new or remaining populations of threatened species. Likewise, the recent publication of a field booklet on the common amphibians of San Miguel, Bolivia, constitutes a valuable

identification tool not only for the local Tacana community and the nearby town of Rurrenabaque, but also to eco-tourists visiting the area and other interested parties. As mentioned previously, another field guides are currently in various stages of production: one on the *Dendrobatid* poison frogs (500 pages with 250 illustrations), two more, one about Colombia's salamanders, and one on the Centrolenid of the Andean region.. But the publication of 35 articles, abstracts, and theses and the seven now under preparation reflects the great success of scientific production the project partners, students, and team members.

The project has further increased its impact by carrying out other unscheduled activities and enacting conservation actions which were not originally contemplated in the project proposal. Such is the case of two seminars (in Bogotá and Cali, respectively) on the epidemiology of the chytrid fungus, as well as the support and development of four *ex situ* laboratories in Colombia (Universidad Javeriana, Universidad de los Andes, Universidad del Magdalena and Zoologico de Cali and one in Venezuela (Zoologico de Caricuao). Additionally, the project carried out one poster-based awareness publicity campaign targeting a newly discovered endangered poison arrow frog species, and another targeting the highly endangered group of Andean frogs comprised by the genera *Batrachophrynus* and *Telmatobius* in 2007.

Additionally, project staff have also been involved in the selection process to acquire land critical for amphibian conservation. This purchase will protect some of the last remnants of pristine upper pre-montane (1,400 to 2,820 meters above sea level) and subtropical forests identified as Areas of Zero Extinction (AZE) sites, with one site in the El Dorado Reserve in the Sierra Nevada de Santa Marta, and the La Forzosa site in the northeastern central Cordillera of Colombia. This site is home to 17 vulnerable and threatened amphibian species as well as at least five species new to science.

In addition, given the nature of the project and its focus on the tropical Andes, project staff have been invited to attend several events related to amphibian conservation (e.g., an *ex situ* conservation workshop in Panama, the Amphibian Conservation Summit in 2005, a policy forum on amphibian conservation policies in 2006), as well participating in the drafting of the global Amphibian Conservation Action Plan (ACAP).

- To what extent has the project achieved its purpose, i.e. how has it helped the host country to meet its obligations under the Biodiversity Convention (CBD), or what indication is there that it is likely to do so in the future? Information should be provided on plans, actions or policies by the host institution and government resulting directly from the project that building on new skills and research findings.

The project has helped tropical Andean nations to meet their obligations under the CBD by specifically addressing identification and monitoring (through the development of taxonomic tools and the funding of field research via seed grants), research and training (via the IEA grants and field courses), general measures for conservation (supporting the initiatives of creating four *ex-situ* laboratories in Colombia and one in Venezuela), *in-situ* conservation (field research, participating in assessments for land purchase of habitat relicts), public education and awareness (via the widespread distribution of mini field guides and posters), exchange of information and technical and scientific co-operation (through the project's network, called the *Red Atelopus* in Spanish, and the extensive regional collaborations involved in the production of field guides).

Project staff have had a pivotal role in organizing and conducting a symposium and roundtable on amphibian research and conservation actions in Colombia and similar activities in Bolivia, and have led event follow-up (e.g., leading the development of a amphibian conservation action plan in Colombia). Several presentations given at this

event were a direct outcome of research findings resulting from the Atelopus Initiative, on topics including monitoring research of harlequin frogs, ex-situ conservation advances, Chitrid assessment and populations declines in Colombia

Venezuela and Colombia are the first countries in the tropical Andes to develop an amphibian-targeted action plan. The development of such a plan is an ongoing process, as it involves extensive consultation among stakeholders, and will continues to be developed and organized by Conservation International once the project is formally concluded, with the intention of having the action plan formally adopted by the Environmental authority in Colombia.

The Atelopus Initiative has also spearheaded efforts to develop both a regional action plan and a project proposal for the conservation of the highly endangered Andean frogs of the genera *Batrachophrynus* and *Telmatobius* in Ecuador, Peru, and Bolivia (the project proposal also includes the other countries where these frogs are distributed, Argentina and Chile). This action plan has benefited from the input of specialists working with these frogs in these host countries, and again, Conservation International is pursuing the adoption of this plan by the CBD authorities in each of these countries, after the Atelopus Initiative's formal conclusion.

- Please complete the table in Appendix I to show the contribution made by different components of the project to the measures for biodiversity conservation defined in the CBD Articles.

See Appendix I.

- If there were training or capacity building elements to the project, to what extent has this improved local capacity to further biodiversity work in the host country and what is the evidence for this? Where possible, please provide information on what each student / trainee is now doing (or what they expect to be doing in the longer term).

One of the cornerstones of the project was the capacity building component, which trained individuals in amphibian survey and monitoring techniques, thereby increasing both institutional capacity and creating the probability of more conservation-oriented amphibian research in the tropical Andes. In the course of the project, a total of four field courses were carried out in four countries, with a total of 145 students trained in amphibian inventory and monitoring techniques. Another three courses that will use the same methodology are anticipated to take place in the next two years, to be financed by other CI donors and partners. The Atelopus Initiative has trained more people in amphibian survey and monitoring techniques than any other project of its kind. Among those trained were not only students, some of which went on to apply for IEA seed grants, but also field guides and park guards, who are in direct contact with the species in the areas where they occur naturally, and therefore able to monitor conservation status. Additionally the students and trainers provide, for the area where the courses were developed, an update of the situation of the amphibian population of the area. As an example of the improved local capacity for amphibian research that has resulted from the project, a team of students from three Colombian universities--which included four Atelopus Initiative course alumni--submitted a successful project to the international BP Conservation Programme. The team's proposal "Project Atelopus: Conservation of Critically Endangered Amphibians, Colombia," was one of just 26 projects chosen from 1,000 applications.

As there were many students trained in the project's courses, the Atelopus Initiative team has not been able to keep in contact with all of them to determine what they are doing now. Nonetheless, from current contacts with many course alumni, we know that approximately 40-60% continue to work or participate in amphibian research and

conservation through work with specific projects, NGOs, and institutions and/or via their participation in Atelopus Initiative's electronic network.

- Discuss the impact of the project in terms of collaboration to date between UK and local partner. What impact has the project made on local collaboration such as improved links between Governmental and civil society groups?

As discussed in previous annual reports, there has been significant local and regional collaboration on project activities, as numerous researchers across the tropical Andean region have partaken in the development of conservation strategies, publication efforts as well as field course development. However, collaboration between UK partners and regional colleagues has been limited due to a) schedule and health-related problems, which were addressed in previous annual reports, and b) the limited amount of amphibian-related research that the UK institution conducts in the region.

The project resulted in some significant progress in local collaboration. For example, the project team has contributed to the development of the Venezuelan national amphibian action plan, working closely with government authorities (the Ministry of the Environment and Natural Resources) and three other national partners from civil society (the Museum La Salle, the Venezuelan Institute for Scientific Research (IVIC for its Spanish acronym) and Conservation International-Venezuela) to assist in the development of the plan. Members of the project team are also spearheading the development of a Colombian amphibian action plan, which Conservation International-Colombia continues to pursue, even as the Darwin-sponsored project has formally ended. Development of Colombia's action plan involves building relations with governmental environmental authorities as well as with different members of civil society (research institutions, NGOs, local communities, etc.)

- In terms of social impact, who has benefited from the project? Has the project had (or is likely to result in) an unexpected positive or negative impact on individuals or local communities? What are the indicators for this and how were they measured?

With regards to social impact, the Tacana communities of San Miguel del Bala, in Bolivia, have directly benefited most from the project. One of the project's field courses was conducted in the recently constructed eco-tourist lodge run by the Tacana community, bringing in much-needed income to the community-based business initiative. It is also highly likely that the community will receive important benefits as a result of the first amphibian inventory conducted there. The inventory's results were published in a field guide booklet with the most common amphibian species of San Miguel. This publication will likely a) draw attention to San Miguel de Bala, possibly attracting eco-tourists and people with an interest in amphibians, and b) serve as a source of revenue for the Tacana community, in this way enhancing their quality of life. An immediate indicator of community benefit would be the revenue that the eco-lodge received from course participants. A longer term indicator would be the increased revenue from tourists that specifically visit San Miguel de Bala as a result of the amphibian inventory and field guide, although this has not been measured to date.

An additional, albeit indirect measure of social impact is expected from the land acquisition, and construction of different research facilities and protection of La Forzosa and the El Dorado Reserves, as the first AZE's (Alliance for Zero Extinctions) areas in Colombia. The protection of these areas will allow the sites to continue to provide ecosystem services. Such ecosystem services add to the well-being of local species and nearby communities. These protected areas are expected to provide benefits from ecotourism to the surrounding communities, and a research centre will yield benefits for the academic and scientific communities

6. Project Outputs

- Quantify all project outputs in the table in Appendix II using the coding and format of the Darwin Initiative Standard Output Measures.

See Appendix II for details

- Explain differences in actual outputs against those in the agreed schedule, i.e. what outputs were not achieved or only partly achieved? Were additional outputs achieved? Give details in the table in Appendix II.

Output 1: To strengthen institutional and individual capacity to coordinate and implement the Atelopus Initiative.

Output 1 was fully achieved; institutional and individual capacities to implement the project and amphibian research and conservation in the tropical Andean region were greatly strengthened through the project's field training programme, the generation of technical tools and identification guides, the establishment of a region-wide electronic network, and the project's key role in organizing events for exchange of information and dissemination.

