Darwin Initiative: Half Year Report

(due 31 October 2010)

Project Ref No	19-003
Project Title	A sustainable future for Chinese giant salamanders
Country(ies)	China
UK Organisation	Institute of Zoology, Zoological Society of London
Collaborator(s)	Kunming Institute of Zoology (KIZ), Shaanxi Normal University (SNNU), Guiyang University (GU)
Project Leader	Andrew Cunningham
Report date	October 10th 2013
Report No. (HYR 1/2/3/4)	HYR 2
Project website	www.chinesegiantsalamanders.org

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

- **Project management, monitoring and development activities**

1) Meetings were held with key governmental officials from Guizhou Environmental Bureau, Guizhou Tongren Fishery Bureau, Fanjingshan National Nature Reserve Administration and Shaanxi Fishery Bureau, on the purpose of capacity building on CGS *in situ* & *ex situ* conservation and potential fundraising to support conservation sustainability for this species. Although meetings with central governments in Beijing have not been organised due to delay of the project starting, local/provincial governments are liaising with, and reporting the project needs & conservation outputs to, the central government.
2) GU received a grant of CNY 480,000 (£ 50,526) entitled "Study on giant salamander in caves and on the ground in Guizhou province" from the National Natural Science Foundation of China. This grant will support CGS field surveys in Guizhou Province, 2013 to 2015.
3) SNNU received a grant of CNY 600,000 (£ 63,158) for international research collaboration for the CGS conservation project. This funding will support international travel for ZSL experts visiting China.

- **Evidence-base on CGS distribution, population status, ecology & conservation requirements strengthened and disseminated**

1) An International CGS Conservation Field Training Workshop was held in Fanjingshan National Nature Reserve 05th – 10th May 2013, Guizhou. Standardised questionnaire-based survey protocols (i.e. county surveys towards regional governmental officials, villager surveys and farm surveys) and field survey protocols were developed and agreed by in-country partner institutes. Particularly, 100 field survey sites across the CGS range in China were scientifically selected based on the CGS predictive habitat model (previously developed by this project) and historical records. This will enable the establishment of the first robust database to investigate the current and historic range of wild CGS, relative abundance and the presence of threats. In addition, professional training by UK & Japanese experts was provided to the Chinese EDGE fellows and project partners on conducting CGS surveys & long-term monitoring at field sites and on conducting villager surveys. A workshop report, depicting scientific *in situ* survey designs, standardised protocols & guidelines was finalised and circulated to partner institutes.

2) Standardised field & questionnaire surveys were carried out in Jiangkou, Fenggang, Meitan, Songtao, Yuqing and Guiding counties, Guizhou Provinces, all of which are listed in the 100 study sites selected (see above). Habitat was measured and environmental parameters collected to facilitate the establishment of long-term *in situ* conservation & monitoring sites. In addition to conducting surveys for wild CGS at these sites, CGS farms were visited to conduct farm surveys & to collect samples for genetic and pathogen analayses. Unfortunately, no wild CGS were found and evidence of high poaching pressure was found. A manuscript entitled "Failure to detect the Chinese giant salamander (*Andrias davidianus*) in Fanjingshan National Nature Reserve, Guizhou Province" has been submitted for publication.

- **Range-wide population genetics & phylogeography of CGS resolved to safeguard maximum genetic diversity of this species**

1) Genetic samples of wild & captive CGS were collected from Qinghai, Shaanxi, Sichuan, Hunan, Guangxi and Guizhou Province, greatly enhancing the genetic database at KIZ.

2) Protocols for the conservation genetics study were improved. Thirteen effective microsatellite markers were developed by KIZ and genotyped for 166 samples. Also, mitochondrial DNA (Cytb and D-loop) was sequenced. Genetic diversity, differentiation, gene flow among populations & phylogenetic patterns are now being analysed.

- **Disease threats to farmed and wild CGS identified and mitigation strategies developed**

1) Farm surveys were conducted in Guizhou and Shaanxi Province to understand the history, husbandry and disease status of farmed CGS and the potential threats the farming industry poses to wild populations. Swabs from live animals and tissue samples from dead individuals were collected for disease diagnostic investigations. Previously undiagnosed in CGS, we found mycobacteriosis to be a significant cause of death of CGS in several farms. The causative organism has been isolated, cultured & cryopreserved from multiple animals and farms and genotyping studies are now underway to identify the species involved.

2) To understand the history of *Batrachochytrium dendrobatidis* (Bd) in China, an amphibian disease causing global amphibian population declines, skin swab samples were collected from archived specimens of CGS and *Bufo bufogargarizans* (a common species of amphibian in China with a wide range) in Chengdu Institute of Biology (CIB) for follow-up Bd detection.

