

**DARWIN INITIATIVE****APPLICATION FOR GRANT FOR ROUND 12 COMPETITION: STAGE 2**

Please read the Guidance Notes before completing this form. Give a full answer to each section; applications will be considered on the basis of information submitted on this form. Please do not cross-refer to information in separate documents except where invited on the form. The space provided indicates the level of detail required but you may provide additional information on a separate A4 sheet if necessary. Do not reduce the font size below 12pt or alter the paragraph spacing.

Submit by 19 January 2004

Ref (*Defra only*):

1. Name and address of organisation

The Natural History Museum Cromwell Road, London SW7 5BD

2. Project title (not exceeding 10 words)

Taxonomic capacity building in support of biodiversity conservation in Thailand

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

Details	Project leader	Other UK personnel (if working more than 50% of their time on project)	Main project partner or co-ordinator in host country
Surname	Harbach	Shelley	Baimai
Forename(s)	Ralph Edward	Anthony John	Visut
Post held	Research entomologist	Research entomologist	Chief Biodiversity Adviser
Institution (if different to above)			Ministry of Natural Resources & Environment
Department	Entomology	Entomology	Biology
Telephone			
Fax			
Email			

4. Describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)**Aims**

Develop and maintain insect collections for international biodiversity and conservation research.

Activities

Systematics research to underpin biodiversity and conservation programmes through databases and reference collections.

Achievements

International collaborative projects resulting in scholarly publications, consultancy and training in

biodiversity.

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

During the past 11 years, the NHM has conducted 21 Darwin Initiative projects in 15 countries.

6. Please list the overseas partners that will be involved in the project and explain their role and responsibilities in the project. The extent of their involvement at all stages in the project should be detailed, including in project development. Please provide written evidence of this partnership.

All partners were involved in the planning and design of the project.

Biodiversity Research & Training Program, Ministry of Natural Resources & Environment (MNRE):

Implementation of the government's second 5-year plan on flora and fauna biodiversity conservation, and co-ordination of this DI project within the plan and biodiversity research in Thai partner organizations.

Queen Sirikit Botanic Garden (QSBG), Chiang Mai: Lead counterpart organization for initial development of insect conservation infrastructure and associated research (see attached letter from Dr Nanakorn).

National Science Museum (NSM), Bangkok: training and technology transfer during the third year from the project based in QSBG as a prerequisite of the development of a similar infrastructure.

Museum of World Insects (MWI), Chiang Mai: research/curation management and co-ordination.

National Park, Wildlife & Plant Conservation Department, MNRE (NPWPC): facilitation of work in national parks.

Please see attached "Report on a visit to Thailand – August 2003" for further details.

7. What steps have been taken to (a) engage at all appropriate levels within the host country partner organisations to ensure full support for the project and its outcomes; and (b) ensure the benefits of the project continue despite staff changes in these organisations?

(a) Drs Harbach and Shelley made two visits to Thailand to discuss an entomological infrastructure in two new institutions as a foundation for biodiversity and conservation research on insects. Contacts were made with key Thai researchers and managers, and the British Embassy, to formulate a viable project that would be the entomological mainstay of the Thai government's commitment to the CBD. (b) Continuity of this initiative is guaranteed because it forms part of the MNRE's 5-year plan on flora and fauna conservation.

Please see attached "Report on a visit to Thailand – August 2003" for further details.

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

We discussed the project with key scientific managers and researchers at Chiang Mai and Mahidol Universities and have obtained agreements for linking satellite projects with this initiative ([please see attached letters from Dr Nipon Tuwanon, President, Chiang Mai University and Prof. Visut Baimai, Mahidol University](#)).

Mr Mark Isenstadt, a resident field biologist working with hilltribes in northern Thailand, will integrate field aspects of this project with his ongoing work in Doi Inthanon National Park near Chiang Mai.

PROJECT DETAILS

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

Provide a national depository and identification facility for insects, a prerequisite for generating the biological information needed for effective biodiversity conservation in Thailand. UK expertise will be used to establish a focus to help build and maintain the human resources, systems and infrastructure needed to obtain, collate and curate the biological specimens that are the basis for taxonomic knowledge. A principal aim is to link collection-based research to current and future entomological expertise in Thai universities, other Thai institutions and the NHM.

10. Is this a new initiative or a development of existing work (funded through any source)?

New initiative.

