

# ***Darwin Initiative for the Survival of Species***

## ***Final Report***

### **1. Darwin Project Information**

Project Reference No.	EIDPo6/11-018
Project title	Flying the flagship: delivering the axolotl action plan at Xochimilco, Mexico
Country	Mexico
UK Contractor	Durrell Institute of Conservation and Ecology
Partner Organisation (s)	Universidad Autonoma Metropolitana, Unidad Xochimilco (UAM), Mexico. Centro de Investigaciones Biologicas y Acuicolas de Cuernavaca (CIBAC) Universidad Nacional Autónoma de México (UNAM), Instituto de Biología Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO - the National Commission for the Knowledge and Use of Biodiversity), Mexico
Darwin Grant Value	£48,140
Start/End date	1/4/05 – 31/3/07
Project website	<a href="http://www.kent.ac.uk/anthropology/dice/research/axolotl.html">http://www.kent.ac.uk/anthropology/dice/research/axolotl.html</a>
Author(s), date	Dr R.A. Griffiths (Project Co-ordinator - UK) Dr I. Bride (Project Officer - UK) MSc Alejandro Meléndez (Project Co-ordinator – UAM, Mexico) Dr Luis Zambrano (Project Co-ordinator – UNAM, Mexico) 28 June 2007

### **2. Project Background/Rationale**

This project is an extension of project 162/11/018 “Aztecs and Axolotls: Integrating Conservation and Tourism at Xochimilco, Mexico”. The background/rationale of the project is therefore described in detail in the final report for that project. In short, the extension project focused on Lake Xochimilco, Mexico City, a remnant wetland typified by the chinampas agricultural system; the only functioning rural landscape of the pre-Columbian Americas. The area supports an impressive amount of biodiversity (500 plant species, 21 mammals, 212 birds, 10 reptiles, 6 amphibians and 14 fishes), but is threatened by falling water levels, development, pollution, and introduced species. It is home to the last wild population of the Mexican axolotl (*Ambystoma mexicanum*), a neotenic species of salamander originally designated as ‘vulnerable’ under the IUCN listings (recently changed to ‘critically endangered’) and in urgent need of an integrated in-situ conservation programme. Fortunately, its place in Aztec mythology, coupled with

the significance of the species within the ancient lacustrine economy have made the axolotl something of a cultural icon. Lake Xochimilco is an extremely popular and valued recreational area for the people of Mexico City, as well as for overseas visitors - it was inscribed on the UNESCO list of World Heritage Sites in December 1987, was designated under the Ramsar Convention in February 2004, and provides precious respite from the hustle and bustle of one of the world's largest and most populous cities.

The previous project was initiated by Dr Virginia Graue, Director of CIBAC (Centro de Investigaciones Biológicas y Acuicolas de Cuemanco), the research/education field station owned by the Universidad Autónoma Metropolitana, Unidad Xochimilco (UAM-X). The project identified awareness-raising as an immediate priority and carried out a range of activities employing the axolotl as a 'flagship' species. Its main outputs were: a cadre of students and conservation workers trained in (i) amphibian biology and conservation and (ii) conservation education assessment and community appraisal; cadres of boatmen trained in nature guiding; a cadre of artisans trained in eco-regional souvenir production; a UAM staff member trained to MSc level in Tourism and Conservation; project 'investigators' trained in a range of social survey and workshop facilitation skills; the production of an Axolotl Species/Habitat Action Plan; and, the establishment of a partnership of key organisations and stakeholders (Grupo de Investigación del Ajolote en Xochimilco - GIA-X).

The main objective of the extension project was the delivery of priority actions that emerged from the Axolotl Species/Habitat Action Plan held in December 2004 under the previous project.

### **3. Project Summary**

The specific objectives of the project were as follows:

- Support key research to address threats to the axolotl and other endemic fauna of Xochimilco. This was not a major element of the original project because key local stakeholders were not engaged with the project and different research groups were not collaborating. Having successfully addressed these issues, co-ordinated biological research and survey work could, given adequate support, proceed under the auspices of GIA-X.
- The original project did not address issues relating to the legal protection of the axolotl and its habitat because (i) there were ongoing debates between stakeholders concerning what were the most appropriate measures to ensure effective protection; and (ii) there was a lack of reliable information available on the status and distribution of the species. A post-project element designed to obtain the relevant data would provide a sound basis for informed review and reassessment by CONABIO of the status of the species within the national NOM-ECOL 059-2001 listing, CITES Appendices, and IUCN Red List (at the time of the extension application = 'vulnerable').
- The exit strategy of the previous project had involved the transfer of a nature guide training package for local boatmen (remeros) from DICE to UAM/CIBAC. The post-project sought to further develop and enhance capacity within the remero guild by training a group of remeros to deliver the training package themselves. A staged transfer of the nature guide training package from UAM/CIBAC to the remero guild was therefore designed as a significant addition to the original project.

### *Achievements and Changes to Plans*

None of these planned outputs, nor the proposed operational plan were significantly modified over the year (except that the remero training workshop scheduled for September 2005 took place in November 2005, and that scheduled for January 2006 took place in June 2006, both due to the availability of facilities and staff).

In terms of connecting to the *Convention on Biological Diversity* the project sought to assist the Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) to protect and sustainably manage Xochimilco as one of its priority conservation areas under its obligations under the CBD, with particular regard to the following Articles:

- Article 1 (the project was concerned with the conservation of biological diversity);
- Article 5 (the project involved cooperation between two Contracting Parties);
- Article 6b (the project incorporated an integrated cross-sectorial approach);
- Article 7 (the project sought to establish a monitoring programme for a biodiversity component which requires urgent conservation measures);
- Articles 8 and 9 (the project included both in-situ and ex-situ conservation measures for a critically endangered species);
- Article 10 (the project was oriented to the long-term sustainable use of the axolotl and its habitat);
- Article 11 (the project established social and economic measures for the conservation of the axolotl and the lake Xochimilco area);
- Article 12 (the project involved a substantial research and training component);
- Article 13 (the project involved a substantial public education and awareness component);
- Article 16 (the project involved the transfer of captive breeding technology between project partners);
- Article 17 (at the core of the project was an exchange of information);
- Article 18 (the project involved an exchange of scientific and technical information);
- Article 20 (the project involved financial contributions from both Contracting Parties).

The project was highly successful in terms of meeting its objectives. Research to address threats to the axolotl and other endemic fauna of Xochimilco made major advances, notably with the project's support of Dr Luis Zambrano's team at UNAM and with the co-ordination role taken on by GIA-X, which organised three research seminar meetings. The first of these, on 29<sup>th</sup> November 2005, brought together over 40 individuals who presented and discussed some 24 individual research projects relating to the axolotl and its habitat, discussed the makeup and direction of GIA-X, and established a protocol under which it would operate. The second, on 12<sup>th</sup> June 2006, attended by a similar number of participants, provided an update on some of this research, but, in addressing a need that had emerged during the Axolotl Species/Habitat Action Plan workshop, focused specifically on identifying a range of research projects that needed to be conducted in a variety of science and social science subject areas and sought to prioritise these according to their relative importance and urgency. The most recent of these three seminars took place on the 9<sup>th</sup> and 10<sup>th</sup> of January 2007, hosted by CONABIO (The Comisión Nacional para el Conocimiento y Uso de la Biodiversidad) the Mexican State organisation that participates in the Conference of the Parties of the Convention on Biological Diversity. The framework developed for the Axolotl Species/Habitat Action Plan (S/HAP) informed the structure of the 2-day event, which involved presentations of axolotl and project-related research and activities,

followed by workshop exercises designed to identify and address actions needed to take the implementation of the axolotl S/HAP forward beyond the end of Darwin Initiative participation.

