



Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

Project Ref. Number	13026
Project Title	<i>Field Guide to the Forest Trees of Southern Thailand</i>
Country(ies)	<i>Thailand</i>
UK Contractor	<i>Royal Botanic Gardens, Kew</i>
Partner Organisation(s)	<i>The Forest Herbarium, Bangkok, Thailand</i>
Darwin Grant Value	£53755
Start/End dates	1/1/2005–31/12/2007
Reporting period (1 Apr 200x to 31 Mar 200y) and report number (1,2,3..)	1 Jan 2005–31 March 2005; report number 1
Project website	http://www.darwin.gov.uk/projects/details/13026.html
Author(s), date	<i>T. Utteridge, S. Gardner, P. Sidisunthorn, 26/4/2005</i>

2. Project Background

The project is based in Southern Thailand (a geo-political region including the provinces of Krabi, Chumphon, Trang, Nakhon Si Thammarat, Narathiwat, Pattani, Phang Nga, Phatthalung, Phuket, Yala, Ranong, Songkhla, Satun and Surat Thani). This area has a diversity of habitats from mangroves and coastal vegetation to tropical rain forests, that represent probably the highest tree diversity in Thailand. To date, only the partially completed, and English-language technical publication the Flora of Thailand is available for identifying trees in the region. This Darwin project will produce user-friendly, non-technical, but scientifically rigorous identification guide that will enable a larger audience to identify biodiversity, which currently does not exist for Southern Thailand.

The project was initiated after the enthusiastic response to the publication of the Field Guide to Forest Trees of Northern Thailand in 2000. The guide is being used by a wide range of groups including foresters, natural resource managers, ethnobotany projects, landscape architects, horticulturalists, amateur naturalists and tourists as well as by professional botanists and as a textbook by university students. The guide has also been used by conservation projects in Laos, Vietnam and Cambodia.

The project was placed on the Darwin Initiative reserve list in April 2004 subject to funding becoming available later in Round 12, and was granted funding in mid-November 2004 to start on 1st January 2005; thus, this annual report is based on three months. (N.B. The project team in Thailand had begun the project with match funding from Toyota, and this report may refer to that phase of the project.)

3. Project Purpose and Outputs

The project's purpose is to enhance the ability to identify and monitor Thailand's forest biodiversity to enable better in-situ conservation of this resource. The project will produce a bilingual field guide that will enable conservation workers and other stakeholders to identify the majority of trees which they are likely to encounter in Southern Thailand. The project will generate accurately named herbarium specimens deposited in several herbaria. In addition, the project aims to train students and staff from partner institutions, to apply conservation ratings, and in specimen collection and herbarium techniques. Conservation ratings will highlight the importance of conserving trees and forest biodiversity.

The outputs of the project will include the publication of a field guide covering the 1000 most commonly encountered tree species of Southern Thailand. Of these 500 species will be covered in detail - with detailed photographs and illustrations, with an additional 500 species will be included with brief descriptions. The conservation status of the trees will be assessed using IUCN red data list categories. Training will be given in: IUCN categories (one week); specimen preparation and collection and herbarium techniques (two weeks). Herbarium specimens of the tree species will be deposited in partner institutions (Bangkok, Songkhla and Kew), amounting to approximately 1000 – 2000 collections.

Project outputs and the proposed operational plan have not been modified over the last year (since 1st January 2005).

4. Progress

- Since the 1st January 2005 a total of Field trips 66 days, 11 national parks have been carried out in Southern Thailand resulting in around 500 plant specimens collected, 4000 photographs, and 60 drawings. Approximately 70% of these specimens have been processed and will be sent to BKF and Kew for identification. The project has produced a draft checklist of the species found in Southern Thailand (c. 2740 species from using literature sources), and has started to compile secondary data in the form of references, vernacular names, synonyms, distributional data and uses for the species in the checklist. In addition, the project has been processing material collected during the phase of the project carried using the match-funding by Toshiba (prior to 1st January 2005 c. 239 field days were undertaken using the match funding.) From this phase of the project, approximately 900+ specimens have been received at Kew since 1st January 2005, including a CD-ROM with several hundred images of those collections.
- Since January 1st 2005 herbarium specimens have been processed and received at BKF and Kew. Photographs have been processed (scanned) and CD-ROMS of the slides have been distributed, a CD-ROM has been received at Kew. A database of all known tree species from the Southern Thailand region has been generated and a copy has been received at Kew. Requests for literature have been made to add to this database and these will be sourced at Kew in the next reporting period.
- Since January 1st 2005 a collecting programme has taken place during 66 fieldwork days. Collecting includes making a minimum of three herbarium duplicates for each specimen (a duplicate is sent to BKF and RBG kew and others to local herbaria). Specimens are dried, labels are written up, and specimens sent to BKF where they are processed for distribution. This collecting methodology provides a set of specimens which when distributed can be identified in separate institutions, this is normal practice for herbaria and allows a greater audience to see the specimens. Labelling each specimen from the field notes and with geographic information will be used in estimating conservation ratings later in the project. In addition, each collection is photographed to publication standard using slide film and an SLR camera with macro lenses and extension tubes, flash photography is avoided if possible.

