



Submit by 21 January 2005

## DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 13 COMPETITION:STAGE 2

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

### 1. Name and address of organisation

<b>Name:</b> Professor Gareth Jones	<b>Address:</b> School of Biological Sciences, University of Bristol, Woodland Road, Bristol BS8 1UG
-------------------------------------	--

### 2. Project title (not exceeding 10 words)

The Darwin Initiative Centre for Bat Conservation in southern China
---

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

<b>Proposed start date:</b> July 1 2005		<b>Duration of project:</b> 3 years			
<b>Darwin funding requested</b>	<b>Total</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>
	£ 112,000	£ 61, 533	£ 24,366	£ 22,868	£3,233

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

To establish a unit for research and for the promotion of bat conservation in southern China (The Darwin Initiative Centre for Bat Conservation). To train 2 Chinese PhD students in the conservation biology of bats, to produce a key and a web-based identification guide to Chinese bats, and to promote public awareness of bat conservation by training school teachers and pupils about the importance of bats.
--

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

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner or co-ordinator in host country
<b>Surname</b>	Jones		Zhang
<b>Forename (s)</b>	Gareth		Shuyi
<b>Post held</b>	Professor of Biological Sciences		Research Professor, Institute of Zoology (Beijing), Senior Research Professor, Guangzhou Institute of Biomedicine and Health.
<b>Institution</b>	University of Bristol		Chinese Academy of Sciences
<b>Department</b>	School of Biological Sciences		Institute of Zoology
<b>Telephone</b>			
<b>Fax</b>			
<b>Email</b>			

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

No

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

**Aims (50 words)** The Bat Ecology Laboratory, University of Bristol aims to: undertake research of international quality on conservation biology, molecular ecology and bioacoustics; to disseminate findings by publication in peer-reviewed journals, at international conferences, and through websites for the public understanding of science; to train scientists in research and in conservation biology.

**Activities (50 words)** Research on conservation biology, echolocation, insectivorous mammals as bioindicators of habitat quality. Recent collaborations with studies in Italy, India, China, and Malaysia, laboratories in the USA, Canada, Israel, Sweden, Germany, and New Zealand. Hosting a lab with world-class facilities for acoustic identification of bats, and for studies on bat ecology.

**Achievements (50 words)** Research grants >£1.7 million since 1989. Publication of 118 refereed papers, including 3 in *Nature*. Training of 25 PhD students, 10 postdocs. Discovery of several new bat species. Research used in government conservation schemes (Countryside Stewardship Scheme for conservation of greater horseshoe bats). Website on biosonar developed for public understanding of science ([www.biosonar.bris.ac.uk](http://www.biosonar.bris.ac.uk)).

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

The Chinese partner in this venture is Professor Shuyi Zhang of the Chinese Academy of Sciences (CAS), Beijing and the Guangzhou Institute of Biomedicine and Health. I have collaborated with Professor Zhang for four years, beginning with a grant from the Royal Society, matched by the Chinese Academy of Sciences, to study echolocation and biodiversity in Chinese bats. Although this was a small grant (ca. £20K over 3 years), it has already produced 2 co-authored papers in scientific journals (*Journal of Zoology*, *Journal of Mammalogy*), with another 2 papers submitted. Our research was also featured on 2 documentaries produced by China Central Television (CCTV). Professor Zhang has been involved in all aspects of the development of this proposal to date. Professor Zhang is the leading authority on bat biology in China, and runs a large research group. He has been involved in the building of a new research unit for bat research near Beijing, and the planning and costing of that project has been the template for the current venture. Pictures of the development of the Beijing site are attached with the written evidence of partnership from Professor Zhang. The Beijing building was opened formally in 2004, and was featured on the main news channel of CCTV for 5 minutes. Professor Zhang will oversee the planning and development of the Darwin Initiative Centre for Bat Conservation, which will be located near Guangzhou in southern China. Professor Zhang will lead all negotiations with local governments about the development, as he did in Beijing. Professor Zhang will be responsible for providing joint funding for the building of the centre through grants he holds from CAS, MOST (Ministry of Science and Technology) and NSFC (National Science Foundation of China). He is also an adviser to the Chinese Association for Science and Technology (CAST), which promotes science education in schools. Professor Zhang will co-ordinate workshops for schoolteachers under the CAST programme so that the teachers can include material on bat conservation in middle school classes. Professor Zhang will also co-ordinate running the centre in China and direct a full-time staff member in running the centre. He will collaborate with Professor Jones in writing and developing educational material at the centre, and in supervising the 2 Chinese PhD students involved. The 2 Chinese PhD students will train Chinese undergraduates, so that they can give outreach presentations in schools. Professor Zhang has influential links with CCTV, and will negotiate with them to produce a documentary about the Centre. Professor Zhang's involvement in this project is crucial and because his position is secure, we see no reason to expect problems associated with staff changes.

