



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

Name: University of Aberdeen (UA)	Address: School of Biological Sciences, University of Aberdeen, Aberdeen. AB24 2TZ
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2. Project title (not exceeding 10 words)

Conserving the Southeast Asian Guano Bat - Sustaining Livelihoods Across Borders.

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

Proposed start date: 01/06/05		Duration of project: 3 Years			
Darwin funding requested	Total	2005/06	2006/07	2007/08	2008/09
	£142k	£50k	£44k	£40k	£8k

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

Build capacity throughout Southeast Asia to ensure the long-term protection of *Tadarida plicata* and the sustainable livelihoods it can provide by implementing a trans-boundary monitoring scheme and initiating a conservation stewardship and awareness programme. Research will identify best practice guidelines for guano collection and eco-tourism as well as quantifying the ecosystem services provided, by this bioindicator species, through agricultural pest control. Video pledges of village stewardship will raise awareness at grassroots level and consolidate a protective roost network throughout SE Asia, additionally inclusion in the Convention on Migratory Species will increase *T. plicata*'s international profile and contribute to governmental CBD requirements.

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
Surname	Mackie	Russ	1. Bumrungsri 2. Nwe
Forename (s)	Iain	Jonathon	1. Sara 2. Tin
Post held	Research Fellow	Postdoctoral RA	1. Lecturer 2. Head of Department
Institution	University of Aberdeen	University of Aberdeen	1.Prince of Songla Uni. 2.Yangon University
Department	Zoology	Zoology	1.Biology 2.Zoology
Telephone			
Fax			
Email			

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

13001 Conservation of wetlands and associated biodiversity in Northern Zambia
10024 Conservation and management of Malagasay Microchiroptera and their habitats
7027 The role of fruit bats in maintaining biodiversity in Madagascar
3056 Ghanaian Rheophytes Project

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)

Activities (50 words)

Achievements (50 words)

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.

Dr S. Bumrungsri: Met the proposed project leader while studying for his PhD at UA. His research is concerned with demonstrating the economic importance of bats in Thailand including the diet of *Tadarida plicata* and its role as a consumer of agricultural pests. He has visited roosts with the project leader and consulted at length on the need for this project and assistance in training Thai nationals for this purpose. He will oversee the project in Thailand and communicate with government departments and the Thai CBD focal point particularly with respect to the CMS.

Prof. Daw Tin Nwe: Head of Zoology, Myanmar. Consulted at length on the need for this project in Myanmar where large-scale migration of *T. plicata*, its economic importance and threats to its populations are in urgent need of investigation. Will oversee the project in Myanmar and communicate with government departments and the Myanmar CBD focal point particularly with respect to the CMS.

Mr J. Walston: Country Programme Director, WCS Cambodia. Managed public awareness of large colony of *T. plicata* in Phnom Penh and will liase with relevant government departments.

Dr Vu The Long: Anthropologist, The Vietnamese Academy of Social Sciences. Identified *T. plicata* colonies in southern Vietnam and approached proposed Project leader for future collaboration, assistance and training.

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.

At the local level extensive consultation has taken place in Thailand and Myanmar where Buddhist monks and guano collectors have expressed a need for information on the effects of disturbance on colony size. At some roosts where daily numbers seem stable, guano is collected weekly and the bats are not disturbed when breeding; at others collection is less controlled as many villagers collect guano on a daily basis and the numbers of bats seem highly variable. At most sites in Myanmar villagers suggested they would be amenable to joining a stewardship network and that they would follow best practice guidelines specifically if we could demonstrate that an increase in colony population size may be expected from a decrease in either the frequency or intensity of disturbance. Government contact has been established in Thailand, Myanmar and Cambodia. In Thailand the Wildlife Research Section have confirmed their support for this project and are particularly interested in the economic impact of *Tadarida plicata* as a consumer of insect pests of paddy. Government contact in Myanmar was established by the proposed project leader while working on a conservation project for karst dependent bats. In Cambodia the governments Wildlife Protection Office has expressed support for this project should it go ahead.