- The only significant difficulty during the first three months of the project was the late start and late notice of funding which necessitated re-writing the budget and timetable of the Darwin funding. The project team in Thailand had had to use the match funding to start the project and were already in the field when the Darwin funding started; some problems were encountered because the team were not in communication during the first three months because they were in the field away from contact. In addition, a minor problem encountered has been the packaging of herbarium specimens with naphthalene mothballs. These are banned in the UK and repackaging of the specimens has had to be carried out at Kew. This involves replacing each individual sheet of newspaper around each specimen with a fresh one and then allowing the specimens to 'air' so that levels of naphthalene are acceptable. This may seem to be insignificant, but the time taken for the repackaging and airing of specimens means that the specimens cannot enter the herbarium for naming. This has been carried out and specimens are now entering the herbarium at Kew.
- Exchange of specimens has been refined and specimens will now be sent without mothballs.
- The next reporting period is from 1/4/2005–30/9/2005, and during this period it is the rainy season in Southern Thailand. The peak collecting period is from October to April (ie the 'dry' season), which is when the project will begin another phase of fieldwork. A short period of fieldwork will be conducted in May when Tim Utteridge from Kew will visit the team as part of the project initiation workshop which will include four days in the field. The workplan for the next reporting period is shown below and because the project team is not visiting the field during this period much of the work is based around specimen processing and writing manuscripts for the guide. The categories are self-explanatory except for Liaison will include: a ten day visit/meeting in Thailand during May by Tim Utteridge, as well as regular meetings with the project staff within Thailand between institutions.

<i>WORK</i>	<i>April</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>August</i>	<i>September</i>
<i>Liaison</i>	x	x	x	x	x	
<i>Herbarium identification course</i>						x
<i>Specimen processing</i>	x	x	x			
<i>Specimen labels</i>		x	x			
<i>Organizing photographs</i>	x	x	x			
<i>Data management</i>		x	x			
<i>BKF specimen data processing</i>		x	x	x	x	x
<i>RBG Kew specimen processing</i>	x	x		x	x	
<i>Secondary data compilation</i>	x	x		x	x	x
<i>Specimen identification</i>	x	x	x		x	
<i>Drawing</i>		x	x	x	x	
<i>Field Trip</i>		x				
<i>Preparing manuscript - 300 species</i>				x	x	

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

Not applicable

6. Partnerships

- The collaborative relationship with the Bangkok Forest Herbarium and the Royal Botanic Gardens Kew is very strong. Since 1st January 2005 Dr. Kongkanda Chayamarit (Curator of the Bangkok Forest Herbarium) has been in close contact with the Darwin project team in the Southern Thailand region, and BKF has been organising the packaging and distribution of the specimens from Southern Thailand to Kew; Dr Chayamarit has recently visited Kew and discussed the project at Kew (April 2005), and has discussed the herbarium techniques course to be run by Kew staff in conjunction with a BKF course on basic forestry in Autumn 2005. The relationship is a very positive one and will be strengthened further by the Field Guide to the Trees of Southern Thailand project. Historically the relationship between BKF and RBG Kew is very good and continues to be strengthened with ongoing collaboration in other project areas in addition to the Field Guide to the Trees of Southern Thailand Project. BKF and RBG Kew are partners in the Flora of Thailand project with Dr D. Simpson (Cyperaceae expert at Kew) a member of the editorial board of the Flora. Both institutes are in discussion to undertake a major digitisation project at BKF and Kew, and there are ongoing collaborations as part of the Flora of Thailand project including a Grasses workshop to be conducted in Thailand in Autumn 2005 by Dr Simpson. There are no difficulties or unforeseen problems of the relationship between BKF and RBG Kew.
- Contacts with conservation workers based at National parks have been made through the numerous field visits. Since 1st January 2005 11 National Parks have been visited. The project members, especially those based at Kew, have begun to consider the expansion of the Interactive Key to Malesian plant families published in 2004 as part Darwin project on Papuan Plant Diversity project, into an Interactive Key to the Plant families of Thailand and Indo-China. This has provided a link with the National Herbarium of the Netherlands (through Paul Kessler at the University of Leiden branch).

7. Impact and Sustainability

- Since January 1st 2005 the project has visited 11 national parks and has undertaken collecting and fieldwork. This promotes the project within the region and gets local biodiversity workers to know of the project and its outputs. The project still has until 31 December 2007 during which exit strategy for the project will be discussed.

8. Post-Project Follow up Activities (max 300 words)

Not applicable

9. Outputs, Outcomes and Dissemination

- The project funding was awarded in November 2004 and thus the timetable for the project has shifted from a start date of 1st May 2004 to a start date of 1st January 2005, thus several of the dates that outputs agreed in the initial 'Project Implementation Timetable' and the 'Project Outputs Schedule' have been moved along.
- Herbarium specimens have been disseminated to herbaria in Thailand and the UK. Further dissemination activities will continue until 31 December 2007.