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

Our proposal has the full support of the Guangdong Wildlife Conservation Association (GWCA - see attached documentation). The GWCA has offered assistance in finding a site for the Centre. The GWCA is the official organization responsible for wildlife protection in Guangdong province.

## PROJECT DETAILS

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

This is a new project though the Royal Society and Chinese Academy of Sciences have funded an earlier study by Jones & Zhang on the biodiversity and identification of Chinese bats. That study provided the necessary background to develop our identification keys and website about bats in China. We are aware of no similar projects.

**11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD thematic programmes and/or cross-cutting themes (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.**

The project is especially relevant to CBD Articles 5 (5%), 7 (20%), 8 (5%), 12 (30%), 13 (30%), and 18 (10%). Our aim is to leave a legacy in the form of the Darwin Initiative Centre for Bat Conservation that can continue to operate after completion of this project. Professor Zhang will continue to support the centre with the future research grants from CAS, MOST and NSFC. If the centre is successful during the first three years, Professor Zhang will apply for additional financial support from Guangdong provincial government to continue running the Darwin centre. Professor Zhang works in the same Institution as Dr. Da-Wei Huang, who is one of the focal point contacts for the CBD in China (Global Taxonomy Initiative Coordination Mechanism contact). Liaison can therefore be established easily.

The Chinese government attaches high importance to the bilateral, multilateral and non-governmental cooperation in the field of biological diversity conservation (China's Second National Report on Implementation of the CBD: Article 5 - Cooperation). Article 18 – Technical and Scientific Cooperation – is also accorded high priority in the Report. The same report recognizes that China is a country rich in biological diversity, though suffering extreme ecological degradation. The importance of international cooperation and funding in addressing the need for effective conservation is recognised in the Report. The Report also states 'although China has done some work on the investigation and monitoring on biological diversity and made some progress, there is still large gap from the requirement of the Convention'. Our proposal will help fill this gap. China also recognizes Article 13 – public education and awareness – as being of high priority, and currently experiences severe resource limitations in meeting these needs through national funding programmes.

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

The diversity of bats in China is poorly understood. With 120 species listed to date, China has one of the most speciose bat faunas worldwide. However the validity and taxonomy of many of the described species is open to question, and a more in depth study of their taxonomy is needed. Despite their rich faunal diversity, bats in China are threatened due to extreme human pressure – through habitat loss, cave disturbance and human consumption. There is a clear need for education programmes to disseminate information about the ecological importance of bats, and to increase their protection. A Red Data book of the Endemic Mammals of China listed 6 microchiropteran bats as Rare, Vulnerable or Indeterminate (Wang, 1988 – *China Red data Book of Endangered Animals: Mammalia* Science Press, Beijing), and in reality accurate information on population levels of any species is lacking. Our project will assist in the conservation of these Red Data species, and will provide baseline data for future surveys to detect trends in population size. Needs directly identified by the CBC are already highlighted in Box 11.

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

China's Second National Report on Implementation of the CBD recognises that 'The conservation and sustainable use of biological diversity are beneficial to the sustainable development of the national economy and for increasing the living standard of the people' (Article 6).

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

*Impact* - we will: establish a base for education and research about bats in southern China.  
Provide education to at least 50 schools via training programmes for schoolteachers.  
Produce a key (with an online version) for Chinese bats, including details of echolocation calls and DNA sequences.

Train 2 Chinese PhD students in the conservation biology of bats, including 9 months training at the University of Bristol.

Produce baseline population estimates for bat populations for at least 50 sites.

*Dissemination* – We will: participate in a TV documentary for CCTV about our initiative, develop a website about the Darwin Initiative Centre for Bat Conservation. We also intend to continue publishing scientific papers about our work on bat biodiversity in China.

