

Darwin Scholarship - Final Report

(Submit within 2 months of Scholarship completion, max 6 pages.)

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| Darwin Project Ref No. | EIDPS11 |
| Darwin Project Title | |
| Name of Darwin Scholar | Mr Soulivanh Lanorsavanh |
| UK Organisation | Royal Botanic Garden Edinburgh |
| Your Organisation(s) | Faculty of Science, National University of Lao PDR |
| Your role within your Organisation | Lecturer in botany and plant morphology in the Department of Biology. Curator for Department's herbarium |
| Start/end date of Scholarship | September 2006 – March 2007 (originally December 2006 but prolonged due to delays in obtaining visas for Thailand and changes to Darwin project timetable for final workshop) |
| Location | Royal Botanic Garden Edinburgh, Bangkok Forestry Herbarium, Thailand |
| Darwin scholarship funding (£) | £ |
| Type of work (e.g. research, training, other, please specify) | Research and Training |
| Main contact in UK Organisation | Dr Mark Newman, Royal Botanic Garden Edinburgh |
| Author(s), date | Transcribed from discussions held with Soulivanh Lanorsavanh in March 2007. Philip Thomas, RBGE, May 2007 |

Background

Previous Involvement with Taxonomic Training in a Neglected Biodiversity Hotspot in Lao PDR (Darwin project 163/13/007).

The Darwin project started in 2004. Since then, I have participated in all of the project's activities in Nakai Nam Theun National Protected Area and at the university in Vientiane. My role has included the supervision of the mounting of specimens collected during field work in our faculty's herbarium, assisting with the identification training in the classroom and all aspects of the field work in Nakai Nam Theun.

Aims and Objectives of Scholarship

The main aim of my scholarship in the UK and Thailand is to provide an opportunity for me to work in a major international herbarium (E) and in an important regional herbarium (BKF). During my scholarship I expect to gain a better understanding of herbarium management, the production of taxonomic accounts, to improve my botanical knowledge and to meet other botanists.

The scholarship represents my first opportunity to travel outside Lao PDR

Roles of Royal Botanic Garden Edinburgh and the National University of Lao PDR

RBGE has a worldwide programme of botanical research and training, and has a particular interest and expertise in the floras of the Himalayas and SE Asia. The flora of Lao PDR forms part of this area so RBGE is a good place for Lao botanists to study. RBGE also has good relations with botanists in Thailand. This is important because Thailand and Lao share many species. Thailand has many more botanists and better facilities than we have in Lao PDR and in future they can help Lao institutes to develop. It is important to develop links with people and institutions in Thailand. Scientists from RBGE can help us do this.

The National University is the only university in Lao PDR and is responsible for training scientists and for biodiversity and sustainable development research.

Achievements during Scholarship

I arrived at Edinburgh airport on the 24th September. RBGE staff met me at the airport and took me to my accommodation in a house near the Garden. On Monday I went to the Garden for the first time. The first two days were spent familiarising myself with the herbarium, meeting different people and making a workplan for the rest of my visit to the RBGE. I was given a desk and computer in Mr Thomas' office.

The main activities included:

- identifying specimens collected during our field work in May and June 2006 in Nakai Nam Theun National Protected Area
- processing and mounting the specimens after they were identified.
- Learning to use a database and entering information into the national species database that the Darwin project was compiling to produce the National Checklist
- Researching information about species from the family Menispermaceae.
- Working on scientific papers about the results of the field work done during our Darwin project
- Visiting Royal Botanic Gardens, Kew and the Natural History Museum for one week
- Making arrangements for a visit to Bangkok

Identifying the specimens

This involved working with very experienced botanists such as Dr Newman and Dr Middleton who were able to help me develop my botanical skills. It often involved working with specimens collected in other countries such as Thailand, Vietnam and China. I was able to improve my regional and geographic knowledge and better understand the links between the floras of the other countries surrounding Lao.

Processing, mounting and laying away specimens

Each week I spent one afternoon working with the people in the moulder's office on the Darwin project's specimens. My activities included learning different techniques for mounting fruits and flowers, how to freeze and thaw specimens to make sure they are pest free and how to lay the finished specimens away in the herbarium.

Database work

One of the main outputs of the Darwin project is the National Checklist of Vascular Plants that is based on specimen records from different herbaria and information from recent botanical literature. It is produced from a database called 'PADME', a system that has been developed at the RBGE. This system can be used to manage information about specimens and also to produce descriptions for taxonomic accounts. A significant part of my time was spent learning how to use this database. In Lao PDR the Darwin project has decided to use a system called BRAHMS which is widely used in other countries in SE Asia including Thailand. The BRAHMS system is mainly for specimen information rather than for making taxonomic accounts. Although they are different, there are many similarities in the way that the information is organised and entered. At the end of the project, the information from the PADME database will be transferred to a BRAHMS database which will be installed in the herbarium at NUOL.

