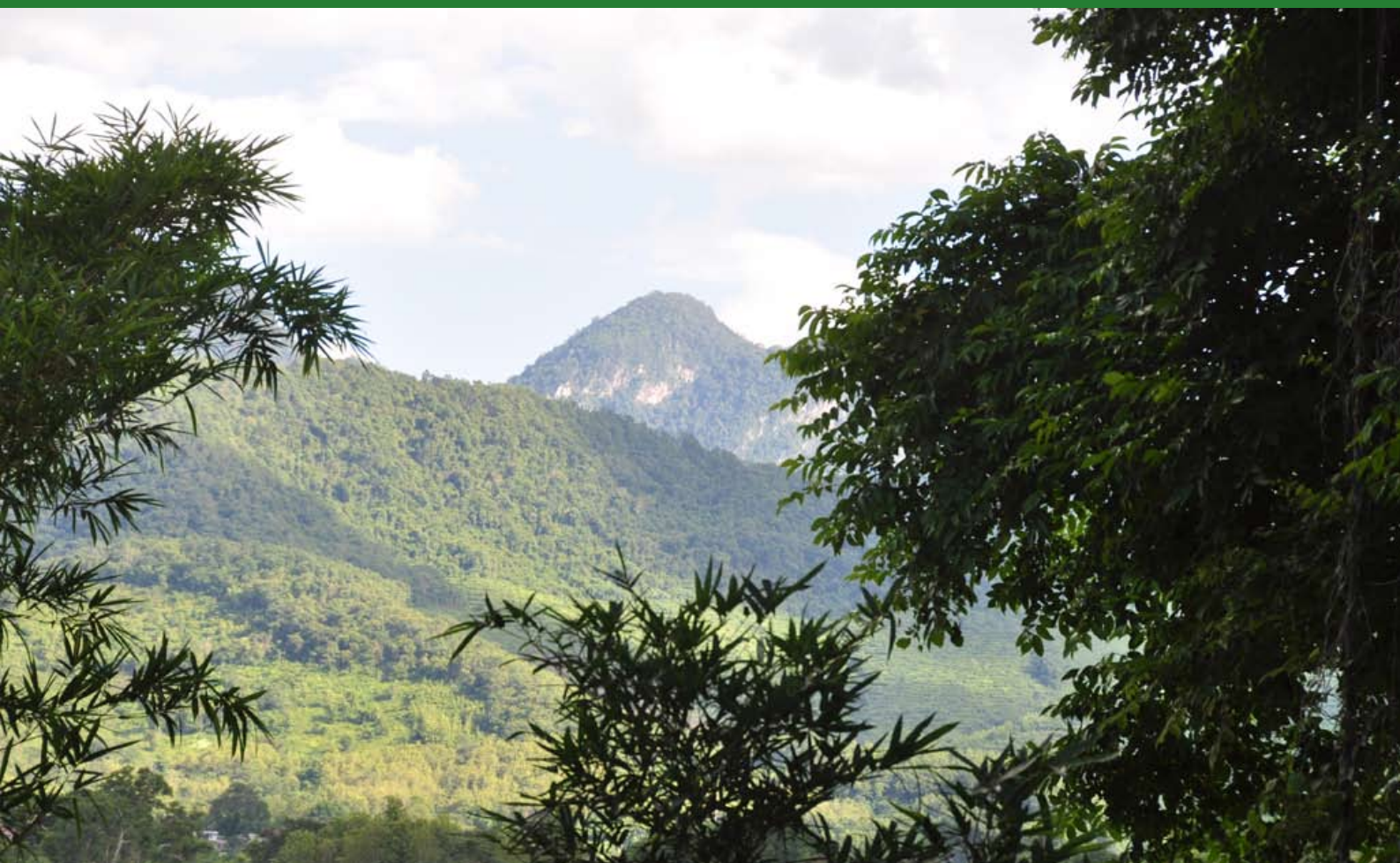


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Pha Tad Ke Botanical Garden



"As a botanist, I support the garden at Pha Tad Ke and I am asking you to do the same. This is a vital project for Laos: peaceful, as is everything to do with plants, it focuses attention on little-known treasures of Lao flora and will be immensely useful for the local economy and culture. Help Rik Gadella, founder of Pha Tad Ke, his initiative deserves your full attention and is well worthwhile."