Output 2: Regional training programme and field tools to assist monitoring

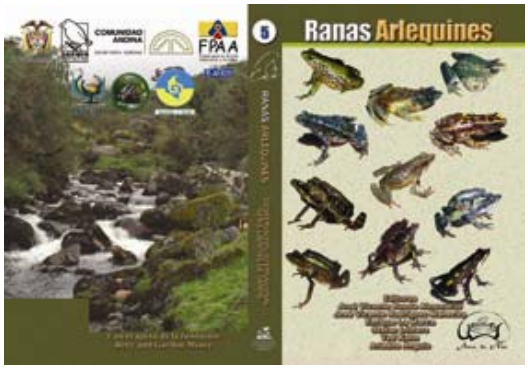
The training component of the output was essentially achieved. With regards to the regional training programme, the number of week-long field courses imparted (four) was more than projected, the only difference being the number of participants (116 undergraduate and 49 graduate-level participants; instead of 120 undergraduate and 60 graduate-level participants). The numbers in the original proposal did not take into consideration:

a) The number of facilities available throughout the region that are able to hold courses with such high numbers of attendants at a reasonable cost,

b) The profiles of applicants to these courses, and

c) in at least one case, the demand for a field course (e.g. as reported in Annual Report No. 2, there were difficulties in finding enough candidates that were interested in applying for the course held in San Miguel, Bolivia).

However, additional outputs that are relevant to training include two conferences on climate change, disease, and amphibian population declines (80 participants in Bogotá and 90 participants in Cali, Colombia; March 2006). Additionally, it is very important to mention, that as a consequence of the success of the courses, three institutions are committed to continuing training as started by the project, adopting the methodology; these institutions are receiving co-financing from CI and other partners for the next three courses. One is booked for August 2007 with the University of Azuay, Ecuador, and another two in the 2008 are planned at two universities in Colombia.



The development and publication of field tools to assist monitoring has been partly achieved. The original proposal aimed to produce key guides for six groups of amphibians and one field manual. The field manual on amphibian survey and monitoring techniques has been produced and printed (first, 3,000 copies distributed free of charge to key institutions, universities, and NGOs, and a second printing of 1,000). Identification guides have been developed and published for two other groups:

one guide, the *Atelopus* mini-guide, covers the whole distribution of the genus *Atelopus* and consolidate CI's Noah's Ark program. The Atelopus mini-guide has a distribution of 80,000 copies; this publication invites the lay and professional people to participate in *Atelopus* research by sending information on any amphibian they find. Another significant tool for sharing information is the Pocket Booklet series. The first Pocket Booklet for amphibians was produced with a run of 2,000 copies after a training course in Bolivia; it features the common amphibians of San Miguel del Bala, Bolivia. One other field guide is now underway; the field guide to poison frogs of the tropical Andes will have 500 pages and 200 illustrations. The delay in the publication of this guide has been largely due to the fact that there are several recent scientific publications or manuscripts in the process of being published that propose dramatic changes to poison frog taxonomy, which will in turn affect the nomenclature being used. Therefore, the project team thought it best to wait and incorporate the most up-to-date information possible in the guide to improve its usefulness. Also, given that this guide has 30 authors, it takes time to reach consensus on the nomenclature to be used, since not all authors are in agreement. Therefore, the team is now considering including the use of more than one nomenclature system in the ongoing field guide series. Additionally, a guide to *Centrolenid* frogs and another about the salamanders of Colombia are currently being designed. In conclusion, output in terms of number of identification guides was less than projected to be published at the end of the project, but the guides that were/are being produced are much more involved and provide more detailed information than originally envisioned. This is because it seemed more useful to produce guides that would provide field workers with more than just a photograph of the frogs. Two additional field tools were developed: the two promotional posters (one on the highly threatened Andean frogs of the genera *Batrachophrynus* and *Telmatobius*, which is designed to raise awareness of the plight of these amphibians, while at the same time helping people in the identification of these species), and one on the new species of *Dendrobatid* (the Supata frog) discovered by two students using an IEA grant funded by the Darwin Initiative and other donors. The students discovered the frog in a small patch of forest in the municipality of Supata, close to Bogota. The discovery and monitoring of this species has been an excellent opportunity to discover the only living population known of one of the most threatened salamander (*Bolitoglosa pandi*) endemic to Colombia. These discoveries help motivate the local and regional government authorities to buy the lands and begin a program to restore the forest. Additionally, the first individuals of this previously undescribed species are now in the Universidad de los Andes Amphibians Conservation Lab with excellent progress toward species recovery; after just two months, eleven tadpoles are thriving in the lab. This program represents an excellent opportunity for the reintroduction of this new species population to a new area restored by Colombia's environmental agencies and municipal officials.

Output 3: Improve knowledge through targeted fieldwork

In general, the project has had resounding success in achievement of this output. As discussed previously scientists have carried out research throughout the region, thus improving our current knowledge of many threatened amphibian species (see excel spreadsheet, Actions on amphibians in Andean Countries ID 2007.xls). As discussed previously, proposals for field research were channeled via an existing CI mechanism for financing multiple low-cost research activities throughout the region, namely, CI's Threatened Species Initiative (IEA). As explained above, through the IEA, CI collaborates with a partner institution in each Tropical Andes country. The partner contributes matching funds to those distributed by CI (from Darwin and non-Darwin funding sources). The partner administers the research funds. By significantly leveraging Darwin funding in this way, 94 research projects involving more than 141 species and amphibian communities (81 threatened) were funded in the course of the project. This is well over the number of projects (40) and the number of studies of threatened species

(50) expected. Reports, however, were not measured in terms of fieldwork weeks as was expressed in the original project proposal, since this was not one of the previously-established requirements of the IEA. Nonetheless, an estimate of the time invested in the fieldwork sponsored is higher that the DI proposal described, since more than the 70 percent of the IEA projects involve more than two months of intensive field work.

Output 4: Species and site conservation Action Plans produced

As mentioned in the project's second Annual Report, there were differences of opinion with regard to species and site conservation action plans. Specifically, the issue was whether to develop species-specific action plans or larger-scale action plans, e.g. at a national level. Following the recommendation of the Darwin Initiative Reviewer of Year 2's annual report, project staff opted to take an adaptive approach, supporting the formulation of national action plans where possible, and species- and site-specific action plans in countries not yet ready to formulate plans of national scope. In the case of those countries that have not embarked in national action plan activities (Peru, Ecuador, and Bolivia), a regional action plan specifically targeting the highly endangered Andean frogs of the genera *Batrachophrynus* and *Telmatobius* is being developed by project staff in close consultation with specialists on this group of amphibians. The regional action plan is being developed in parallel with a funding proposal for these frogs, extending the project's scope to include the genera's entire geographical distribution.

With regard to national amphibian strategies/action plans, Venezuela is spearheading this effort in the tropical Andes, developing a national strategy for amphibian research and conservation by public consensus. This initiative is being led by a team of four institutions and is backed by the government of Venezuela.

Following Venezuela's example, a joint symposium-roundtable on amphibian research and conservation in Colombia was held in Santa Marta, Colombia, in November 2006, bringing together over 190 participants who discussed aspects of a national action plan. The results of this roundtable are still being compiled and developed as a national action plan for amphibians of Colombia by project staff for further consultation with scientists, conservationists, and other stakeholders.

In summary, the project has achieved significant progress in delivering the output, but has adapted the specifics to the realities that unfolded as the project progressed.

Output 5: Formulate 10-year research and conservation programme for amphibians in the region

Guidelines for a long-term regional research and conservation programme for amphibians were developed in the amphibian survey and monitoring field manual described above. However, given the project team's experience with the development of regional plans, the team is now focusing more on the development of national action plans where possible, given that a specific country's realities and priorities is highly variable.

Output 6: Increased public awareness of the amphibian crisis and the need to intensify conservation efforts

Public awareness of the amphibian plight has been greatly enhanced by virtue of the project's achievements. (see the annex III Divulgation and news notes secction) The project has engaged in all activities originally planned for this output, including:

- a publicity campaign during the official presentation of the *Atelopus* mini-guide in each country, with media interviews;

- numerous news releases featuring, for example, project workshops, field courses, frog rediscoveries or new species found as a consequence of Darwin Initiative funding;

- Development of a website a biannual e-newsletter; and
- *Batrachophrynus*, *Telmatobius)* (Ecuador, Peru, and Supata frog poster campaigns).

- Provide full details in Appendix III of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website database.

Please see Appendix III for details.

- How has information relating to project outputs and outcomes been disseminated, and who was/is the target audience? Will this continue or develop after project completion and, if so, who will be responsible and bear the cost of further information dissemination?

Information relating to project outputs has been disseminated through the project's biannual e-newsletter, which has been posted on the project's website and has also been circulated through the *Red Atelopus* electronic network of 200 members. The target audience has been the regional scientific and conservation communities. While the project's e-newsletters will no longer be produced, the electronic network will continue to operate, and thus continue to be an effective means of dissemination of information. There will be no cost associated with the maintenance of the electronic network, given that it is operated through a free list serve (Yahoo! groups), and Conservation International has assigned a post-project moderator for the group.

7. Project Expenditure

- Tabulate grant expenditure using the categories in the original application/schedule.

	2004/2005	*2005/2006*	*2006/2007*	*TOTAL*
•				
•				
•				
•				
•				
•				
•				

- Highlight agreed changes to the budget.

Explain any variation in expenditure where this is +/- 10% of the budget.