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 was developed in association with the Chief Biodiversity Adviser to the MNRE and addresses needs set out in the Thai National Policy, Strategies and Action Plan on Conservation and Sustainable Use of Biodiversity (NBSAP) and the First and Second National Reports to the CBD. In 3 years time, the resulting infrastructure will be an integral part of the NBSAP. It will specifically contribute to implementation of the NBSAP (Article 6) (20%), and support identification and monitoring programmes (Article 7) (10%), in situ (Article 8) (5%) and ex situ conservation (Article 9) (5%), sustainable use of components of biodiversity (Article 10) (5%), development of programmes in research and training (Article 12) (20%), transfer of technology (Article 16) (15%), exchange of information (Article 17) (10%) and scientific co-operation (Article 18) (10%). The project therefore addresses elements of the following cross-cutting issues: Global Taxonomy Initiative, Protected Areas, Indicators, Public Education and Awareness, Alien Species, Access to genetic resources and benefit sharing, and contributes to the implementation of the Work Programmes on Forest Biodiversity and Inland Waters Biodiversity.

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

Thailand's biodiversity is at risk because of human population pressures, and there is an urgent need to assess and monitor endangered insects. A major constraint to developing Thai expertise on insects is the total absence of reference collections essential for their identification. The project fills this gap by building the capacity of key institutions needed to conserve insect biodiversity. It meets GTI and CBD aims by strengthening relevant Thai institutions, provides a linkage between these institutions and the NHM, and seeks means to enable effective use of taxonomic information, as laid out in the Thai National Report on the Implementation of Convention on Biological Diversity (2002). A Protected Area System has been set up in which the principles of the CBD are being implemented in 3 distinct habitats: (1) watersheds, (2) unique natural ecosystems that are sensitive and vulnerable to destruction from human impact, and (3) areas with aesthetic value. Project field work will be centred in Doi Inthanon National Park, which has these 3 habitats.

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

The project will provide an infrastructure for the collection of biodiversity data in the Thai Protected Area System, a prerequisite for the conservation of endangered insect species. This is essential because 20% of Thailand's 56,000 villages are located within the protected areas and increasing numbers of ecotourists are destroying habitats of many of the more flamboyant species (recently fireflies). It is foreseen that employment opportunities for hilltribe people in these areas will increase in future to include parataxonomists, tour guides, interpreters and biodiversity custodians as part of the NBSAP five-year plan.

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

The project will be the cornerstone for Thai biodiversity and conservation research on insects by providing a state-of-the-art entomological depository in the QSBG and training for doing so in the NSM. It will be based on collections of insects in Doi Inthanon NP, databases, websites, training of local staff and implementation of research programmes in collaboration with two universities. Project outputs will be disseminated through Thai museum reports and websites, biannual reports to DI and scientific publications. A constant link will be maintained with the MNRE, which will integrate the developing infrastructure in their national conservation programme. This will ensure progressive development of links between insect biodiversity research in Thai institutions and the two national museums, thereby guaranteeing a lasting impact of the project.

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

The principal legacy will be an infrastructure at two Thai museums for expansion of entomological collections essential for effective measurement of biodiversity before losses of insect species can be assessed and realistic conservation plans implemented. Other lasting benefits include: (1) people trained in state-of-the-art development and curation of reference collections for sustainable studies of biodiversity, (2) an expandable web-based system readily adaptable to an eventual unitary taxonomic facility, (3) a GIS-based capability to aid effective conservation management in the Protected Area System of Thailand, (4) university links that enable development of collaborative projects involving environmental monitoring and conservation.

16. What steps have been taken to identify and address potential problems in achieving impact or legacy?

Agreements were made with the Minister of MNRE and his Chief Biodiversity Adviser that this project would form an essential catalyst and full infrastructure for developing collections of Thai insects that will underpin the research necessary for their conservation under the country's second five-year conservation plan (NBSAP, 2003-2007) ([please see attached letters from Minister Praphat and Prof. Baimai](#)).

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

The project will be announced and reviewed in relevant Thai institutions and news media, and NHM annual reports. The Darwin name and logo will appear on all publications, reports, NHM and Thai museum websites, headed notepaper, equipment and vehicle used for field work. Through the British Embassy in Bangkok, which will be kept informed of developments and will assist in attracting commercial support for conservation projects.