Francis Halle

Professor Emeritus of Botany, University of Montpellier

WWW.PHA-TAD-KE.COM

ECOTOURISM & BIODIVERSITY IN LAOS

AN ECONOMY IN DEVELOPMENT

THE FORMER CAPITAL OF LAOS, LUANG PRABANG, IS A RIVER PORT ON THE BANK OF THE MEKONG RIVER IN THE NORTHWEST OF THE COUNTRY.



A CITY PRESERVING ITS UNIQUE HERITAGE

Declared a World Heritage Site in 1995, the city of Luang Prabang is a unique example of an established traditional town. The preservation of its cultural heritage, its historic monuments and its social structure has attracted international attention.

A GROWING TOURISM BOOM

Since the Lao People's Democratic Republic was opened to new economic structures and become integrated into the world system of open commerce in 1986, tourism has developed. It is now playing an important part in the development plans and in the economy of the country. There are 600 classified buildings in Luang Prabang and it is now the leading tourist destination of Laos. Since 1995, the number of visitors has risen from 20,000 per year to more than 250,000.

The protection of biodiversity is a national priority.

Biodiversity is the common thread that is integral to our lives and on which we depend. The biological diversity of Laos is immense, made up of vast rainforests and rare floral species including many varieties of orchids. The National Assembly of Laos, wanting to preserve natural resources for the sake of the betterment of local people, has passed three laws concerning wildlife and aquatic life, intellectual property, and fire prevention. As well, Laos has put in place 21 national reserves for the preservation of biodiversity and wild species, covering nearly 14% of its territory. The goal of the government is that by 2020 it will bring its forested territory up to 70% from the present 50% of the country.

This policy is in line with the economic perspectives of the agricultural and forest industries and depends on a program of protection of the environment and of the flora and fauna and also on investment in tourism.

In addition, the government has launched an awareness campaign to inform the people of the dangers of large-scale deforestation.



Pha Tad Ke, just outside Luang Prabang on the Mekong



View of Luang Prabang, from the Phousi Mountain

LAOS

- Neighboring countries: Myanmar (Burma), Thailand, Cambodia, Vietnam and the People's Republic of China.
- 235,000 km², 6M population, 60% under 21 years old.
- 80% of the population lives on agriculture, fishing and forestry.
- 737,208 tourists in 2000.
- Government encourages investment in ecotourism.
- Forested area: 50% of the country, government goal is to extend this to 70%.



LUANG PRABANG

- 35,000 population.
- Declared a World Heritage site in 1995.
- Leading tourist destination in Laos with more than 250,000 visitors per year.
- Port city on the Mekong River.
- Unique example of an established traditional town.
- Preservation of its cultural heritage.

The Pha Tad Ke Project



View over the rice fields at Pha Tad Ke

AIM

The creation of the first botanical centre in Laos for the conservation and study of the Flora of Laos.

The aim of the Pha Tad Ke project is to create a regional research centre with the first living collection of plants in Laos, dedicated to research, both in situ and ex situ, for both educational and leisure purposes.

As such, Pha Tad Ke will be the very first centre in the country, which can ensure the knowledge and the preservation of the exceptional biodiversity of Laos. The centre, supported by the collaboration and exchange of information with prestigious botanical institutions of South East Asia, the United States and Europe will have as its mission the development of educational programs, to publish editorial work, and to conduct research into environmental conservation, re-introduction of plants, horticulture, and ethno-botany in order to promote biodiversity.

A PIONEER ECOTOURISM PROJECT

Pha Tad Ke wants to promote a new type of ecotourism with initiatives in:

- Raising the fundamental awareness of the population of the importance of biodiversity and indigenous plants for the development of the country.
- The protection of traditional knowledge and of a unique environment from the point of view of management and sustainable development.
- The allocation of 2% of the budget towards helping local villages.
- The formation of an all-Lao team who will eventually manage the garden.