8. Project Operation and Partnerships

- How many local partners worked on project activities and how does this differ from initial plans for partnerships? Who were the main partners and the most active partners, and what is their role in biodiversity issues? How were partners involved in project planning and implementation? Were plans modified significantly in response to local consultation?

The field implementation of the project has been led by CI-UK's in-country partner in Colombia, CI-Colombia, which has in turn collaborated with many partners within the Andean region.

These activities included the development of several outputs that required multiple collaborations and/or facilitations (e.g., multi-authored field guides, facilitating permit acquisition, etc.); however, the main local partners (i.e., the most active and/or or the ones that collaborated in key activities/outputs) were as follows (role in biodiversity issues follows each institution's name):

Venezuela: Ministry of the Environment and Natural Resources (governmental agency managing natural resources in Venezuela), Universidad de Los Andes-Mérida (institution that conducts research on amphibians of Venezuela), Fundación La Salle (institution that conducts research on amphibians of Venezuela), Venezuelan Institute for Scientific Research -IVIC (institute that conducts scientific research in Venezuela), and Fundación Andígena, Provita (NGO that conducts research on amphibians of Venezuela).

Colombia: Pontifica Universidad Javeriana, Universidad del Valle, Universidad de Los Andes (Bogotá), Universidad del Cauca, Universidad del Magdalena, Universidad Industrial de Santander (all these institutions conduct research on amphibians of Colombia), Fondo para la Acción Ambiental (Fund for Environmental Action, a funding agency that supports environmental and conservation projects),Fundación Omacha (a local NGO that administers the IEA, the Threatened Species Initiative) and Fundación ProAves (a local NGO partner that manages the La Forzosa and the El Dorado Reserves).

Ecuador: Escuela Politécnica Nacional and Universidad San Francisco de Quito (both institutions that conduct research on Ecuadorian amphibians), Fundación Ecológica, Arcoiris, Ecociencia (an NGO that seeks to conserve amphibian diversity in Ecuador).

Peru: Museo de Historia Natural-Universidad Nacional Mayor de San Marcos and Museo de Historia Natural-Universidad Nacional de San Agustin de Arequipa (both institutions that conduct research on Peru's amphibians), INIBICO (a local NGO that conducts amphibian research and conservation activities in northern Peru) and Apeco (the NGO that administers the IEA in Peru) and the Critical Ecosystem Partnership Fund (a multi-donor fund created to conserve important habitats that is housed at CI, which provided significant funding for the Vilcabamba- Amboro Conservation corridor in Peru during the Atelopus Initiative project period.

Bolivia: Colección Boliviana de Fauna-Instituto de Ecología and the Museo Noel Kenf (museums that conduct research on Bolivia's amphibians), Fundacion Puma (a Bolivian funding agency that supports environmental and conservation projects and administers the IEA in Bolivia).

Conservation International offices in each of these countries were also key partners in ensuring the success of project activities. All CI offices share the mission of conserving the Earth's living heritage, our global biodiversity, and demonstrating that human societies are able to live harmoniously with nature.

Partners were involved in project planning and implementation through extensive consultation and coordination processes, whereby partners facilitated and helped coordinate in situ project activities on behalf of the project. Some plans had to be modified somewhat as a result of consultation processes (e.g., with regard to dates, venues and number of participants that venues could accommodate for project activities); however, these are relatively minor modifications in the project's development.

- During the project lifetime, what collaboration existed with similar projects (Darwin or other) elsewhere in the host country? Was there consultation with the host country Biodiversity Strategy (BS) Office?

As discussed above, the Atelopus Initiative collaborated and established a symbiosis with the Threatened Species Initiative (IEA), a program of Conservation International's Andes Centre for Biodiversity Conservation to maximise funding for research and conservation of endangered species through leveraging project funds with non-project funds and providing seed grants to scientists for amphibian research, as explained previously. This generated significant collaboration with partner institutions involved in similar projects since project proposals for amphibian work were handled through the IEA's local NGO partners in each country.

Project staff and partners held several consultations held with the tropical Andean nations' Biodiversity Strategy offices (i.e., governmental agencies responsible for the management of natural resources); these were especially focused on field courses and the development of a large regional and/or national funding proposal on conservation of the amphibians of tropical Andean nations (e.g., a proposal to the Global Environment Facility). In the case of Venezuela's Ministry of the Environment and Natural Resources, consultations regarding the development of national amphibian research and conservation strategies were especially rewarding.

- How many international partners participated in project activities? Provide names of main international partners.

The main international partners in project activities were the IUCN (World Conservation Union), NatureServe, Mainz University (Germany), Smithsonian Tropical Research Institute (Panama), Staatliche Naturhistorische Sammlungen Dresden (Germany), Neotropical Conservation Foundation (USA), the American Museum of Natural History (USA) and the Museo Nacional de Ciencias Naturales (Spain) and the Andean Community of Nations (based in Peru).

- To your knowledge, have the local partnerships been active after the end of the Darwin Project and what is the level of their participation with the local biodiversity strategy process and other local Government activities? Is more community participation needed and is there a role for the private sector?

Local partnerships will continue to be active after project conclusion in a number of strategies developed during the Darwin-funded project, such as the development of a regional research and conservation strategy for Andean frogs of the genera *Batrachophrynus* and *Telmatobius*; completion of field guide on the toxic arrow poison frogs; and development and completion of the national amphibian research and conservation action plan for Colombia. The main link between these partners and local biodiversity strategies, government processes and activities, especially as they refer to project activities, is Conservation International, (i.e. partners collaborate and participate, as long as CI spearheads these initiatives). Further community participation is still needed for the regional research and conservation strategy for Andean frogs of the genera *Batrachophrynus* and *Telmatobius*; engaging the private sector, as well as local communities, in these conservation initiatives, is one of the main components of these initiatives.

9. Monitoring and Evaluation, Lesson learning

- Please explain your strategy for monitoring and evaluation (M&E) and give an outline of results. How does this **demonstrate** the value of the project? E.g. what baseline information was collected (e.g. scientific, social, economic), milestones in the project design, and indicators to identify your achievements (at purpose and goal level).

The project's monitoring and evaluation strategy was applied to the following outputs/activities: the regional electronic network, field courses, and applications for conducting amphibian research.

We have monitored the impact of the regional electronic network in terms of: a) interest in the network, using as an indicator the number of members that are subscribed, and b) exchanges that are posted on the network, using as an indicator the number of messages that are posted on a monthly basis since the inception of the network. The increased membership (over 200 members subscribed to the network to date) as well as the increase in message volume. Specifically, during the first year of the network's operation, Sept 2004 to August 2005, there was an average of 13 messages/month. Since the network was new, the baseline, of course, was zero. Monthly messages increased slightly to 17 messages/month in 2005/2006, then significantly in 2006-2007 [until project conclusion in March 2007] to 35 messages/month. This demonstrates that the network is a valuable contribution of the project to the tropical Andean scientific and conservation communities.

Each field course included an evaluation completed by course participants, where feedback on aspects such as instruction, logistics, organization, course exercises, and general course content was requested. Participants also gave the course overall rating. The evaluations showed the following overall results:

%	1st course	2nd course	3rd course	4th course
Excellent or very good	27	41.7	46.4	24.3
Good	67.6	55.5	50	70.3
Fair	5.4	2.8	3.6	5.4
Poor	0	0	0	0

After each evaluation, a tally of the most common suggestions was made and these were incorporated into future field courses. With the exception of the third training course, which was carried out in Bolivia and had a relatively low response in comparison to other field courses, applications for field courses were competitive and well-attended. Continued interest and demand for such training courses, as evidenced by the number of enquiries and applicants, shows that these courses provide much-needed training in the field of amphibian surveys and monitoring techniques. Furthermore, institutions of higher education have shown an interest in accrediting such courses, such courses. For example, the Universidad del Magdalena, in Colombia, provided accreditation for the fourth training course held in Santa Marta, Colombia and others as the Universidad de Azuay (Ecuador) and Universidad del Cauca y Universidad Javeriana in Colombia are interested offering additional courses based on the Atelopus Initiative training course methodology.

The project team monitored research activities when evaluating project proposals. The project team has monitored the number of applications to conduct amphibian research under the joint Darwin Initiative/IEA small grants mechanism. This indicator figure has increased over time. Additionally, the number of endangered species which have been the focus of these studies (please refer to the excel file, "Action in amphibians in Andean Countries.xls" for further details) has also increased.

These increases clearly show that the funding for such research provided as part of the project has had an important impact enabling more conservation research, than would otherwise have happened. An additional indicator of the project's impact in this regard is when Atelopus Initiative grantees funded via the Darwin Initiative/IEA are also successful in obtaining additional funds for amphibian research. While we do not have comprehensive information on this matter, as described previously, a group of students from three universities in Colombia that included Atelopus Initiative course alumni recently obtained funding from the BP Conservation Programme for their project, "Project Atelopus: Conservation of Critically Endangered Amphibians, Colombia," one of just 26 projects chosen from 1,000 applications.

- What were the main problems and what steps were taken to overcome them?

The need to switch from development of a single regional strategy to country level strategies was the main challenge that the project faced. However, as has been discussed in detail in previous sections, project staff adapted to these circumstances and moved ahead using to the most workable plan for the each of the tropical Andes countries.

The regional nature and broad scale of this project provided many benefits, but also offered challenges, especially in terms of internal communications among project participants who were dispersed among many different institutions and countries. The project oversight committee worked hard to establish a regular schedule of conference calls and virtual meetings; however, these meetings sometimes lapsed due to the very busy agendas of project participants. The project oversight committee worked hard to find ways to accommodate participant schedules. In addition, the power to decide on key aspects of the project was not equally distributed among committee members, which made a timely response to some of these key aspects something difficult to attain when other members of the committee had other priorities to attend to.

