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**Taxonomic initiative for Southeast Asian bat studies
(Vietnam, Thailand, Cambodia and Lao PDR)**

Darwin Initiative Annual Report: April, 2005 - March, 2006

Darwin Initiative

Annual Report

1. Darwin Project Information

Project Ref. Number	14-011
Project Title	Taxonomic initiative for Southeast Asian bat studies
Country(ies)	Thailand, Vietnam, Cambodia, Lao PDR
UK Contractor	Harrison Institute
Partner Organisation(s)	Prince of Songkla University; IEBR Vietnam; National University of Laos; Royal University of Phnom Penh, Cambodia
Darwin Grant Value	£47,580 for 2005/06; £47,500 for 2006/07 and £44,720 for 2007/08
Start/End dates	April, 2005 – March, 2008
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 April, 2005 to 31 March, 2006; Annual report no 1
Project website	www.harrison-institute.org/Darwin2/TISABS.htm
Author(s), date	Dr Paul Bates, 18 April, 2006

2. Project Background

- The project is based at the Harrison Institute in the UK and is run in collaboration with:
 - The Institute of Ecology and Biological Resources (**IEBR**), Hanoi, Vietnam
 - The Prince of Songkla University (**PSU**), Hat Yai, Thailand
 - The National University of Laos (**NUL**), Vientiane, Lao PDR
 - Royal University of Phnom Penh (**RUPP**), Cambodia

[Acronyms for the four institutions, as above, are used in the remainder of the text below]

- The laboratory-based training takes place in the Harrison Institute and at the four academic institutions listed above. The field component takes place at various localities in SE Asia.
- The project builds on a previous Darwin Initiative bat project (162/11/09; 2002-2005), which was co-ordinated by the Harrison Institute in collaboration with Yangon (Rangoon) University, Myanmar (Burma).
- The project seeks to address the problem of the 'taxonomic impediment', which is recognised by the CBD and specifically listed in some host country action plans (for example, Vietnam's BAP includes taxonomy as one of its six priority areas). More particularly, the project meets the needs of in-country zoologists, who have in the past requested training in bat taxonomy from the Harrison Institute. These scientists, particularly those from IEBR in Vietnam and PSU in Thailand, recognised that:

- Despite the rich diversity of bats within their respective countries, there was little local knowledge of bat taxonomy and that the number of foreign taxonomists available for collaborative research was declining
 - There was a need to repatriate taxonomic information from Western institutions as the local scientists suffered from restricted access to:
 - many important voucher specimens that are held in foreign collections
 - relevant publications that are confined to specialist journals
 - They lacked expertise in identifying specimens and managing and curating reference collections of voucher material (although in some cases, they had developed skills in undertaking field work and making collections)
 - They lacked expertise in preparing publications for international journals. In consequence, much of the information about recent field data was restricted to low circulation reports, sometimes in a local language, which were not peer reviewed and were not recognised by the wider international scientific community
 - They felt that they were working in isolation with little support nationally, regionally (SE Asia) or internationally.
- Therefore, the project seeks to increase capacity in bat taxonomy and collections management in four mainland SE Asian countries and to build a series of interrelated national, regional and international bat taxonomy networks.



Training staff and students from Thailand, Vietnam, and Lao PDR in bat taxonomy and echolocation techniques at a recent workshop in the Prince of Songkla University.

3. Project Purpose and Outputs

- **Purpose:** The purpose of the project is to increase capacity in bat taxonomy in mainland SE Asia in order to promote and facilitate the conservation of bat biodiversity including globally endangered species.
- **Outputs:** Outputs of the project as outlined in the original proposal are:
 - Eight students, two from each of the four host institutions, trained in aspects of bat taxonomy, echolocation and collections management

- A website with taxonomic information and identification keys (and additional data on distribution, ecology, behaviour and conservation status) for the 155 species of bat currently known from mainland SE Asia
 - A series of papers on the taxonomy and echolocation of SE Asian bats written by the Darwin trainees in conjunction with Harrison Institute staff and other specialists and published in international journals
 - A series of workshops hosted in SE Asia by the Darwin project, which would include presentations and training by international experts
 - A series of presentations (oral and poster) at international conferences by the Darwin trainees and Harrison Institute staff
 - The production of a number of manuals for use by the Darwin trainees, for example on the preparation and curation of voucher specimens
 - A website with information about the project www.harrison-institute.org/Darwin2/TISABS.htm
 - Enhanced voucher specimen collections and library material in each of the four SE Asian institutions
- No significant changes have been made to the objective or proposed operation plan over the last year. Minor changes are included in Section 4 (Progress) below.

