



Darwin Initiative: Half Year Report

(due 31 October 2014)

Project Ref No	19-003
Project Title	A sustainable future for Chinese giant salamanders
Country(ies)	China
Lead Organisation	Institute of Zoology, Zoological Society of London
Collaborator(s)	Partners: Kunming Institute of Zoology (KIZ), Shaanxi Normal University (SNNU), Guiyang University (GU) Collaborators: Chengdu Institute of Biology (CIB), Yunnan Science & Technology Centre (YSTC), Hunan Fisheries Science Research Institute (HFSRI), Yangtze River Fisheries Research Institute (YRFRI)
Project Leader	Andrew Cunningham
Report date and number (eg HYR3)	October 1st 2014, HYR 3
Project website	www.chinesegiantsalamanders.org

1. Outline progress over the last 6 months (April – Sept) 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 to end September).

- **Project management, monitoring and development activities**
- The 3rd annual workshop of the project partner institutions was held in Guiyang University, 8th – 9th May 2014. This meeting provided an opportunity for all the project staff from across China to review the work progress to date, provide feedback, guidance, monitoring and oversight of this wide-ranging project and jointly set the project direction in 2014 and 2015.
- Following the project partner meeting, a second annual training workshop in CGS field survey methods was held over two weeks at Fanjingshan National Nature Reserve (FNNR, Guizhou Province), May 2014, to train new project collaborators in standardised protocols. Strong networks and project relationships within China for the *in situ* conservation of the CGS in more range provinces have been further cultivated and developed, with Guangxi Teachers Education University (GTEU) (survey and monitoring in Guangxi and Guangdong Province) being added to the collaborative network for this project. An MoU between ZSL and GTEU is currently under consideration.
- Meetings were held, and close liaison was further developed with key governmental organisations, including FNNR, Zhangjiajie National CGS Nature Reserve (Hunan Province) and Guangxi Fisheries Management Bureau (Guangxi Province). This included the visit of a delegation from the Guangxi Fisheries Management Bureau to ZSL, London, where the project was discussed in more detail.
- A meeting was held with the 1st Secretary, Science & Technology, Chinese Embassy, London to discuss the project. This will hopefully lead to the project being officially endorsed by the central government in China.
- The Darwin Initiative grant was used to leverage further monies for CGS conservation. ZSL received a grant of HK\$ entitled “Determining the status and distribution of the Critically Endangered Chinese Giant Salamander” from the Ocean Park Conservation Foundation, Hong Kong. This grant will support CGS field surveys in the Southern China provinces, 2014 to 2015.

- Three scientific papers directly resulting from this project have been accepted by peer-reviewed journals:

Tapley, B., Okada, S., Redbond, J., Turvey, S.T., Chen, S., Lü, J., Wei, G., Wu, M., Pan, Y., Niu, K. & Cunningham, A.A. Failure to detect the Chinese giant salamander (*Andrias davidianus*) in Fanjingshan National Nature Reserve, Guizhou Province, China. *Salamandra in press*.

Pan, Y., Wei, G., Cunningham, A. A.* , Li, S., Shu, C., Milner-Gulland, E. J. & Turvey, S. T. Using local ecological knowledge to assess the status of the Chinese giant salamander (*Andrias davidianus*) in Guizhou Province, China. *Oryx*. In press.