18. Are you aware of any other individuals/organisations carrying out similar work? Are there completed or existing Darwin Initiative projects which are relevant to your work? Please give details, explaining the similarities and differences and how your work will be distinctive and innovative. Show how the outputs and outcomes of this work will be additional to any similar work, and what attempts have been/will be made to co-operate with such work for mutual benefits.

No similar work is currently being conducted in Thailand. A previous Darwin Initiative project (162/044/057 "Biodiversity inventory of the Mbaracayú Forest Nature Reserve, Paraguay") involving Dr Shelley resulted in the initiation of a biodiversity inventory for the Mbaracayú Forest Nature Reserve of Paraguay, training of local Guaraní and Aché people as parataxonomists and establishment of a local reference collection. Lessons learned in collaboration and setting up an infrastructure during that project will be applied to Thailand on a larger scale and results will form part of the national policy for conservation in the national park network.

19. Will the project include training and development? Please indicate who the trainees will be and criteria for selection. 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?

Trainees include: QSBG entomologist and IT specialist, 3 scientists from Chiang Mai University, a field co-ordinator in Chiang Mai, and a curator from NSM and entomologist from Mahidol University. These individuals have already been identified by the project principals on the basis of their relevant interests and skills. The QSBG entomologist and IT specialist will each spend two weeks in the UK during year 1 for training in collection management and website development, respectively. On-the-job training in database skills, insect collection and curation methods, GIS, image-analysis and website development will be provided to the other Chiang Mai trainees by the Thai project co-ordinators and the UK scientists. Chiang Mai and UK participants will then train the individuals from NSM and Mahidol University at QSBG during year 3. Specialists on insect groups that contain endangered species (butterflies, beetles, fireflies, etc.) will later be invited to receive training and participate in the DI project as part of the MNRE conservation plan for the country. The effectiveness of training will be assessed based on increase in numbers of species identified by trained people, increase in numbers of database entries and the number of people subsequently trained by trainees, and reflected in biannual reports.

20. How are the benefits and/or work of the project expected to continue after the end of grant period? Please provide a clear exit strategy.

The infrastructure resulting from the project will enable the MNRE to implement its plans for conservation of endangered insects in its second five-year conservation plan. The two national museums with their entomology infrastructures will then be key players in the third five-year plan that will begin about a year after the end of this project. Some of the consequences of the project include an increase in awareness of general biodiversity and conservation, potential employment opportunities for hilltribe people, and a national framework linking museum science to research institutions involved in biodiversity issues in the Protected Area System of Thailand. The systems in place will foster the expansion of scientific collaboration between Thai institutions and the NHM on other important insect groups. Spin-offs of research from satellite projects linked to the QSBG infrastructure initiated in the third year of the project will provide an understanding of the basic biology of threatened species. This will facilitate such activities as farming of these species for their re-introduction into national parks and production of specimens for the tourist trade.

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

Project implementation timetable		
Date	Financial year:	Key milestones
	Apr-Mar 2004/5 Apr-Mar 2005/6 Apr-Mar 2006/7	Activity areas: R = Review and planning; F = Field work and training; C = Collection management and website training; I = Information products; L = Collaborative links.
June	2004/5	Planning workshop in Chiang Mai, Thailand completed (R) Training in entomological techniques and data acquisition completed (C) Field surveys of culicids/simuliids in Doi Inthanon National Park initiated (F) Specimen preps, identification, collection building & curation initiated (I)
January	2004/5	Training of QSBG entomologist and IT specialist in NHM completed (C)
February	2004/5	Database and website designed for project use in QSBG (I) Image analysis system acquired, installed & entomologist trained in its use (I) Mid-year review and planning meeting and visit to field sites (R)
March	2004/5	Training, field work, curation & data recordation for 2004/5 completed (FCI)
April	2005/6	Curation and databasing of collection continued (CI)
June	2005/6	Co-ordination meeting in Chiang Mai completed (R) Second season of field work started and GIS training completed (F)

February	2005/6	Mid-year review and planning meeting and visit to field sites (R)
March	2005/6	Training, field work, curation & data recordation for 2005/6 completed (FCI) Database and website populated (I) Scientists/satellite projects on biodiversity/conservation research identified (L)
April	2006/7	Curation/databasing of collection and website development continued (CI) Collections of endangered insects/training for satellite projects initiated (FC)
June	2006/7	Co-ordination meeting and training session in Chiang Mai for NSM and Mahidol University scientists completed (RFC)
February	2006/7	Training and field work for 2006/7 completed (FCI)
May	2007/8	Database and website completed for culicids and simuliids and operational for post-project entry of further data on endangered species (I) Collaborative links and support for continued use of infrastructure established Final workshop for all participants and Thai officials