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

Code No.	Quantity	Description
20	1 laptop	Computer supplies purchased April 2005 at the Bangkok Forest Herbarium for project staff.
15C	1 article	Article in Kew Scientist Issue 27 (enclosed)
12A	2 databases	2 linked databases have been developed by the project team; the first deals with the specimen data from the collections made in the field, whilst the second database is of the draft checklist of species from Southern Thailand.
13B	1 collection	1100 specimens have been received in the Bangkok Forest Herbarium and an equivalent number of duplicates has been received at the Royal Botanic Gardens, Kew.
23	Kew staff time	Kew staff time has included herbarium specimen processing and identification; £1881.
23	1 match funding	Toyota Japan have provided match funds for the project for the project prior to 1 st January, including salaries, travel and subsistence for 239 field days.

- To date there have been no publications associated with the project.

Table 2: Publications

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

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

11. Monitoring, Evaluation and Lessons

- Since 1st January 2005 there have been 66 fieldwork days; 400 specimens have been collected during the fieldwork days (each with 2–3 duplicates totalling at least 800 herbarium specimens); 1100 herbarium specimens have been processed and received at the Bangkok Forest Herbarium (collected during fieldwork days undertaken during match funding phase of project); 1100 herbarium specimens have been processed and received at the Royal Botanic Gardens, Kew (collected during fieldwork days undertaken during match funding phase of project); a total collection of 5000 colour slides have been taken from all these collections in the field (Darwin and match-funding phases); CD-ROMs of these colour slides have been produced and distributed (1 CD-ROM received at RBG Kew); 300 illustrations have been made from all these collections (Darwin and match-funding phases). The critical identification of specimens will feed back to the project team and this will contribute to improving the understanding of Southern Thailand's forest biodiversity. Currently, some of the specimens are not named and the specimen naming by specialists at herbarium with large reference collections (such as BKF and Kew) is very important to increasing our knowledge of forest biodiversity in Southern Thailand.
- We have learnt this year that specimen processing needs to be as efficient as possible, ie no mothballs. Additionally, communication and reporting (e.g. of the budget) must be improved and has already improved since the end of April. The team will meet up in May and further discussions and improvements to reporting will be discussed then.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2003/2004

Project summary	Measurable Indicators	Progress and Achievements January 2005-Mar 2005	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</p> <p>To enhance the conservation of the forest biodiversity of Southern Thailand through the production of a tool for improved identification and monitoring of forest tree species.</p> <p>Improved capacity to collect and study botanical diversity.</p>	<p>Ability to identify the trees of Southern Thailand enhanced.</p> <p>Species of high priority for conservation identified using IUCN categories.</p> <p>New knowledge of the trees of Southern Thailand generated and shared.</p>	<p>2200 Herbarium specimens distributed to BKF and RBG Kew. Identification of these increases our knowledge of Southern Thailand trees.</p>	<p>Key actions for the next period are identification and dissemination of names of herbarium specimens. Herbarium techniques/identification course to be conducted in Thailand in August 2005 to students and trainee government forestry workers at BKF.</p>
<p>Outputs</p>			
<p>Field guide to the Forest Trees of Southern Thailand.</p>	<p>Field guide to 1000 species published.</p>	<p>A database of all known tree species from the Southern Thailand region has been produced from literature sources (approximately 2500 species). A print out of this database has been received at Kew.</p>	<p>Manuscript treatments will be written for 300 species in the next period.</p> <p>Synonyms need to be researched; this methodology will be discussed during the meeting in May 2005. Additional literature sources are needed from Kew's extensive library. This will be sourced in the</p>

			<p>next period.</p> <p>The database will be shared during the meeting in May 2005 for use by BKF and Kew staff.</p>
<p>Field work, photographs and illustrations of species made, specimen collection and taxonomic verification undertaken.</p>	<p>240 fieldwork days have been completed (from match funding and Darwin phases).</p> <p>Critically named specimens deposited in partner's herbaria; training in collection and preparation of herbarium specimens undertaken.</p>	<p>Herbarium specimens have been received at BKF and Kew.</p> <p>A database of all collections to date has been initiated.</p> <p>A slide collection of 5000 slides has been made available (from match funding and Darwin phases).</p> <p>A CD-ROM of slide images has been received at Kew.</p>	<p>Identification will proceed in the next period.</p> <p>The database will be shared during the meeting in May 2005 for use by BKF and Kew staff.</p>
<p>Conservation status of forest tree species assessed; partners trained in assigning IUCN categories.</p>	<p>IUCN categories produced.</p>	<p>IUCN categories can be generated from the database of collections and herbarium specimens.</p>	<p>Workshop to be held in Thailand in 2006.</p>

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.