GIA-X has also organised three specialist meetings of representatives of captive breeding colonies (those at UNAM, CIBAC, UMBRAL, UNAM [Ixtapalapa], and the Chapultepec and Los Coyotes Zoos) in order to develop and implement a framework for establishing common objectives, and to facilitate co-operation between breeders, for example in sharing technical knowledge and expertise on best breeding practices, on how to establish and maintain studbooks, and agreeing a protocol for the exchange of animals and genetic material.

Amongst the research reported at the second GIA-X seminar some particularly important data gathered by UNAM student researchers concerned the status and distribution of remaining wild axolotl populations. When related to data for a range of physicochemical factors and fish predator distributions, these findings provided a key contribution in support of the work conducted by representatives of the IUCN/SSC (in conjunction with GIA-X and CONABIO) to update existing information on *A. mexicanum* for the Global Amphibian Assessment (GAA), the first-ever complete assessment of the conservation status of the world's frogs, toads, salamanders, and caecilians. This collaboration made data revisions for *A. mexicanum* in the following areas: geographic range, habitat and ecology, population information and the current conservation measures in place for the species. It resulted in a change in the IUCN Red list status from Vulnerable (VU) to Critically Endangered (CE) and a great increase in the species bibliography. For more information: <http://www.globalamphibians.org/>. CONABIO also participated in the meeting of CITES which reviewed the listing of *A. mexicanum*, and which decided to leave it on Appendix II.

At the end of the project the remero training package that had been developed by DICE and UAM-X was formally handed over to the remero guild by the UAM-X/CIBAC team at a ceremony held at the Xochimilco Archaeological Museum. At the same time a new axolotl exhibit and associated interpretation was opened at the museum.

#### **4. Scientific, Training, and Technical Assessment**

##### *Research*

The primary research conducted directly as part of the extension project focused on:

1. Biological research investigating the threats to the axolotl and other endemic fauna of Xochimilco (conducted by members of the UNAM Darwin Initiative team under the supervision of the UNAM project co-ordinator Dr Zambrano).
2. Socioeconomic research involving follow-up surveys of visitor attitudes and awareness, and of the nature-guiding workshop trained remeros (conducted by the UAM-X project investigators in Mexico under the supervision of the UAM project co-ordinator, M. en C. Meléndez, and the UK project officer, Dr Bride)

Research outputs resulting from the DI matched funding at UNAM were as follows:

##### *Projects:*

1. Food webs at Xochimilco and the role of the axolotl in them. The project paid a stipend to one worker in order to gather and prepare samples for the stable isotopes analysis from Sept. 05–Jan.06 and the cost of isotope analysis of 200 samples.

2. Axolotl experimental research colony at Institute of Biology UNAM. The cost of microchips to be implanted in the axolotls in order to have control samples, particularly for studies of breeding, growth, feeding and disease.
3. Axolotl colony husbandry collaboration in Mexico. The need for this action was identified at the GIA-X Seminar held on 9-10 January 2007. Since March, a small amount of funds has been used to support GIA-X to organise three meetings with the participation of remeros, fishermen, Chapultepec Zoo, students from UAM-X and UNAM and private axolotl colony holders.
4. Population viability analysis of the axolotl. Using ecological data on the axolotl and the threats it faces, a theoretical model was constructed to predict long-term viability of the population and appropriate mitigation actions. One paper is in press in *Animal Conservation* and available online.
4. Delivering the GIA-X web page: <http://ajolote.ibiologia.unam.mx>

*Scholarship:*

1. Victoria Contreras: Aug.05–Jan.06: “Distribución potencial del *A. mexicanum* en los canales de la zona chinampera de Xochimilco”. Project finished, degree obtained and two journal papers in preparation.
2. Sandra Martínez: Aug.05–Jan.2006: “Interacción del ajolote *Ambystoma mexicanum* con peces de la especie de *Cyprinus carpio* y *Oreochromis niloticus* bajo condiciones controladas de laboratorio”. Project will be finished shortly.
3. Alma Marín: Aug.05–Jan.2006 “The behaviour of the axolotl (*Ambystoma mexicanum*) in selecting plants for egg-laying under laboratory conditions”. Project finished, degree obtained.
4. Eduardo Bustamante: Aug.05–Jan.2006 “Defining the Tilapia fish resource (*Oreochromis niloticus*) at Xochimilco”. Project finished, degree obtained.

*Salary:*

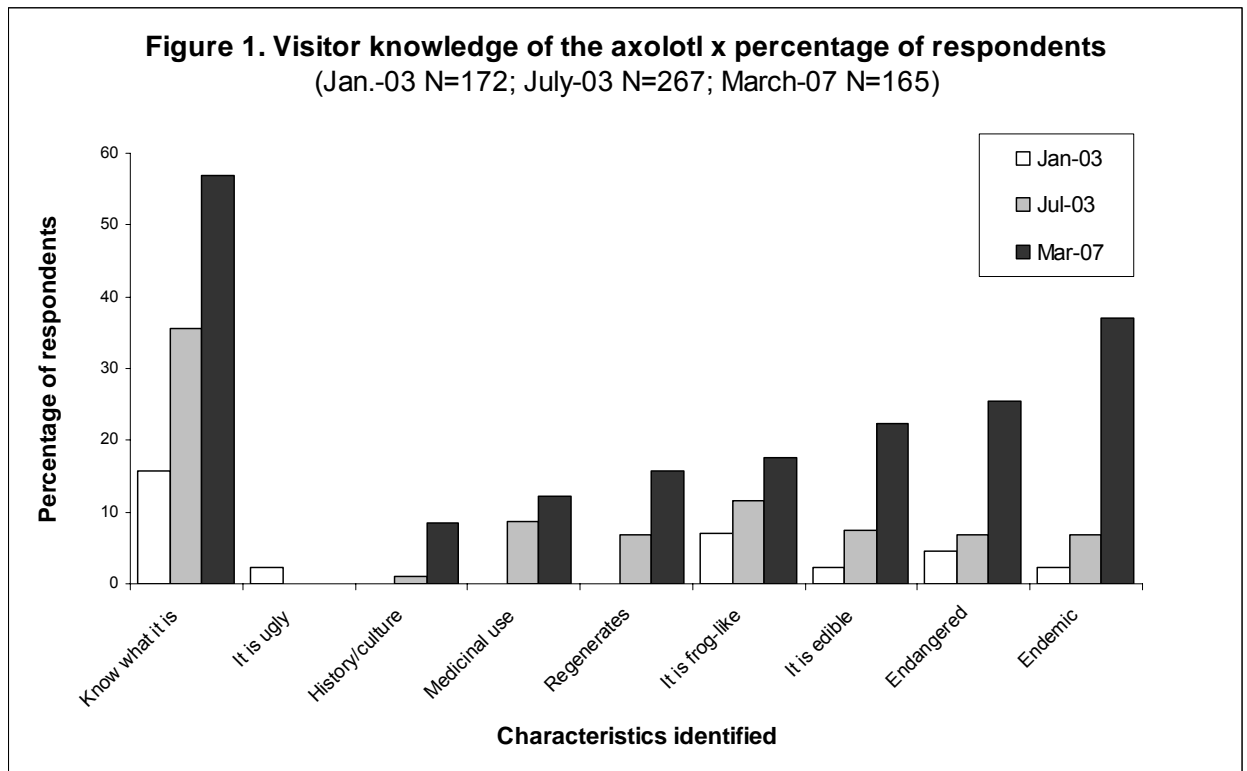
Elsa Valiente: Aug.05–Sept.07: Darwin Research Fellow (UNAM). MSc Research project: Aug.05–Aug.06; The effects of introduced carp and tilapia on the population of the axolotl (*Ambystoma mexicanum*) at Xochimilco, Mexico. Project finished, degree obtained. Elsa has been responsible for the organisation of GIA-X and the captive breeding colony seminars. She is presently pursuing governmental and private funding opportunities for the priority projects identified at the GIA-X seminar, namely: the creation of an axolotl tissue bank; developing a better understanding of axolotl colonies, husbandry methods and promotion of good practice; habitat rehabilitation and species conservation actions (international wetland conservation research); water turbidity impact on axolotl feeding behaviour during the larval stages; axolotl nourishment requirements; interactions between pollutants and physicochemical parameters and their effects on axolotl populations; the effect of physical barriers on axolotl population fragmentation; modelling relationships between populations of introduced fish and migrating birds; improving community participation in conservation actions through workshops and dissemination; maintaining GIA-X’s coordinating role and its access to all relevant committees; and, studies of socioeconomic aspects at Xochimilco related to the axolotl and its habitat.