Measurable indicators of the original proposal were sub-optimally designed, given the complexity of the project; that made monitoring project outputs via these indicators a challenge. A new set of indicators was drafted and sent to members of the project's oversight committee; however, due to the urgency of completing other project and non-project tasks, the committee did not adopt these new indicators.

- During the project period, has there been an internal or external evaluation of the work or are there any plans for this?

Participants of field courses evaluated each course offered, as described above. No evaluations of the project *per se* were conducted. However, the regional offices of Conservation International were engaged in three evaluation activities during the project period. First, the tropical Andes countries conducted self-evaluations during the project period. Additionally, the main funder for Conservation International's offices in the Andes countries and its regional coordinating unit conducted an evaluation of CI's work in the region, including the work of the Species Conservation Unit, which coordinates the Threatened Species initiative. Finally, Conservation International's global leadership (the Program Management Group) conducted its own evaluation of CI's activities in the Andes countries as the Atelopus Initiative project was coming to a conclusion. Since the Atelopus Initiative work formed an important part of the species work conducted by CI's offices in the region over the project timeframe, some of the project's elements were

evaluated. These evaluations found that, considering the large numbers of amphibians threatened and the complexity of the region (five countries with different stages of development and institutional commitment to amphibian conservation work), the progress in species work is excellent and well developed. The Andes region was determined to be the only region that shows a considerable progress in data collection for determining whether or not to list a species in a given IUCN Red List category.

- What are the key lessons to be drawn from the experience of this project? We would welcome your comments on any broader lessons for Darwin Initiative as a programme or practical lessons that could be valuable to other projects, as we would like to present this information on a website page.

Key lessons to be drawn from the experience of this project include:

a) That proposals not only be signed off by leading applicants, but that they also be well supported by accompanying documentation (e.g. if there are partners listed in the proposal, that there be letters or emails acknowledging their participation in the project).

b) That, for similarly complex and multi-partner projects, the Darwin Initiative should formally require project committee meetings every three or four months, including a report of these meetings, thus ensuring that they will happen and that whatever issues that arise in between will be addressed in a timely fashion.

c) Those decisions on changes in projected outputs or mechanisms be discussed and agreed upon by all relevant parties, and any discrepancies be followed up on as part of an integrated working team. If quick responses are required, however, that the power to decide on them should be formally allocated to those members of the committee with the greatest expertise on the subject of the project (previously agreed upon), not delegated on the basis of organizational hierarchy.

d) If the project sounds too good to be true in terms of value for money, there is clearly a need for careful assessment of projected activities, as costs likely being underestimated, thereby representing a potential threat to successful completion of the project's purpose. If there is a considerable amount of involvement by volunteers, it is crucial that there be written evidence for this commitment and its viability. .

e) That, for project budgets that are similarly complex in terms of number of countries and partners involved, the project budget include sufficient resources for project coordination, so that project staff are able to direct a greater percentage of their time to the project in order to ensure a higher level of coordination among institutions.

10. Actions taken in response to annual report reviews (if applicable)

- Have you responded to issues raised in the reviews of your annual reports? Have you discussed the reviews with your collaborators? Briefly summarise what actions have been taken over the lifetime of the project as a result of recommendations from previous reviews (if applicable).

Yes, the team has addressed issues that were raised in reviews of annual reports in the Second Annual Report and in the last half term report, October 2006. The DI reviews have been discussed with members of the project's committee.

Recommendations and actions that were taken as a result of these recommendations include the following:

In terms of high amphibian diversity areas, the Year 1 Annual Report Reviewer encouraged discussion with avian research and conservation bodies to increase efficiencies and additional outputs as a result of potential collaboration. In September 2005 during the Amphibian Conservation Summit (ACS) held in Washington, D.C., the Atelopus Initiative played a leading role in the working group on Key Biodiversity Areas (KBAs)[1] as an input to the Amphibian Conservation Action Plan (ACAP). The concept of KBAs had been already developed by avian-focused groups, and we have, as an amphibian-oriented group, adopted this concept and further added criteria and filters in the identification and prioritization of KBAs. A representative of the American Bird Conservancy participated in the ACS and was an active member of the KBA working group led by the Project's staff. Thus, the collaboration between avian and amphibian specialists groups has yielded benefits in terms of identifying key areas for conservation.

The Year 2 Annual Report Reviewer suggested that greater effort be placed on engaging the project with other bodies and individuals to widen the project's profile. We believe that the project is achieving greater international exposure through its widely-disseminated publications (field guides, mini-guides and manual), which have been requested well beyond the tropical Andean region (e.g., South, Central and North America, Europe), as well as project staff participation in the Amphibian Conservation Action Plan. In addition, the more recent development of a project proposal for the endangered Andean genera *Batrachophrynus* and *Telmatobius* has widened the project's profile to colleagues of neighbouring countries (Argentina and Chile).

In addition, the reviewer also commented: "as stated under 'difficulties' in the report, there has been a lower number of project proposals submitted [to the Threatened Species Initiative] under the species and site management planning process and there is consequently a review of whether to continue with the original framework or to alter the design to the formulation of national action plans. This is an understandable but major turning point in the programme delivery and should be resolved as a matter of urgency." As a result of this recommendation, we reviewed our strategy and opted to take an adaptive approach This alternative strategy has allowed for the inclusion of ongoing (Venezuela) or recently initiated (Colombia) in-country consultation processes for the development of national action plans, as well as the inclusion of a regional action plan and project proposal for threatened Andean frogs of the genera *Batrachophrynus* and *Telmatobius*.

The reviewer recommended inclusion of examples of applications of lessons learned in Years 1 and 2 (where and how) in Year 3 report. These lessons learned, and how they were applied, are as follows:

- More realistic estimates of the costs of amphibian research activities of collaboration among scientists in the region: we have endeavoured to be much more realistic in the calculation of operational costs in other amphibian proposals that were developed in the course of the project's lifetime.
- Rewarding collaborators either financially or in kind will a) increase the probabilities of obtaining high-quality products in a timely fashion, and b) make national coordinators feel more involved with projects such as the Atelopus Initiative: While this is a strategy that has improved the timeframes for product conclusion (e.g. field manual), results have been mixed, in some cases expediting the process, in others,

[1] A KBA is an area defined by Conservation International as critical habitat and targeted for site-level conservation of globally threatened species, restricted-range species, and globally significant congregations.

not. This may be because financial or in-kind compensation was considered to be too low.

- To diversify expertise in addressing amphibian declines given the magnitude and complexity of the phenomenon; making the effort interdisciplinary rather than focused on a given group of experts: The project team attempted to contact and involve climatologists and additional British experts to engage in a new proposal for the Darwin Initiative presented to the Darwin Initiative as a Stage I application last year. While this contact in itself was good, unfortunately the Application was not successful, so this new team did not have the opportunity to collaborate on implementing a climate change-focused project on amphibian decline.
- Back-up plans for scheduled events should be a regular part of organization, given the sometimes unpredictable situations that may arise at a moment's notice: We applied this lesson in the project's third field course in Bolivia; specifically, course instructors ended up renting a vehicle to the course location instead of flying, given bad weather conditions and a transportation strike. Although the course started a little later as a result of this change, there were no subsequent additional issues and overall the course was successful as a result of this adaptive action.
- Learning how to handle project matters in a diplomatically neutral stance in cases where colleagues that collaborate with the project have professional or personal issues with other collaborating colleagues: Project staff have applied this lesson to a case where two collaborators in Venezuela were at odds following an inappropriate communication through the project's network; project staff intervened to resolve the issue at the network level and appropriate apologies were delivered and accepted. The project has managed to keep both these collaborators on board as part of the network and both continue to contribute actively to project activities.
- Learning how to identify those colleagues that are willing to contribute to the project in a professional and timely fashion and requesting their leadership in key working documents: Project staff have identified these key collaborators. As a result, certain project activities worked much more smoothly (e.g., field manual).

11. Darwin Identity

- What effort has the project made to publicise the Darwin Initiative, e.g. where did the project use the Darwin Initiative logo, promote Darwin funding opportunities or projects? Was there evidence that Darwin Fellows or Darwin Scholars/Students used these titles?

The project has publicised and promoted the Darwin Initiative in several ways. For example, it has used the Darwin Initiative logo in every publication that has resulted from the project (i.e., *Atelopus* mini guide, amphibian survey and monitoring field manual, field booklet on the amphibians of San Miguel, Bolivia, and will be used in the future publication of the ongoing fieldguides), as well as in posters (i.e., new species of poison frog from Supata, *Telmatobius* species of the tropical Andes), t-shirts, e-newsletters and in field course materials and presentations.

- What is the understanding of Darwin Identity in the host country? Who, within the host country, is likely to be familiar with the Darwin Initiative and what evidence is there to show that people are aware of this project and the aims of the Darwin Initiative?

The herpetological communities of host countries were not very familiar with the Darwin Initiative before the project. Since the beginning of the Atelopus Initiative, it would be fair to say that awareness of the Darwin Initiative has increased overall, especially among young herpetologists who are getting funding for research via the Initiative, as well as through the publications where the Darwin Initiative logo is featured and publications resulting from Darwin Initiative-funded research. Members of these herpetological communities are now aware of the Darwin Initiative's aim and objectives, and of the important role it has played in boosting amphibian research and conservation in the tropical Andes. This is evidenced through continued interest in the project, its network, field courses and applications for research funds via the IEA.