Signing of MOU at NUoL, Vientiane, 2010



Village life next to the garden

PHA TAD KE BOTANICAL GARDEN

PO Box 959

06000 Luang Prabang, LAO PDR

contact@pha-tad-ke.com

www.pha-tad-ke.com



Pha Tad Ke, June 2010

PHA TAD KE - TODAY AND TOMORROW

Pha Tad Ke Botanical Garden is located on the Mekong River, 15 minutes by boat from the centre of town. It lies two kilometers from the village of Ban Chan, between the river and rice paddies. It is an exceptional site. On the former hunting grounds of the Viceroy of Luang Prabang, the Pha Tad Ke Botanical Garden nestles at the base of the Pha Tad Ke cliffs.

Area: 14 hectares

25 hectares of reserved forest on the mountain

Construction of the garden over five years

Opening planned for 2015

At the instigation of Rik Gadella, the first work began in 2008 on the clearing of the site and development of the concept for the master plan. Today, a team of 30 gardeners is working to prepare the site. In 2010, a five-year agreement was signed with the National University of Laos and the Royal Botanic Garden of Edinburgh facilitating the formation of a team of gardeners and botanists as well as for the collecting of plants, which began in the first months of 2011.



Rik Gadella

The Founder

Rik Gadella was born in Aruba, in the Caribbean, in 1964. After studying philosophy, he established in Amsterdam a publishing house called Picaron Editions, devoted to works of philosophy, poetry and art. He worked with a number of writers and artists, notably Jean-Charles Blais, Mel Bochner, James Brown, Markus Lupertz, Robert Mangold, Jose Maria Sicilia, Bob Wilson, etc. A dedicated and hard-driving organizer, he founded and directed internationally acclaimed art fairs, including Paris Photo, ArtistBook International, 20th Century Design and Parcours des Mondes. In 2007, he visited Laos, and had a revelation.

"Who would have thought that a week's stay in Laos would have turned my life around so much that I'd end up moving to the other side of the world, into a country and a culture that I knew nothing about, to launch myself on a completely new path and a huge adventure. Here I am in Luang Prabang, one of the most fascinating places on earth. And, I also have the privilege of working with amazing people on the discovering and classifying of an exceptional flora for the creation of the first botanical garden in Laos."

Thus the project of a botanical garden took shape with the necessity of setting up a research centre worthy of the name. This decision required rigorous scientific work and the valuable input of committed partners.

For Rik Gadella, it is vital to make known the extraordinary but little-recognized biodiversity of Laos and that Pha Tad Ke is also involved in a dynamic education process and in the promotion of responsible eco-tourism.

Why help Pha Tad Ke ?

TO BE A PART OF THE DEMANDING AND AMBITIOUS PROJECT OF CREATING THE FIRST BOTANICAL GARDEN IN LAOS.

PROTECT BIODIVERSITY

By supporting Pha Tad Ke, you help protect the biodiversity of Laos and to begin the process of raising the awareness of the local population about environmental issues.

The garden will present a living collection of the Flora of Laos as well as a herbarium. A medicinal plant garden and several thematic collections, including orchids and a butterfly farm, will allow visitors to discover the richness of the Flora of Laos.

SUPPORT THE DEVELOPMENT OF YOUNG LAO STUDENTS

The Pha Tad Ke Botanical Garden has as one of its objectives the creation of five scholarships in the field of botanical research in Laos, both in situ and ex situ. It will participate in putting into effect programs of cooperation and post-graduate qualifications for Lao botanists in institutions and universities overseas.

By becoming involved in the educational progress of Pha Tad Ke, you will help Lao students to expand their horizons and to contribute to the advance of research and innovation in Laos, in the fields of botany and biodiversity.

BE INVOLVED IN RESPONSIBLE TOURISM DEVELOPMENT IN AN AREA OF GREAT POTENTIAL

Mr. Southat Keouboulapeth, a student at Souphanouvong University in Economics and Tourism, completed a survey about tourism in Luang Prabang under the aegis of Pha Tad Ke. This survey, conducted in November 2009, was carried out in the centre of Luang Prabang and involved about 600 tourists. Analysis of the results revealed that 73% of respondents expressed a desire to visit a Botanical Garden and 54% of those came to Laos particularly to enjoy the beauty of its natural environment.

By getting involved with the Pha Tad Ke Botanical Garden, you will help the development of ecotourism in Laos and thus contribute to the growth of new economic activity which will benefit the local population.