Research outputs resulting from the DI matched funding at UAM-X were as follows:

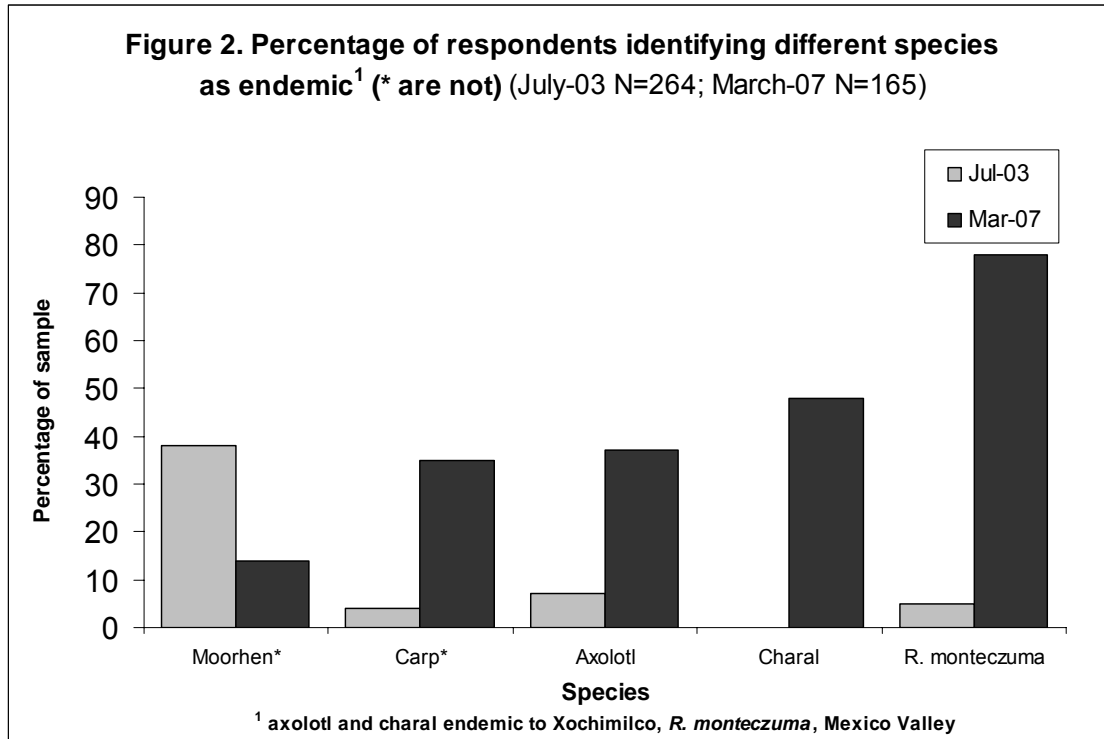
*Visitor surveys:*

Visitor survey data, gathered by the UAM-X project team in March 2006 using random sampling and the application of a structured questionnaire survey instrument, exhibited overall patterns of age, gender, group size, duration of visit, and the subjects that

visitors declared to be of most interest, which were broadly comparable with those obtained in previous surveys. This suggested that a similarly representative sample had been obtained. However, the study also encountered markedly higher levels of awareness of the axolotl, its characteristics and its precarious plight after visitors had been experienced a guided nature tour by a trained remero (local boatman). The percentage of respondents declaring they knew the species was 57% compared to 16% and 30% encountered in earlier surveys (January and July 2003), whilst levels of accurate recognition of the axolotl as an endemic species were up from 7% to 37%. Similarly, in response to an open question asking respondents to share any knowledge they had about the axolotl, in 2007 more respondents identified the axolotl as of historical/cultural importance, as endangered, as able to regenerate, as edible, and as having medicinal qualities, than in earlier surveys (see Figure 1.).



As Figure 2 illustrates, data concerning visitor's accuracy in identifying Xochimilco species as endemic showed a similar improvement over the life of the project.



Such improvements might represent both direct and indirect project outcomes, for example, from learning associated with interpretation delivered by trained remero guides and the panels provided in their trajineras (the decorated punts used to transport tourists), as well as the many outreach educational and communication activities aimed at increasing public awareness, from leaflets and souvenirs to fiesta exhibits and local, regional and international media coverage. Interestingly, the 2007 survey also found the visitor sample to rank remeros as their overall preferred source of information about Xochimilco and its wildlife, with remeros achieving 86% of a maximum possible score (using a 1-4 scale of importance), as opposed to 77% for booklets, 70% for signs/boards, and 55% for videos. This was a reversal of the pattern recorded for respondents in July 2003, who had ranked remeros lowest (55%), followed by booklets (76%), signs/boards (88%) and videos (99%), and may represent a growing recognition of the value of remeros as information and interpretation providers.

*Remero survey data:*

Following the final guide training workshop, the UAM-X project team sought to survey all remeros who had received training as part of both the original and extension Darwin Initiative projects, with a view to comparing the findings with those from the survey conducted by Alejandro Meléndez in July 2003 for his Darwin Initiative funded MSc dissertation project. Of a total of 55 remeros who had received training since Dec. 2003 (the discrepancy with overall workshop number of 74 trained being explained by the fact that some had attended more than one workshop), 6 were found to have stopped working as a remero. Of the remainder the 28 successfully contacted all agreed to participate in the survey (although data for one of these were subsequently excluded because it was so partial). These remeros were asked to keep a detailed account any trips they took during a four week period in Nov.-Dec. 2006, recording data for a range of variables, from the weather conditions and make up of client groups to guiding provision and earnings taken, whether in terms of regular payments, tips or payments for extended trips.

Table 1 displays data from both surveys. It indicates that the patterns relating to age, educational level, experience, trajinera ownership and patterns of working were broadly similar for both data sets (which reportedly had overlap of just one individual), and this tends to support the idea that they might both be representative of the overall remero population (said to be ~2000). In terms of the variations between these two remero survey data sets, the most interesting finding is the significantly larger number of hours reportedly worked by DI workshop-trained remeros, both on busy and non-busy days. This suggests trained remeros may have experienced a major boost to their workloads (and hence their incomes) compared to those who have not received training. Certainly, the average level of job satisfaction was found to be higher amongst the trained cohort, whilst the March 2007 visitor survey found significantly higher levels of visitor satisfaction amongst those who had been on a trip with a DI-trained remero. A study of 11 trained remeros conducted over 4 weeks in early 2005 found a positive association between the amount of guiding given and stated earnings. Average earnings for weeks in which no interpretation was given were \$100 pesos per trip. In weeks where there was a mix of interpretation and no-interpretation trips, average earnings rose to \$122 pesos per trip, and in weeks where all trips had some interpretation, average earnings were \$165 pesos per trip. Moreover, guiding occupied a substantial proportion of the trip time ( $\geq 25\%$ ) in as many as 42% of trips conducted (Figure 3). This is supported by the post-workshop use of training data reported in Table 1 and implies that the initial project objective of developing remero's communication and interpretation capacity has been addressed with some degree of success.

A paper describing results from the visitor and remero surveys has been submitted (by invitation) to a special edition of the International Zoo Yearbook, and is currently in review.

