

## **A Laotian tree database including useful varieties in secondary forests after slash-and-burn agriculture**

The inhabitants of rural Laotian villages harvest various non-timber forest products (NTFPs) from their forests, hence basic information on these plants is necessary for the preservation and management of the forests as well as for dendrology (study of woody plants) and NTFP studies. However, in Laos, where national development began late, there has been no progress as regards the maintenance of illustrated plant references and related materials. *Forests and Trees of the Central Highlands of Xieng Khouang, Lao PDR* (Lehmann, L., Greijmans, M. & Shenman, D., 2003), despite its information being limited to the arboreal varieties of only a single region, is one of the precious few such volumes about Laos. Unfortunately, it is out of print and there are no existing plans for a second edition, which means that there are currently (as of 2015) no illustrated reference books available at places like bookstores. In order to assist forest investigations by researchers, forest preservation administration officers, and NGO personnel, among others, we began constructing a database of trees and shrubs as foundational information for the maintenance of harvested leaf specimens.

We prepared leaf specimens taken from over 300 tree samples gathered in post-slash-and-burn second-growth forests (fallow forests) in the investigated central Laotian villages. We have finished identifying 120 of them (Table 1) and assigned code numbers to the identified samples so we can look them up. The samples were then collected and maintained for browsing at the leaf sample repository in Laos Forest Research Center.

In samples captured with a CMOS sensor, information necessary for identification, such as the presence or absence of fine hairs, is lost from the image. In order to make a detailed observation of harvested leaf specimens on a computer screen, high-resolution images were captured using a CCD sensor. At present, we are processing approximately 70 high-resolution images.

The specimen images can be browsed on the newly-created internet database titled “Specimen Trees of Secondary Forests in Lao PDR.” In this database, local names, scientific names (genus and species), usage (in Laos), photographs, specimen images, specimen collection locations, specimen codes, and links to existing databases aside from JIRCAS are included. It is also possible to look up the local names in Laotian (Figure 1). Furthermore, we have linked our data to the GBIF (Global Biodiversity Information Facility) and the EoL (Encyclopedia of Life) databases.

Several forest-related projects are underway in Laos, and we expect that our results will be useful to the project staff, the Laotian government and universities, and so on. In particular, several REDD+ projects are in preparation within Laos, and they are expected to make use of this database.

We will continue adding new information to the published databases in order to hasten the identification of as yet unidentified tree varieties. Moreover, because our focus has been on specimens collected from the slash-and-burn fallow forests of central Laos, it will hereafter be necessary to compile specimens and local names from other Laotian regions.

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Table 1. Compiled database showing some of the trees appearing after slash-and-burn agriculture

Local Name	Local Name	Scientific Name	Family Name
ຄັບ	khup	<i>Maesa ramentacea</i> Wallich	Loganiaceae
ຕອງຕາແວນ	Tong ta van	<i>Mallotus paniculatus</i> Mull.	Euphorbiaceae
ສົ້ນພິດ	Som phot	<i>Rhus chinensis</i> Mill.	Anacardiaceae
ເໝືອດ	Muat	<i>Aporosa villosa</i> (Lindl.) Baillon	Euphorbiaceae
ຕົ້ວຂິນ (ໜາມ)	Tiew khon (Nam)	<i>Cratoxylum maingayi</i> Dyer	Hypericaceae
ນ້ຳກ້ຽງ	Nam kieng	<i>Gluta usitata</i> (Wall.) Ding Hou	Anacardiaceae
ກະເບືາ	Ka bao	<i>Hydnocarpus ilicifolia</i> King	Achariaceae
ນົມຍານ	Nom nhan	<i>Barringtonia annamica</i> Gagnep.	Lecythidaceae
ໝາກກໍ່	Mark Kor	<i>Castanopsis</i> sp.	Fagaceae
ສະຄາມ	Sa kham	<i>Peltophorum dasyrrhachis</i> (Miq.)	Fabaceae

No 13 Code NM218

Lao name ເມົາຂິນ

Read Mao khon

Scientific name *Antidesma acidum* Retz.

Family Euphorbiaceae

Habit shrub

Use eat

Part fruit, firewood

Statute collect

Names, characteristics, uses, and other pertinent information

Harvested Leaf Specimen

Photo

Link GBIF Encyclopedia of Life

Specimen Trees of Secondary Forest in Lao PDR  
ລາຍຊື່ ຜັດ ໃນເຂດປ່າຊື້າ ຂອງ ສປປ ລາວ

ລິ້ງຕາມສື່ອື່ນໆ  
Local Name Index

ຊື່ ບົດທາສາ  
Botanical Name Index

ຊື່ ຕຸກກຸນ  
Family Name Index

ກຸນນະໂນມ  
Use Type

ຖານຂໍ້ມູນ  
Data Base Top

Lao PDR has many forest preservation, management and other such projects. It is essential to collect and preserve basic information on trees unique to the country. To this end, specimens were created from approximately 300 samples taken from secondary forests after swidden in Viengkam Province of central Laos from 2011 to 2015. A database was created of high-resolution images taken with a CCD-sensor-equipped scanner as the samples were identified.

This database was set-up through the research project, "Establishment of sustainable and independent farm household economy in the rural areas of Isosochina" under the collaboration between the National Agriculture and Forestry Research Institute (NAFRI), the Forest Science Research Center (FSRC) of Lao PDR and the Japan International Research Center for Agricultural Sciences of Japan.

The information could be used by forestry scientists, government and NGO staffs, who need the correct names of trees through our research fields in Lao PDR.

Though these species have been identified based on the following literatures, there might be some wrong identification.

Fig. 1. Database of trees appearing in slash-and-burn secondary forests (left: lookup screen, right: tree classification information screen)

URL: <http://www.jircas.go.jp/database/secondarytreelaos/>