Training by Dr. Leigh Morris, RBGE, August 2010



Training by Dr. Bouakbaykhone Svengsuksa, June 2010



Pha Tad Ke, June 2010



01 Collecting

The primary mission of Pha Tad Ke Botanical Garden is to establish a collection of living plants as well as a program of conservation that will be useful for botanists and their research projects.

This project will be the first of its kind in a country, which suffers from a lack of knowledge in this field.

The goal is to establish a number of specialized collections of native plants, to preserve the customs and uses associated with these plants, and to promote their future use both in ceremonies and as medicines or in traditional construction, etc.

The Garden plans to create five thematic collections, which will make possible research directed at the reintroduction of wild plants and their restoration into the natural environment.

The different themes of these collections will be determined by the Garden's scientific team and will include, among others, an orchid house and an ethno-botanic garden .

In order to establish these collections, the Garden envisages starting with a series of eight collecting trips a year over three years to be undertaken by the scientific team.



Pr. J.E. Vidal & Dr. Bouakhykhone, 1994



02 Herbarium

Pha Tad Ke seeks to create a 240 square meter herbarium to accommodate specimens collected in the field to facilitate botanical research and to encourage the study of the preservation of the Flora of Laos.

The herbarium will be a useful tool for training and also for providing subjects for study in the flora and biodiversity and will eventually consist of more than 10,000 indigenous species. This herbarium will demand rigorous discipline in its development and careful conservation work. Each collected specimen will be given a classification, a description and precise details of its collecting.



Specialized Herbarium Storage



03 Medicinal Plants

Laos has many medicinal plants. The uses of these, which was once the province of minority groups living in the mountains and of monks, remains little known by the greater Lao population. So Pha Tad Ke is planning the creation of a medicinal garden of about 4,000 square meters in order to evaluate the usage of these plants through research, educational programs and publication of academic works on the subject.

This medicinal garden will:

Enable people to:

- Re-discover and learn the skills of their antecedents
- Create employment
- Give treatment to villagers
- Educate new generations about nature



Field trip Pha Tad Ke Team, November 2011

It is envisaged that a collection of around 400 species from Laos will form a basic reserve; emphasizing the educational aspect through precise descriptions of each plant; presented in a museum in the form of traditional style house and the setting up of teaching programs to catalogue the uses of these medicinal plants. To answer these needs, the Association of the Friends of Pha Tad Ke is looking for contributing partners.



Careya sphaerica

04 Orchid House

In order to help to preserve the environment, Pha Tad Ke Botanical Garden would like to set up an Orchid house.

A 150m² structure will hold 900 species from Laos and neighboring areas. The purpose of the house is the protection of these fragile and sensitive plants, to improve their visibility and accessibility, given especially that the plants live as epiphytes in trees high above the ground.

Once they are in place and they have developed and been studied, the house will give visitors the opportunity to discover the orchids of Laos in a situation designed for serenity and peace.

This open structure of 200m² will include a 50 square meter workspace for botanical artists.



Workshop by Steve Scott, RBGE

05 Education

One of the goals of the Garden is that, within 20 years, it will be directed and run by an all-Lao team (administration, training, and reception) and to transfer all the direction to a Lao non-profit association. The population of Laos at present has not had the benefit of the necessary resources to conduct such a project well and there are very few botanists. For this reason, Pha Tad Ke wishes to create these teams and to promote botanical and horticultural education in Laos.

Actually, the main objective is two-fold: to create infrastructure and an external structure dedicated to research and framed by competent botanists under the supervision of the Scientific Committee. Thus, an important part of the budget of the Association of the Friends of Pha Tad Ke is to be used for training and skills development. Educational programs will be useful in recruiting qualified personnel and to build a Botanical Garden, which will one day have a totally integrated Lao staff.



06 Sensibilisation

Among its principal objectives, Pha Tad Ke seeks to support environmental education in Laos, a country blessed with a considerable degree of biodiversity, a basic keystone for the region in terms of natural resources. At this point it is imperative that Lao people should understand the importance and uniqueness of their natural heritage and should want to preserve it.

Pha Tad Ke also seeks to involve institutions in financing teaching programs in environmental awareness aimed at the Lao people and the general public.

ENVIRONMENTAL AWARENESS PROGRAMS

The Garden envisages receiving visits from 200 groups of students and adults annually, to be supervised by the educational staff of the Gardens and these groups will receive an Environment Kit at the end of their visit.