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.

The need for this project was identified during an existing Darwin project Ref. 11019 Biodiversity assessment of limestone karst dependent bats in Myanmar, Burma. As a part-time Darwin fellow (with the Harrison Institute HI) the Project Leader supervised a Myanmar PhD study of the ecology of *T. plicata* in Myanmar. This PhD study mapped the distribution and life-cycle of this species in Myanmar and identified a critical lack of knowledge in population monitoring and management skills. This study, and collaboration with other SE Asian partners, provides a platform for both our unique understanding of the urgent requirements needed to sustain the livelihoods *T. plicata* provides and our unique position to respond to these requirements. This project is both complimentary to and distinct from the primarily taxonomic/distributional work of the HI on SE Asia bats. Collaboration through existing WCS links will prevent survey/research duplication.

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.

Through building capacity of in-country scientists, host countries will acquire the skills necessary for monitoring (Article 7, 20%) and general conservation (Article 6+8, 10%) of their own biodiversity resources. Skills transfer will be primarily through field research and training (Article 12, 20%) with the results of this research being directly relevant to the sustainable use of components of biological diversity (Article 10, 20%) and the outputs, best practice guidelines and video pledges, raise public awareness (Article 13, 10%). Main in-country partners have established contact with CBD focal points and the relationship with other international conventions should be established through inclusion in the Convention on the Conservation of Migratory Species of Wild Animals (Article 22, 10%). Principle cross-cutting theme relevant is Sustainable Use and Biodiversity.

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.

This project relates directly to the Thai government's "Policy and Prospective Plan for Enhancement and Conservation of National Environmental Quality" (which functions as a NBS, summary in English http://www.onep.go.th/eng/policy_1.asp) and is particularly relevant to Objectives 4.1-4.3, Goals 5.1.2(3), 5.3-5.4 and Policy on Natural Resources 6.1.3, 6.1.5, 6.1.6, 6.3-6.4. It directly meets Objectives E and D of the Protection of Wildlife and Wild Plants and Conservation of Natural Areas Law 1994 (Myanmar) and relates directly to The National Action Plan for Myanmar Bats (in prep.). And relates to the Biodiversity Action Plan for Vietnam (1994).

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

Economic returns from guano sales provide a much-needed income for impoverished rural communities across SE Asia (an estimated 400 villagers, at known roosts, directly support their families on this income) but are threatened by pressures such as caving, tourism, mining and harvesting. Through monitoring and research this work will maximise the economic potential of this species by providing best practice guidelines for guano collection and colony management where the trade-off between disturbance and population size is modelled. This best practice will be cemented by a stewardship network giving villagers control of their livelihoods and provide an early warning system for possible conflicts (e.g. mining, harvesting) and population declines. Opportunities to maximise and diversify sustainable economic returns such as responsible eco-tourism will be identified. A network of specialists in monitoring wildlife populations will be established across SE Asia.

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.

The work will provide authoritative management guidelines that will provide villagers with the knowledge needed to collect guano with the minimum disruption to the bats while maximising returns. It will provide guidelines for sustainable eco-tourism. These outputs will be disseminated through the colony network developed during the project and cemented by video pledges and local press releases. The network will also establish a mechanism to seek assistance if colonies come under threat. Quantifying the ecological services of insect pest control, by estimating the amount and type of insects eaten and their effect on agricultural crops (published in international journals) will encourage government-backed conservation. The development of a Species Action Plan and inclusion in the CMS will raise the national and international profile of not only this species, but also bat conservation in this region. Finally, the development of a formal network of ecological bat specialists will provide a platform for obtaining grants for future conservation projects in the region.

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

- Sustaining the livelihoods of rural peoples will provide a lasting legacy.
- A formal network of bat specialists across the region will provide a platform for obtaining future conservation funding.
- Key personnel in universities throughout the region training others in conservation.
- Development of inter-governmental nature conservation in the region through CMS.