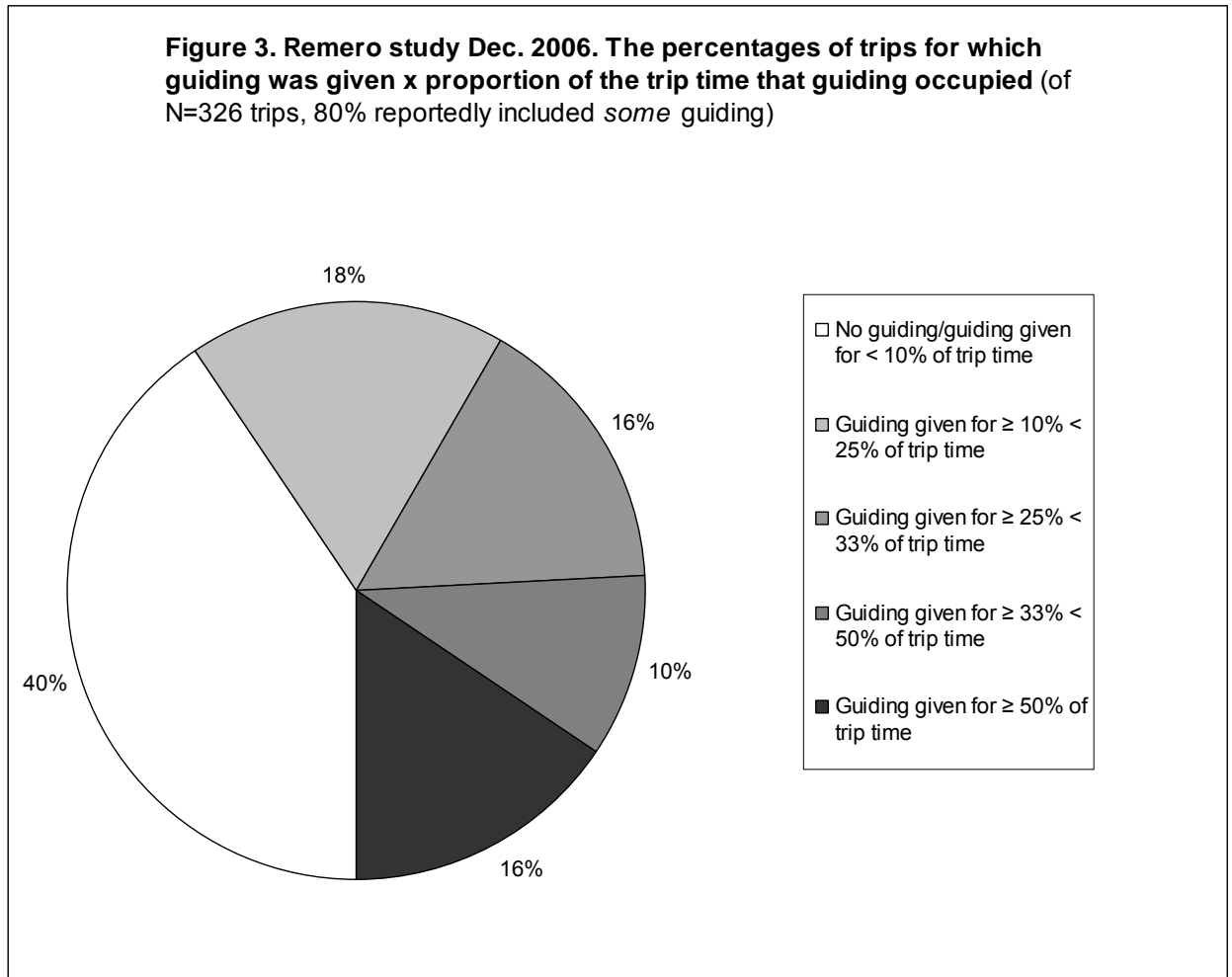
**Table 1. Data from Remero surveys July 2003 and December 2006.**

Variable	Category	July 2003 N=63	Dec. 2006 N=27	Variable	Category	July 2003 N=64	Dec. 2006 N=27
<b>Educational level</b>	none	6%	15%	<b>Years working as remero</b>	1-3	16%	26%
	primary	35%	19%		4-7	54%	44%
	secondary	30%	23%		8-15	19%	20%
	preparatory	22%	23%		16-25	5%	16%
	undergraduate	6%	15%		26+	6%	0%
<b>Age group</b>	11-20	11%	12%		<b>Number of days/week working as remero</b>	1	5%
	21-30	14%	12%	2		37%	22%
	31-40	32%	31%	3		5%	7%
	41-51	18%	19%	4		1%	11%
	51-60	13%	12%	5		1%	7%
	61-70	8%	8%	6		1%	7%
	71-80	5%	8%	7		49%	44%
<b>Approx. no. hours of work on busy days</b>	0	0%	0%	<b>Approx. no. hours of work on non-busy days</b>	0	31%	0%
	1	2%	0%		1	24%	7%
	2	8%	0%		2	19%	11%
	3	20%	0%		3	7%	18%
	4	8%	0%		4	7%	7%
	5	14%	12%		5	2%	25%
	6	10%	0%		6	5%	0%
	7 or more	39%	66%		7 or more	5%	32%
<b>Expressed level job satisfaction</b>	low	6%	0%	<b>Satisfaction with workshop training</b>	low		4%
	medium	8%	8%		medium	n/a	7%
	high	60%	35%		high		11%
	very high	25%	58%		very high		78%



<b>Remero/ Trajinero</b>	Remero	64%	67%	<b>Post- workshop use of training</b>	little		4%
	Trajinero	36%	33%		some	n/a	26%
<b>Other job</b>	No	37%	52%		a lot		30%
	Yes	63%	48%		very much		41%

**Figure 3. Remero study Dec. 2006. The percentages of trips for which guiding was given x proportion of the trip time that guiding occupied (of N=326 trips, 80% reportedly included some guiding)**



*Training and capacity building activities:*

The UAM-X investigator team that was in post at the end of the preceding project continued its involvement with the training aspects of the extension project, receiving further training in the design and delivery of participatory workshops (Workshop 1: 2 weeks), acting as trainers of the remero facilitators (Workshop 2: 2 weeks) and then supporting the remero trainers in delivering workshop 3. The project co-ordinator at UAM-X, Alejandro Meléndez, continued to provide management of the CIBAC-based elements of the project and in-country guidance and mentoring of the UAM-X Investigator team. The first extension project training workshop ('Training the Trainers') took place at CIBAC during the last two weeks of November 2005. Again remeros worked with UAM-X/CIBAC staff and project team members to develop and facilitate the workshop, with the schedule, contents and materials being refined on the basis of

previous experience. The demand for places on this workshop exceeded capacity, and it was even more successful than the last, graduating 23 out of 27 remeros who began it, with all but one of the 'dropouts' being due to sickness or overriding personal reasons. This is more than twice the number of trainees (10) envisaged in the project proposal. Once again anonymous feedback was very encouraging, with the average scores on a 5 point scale being 4.7 for overall quality, and 4.4 for content. As well as graduating another cohort of remeros with a positive attitude towards guiding and conservation, enabling further improvements to the training package, and a consolidation and enlargement of the cohort of remeros being trained as facilitators, this workshop also precipitated an attempt by one leading remero (Raúl Soto) to establish a non-political organisation representing the interests of remeros across all the embarkation points united around the subject of tourism and conservation. Raúl is also employing the axolotl as its symbol, alongside the project-generated idea of the axolotl representing the regeneration of the hearts and minds of the Xochimilcas.

The June guide-training workshop (5<sup>th</sup>-15<sup>th</sup> June, 2006) "Trainers in Action" was a resounding success, graduating 21 remeros with the guide-training package, and training 7 remeros as workshop facilitators. The workshop was rather large because representatives from a newly opened visitor centre nearby (5), the Xochimilco Tourism Directorate (3) and the Director of the Xochimilco Archaeological Museum, all participated as observers (they did not receive the full workshop package, only the information folder). However, levels of participant satisfaction expressed in the anonymous feedback forms remained high, with average scores on a 5-point scale being 4.5 for overall quality, 4.3 for the expert presentations, and 4.5 for content. As part of the staged transfer of the training package to Mexican partners, DICE staff did not participate in the subsequent September workshop (4<sup>th</sup>-14<sup>th</sup> Sept. 2006), but the Mexican team reported the workshop to have also been very successful, with the remero facilitators taking the lead in its organisation and nearly all workshop activities, and with the workshop itself graduating 13 remeros with the guide-training package (this being a deliberately low number of participants in order to ease the process of facilitation by the remeros). These 13 remeros gave the workshop an overall average score of 4.3, the expert presentations 4.6, and the workshop activities, 4.4.