This kit will encapsulate the activities of the workshop in both study sessions and games in order to instill an appreciation of environmental responsibility. These programs will take place in the form of one-day or weekly workshops and will be all about the specific themes of ecology and practical alternatives.



ຕື້ນໄມ້ ປຽບເໝືອນປອດຂອງພວກເຮົາ
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Pha Tad Ke Botanical Garden - Luang Prabang

First Publication of Pha Tad Ke in Laos for children



07 Publications

To promote our goals and to reach a large public, in Laos as well as internationally, we are preparing several book publications: Children's Books, Field Guides, Teachers Manuals and Online Reference Databases.

Children Books

Books for and by children in Lao language with fun illustrations and educational texts.

Trees of Laos (Published December 2011)

Dr. Bouakbaykhone Svengsuksa

Plants of the Forest (Published February 2012)

Khamfa Chanthavongsa

Flowers and Symbols of Buddhism in Laos

Manichanh Sayavong

Trees of Laos - 2

Dr. Bouakbaykhone Svengsuksa





Ars Botanica

A collection of small and intimate books with beautiful botanical illustrations from local and international artists, each volume illustrates a theme in depth and carries the flavours of the tropics to your house.

Areca catechu

Dendrobium moschatum

Goniothalamus laoticus

Styrax benzoin

Ethno Botanica

The richness of the Laos Flora and the way the plants are used in daily life, in religious and social rituals is the domain of ethno-botany and the focus of these publications.

Fleurs de la Devotion (Published January 2012)

Children's Toys and Games from Nature

Medicinal Plants from the Hmong



Educational Teaching Manuals

Didactic material in Lao language developed by Pha Tad Ke with various experts for use by schools, extension programs and training programs. These training programs are available at the garden, or provided in situ by our own educators and trainers.

Installing a School Garden in 3 simple steps

Course in Practical Horticulture (collaboration with RBGE)

Course in Practical Field Botany (collaboration with RBGE)



Field Guides

Practical Field guides of the Flora and Fauna of Laos and South East Asia, easy to carry and use, they are the companions of all your explorations be it in the field or on your sofa.

Fruit & Vegetables in the Markets of Laos

The Wild Orchids of Lao PDR

The Butterflies of Lao PDR

Zingiberaceae of South-East Asia



Monographs

Lavishly illustrated books on the Flora, Fauna and the Arts of Lao and South East Asia. Photographers of international re-known are commissioned to illustrate these publications, written by botanists and art-historians, each expert in their fields.

The Wild Orchids of Laos

The Butterflies of Laos

The construction of Pha Tad Ke



A General introduction to plant collecting and the Flora of Lao PDR



The flora of Lao PDR is one of the least known in Asia. Although it was revised in the *Flore générale de l'Indochine* (Lecomte 1907–1950) and is being revised again in the *Flore du Cambodge, du Laos et du Viêt Nam* (Aubréville 1960–present), neither of these projects has treated Lao PDR independently. Both these studies group the flora of Lao PDR with that of its neighbours, Cambodia and Vietnam and the great majority of specimens cited are from Vietnam where botanical collecting has always been more intensive than in Lao PDR or Cambodia.

The earliest botanical collectors in Lao PDR were French. Clovis Thorel was the first to make a significant contribution, collecting along the Mekong in southern and central Lao PDR from 1866–1868. He was followed by Jules Harmand who also worked mainly in the south in the 1870s. These pioneers were followed by Henri D'Orléans (1892, in northern Lao PDR), Clément Dupuy (1900, around Louangphrabang) and Jean- Baptiste Counillon (1909, along the Mekong). The most prolific collector in the 20th century was Eugène Poilane who worked in various provinces of Lao PDR from the 1920s–1940s. At the same time Camille Joseph Spire was collecting in Xiengkhouang. More detail about the flora and collectors in Cambodia, Lao PDR and Vietnam may be found in the “*Tome préliminaire*” to the *Flore générale de l'Indochine* (Gagnepain 1944).



