Fellowship report

A database provides comprehensive information on India's tropical forest resources

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More than meets the eye: Indian evergreen forests house significant biodiversity.
Photo: P. Shanmughavel

INDIA, with 2.4% of the world's area, has over 8% of the world's total biodiversity, making it one of twelve recognized megadiversity countries. This status is based on the species richness and levels of endemism recorded in a wide range of plant and animal taxa. The diversity can be attributed to the vast variety of landforms and climates, resulting in habitats ranging from tropical to temperate and from alpine to desert. Adding to this is a very high diversity of human-influenced ecosystems, including agricultural and pasture lands, and a diversity of domesticated plants and animals, one of the world's largest. India is also considered one of the world's eight centers of origin of cultivated plants. Being a predominantly agricultural country, India also has a mix of wild and cultivated habitats, giving rise to biodiversity specific to the confluence of two or more habitats.

One of the recent approaches to classification of India's ecosystems is based on biogeography. This system divides the country into biogeographic zones, further sub-divided into biotic provinces. These zones are the Trans Himalaya, the Himalaya, Desert, Semi-Arid, Western Ghats, Deccan Peninsula, Gangetic Plain Coasts, North-east, and the Islands.

Within this broad classification, it is necessary to look at the diversity of specific ecosystems. Natural terrestrial ecosystems in India are forests (ranging from thorn scrub to wet evergreen, classified into 16 major forest-type groups and 221 minor forest-type groups), five types of grasslands, deserts (ranging from sandy salt to cold) and permanently snow-bound areas. Within each of these, there is an immense diversity.

Indian forests house numerous medicinal and economically important plant/tree species that yield various products such as gums, resins, bio-pesticides, underutilized food and fodder plants, and industrial starch yielding plants.

About 45 000 to 47 000 plant species are reported to occur in India, representing 11% of the known world flora. Nearly 90 000 species of fauna have been reported, over 7% of the world's known animal diversity. There exists considerable information on the patterns of species richness, endemism and the diversity of different plant groups (angiosperm, gymnosperms, pteridophytes, lichens, bryophytes, algae, fungi), various animal groups (including marine and terrestrial), and microorganisms, but much more needs

Fellowships awarded

Twenty-eight fellowships worth US$150 150 were awarded at the 42nd session of the International Tropical Timber Council in May 2007. Awardees were:

Kenneth Agbesi Anyomi (Ghana), to undertake masters research on teak in Ghana; **Judith Alonfe Armand** (Cameroon), to attend a training course in tropical forest ecosystems and climate change; **Jeimmy Rossmary Avendaño** (Colombia), to prepare a masters thesis on generic biomass models for native species; **Bruno Bokoto de Samboli** (Central African Republic), to undertake a masters program in administration and participatory management of forest resources; **Wiyaou Borozi** (Togo), to undertake research on the contribution of SFM in Alédjo, Togo; **Alvaro Gustavo Cañadas López** (Ecuador), to prepare a technical document on decentralization of the forest sector in the Ecuadorian Amazon; **Trixie Ann Cruzat Clemente** (Philippines), to attend an international symposium on forest soil and ecosystem health; **Sumana Devkota** (Nepal), to undertake a masters program in forestry at Tribhuvan University, Nepal; **Agathe Die** (Cote d'Ivoire), to undertake PhD research on the seasonal cambium activity of teak; **Prudencia Ikombe Dikua** (Cameroon), to attend a post diploma course at Cyprus Forestry College; **Parag Dubey** (India), **Ombir Ombir Singh** (India) and **O.K. Remadevi** (India), to attend the IUFRO All Division 5 Conference on Forest Products and Environment; **Ishmael Hashmiu** (Ghana), to attend the EarthCorps International Program for Environmental Restoration Training; **Paulo César Hernández Arango** (Colombia), to prepare a masters thesis in environmental socio-economics; **Luis Francisco Hilton Guardado** (Guatemala), **Mirian Noelia Reyes Abanto** (Peru) and **Claudio Patricio Zanabria** (Peru), to attend the CATIE XIX International Intensive Course in Diversified Management of Natural Tropical Forests; **Caroline Imun** (Papua New Guinea), to attend the International Plantation Certification Symposium 2007; **Thomas Bobway Koffa** (Liberia), to attend a training course on monitoring and assessment techniques for tropical forest resources; **Binod Koirala** (Nepal), to attend a training course on participatory approaches in forestry and natural resources development projects; **Kikelomo Irironke Kola-Oladiji** (Nigeria), to attend a training course on environmental management at Galilee College, Israel; **Thein Kywe** (Myanmar), to prepare a technical document on the properties, identification and utilization of hardwoods; **Justin Menie Ngoua** (Gabon), to undertake a masters program in agronomy and agribusiness; **Prem Raj Neupane** (Nepal), to attend a CATIE joint summer module; **Michael Ofosu** (Ghana), to undertake masters research on lesser utilized timber species for furniture and construction; **Symphorien Ongolo Assogoma** (Cameroon), to undertake a professional license program in landscape management at the Universite de Limoges, France; **Yongyut Trisurat** (Thailand), to attend the International Conference on Parks, Peace and Partnerships 2007.

to be understood and appreciated. Information on microorganisms is particularly deficient.