Selection of workshop participants was made on the basis of willingness to participate, with preferential selection of trainees from hitherto unrepresented or under-represented embarkation points, and an open and transparent random selection process ready if required. Everyone who completed any of the five workshops was awarded a descriptive certificate at a brief closing ceremony. Each certificate bore the logos of the Darwin Initiative, UAM-X and DICE, and was signed by the Rector of UAM-X, the Mexican Project Director and the UK Project Director/Officer.

Training of the researchers at UNAM included knowledge and skills relating to the production of population estimates, the maintenance of a captive breeding colony of axolotls, a number of lab skills (e.g. using elastomers and stable isotopes to explore the food web) – three people are now using these techniques on other projects in Mexico – and the use of the Biotic Integrity Index IBI, which Victoria Contreras is employing in her Master's thesis research.

## **5. Project Impacts**

Once again, the guide training and outreach education activities appear to have had significant impacts on the key stakeholder groups and visitors (see above).

The Grupo de Investigación del Ajolote en Xochimilco (GIA-X), which was conceived of and initially created by the preceding DI project (162/11/0) and was supported as part of the extension project, has quickly taken on its own momentum, and is now organising its own meetings and, building upon the framework provided by the Axolotl Species/Habitat Action Plan, is deciding its own priorities and direction. This was exactly the intended objective of the extension project and, indeed, of the notion of seed-funding that underpins the Darwin Initiative as a whole.

Research co-ordinated by GIA-X was clearly instrumental in allowing CONABIO to meet its obligations under the Biodiversity Convention (CBD) and achieve the change in the IUCN Red Data listing of *A. mexicanum* from Vulnerable (VU) to Critically Endangered (CE). It is anticipated that this change, as well as further sensitising key stakeholders and the general public to the importance of addressing the conservation issues surrounding the axolotl and its habitat, will provide an important lever for attracting further research effort, financial resources, and government actions in support of this objective. CONABIO also collaborated in the review of the CITES status of *A. mexicanum*, in which it was decided that it would remain on Appendix II, whilst national protection according to the conservation listing under NOM-059 is still under review.

In terms of local collaboration the GIA-X component of the project has been highly successful in bringing together individuals and organisations that have hitherto been somewhat reluctant to collaborate with one another. The role of CONABIO has also been very important in facilitating this process.

In terms of social impact, besides the benefits to those who have been trained and the general increase in levels of awareness and focus on the conservation of the site, additional impacts include the response from both Chester and the Directorate of Mexico City Zoos (DGZCM). Chester Zoo has created a special axolotl interpretation display in its aquarium, which is linked to the work being done in Xochimilco, and has provided funding and staff support for training workshops. In addition, following participation of Chester Zoo's Head of Conservation and Science, Dr Roger Wilkinson, in the Axolotl Species/Habitat Action Plan workshop and his subsequent recommendations, the ecotourism company *Naturetrek* now includes Xochimilco on its ecotour itineraries. In Mexico, the DGZCM has adopted 14 priority species for an institutional conservation programme (i.e. PICE: Programa Institucional de Conservación por Especie). The axolotl is the only amphibian species within the PICE list, amongst other more traditional flagship species such as the giant panda, spider monkey and the Mexican wolf. Under the PICE programme for the axolotl, DGZCM has contributed veterinary and conservation expertise to adjunct axolotl captive breeding and health assessment initiatives, runs educational activities for schoolchildren and visitors to its zoos, and produces information brochures and interpretation material about axolotl conservation. Los Coyotes Zoo – which specializes in the native species of Mexico – has adopted the axolotl as its logo. Interestingly, the remit of DGZCM has recently been expanded to embrace the conservation of all wildlife in Mexico City (it has been renamed Dirección General de Zoológicos y Vida Silvestre). This will mean that the organisation's input to axolotl conservation at Xochimilco is likely to increase.

The international profile of the project has been recognised by three requests to the project leader to write papers describing project activities for two publications (*Threatened Amphibians of the World*, to be published by Lynx Editions, and *International Zoo Yearbook*). These papers have now been submitted and are either in press or in review (see Appendix III).

The UAM-X and UNAM students who received funding through the Darwin Initiative are in the process of finishing their research dissertations (if they have not already done so), and the UAM-X project investigators are continuing their liaison with the remero guild over future training workshops. Bob Johnson at Toronto Zoo is actively pursuing opportunities to continue funding the Darwin Initiative Fellow (Elsa Valiente) at UNAM.

## **6. Project Outputs**

Training outputs were higher than proposed, and this was achieved largely to additional resources (both financial and in-kind) provided by the partner institutions. Consequently, the project generated 7 undergraduate students (instead of 5); 12 remero facilitators (instead of 4) and 55 nature guide workshop graduates (instead of 20).

Information relating to project outputs and outcomes were disseminated via the DICE and GIA-X websites, newsletters and press articles in Mexico, as well as by academic publications (see Appendix III) and presentations (poster presentation at the Society of Conservation Biology 2006 annual meeting San Jose; presentation to Chester Zoo staff April 2007). Promotion of the project objectives and the axolotl as the flagship species is continuing after the formal Darwin Initiative project end through the activities of project team members in the UK and Mexico, as well as the involvement of project partners (CONABIO, GIA-X, Chapultepec, Chester and Toronto Zoos) and ongoing distribution of the remainder of the project postcards.

An additional output was the establishment of a display of live axolotls and associated educational material at the Xochimilco Archaeological Museum. The UAM-X team advised on the design of the exhibit and trained museum staff in axolotl management. A handbook on axolotl care management was written specifically for the museum staff by the UAM-X team.

Details of publicly accessible publications and material are included in Appendix III.

## 7. Project Expenditure

	2005/2006	2006/2007	Total	Actual	Variance
<b>Rents, rates, heating, lighting, cleaning,</b>					
• Darwin funding					
• other funding					
<b>Office costs eg postage,</b>					
• Darwin funding					
• other funding					
<b>Travel and subsistence</b>					
• Darwin funding					
• other funding					
<b>Printing</b>					
• Darwin funding					
• other funding					
<b>Conferences, seminars</b>					
• Darwin funding					
• other funding					
<b>Capital items/ equipment (please break down)</b>					
• Darwin funding					
• other funding					
<b>Other costs (please specify and break down)</b>					
• Darwin funding Financial auditing					
• other funding Interpretation/remero support (Chester Zoo)					
<b>Salaries (from previous</b>					
• Darwin funding					
• other funding					
<b>TOTAL PROJECT COSTS</b>	<b>50006</b>	<b>32027</b>	<b>82033</b>	<b>82033</b>	
<b>TOTAL COSTS FUNDED FROM OTHER SOURCES</b>	<b>20721</b>	<b>13722</b>	<b>34443</b>	<b>34443</b>	
<b>TOTAL DARWIN COSTS REQUESTED</b>	<b>29285</b>	<b>18305</b>	<b>47590</b>	<b>47590</b>	

## **8. Project Operation and Partnerships**

The project was designed in conjunction with GIA-X partners after the Species/Habitat Action Plan workshop in December 2004. UAM-X, UNAM, CONABIO and DGZCM were all consulted over their respective roles in the proposal, and discussions focused on ensuring complementary contributions from the partners within a framework that would assist CONABIO and wider CBD objectives.