Pha Tad Ke, just outside Luang Prabang on the Mekong

Historical events all but prevented botanical work in Lao PDR between World War II and the 1990s though some collections were made by Jules Vidal, Pierre Tixier and Allen D. Kerr in the 1950s and early 1960s. Taking all these Laotian collections together, it is possible to calculate that roughly 3 specimens per 100 km² have been collected in Lao PDR up until the early 1990s. Such figures bear comparison with statistics such as 50 per 100 km² in Thailand, and 1500 in the United Kingdom.

Starting around 1990, Lao botanists began to intensify their study of the flora, often in cooperation with foreign scientists. They have contributed to accounts of families for the *Flore du Cambodge, du Laos et du Viêtنام* and several broadly based forestry projects with a taxonomic component, such as the DANIDA funded Lao Tree Seed Project (LTSP) that formed part of the regional Indochina Tree Seed Project. A significant output of this project was the manual, *Forests and Trees of the Central Highlands of Xieng Khouang* (Lehmann et al. 2003). Other studies have focused on plants which yield non-timber forest products such as rattans or medicinal plants (for example Evans et al. 2001, Somsanith Bouamanivong 2005) or on particular *National Protected Areas* (Maxwell, 1999; Chansamone Phongoudom, 2000).



Orchids have been of special interest and there has been a considerable increase in our knowledge of this group (Schuiteman & De Vogel 2004, Svengsuksa & Lamxay 2005). This is continuing through the work of the ORCHIS project (www.orchisasia.org), a collaboration between the National University of Lao PDR (NUoL), Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD) and the Nationaal Herbarium Nederland. Other botanical work that is currently under way in Lao PDR includes Biodiversity Informatics and co-operation in Taxonomy for Interactive shared Knowledge base (BIOTIK), an EU funded project concentrating on large tree species, and a number of MSc and PhD ethno botanical projects based at NUoL and Uppsala University.



Three checklists for the plants of Lao PDR have been published.

1. *Noms vernaculaires de Plantes en Usage au Laos* (Vidal 1959), lists more than 1000 species with their local names and uses.

2. *Checklist of Lao Plant Names* (Callaghan 2004) lists more than 2000 taxa, including more than 300 cultivated and introduced plants. This second checklist is primarily based on Vidal's work, the fascicles of the *Flore du Cambodge, du Laos et du Viêtنام* that have been published since 1960, enriched with a range of unpublished field surveys.

3. *A checklist of the Vascular Plants of Lao PDR* was published in 2007 as part of the Darwin Initiative project: Taxonomic Training in a Neglected Biodiversity Hotspot in Lao PDR. This checklist was made by:

Mark Newman

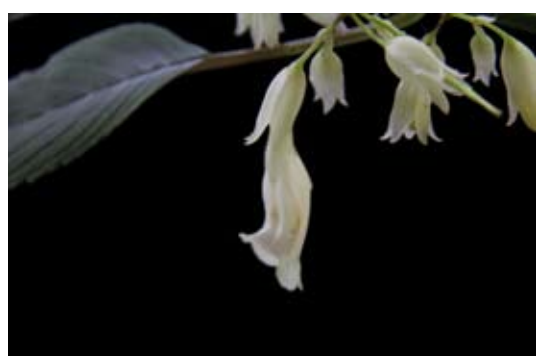
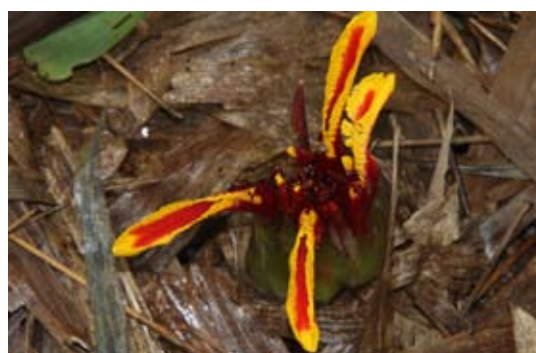
Royal Botanic Garden Edinburgh