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

The Darwin Initiative Centre for Bat Conservation will continue to function after the three years of funding requested here are completed. We anticipate that younger generations of people in southern China will continue to appreciate the conservation value of bats, and that the message will spread beyond the people who attend the Centre itself.

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

Transfer of skills is inherent in the proposed programme. By the end of the funding period we will have in place a centre for bat conservation, and a trained staff member to run it. Resources and equipment will remain in China for continued use after Darwin funding ends. We will spend considerable time in the final year of the project lobbying local and provincial government officials to continue running the Centre, which we see as having relatively low costs and large benefits for schools. Professor Zhang will provide some funding for continuation of the Centre.

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

The site will be named 'The Darwin Initiative Centre for Bat Conservation', and the Darwin Initiative logo can be used on the building, in all educational material developed, and on the website describing the site's activities.

**18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?**

We will train 2 Chinese PhD students as part of this project. These will be selected by criteria currently in place at CAS, including the passing of entrance exams to gauge suitability for graduate study. One student will produce a thesis on the phylogeny, nomenclature and taxonomy of Chinese bats. A website will include photographs, recordings of echolocation calls, and DNA sequences from bats to facilitate identification, and to reduce the need to take voucher specimens. The second student will conduct surveys of cave sites to produce baseline estimates of bat populations against which future population trends can be monitored. The PhD students will train Chinese undergraduates, so that they can give outreach presentations in schools. Each student will receive training at the University of Bristol for 2 months/year. The effectiveness of the training will be judged by the students obtaining PhD degrees, subject to the necessary quality controls. Professor Zhang will train a full-time staff member in running the centre.

## LOGICAL FRAMEWORK

19. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p><b>Goal:</b>  <b>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</b></p> <ul style="list-style-type: none"> <li>• <b>the conservation of biological diversity,</b></li> <li>• <b>the sustainable use of its components, and</b></li> <li>• <b>the fair and equitable sharing of benefits arising out of the utilisation of genetic resources</b></li> </ul>			
<p><b>Purpose</b></p> <p>Promotion of bat conservation in southern China by establishment of a bat conservation centre in Guangdong. From the centre we will increase public awareness about bat conservation, improve identification of Chinese bats, and establish baseline data to assess population changes in Chinese bat populations.</p>	<p>Completion of Darwin Initiative Centre for Bat Conservation by yr 1.</p> <p>Education dissemination strategy implemented by year 1.</p> <p>Education material disseminated by yr 3.</p> <p>Bat identification key completed by yr 3.</p> <p>Baseline data on bat populations in cave sites.</p>	<p>Opening ceremony involving Chinese co-funders.</p> <p>Biannual meetings of project partners and all participants, including Chinese co-funders.</p>	<p>Chinese funding partners remain committed.</p>
<p><b>Outputs</b></p> <p>Foundation and running of Darwin Initiative Centre for Bat Conservation.</p> <p>Identification key for Chinese bats (Chinese and English versions): online version to include echolocation calls and DNA sequences.</p> <p>Baseline data on population sizes of cave-dwelling bats.</p> <p>Education packages for teachers and</p>	<p>Building completed, staffed, displays and education material developed.</p> <p>Key published in a peer-reviewed journal. Online version accessible. One PhD student trained.</p> <p>Population estimates published in scientific journal. One PhD student trained.</p> <p>Visits to Centre by teachers and classes.</p>	<p>Biannual meetings of project partners and all participants.</p> <p>Publication after peer review, PhD student examined. Access statistics to website. Publications lodged with Darwin Initiative.</p> <p>Publication after peer review, PhD student examined. Publications lodged with Darwin Initiative.</p> <p>Questionnaires about attitudes of children to</p>	<p>Students of sufficient calibre located. Publications subject to peer review.</p>

<p>children.</p>	<p>Estimated 50 school visits by yr 3, and 'pyramid' teaching by educating teachers and allowing PhD students to train undergraduates, who will then visit schools.</p>	<p>bats before and after education programmes.</p>	
<p>Lessons learned and best practices disseminated</p>	<p>CCTV documentary broadcast by yr 3. Radio broadcasts, articles (3+) in popular science magazines (e.g. National Geographic China).</p>	<p>Viewing, circulation statistics.</p>	