22. How will the most significant outputs contribute towards achieving the purpose of the project? (This should be summarised in the Log Frame as Indicators at Purpose level)

- Infrastructure and collections of model insect groups and certain endangered species established at QSBG.
- Thai capacity established for continued development and curation of insect reference collections to support biodiversity and conservation research.
- Training as basis for transfer of knowledge and concepts of infrastructure from QSBG to NSM.
- Entomological framework established for conservation of endangered species vis-à-vis Thailand's third five- year plan of the NBSAP.

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

PROJECT OUTPUTS		
Year/Month (starting April)	Standard Output Number (see standard output list)	Description (include numbers of people involved, publications produced, days/weeks etc)
2004/2005		
June	14A 4C; 4D	Planning workshop Entomological and data acquisition training in Thailand (4; 8 person wks)
February	8 4C; 4D 4C; 4D 14A 8	NHM staff in Thailand on project (2 [REH, AJS], 4 person wks) Entomologist and IT specialist training in NHM (2; 4 person wks) Entomologist trained in use of image analysis system (1; 2 wks) Mid-year review and planning meeting and site visits NHM staff in Thailand on project (3 [REH, AJS, LMH], total 6 person wks)
2005/2006		
June	14A 4C; 4D 8	Co-ordination meeting Entomologist trained in GIS (1, 2 wks) NHM staff in Thailand on project (3 [REH, AJS, MP], total 6 person wks)
February	14A 8	Mid-year review and planning meeting and site visits NHM staff in Thailand on project (2 [REH, AJS], 4 person wks)
2006/2007		
June	14A 4C; 4D 8	Co-ordination meeting Training workshop in entomological techniques, GIS and data acquisition for NSM and Mahidol staff (2; 4 person wks) NHM staff in Thailand on project (2 [REH, AJS], 4 person wks)
2007/2008		
May	13A 12A 12A 10 11B 14A 9 19A 15A 18B 20 21 17A	Insect reference collection completed at QSBG (1) GIS-referenced taxonomic database completed at QSBG (1) QSBG website for culicid and simuliid holdings, identification keys, and preliminary holdings of endangered species (1) Field guides–culicids & simuliids of Doi Inthanon NP finalised (2) Co-authored papers submitted for publication (minimum of 6) Final international workshop for participants & Thai officials (18) Management plan for integration of entomological infrastructures at QSBG & NSM in third 5-year NBSAP plan of MNRE (1) Radio interview (1) National press release (1) Conservation documentary for UK national TV (1)

		Image analysis system (£20,000) handed over to QSBG Entomological infrastructure established at QSBG (1) Collaborative network between QSBG & Thai institutions
--	--	---

MONITORING AND EVALUATION

24. Describe how the progress of the project, including towards delivery of outputs, will be monitored and evaluated in terms of achieving its overall purpose. This should be both during the lifetime of the project and at its conclusion. Please make reference to the indicators described in the Logical Framework.

Progress toward achieving the overall purpose of the project will be monitored and evaluated as follows:

- (1) NHM annual performance review of all UK partners, including project assessment;
- (2) Darwin Initiative biannual reporting requirements;
- (3) biannual meetings in Thailand between UK and Thai partners for training and planning;
- (4) consolidated monthly progress reports of UK and Thai co-ordinators distributed to all partners;
- (5) regular communication via email and telephone;
- (6) communication mechanism set up for post-project cooperation to be established before project termination;
- (7) scientific publications and field guides based on research carried out during the project.

25. How will host country partners be involved in monitoring and evaluation of the project?

Project monitoring and evaluation in Thailand will be accomplished at two levels. Monthly assessments of field work and reference collection development as part of the entomological infrastructure at the QSBG will be made by a local co-ordinator / administrator. These will be passed on to the principal Thai co-ordinator (Prof. Baimai, Chief Biodiversity Adviser) for discussion with the Minister of MNRE. Reports will be made to the UK partners on a monthly basis.