- Considering the project in the context of biodiversity conservation in the host country, did it form part of a larger programme or was it recognised as a distinct project with a clear identity?

Given the regional nature of the project, as it encompassed five countries and thus it is already fairly ample by definition, it had a very clear identity and was recognized as a distinct project among amphibian specialists. It was seen as a distinct project managed under Conservation International's Andes Centre for Biodiversity Conservation (Andes CBC), an umbrella programme that also covers the same region and countries.

12. Leverage

- During the lifetime of the project, what additional funds were attracted to biodiversity work associated with the project, including additional investment by partners?

The project has leveraged significant matching funds for several of its activities throughout its duration. CI,through a generous grant from the Gordon and Betty Moore Foundation, provided an additional $10,000 toward to the cost of the first project workshop held in 2004, plus more than $30,000 for the three courses developed and $10,000 for the two already booked and planned for the next year Also, as discussed previously, Darwin Initiative seed research grants were channelled through CI's existing small grants mechanism, the IEA, with co-financing of more than $30,000 provided to CI by the Moore Foundation. This enabled us to obtain additional leverage from the local partners in each country implementing the program. Local partners also contributed to publication costs. These included the following:

  - in Colombia: Fund for Environmental Action (FPAA)Colombia's Aqueduct Company of Bogota, Colombia's Ministry of Environment, Housing, and Development, Universidad del Magdalena, Universida de Cordoba Colombia Wildlife Conservation Society, and the following Colombian Regional (Deparmental) Environmental Authorities: Corantioquia, Corpocaldas, CVS, Cornare, CVC Corponariño, Corporinoquía, Cormagdalena and CAR,
  - in Bolivia: the Puma Foundation, and the United States Agency for International Develoment, Mission in- Bolivia.
  - in Ecuador: Ecociencia.
  - InVenezuela: the British Embassy, various oil companies; and
  - in Peu. the Critical Ecosystems Partnership Fund (CEPF).

- What efforts were made by UK project staff to strengthen the capacity of partners to secure further funds for similar work in the host country and were attempts made to capture funds from international donors?

The Project Executive Director, Robert Bensted-Smith and Simon Stuart, Chairman of the Project Oversight Committee, were active in efforts to secure additional funds, supporting and reviewing proposals. Additionally, another project advisor, Don Church was key in securing funds for the acquisition of the lands to establish the El Dorado and La Forzosa Reserves (more than £75,000 (though Mr. Church is not British).. Additionally, as described previously, the project was able to make use of substantial additional grant funding from the Moore Foundation to CI. The project team and additional collaborators also made a significant effort to develop a proposal for a proposal to the Global Environment Facility to implement a regional project addressing amphibian declines; unfortunately, changing policies at the GEF made regional proposals nearly impossible. Therefore, the project team changed tactics and worked toward securing funding for amphibians through the GEF at the national level of each of the tropical Andes countries; while changes at the GEF continue, we believe that at least three of these amphibian proposals are still under consideration for GEF funding. Finally, the project team also collaborated with the two UK institutions, Durrell Institute of Conservation and Ecology [DICE] and Durrell Wildlife Conservation Trust [DWCT], for the Darwin Initiative's Round 15. Unfortunately, a Stage 2 application was not invited.

13. Sustainability and Legacy

- What project achievements are most likely to endure? What will happen to project staff and resources after the project ends? Are partners likely to keep in touch?

Project achievements most likely to endure over the course of time are the key amphibian references/publications developed through the project, in particular the *Atelopus* mini-guide and the amphibian survey and monitoring field manual. Other important achievements that are likely to continue to serve the amphibian specialist community after the end of the project are establishment of the electronic regional network, the Atelopus network, and the tropical Andes amphibian database, but the 145 professionals with increased understanding and capacities is major legacy of the project. The project had only one staff member dedicated to the project on a full-time basis, coordinator Ariadne Angulo. Other project staff continue to work for Conservation International on biodiversity conservation issues, including some work related to amphibians; we continue to work to find additional resources to fund further concentration on amphibian conservation projects. Remaining resources will be kept by Conservation International and be used by staff or loaned to partners. Partners are likely to keep in touch via the project's electronic network. Finally, the Threatened Species Initiative continues to support small grants on amphibian conservation issues, although at a smaller scale than during the project, until additional resources can be secured.

- Have the project's conclusions and outputs been widely applied? How could legacy have been improved?

Project outputs such as publications and posters have been widely disseminated and their use has already proven to be valuable in the identification and rediscovery of endangered amphibian populations and species (e.g (*Atelopus ebenoides marinkellei)*, (*Atelopus laetissimus),* (*Atelopus nahumae)* and many others). Another output, project field courses, have been very valuable in enhancing local opportunities for capacity-building; they have increased course participants' capacity to pursue conservation-oriented research (as currently evidenced by some alumni's applications IEA seed grants), as well as enhanced their qualifications in amphibian conservation for future professional endeavours. While the amphibian survey and monitoring manual is a relatively recent output, it is likely to become an important research reference in the longer term given that a) it is an updated

compilation, b) it is in Spanish, and c) it is full of useful resources and information and d) it is free of cost or very close to it, depending on the distributor and format (the manual is also available in pdf format). The new field guides currently under development (e.g., *Dendrobatid* Poison Frogs, *centrolenidae*, *Cecilian* also are also an important legacy of the project, with publication expected to take place in late 2007 and in 2008.

Additionally, several universities in the region have now adopted the courses' methodology—an excellent project legacy that ensures that the methodologies developed as part of the project will continue to influence young conservations' training for years to come.

Had greater funding become available, the project's legacy could have been even greater; greater and more continuous funding would have allowed greater participation, increased commitment and/or efficiency to finalize products in a more timely fashion on behalf of collaborating partners, and faster responses in the generation of outputs (e.g., the amphibian survey and monitoring manual). Project legacy could have also been further improved by allowing the decision-making process to be more evenly spread out among key project staff members.

- Are additional funds being sought to continue aspects of the project (funds from where and for which aspects)?

Yes, we are continuing to seek additional funds to continue the development of a regional project proposal to increase research and conservation activities of the highly endangered genera of Andean frogs *Batrachophrynus* and *Telmatobius* in Ecuador, Peru, Bolivia, Chile and Argentina (the countries where species are distributed). Furthermore, CI is now seeking to develop a trust fund for the Threatened Species Initiative in the tropical Andes region. To date, CI has secured the support of Colombia's Environmental Action Fund for a million dollars for threatened species work in Colombia. CI is also seeking the support of a private sector coal company and a private foundation in the region.

14. Value for money

- Considering the costs and benefits of the project, how do you rate the project in terms of value for money and what evidence do you have to support these conclusions?

Indeed the project was a very good value for money, considering the costs involved and derived benefits. Evidence to support these conclusions comes from a) the numerous partners that were involved in the different activities (publications, field courses, grant reviews, development of documents, coordination and participation in events, etc.) who selflessly provided their time, expertise, knowledge and equipment, without any kind of compensation; b) the limited number of project staff that were hired specifically for the project (1 full time person hired at a modest salary considering academic qualifications and experience); CI provided numerous staff and other resources to the project through matching funds; d) the quantity of each publication printed, which was substantially higher due to matching funds than would have been possible through Darwin funds alone. The project's value for money was greatly increased due to use of matching funds from local partners.

14. Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Please complete the table below to show the extent of project contribution to the different measures for biodiversity conservation defined in the CBD Articles. This will enable us to tie Darwin projects more directly into CBD areas and to see if the underlying objective of the Darwin Initiative has been met. We have focused on CBD Articles that are most relevant to biodiversity conservation initiatives by small projects in developing countries. However, certain Articles have been omitted where they apply across the board. Where there is overlap between measures described by two different Articles, allocate the % to the most appropriate one.

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	**Project %**	**Article Description**
6. General Measures for Conservation & Sustainable Use	8	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	18	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	10	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation	9	Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	5	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	20	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of

		biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	10	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts	5	Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	15	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	**100%**	

15. Appendix II Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Detail (←expand box)
Training Outputs		
1a	Number of people to submit PhD thesis	NA
1b	Number of PhD qualifications obtained	NA
2	Number of Masters qualifications obtained	NA
3	Number of other qualifications obtained	Biologist (6)
4a	Number of undergraduate students receiving training	96 in the inventory and monitoring course (per course (26, 16, 22, 32), and 20 in the ex-situ conservation techniques course
4b	Number of training weeks provided to undergraduate students	5 (five one-week courses) including the ex- situ course
4c	Number of postgraduate students receiving training (not 1-3 above)	69 (per course, 11, 19, 9, 10+20)
4d	Number of training weeks for postgraduate students	5 (four one-week courses) including the ex situ course
5	Number of people receiving other forms of **long-term** (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	NA
6a	Number of people receiving other forms of **short-term** education/training (i.e not categories 1-5 above)	80+90 (seminars about Chitridiomycosis in Bogota and Cali)
6b	Number of training weeks not leading to formal qualification	The five above plus the additional courses/seminars
7	Number of types of training materials produced for use by host country(s)	1(DVD)+1(CD)+2(posters) + 7 books (2 field guides and one Manual produced and three (3) field guides more in development)
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	4
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1 in press in Venezuela+ One in revision in Colombia, One regional in revision.= 3
10	Number of formal documents produced to assist work related to species identification, classification and recording.	1 (mini-guide) + 1 (field booklet), one manual of inventory and monitoring = 3, and 1 field guide (80% produced), and two more under construction (30 %).