### *Local partners*

In addition to the main local partners UAM-X, UNAM and CONABIO (personnel and roles described above and in Appendix IV), representatives from Dirección General de Zoológicos de la Ciudad de México (DGZCM - the Mexico City Zoo Directorate) participated in most GIA-X activities (2-4 staff: Director, Conservation Officer, Education Officer and Veterinarian), whilst an important local Xochimilco NGO representing indigenous peoples (UMBRAL) recently became a collaborative partner through the activities of GIA-X (1 staff: captive breeding and local community liaison). Most importantly, the future of the axolotl and Xochimilco wildlife conservation is now being planned collectively through the involvement of these partners under the co-ordinating umbrella of GIA-X. GIA-X is now holding its own workshops and meetings without DICE involvement. Also, the new Director of Tourism Xochimilco has expressed his wish to support future training initiatives.

### *International partners*

In addition to the Durrell Institute of Conservation and Ecology the main international partners in the extension project were: The IUCN/SSC Amphibian Specialist Group (ASG); The North of England Zoological Society (Chester Zoo); and, Toronto Zoo, representatives of all of which participated in one or more project activities. The British Herpetological Society continued to support the project by providing copies of its publications to both UAM-X and UNAM.

## **9. Monitoring and Evaluation, Lesson learning**

Regular email and telephone contact was maintained between DICE, UAM-X and UNAM throughout the 2 year extension period, with other partners being copied in to communications when appropriate, and in-country teams being required to submit regular reports and updates of their activities. All workshops included a terminal evaluation questionnaire (which received excellent assessments from participants - results summarised above). A project review meeting was held during the visits associated with the first two guide training workshops and the GIA-X meeting in January 2007. Here the team sought to reflect upon the project developments thus far and plan the next stages and exit strategy.

A significant amount of data relating to tourism at Xochimilco and the activities of the remeros in particular has been gathered (as summarised above and in Figs. 1-3), and this has formed the basis for an evaluation of the impact of project activities. The results have started to be submitted to peer-reviewed journals.

Clearly the most serious problem faced during the 5-year overall project period was the death of the Mexican Director, Dr Graue and the subsequent re-allocation of her responsibilities. However, the considerable enthusiasm and the strong continuing personal commitment expressed by key individuals have ensured that that project has grown from strength to strength.

Perhaps the greatest challenge facing the extension project was that of maintaining the relationship of trust and support that had been established between project team members and local community stakeholders. The decision of the investigators to continue with the project helped immensely in this respect by maintaining continuity, whilst the idea of involving remeros in facilitating the nature-guiding workshops, proved to be a particularly powerful and cohesive force, being reflected in many of the workshop feedback comments received. Indeed, one pivotal aspect of the extension project was the transfer of the nature-guiding workshop package to the remero guild.

The key lessons learnt from the 2-yr extension project are:

- Work to maintain continuity and nurture the links established with local people, whilst seeking to involve 'new blood' to inject new enthusiasm and new ideas.
- Seek to draw in interested national and international partners in a potentially more central role as the project nears its end.
- Have an infrastructure in place to ensure that project-generated initiatives are taken up and developed by organisations and individuals in the host country (e.g. as with the captive breeding collaborative meetings being run by GIA-X)
- Projects of this nature can take three years to "find their feet" – and the injection of DI support for the extension period was crucial in enabling the successes achieved in the previous project to be consolidated and thereby leave what looks likely to be a lasting legacy.

During the project period internal evaluation of the work took place on a regular basis and the whole team met during visits by DICE representatives for workshop and other activities. Each meeting was minuted, and contained an appraisal of how well project activities and targets were being met. During the January 2007 GIA-X meeting some informal assessment and evaluation was conducted by Bob Johnson from Toronto Zoo and Dr Matthew Linkie from DICE, who has worked on two previous Darwin Initiative projects. Both were highly complementary as to the value of the project and what it has managed to achieve.

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

No formal review of the 2006 Annual Report was received.

#### **11. Darwin Identity**

All 'products' including the training workshops, interpretation panels, GIA-X meetings, publications and the display at the Xochimilco Archaeological Museum have been labelled with the Darwin Initiative logo, whilst all events have included a brief explanation of the objectives and involvement of the Darwin Initiative in their introductory sessions. Elsa Valiente, appointed as the project Darwin Fellow used this title at every opportunity, and informal qualitative evidence suggests that the Darwin Initiative enjoys widespread appreciation amongst those the project has reached. Particularly noteworthy was the previous project precipitating a motion passed in the Mexican Senate in support of the conservation of the axolotl and its habitat which specifically mentioned the Darwin Initiative. This undoubtedly raised the profile of the Darwin Initiative in Mexico to the highest political level, and provided considerable leverage in terms of ensuring positive involvement by government and non-government organisations in the extension

project. Furthermore, the extension project managed to maintain a coherent and distinct identity whilst participating as a part of a larger partnership, and was instrumental in winning considerable respect for the Darwin Initiative from the Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO - the National Commission for the Knowledge and Use of Biodiversity). Indeed, as the key Mexican organisation responsible for the CBD in Mexico, CONABIO became one of the centrally active project partners during the extension project.

## **12. Leverage**

The participation of Jeanne McKay of the IUCN/SSC Amphibian Specialist Group (ASG) in two training workshops, the GIA-X meetings, and her general involvement in some of the day-to-day project activities in the UK constitutes a very significant in-kind contribution from that organisation, one which is difficult to quantify in economic terms, but which should be valued at several thousand pounds.

The project invited Bob Johnson, Curator of Amphibians and Reptiles at Toronto Zoo to the GIA-X meeting in January 2007. Bob was instrumental in instigating the initial project idea by putting Dr Graue (UAM-X) in touch with Dr Griffiths (DICE) and had been following its progress ever since. Since his visit in January he has been active in trying to raise funds to continue the implementation of the key action plan items identified by the meeting. He managed to get funding to send Erika Zamora (veterinarian responsible for the axolotl colony at Chapultepec Zoo) to a one-week Amphibian Biology and Management course in the USA. DGZCM gave her paid leave and Toronto Zoo funded about \$200.00 of travel, room, and registration costs. The zoo community can provide innovative ways to provide funds from other sources through grant applications (i.e. Canadian Department of Foreign Affairs and International Trade/Heritage Canada internships, Toronto Zoo Endangered Species or Conservation Fund grants). Bob has recently informed us that he has now raised some \$20,000, which will be applied for by Mexican partners to support the following priorities: Elsa's Valiente's salary for one additional year; further remero training workshops; lake Xochimilco ecotoxicology studies; Xochimilco invasive species impacts research; zoo education programmes; zoo-based axolotl pathology and disease screening; axolotl habitat use and metapopulation structuring research; and, an outside axolotl colony breeding set up at Chapultepec Zoo.

Support from Chester Zoo has also continued and developed, with significant additional funds having been attracted in the form of further involvement of Chester Zoo staff (notably Maggie Essen, the Education Officer) and direct financial support for a new educational initiative in the form of a wall mural/guidebook production workshop to take place in the summer of 2007 at the Xochimilco Archaeological Museum. This will involve matched funding in the form of staff time and facilities on the part of the Museum. Chester Zoo is also interested in precipitating a variety of new educational ideas and initiatives in Xochimilco, including a special fiesta to mark International Wetlands Day (2<sup>nd</sup> February 2008). Chester Zoo is planning a major new aquarium, and we are engaged in ongoing discussions with their staff over how this might highlight the conservation of aquatic habitats in the Mexico City basin. The Zoological Society of London are initiating a new amphibian initiative under the umbrella of their EDGE project (Evolutionarily Distinct and Globally Endangered) and we are in discussion with their staff over how the axolotl can be featured within this programme.

In January 2007 Dr Griffiths and Dr Bride met with representatives from the British



Embassy in Mexico City to discuss how the nature tourism model developed at Xochimilco might be more widely applied to other areas of Mexico. The result was an application to the Global Opportunities Fund to further develop bird-guiding.