Cunningham, A. A., Turvey, S. T., Zhou, F., Meredith, H., Guan, W., Liu, X., Sun, C., Wang, Z. & Wu, M. The development of the Chinese giant salamander (*Andrias davidianus*) farming industry in Shaanxi Province, China: conservation threats and opportunities. *Oryx*. In press.
- **Evidence-base on CGS distribution, population status, ecology & conservation requirements strengthened and disseminated**
- With the expansion of the CGS survey from the regional scale to the national scale, the refresher survey training for established collaborators and initial training of new collaborators was conducted in FNNR in May 2014, following the protocols developed at the 2013 International CGS Conservation Field Training Workshop (ICGSCFTW). This has ensured that standardised protocols (i.e. visual encounter surveys, trapping surveys, villager questionnaire surveys and farm surveys) are followed by each survey team across China, thus enabling comparable results to be collected. Also, repeated annual surveys at selected river transects in FNNR has allowed collection of continuous data over time to facilitate long-term CGS monitoring in this UNESCO World Biosphere Reserve.
- Standardised surveys were conducted by five field teams in Mabian, Hongya, Emeishan, Pingshan, Xingwen, Heijiang, Baoxing, Ningnan, Nanping and Nanjiang counties in Sichuan Province; Macheng, Badong, Baokang and Danjiangkou counties in Hubei Province; Jiangkou, Kaili, Taijiag, Leishan, Jianghe, Tianzhu, Cengong, Majiang, Danzhai, Huangping, Shibing, Liping, Jinping and Sansui counties in Guizhou Province, Tonggu and Jing'an counties in Jiangxi Province; Chengkou, Pengshui and Wushan counties in Chongqing Municipality; Qimen, Xiuning, Yixian, Huoshan, Jingde and Jixi counties in Anhui Province; Zhangjiajie county in Hunan Province, and Anxian county in Henan Province. The sites surveyed are listed in the 100 study sites selected at the ICGSCFTW. In addition to conducting surveys for wild CGS at these sites, habitat was measured and environmental parameters collected to facilitate the establishment of long-term *in situ* conservation & monitoring sites. Also, CGS farms local to each survey site were visited to conduct farm questionnaire surveys & to collect CGS samples for genetic and pathogen analyses. During the 2014 surveys, one wild CGS was found in FNNR in Jiangkou county, Guizhou Province and one was found in Guangwushan Protected Area in Nanjiang county, Sichuan Province. In both cases, the wild CGS were caught using the trapping survey method, although the latter was caught with additional trapping hours beyond the standard trapping protocol. Each wild CGS caught was measured for morphometric data, swabbed for genetic and pathogen analysis, microchipped and then released at the capture site.
- **Range-wide population genetics & phylogeography of CGS resolved to safeguard maximum genetic diversity of this species**
- Genetic samples of wild-caught & farmed CGS were collected from Shaanxi, Sichuan, Hunan, Henan, Anhui, Hubei, Jiangxi and Guizhou Provinces and from Chongqing Municipality during the 2014 national survey, greatly enhancing the genetic database at KIZ.
- Protocols for population genetics analysis of CGS were optimised at KIZ (including development of microsatellites), and buccal swabs collected during the national survey

were processed (on-going).

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

- Farm surveys were conducted, along with the wild CGS national surveys, to understand the history, husbandry and disease status of farmed CGS and the potential threats the farming industry might pose to wild populations. To ensure standardisation, the survey teams were trained to undertake swabbing on farmed CGS using a standardised protocol during the May 2014 field training at FNNR. In addition to taking samples, data were collected using standardised farm questionnaire surveys to help inform the development of recommendations for the sustainable management of this species in China.
- Skin and cloacal swabs from living animals were collected across 8 provinces and Chongqing Municipality for the investigation of selected amphibian pathogens (i.e. ranavirus, *Batrachochytrium dendrobatidis*, *Batrachochytrium salamandrivorans* and *Mycobacterium* spp., on-going).
- Further diagnostic work on CGS that have died on farms has been undertaken to further understand what infectious diseases are present in farms and the relative importance of these to the farming industry. This has included the successful culture at Shaanxi Normal University of ranavirus and of *Mycobacterium* sp. from diseased farmed CGS.

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

- The first CGS conservation breeding planning key stakeholder meeting “Building China’s 1st Conservation Breeding and Education Centre for the Chinese Giant Salamander in Fanjingshan” was successfully held in FNNR, 13th -14th May, 2014. This meeting, unprecedentedly, brought together 40 representatives from different government bodies (Protected Areas, Guizhou Fisheries Bureau, Forestry Bureau, Science and Technology Association), academic institutes and local farms to discuss the future for both wild CGS population recovery in FNNR and the sustainable farming of the species in Guizhou Province. Partnerships were developed among key stakeholders at the meeting, and all stakeholders have shown a strong willingness and motivation to support the construction of this facility. Potential sites for the facility were visited by key experts and a MoU is now being drafted between ZSL and the FNNR Administration regarding 1) the building of the CGS conservation breeding and education facility in FNNR, 2) conducting longitudinal surveys & monitoring of wild CGS in FNNR, and 3) developing a CGS reintroduction programme in FNNR and 4) developing additional species (e.g. Critically Endangered Chinese pangolin) conservation efforts within and around FNNR.