4. Progress

- Prior to the start of the project in April, 2005, informal workshops were held in IEBR, Vietnam and PSU, Thailand in August, 2004 and February 2005, respectively. Discussions took place with staff and students concerning the objectives, outcomes and needs of the project. This ensured that once the project was approved it could begin without delay. In addition, Paul Bates and the Harrison Institute have much previous experience of working on bat projects in the region (including a Darwin project in Myanmar), which also ensured that the project could quickly become operational.



Delegates from UK, France and South Africa and Darwin trainees from Thailand, Vietnam and Lao PDR at the March, 2006 workshop at the Prince of Songkla University, Thailand

- In general, progress has been most pleasing thanks to the commitment of the relevant in-country staff and students. All principal milestones have been achieved and the project has a good working momentum as it enters its second year.

- Slippage
 - No Darwin trainees from Cambodia took part in the March, 2006 training workshop. Discussions were held with a series of institutions and NGOs in Cambodia including Conservation International (CI), World Conservation Society (WCS), RUPP and most especially Fauna and Flora International (FFI). FFI are currently co-ordinating another Darwin project (Ref: 14037) entitled *Building university capacity to train future Cambodian conservationists*. From these discussions, it became apparent that no suitable RUPP students were currently available for our project. Therefore, it was decided to work with the FFI Darwin project and that the selection of the two Cambodian students would be postponed until November, 2006 (after the students had completed their initial training modules with FFI).
- Minor amendments to the initial plan included:
 - National press releases in Cambodia and Lao PDR in May, 2005 were replaced by TV, radio and national press releases in Thailand in March, 2006 (for full details see Section 7)
 - The three week training in field and echolocation studies, which had been scheduled to take place in November, 2005 in northern Myanmar in association with Yangon University and the Scientific Exploration Society, UK (who were part sponsors) did not take place as the Myanmar government withdrew permissions shortly before its commencement. In consequence, the training was rescheduled as a ten day visit to Lao PDR (November, 2005).
 - The ten day workshop in Hanoi was moved to PSU, Thailand. This ensured that the Darwin project could link up with an associated project funded by SFI (the Science Foundation of Ireland) which is concerned with the study and conservation of the bumble-bee bat (the world's smallest mammal) in Thailand and Myanmar
- Additional outputs



- Dr Sara Bumrungsri, aged 34, was awarded his PhD by the

- Training at the Harrison Institute (17 August-26 October) was upgraded. Originally it was to be offered to two MSc students, one from PSU and one from IEBR. However, after discussions with senior staff members of PSU, it was decided that it would be more beneficial to PSU if a member of staff received the initial training. To this end, Dr Sara Bumrungsri was selected.

Dr Sara Bumrungsri in discussion with Dr David Harrison during a 3 month study visit to the Harrison Institute.

University of Aberdeen for his work on the ecology of Thai bats. He is head of the rapidly expanding bat research group at PSU and will be co-supervising the studies of 6 Darwin trainees (3 from PSU, Thailand and 3 from NUL, Lao PDR – for details see below).

- The Vietnamese candidate, Dr Vu Dinh Thong, aged 30, was the most senior staff member (and PhD student) of IEBR who is studying bats. He has been working closely with the project since its inception
- As part their practical training at the Harrison Institute (August-October), two research papers were written by Dr Sara Bumrungsri and Mr Vu Dinh Thong. Both have been accepted for publication in an international journal (see below)

- Three (rather than two) MSc students have been selected from Lao PDR – two from the Biology Department (as originally envisaged) and an additional student from the Faculty of Forestry
- In addition to the two MSc students from PSU, Thailand (as originally envisaged), training was given to Dr Sara Bumrungsri (see above). We are also co-supervising (with University College Dublin) one PhD student
- The five Thai and Lao MSc students have all been enrolled on a two year international MSc course at PSU, involving both taught courses and the production of a thesis (bat taxonomy and echolocation). This course commences in May, 2006. It will ensure greater integration and mutual support for the students and will facilitate their academic supervision. Topics for MSc theses have already been chosen and in some cases provisional data collected



Darwin trainee Mr Phouthone Kingsada of the National University of Laos working in the field with members of the Thai bat team.