### **13. Sustainability and Legacy**

- Increased income and levels of job satisfaction among the remeros have created a very strong incentive for further nature guide training. As the project has now formally transferred the ownership of the training package to the remero guild, the long-term sustainability of the programme seems ensured. Equally, the Tourism Directorate at Xochimilco has expressed an interest in supporting and diversifying further training programmes within the remero guild, e.g. cultural tourism.
- The axolotl/Xochimilco-focused research co-ordinated by the Grupo de Investigación del Ajolote en Xochimilco (GIA-X) looks set to continue under the co-ordination of a well-established researcher (Dr Luis Zambrano) who is employed at the Instituto de Biología at the Universidad Nacional Autónoma de México (UNAM).
- The production of locally produced conservation/axolotl themed souvenirs continues. Despite difficulties relating to supply and demand of products having hindered the development of an international market during the previous project, a thriving local market is reported to have been established (particularly for bead axolotls and gift cards) and continues to be supplied by a group of remeros and (mainly) women artisans. Chester Zoo has recently ordered 300 gift cards to be sold through its member network – and UK project team members are continuing to try and establish a coherent supply chain.
- Substantial additional funds have been won to continue research and educational aspects of the project, through the interest and support of Bob Johnson (Curator of Amphibians and Reptiles, Toronto Zoo), Maggie Essen (Head of Education, Chester Zoo), María-Teresa Ortiz (Director, Xochimilco Archaeological Museum).
- It is expected that UK and Mexico project staff will continue to communicate and collaborate with each other into the foreseeable future. Indeed, discussions have already taken place as to how the guide-training model might be developed into a future funding bid to develop a more sophisticated and expert bird-guiding programme and local tourism industry in Xochimilco. With some 212 bird species recorded at the site there is strong potential for attracting ornithologists from overseas. This has already been recognised by *Naturetrek* who have added Xochimilco to their destinations for birdwatchers.

### **14. Value for money**

The project team is firmly of the view that the extension project has been highly successful in consolidating the successes of the preceding project and that this is demonstrated by the momentum and developing nature of the Darwin Initiative project legacy. Research, training and education-related activities are continuing, new activities being developed, and substantial new financial support has been attracted, which,

including the value of staff time, is currently estimated to be in excess of £15,000.

## 15. 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.

<b>Project Contribution to Articles under the Convention on Biological Diversity</b>		
<b>Article No./Title</b>	<b>Project %</b>	<b>Article Description</b>
<b>6. General Measures for Conservation &amp; Sustainable Use</b>	5%	Develop national strategies that integrate conservation and sustainable use.
<b>7. Identification and Monitoring</b>	5%	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.
<b>8. In-situ Conservation</b>	5%	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.
<b>9. Ex-situ Conservation</b>	5%	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.
<b>10. Sustainable Use of Components of Biological Diversity</b>	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.
<b>11. Incentive Measures</b>	10%	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.

<b>12. Research and Training</b>	30%	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).
<b>13. Public Education and Awareness</b>	30%	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.
<b>14. Impact Assessment and Minimizing Adverse Impacts</b>	0%	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.
<b>15. Access to Genetic Resources</b>	0%	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.
<b>16. Access to and Transfer of Technology</b>	0%	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.
<b>17. Exchange of Information</b>	5%	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
<b>19. Bio-safety Protocol</b>	0%	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.
<b>Total %</b>	<b>100%</b>	<b>Check % = total 100</b>

## 16. 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)
<b>Training Outputs</b>		
1a	Number of people to submit PhD thesis	0
1b	Number of PhD qualifications obtained	0
2	Number of Masters qualifications obtained	1
3	Number of other qualifications obtained	0
4a	Number of undergraduate students receiving training	7 3 x UAM-X students trained in workshop delivery and support 1 x 2 week workshop 4 x UNAM students trained in a number of ecological methods as part of University dissertation project 4 weeks per student.
4b	Number of training weeks provided to undergraduate students	6
4c	Number of postgraduate students receiving training (not 1-3 above)	0
4d	Number of training weeks for postgraduate students	0
5	Number of people receiving other forms of <b>long-term</b> (>1yr) training not leading to formal qualification( i.e. not categories 1-4 above)	0
6a	Number of people receiving other forms of <b>short-term</b> education/training (i.e. not categories 1-5 above)	69 12 remeros trained as trainers - 2 x 2 week workshops (Workshops 1 + 2). 42 remeros trained as nature guides; 3 x 2 week workshops (Workshops 1-3). 15 others participated in Workshop 2
6b	Number of training weeks not leading to formal qualification	6
7	Number of types of training materials produced for use by host country(s)	1 x set of interpretation panels for each remero trainee (42) 1 x information pack on fauna/flora of Xochimilco for each workshop participant (57) 1 x nature guiding workshop package for remero trainers (8 – 4 trainers dropped out)
<b>Research Outputs</b>		
8	Number of weeks spent by UK project staff on project work in host country(s)	12 weeks (2 staff x 2 weeks x 2 workshops; 1 staff x 1 week x 1 workshop; 3 staff x 1 week x 1 GIA-X seminar)

<b>Code</b>	<b>Total to date (reduce box)</b>	<b>Detail (←expand box)</b>
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	0
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0
11a	Number of papers published or accepted for publication in peer reviewed journals	2
11b	Number of papers published or accepted for publication elsewhere	2
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	0
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0
13a	Number of species reference collections established and handed over to host country(s)	0
13b	Number of species reference collections enhanced and handed over to host country(s)	0

<b>Dissemination Outputs</b>		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	3
14b	Number of conferences/seminars/ workshops <b>attended</b> at which findings from Darwin project work will be presented/ disseminated.	2
15a	Number of national press releases or publicity articles in host country(s)	2
15b	Number of local press releases or publicity articles in host country(s)	2
15c	Number of national press releases or publicity articles in UK	1
15d	Number of local press releases or publicity articles in UK	2
16a	Number of issues of newsletters produced in the host country(s)	0
16b	Estimated circulation of each newsletter in the host country(s)	
16c	Estimated circulation of each newsletter in the UK	n/a
17a	Number of dissemination networks established	0
17b	Number of dissemination networks enhanced or extended	1 (GIA-X)
18a	Number of national TV programmes/features in host country(s)	2
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	0
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	0
19b	Number of national radio interviews/features in the UK	0

19c	Number of local radio interviews/features in host country (s)	0
19d	Number of local radio interviews/features in the UK	0
<b>Physical Outputs</b>		
20	Estimated value (£s) of physical assets handed over to host country(s)	
21	Number of permanent educational/training/research facilities or organisation established	0
22	Number of permanent field plots established	0
23	Value of additional resources raised for project	~\$25,000 US

## 17. 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

<b>Type *</b> (e.g. journals, manual, CDs)	<b>Detail</b> (title, author, year)	<b>Publishers</b> (name, city)	<b>Available from</b> (e.g. contact address, website)	<b>Cost</b> <b>£</b>
Journal article	A population matrix model and population viability analysis to predict the fate of endangered species in highly managed water systems. Zambrano, L., Vega, E., Herrera, L.G., Prado, E. & Reynoso, V.H. (2007)*	Animal Conservation (The Zoological Society of London)	<a href="http://www.blackwell-synergy.com/doi/full/10.1111/j.1469-1795.2007.00105.x">http://www.blackwell-synergy.com/doi/full/10.1111/j.1469-1795.2007.00105.x</a>	
Journal article	Flying an amphibian flagship: conservation of the axolotl ( <i>Ambystoma mexicanum</i> ) through nature tourism at Lake Xochimilco, Mexico Ian G. Bride, Richard A. Griffiths, Alejandro Meléndez-Herrada, Jeanne E. McKay*	International Zoo Yearbook (The Zoological Society of London)	In review	
Journal/report	Centerpiece: "Concern for venerable Xochimilco denizen" Lorraine Orlandi February 2007 EcoAmericas	Forth St. Press, Santa Monica	<a href="http://www.ecoamericas.com">www.ecoamericas.com</a>	\$20
Book article	The importance of the Mexican axolotl <i>Ambystoma mexicanum</i> throughout Mexican history, McKay, J.E., Griffiths, R.A and Bride, I.G In: M. Hoffman (Ed.) Threatened Amphibians of the World. 2007*	Lynx Ediciones: Barcelona, Spain.	In press	



