

Fellowship report

With the assistance of an ITTO fellowship the author has developed a systematic approach to the assessment and monitoring of forest biological diversity

by
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Earning their wings: school children enjoy a lesson in biodiversity monitoring in the buffer zone of the Kaeng Krachan National Park in Thailand. The Thailand Environment Institute and communities are implementing ITTO Project PD 16/97 there with the aim of improving local livelihoods and protecting and restoring forest adjacent to the national park. *Photo: A. Compost/ITTO*

DEMAND for the evaluation of the environmental functions of forests has grown rapidly over the last 30 years. The environmental conventions that arose from the 1992 United Nations Conference on Environment and Development (UNCED), for example, added significantly to the reporting obligations of countries. Chapter 15 of Agenda 21 (another product of UNCED), which focuses on biodiversity, calls on countries and their internal organisations to:

- develop efficient methodologies for baseline surveys and inventories as well as the systematic sampling and evaluation of biological resources;
- promote, where appropriate, the establishment and strengthening of the national inventory, ... [and] promote national efforts with respect to survey, data collection, sampling and evaluation; and
- produce regularly updated reports on biodiversity based on national assessments.

However, such reporting with respect to forest biodiversity is confounded by a lack of knowledge and very limited assessment capacity in many countries.

This ITTO fellowship was implemented to meet some of the objectives listed in Chapter 15 of Agenda 21, particularly to develop a systematic approach to the assessment of forest biodiversity from local to global levels. The methods and examples described here are based on country experiences, a literature review, and techniques I developed during my tenure in the Forestry Department at FAO in Rome. The final product of the fellowship was a report that should be published shortly and is described here briefly.

Contents of the report

The report comprises three parts:

- an introduction to basic concepts, tools and techniques for making biodiversity assessments at genetic, species' and ecosystem levels;

Fellowship reports available

The following ITTO Fellowship reports are available on request from the authors:

Philippine termites: handbook for homeowners and pest control operators. *Contact: Dr Menandro N. Acda, College of Forestry and Natural Resources, University of the Philippines Los Baños, College, Laguna 4031, the Philippines; mna@mudspring.uplb.edu.ph*

El análisis de las políticas forestales en Bolivia, como referente al caso Peruano (Masters thesis). *Contact: Mr Juan Carlos Guzmán Carlin, Agrupamiento Riso Block F, Departamento 302, Lince, Lima 14, Peru; jcguzman@gmx.net*

Key techniques of continuous cover forestry and their possible applications in tropical forest management in China. *Contact: Mr. Qinglin Huang, Box 33, Chinese Academy of Forestry, Wan Shou Shan, 100091, Beijing, P.R. China; huangql@caf.ac.cn*

Evaluation of the context and assessment of the basic elements for consideration in a sui generis access and benefit sharing law in Cameroon. *Contact: Mr Marcelin Tonye Mahop, Queen Mary Intellectual Property Research Institute, John Vane Science Centre, Charterhouse Square, London EC1M 6BQ, UK; t.m.marcelin@qmul.ac.uk*

- the application of techniques for making assessments at local, sub-national, national and global levels; and
- the use of collected data for planning the conservation and sustainable use of biodiversity components.

Chapter 1 defines biodiversity and connects it with major global phenomena such as biological evolution, the interdependence among organisms, and similarities in the forest formations of the world across the continents. It develops the subject further by describing the current status of forest biodiversity assessment and the commitments made by governments and other contracting parties towards national and global biodiversity reporting.

Chapter 2 describes the interaction between genetic factors and the environment and how the two interact in space and time to produce the myriad lifeforms we see around us. Methods for assessing genetic diversity are described briefly and inferences are drawn about forest management measures for conserving genetic diversity at the stand, species' and ecosystem levels.

Chapter 3 introduces tools and techniques commonly used in the assessment of biodiversity, including ecological zoning, forest-cover change assessment, field measurements, and modelling. One or more of these could be applied in combination depending on the problem to be solved. The chapter also presents some estimators of biodiversity, including species-area and species-individual relations, biodiversity indices and modelling techniques.

Chapter 4 describes methodologies for baseline surveys and change assessments based on the tools and techniques presented earlier. In a purely ecological survey, one would have chosen 'landscape' as the reference area of assessment. Here the level chosen corresponds to political units such as 'sub-national/national' with the idea that to be useful for the policy-making process, biodiversity assessments need to be integrated into a country's current forest inventory systems.

Chapter 5 presents an approach to producing reports on biodiversity at a global level based on existing country information. In view of the low level of capacity in most tropical countries, I consider it pragmatic to use a modelling approach in conjunction with existing reliable country data. Following or parallel to this, efforts could be made to improve estimates by collecting new information on a globally consistent basis.

Chapter 6 covers issues related to planning the conservation and sustainable use of biodiversity components and recommends a three-pronged forest management strategy including:

- the delineation of protected areas of adequate size by ecological zone to conserve biodiversity in an effective manner;
- the planning of multiple-use forests to meet local and national needs and, at the same time, to serve as habitat for diverse species of plants, animals and microorganisms; and
- intensive forestry and agroforestry plantations to meet growing local, national and international needs for timber, fuelwood, fodder and other products.

Chapter 7 stresses that capacities for the assessment, study and systematic observation and evaluation of forest biodiversity needs to be reinforced at national and international levels in order to design and implement surveys and to make effective use of the collected data for preparing comprehensive forest-sector plans.

The report emphasises the conservation of 'total' forest biodiversity, including that contained in protected areas and production forests. I hope that biodiversity and forest inventory specialists will find the report useful for developing cost-effective approaches for assessments and that it will contribute to sustainable forest management and the conservation of biological diversity.

Copies of the report can be obtained from the author.

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 utilisation 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 **7 May 2004** for activities that will begin no sooner than 1 September 2004. Applications will be appraised in July 2004.

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