- In Vietnam, we have one MSc student who has completed his taught course and is about to begin his research; one PhD student (Thong); and a collections manager Mr Pham Duc Tien. We are working in close co-operation with Neil Furey, formally a senior member of FFI Vietnam, who is currently working in Vietnam for his PhD on bat echolocation and population studies (registered at Aberdeen University). Neil is giving useful additional in-country support to our students
- We supported and encouraged our Vietnamese Darwin trainee Mr Vu Din Thong (PhD candidate) to apply to BP Conservation for the study of bats in the Cat Ba National Park, Vietnam. In March 2006, he was awarded \$25,000 for the project. We plan to link up with this project in August, 2006 for a training programme
- The March workshop included additional guest speakers from Ireland and France (sponsored by SFI [the Science Foundation of Ireland]) and South Africa
- A four day study visit to western Thailand (March/April, 2006 – post March workshop) included Darwin trainees and additional students. Namely, ten students from Thailand, three students and one staff member from Lao PDR,

two students and one technician from Vietnam and international delegates from the UK and France.

- **Research**
 - **Scientific papers:** Two papers were written by Dr Sara Bumrungsri of PSU and Mr Vu Dinh Thong of IEBR during their study visit to the Harrison Institute in August-October, 2005 (see above) and were submitted to the international bat journal *Acta Chiropterologica*. This will raise the profile of the Darwin project internationally as well as contributing, in the case of Bumrungsri's paper, a fundamental review of bat research in Thailand, which will act as a baseline for future scientists and conservationists for years to come.
 - Bumrungsri's paper focuses on the bats of Thailand and was graded as 'excellent' and 'fundamental' by one of the reviewers. It is accepted for publication subject to minor revisions and has been re-submitted (see attached Text file).
 - Bumrungsri, S, D. L. Harrison, C. Sarasook, A. Prajukjitr, S. Thong-Aree, and P. J. J. Bates. (submitted). A review of bat research in Thailand with eight new species records for the country. *Acta Chiropterologica*.
 - Thong and Bumrungsri's joint paper is a Vietnamese-Thai contribution with some additional information from a young Australian mammalogist (Helgen). It was published in April, 2006 (see attached PDF).
 - Thong, V.D., S. Bumrungsri, D.L. Harrison, M.J. Pearch, K.M. Helgen, and P.J.J. Bates. 2006. New records of Microchiroptera (Rhinolophidae and Kerivoulinae) from Vietnam and Thailand. *Acta Chiropterologica*, 8(1): 83-94.
 - **Other publications:** A manual entitled *Voucher specimen preparation: bats* was produced and used at the March, 2006 training workshop (see attached). This will be of value to all those concerned with collections management
 - **Field surveys:** Short field surveys were carried out in the:
 - Karst areas around Vang Vieng in Lao PDR (Iain Mackie and Mr Vu Dinh Thong)
 - Forests of Songkla (south Thailand) and Kanchanaburi (western Thailand) Districts (teams from Thailand, Lao, Vietnam, UK and France)
 - **Taxonomic website:**
 - Bat species lists for each of the four host countries (+ Myanmar) from SE Asia were drawn up – these will also be used at the forthcoming SAMD workshop in Bogor, Java (May, 2006)
 - An Access file was designed to host the information for each of the 155 bat species
 - Data on the tube-nosed bats of the genus *Murina* (Vespertilionidae) were gathered by Darwin trainees for inclusion on the proposed website
 - **Presentations:**
 - One oral (Paul Bates) and two poster presentations (Bumrungsri and Thong) were made at the 9th International Mammalogical Congress in Japan (31 July-5 August, 2005).
 - One oral (Paul Bates) and one poster presentation (Thong) was made at the 5th Biennial Conference of the Systematics Association (22-26 August, 2005)



Dr Paul Bates, Dr Sara Bumrungsri and Mr Vu Dinh Thong launched the project at an international mammal conference in Japan.