Activities	Activity Milestones (Summary of Project Implementation Timetable)
Building and operation of Darwin Initiative Centre for Bat Conservation.	Meeting of partners July 2005, biannually thereafter. Estimated 4 months preparation for building, 2 months building (based on a bat research centre developed by Professor Zhang in northern China). Should be completed and open by January 2006. Full time staff member in position January 2006: position to be funded by Chinese collaborators after end of project. Responsibility – development of education material, maintenance of displays, co-ordination of school visits.
Education	Material developed by PhD students, staff member at centre under direction of Professors Jones and Zhang. PhD students teach undergraduates to run bat courses. Professor Zhang co-ordinates CAST meetings for schoolteachers from March 2006. Aim to involve at least 50 schools during the project. Pre- and post-education questionnaires circulated to schools in January 2006 and 2008 to assess if education campaigns have changed attitudes.
Production of identification guide	Responsibility of PhD student 1. PhD thesis on identification, taxonomy and distribution of Chinese bats. Continuous accumulation of echolocation call recordings, digital images for online version. Publication of key and full online version by May 2008.
Baseline population estimates	Responsibility of PhD student 2. PhD thesis on diversity and population estimates of cave-dwelling bats. Estimates completed by January 2008 when material submitted for publication and lodged as database on computer at centre.
Publicity	CCTV documentary in 2007. Popular science articles 2007, 2008.

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

Project implementation timetable		
Date	Financial year	Key milestones
	Apr-Mar 2005/6	Planning and development of building (-September 05). Building work completed within 6 months (March 06). Formal opening of the Darwin Initiative Centre for Bat Conservation (March/April 06). Enrol 2 PhD students, begin research projects (July 05). Employ staff member to run the Centre and develop material for it (July 05). Develop education material and displays for Centre.
	Apr-Mar 2006/7	Begin intensive education programmes for school children and local communities. Ongoing research onto population estimates of bats and bat taxonomy.
	Apr-Mar 2007/8	PhD students submit their theses (June 08). CCTV programme

		of the Centre, continuing education programme, write papers on research, and seek funding for continued running of the Centre from provincial and local governments.
--	--	--

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

<b>PROJECT OUTPUTS</b>		
<b>Year/Month</b>	<b>Standard output number (see standard output list)</b>	<b>Description (include numbers of people involved, publications produced, days/weeks etc.)</b>
June 2008	1A,B	2 Chinese students.
2006,2007	4A	10-20 Chinese undergraduates will be trained, partly by the PhD students, for 1-2 days each so they can lead workshops with schoolchildren about bat conservation.
2005-2008	7	Leaflets about bat conservation, and a website about the role of the Darwin Initiative Centre for Bat Conservation will be produced.
2005-2008	8	6 weeks maximum will be spent in China by GJ.
2008	10	An identification guide to Chinese bats will be produced by one of the PhD students. This is likely to be accessible as an online pdf document.
2008	11A,B	We anticipate publication of at least 3 papers in peer reviewed journals.
2005-2008	14B	Project participants will attend at least one national or international conference annually to disseminate news about the Centre.
2006	15	We anticipate making press releases in China, and probably the UK, when the Centre is opened.
2008	18A	We will participate in at least one TV documentary produced by CCTV.
2008	21	The Darwin Initiative Centre for Bat Conservation will be run from within China after the end of Darwin funding.
2005	23	The Chinese Academy of Sciences will contribute the equivalent of £30,000 to the building of the Centre through Professor Zhang.

**MONITORING AND EVALUATION**

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



Progress will be monitored via biannual meetings of Professors Jones & Zhang (one meeting in China, one in the UK). We will initially (summer 2005) develop an education dissemination strategy to draw up plans of material to be produced. Inauguration of the Centre will occur with a formal ceremony involving representatives from provincial government, local universities and schools, and national conservation bodies in Spring 2006. Success of purpose will be evaluated and monitored by questionnaires issued to children to measure how children view bats before and after education programmes. Indicators completed in the final year include examination of 2 PhD theses, a TV documentary and publication of a multimedia identification key. PhD students and the staff member will hold progress meetings with Professor Zhang monthly, and with Professor Jones biannually to plan for 6-month work programmes. We will set targets of number of classroom visits to be made to the Centre in each 6 month block, and ensure that the Centre staff member achieves these targets.