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

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The environmental challenges facing the human activities increased during the last few decades especially in South East Asia. This part of the world is also particularly rich in biodiversity and sustainable methods for managing the environment, based on appropriate biological knowledge, are greatly needed.

This project is an initiative in the emerging area of biodiversity informatics and aims first to enrich a knowledge base developed on one major Lao “hotspots” of biodiversity (the Northern Annamite rain forests) with new data from recent exploratory missions, and secondly to contribute to wider initiatives such as Project PI@ntnet, a web-oriented scientific platform.

In this project, we focus on forest trees of the Phou Hin Poun limestone NBCA of Lao PDR. The knowledge base, built on a tree species identification system (IDAO, <http://idao.cirad.fr/>), will be instrumental in understanding and assessing the biodiversity of these highly significant areas, as it would provide and facilitate dissemination of scientific and traditional knowledge. The knowledge base was enriched by collections made using the new devices to access to the canopy (Canopy Bubble, F. Hallé et al. 2012). IDAO, an attractive tool for capacity building, developed as an open source web-based application, will be made available on-line and on mobile device, Linux-based and allowing its use on the field in local languages.

The primary 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 (98 species) can contain so many species never mentioned for the country and at least, 2 species that are expected to be new. 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.

- Key words

Biodiversity informatics, capacity building, computer-aided identification, IDAO software, Lao PDR, rain forests, trees identification.