- The above presentations have raised the profile of the project internationally

- **Training**

- Students from Thailand, Vietnam and Lao PDR were selected as Darwin trainees. They are:
 - Thailand: from Biology Department, PSU:
 - two MSc students: Ms Ariya Dejtaradol; Mr Pipat Soisook
 - in addition we will be assisting PhD student Mr Kwan Nualcharoen in his joint taxonomic/molecular study of horseshoe bats (Kwan is supported by a Golden Jubilee Programme scholarship, Thailand and is co-supervised by Dr Emma Teeling of University College Dublin)
 - Lao PDR: from NUL

- two MSc students, Mr Phouthone Kingsada and Mr Bounsavane Douangboubpha from the Department of Biology
- one MSc student, Ms Phansamai Phommexay, from the Faculty of Forestry (Phansamai will be partly supported by the Research and Training programme, Bangkok)
- Vietnam: from IEBR
 - one PhD student: Mr Vu Dinh Thong (Thong was awarded a scholarship for his PhD by the Vietnamese Government)
 - one MSc student: Mr Nguyen Danh Tinh
 - one member of staff Mr Pham Duc Tien who will be responsible for the voucher specimen collection.

- Cambodia: no students have yet been selected (see above)
- Training of Dr Sara Bumrungsri and Mr Vu Dinh Thong took place at the Harrison Institute from August-October, 2005 (for details see above)
- Training in the field took place in Lao and Thailand



Some of the voucher specimens of bats stored in the Natural History Museum of the Prince of Songkla University.

- **Research collections:**

- Thailand: research collections have already been upgraded at PSU with bat specimens now stored in the recently renovated 'Natural History Museum, Centre for Biodiversity for Peninsular Thailand, PSU', which is adjacent to the Biology Department. Procedure for labelling, curating, and cataloguing specimens have all been

upgraded since (and as a consequence of) Dr Bumrungsri's study visit to the Harrison Institute.



Two Darwin trainees (left below: Ms Ariya Dejaradol from PSU, Thailand and left above: Ms Phansamai Phommexay from the National University of Laos) with an additional Thai student on a field trip during the March, 2006 workshop.

- Vietnam: Mr Pham Duc Tien has accepted responsibility for the curation of bat specimens at IEBR. In addition to his existing knowledge, he received training at the March, 2006 workshop in specialist techniques. A new area for the storage of bat specimens has been selected and equipment is in the process of being acquired.
- **Media**
 - The project website was launched in May, 2005. Located at <http://www.harrison-institute.org/Darwin2/TISABS.htm> , it provides information on the project aims, rationale, activities, and key outputs. It includes contact addresses for the in-country co-ordinators from Thailand, Vietnam, Cambodia and Lao PDR.
 - Significant TV, radio and press coverage was given to the March, 2006 bat workshop hosted by PSU, Thailand (see Section 7)
- **Difficulties**
- No significant difficulties were encountered during the year except for the availability of suitable Cambodian students, which has been discussed above.
- **Project modification**

- The project has been enhanced by enrolling the 3 Lao and 2 Thai students at PSU for an international MSc course. This ensures mutual support for the students, a higher level of training, more opportunities for field studies, better laboratory facilities (in the case of the Lao students), and promotes regional/ international co-operation. It also facilitates their supervision by the UK Darwin team.
- In Vietnam, the project has been enhanced by linking in with Neil Furey and the FFI office in Hanoi. This ensures that the students and technician are working as a group. It also makes for easier monitoring and on-going assessment.
- **Timetable (workplan) for 2006-2007.**
 - April, 06- March, 07: continue gathering data for inclusion on the SE Asian bat website
 - May, 06: Darwin team of Bates, Thong and Bumrungsri (+ Neil Furey) will take part in the SAMD workshop in Bogor, Java – inputting data on SE Asia bats into an IUCN database and disseminating information on the Darwin project
 - May, 06: Update newsletter on Harrison Institute website
 - May, 06: Disseminate Darwin trainee Thong's scientific paper to the widest possible audience
 - May, 06 – March, 08: 3 Lao and 2 Thai MSc students commence MSc course at PSU; the Thai PhD candidate continues his studies
 - May, 06 – Nguyen Danh Tinh, Darwin MSc trainee completes taught course in Vietnam and commences research for theses
 - August, 06: Lao, Thai and Vietnamese students conduct joint field studies with UK experts in collaboration with Mr Thong's BP Conservation bat project in NE Vietnam (Cat Ba National Park)
 - August, 06: Disseminate Bumrungsri's scientific paper to the widest possible audience
 - October, 06: workshop in PSU, Thailand to review student's progress
 - November, 06: one Thai and one Lao MSc student undertake study visit to the Harrison Institute for further training
 - February-March, 06: field studies in Lao PDR.