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.

The exit strategy for this project involves identifying, training and establishing key personnel that can take bat/nature conservation in the region forward over the next decade and raising the international profile of bats in the region, and hence their attractiveness for future funding, through inclusion of *T. plicata* in the CMS. Key personnel identified through Darwin traineeship will be selected for EU Asia link sponsorship which funds university exchanges to develop curricula and PhD study and will continue after the life of the project. Risk of potential problems is spread through the established diverse network of partners. The Project Leader has established links with several universities in each main partner country, which will function as a back up in the unlikely event of links terminating between host institutions. Potential problems with inclusion in the CMS and future agreements are harder to anticipate however, again government links have been established in host countries and advice on inclusion is being provided by Mr A. Hutson the CMS's commissioned IUCN bat contact.

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

Darwin will be advertised on a dedicated web site hosted by the University of Aberdeen. The logo will appear on all best practice guidelines, posters and presentations. At grassroots level the logo will appear on the project vehicle and equipment, at all cave sites and on all stewardship pledges.

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?

The project will contain a large component of training and development central to its legacy and exit strategy. University staff and students from host countries will be registered for higher degrees and trained in ecological methods through research designed to address the urgent needs during field visits, workshops and short courses. Distance learning will be used when needed. Funds will be targeted to maximise number of individuals and level of training depending on personnel available and academic structure of individual countries. The project leader developed a flexible system in Myanmar where workshops and field visits identified suitable trainees, which were cherry picked for long-term research. University staff will be targeted for long-term training to maximise legacy through skills transfer. Several suitable trainees have been identified and others are currently being sought in partner countries.

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>Goal: 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"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
<p>Purpose The Southeast Asian guano bat and the sustainable livelihoods it provides protected through a trans-boundary network of researchers, local guano collectors and international treaty (CMS).</p>	<p>Population monitoring system for major roosts functioning by year 3.</p> <p>Research quantifying effects of disturbance and economic benefit of insect pest control</p> <p>Effective best practice management and implementation of village stewardship agreements by year 3.</p> <p><i>Tadarida plicata</i> scheduled for inclusion, in Appendix II of the CMS by year 3.</p>	<p>Population estimates, methods for monitoring <i>T. plicata</i>, and research results published in peer-reviewed journals.</p> <p>Reports and video pledges of village stewardship agreements by partner organisations and in country NGO's.</p> <p>CMS Appendix II.</p>	<p>The bats can be reliably counted.</p> <p>Disturbance effects can be quantified. Insect pest species are consumed and their economic impact can be quantified.</p> <p>Local villagers are amenable to stewardship.</p> <p>Governments remain supportive of the project.</p> <p><i>Tadarida plicata</i> is a migratory species.</p>
<p>Outputs Repeatable accurate population estimates obtained for major colonies in all countries by in-country biologists.</p>	<p>4 core staff in Thailand and Myanmar and at least 2 core staff in other host countries trained to monitor major colonies and quantify economic benefits.</p>	<p>Monitoring database</p> <p>Field reports</p> <p>Publications</p> <p>Species Action Plan</p>	<p>Trainees are not transferred to different institutions. Suitable individuals can be found in all countries.</p>
<p>Village Stewardship Agreements in place and functioning</p>	<p>Strategy developed by villages around 10 key roosts in conjunction with Darwin Trainees</p>	<p>Reports, video pledges from village meetings</p>	<p>Villagers are willing to participate</p>
<p>Training of 12 Darwin trainees</p>	<p>12 members trained and able to carry out all aspects of the project by Yr3.</p>	<p>Outputs from monitoring:- database, guidelines and publications</p>	<p>Trainees are not transferred or cannot attend courses.</p>
<p>Activities Workshops/ courses:</p>		<p>Activity Milestones (Summary of Project Implementation Timetable) Yr 1, 2: Project planning/selection core international team. Workshops/courses on population monitoring, GIS, bat ecology, insect sampling. Yr 2, 3: courses on ecotourism and conservation, stewardship and awareness workshops.</p>	

