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An information bulletin on Non-Wood Forest Products

# non-wood NEWS

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10th YEAR

## EDITORIAL

*We are delighted that Dr Wulf Killmann, Director of the Forest Products Division, has accepted our invitation to write the editorial for this special tenth anniversary edition.*

This, the tenth edition of *Non-Wood News*, once again features information on a wide range of products from agar wood to ivory and palm kernels covering a geographic area from Australia to Zimbabwe. The number of articles on bamboo is an indication of the importance attached to this non-wood forest product. Issues covered include bioprospecting, but also biopiracy, and there are articles on such varied subjects as medicinal plants and ecotourism. This issue thus reflects the vast scope covered by non-wood forest products, underlining the ambitious nature of our undertaking when we started a news-exchange service on this subject-matter ten years ago.

When an anniversary draws near, we often find ourselves in a reflective mood and as we celebrate the tenth anniversary of Non-Wood News it is a source of satisfaction to see how the newsletter has grown – not only in length, but also in its readership. In fact, Non-Wood News has doubled its print-run from that first issue in 1994 (from 2 000 to 4 000), has more pages (from 48 to more than 100) and now reaches more people worldwide.

In recent years we have seen the spotlight shifting away from non-wood forest products to today's more pressing and high-profile subjects. But the role played by non-wood forest products in maintaining the food security and livelihoods of indigenous people is vital. We must not forget that "of the 6.2 billion people on the planet, 25 percent depend to varying degrees on the forest's resources for their livelihood" and that "350 million people living in or near dense forest depend highly on it for their subsistence or livelihood". The Forest Products Division of FAO's Forestry Department has always been fully aware of this importance and has supported the dissemination of information on all aspects of non-wood forest products, through publications, seminars, international meetings and, naturally, through its flagship newsletter *Non-Wood News*.

Through *Non-Wood News* we try to give a voice to all the actors in the non-wood forest products field. We receive contributions from all over the

***NON-WOOD NEWS***

**is compiled by Tina Etherington, Wood and Non-Wood Products Utilization Branch (FOPW) of the FAO Forest Products Division. Editorial support for this issue was provided by Paul Vantomme, Sven Walter and François Ndeckere-Ziangba; design, graphics and desktop publishing were coordinated by Tina Etherington.**

***Non-Wood News* is open to contributions by readers. Contributions may be edited to fit the appropriate size and focus of the bulletin. If you have any material that could be included in the next issue of *Non-Wood News* for the benefit of other readers, kindly send it, before 15 January 2004, to:**
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**00100 Rome, Italy**
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**www.fao.org/forestry/nwfp/nonwood.htm**
**FAO home page: www.fao.org**



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## EDITORIAL

world and from all walks of society: from students to university professors; from indigenous groups to non-governmental organizations; from forestry officers to national forest services. Reader feedback has been immense and constant. Judging by the correspondence we receive, I know just how much *Non-Wood News* fills a knowledge gap. It is welcomed and (may I say) held in affection by both academics and those at the grassroots level alike. During the years that I have been Director of the Forest Products Division, I have come to appreciate what a loyal readership *Non-Wood News* has.

But *Non-Wood News* would be nothing without you, the reader. So, together with the members of the Non-Wood Forest Products Programme, I would like to take this opportunity to thank you for your contributions and for your loyalty over the years. We look forward to another ten years of working and building together.

*Wulf Killmann*

**Non-wood forest products (NWFP) are goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests. Non-timber forest products (NTFP), another term frequently used to cover this vast array of animal and plant products, also includes small wood and fuelwood. However, these two terms are used synonymously throughout this bulletin. Other terms, such as "minor", "secondary" or "speciality" forest products, are sometimes used to keep original names and/or titles.**

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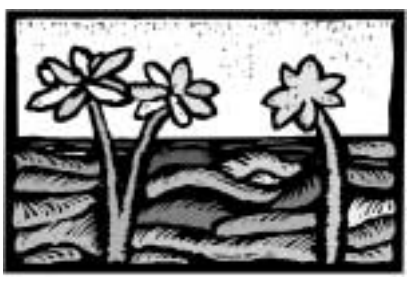


## MESSAGE FROM C. CHANDRASEKHARAN, FOUNDER OF NON-WOOD NEWS

I am extremely delighted to note that *Non-Wood News* is completing ten years of exceptionally useful service. This tenth anniversary is a significantly happy occasion. When the journal made its bold, though tentative, appearance in 1994, sceptics predicted that *Non-Wood News* would become a "non-news". The phenomenal (and well-deserved) popularity and success of the journal has proved them wrong.

As the first genuine international vehicle meant to promote NWFPs, this honest and ordinary-looking journal has been extraordinarily effective in pursuing its objective, namely "to provide its readers with useful information and insight about the promise that the future holds in the field of NWFPs and the issues to be addressed with regard to their sustainable development", in a focused and straightforward manner. That is probably the simple secret of the success of *Non-Wood News*.

Over the years, *Non-Wood News* has brought together from different parts of the world, and disseminated, a massive amount of information and an enormous variety of practical experience in addressing issues on conserving, cultivating, developing, managing, harvesting, processing and marketing NWFPs under varying technological, institutional, socio-economic and political environments. It has helped the re-emergence of NWFPs from their relative obscurity, highlighting their environmental significance, the huge variety of direct and indirect uses and derivable benefits, and the enormous wealth of chemicals stored in them.

*Non-Wood News* has encouraged many interesting initiatives worldwide on: developing NWFPs for producing food and food additives, medicine, fibre, essential oils, tannin, gums, resin, flavours, fragrances, insecticides and beverages of a natural origin; research relating to issues surrounding the technical and economic aspects, and access to and use of NWFPs; and the role of NWFPs in the conservation of biodiversity. These initiatives call for establishing linkages between the antiquity of culture and indigenous knowledge and the continuity of scientific progress.