Code	Total to date (reduce box)	Detail (←expand box)
11a	Number of papers published or accepted for publication in peer reviewed journals	26 (see the annexed appendix III)
11b	Number of papers published or accepted for publication elsewhere	21 (see the annexed appendix III)
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	NA
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1
13a	Number of species reference collections established and handed over to host country(s)	NA
13b	Number of species reference collections enhanced and handed over to host country(s)	2 (ICN, La Salle)
Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	One to convoke the specialist of the region, and one is each country to launch the Initiative Atelopus as a par of the (Noa's Ark Strategy), additionally one symposium in the Second Colombian Santa Marta Zoological Congress = 7
14b	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	4
15a	Number of national press releases or publicity articles in host country(s)	25
15b	Number of local press releases or publicity articles in host country(s)	12
15c	Number of national press releases or publicity articles in UK	3
15d	Number of local press releases or publicity articles in UK	na
16a	Number of issues of newsletters produced in the host country(s)	5
16b	Estimated circulation of each newsletter in the host country(s)	200 (web-based)
16c	Estimated circulation of each newsletter in the UK	na
17a	Number of dissemination networks established	1
17b	Number of dissemination networks enhanced or extended	NA
18a	Number of national TV programmes/features in host country(s)	5
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	5
18d	Number of local TV programme features in the	NA

Code	Total to date (reduce box)	Detail (←expand box)
	UK	
19a	Number of national radio interviews/features in host country(s)	7
19b	Number of national radio interviews/features in the UK	0
19c	Number of local radio interviews/features in host country (s)	7
19d	Number of local radio interviews/features in the UK	0
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	5 Ex situ conservation labs 25,000 £s Books donated and distributed to the key actors 40,000 £s
21	Number of permanent educational/training/research facilities or organisation established	5 Amphibian conservation labs established, and one course of inventory and monitoring = 6
22	Number of permanent field plots established	2 Atelopus Monitoring plots (A. mittermeieri and A. nahumae).
23	Value of additional resources raised for project	70,000 £s in small grants, 40,000 £s in publications, 20,000 £s in courses

16. Appendix III: Publications

Provide full details of all publications and material 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 that is currently being compiled.

Mark (*) all publications and other material that you have included with this report

Articles, Books (Field Guides, Manuals) Abstracts DVD's Published				
Type * *(e.g. journals, manual, CDs)*	***Detail*** *(title, author, year)*	***Publishers*** *(name, city)*	***Available from*** *(e.g. contact address, website)*	***Cost £***
Article	**The Atelopus Initiative: Conserving endangered tropical Andean amphibians.* ***Angulo, A., P. Salaman, J.V. Rodriguez****. 2004.*	*Froglog. Canterbury.*	*http://www.open.ac.uk/daptf/froglog/*	*Free of cost*
Field guide	**Ranas Arlequines.* ***Rueda Almonacid, J.V., J.V. Rodríguez Mahecha, E. La Marca, S. Lötters, T. Kahn and A. Angulo*** *(eds.). 2005.*	*Conservation International Colombia*	*http://www.arcadenoeandes.org/miniguias/atelopus.pdf*	*Free of cost*
DVD	*La declinación de los anfibios, el cambio climático y la quitridiomicosis cutánea: Mito o Realidad.* ***Lampo, M. 2005.***	*Conservation International Andes CBC, Bogotá*		*Free of cost*
Field Manual	**Tecnicas de Inventario y Monitoreo para los Anfibios de la Region Tropical Andina.* ***Angulo, A., J.V. Rueda-Almonacid, J.V. Rodriguez-Mahecha, E. La Marca*** *(eds.). 2006.*	*Conservation International, Bogotá*		*Free of cost for local programs or partners or ca.2.5* ***£*** *for others*
Article	**Descubrimiento de una nueva especie de Atelopus (Bufonidae) para Colombia: ¿Una luz de esperanza o el ocaso de los sapos*	*Revista de la Academia Colombiana de Ciencias Naturales, Fisicas y Exactas. Bogotá*		*Free of cost*

	arlequines? ***Acosta-Galvis, A.R., J.V. Rueda-Almonacid, A.A. Velasquez-Alvarez, S.J. Sanchez-Pacheco, J.A.*** *Peña-Prieto. 2006.*			
Article	**Two new and exceptional poison dart frogs of the genus Dendrobates (Anura: Dendrobatidae) from the Northeastern Flank of the cordillera Central of Colombia.* ***Rueda-Almonacid, J.V., M. Rada, S.J. Sanchez-Pacheco, A.A. Velasquez-Álvarez, A. Quevedo*** *2006.*	*Zootaxa*	*http://www.mapress.com/zootaxa/;*	*Free of cost*
Article	*Diversity and frequency of visual defensive behaviours in a population of Hypsiboas geographicus (Spix, 1824).* ***Angulo, A., A.R. Acosta, J.V.Rueda-Almonacid****. In press.*	*The Herpetological Journal.*		*Free of cost*
Article	*Some considerations on the ex-situ management and care of glassfrog egg masses and tadpoles (Anura: Centrolenidae)* ***Rada, M., S.J. Sánchez-Pacheco, Á. Velásquez-Álvarez****. In press.*	*Revista de la Academia Colombiana de Ciencias Naturales, Fisicas y Exactas. Bogota*		*Free of cost*

Article	*Geographic Distribution: Eleutherodactylus suetus.* ***Galeano, S. P & J. C., Urbina****. 2004.*	*Herpetological Review*		*Free of cost*
Article	*Geographic Distribution: Ramphophryne macrorhina.* ***Galeano, S. P & J. C., Urbina****. 2004.*	*Herpetological Review*		*Free of cost*
Book	*Ecuador. Tierra de Sapos* ***Pete Oxford & Rene Bish****. 2004*	*Pontificia Universidad Católica del Ecuador*		*ca 3* ***£ for the general public***
Article	*Critica a la asignacion de la categoria de Amenaza de Gastrotheca ruizi (Amphibia: Anura: Hylidae)* ***Mueses-Cisneros, J. J****. 2005.*	*Revista de la Academia Colombiana de Ciencias, Bogotá*		*Free of cost*
Article	*Catrastrophic population declines and extintions in neotropical Harlequin frogs (Bufonidae: Atelopus)* ***La Marca, E., Lips, K. R., Lotters, S., Pushendorf, R., Ibañez, R., Rueda-Almonacid, J. V., Shulte, R., Marty, C., Castro, F., Manzanilla-Puppo, Garcia-Perez, J. E., Bolaños, F., Chaves, G., Pounds, J. A., Toral, E., Young, B****. E. 2005.*	*Biotropica*		*Free of cost*
Article	*Conservation Priorities for harlequin frogs (Atelopus spp.) from Perù* ***Stefan Lotters, Rainer Shulte,Jesùs***	*Oryx*		*Free of cost*

	Còrdova & Michael Veith. *2005.*			
Article	*Primer reporte sobre la herpetofauna de la Reserva Natural ""El Corvalan", Tarija, Bolivia* ***Gonzales, L., A. Muñoz & E. Cortes.*** *2006*	*Kempffiana. Bolivia.*		*Free of cost*
Article	*Redescubrimiento y ampliacion del area de distribucion de Bolitoglossa capitana (Caudata: Plethodontidae), especies endemica y amenazada de Colombia* ***Chaves-Portilla, G., Cortes-Herrera, O & J. M. Morales-Sánchez.*** *2006.*	*Revista de la Academia Colombiana de Ciencias Naturales, Fisicas y Exactas.Bogota*		*Free of cost*
Abstract	*Evaluacion del estado actual de las poblaciones de Atelopus eusebianus y Atelopus ebenoides en el sector de San Rafael, P.N.N Puracé y de Atelopus eusebianus y Colostethus pinguis en la region de Malvasa, Municipio de Totoro, Departamento del Cauca.* ***Lopez-Lopez, F. J., Dorado-Santa, E. A., Arboleda-Simmonds, A. & C. X. Lemos-Olave.*** *2006.*	*Memorias II Congreso Colombiano de Zoologia Santa Marta , Colombia*		*Free of cost*
Abstract	*Conservacion ex - situ de Anfibios en Colombia, enfoque, ventajas y desventajas.* ***Acosta-Galvis, A.R.*** *2006.*	*Memorias II Congreso Colombiano de Zoología. Santa Marta , Colombia*		*Free of cost*
Abstract	*Estrategia para la conservacion de los Anfibios de Venezuela.*	*Memorias II Congreso Colombiano de*		*Free of cost*

