

Darwin Initiative

Annual Report

1. Darwin Project Information

Project Ref. Number	14 - 036
Project Title	Conservation of the Southeast Asian Guano Bat – sustaining livelihoods across borders
Country(ies)	Myanmar (Burma), Thailand, Cambodia, Vietnam
UK Contractor	University of Aberdeen
Partner Organisation(s)	Yangon University, PSU, WCS, University of Hanoi
Darwin Grant Value	£142k
Start/End dates	1 st June 2005/31 st May 2008
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 st June 2005 to 31 st March 2006 annual report 1
Project website	Under construction
Author(s), date	Dr I. Mackie

2. Project Background

The project is concentrated in Myanmar (Burma) and Thailand and includes Cambodia and Vietnam where the Southeast Asian guano bat, *Tadarida plicata*, provides a livelihood for local peoples who collect guano and use or sell it as an agricultural fertiliser. Across its range *Tadarida plicata* suffers from varying levels of harvesting, disturbance and exploitation. Because it forms massive colonies and moves seasonally between roost sites a regional conservation and management programme is needed to ensure this sustainable relationship. The project seeks to a) set up a monitoring system and conservation network of roost owners and researchers and b) conduct research to quantify economic impact and maximise benefits to all concerned by providing best practice guidelines for the collection and use of guano. Further research seeks to establish whether *Tadarida plicata* is a migratory species qualifying for inclusion in the Convention on Migratory Species and international legislative protection.

3. Project Purpose and Outputs

The purpose of the project is to protect the Southeast Asian guano bat and the sustainable livelihoods it provides through a trans-boundary network of researchers, local guano collectors and international treaty (CMS). Project outputs are repeatable accurate population estimates at key roosts, village stewardship agreements and in country capacity building of 12 Darwin Trainees. Key roosts have been identified in Myanmar (Burma), Thailand and Cambodia. Nine trainees have been established in Myanmar (Burma), Thailand, Cambodia and Vietnam. One trainee in Myanmar (Burma) and one in Thailand are developing methods for accurate population estimation. Village networks and informal agreements have been developed at many of the key roosts

4. Progress

The project began on 1st June 2005 with the employment of Dr Jon Russ as postdoctoral researcher. I made an extra (not in baseline timetable) initial visit to main country partners Myanmar (Burma) and Thailand to establish research trainees and provide them with equipment and funding to initiate field research and register for higher degrees. In October we held the first international conference on *Tadarida plicata* at Prince of Songkla University, Thailand, with participants and speakers from Myanmar (Burma), Thailand, Vietnam, Cambodia, Australia and UK. This led on to incountry training in Thailand and Myanmar (Burma). Further incountry research and training took place in March and April 2006 in Myanmar (Burma), Thailand and Vietnam.

Trainee progress is going well. One Msc in Myanmar (Burma) has been working on Mortality in *Tadarida plicata*, one PhD is studying diet of *Tadarida plicata* in relation to insect pest outbreaks, one PhD is developing methods for estimating population abundance and one PhD is looking at the effect of disturbance on activity of *tadarida plicata*. In Thailand one MSc is studying habitat use using bat detectors and another is estimating population abundance at the largest roost in Thailand (Khoa Chon Phran). The technical expertise required to carryout these topics is advanced and capacity building has so far mainly involved in the field instruction in the use of equipment such as bat detectors, infrared video equipment and radio tracking.

One extra visit at the start of the project was necessary to kick start the trainees. The February field research was delayed till March and April due to delay in permissions to work in Myanmar because of a change in government.

We have established an experimental roost in the Shwedagon Pagoda where disturbance will be strictly controlled and quantified using activity monitoring radio transmitters. We have established key roosts and are developing the best method for estimating population abundance using video and photographic techniques. Research quantifying economic benefits involves direct economics of the guano trade and ecosystem benefits through insect consumption and bioavailability of nutrients.

Significant difficulties include Myanmars political stability. A recent change of government resulted in delays to planned fieldwork. There is little we can do other than ensure field work is planned well in advance.

We have refined the method for quantifying disturbance. Previously we wanted to look at population changes in abundance and relate to disturbance. We have developed a system to measure individual response to disturbance using activity sensing radio transmitters.

In field training and research to quantify disturbance and economic benefits, rainy season. End of 1st year research workshop present work by country, identify gaps in knowledge, plan best practice guidelines, village stewardships, future research. Continue field research programme, winter season. Continue field research programme summer season.

5. Actions taken in response to previous reviews (if applicable)

Not applicable.

6. Partnerships

I have been collaborating continuously with Yangon University for the last four years and this relationship grows stronger with time. A Darwin trainee from the previous project I worked on with Yangon University has established a dedicated bat research team and her personal research seeks to quantify the benefits of using bat guano as a fertiliser. She continues to attract high quality postgraduate students as Darwin trainees to work on planned project outputs at established study colonies.