*Non-Wood News* has appropriately underscored the need for correcting the timber focus of forestry. For sound and sustainable forestry, the rational principle to be adopted is the balanced development of wood and non-wood products – the challenge of the balance, so to speak. This is a challenge to be taken up seriously.

NWFPs, once known as minor forest products, are now a major business. In all the efforts and approaches for developing NWFPs, marketing and trade remain a problem area. In most developing countries the market for NWFPs is unorganized and secretive; and trade, being subject to manipulation by intermediaries, is riddled with illegal practices and the unacceptable exploitation of indigenous people. The producers/collectors of NWFPs often do not know the uses of the product, and the manufacturers do not know where the raw product has come from. The whole area of NWFP utilization lacks adequate regulations and policy. *Non-Wood News* has in several instances served as the voice of "creative dissatisfaction" to draw the attention of policy-makers and professionals, for remedying such situations.

The problem of the NWFP sector is now receiving more and more attention from the media; and I do feel that *Non-Wood News* has, to some extent, indirectly influenced that development. Moreover, readers eagerly await the arrival of *Non-Wood News* (which gets better with every issue), in the anticipation of learning about the new developments in the field of NWFPs. Several recipients in countries such as China, India and Viet Nam (particularly institutions) are known to make copies of Non-Wood News for further circulation.

The sources of the information, analytical notes, comments, research results, policy studies and abstracts included in *Non-Wood News* are the large number of generous individuals and institutional representatives who are ever willing to share their experiences and insights unreservedly with others. On the occasion of the tenth anniversary of *Non-Wood News*, I wish to pay warm tribute to them.

Furthermore, I would like to express my appreciation, admiration and congratulations for their dedication and excellent work to those persons in the Wood and Non-Wood Products Utilization Branch of the FAO Forest Products Division in Rome, who are wholeheartedly involved in compiling, editing and bringing out *Non-Wood News*, with its substantial content and simple, elegant format.

May *Non-Wood News* grow from strength to strength and succeed in all its missions.

*Cherukat Chandrasekharan*

## BAMBOO AND RATTAN STATISTICS

**Expert consultation on developing an action programme towards improved bamboo and rattan trade statistics**

FAO and the International Network for Bamboo and Rattan (INBAR) organized an expert consultation at FAO headquarters in Rome from 4 to 6 December 2002. The aim of this expert consultation was to improve the visibility of bamboo and rattan products in international trade statistics by proposing a set of new and/or improved Harmonized System codes dealing with bamboo and rattan products. This initiative is intended to act as a test case from which we wish to draw lessons for developing better trade statistics for other NWFPs.

Several hundreds of millions of people worldwide depend on bamboo and rattan for their livelihoods. According to INBAR, annual world trade in bamboo and rattan is currently estimated at US$14 billion.

However, the huge economic and social importance of the bamboo and rattan sectors, be it at the national or the global level, is based on estimations and compilations of scattered, often unreliable data or on data that are not even comparable among countries. Indeed, bamboo and rattan are used for a wide variety of products for construction, furniture, papermaking, musical instruments, toys or food markets and at various processing levels. For the vast majority of these uses, no adequate product classification and/or trade codes (Harmonized System) exist. Even when data on production and trade are recorded in national accounting systems and/or in international trade statistics, the majority of bamboo and rattan uses is often grouped together with other products or included in the category “any others”.

The Common Fund for Commodities has recently added bamboo and rattan to the list of commodities, with the request that reliable statistics on production and trade be compiled. A critical assessment of the present situation and full economic value of bamboo and rattan products would provide resource managers, decision-makers and investors with the essential baseline information for future investment scenarios; and be a basis for the elaboration of adequate policies and mechanisms to guarantee the sustainable and equitable development of the bamboo and rattan sectors.

This joint INBAR/FAO consultation provided a neutral forum for the representatives of key stakeholders in the bamboo and rattan sector and experts in the field of statistical data gathering on production and trade to meet to discuss and propose a set of Harmonized System trade codes for bamboo and rattan products and a plan of action to guide their implementation at the national and international levels for more reliable and transparent production and trade statistics. The meeting and the subsequent process it set in motion will foster further collaboration among key agencies and facilitate the identification of their respective mandates, activities and responsibilities regarding data gathering on bamboo and rattan.

The proceedings are being prepared and will shortly be available from the NWFP home page.

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**FAO/INBAR cooperation on bamboo and rattan statistics**

The International Network for Bamboo and Rattan (INBAR) has launched a new interactive and searchable database on international trade of bamboo and rattan at the INBAR home page (www.inbar.int). The database is a direct product of cooperation between INBAR, the International Tropical Timber Organization (ITTO) and the European Forest Institute (EFI). It is based on COMTRADE data of the United Nations Statistical Division, utilizing Harmonized System (HS) commodity identification codes approved by the World Customs Organization (WCO). The new database can be searched for products, years, countries and regions. The table below represents aggregates of the database.