Field Research Programme	Areas identified for new roost searches. Protocol and equipment (x2) for counting bats established. Finalised villager questionnaire. Yr 1: 10 principal roosts counted in different seasons, disturbance and economic benefits assessed and villagers questioned. Yr 2,3: Further major roosts monitored, disturbance and economic benefits assessed .
Village Stewardships	Yr 2: Develop village conservation stewardship agreements on the basis of information collected in Yr1. Yr 3 Establish village stewardship network and raise awareness.

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 Apr-Mar 2006/7 Apr-Mar 2007/8	
June 2005	2005/06	Appoint Darwin Fellow
October 2005	2005/06	Project launch workshop. Establish personnel, sampling protocol and methodology.
November 2005	2005/06	Initiate field research programme, Myanmar and Thailand winter season.
February 2006	2005/06	In field training and research to quantify disturbance and economic benefits, summer season.
April 2006	2006/07	Smithsonian CRC GIS course.
July 2006	2006/07	In field training and research to quantify disturbance and economic benefits, rainy season.
October 2006	2006/07	End of 1 st year research workshop present work by country, identify gaps in knowledge, plan best practice guidelines, village stewardships, future research.
November 2006	2006/07	Continue field research programme, winter season.
February 2007	2006/07	Continue field research programme summer season.
April 2007	2007/08	Smithsonian CRC GIS course.
July 2007	2007/08	Continue field research programme rainy season.
October 2007	2007/08	End of 2 nd year research workshop, develop guidelines, present results, establish network.
November 2007	2007/08	Continue field research programme winter.
February 2008	2007/08	Continue field research programme summer.
May 2008	2008/09	Project end conference. Finalise networks, results of stewardship agreements, exchange database etc.

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

PROJECT OUTPUTS		
Year/Month	Standard output number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc.)
05/06-08/06	1AB	Four Myanmar staff submit as many must register for PhD study.
06/06-08/06	2	Two Mya and two Thai Trainees attain MSc
06/06-08/06	4A 4C	One per annum in Mya and Thailand will join existing research (occurred on previous project)
05/06-06/06 06/06-07/06 07/06-08/06	5	Annually:-One from each country trained to survey and monitor bats specifically <i>Tadarida</i> . (Trainees usually from government departments).
05/06-08/06	8	108 weeks leading in-country workshops and research.
08/05	9	Two <i>Tadarida plicata</i> Species Action Plans for Thailand and Myanmar.
07/10 08/05	10	Best practice guidelines for guano collection (x2). Best practice guidelines for eco-tourism (x2).
06/10-08/10	11AB	1 paper submitted annually from research (x3).
08/05	12A	Regional <i>Tadarida plicata</i> database established.
05/10-08/05	14AB	Annual project conference (x3), 2 international conference presentations (Bat and ATB).
05/06-08/05 05/06, 08/05	15AB 15D	Annual national and local in Mya and Thai. UK local at start and end of project.
05/10-08/05	17A	One researcher network, 1 stewardship network.
08/05	20	Vehicle, computer, equip., references total £7k
05/06-08/05	23	Confirmed £63k (£10k pa HI, ca. £10k pa time of partners, £3k CRC). Proposed minimum £35k (CMS, FFI, BCI). TOTAL £98k

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.

Background monitoring will be carried out through an email network. A mailing list and bulletin board will be established on the UA server where monthly reports from all trainees will be exchanged. These will be ranked against measurable indicators established as project outputs. Annual workshops will address whether specific indicators are being met and identify problem areas in different countries. Academic progress will be evaluated by thesis/paper submission and monthly reports. Progress with the CMS will be evaluated primarily by in-country partners.