26. How will you ensure that the project achieves value for money?

Project expenditure will be administered by the NHM in accordance with Darwin guidelines, and will be subject to audit by the National Audit Office. Host partner institutions will be responsible for expenditure in Thailand through their established financial mechanisms. The local co-ordinator / administrator and the principal co-ordinator in Thailand will assure that the project receives value for money and will report financial matters periodically to the UK partners.

27. Reporting Requirements. All projects must submit six monthly reports (by 31 October each year) and annual reports (by 30 April each year). Please check the box for all reports that you will be submitting, dependent on the term of your project. You must ensure that you cover the full term of your project.

Report type	Period covered	Due date	REQUIRED?
Six month report	1 April 2004 – 30 September 2004	31 October 2004	Yes
Annual report	1 April 2004 – 31 March 2005	30 April 2005	Yes
Six month report	1 April 2005 – 30 September 2005	31 October 2005	Yes
Annual report	1 April 2005 – 31 March 2006	30 April 2006	Yes
Six month report	1 April 2006 – 30 September 2006	31 October 2006	Yes
Annual report	1 April 2006 – 31 March 2007	30 April 2007	No
Six month report	1 April 2007 – 30 September 2007	31 October 2007	No
Final report	1 April 2004 – project end date	3 months after project completion	Yes

LOGICAL FRAMEWORK

28. 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:</p> <p>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</p> <p>To establish capacity in Thailand for developing and maintaining national reference collections and identification facilities for insects in support of biodiversity conservation and research in Thailand.</p>	<p>Infrastructure and collections of model insect groups established at QSBG, and training for NSM staff.</p> <p>Thai capacity established for continued development and curation of insect reference collections to support biodiversity and conservation research.</p>	<p>Database and web-based system of information derived from state-of-the-art collections of Culicidae and Simuliidae.</p> <p>Collaborative research projects linking university researchers and Thai museum collections.</p> <p>Expansion/diversification of collections by Thai scientists; data added to database and website.</p>	<p>National and institutional agendas for biodiversity and conservation research do not change.</p> <p>Thai partners will maintain commitment and resources for continued development and use of collections for biodiversity and conservation research.</p> <p>Partners attract additional support and researchers to continue development and use of national collections.</p>
<p>Outputs</p> <p>Keystone insect reference collections.</p> <p>Expandable taxonomic database</p> <p>Expandable interactive website facility.</p> <p>Application of remote sensing and GIS techniques.</p> <p>Training of Thai museum staff and partners.</p>	<p>Culicid, simuliid and endangered species collections completed.</p> <p>Data collection and entry completed; database functional.</p> <p>Functional website of integrated data, images and identification keys.</p> <p>GIS data and maps linking collections, species and land cover ecology.</p> <p>At least 6 individuals trained in field methods, information and collection management practices, and/or GIS.</p>	<p>Accessible collections; inventories; Thai museum reports.</p> <p>Available on Thai museum websites; user notification; Thai museum reports.</p> <p>Available via internet; assessment by users; Thai museum reports.</p> <p>Database / website documented capability; image library in Thai museums.</p> <p>Annual appraisals and reports in Thai institutions and NHM; material and methods in publications.</p>	<p>No impediment for in-depth collection and curation; local contribution sufficient.</p> <p>First output successful and local IT support sufficient to complete development.</p> <p>First 2 outputs successful; local IT support sufficient; no technical limitations.</p> <p>GIS remains functional; contemporary satellite images available.</p> <p>Local participation enthusiastic and maintained; sufficient time allowed for in-depth training.</p>

Activities	Activity Milestones (Summary of Project Implementation Timetable)
Review and planning	Yr 1: planning workshop at start of project; Yr 2: coordination meeting; Yr 3: review and planning meeting at start of year, final workshop for participants and Thai officials.
Field work and training.	Yrs 1, 3: training in entomological techniques and GIS in Thailand, protocols for specimen and data acquisition; Yrs 1-3: field work in national park (9 days/month, 9 months/yr).
Collection management and training.	Yr 1: training visits to UK; Yrs 1-3: specimen preservation and identification, collection building and curation.
Information products.	Yrs 1-3: taxonomic database and website designed, implemented and populated in QSBG.
Collaborative links.	Yr 2-3 identify Thai scientists interested in biodiversity and conservation research; set up collaborative links and attract support for continued use and development of the taxonomic facilities.