It should be noted that the aggregates in the database both overestimate and underestimate the total trade of bamboo and rattan. Overestimation stems from

**Bamboo and rattan export and import COMTRADE data, 2000 (US$1 000)**

| Commodities | HS Code | Export | Import |
|---|---|---|---|
| **Raw materials** | | **128 547** | **179 399** |
| Bamboo | 140110 | 39 602 | 59 590 |
| Rattan | 140120 | 49 548 | 75 923 |
| Vegetable plaiting materials | 140190 | 39 397 | 43 886 |
| **Products** | | **2 417 839** | **2 740 750** |
| Plaits and products | 460110 | 17 777 | 13 909 |
| Mats and screens | 460120 | 219 404 | 170 210 |
| Plaited materials, not mats | 460191 | 29 933 | 122 545 |
| Basketwork | 460210 | 713 799 | 932 795 |
| Seats of cane, osier | 940150 | 371 366 | 423 166 |
| Furniture of cane | 940380 | 1 065 560 | 1 078 125 |
| **Vegetables (shoots)** | | **2 541 748** | **2 490 194** |
| Vegetables, including shoots | 070990 | 1 156 968 | 1 112 536 |
| Vegetables, fresh or chilled | 071190 | 259 281 | 293 681 |
| Vegetables, mixed | 200590 | 1 125 799 | 1 083 977 |
| **Total** | | **5 088 134** | **5 410 343** |

the fact that the aggregates represented may, besides bamboo and rattan, also imply willow, osier and the other similar materials. On the other hand, the established database essentially underestimates trade volumes because it does not consider many new bamboo and rattan products, which have no specific HS 6-digit codes, such as bamboo pulp, paper, flooring, roofing, panels, boards, composite materials and charcoal. INBAR's recent study in China shows that HS codes identify only one third of China's total international trade in bamboo and rattan.

Considering both types of mistakes, experts evaluate the total bamboo and rattan annual trade to be about US$5 billion to $7 billion. The estimates are comparable with the trade value of such commodities as: banana, US$5 billion; cotton, US$6 billion; wheat, US$13 billion; and tropical timber, US$14 billion. The latter includes US$6 billion trade of secondary processed products with an essential bamboo and rattan component.

FAO has recently been helping INBAR to develop its database further. The FAO/INBAR expert consultation was held at FAO headquarters in Rome in December 2002 to review the status and develop a strategy for improving bamboo and rattan statistics. Experts from FAO, INBAR, WCO, COMTRADE, the European Union, National Customs and other governmental and non-governmental national and international organizations have supported the idea to approach WCO with the purpose of introducing more bamboo and rattan codes to the HS. FAO is also considering using this precedent to introduce more codes for the other non-wood commodities in the future.

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## BAMBOO

**Bamboo research programme: Guadua Bamboo – Research for Sustainable Management and Markets of Bamboo in Colombia and Costa Rica**

*Duration:* November 2001 to October 2004

The overall objective of the project is to improve the basis for sustainable production and management of bamboo, notably of *Guadua angustifolia*, to the benefit of local growers and processors in Latin America.

Field research regions of the project comprise the *eje cafetero* (coffee-growing region) of Colombia and Costa Rica on the producers' side, as well as potential bamboo export markets in Germany and the United Kingdom.

The specific research objectives include:

- to assess the potential of bamboos as a sustainable, economically viable resource for farmers;
- to improve the quality of the raw material through improved selection and propagation techniques;
- to improve knowledge of stand management techniques and to define grading standards in order to provide higher quality raw material and/or adequate raw material for defined uses;
- to optimize the value added chain increasing, in particular, the economic benefits of local growers and processors; and
- to set up a comprehensive information system on guadua production and use, including inventory data from Colombia and Costa Rica.

***Research partners and their contributions***

*Partner 1:* University of Freiburg, Institute of Forest Policy, Market and Marketing Section, Freiburg, Germany:

- overall coordination of the project;
- research on the socio-economic framework of bamboo production and the marketing chain of bamboo-based products.

*Partner 2:* University of Costa Rica, Faculty of Agronomy, Research Center for Grains and Seeds, San José, Costa Rica:

- scientific coordination of the biological research within the project;
- genetic selection of *Guadua angustifolia* and *Dendrocalamus giganteus* with desirable agronomic and industrial characteristics;
- research on the large-scale microprogagation of selected bamboo plant material.

*Partner 3:* Technical University of Pereira, Faculty of Environmental Sciences, Pereira, Colombia:

- improvement of silvicultural management of guadua stands in Colombia;
- research on carbon fixation and other environmental impacts of guadua stands.

*Partner 4:* Tropical Agriculture Research and Higher Education Center (CATIE), Turrialba, Costa Rica:

- inventory of guadua bamboo stands in the coffee-growing region of Colombia and of bamboo stands in Costa Rica;
- provide a comprehensive information system on guadua bamboo;
- assist other project partners in experimental design planning and other methodological issues.

*Partner 5:* Imperial College of Science, Technology and Medicine, Department of Biology, London, United Kingdom:

- provide clear and assessable ways in which the quality of guadua bamboo culms and clumps can be defined and measured;
- develop a scheme to define the optimum characteristics of guadua bamboo culms for desirable qualities of end products;

- characterize the ecoprofile of guadua bamboo products using Life-Cycle-Assessment, and also comparing guadua products with alternative materials.

The funding for this research project is being provided by the European Union under its Fifth Research and Technological Development (RTD) Framework Programme (project reference: ICA4-CT-2001-10091).

The project Web site is under construction; for preliminary information consult: http://dbs.cordis.lu/fep/FP5/FP5_PROJl_search.html

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**Bamboo in winter**

People tend to think of bamboo as a tropical plant. But there is a bamboo park in Beijing where 100 species of bamboos thrive in a climate where night-time winter temperatures of minus 15°C are common. Dr Fu Jinhe of the International Network for Bamboo and Rattan (INBAR) has been working to produce a species-to-site matching tool. He reports that many species are recorded as tolerating temperatures as low as minus 29°C.

Chinese people have always been aware of bamboo's cold tolerance. In fact, they refer to bamboo as one of the "three friends in winter" (the other two being the pine tree and the wild plum). (*Source: INBAR News Magazine*, 8[2].)