	Molina Rodriguez, C. *2006.*	*Zoologia Santa Marta , Colombia*		
Abstract	*Quitridiomicosis en anuros de la cordillera Occidental de Colombia* ***Velasquez-E, B., Bolivar-Garcia, W., & M. I. Herrerra-M.*** *2006.*	*Memorias II Congreso Colombiano de Zoologia Santa Marta , Colombia*		*Free of cost*
field guide	*Guia de Anfibios en la ruta ^caminando por las nubes^ Parque Nacional Carrasco.* ***Reichle Steffen & Aguayo Rodrigo*** *206*	*Conservation International*		*Free of cost for the community and 2.5 £, for the tourist and general public..*
Abstract	*¿Qué conocemos acerca de las declinaciones de anfibios en Colombia asociadas con Quitridiomicosis* ***Rueda-Almonacid, J.V.****2006*	*Memorias II Congreso Colombiano de Zoologia Santa Marta , Colombia*		*Free of cost*
Article	*Two new species of The Genus Eleutherodactylus (Anura:Brqachycephali dae) of the Valle del Sibundoy, Putumayo, Colombia.* ***John jairo Mueses-Cisneros****. 2007*	*Zootaxa*		*Free of cost*
Article	*An enigmatic new species of Glass frog (Amphibia:Anura:Cen trolenidae) from de Amazonian Andean Slopes of Ecuador.* ***Cisneros-Heredia, D., & P. Meza-Ramos*** *2007*	*Zootaxa*		*Free of cost*
Mini field guide	*Anfibios comunes San Miguel del Bala, Bolivia.* ***Cortéz, C., & E. Domic.*** *2007.*	*Conservation International, Bolivia*		*Free of cost for the community and 2.5 £, for the tourist, because is*

				used as an additional income to the resident people to stimulate the recognition of biodiversity values.
Article	*The protection of threatened amphibians in Colombia* ***Church, D.*** *2007*	*Froglog Canterbury*	*http://www.open.ac.uk/daptf/froglog/*	*Free of cost*
Article	*Los renacuajos de cuatro especies de Atelopus (Anura: Bufonidae) de los Andes de Venezuela* ***Mijares-Urrutia, A. & E. La Marca.*** *2005*	*Croizatia*		*Free of cost*
Article	*Mitigating Global Amphibian Extinctions: Policy Changes and Action are Needed* ***Mendelson III, J.R., K.R. Lips, R.W. Gagliardo, G.B. Rabb, J.P. Collins, J.E. Diffendorfer, P. Daszak, R. Ibáñez D., K.C. Zippel, D.P. Lawson, K.M. Wright, S.N. Stuart, C. Gascon, H.R. da Silva, P.A. Burrowes, R.L. Joglar, E. La Marca, S. Lötters, L.H. du Preez , C. Weldon, A. Hyatt, J.V. Rodriguez-Mahecha, S. Hunt, H. Robertson, B. Lock, C.J. Raxworthy, D.R. Frost, R.C. Lacy, R.A. Alford, J.A.***	*Science*		*Free of cost*

	Campbell, G. Parra-Olea, F. Bolaños, J.J. Calvo Domingo, T. Halliday, J.B. Murphy, M.H. Wake, L.A. Coloma, S.L. Kuzmin, M. Stanley Price, K.M. Howell, M. Lau, R. Pethiyagoda & D.B. Wake. 2006.			
Article	*Perturbaciones climáticas y disminución de Atelopus oxyrhynchus (Amphibia: Anura) en los Andes de Venezuela.* ***García, I.J., R. Albornoz & E. La Marca. 2007***	*Herpetotropicos*		*Free of cost*
Article	***Reply. Replying to: R.A. Alford, K.S. Bradfield & S.J. Richards Pounds, J.L., M.R. Bustamante, L.A. Coloma, J.A. Consuegra, M.P.L. Fogden, P.N. Foster, E. La Marca, K.L. Masters, A. Merino-Viteri, R. Puschendorf, S.R. Ron, G.A. Sanchez-Azofeifa, C.J. Still & B.E. Young****. 2007.*	*Nature*		*Free of cost*
Article	*Comportamiento del clima a finales del siglo XX en los altos Andes venezolanos y el declive de Atelopus mucubajiensis* ***Santiago, S. and E. La Marca****. 2007.*	*Herpetotropicos*		*Free of cost*

Articles, Books (Field Guides, Manuals) Abstracts DVD's in Preparation				
Article	*Una Nueva Rana Arlequin (Anura: Bufonidae) del Parque Nacional Natural "Selvas de Florencia", Colombia* ***Rueda-Almonacid, J.V., M. Rada, S.J. Sánchez-Pacheco*** *in final revisión*	*Zootaxa*		*Free of cost*
Field manual	*The Dendrobatid Poison Frogs. (90%) finalized* ***Kahn T.,R.A Mittermeier, C.Gascon, J.V. Rodriguez-M; J.V.Rueda-A*** *(90%) finalized*	*Tropical Field Guide Series*		*Free of cost*
Article	*Batrachochytrium dendrobatidis and chytridiomycosis in anuran amphibians of Colombia* ***Ruiz, A., & J. V. Rueda-Almonacid*** *Finalized*	*Revista de la Academia Colombiana de Ciencias Naturales, Fisicas y Exactas*		*Free of cost*
field guide	*The Centrolenid Frogs, A Field guide* ***Rada Marco*** *et al. In june 2008*	*Conservation International Fiel Guide Series*		*Free of cost*
field guide	*The Salamader of Colombia A Field Guide* ***Acosta Andres R****. December 2007*	*Conservation International Fiel Guide Series*		*Free of cost*
Article	*Distribution, Variation, Natural History, And Conservation Of The Threatened Blue Glassfrog, Cochranella mache (Anura, Centrolenidae)* ***Cisneros-Heredia, D.F., Delia, J., Yánez-Muñoz, M.H. & Ortega-Andrade, H.M.*** *in final revision*	*Papeis Avulsos de Zoologia*		*Free of cost*

Document	*Estructura, composición y dinámica poblacional de una comunidad de herpetofauna en los bosques de Punta Galeras, suroccidente de la provinica de Esmeraldas* ***Ortega-Andrade, H. M.*** *2004*	*Tesis de Licenciatura (Universidad Central del Ecuador)*		*Free of cost*
Document	*Ampliación en la distribución de cuatro especies de Anuros en el noroccidente ecuatoriano* ***Ortega-Andrade, H. M.*** *2004*	*División de Herpetología del Museo Ecuatoriano de Ciencias Naturales. Reporte Técnico*		*Free of cost*
Document	*Dieta y nicho trófico de una comunidad de anuros en los bosques de Galeras, suroccidente de la provincia de Esmeraldas* ***Ortega-Andrade, H. M****. 2004*	*División de Herpetología del Museo Ecuatoriano de Ciencias Naturales. Reporte Técnico*		*Free of cost*
Document	*Quitridiomicosis, una enfermedad asociada a la declinación de anfibios en el Ecuador: Ocurrencia y aislamiento de Batrachochytrium dendrobatidis en Atelopus sp. Proaño-Bolaños C. &* ***A. Merino-Viteri.****2005*	*National presentation in the "XXIX Jornadas Ecuatorianas de Biología" Manta, Ecuador November 24-26, 2005*		*Free of cost*
Document	*Atelopus sp. skin secretions against the chytrid fungus* ***Proaño-Bolaños C. & A. Merino-Viteri*** *2006*	*International presentation in the "Joint Meeting of Ichtyologist and Herpetologist" in New Orleans, USA July 12-17, 2007*		*Free of cost*
Document	*La Última especie de rana nodriza en los Altos Andes Noroccidentales de Ecuador, a un paso de la extinción: Estado de*	*Libro de Resúmenes, 30 Jornadas Nacionales de Biología, Sociedad Ecuatoriana de*		*Free of cost*

	conservación de Hyloxalus delatorreae (Anura: Dendrobatidae) ***Yánez-Muñoz, M., P. Meza-Ramos, C. Proaño-Bolaños, A. Blasco Zuñiga y M. Altamirano B.*** *2006*	*Biología y Escuela de Ciencias Biológicas de la Pntificia Universidad católica del Ecuador.*		
Document	*Generando información para Conservar a Colostethus delatorreae (ANURA: DENDROBATIDAE) una especie de rana nodriza críticamente amenazada en los Andes.* ***Yánez-Muñoz, M. & P. Meza-Ramos,.*** *2006*	*Boletín de especies Amenazadas, América del sur*		*Free of cost*
Article	*Glassfrogs of the Pacific lowlands of Ecuador (Amphibia: Anura: Centrolenidae)* ***Cisneros-Heredia, D.F., Yánez-Muñoz, M.H., Ortega-Andrade, H.M. & McDiarmid, R.W.*** *in final revisión*	*Papeis Avulsos de Zoologia*		*Free of cost*
Article	*Primer programa de monitoreo de anfibios como indicadores del cambio climatico," ANMIN - Apolobamba", La Paz, Bolivia.* ***Aparicio, J. y J. N. Rios*** *December 2007*	*Ecología en Bolivia*		*Free of cost*
Divulgation Notes and News Published				
Divulgation Notes (News)	*'Extinct' frog comes back to life* ***Black, R.*** *2006*	*BBC*	*http://news.bbc.co.uk/1/hi/sci/tech/4998074.stm*	*Free of cost*
Divulgation Notes (News)	*"Extinct" frog rediscovered in*	*Mongabay*	*http://news.mongabay.com/2006/0517-ci.html*	*Free of cost*