Forestry and related disciplines are widely recognized for rapid, reliable and universal access to quality information that is essential for informed decision-making concerning forests and all their inherent values. Information related to flora and fauna can be found in documents aimed at readers in a wide range of disciplines. Recent developments in information technology and telecommunications have led to an increasing proportion of this literature now being available in electronic format (Bisby 2000; Colwell & Coddington 1994; Soberson & Peterson 2004).

The aim of this study was to design a digitized inventory/database of tropical timber resource information of India under the major priority areas of ITTO, to help to develop human resources and professional expertise in securing the tropical timber resource base for sustainable forest management.

The basic structure of the relational database maintains a list of species names in Latin and literature source names, which are linked to distribution parameters such as biotic zones, habitats, soil types, state, district and other lower administrative boundary descriptions. Other species names ('Synonyms' and 'Common Names') are also included. The classification details of the species are maintained hierarchically in a separate data structure.

The main source of information is secondary data available in the form of regional flora monographs and other published literature. Complete details of all references, acknowledgements and authorship for all the collated information will be an integral part of the database. About 320 species belonging to 52 families have been identified as tropical timber resources in India and these are all included in this digitized inventory.

Practical utility

In connection with the growing interest worldwide in the conservation, cultivation and use of medicinal, aromatic and other related groups of plants, there has been a four-fold increase in the volume of literature published on these plants during the past two decades. Until the early 1970s, printed publications were the almost exclusive means available for recording and disseminating scientific information. Developments in information technology during the 1980s and 1990s have led to an increasing proportion of this pool of information now being held in electronic format in databases, which either can be searched online from remote sites or consulted offline at the reader's own desk. Whereas the bulk of the information held in databases is still copied from or entered simultaneously with its appearance in printed publications, we are now beginning to see documents published exclusively in electronic form. This digitized inventory provides information on tropical timber resources of India and can serve as a quick reference source for researchers and forest managers involved in the sustainable management of biodiversity.

References

Bisby, F.A. 2000. The quite revolution; Biodiversity informatics and Internet. *Science*, 283.2309-2312.

Colwell, R.K. and Coddington, J. A. 1994. Estimating terrestrial biodiversity through extrapolation. *Phil. Trans. R. Soc. Lond* B 335, 101–118.

Soberson, J. and Peterson, A.T. 2004. Biodiversity informatics: managing and applying primary biodiversity data. *Phil. Trans. R. Soc. Lond* 359, 689-698.

Complete copies of Fellowship reports are available on request from the ITTO Secretariat (fellowship@itto.or.jp)

ITTO fellowships offered

ITTO offers fellowships through the Freezailah Fellowship Fund to promote human resource development and to strengthen professional expertise in member countries in tropical forestry and related disciplines. The goal is to promote the sustainable management of tropical forests, the efficient use and processing of tropical timber, and better economic information about the international trade in tropical timber.

Eligible activities include:

- participation in short-term training courses, training internships, study tours, lecture/demonstration tours and international/regional conferences;
- technical document preparation, publication and dissemination, such as manuals and monographs; and
- post-graduate studies.

Priority areas: eligible activities aim to develop human resources and professional expertise in one or more of the following areas:

- improving transparency of the international tropical timber market;
- promoting tropical timber from sustainably managed sources;
- supporting activities to secure tropical timber resources;
- promoting sustainable management of tropical forest resources;
- promoting increased and further processing of tropical timber from sustainable sources; and
- improving industry's efficiency in the processing and utilization of tropical timber from sustainable sources.

In any of the above, the following are relevant:

- enhancing public relations, awareness and education;
- sharing information, knowledge and technology; and
- research and development.

Selection criteria: Fellowship applications will be assessed against the following selection criteria (in no priority order):

- consistency of the proposed activity with the Program's objective and priority areas;
- qualifications of the applicant to undertake the proposed fellowship activity;
- the potential of the skills and knowledge acquired or advanced under the fellowship activity to lead to wider applications and benefits nationally and internationally; and
- reasonableness of costs in relation to the proposed fellowship activity.

The maximum amount for a fellowship grant is US$10 000. Only nationals of ITTO member countries are eligible to apply. The next deadline for applications is **5 September 2007** for activities that will begin no sooner than 1 January 2008. Applications will be appraised in November 2007.

Further details and application forms (in English, French or Spanish) are available from Dr Chisato Aoki, Fellowship Program, ITTO; Fax 81–45–223 1111; fellowship@itto.or.jp (see page 2 for ITTO's postal address) or go to www.itto.or.jp