**Bamboo juice, beer and medicine**

In ancient China, the fresh culm of *Phyllostachys glauca* was roasted to produce fresh bamboo juice for medicine. Its output was as low as 3.5 kg of juice per 100 kg of fresh culms. However, nowadays bamboo juice is produced by pressure or cooking. The juice is also used to make beverages and a specific liquor.

Beer is a low-alcohol drink mainly made from barley. With the improvement of living standards and health care in China, there is an impetus towards research into new beers fortified with naturally occurring ingredients with specific health attributes.

Bamboo is traditionally used in food and medicine in Southeast Asia. The latest research has shown that there are many different flavone glycosides in bamboo leaves, which have excellent physiological activities as anti-free radical, anti-oxidation and anti-ageing agents.

In this study, green dry leaves from the bamboo genus *Phyllostachys* were picked in the autumn and extracted. After boiling the bamboo leaves in water, the extract was concentrated in vacuum and the impurities removed, using the ethanol precipitation method, to give a fine bamboo leaf juice. The bamboo beer was prepared by adding the juice to the original beer, then mixed, filtered and bottled. The amount of the juice added, taking its total flavonoids (TF) amount as an index, was between 10 and 50 mg per litre of beer, depending on the requirements.

In addition to the general characteristics of beer, bamboo beer showed multiple health benefits, such as lowering blood lipids and preventing heart disease. Furthermore, bamboo beer presents a typical delicate bamboo fragrance to match the beer flavour. This health beer is available in Chinese markets. (*Note:* Flavonoids made from bamboo leaves are also used to make medicine such as capsules.)

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**EC-funded Bamboo Thematic Network is launched**

Bamboo experts from China, the Philippines, Malaysia, Germany, France, Belgium, Portugal and the United Kingdom met in Antwerp, Belgium from 16 to 19 April 2002 for the inception meeting of the EC-funded Bamboo Thematic Network (BTN) project. The meeting was hosted by Oprins Plant NV (OPRINS), Belgium.

BTN is a three-year (2002-2004) project approved and funded by the European Commission within the Fifth Framework programme Confirming the International Role of Community Research. The project is coordinated by OPRINS and involves 15 partners from private companies and academic institutions.

The BTN participants include: International Network for Bamboo and Rattan; Ghent University; Institute for Plant Biotechnology for Developing Countries; Agricultural Research Centre, Gembloux; University of Hamburg; University of Wales; Imperial College, London; University of the Philippines Los Baños; University Sains Malaysia; German Federal Research Centre for Forestry and Forestry Products; CAB International; Forest Research Institute of Malaysia; Technical Centre for Wood and Furniture, Bordeaux; and Cobelgal, Portugal.

The BTN project aims to valorize ongoing research on bamboo forestry and technological applications in order to promote the use of bamboo in industry. It aims to enhance international cooperation among bamboo researchers and industries through a clear focus on new

technologies and the global market coupled with a policy of open information exchange. Research on silviculture, biotechnology and industrial processing of bamboo has not yet been fully integrated into the economic and ecological realms. The participants of the BTN project will foster added value by optimizing scientific networking towards the coordination, exploitation and dissemination of bamboo research in four areas, namely: biology; silviculture; industrial processing; and technology transfer.

BTN seeks to facilitate the transfer of knowledge concerning bamboo and to enhance cooperation between researchers and users. It endeavours to guide researchers towards market and consumer needs and to inform industry about scientific and technical advances related to bamboo. BTN will create a knowledge infrastructure to redirect research towards high value-added industrial applications of bamboo. It will pursue an open policy for exchanging knowledge and information in order to increase the economic possibilities of bamboo.

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**www.bamboonetwork.org**

**Bamboo: more than panda food**

One of Asia's traditional building materials has been given a new look with the help of modern industrial technologies and the demand for an alternative to endangered hardwood timbers.

No longer seen as just panda food or raw material for beach huts in Thailand, bamboo is gaining a chic image in Western markets. For example, Madrid's airport has recently signed a deal to install 300 000 $m^2$ of bamboo in its new passenger terminal, at present under construction.

New glues and new thinking are seeing bamboo being used in everything from baseball bats to kitchen cabinets. Bamboo parquet flooring is popular among environmentally conscious Westerners uncomfortable at the thought of using traditional hardwoods such as maple and oak.

The Beijing-based International Network for Bamboo and Rattan (INBAR) organized a conference in Linan, Zhejiang province, in April 2002. Participants included designers, engineers, processors and sellers of bamboo from China, the United States and Chile, as well as China-based diplomats from bamboo-growing countries as diverse as Uganda, Venezuela and Bangladesh. Linan was chosen as the conference site because it is situated near the centre of China's bamboo production: China is the world's leading source of bamboo products.

The tubular shape of bamboo has traditionally limited its use. But the application of the so-called "flat-pack" technology – used for decades in timber processing – has lent a whole new versatility to basic bamboo. Flat pack involves taking small segments of bamboo and gluing them together to produce larger pieces, for use in furniture and flooring, for example. By combining the flat-pack technique with improved adhesives and manufacturing processes, bamboo can be used to produce everything from kitchen utensils to surfboards and modern musical instruments. The results are impressive and the finish looks, at first glance, like quality timber.

The new techniques are also improving the construction of low-cost homes and schools. For example, the flat-pack method allows for the construction of solid roofing beams, which remain sturdy, unlike bamboo rafters that sag over time. Industrial production of bamboo is encouraging the construction of cheap but sturdy housing in countries where the urban poor live in slums. According to Ian Hunter, INBAR's director-general, in the port of Guayaquil, Ecuador, 80 bamboo houses are built daily at a cost of US$385 each as part of a drive to reduce the number of people living in shanty towns. Later this year, INBAR is planning to build bamboo schools in Yunnan province, southwestern China, in cooperation with the World Wide Fund for Nature.