Database work also involved using many different internet resources such as the International Plant Names Index (www.ipni.org/ipni/plantnamesearchpage.do), on line databases for important families such as the Leguminosae (ILDIS - www.ildis.org), the World Checklist of Selected Plant Families (www.kew.org/wcsp/home.do) and the IUCN Redlist database (www.iucnredlist.org/search/search-expert.php). I was also able to use electronic identification systems, some of which I was able to copy on to the laptop that I bought with the grant. At our faculty we have limited access to the internet at the moment although this should improve as the university modernises. In the meantime, there are many internet cafes with broadband speed connections that I will be able to use.

Researching information about species from the family Menispermaceae

These are important medicinal plants in Lao. Some species look very similar but have different properties. People often collect the wrong plant causing problems for conservation and utilisation so one goal of my scholarship was to produce an account of these species that would show the differences. The RBGE staff organised a loan from the Paris herbarium and I was also able to study the specimens at the Natural History Museum and at the Royal Botanic Gardens, Kew during my visit to those institutions. My guide in Laotian to the two most commonly traded species is included in this report along with a revision of the two genera in the format of the *Flore du Cambodge, du Laos et du Vietnam*. I hope that this will form part of the account of the Menispermaceae for the flora. I also gave a presentation at the final workshop for the Darwin project in Vientiane in March 2007. This presentation is included with this report.

Visits to Kew Botanic Gardens and the British Museum

Dr Newman and I visited the herbaria at Kew and the British Museum from the 9th to the 15th October. We travelled by train, and for me that was the first time as there are no trains in Lao. During our visit, I met Dr Dave Simpson and other Kew botanists who have worked on the flora of Thailand. I have invited them to visit Lao PDR when they have the opportunity.

Working on scientific papers for the Darwin project

The Darwin project said it would produce 3 scientific papers about the botanical work of the project. One of these describes the new records for the flora of Lao that have been identified from the research. New records are based on specimens that have been identified as species that are not included in the *Flore du Cambodge, du Laos et du Viet Nam*. Identifying these records involved checking all the available floras and the databases, and then checking that it had not been included under another name, possibly a synonym. The main draft was finished by the time that I left Edinburgh and the paper has been accepted for publication in the *Edinburgh Journal of Botany*. The final draft is included with this report.

Bangkok Forestry Herbarium

As part of my scholarship I spent 4 weeks at the Bangkok Forestry Herbarium (BKF), Thailand's principal institution for the compilation of the Flora of Thailand and for the monitoring of threatened species. It also uses the BRAHMS system for managing its collections. Originally I was due to go to BKF in December for 4 weeks. However, there was a delay in obtaining a visa, partly because of the political situation following the September coup, and I did not arrive until early February. The main objective of my visit was to develop my skills on the BRAHMS system, complete my revision of selected species in the Menispermaceae, gain experience of the procedures in another herbarium and make contact with Thai botanists. During my visit I was invited to return to BKF to attend a special training course on the management of BRAHMS databases run by the developer of the database, Dr Denis Filer from the Oxford Forestry Institute. This was held from the 26th to the 30th March 2007. Finance was provided by the Lao Darwin project. During that workshop I was able to get the data from the PADME system for the National Checklist transferred to the BRAHMS system.

Other activities at RBGE

In November 2006, Mr Vichith Lamxay, the senior lecturer from the Faculty of Science and one of the botanical consultants for the Darwin project, was also at the RBGE. His visit was part of his PhD studies on the genus *Amomum* (Zingiberaceae) of Lao PDR with the University of Uppsala in Sweden. Dr Newman is a supervisor for this work.

Outcomes, lessons and Impact

During the scholarship I was able to improve and expand my taxonomic skills, knowledge of herbarium management and the management of databases. I was also able to travel to two foreign countries for the first time and had the opportunity to experience different cultures. All these things will be of benefit in the future as I continue my work at the Faculty of Science. The herbarium management skills will be immediately relevant as the Faculty was recently awarded a small grant from the World Bank-supported Lao Environment and Social Project (LEnS) fund to renovate the herbarium at the faculty. The database and general information management training should help me to manage the National Species Checklist over the coming months. I am also confident that the experience of producing the guide for the two Menispermaceae species will help me to methodically produce other guides for species that are important to the Lao people. I hope that some of the people that I met will come to Lao to assist in the botanical work that still needs to be done.

Soulivanh Lanorsavanh, Vientiane March 2007

Files to be Included:

- Final draft of New Angiosperm records paper
- Soulivanh final workshop presentation
- Menisperm papers:
 1. A revision of *Coscinium* and *Fibraurea* (Menispermaceae) in Cambodia, Lao PDR and Vietnam (English version)
 2. Taxonomic study on the genera *Coscinium* and *Fibraurea* (Menispermaceae) in Lao PDR.