Book article	Conservation Action for the Mexican axolotl <i>Ambystoma mexicanum</i> at Lake Xochimilco, Mexico Griffiths, R.A., Bride, I.G. and Mckay, J.E In: M. Hoffman (Ed.) Threatened Amphibians of the World. 2007*	Lynx Ediciones: Barcelona, Spain.	In press	
Newspaper article	"Al rescate de Xochimilco". Claudia Juárez ("To the rescue of Xochimilco")	La Prensa, Año II Núm. 75		
Newspaper article	"Usarán al anfibio como bandera en un intento por rehabilitar el ecosistema". Antimio Cruz ("Using the amphibian as a flagship species for the rehabilitation of the ecosystem")	El Milenio, 11 enero, 2007	<a href="http://www.milenio.com/mexico/milenio/notaanterior.asp?id=725823">http://www.milenio.com/mexico/milenio/notaanterior.asp?id=725823</a>	
Newsletter	"Primer Seminario sobre el ajolote en Xochimilco" (First seminar for the axolotl in Xochimilco")	CONABIO newsletter 09/01/2007	<a href="http://www.planetaazul.com.mx">http://www.planetaazul.com.mx</a>	
Website	GIA-X website	GIA-X	<a href="http://ajolote.ibiologia.unam.mx/index.htm">http://ajolote.ibiologia.unam.mx/index.htm</a>	

## 18. Appendix IV: Darwin Contacts

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

<b>Project Title</b>	Flying the flagship: delivering the axolotl action plan at Xochimilco, Mexico
<b>Ref. No.</b>	EIDPo6/11-018
<b>UK Leader Details</b>	
Name	Dr R.A. Griffiths
Role within Darwin Project	Project Co-ordinator - UK
Address	Durrell Institute of Conservation and Ecology, University of Kent, Marlowe Building, Canterbury, Kent, CT2 7NR
Phone	
Fax	
Email	
<b>Other UK Contact</b>	
Name	Dr I. Bride
Role within Darwin Project	Project Officer
Address	Durrell Institute of Conservation and Ecology, University of Kent, Marlowe Building, Canterbury, Kent, CT2 7NR
Phone	
Fax	
Email	
<b>Partner 1</b>	
Name	M. en C. Alejandro Meléndez-Herrada
Organisation	Universidad Autonoma Metropolitana, Unidad Xochimilco (UAM), Mexico.
Role within Darwin Project	Profesor e Investigador Titular C, TC. Project Co-ordinator - Mexico
Address	Depto. El Hombre y su Ambiente, Universidad Autónoma Metropolitana Unidad Xochimilco, Calzada del Hueso 1100, Col. Villa Quietud, CP 04960, México Distrito Federal, Mexico
Fax	
Email	
<b>Partner 2</b>	
Name	Dr Luis Zambrano
Organisation	Instituto de Biología, Universidad Nacional Autónoma de México (UNAM),
Role within Darwin Project	Associate Professor, Project Co-ordinator - Mexico
Address	Instituto de Biología, Universidad Nacional Autónoma de México (UNAM), DF, Mexico
Fax	
Email	
<b>Partner 3</b>	
Name	Paola Mosig

Organisation	Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO - National Commission for the Knowledge and Use of Biodiversity), Mexico
Role within Darwin Project	Project partner representative
Address	A. Liga Periferico, Insurgentes Sur No. 4903, Col Parques de Pedregal, Delegacion Tlalpan, 14010 Mexico D.F.
Fax	
Email	
<b>Partner 4</b>	
Name	Bob Johnson
Organisation	Curator of Reptiles and Amphibians, Toronto Zoo
Role within Darwin Project	Project partner representative
Address	2000 Meadowvale Rd, Scarborough, ON, Canada
Fax	
Email	
<b>Partner 5</b>	
Name	Dr Roger Wilkinson
Organisation	Director of Research, Chester Zoo
Role within Darwin Project	Project partner representative
Address	North of England Zoological Society, Chester, CH2 1LH
Fax	
Email	
<b>Partner 6</b>	
Name	Fernando Gual-Sill
Organisation	Director, Dirección General de Zoológicos de la Ciudad de México
Role within Darwin Project	Project partner representative
Address	Av. Chivatito s/n, 1ª. Sección de Bosque de Chapultepec, Col. San Miguel Chapultepec, Delegación Miguel Hidalgo, C.P. 11850, México, D.F.
Fax	
Email	

## Appendix V: Original Logical Framework

Please enter the details of your project onto the matrix using the note at Annex I of the Guidance Note.

Project summary	Measurable indicators	Means of verification	Important assumptions
<p><b>Goal:</b></p> <p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> <li>• the conservation of biological diversity,</li> <li>• the sustainable use of its components, and</li> <li>• the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>			
<p><b>Purpose</b></p> <p>Delivery of priority elements within the axolotl S/HAP that emerged from the original project</p>	<p>(1) Research on impacts of threats completed;</p> <p>(2) Effective protection for the axolotl and its habitat under national and international legal instruments;</p> <p>(3) Transfer of ownership of nature guiding programme to remero guild.</p>	<p>(1) Existence of scientific data on impacts of threats;</p> <p>(2) Confirmation by CONABIO that research emerging from the project is informing decision making;</p> <p>(3) Remeros running nature guiding programme independently.</p>	<p>(1) Continued collaboration within the Axolotl Research Group;</p> <p>(2) Continued support and communication between the Darwin project and CONABIO;</p> <p>(3) Continued support of the remero guild.</p>
<p><b>Outputs</b></p>	<p>(1) Scientific publications on impacts of threats;</p> <p>(2) Reformulated legislative instruments in place;</p> <p>(3) Remero nature guide training package.</p>	<p>(1) Existence of scientific publications;</p> <p>(2) Existence of these instruments;</p> <p>(3) Existence of this training package.</p>	<p>(1) Editors accept papers for publication;</p> <p>(2) Agreement between stakeholders on effective legislation;</p> <p>(3) Remeros participate in producing the package.</p>
<p><b>Activities</b></p>	<p><b>Activity Milestones (Summary of Project Implementation Timetable)</b></p>		

Field and laboratory research on impacts of threats	<p>July 2005: Appointment of Darwin Initiative Axolotl Research Group Fellow (UNAM - under the supervision of Dr Zambrano);</p> <p>July 2005: Initiation of student training (n=2) in axolotl population assessment; spatial distribution and GIS methods; trophic ecology; interactions with alien species; fish eradication methods and/or impact of pollutants (UNAM, UAM-X, PEX with DICE input);</p> <p>December 2006: Submission of student dissertations (n=2) on axolotl population assessment; spatial distribution and GIS methods; trophic ecology; interactions with alien species; fish eradication methods and/or impact of pollutants (UNAM, UAM-X, PEX with DICE input).</p> <p>January 2007: Reporting of research to CONABIO to inform policy development process.</p>
Remero guide training workshops	<p>September 2005: 'Workshop 1: training the trainers' (9 days – DICE and Mexican project team);</p> <p>January 2006: 'Workshop 2: trainers in action' (9 days – DICE and Mexican project team);</p> <p>May 2006: 'Workshop 3: training transferred' (9 days – Mexican project team only).</p>
Axolotl Research Group seminars	<p>January 2006: First annual seminar (2 days - DICE staff, research group partners);</p> <p>January 2007: Second annual seminar (2 days - DICE staff, research group partners).</p>
Publicity material	<p>May 2005: Press release for new project;</p> <p>May 2006: Press release following transfer of workshop package to remeros and completion of initial research phase;</p>