Advocates claim that using bamboo is far less damaging to the environment than timber-felling. There is no need for heavy machinery since bamboo is harvested in a largely manual process rather than clear-felled like timber. It also grows much faster than trees and is harvested in cycles so that there is always some bamboo left standing, in contrast to tree-harvesting which typically leaves swathes of denuded land in its wake. And the capacity of the giant grass to bind soil would be ideal to help protect against erosion in some parts of China where trees have been clear-felled. But some environmentalists caution that bamboo tends to dominate any area where it is planted, blocking light and preventing other plants from sharing space. Nevertheless, if it diverts attention away from slow-growing hardwood trees, that is an advantage.

***Bamboo economics***

To some people, bamboo is simply a fast-growing pest. A business selling China-sourced bamboo products in Hawaii reported that initially there were more enquiries about how to kill it rather than how to grow it.

However, it is becoming increasingly popular in Western markets and China's bamboo product exports alone are worth US$600 million annually. Some people consider that bamboo's rise in Western markets is inexorable and it is just a matter of time. Timber resources are being depleted and bamboo is a viable, sustainable alternative. (*Source:* Extracted from an article by David Murphy in *Far Eastern Economic Review*, 23 May 2002.)

**Bamboo in China**

The following information is extracted from the China Forestry Development Report 2001 of the China State Forestry Administration.

***Bamboo and rattan industry in China***

As a country with the richest bamboo and rattan resources, China boasts 4.21 million ha of bamboo forests with more than 400 species. The annual harvest volume of Moso bamboo is 114 million stems, while the output of dried bamboo shoots is 310 000 tonnes. The area, species and stock volume of bamboo rank first in the world. China has been striving to develop its bamboo industry, with an annual output value of Y 24 billion and foreign currency earned through exports reaching US$800 million. The development of woven bamboo articles and processed bamboo products has become one of the economic growth points in some regions of China. (*Source: Forestry in China*.)

***Forestry Industries maintain a steady growth***

In 2000, the total output value of forest industries reached Y 355.547 billion, an increase of 11.5 percent over 1999. The added value of forestry reached Y 89.33 billion, an increase of 5.2 percent over 1999.

In 2000, 79 800 ha of bamboo forest were established, 5 percent lower than in 1999. The production of dried bamboo shoots across China reached 339 100 tonnes, 9.2 percent higher than in 1999; 1.233 billion stems of *Phyllostachys pubescens* and *Bambusa pervariabilis* were harvested, an increase of 7.1 percent over 1999. The harvesting volume of other varieties was 3.0344 million tonnes. (*Source:* China Forestry Development Report 2001.)

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**Bamboo research and development in Nepal**

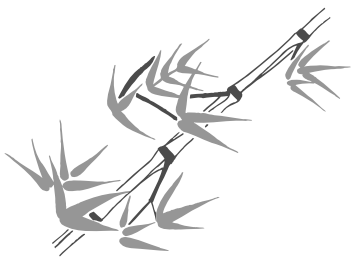
Bamboos are important sources of income for rural households in Nepal and elsewhere. A recent paper by Shyam K. Paudel and Dr A.N. Das highlights bamboo research and development activities that have so far been carried out in Nepal and the prospects for future research and development.

Bamboos, the perennial woody grasses, are one of the very important non-timber forest products of Nepal. They are an important component of rural farming systems, which play a critical role in the rural economy and help sustain the livelihoods of many rural households, in particular socially and economically disadvantaged groups. Bamboo culms and the various products are readily sold and bought in markets. In this context bamboos are increasingly identified as potential species for poverty reduction programmes in many countries, including Nepal.

***Bamboo research and development activities in Nepal***

Resource inventory, socio-economic studies, taxonomic studies, bamboo propagation, plantation and demonstration, bamboo management, studies related to women in bamboo craft making and studies related to bamboo utilization and marketing are the main areas of bamboo research in Nepal.

Similarly, the establishment of bamboo-based industries, the involvement of communities in bamboo conservation and management and increasing support for and interest from international non-governmental organizations in bamboo projects are important development areas in Nepal.



***Prospects of further research and development of bamboo in Nepal***

The establishment of germplasm and arboretums, bamboo propagation in agroforestry, and bamboo-related training and extension and market services are the major areas of further research and development that are required in Nepal.

Herbaria have not yet been collected for all species available in Nepal. The *in situ* and *ex situ* conservation of naturally occurring bamboos is necessary. In this context, the establishment of bamboo germplasm in different ecological zones of Nepal will help gene conservation and demonstrate species availability in Nepal.

A common complaint against bamboo planting on farmland is that it reduces the productivity of the land, yet no studies have been done to quantify such an effect. Potential developments include agroforestry practices, which allow bamboo to be grown with a minimum impact on food production.

There is a lack of extension materials and publications on bamboos in Nepali and none at all in local languages. An effective mechanism and institutional arrangements are indispensable to carry out such activities in Nepal.

Bamboo growers, traders, craft makers and entrepreneurs lack the necessary information regarding the technical expertise on bamboo growing and its marketing. Similarly, Nepalese entrepreneurs lack information on price differences, demand and supply situations in the national and international markets, global marketing trends of bamboo-based products, and also need suitable multilateral/overseas partners for investment. Therefore, it is necessary to develop a market information system on bamboo so that all the stakeholders concerned would benefit.