In Cambodia the situation is very different but the partnership also appears to be the best way forward. Here few colonies are known and there is a large amount of anecdotal evidence of large bat colonies from unexplored areas. My partnership has resulted in WCS matching the Darwin trainee funding to employ a field officer to identify new roosts across the country.

My Vietnamese partner has close ties with government research centres and NGOs which resulted in a productive field research training visit. Unfortunately we are unable to find any large colonies of *Tadarida plicata* in Vietnam but our trainees continue to work on the economics of guano use in other bat species.

The partnership with Prince of Songkhla University in Thailand began well with the resigning of the MOU between Aberdeen University and PSU and the initial project conference held at PSU in October. However, the project partner for Thailand Dr Sara Bumrungsri is also project partner for another Darwin Initiative project that started in 2005 and he has expressed a wish to concentrate his time and energy on this other project. In addition, no *Tadarida* colonies are known from Southern Thailand and hence the project trainees are based in Kasesart University Bangkok. The partnership therefore seems to be moving towards concentrating efforts at Kasesart where more students are becoming interested in this project.

7. Impact and Sustainability

- Discuss the profile of the project within the country and what efforts have been made during the year to promote the work. What evidence is there for increasing interest and capacity for biodiversity resulting from the project? Is there a satisfactory exit strategy for the project in place?

8. Outputs, Outcomes and Dissemination

A major difference between proposed and actual outputs relates to match funding. Because of financial restrictions it has not been possible for the Harrison Institute to contribute its match funding for this year. I have therefore sought matching funds from other sources and await results.

Table 1. Project Outputs (According to Standard Output Measures)

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
4A	Undergraduate training	1 Vietnam				
4C	Postgraduate training	4 Myanmar 2 Thailand 1 Vietnam				
4D	Training weeks	22				
8	Incountry weeks	22				
14A	Conferences	1				
15A	Press release	2				

17A	Networks	2
20	Assets transferred	£7000
23	Matched funding	£3800

- In Table 2, provide full details of all publications and material produced over the last year 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. Mark (*) all publications and other material that you have included with this report.

Table 2: Publications

Type *	Detail	Publishers	Available from	Cost £
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	

9. Project Expenditure

Table 3: Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate which document you refer to if other than your project schedule)	Expenditure	Balance

10. Monitoring, Evaluation and Lessons

Monitoring and evaluation relies on good communication between leader, partners and trainees. At this point in the project this has been mainly carried out face to face as my postdoc and I have visited each country at least once in the last nine months and the main countries every three months. This is because the trainees need trained in specific research techniques and then a follow up visit to evaluate the work they have carried out in the interval. More recently we have developed the use of email. With the Myanmar trainees this has involved registering them as honorary researchers with Aberdeen University to enable an email account that can be accessed without blocking in their country. With trainees from other countries we seek to develop short accurate timely reporting.

My learning has been significant and varied. I have worked in Myanmar for the last four years and this project has taught me about the very real differences between the peoples and countries of SE Asia. This understanding is not only important for governance of trainees but will be invaluable, as development of villager agreements and networks becomes a larger part of the project in future years.

11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum)

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2005/2006

Project summary	Measurable Indicators	Progress and Achievements April 2005-Mar 2006	Actions required/planned for next period
<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 the benefits arising out of the utilisation of genetic resources 			
<p>Purpose <i>(insert original project purpose statement)</i></p> <p>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><i>(insert original purpose level indicators)</i></p> <p>Population monitoring system for major roosts functioning by year 3. Research quantifying effects of disturbance and economic benefit of insect pest control. Effective best practice management and implementation of village stewardship agreements by year 3. Tadarida plicata scheduled for inclusion, in Appendix II of the CMS by year 3.</p>	<p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p>	<p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p>
<p>Outputs</p>			
<p><i>(insert original outputs – one per line)</i></p>	<p><i>(insert original output level indicators)</i></p>	<p><i>(report completed activities and outcomes that contribute toward outputs and indicators)</i></p>	<p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p>
<p>Repeatable accurate population estimates obtained for major</p>	<p>4 core staff in Thailand and Myanmar and at least 2 core staff in other host countries trained to monitor major</p>		

<i>colonies in all countries by in-country biologists.</i>	<i>colonies and quantify economic benefits.</i>		
<i>Village Stewardship Agreements in place and functioning</i>	<i>Strategy developed by villages around 10 key roosts in conjunction with Darwin Trainees</i>		
<i>Training of 12 Darwin trainees</i>	<i>12 members trained and able to carry out all aspects of the project by Yr3.</i>		

Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.