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

- Not applicable (first year of project)

6. Partnerships

- Excellent relationships have been developed with PSU, Thailand, IEBR, Vietnam and the National University of Laos. We also have a good working relationship with staff of RUPP, Cambodia.
- Project collaboration:
 - In Cambodia, we are collaborating with staff of RUPP, WCS and FFI through their Darwin project (Ref: 14037: *Building university capacity to train future Cambodian conservationists*)
 - In Cambodia, Thailand and Vietnam, we are collaborating with Darwin project (Ref: 14036) *Conserving the Southeast Asian guano bat – sustaining livelihoods across borders*)
 - Links have been developed between the institutions in Thailand (PSU), Lao PDR (NUL) and Vietnam (IEBR)

- Links have been made with the Durban Natural History Museum of South Africa to explore new ideas at looking at bat taxonomy and echolocation in a tropical and subtropical context

7. Impact and Sustainability



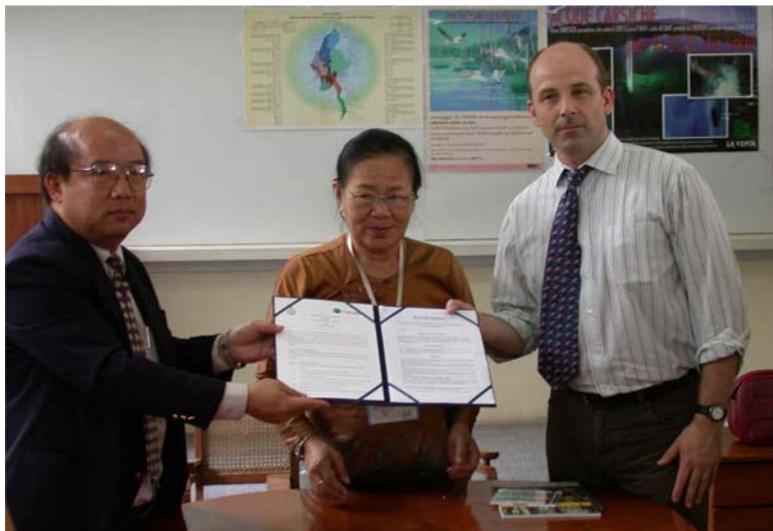
A film crew from Channel 9 filming part of the bat workshop in March, 2006 at PSU in Thailand.

- **Profile and promotion:** Internationally, the project was promoted with oral and poster presentations at the 9th International Mammalogical Congress in Sapporo, Japan in July (over 1000 international delegates attended the Congress) and at the Fifth Biennial Conference of the Systematics

Association in Cardiff in August, 2006.

- Within SE Asia, the highest profile for the project has been in Thailand. Promotional information about the project was included
 - On the Faculty of Science, PSU website www.sc.psu.ac.th (in Thai)
 - In the PSU newsletter (in English)
 - On Thailand Radio for Southern Provinces, when Dr Sara Bumrungsri was interviewed about the project. The programme was transmitted from 13.00-14.00 hours on 16 March, 2006
 - In an article (11 March, 2006) in FOCUS, the local newspaper – based on an interview with Dr Sara Bumrungsri – available in Thai at www.focuspaktai.com
 - In a TV programme by Channel 9 (Thai TV) – interviews were conducted with Dr Sara Bumrungsri and Dr Paul Bates (23 March, 2006); a film crew worked the bat team on an evening's field trip to a forest reserve near PSU and filmed students and Darwin delegates working on bat projects in PSU (21-24, March). The programme is due for release shortly.
 - The Sea Air Land Production Co. Ltd of ITV, Thailand followed the bat team on the post March, 2006 workshop field trip to Kanchanaburi (27 March-1 April). On Sunday, April 23, a 30 minute programme entitled 'Kiti bat' was broadcast throughout Thailand in the 'Nature Explorer' series.
- **Interest, capacity building and exit strategy:**
- **Scientific co-operation:** one of the principal aims of the project is to make links between like-minded scientists and institutions. Much has been achieved in the first year (see below). In addition and to reinforce these linkages, it is proposed that PSU, supported by the Darwin team will co-host with Dr Tigga Kingston of Texas Tech University, Lubbock, USA the first SE Asian bat conference, which is provisionally scheduled for May, 2007.