It is strongly recommended that training be provided to establish bamboo-based micro-enterprises for rural households with small landholdings that depend upon natural resources for their livelihoods. Enterprises such as these would directly help improve incomes and should also include rural women for whom bamboo craft making can be a full-

or part-time employment and a source of income. The publication of extension leaflets; manuals on bamboo craft making; promotional videos; workshops and meetings at the regional and national levels should be highly prioritized for the effective dissemination of research findings.

***Conclusions***

Bamboo has a great income-generating potential and could be a means of poverty alleviation in Nepal. The increased production of bamboos and their wise use would provide employment and income in both rural and urban areas. (*Source:* Extracted from an article by Shyam K. Paudel and Dr A.N. Das, Department of Forest Research and Survey, Babarmahal, Kathmandu, in *Journal of Forest and Livelihood*, 2[1].)

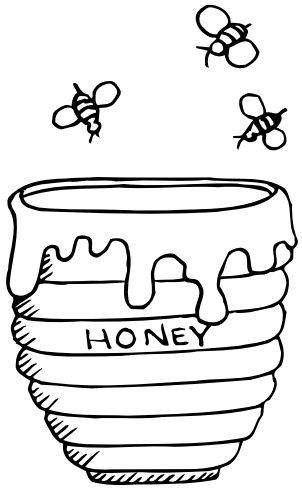
## BEES AND BEE PRODUCTS

**Bees keeping busy: maintaining biodiversity and helping create livelihoods**

The science and practice of exploiting bees' products and services – known as apiculture – has been in existence for thousands of years: keeping bees in hives made by people was already in practice in Egypt in 2400 BC. Today there is a great diversity of apicultural practices throughout the world, although most industrialized countries use standard styles of frame hives in which European races of honey bees are kept.

***Apicultural practices***

Apiculture is diverse, greatly varying in the way it is practised from one region to another: in Africa, the Near East and Asia, bees are often kept inside the walls of people's homes (and are often not noticed by visitors); while in India, 90 percent of honey is harvested from wild-nesting bees. People practise apiculture not only in different ways, but also for different reasons: some farmers want to have bees to ensure that such crops as fruit, oilseeds and coffee are pollinated adequately; others keep bees to harvest honey and wax; some farmers keep stingless bees for their honey, which is especially valued for its medicinal properties. A recent report from Laikipia Plateau in Kenya describes bees being used as a "living fence" to keep elephants away from smallholdings.




***Assets created by apiculture***

While products from bees such as honey and beeswax are well known, the main service provided by bees, pollination, remains poorly appreciated and underestimated in most countries. In the United States, scientists have attempted to measure the value of the increased yield and quality of crops achieved by honey bee pollination: during 2000, in the United States, this was estimated at US$14.6 billion. In June 2002, data were published about the beneficial effect of honey bees for coffee pollination: in Panama, coffee bean production increased by 50 percent. We do not as yet have data proving the benefit of honey bees for the pollination of many tropical crops, and it is impossible to put a financial value on the effect of honey bee pollination of indigenous plants, and this important contribution to the maintenance of biodiversity. Other assets created by apiculture such as honey and beeswax are far more tangible, but their value must be far less than the wealth created by the optimal pollination of plants.

***Honey***

Many bee species collect nectar that they convert to honey as a food source. However, only bees living together in large colonies store appreciable quantities of honey. These are bees of the genus *Apis* and some of the Meliponinae (stingless bees), and are the species whose stores are recognized by humans as sources of honey.

Bees create honey from the nectar of flowers, with other plant saps and honeydew being used to a minor extent. After visiting a flower, the foraging honey bee flies back to her nest (hive) with the collected fluid in her honey sac, a modified part of the gut. In the hive, she regurgitates the fluid and passes it through her mouth to one or more "house" bees, which in turn pass it to another bee. The liquid travels through a chain of bees in this way before being placed in a honeycomb cell. This route evaporates water and adds enzymes that convert sugars in the nectar into different types of sugars. When the water content is below 20 percent the bees seal the cell with a wax capping – the honey is now considered "ripe". At this stage, the honey is perfectly clean and will not ferment. It is only during the subsequent harvesting and processing of the honey that its quality can deteriorate.

***Honey quality***

The type of honey produced depends on the species of plants being visited by the bees. Honey is judged by its aroma, flavour and colour, which depend mainly upon the sources of the nectar that the bees have gathered. Usually dark-coloured honeys have a strong flavour while pale honeys have a more delicate flavour. A great number of different substances (alcohols, aldehydes, organic acids and esters) are very important for the flavour of honey. Honey sweetness depends on high fructose content and acidity. A few plants give bitter honey: agave (sisal), datura, euphorbia, senecio – in some societies these honeys are very popular.

Some honeys have a very high pollen content which makes them appear

cloudy; this honey is sometimes (wrongly) thought to be of low quality. The presence of any other contaminants in honey (for example particles of wax, dead bees and splinters of wood or dust) give the honey a very low value.

Glucose is one of the major constituents of honey; when this crystallizes the honey becomes solid and is known as granulated honey. Granulation is a natural process and there is no difference in nutritional value between solid and liquid honey. This process may be likened to ice and water – the same substance but in a different form.

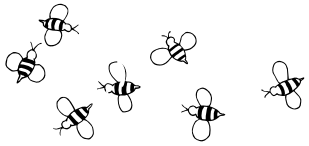
***Honey as medicine***

Honey has traditionally been regarded as a medicine or tonic, rather than an everyday food. Today honey is once again increasingly recognized for its healing and antibacterial properties when taken orally, or applied as a treatment for wounds and burns.

