

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/281159078>

Biodiversity Informatics: An interactive computer- aided identification and knowledge base on tree species of Lao PDR

Article · September 2014

CITATIONS

0

READS

47

8 authors, including:



Juliana Prosperi

Cirad - La recherche agronomique pour le développement

24 PUBLICATIONS 421 CITATIONS

[SEE PROFILE](#)



Vichith Lamxay

Uppsala University

38 PUBLICATIONS 488 CITATIONS

[SEE PROFILE](#)



B. R. Ramesh

French Institute of Pondicherry

95 PUBLICATIONS 2,341 CITATIONS

[SEE PROFILE](#)



Ayyappan Narayanan

French Institute of Pondicherry

67 PUBLICATIONS 1,300 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



[Floris'tic View project](#)



[Automated recognition of bird song recordings View project](#)



Biodiversity Informatics: An interactive computer-aided identification and knowledge base on tree species of Lao PDR

Juliana Prosperi, Vichith Lamxay, B. R. Ramesh, N Ayyappan, Sarah Cardinal, Jean-Marie Bompard, Pierre Bonnet, Pierre Grard

► To cite this version:

Juliana Prosperi, Vichith Lamxay, B. R. Ramesh, N Ayyappan, Sarah Cardinal, et al.. Biodiversity Informatics: An interactive computer- aided identification and knowledge base on tree species of Lao PDR. Quels botanistes pour le 21e siècle ? Métiers, enjeux, opportunités, Sep 2014, Paris, France. 2014. <hal-01078007>

HAL Id: hal-01078007

<https://hal-sde.archives-ouvertes.fr/hal-01078007>

Submitted on 27 Oct 2014

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Biodiversity Informatics: An interactive computer-aided identification and knowledge base on tree species of Lao PDR

Juliana PROSPERI, Vichith LAMXAY, B.R. RAMESH, N. AYYAPPAN, Sarah CARDINAL, Jean-Marie BOMPARD
Pierre BONNET and Pierre GRARD

Objectives

- To enrich the existing knowledge base (BIOTIK project*) on a major "hot spot" of biodiversity: the rain forests of Annamite Mountain range of Lao PDR, in the framework of the Inventory of biodiversity of forest canopies conducted in 2012 in Lao PDR under F. Hallé scientific direction, and also to participate to broader initiatives such as PI@ntNet project**.
- To translate the identification tool in the Lao language in order to contribute to the capacity-building in plant taxonomy in the country.
- To transfer the identification system to touch pads, enabling plant identification and entering data directly in the field.

Materials & Methods

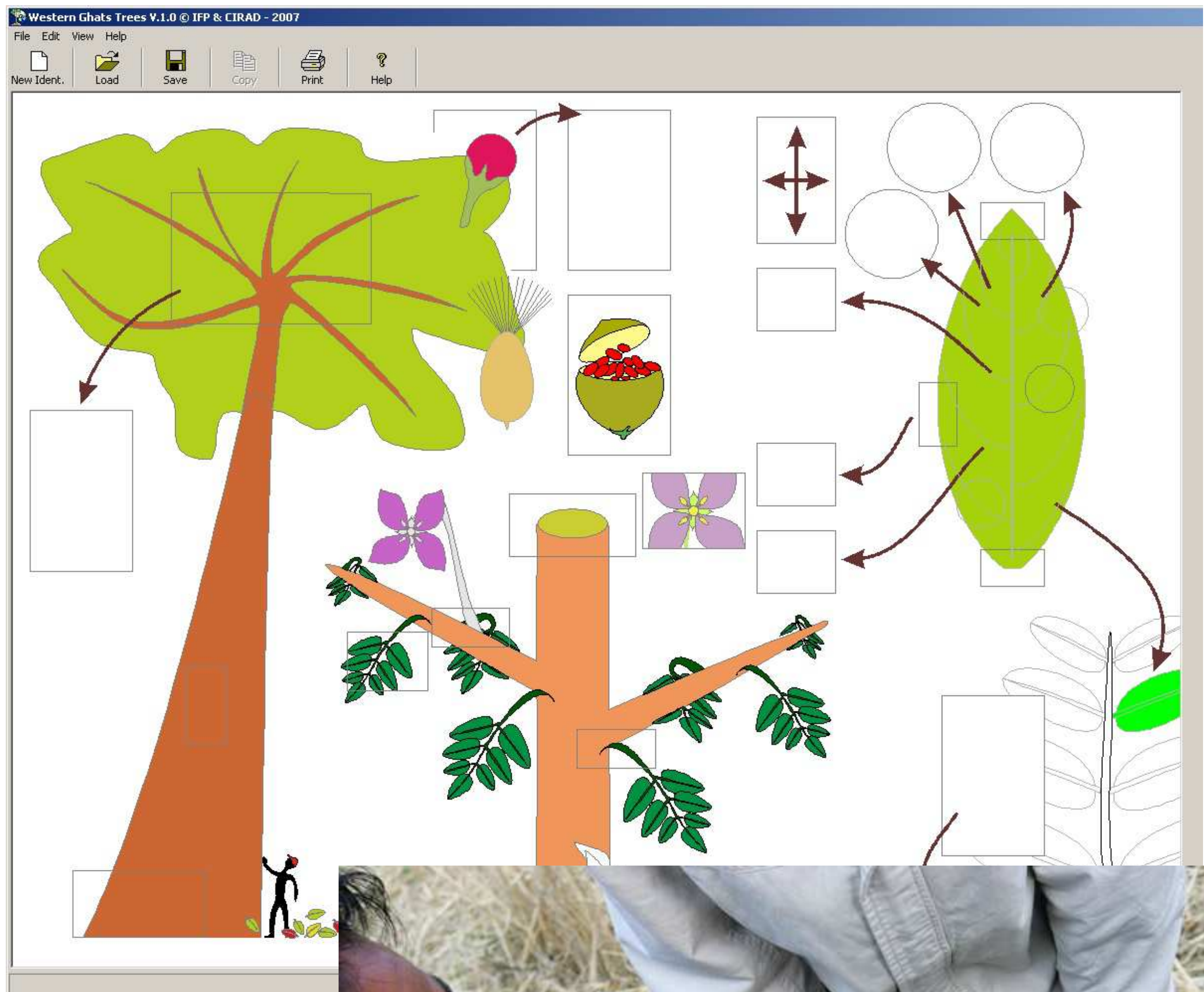
- Expedition: « Inventory of biodiversity of forest canopies in Laos 2012 – 2015 » at Phou Hin Poun National Park, Khammouane province, Lao PDR.
- 12 days of field work accessing to the forest canopy using the Canopy Bubble inflated with helium (Radeau de Cimes - F. Hallé, G. Ebersolt & D. Cleyet-Marrel, 2012).
- An existing multimedia species identification software IDAO*** technology is used (IDentification Assistée par Ordinateur, Grard P. 2002).
- Sampling trees (DBH>10cm) by transect adjusted according to habitats: agricultural landscapes, secondary *Lagerstroemia*, *Datiscaceae* and Bamboo forests, and *Dipterocarpaceae* primary forests.