	Colombia ***Mongabay.com*** *2006*			
Divulgation Notes (News)	*Hallan anfibios que se daban por extintos* ***Hernandez, D. R.*** *2006*	*El Universal*	*F:\Difusion Internacional\Calidad de vida - eluniversal_com.htm*	*Free of cost*
Divulgation Notes (News)	*FAUNA* ***Difusion Internacional*** *2006*	*El Tiempo*	*F:\Difusion Internacional\EL TIEMPO_COM - Vida de hoy - Noticias breves de vida de hoy.htm*	*Free of cost*
Divulgation Notes (News)	*Biólogo bogotano halla en un páramo de Boyacá a la 'ranita pintada', especie que se creía extinta.* ***Paez****, E. 2006.*	*El Tiempo*	*F:\Difusion Internacional\EL TIEMPO_COM - Boyacá 7 días - Biólogo bogotano halla en un páramo de Boyacá a la 'ranita pintada', especie que se creía extinta.htm*	*Free of cost*
Divulgation Notes (News)	*Los protectores de la rana arlequín.* ***Calderon, A. C*** *2006*		*F:\Difusion Internacional\Los protectores de la rana arlequín Cali,Colombia_ Primer diario sin costo de Colombia.htm*	*Free of cost*
Divulgation Notes (News)	*Expert says answers still elusive in amphibian crisis.* ***Ecoamericas*** *2006*	*EcoAmericas*		*Free of cost*
Divulgation Notes (News)	*Frog Hops Back into Existence* ***Livescience*** *2006*	*Livescience*	*http://www.livescience.com/animals/060518_frog_back.html*	*Free of cost*
Divulgation Notes (News)	*Hallan en bosques de Tolima y Caldas rana venenosa de cuatro dedos única en el mundo* ***El Tiempo*** *2006*	*El Tiempo*	*http://www.eltiempo.com/ciencia/noticias/ARTICULO-WEB-NOTA_INTERIOR-3240165.html*	*Free of cost*
Divulgation Notes (News)	*Las ranas y los sapos son los animales más amenazados del planeta* ***Cañon, H.*** *2006*	*El Tiempo*	*http://www.eltiempo.com/ciencia/noticias/ARTICULO-WEB-NOTA_INTERIOR-3129284.html*	*Free of cost*
Divulgation Notes (News)	*En Ecuador se han extinto 30 especies de ranas* ***El Tiempo*** *2006*	*El Tiempo*	*http://www.eltiempo.com/ciencia/noticias/ARTICULO-WEB-NOTA_INTERIOR-3479517.html*	*Free of cost*

Divulgation Notes (News)	*Nueva especie de rana venenosa fue hallada por estudiantes de la Universidad Distrital* ***Herrera, Silvia****. 2007*	*El Tiempo*	*http://www.eltiempo.com/ciencia/noticias/ARTICULO-WEB-NOTA_INTERIOR-3479517.html*	*Free of cost*
Divulgation Notes (News)	*En Ecuador se han extinto 30 especies de ranas* ***Ciudad Colorada*** *2006*	*Ciudad Colorada*	*http://www.ciudadcolorada.com/noticc/wm/index.php?action=show&type=news&id=953*	*Free of cost*
Divulgation Notes (News)	*Redescubrimiento de ranas en peligro de extincion en Colombia, desencadena carrera contrareloj para salvar anfibios amenazados. Nuevas area protejidas demuestran ser claves en la lucha contra hongo misterioso* ***Proaves*** *2006*	*Proaves*	*http://www.proaves.org/Aleteos/Aleteo25-Mayo2006.htm*	*Free of cost*
Divulgation Notes (News)	*Descubren población del Sapito Pintado* ***Boletín Conservation Iternational*** *2006*	*Conservation International Colombia*		*Free of cost*
Divulgation Notes (News)	*Se salva importante lugar para la conservación de anfibios y aves en peligro de extinctión.* ***Conservation International*** *2006*	*Conservation International*	*http://www.conservation.org.co/interna/contenido.php?cod=229*	*Free of cost*
Divulgation Notes (News)	*La crisis de extinction de anfibios en los andes tropicales es discutida por expertos inernacionales.* ***Conservation International*** *2005*	*Conservation International*	*http://www.conservation.org.co/interna/contenido.php?cod=229*	*Free of cost*
Divulgation Notes (News)	*Clarion call to save amphibians* ***BBC News*** *2006*	*BBC*	*http://news.bbc.co.uk/2/hi/science/nature/5151892.stm*	*Free of cost*
Divulgation Notes (News)	*Endangered frogs in Colombia found in nature reserve* ***CBC News***	*CBC*	*http://www.cbc.ca/health/story/2006/06/06/frogs-endangered.html*	*Free of cost*

	2006			
Divulgation Notes (News)	*Hallan una rana que se creía extinta* ***La Nación*** *2006*	*La Nación*	*ftp://ftp.secyt.gov.ar/pub/sintesis/sdn01jun06.pdf*	*Free of cost*
Divulgation Notes (News)	*"Missing" Frog Species Found* ***Science Bulletin American Museum of Natural History*** *2006*	*Science Bulletin American Museum of Natural History*	*http://sciencebulletins.amnh.org/bio/s/frogs_found.20060828/index.php*	*Free of cost*
Divulgation Notes (News)	*Nearly extinct frogs found in Colombia* ***NBC News*** *2006*	*NBC*	*http://msnbc.msn.com/id/13168230*	*Free of cost*
Divulgation Notes (News)	*Investigadores luchan contra desaparición de ranas arlequines.* ***Boletín Universidad de los Andes*** *2006*	*Universidad de los Andes*	*http://www.universia.net.co/galeriadecientificos/noticias delacienciaencolombia/investigadoresluchancontradesaparicionderanasarlequines.html*	*Free of cost*
Divulgation Notes (News)	*Se salva santuario para aves y anfibios en peligro* ***El Colombiano*** *2007*	*El Colombiano*	*http://www.elcolombiano.com.co/BancoConocimiento/S/se_salva_santuario_para_aves_y_anfibios_en_peligro/se_salva_santuario_para_aves_y_anfibios_en_peligro.asp?CodSeccion=27*	*Free of cost*
Divulgation Notes (News)	*Poster Rana de Supata* ***Conservation International Colombia*** *2007*	*Conservation International Colombia*		*Free of cost*

17. Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide contact details below.

Project Title	The Atelopus Initiative: conserving endangered Tropical Andean amphibians.
Ref. No.	13-017 (formerly 268)
UK Leader Details	
Name	Dr. Robert Bensted-Smith
Role within Darwin Project	Executive Director
Address	Conservation International Ecuador- Av. Coruña N29-44 y Noboa Caamaño, Quito, Ecuador
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Other UK Contact (if relevant)	
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Role within Darwin Project	
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Partner 1	
Name	José Vicente Rodríguez-Mahecha
Organisation	Conservation International
Role within Darwin Project	Directive Committee Secretary
Address	Conservation International Colombia- Carrera 13 # 71-41, Bogotá, Colombia
Fax	
Email	
Partner 2 (if relevant)	
Name	Dr. Ariadne Angulo
Organisation	--
Role within Darwin Project	Project Coordinator
Address	P.O. Box 19004, 360A Bloor St. W., Toronto, ON, M5S 1X1, Canada
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Appendix V: Logical Framework

Project summary	Measurable indicators	Means of verification	Important assumptions
Goal: To draw on expertise from the UK to work with a multi-institutional partnership in the Tropical Andes to achieve: • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			
Purpose To increase capacity, cooperation and knowledge so as to provide the regional capacity necessary to manage current declines and avoid future amphibian extinctions.	1) Increased capacity to implement regional strategy for monitoring and conserving amphibians 2) Regional committee and network established with increased collaboration and communication 3) Increased knowledge to reduce Data Deficient species by 80% and accurately re-evaluate all species	1) Outputs; monitor reports, website, publications, action plans, and newsletters 2) Successful implementation of Initiative and ability to implement 10-year strategy 3) Annual and final Darwin Report I & II	1) Cost effective measures incorporated into strategy 2) Institutional willingness to participate 3) Participants effectively trained & capacitated

Outputs			
1) Strengthening institutional and individual capacity to coordinate and implement initiative.	Initiative website; publish Regional Amphibian Assessment results; collate database of specimens.	Website hits, published reports on website, database.	Partners willing to cooperate and communicate
2) Regional training programme & field tools to assist monitoring.	Protocol booklet; taxonomic guides; total 360 person weeks of training.	Publish booklet and 4 guides, training course reports.	Experts collaborate in producing guides and institutional involvement
3) Improve knowledge through targeted fieldwork.	Reports on 800 person fieldwork weeks undertaking target surveys.	200 site reports; monitoring 50 RDB species; identify 50 priority sites.	Adequate training and students to undertake fieldwork
4) Species and site conservation Action Plans produced.	100 spp. Action Plans; status re-evaluation; publish Darwin Report I.	Published by partners. Feedback from national decision-makers.	Interest and willingness to implement action by partners
5) Formulate 10-year research and conservation programme for amphibians in the region.	Publish Darwin Report II: Amphibian Research & Conservation Strategy.	Published CD and website.	Institutional budgets and strategy continue on track among partners
6) Increased public awareness of the amphibian crisis and the need to intensify conservation efforts.	Publicity campaign, news release, website, biannual e-newsletter, and poster campaign	Press cuttings, interviews, poster & website visitor data.	Public are open to awareness campaign

Activities	**Activity Milestones (Summary of Project Implementation Timetable)**
1) Regional workshops	Regional workshops (July 04 & Feb 07) with regional and UK experts (published Sept 04 & April 2008)
2) Implement Regional Network	Network initiated at workshop (July 2004), website and list server (Aug 2004), biannual newsletter (Oct/Apr)
3) Develop fieldwork manuals and identification tools	Fieldwork manual (Aug 04); four identification manuals produced by regional and UK experts (Dec 2004)
4) Training workshops in each country each year	One national training course for around 30 participants per country/per annum (2004-2006) by regional and UK experts
5) Undertake rapid fieldwork surveys and monitoring	Intensive regional fieldwork programme commences from Oct 2004 with 800 fieldwork person weeks completed by Dec 2006
6) Synthesis and analysis of data to revaluate amphibian status	Compilation of biological inventories, collection data, monitoring reports (Jul 06-Feb 07), publish Regional Amphibian Assessment results (July 04) and IUCN re-evaluation results (Apr 07)
7) Designing Action Plans	Ten Action Plans per country produced per annum (Dec 05/ Dec 06) and 25 implemented (Mar 2007)
8) Amphibian Awareness campaign	Regional campaign launched in May 2005 by all partners