For example, every society knows honey and lemon as an elixir to relieve sore throats. The vitamin C of the lemon has immune-stimulating and anti-infective effects, while the honey has medicinal power. The most common bacterium known to cause sore throats is *Streptococcus pyogenes*, and laboratory experiments have proved that some honeys can inhibit the growth of this bacterium. Another bacterium that honey has been shown to inhibit is *Helicobacter pylori* – a causative factor in ulcers. The acidity, enzymic activity, hydrogen peroxide and high osmotic potential of honey are responsible for these healing properties. Honey can also be used in healing skin and drying out wounds: its antibacterial properties and physical composition, maintaining moist conditions and allowing oxygen to pass, is good for preventing infections, reducing inflammation and promoting rapid healing.

***Honey production***

The type of hive a honey bee lives in has no effect upon the quality of honey that she makes. Honey bees always store clean and perfect honey regardless of where they are living: it is the subsequent handling by humans that leads to reduction in quality. A hive is just a container to keep bees inside, and good, serviceable hives can be made from many different materials. Different styles of hive may be of greater or lesser convenience for the beekeeper, but the honey bee is only concerned to have a safe place, large enough for the whole colony (the bees' family) and its stores, and protected from unfavourable weather and predators.



CASE STUDY 1

**DEVELOPING MARKETS FOR TRIBAL ORGANIC PRODUCTS**

**Experience from the Blue Mountains, Nilgiris, India**

Keystone Foundation is a non-governmental organization working in South India, in the northwestern part of Tamil Nadu on the border of Kerala and Karnataka states. Landholdings are very close to the forested areas at the middle elevations of 800 to 1 000 m, and the area is in the humid/semi-humid tropics.

The Nilgiris consist of one of the most ecologically fragile areas in India. The hills are steep and traditional forests have been depleted and are under further threat because of the increase in large tea plantations and substantial destruction of natural vegetation by the Forest Department, through the introduction of exotic commercial tree plantations. Consequently, soil erosion is rampant. Tea and coffee plantations have replaced large parts of the original vegetation and marshes have been converted into agricultural fields: 50 percent (30 000 ha) of all cultivated area consists of tea plantations. Although no hard figures are available, it is common knowledge that conventional tea plantations make heavy use of chemical fertilizers and pesticides and reduce the water retention capacity of the soil. The remaining forests are crucial for conservation of the flora and fauna and the sustenance of water bodies, consisting of the two major rivers, Bhavani and Moyar, and their numerous tributaries. They irrigate large areas and generate hydropower.

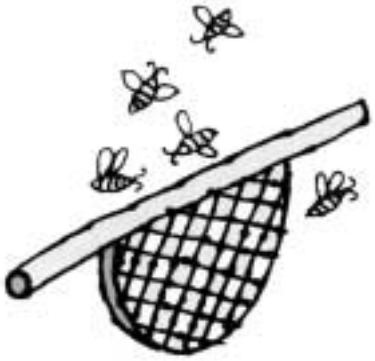
However, there are still good tracts of forests, representing the original Nilgiris' vegetation. Here people live in harmony with the forest and collect non-timber forest products (NTFPs) such as wild nutmeg, cinnamon, sugar cane, pepper, honey and herbal plants.

In 1995, Keystone began work with the tribal communities living in the area, and one of the primary concerns was to provide support for marketing. Keystone's entry point for work was bees – the Kurumba and Irula communities are traditional hunter-gatherers and slash-and-burn agriculturists. Honey hunting is an important part of their tradition and about two to three months in a year are spent in this activity.

The immediate concern was to help raise the procurement prices as the rates being offered by traders and intermediaries were very low. Coupled

***Constraints to apiculture***

In many regions of the world honey bee populations suffer from diseases and parasitic mites. This means that there are sometimes risks of honey and beeswax becoming contaminated by residues of chemicals used to control these diseases and mites. However, elsewhere, and particularly in poor rural areas, beekeepers still harvest from disease-free indigenous bee species and races. This makes beekeeping in some ways relatively easy compared with other regions of the world, and provides economic advantages.



For example, in sub-Saharan Africa, beekeepers harvest honey from indigenous honey bees, which means that African honey can be clean and natural. Assuming that honey is not contaminated in any other way (for example with other pesticide residues), this gives beekeepers a chance to produce honey of excellent, premium quality.

Another issue that affects people's opportunities to create livelihoods from beekeeping is the lack of access to markets, compounded by a lack of suitable containers for transporting and selling the honey, as well as a lack of roads and transport – often the major constraints for rural harvesters.

***Honey marketing***

Issues concerning access to external markets and the need for product certification and authentication represent a constraint to the industry and an area in which beekeepers deserve support.

Local honey prices are usually higher than the world market price. In this case, it makes sense for producers to satisfy their local market, and to substitute imports, before considering export. Honey export should only be considered when the local market is saturated by local honey.

DFID - Bees for development

***Product certification***

All potential honey traders or importers require certification of the honey they intend to buy. The European Union (EU) uses stringent criteria that are constantly updated as new contaminants are discovered in honey on the world market. While this makes the EU the hardest market for potential exporters to access,

with that were irregular payments and measurements. However, the tribal people slowly started trickling in with their products and soon there was a whole range of products – honey, coffee, pepper, mustard, silk-cotton and beeswax. All the food products were organic but there was no certification for them. With problems similar to those faced by small growers in many parts of the world – high costs, accessibility, no documentation, etc. – these same hurdles stood in Keystone's way.