- **Build upon existing CGS farming protocols & infrastructure to develop *ex situ* protocols for conservation**

1) Fanjingshan, located in Tongren City of Guizhou Province, is an important location for wild CGS. Also, it contains an area suitable for the establishment of a conservation breeding centre, and for the release and long-term post-release monitoring of captive-bred animals. Good connections have been built with the Guizhou Environmental Bureau, Fanjingshan National Nature Reserve Administration and Tongren Fishery Bureau. These governmental bodies have all expressed strong interest and motivation to support such a facility. Especially, Tongren Fishery Bureau has expressed strong willingness to provide financial, political & logistic supports to allow the construction of a larger-than-planned conservation breeding & public education facility during the lifetime of the project. A proposal, facilitated by ZSL, will be submitted to the National Agricultural Bureau and National Environmental Bureau by Tongren Fishery Bureau.

- **Education & awareness-raising activities to promote the status & conservation needs of CGS across its range at local, national & international level**

1) The first baseline date on public awareness towards CGS (total 904 questionnaires from Yunnan, Shaanxi and Guizhou Province) were collected and analysed to examine social factors determining public awareness and attitudes, and appropriate Communication, Education and Public Awareness-raising (CEPA) strategies were designed based on the

findings.

2) CEPA materials were designed including 4 CGS cartoon characters and associated products, educational posters and booklets to raise conservation profile of CGS. The project website (www.chinesegiantsalamanders.org) and a Chinese twitter account (http://weibo.com/cgsnini) were established to engage the public and to publicise the project's outputs.

3) Three school campaigns and three public campaigns were carried out in Yunnan and Guizhou Provinces, including educational talks, public-involved activities, project displays and volunteer recruitment. Especially, a long-term project display has been established at the main entrance of the Yunnan Science & Technology Centre (YSTC) (144,000 visitors annually) to publicise CGS conservation needs, and a mobile display has been initiated by YSTC across Yunnan province to maximise public outreach; this is expected to reach about 200,000 visitors annually.

- **Development of a global network that seeks to conserve giant salamanders nationally & internationally**

1) Scientific presentations entitled "Disease and threats to amphibian conservation" and "Conserving the Chinese giant salamanders" were given to the Chengdu Institute of Biology and to the Wuhan Institute of Hydrobiology (both Chinese Academy of Sciences institutions) in May 2013 by the PI and project coordinator. These presentations strengthened the understanding of CGS conservation nationally and have led to the establishment of research collaborations with these institutions.

2) A scientific presentation entitled "Climate change and freshwater biodiversity conservation" was given at the 'Climate Change and Water Management' conference, Bangkok, 17th-19th June by the CGS project coordinator (funded by Thai Environment Institute), which highlighted the profile and importance of CGS and the freshwater ecosystems.

3) A scientific presentation entitled "A sustainable future for Chinese giant salamanders" was given to the Singapore Zoo, Singapore, on 24th July by the project coordinator. The CGS project was introduced to 40 international participants, including biologists from the National University of Singapore and the IUCN Conservation Breeding Specialist Group. This led to an international CEPA network being built with Singapore Zoo to potentially fund and support CEPA activities on CGS conservation in Singapore, China and internationally.

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Construction of the pilot CGS *ex situ* conservation breeding facility has been delayed due to the relocation of the Shaanxi Wild Animal Rescue and Research Centre (SWARRC) to a new site. However, there is a large potential to construct this facility in Fanjingshan National Nature Reserve (an important location in the natural range of wild CGS) and a firm connection has now been established with the Tongren Fishery Bureau and with the Fangjinshan National Nature Reserve Administration to take this forward.

Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

The delay to the construction of the conservation breeding centre was highlighted in the first annual report for this project. This is a part of the project for which DI money has not been budgeted.

Discussed with LTS: no

Formal change request submitted:	**no**
Received confirmation of change acceptance	**N/A**

3. Do you expect to have any significant (eg more than £5,000) underspend in your budget for this year?

Yes ☐ **No** ☒

If yes, and you wish to request a carryforward of funds, this should be done as soon as possible. It would help Defra manage Darwin funds more efficiently if you could give an indication of how much you expect this request might be for.

Estimated carryforward request: £

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

N/A

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Please note: Any planned modifications to your project schedule/workplan or budget should not be discussed in this report but raised with LTS International directly.

Please send your **completed form by email** to Eilidh Young at Darwin-Projects@ltsi.co.uk . The report should be between 1-2 pages maximum. **Please state your project reference number in the header of your email message eg Subject: 17-075 Darwin Half Year Report**