- MoUs (to date):
 - The Harrison Institute signed an MoU with PSU in July, 2005



The Dean of the Prince of Songkla University (left), Prof. Daw Tin Nwe, Head of the Zoology Department, Yangon University, Myanmar (centre) and Dr Paul Bates (right) show the MoU, which seeks to promote cross border scientific collaboration between Thailand and Myanmar.

- PSU and NUL, Lao PDR signed an MoU in November, 2006
- PSU signed an MoU with Yangon University, Myanmar (Burma) in January, 2006
- PSU and University College Dublin have agreed in principal to sign an MoU and develop a joint programme of molecular studies
- As a result of the above, the PSU authorities have agreed to waive any tuition fees for students from neighbouring countries that are part of the Harrison Institute Darwin team. At present, this is relevant to the three Lao students who have enrolled for the MSc course at PSU. However, in addition and in principal, the University has agreed that in future any foreign student supported by the Harrison Institute will also be exempted from tuition fees. This bodes well for the long term development of a coherent bat group in SE Asia.
- The signing of an MoU between the Faculty of Science, PSU and the Zoology Department, Yangon University in January, 2006 was facilitated by the Harrison Institute as a result of this and a previous Darwin project. It is the first MoU signed between scientific institutions from the two countries and is of both cultural and scientific importance. A series of joint projects is now planned and one entitled '*A molecular investigation into the population dynamics and conservation status of the world's smallest mammal, Craseonycteris thonglongyai*' is already in progress. This latter project is sponsored by SFI (the Science Foundation of Ireland) and involves students and staff from Ireland (University College Dublin), France, UK, Thailand and Myanmar.
- The Darwin team made contact with Dr Peter Taylor, Curator of Mammals at Durban Natural Science Museum, South Africa, who was invited as a delegate to the March, 2006 workshop. Here he made three presentations and greatly assisted in the training programme. Ideas common to both the Asian and African subtropical and tropical regions were discussed, including bat taxonomy, echolocation and the transmission of bat diseases such as lyssaviruses. In the future, great possibilities exist for significant joint Afro-Asian bat projects.

- **Funding:** All Darwin trainees are encouraged to look for additional funds and develop their own ideas for future studies and professional co-operation. We are therefore pleased to announce that the project and various members of the project have received additional support from:
 - BP Conservation – an award of \$25,000 for bat research and conservation in Vietnam (Mr Vu Dinh Thong)
 - Vietnamese Government – financial support for three years for a PhD on bats (Mr Vu Dinh Thong); the PhD is to be registered at a European University.
 - The Royal Society, UK – financial support (£3600) for co-ordinating joint studies between the Harrison Institute, University College Dublin and institutions in SE Asia
 - The authorities of PSU gave additional funding for the March, 2006 workshop to cover all laboratory and workshop facility costs and the costs of lunches, refreshments and photocopying
 - The authorities of PSU are to waive the fees of the 3 Lao PDR Darwin students enrolled on the two year International MSc course
 - The Biodiversity Research Training Programme in Thailand (BRT) will partly support a Lao PDR MSc student, Ms Phansamai Phommexay
 - The Thailand Research Fund of the Golden Jubilee Programme will support Thai PhD student, Mr Kwan Nualcharoen
- Although the project is only in its first year, the interest and profile of the project, particularly with the authorities of PSU, suggest that bat studies have a most promising future in Thailand. The interest of IEBR and the Vietnamese government would suggest that the future is also promising in that country. In Lao PDR, two of the three students are also faculty staff of NUL, which ensures tenure of employment post Darwin. Emphasis in Years 2 and 3 will be to consolidate the positions in Vietnam, Thailand and Lao PDR and develop interest in Cambodia.

8. Outputs, Outcomes and Dissemination

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

Code No.	Description	Year 1 Total	TOTAL
1A	2 students will study for PhDs (one from Thailand and one from Vietnam)	2	2
2	6 MSc students selected to date from Thailand, Vietnam and Lao PDR	6	6
4C	7 additional Thai students received laboratory and field based training in March, 2006	7	7
4D	The above training lasted for 10 days	1.5	1.5
7	A manual entitled <i>Voucher specimen preparation: bats</i> was produced	1	1
8	UK project staff spent time in Thailand, Lao and Cambodia	9.5	9.5
	In addition , Darwin trainees spent combined times of 20 weeks in the UK, 3 weeks in Japan		