The Guizhou Provincial Fisheries Management Bureau and Beijing Municipal Bureau of Agriculture posted an official blog about this meeting, at

http://www.gagri.gov.cn/Html/2014_05_19/2_47104_2014_05_19_107068.html and <http://www.bjny.gov.cn/nyj/231595/618526/619059/5463822/index.html>, respectively.

- A grant proposal entitled “Building the 1st conservation breeding and educational centre in Fanjingshan National Nature Reserve” was submitted to FNNR and Guizhou Environmental Bureau, where it is currently under consideration.

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

- More CEPA materials were designed and produced to raise the conservation profile of CGS, including a CGS cartoon educational video (available at <https://www.youtube.com/watch?v=dqYqem9xhQU&feature=share>). A book chapter entitled “Amphibian Conservation in Fanjingshan”— which used CGS as the flagship species — was written by ZSL for the FNNR Biodiversity Children’s Book (50,000 book will

be published, co-funded by FNNR administration and the British Consulate, Chongqing).

- Facilitated by ZSL, CEPA campaigns were continually conducted by Yunnan Science and Technology Centre to publicise CGS conservation needs in Yunnan Province. New CEPA partnerships were established with the Zoology Museum of KIZ, Zhangjiajie National CGS Nature Reserve, Hunan Province and Guangxi Provincial Natural History Museum (GPNHM). In particular, a one-month intensive CGS conservation public outreach campaign, funded by GPNHM in Guangxi Province, will take place in October 2014.
- To genuinely involve local people and to raise awareness of *in situ* CGS conservation at the regional scale where wild CGS are still extant, we conducted a series of CEPA campaigns called “Go for CGS /Go for You” with FNNR. Rural primary schools, local university students & volunteers, FNNR Administration, the Fisheries Management Bureau, tourists and local villagers were involved in these campaigns, including the City Mayor of Tongren (the closest city to FNNR). A documentary film “Go for Salamander” was produced (available at <https://www.youtube.com/watch?v=P1AeE3yDE-E&feature=share>).
- A Facebook project page (A sustainable future for Chinese giant salamanders) was set up to communicate project results and activities and to improve public outreach out with China. Within China (where Facebook is not available), a Weibo social media site (Chinese giant salamander Nini) was established for similar aims within China.
 - **Development of a global network that seeks to conserve giant salamanders nationally & internationally**
- A presentation entitled “Use of art & design in conserving the Chinese giant salamander” was given to the Yunnan Arts University, April 2014, to motivate, inspire and engage more volunteers in CGS CEPA campaigns by producing CGS art & designs.
- A scientific presentation entitled “A sustainable future for Chinese giant salamanders” was given at the 3rd Asia Regional Conference of the Society for Conservation Biology, 19th - 22nd August, 2014, Melaka, Malaysia. Also at this conference, the documentary film of our project “Giants on the EDGE” was played to further raise the conservation awareness of CGS internationally.

2a. 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 and initiation of the CGS releasing programme have been delayed due to the relocation of the Shaanxi Wild Animal Rescue and Research Centre (SWARRC) to a new site. However, a successful CGS conservation breeding planning workshop at FNNR and the partnership established with key governmental bodies in Guizhou Province looks set to take this forward into the future.

Over the past 24 months, with funding from Darwin Initiative for the Survival of Species, we have brought together a multi-institutional team from within and outside China to conduct this collaborative research and have developed standardised protocols and a strategic conservation plan for this species. Only three wild CGS were found so far, and there is an urgent need to conduct survey work in a larger scale to genuinely determine the current status, threats and population dynamics overtime of the CGS. However, due to the delay of this project at the beginning, the expansion of surveys from the regional to the national scale, the restrictions on survey season (CGS are only active and detectable from May-October) and problems with unusually wet weather in 2014 leading to us having to abandon several survey sites due to flooding and dangerously high river levels, we were unable to complete our CGS national survey during the planned project period. As such, we wish to apply for one-year no-cost extension of this project in order to enable our national survey (including subsequent sample and questionnaire analyses) to be completed. This will enable our Darwin project to deliver wider conservation impacts within China.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS: **Yes**

Formal change request submitted: **Yes**

Received confirmation of change acceptance **Yes**

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

Yes No Estimated underspend: £

3b. If yes, then you need to consider your project budget needs carefully as it is unlikely that any requests to carry forward funds will be approved this year. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project and would like to talk to someone about the options available this year, please indicate below when you think you might be in a position to do this and what the reasons might be:

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.