Dipterocarpus costatus C.F. Gaertn.



Canopy Bubble



Graphical interface of tree species identification software



Tree species identification software running on a mobile device

Preliminary results

- 98 forest trees species collected belonging to 39 families. Most represented: Euphorbiaceae (12%), Moraceae (8%), Myrtaceae (6%) and Rubiaceae (6%) (see Table).
- Species identification work in progress at MNHN Paris. So far, 58 species identified, of which :
- nearly 21% are new records for the country (not listed in the last check list by Newman *et al.* 2007),
- 2 species are expected to be new species :
 - a Simaroubaceae tree from dense lowland forest,
 - a Moraceae tree from Dipterocarpaceae primary forest at the bottom of the karsts.

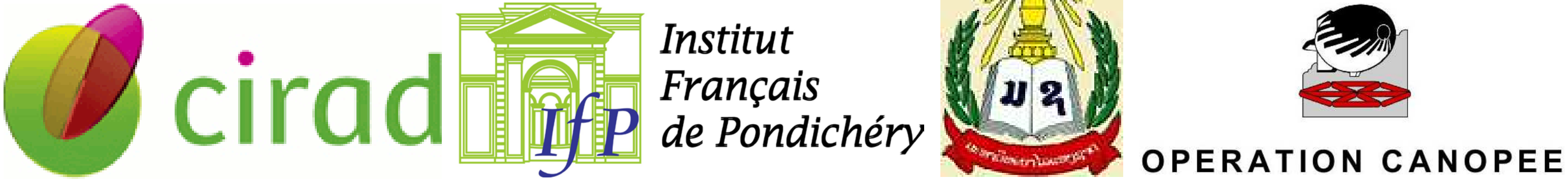
Family	n° species
Achariaceae	1
Anacardiaceae	2
Annonaceae	4
Bignoniaceae	1
Cannabaceae	1
cf. Celastraceae	1
Clusiaceae	3
Combretaceae	1
Daphniphyllaceae	1
Dichapetalaceae	1
Dipterocarpaceae	4
Ebenaceae	3
Elaeocarpaceae	1
Euphorbiaceae	12
Fabaceae	4
Fagaceae	3
Icacinaceae	1
Lamiaceae	2
Lauraceae	1
Lecythidaceae	2
Lythraceae	4
Malvaceae	2
Melastomataceae	2
Meliaceae	3
Moraceae	8
Myristicaceae	2
Myrtaceae	6
Ochnaceae	1
Oleaceae	1
Putranjivaceae	2
Rhamnaceae	1
Rubiaceae	6
Rutaceae	2
Sapindaceae	4
Simaroubaceae	1
Staphyleaceae	1
Sterculiaceae	1
Urticaceae	1
Verbenaceae	1
39 families	98 species

Last remarks

- These preliminary results illustrate the **limited knowledge of the flora** of the surveyed region and of the country's flora in general. It is noteworthy that such a small sample can contain so many species never mentioned for the country.
- While the discovery of new herbaceous species is relatively common, the discovery of **new tree species** is much rarer.
- Once again, this emphasizes the needs for more plant collecting and identification work in this region and to improve training and capacity building in plant taxonomy.

Partners

UMR AMAP - CIRAD, France.
French Institute of Pondicherry, India.
Faculty of Science, National University of Lao PDR.
Opération Canopée, France.



Contact: Juliana Prosperi, CIRAD
juliana.prosperi@cirad.fr

* Biodiversity Informatics and co-Operation in Taxonomy for Interactive shared Knowledge base (BIOTIK). Asi@ITC. European Commission. Budget Line B7-3010.
** Identification interactive des plantes et système d'information collaboratif, funded by Fondation Agropolis, France.
*** <http://idao.cirad.fr/>