	and 10.5 weeks in each other's countries		
11A	Paper published by Acta Chiropterologica (see below for details)	1	1
11B	Paper submitted to Acta Chiropterologica (see below for details)	1	1
12A	Database on the Bats of mainland SE Asia designed and some information gathered for publication on the internet	1	1
13B	Species reference collections enhanced in Vietnam and Thailand	2	2
14A	Study visits/workshops in Thailand, Lao PDR and Cambodia	3	3
14B	Presentations about the Darwin project were made at the 9 th International Mammalogical Congress in Japan (31 July- 5 August) and 5 th Biennial Conference of the Systematics Association (22-26 August)	2	2
15B	Article about the Darwin bat project in FOCUS – a Thai local newspaper	1	1
16A	Newsletter published on the Harrison Institute website	1	1
17A	Regional network of mainland SE Asian bat researchers established	1	1
18A	A programme about the Darwin project and Thai bats on the ITV Thailand channel	1	1
18C	A programme about the Darwin project on Channel 9, Thailand	1	1
19C	A radio interview about the Darwin project on Thailand radio for Southern provinces	1	1
20	To date, two bat detectors, taxonomic equipment	£2000	£2000
23	During the year, the Darwin team has raised additional funds from The Royal Society (grant), BP Conservation (award), The Vietnamese Government (PhD scholarship), PSU (costs associated with workshop and training of Lao students), and Thai educational sources (sponsorship of two students)	£55800	£55800

- **Difference in outputs**

- Much of this information has already been discussed above. However, to summarise:
 - Two students will be undertaking PhD studies rather than MSc studies
 - Three students from Lao and Thailand were selected in place of the two proposed. To date, no student from Cambodia has been selected (for details and explanation see above)

- Two papers have already been submitted and accepted by an international scientific journal (one is already published)
- There were no press releases in Lao and Cambodia but there was extensive TV, radio and newspaper coverage in Thailand
- The workshop scheduled for IEBC, Vietnam was switched to PSU, Thailand in order to co-ordinate training and presentations with the University of Dublin/PSU/Yangon University bat project
- **Dissemination activities**
 - These activities took the form of:
 - Website information
 - Meetings with other institutions such as WCS, CI and FFI working within the host countries
 - Hosting an international workshop in PSU with delegates from UK, France, Ireland, South Africa, Thailand, Lao PDR and Vietnam
 - Making extensive use of the media (TV, radio and press) in Thailand.
- **Table 2, Publications and material produced**

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Scientific paper	Thong, V.D., S. Bumrungsri, D.L. Harrison, M.J. Pearch, K.M. Helgen, and P.J.J. Bates. (2006). New records of Microchiroptera (Rhinolophidae and Kerivoulinae) from Vietnam and Thailand.	<i>Acta Chiropterologica</i> , 8(1): 83-94.	All major scientific libraries PDF available from the Harrison Institute and IEBC, Vietnam	free
Manual	Voucher specimen preparation: bats Paul Bates, Vu Dinh Thong and Sara Bumrungsri (2006)	Harrison Institute	Harrison Institute	£2.50 (to cover costs of photocopy and postage – free to institutions in SE Asia)
CD-Rom a compilation of 19 power-point presentations	Bat workshop: taxonomy and echolocation – Sara Bumrungsri and Kwan Nualcharoen (Editors: April/May, 2006)	PSU, Thailand	Harrison Institute and PSU, Thailand	£2.50 (to cover costs of copying CD and postage – free to institutions in SE Asia)
CD-Rom	Building a taxonomic	Harrison	Harrison Institute	£2.50

Presentation at 9 th International Mammalogical Congress, Japan	network for Asian bat studies Paul Bates (July, 2006)	Institute		(to cover costs of copying CD and postage – free to institutions in SE Asia)
CD-Rom Presentation at the 5 th Biennial Conference of the Systematics Association, UK	Building a taxonomic network for South-East Asian bat studies Paul Bates (August, 2006)	Harrison Institute	Harrison Institute	£2.50 (to cover costs of copying CD and postage – free to institutions in SE Asia)

9. Project Expenditure

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

10. Monitoring, Evaluation and Lessons

- The purpose of the project is to increase capacity in bat taxonomy in mainland SE Asia in order to promote and facilitate the conservation of bat biodiversity including globally endangered species.
 - This requires that individuals from SE Asia are trained in bat taxonomy. The most important outputs of 2005-06 that contribute towards this are:
 - The selection of 2 PhD and 6 MSc Darwin trainees
 - Training of Bumrungsri and Thong at the Harrison Institute
 - A training workshop in PSU and associated field studies, which was attended by Darwin trainees from Lao PDR, Vietnam, and Thailand
 - Writing a collections manual and preparing data for a SE Asian bat taxonomy website
 - Building a network of taxonomists in SE Asia
 - It requires that research on bats is conducted in SE Asia. The most important outputs of 2005-06 that contributed towards this are:

- Bumrungsri and Thong's research papers, which, amongst other things, included 9 new species records for Thailand and Vietnam and identified key areas and species for future research in Thailand
- Field studies by Darwin trainees in western Thailand and Lao PDR
- It requires that the profile of bat conservation is raised nationally, regionally and internationally. The most important outputs of 2005-06 that contributed towards this are:
 - Scientific presentations at two international conferences
 - Dissemination of information to the general public through radio, TV and press articles
- **Lessons learnt**
- We learnt that there is a well motivated and skilled core of students in SE Asia and that given good supervision and some specialist equipment much can be achieved towards building centres of academic and taxonomic excellence.

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

■ I agree for ECTF and the Darwin Secretariat to publish the content of this section

This Darwin Initiative project is successfully promoting regional co-operation in science in mainland SE Asia. It has already facilitated the signing of MoUs between the Prince of Songkla University, Thailand and the National University of Laos, Lao PDR and between the Prince of Songkla University and the University of Yangon (Rangoon), Myanmar (Burma).

This latter agreement is the first between academic institutions from the two countries. In a difficult diplomatic and political situation, it is helping to build personal and institutional links between the scientific communities of the two countries and is of value both scientifically and culturally. A most successful associated joint project to study the world's smallest mammal, the bumble-bee bat, is already in progress.

In March, 2006, students from the Prince of Songkla University, the University of Laos and the Institute of Biological Resources, Vietnam met at the Prince of Songkla University for the first regional workshop on bats. From May, 2006, six students from Lao and Thailand will conduct a two year study of bat taxonomy and echolocation at the Prince of Songkla University. Together with those from Vietnam, they are already committed to exchanging ideas, information, voucher specimens, and opportunities for field studies in their respective countries.

This Darwin Initiative has facilitated excellent opportunities to develop an integrated regional approach to scientific research. Such an approach is essential for the future development of an indigenous team of dynamic, outward looking bat taxonomists, echolocation experts and conservationists.

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>To increase capacity in bat taxonomy amongst in-country scientists in research institutions in mainland SE Asia</p> <p>and to develop collaborative research links between taxonomists in different SE Asian countries</p>	<p><i>(insert original purpose level indicators)</i></p> <p>Bat taxonomic studies of an international standard are conducted by in-country scientists within institutions of SE Asia</p>	<p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p> <p>Two publications by Darwin trainees written Aug-Oct, 2005 already accepted by an international journal, one already published (April, 06)</p> <p>MoUs signed between institutions in Thailand, Lao PDR, and Myanmar. Collaboration in writing papers, conducting fieldwork and exchanging data have already taken place; regional workshop completed</p>	<p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p> <p>Expand and consolidate on the results achieved in the first year</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)</i></p>

			<i>period)</i>
A Darwin website hosted by the ASEAN Regional Centre for Biodiversity Conservation (ARCBC)	Website dedicated to the identification and taxonomy of SE Asian bats	Species lists drawn up. Access files designed. Some data already assembled	Further talks with ARCBC planned for May, 06 concerning hosting the site
Four institutions in four SE Asian countries with international experience of taxonomic research and with an associated collection of bat voucher specimens	A minimum of eight Darwin students and associated technicians from SE Asian institutions trained in taxonomic techniques and collections management to an international standard	Trainees (and their projects) selected from three institutions in Thailand, Lao PDR and Vietnam. Voucher specimen collections upgraded in Vietnam and Thailand	Ensure that two students from RUPP, Cambodia are included in the project once they have been provisionally trained by the FFI Darwin Project
A series of international publications and presentations on aspects of SE Asian bat taxonomy	Radio and TV broadcasts, information on websites and papers published in scientific journals	2 papers accepted (one already published) by an international journal; 5 presentations at 2 international conferences (in Japan and UK); Harrison Institute website outlining scope of project; newspaper articles, radio and TV broadcasts in Thailand	Ensure that further papers are written and submitted; raise the profile of the project in Vietnam and Lao PDR

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.