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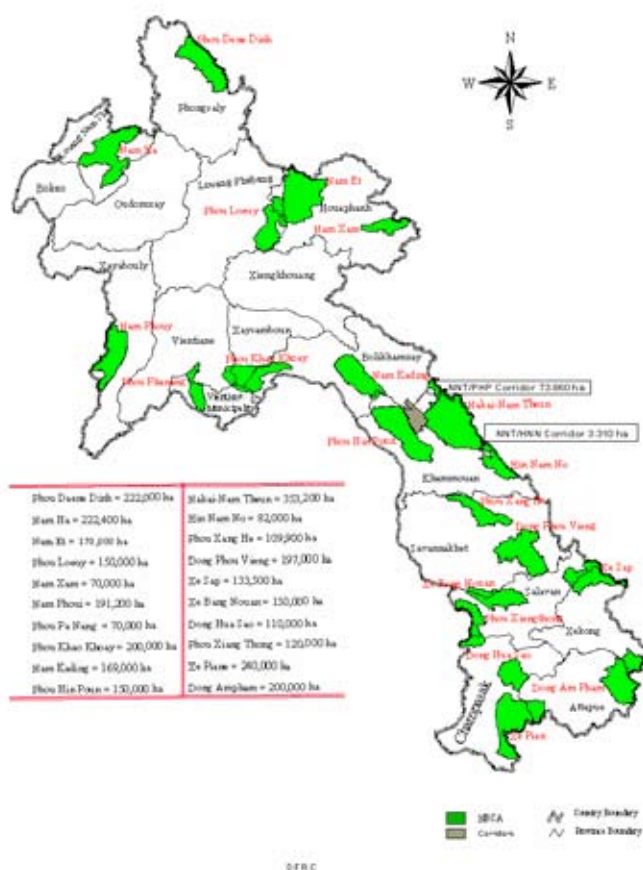
Royal Botanic Garden Edinburgh

The checklist includes 4,850 species of native, introduced, cultivated and naturalized vascular plants. The information in this checklist derives from several sources. The first was an electronic version of Latin names contained in Callaghan's *Checklist of Lao Plant Names* (Callaghan 2004) and generously donated by the compiler. The second is the specimen based accounts in the fascicles of the *Flore du Cambodge, du Laos et du Vietnam* that have either been published since 1960 or are due to be published in the near future.

For each taxon, at least one specimen per province was selected for inclusion in the database. The third source is the records of specimens collected during recent botanical projects in Lao PDR. In most cases the specimens are lodged in Lao herbaria with duplicate sets at Paris, Edinburgh and Leiden.

In addition to the specimen-based records, a range of non-specimen based electronic and printed literature sources have been used. Published and unpublished accounts for the Flora of Thailand and the Flora of China have been consulted and taxa that have been noted to occur in Lao PDR included in the checklist. The World Checklist Series, both published and as available on the internet (www.kew.org/wcsp/home.do) has also been used. These records are not directly supported by specimens and are therefore not as reliable.

National Biodiversity Conservation Areas



Source: *A Checklist of the Vascular Plants of Lao PDR*, 2007

Mark Newman, Sounthone Ketphanh, Bouakhaykhone Svengsuksa, Philip Thoma, Khamphone Sengdala, Vichith Lamxay, Kate Armstrong.

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Scientific Advisor Pha Tad Ke Botanical Garden

They Support Pha Tad Ke



The National University of Laos was founded in 1995 in Vientiane and offers two specialized courses in Botany within the Faculty of Agriculture and Forestry.



The Museum of Natural History was founded in 1793, replacing the Royal Medicinal Gardens, created during the reign of Louis XII of France in 1635. This institution is dedicated to the conservation of collections of plants, the dissemination of scientific culture, research and education.



Queen Sirikit Botanic Garden, is the first botanical garden of Thailand at international standards. The main objectives of the Garden are to serve as a center for botanical study and research and to render services concerning biodiversity and environmental conservation. In 1994, QSBG received the honor from HM the Queen to grant a royal permission to name this northern botanic garden as “Queen Sirikit Botanic Garden”.



**Royal
Botanic Garden
Edinburgh**

The Royal Botanic Garden Edinburgh, created in 1670 in Scotland as a garden of medicinal plants, now specializes in biodiversity, conservation and climatic change. To this end it initiates and coordinates a number of international projects.



The Singapore Botanic Gardens is a dynamic and living monument to the foresight of the founding fathers of Singapore. Sir Stamford Raffles, the founder of Singapore and a keen naturalist, established the first botanical and experimental garden on Government Hill (Fort Canning Hill) in 1822.



BCGI is an international organization created in 1987 and dedicated to the conservation of endangered floral species. It includes over 700 members in 118 countries and most International Botanic Gardens.