*Honey – standards and geographical limitations*

As soon as Keystone started marketing honey, the local market appreciated it immediately since it was recognized as genuine, unadulterated honey. The cool temperatures at this elevation meant that honey was a part of the traditional diet. However, many other non-local customers raised questions as to whether it was certified by AGMARK (an agriculture certifying agency of the Indian Government). Their standards were for processed honey and not wild honey. These standards, for example stipulating a moisture content of 18 percent, would have meant Keystone having to heat the honey to reduce the moisture. This would also kill the enzymes, which would mean a change in the natural character of the honey. Honey naturally available in the tropical temperature has a moisture content of more than 20 percent, depending on the area, rainfall, humidity and other factors.

If honey is harvested hygienically, its quality can remain good for years without being spoilt. Keystone has continued to market the honey without heating, based on its quality. Different batches of honey are not mixed so as to take advantage of the different flavours.

For organic certification, a certifying agency was contacted, but again the problems of cost, accessibility and the migratory behaviour of wild bees became an issue; and the matter still rests there.

Keystone developed an internal monitoring system to check the quality of products where the four main features are: raw material; processing; packaging and distribution; and consumption and disposal. Although this does not look specifically at the organic aspects, it is an attempt to control the entire process and put in place a system of checks and balances to improve the quality of the products.

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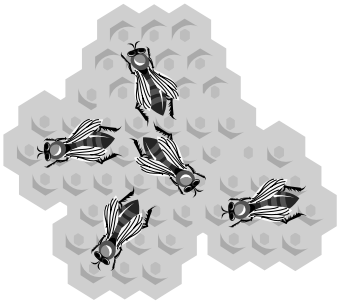
it also makes it a worthwhile market for producers with a high-quality product. For a country to be eligible to export honey to the EU, it is essential for its name to be added to the EU's list of "third countries" eligible to do so. To achieve this they need to show that administrative procedures are in place for the analysis of honey for residues of antibiotics, sulphonamides, pesticides and heavy metals. The laboratory used (which does not have to be within the country) has to satisfy EU accreditation legislation.



***Bees* for *Development***

Bees *for* Development helps people in poor countries to create livelihoods involving bees, in ways that are sustainable and environmentally beneficial. The organization provides information on beekeeping development worldwide: for example, in 2002, it responded to more than 2 500 technical enquiries. *Bees* for *Development Journal* is published quarterly and has readers in more than 130 countries. The Web site carries a wealth of information on sustainable beekeeping.

**Bees *for* Development, Troy, Monmouth, NP25 4AB, UK.**
**E-mail: info@beesfordevelopment.org; www.beesfordevelopment.org**

CASE STUDY 2
**NORTH WEST BEE PRODUCTS ZAMBIA**

The beekeepers of Zambia's North West Province might be regarded as some of the poorest people on earth: they are forest dwellers with little or no source of cash income other than that earned from their honey and beeswax. North West Bee Products (NWBP) is a beekeeper-owned company located in this remote corner of Zambia. NWBP has 3 000 members, who own the company and ensure its management. All of their honey and beeswax produced by bees living in local-style bark hives. Their honey is organic certified and meets the European Union's stringent import requirements. NWBP was formed in 1979 with support from the German Agency for Technical Cooperation (GTZ), and subsequently received support from a variety of donors over the years. The company is now self-sustaining and successful, with beekeepers annually increasing their production, confident of the market for their products.

(*Contributed by:* Nicola Bradbear, Bees *for* Development, UK.)

**APIMONDIA**

APIMONDIA, the world Federation of Beekeepers' Associations, represents the interests of beekeepers worldwide, and organizes a major international congress every second year. It includes 55 national beekeeping associations of 49 countries representing all continents and counting over five million members, four associate members (institutes and bodies pursuing studies in beekeeping as well as institutions and firms promoting and trading apiarian products and technical equipment) and three individual correspondents (individuals wishing to support personally the promotion of world apiculture).

**For more information, please contact: APIMONDIA Secretary-General, Corso Vittorio Emanuele II 101, 00186 Rome, Italy. E-mail: apimondia@mclink.it; www.apimondia.org/**

***STRENGTHENING LIVELIHOODS: EXPLORING THE ROLE OF BEEKEEPING IN DEVELOPMENT***

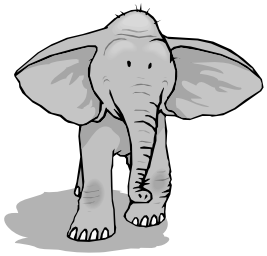
**In September 2000 the "International Symposium on Sustainable Livelihoods: exploring the role of beekeeping in development" was the first to expand the sustainable livelihoods agenda into the field of beekeeping in development. The symposium was organized by Bees *for* Development and received financial support from the United Kingdom Department for International Development's Livestock Production Programme.**

***Strengthening livelihoods: exploring the role of beekeeping in development* is a significant outcome from this symposium. This new publication emphasizes that beekeeping is an important occupation and part of rural life worldwide. In communities where access to income is limited, small-scale beekeeping can contribute significantly to livelihood security, and yet the practice of beekeeping is underplayed in both policy and planning. This book challenges the marginalization of beekeeping in rural development and asks whether a sustainable livelihoods approach can offer a way forward. Case studies are presented from around the world, including Cameroon, the Caribbean, Central America, India, the United Republic of Tanzania and Zambia.**

**Editors: Nicola Bradbear, Eleanor Fisher and Helen Jackson. Publisher: Bees *for* Development. Copies cost £22 each (£24.20 for delivery to Europe; £27.50 for delivery outside Europe) and can be ordered from Bees *for* Development, Troy, Monmouth NP25 4AB, UK. E-mail: info@beesfordevelopment.org**

**African bees and elephants**

Bees are able to prevent elephants from mowing down farmers' crops, scientists have revealed. Kenyan farmers who deployed bees in their farms had the double benefit of protecting their crops and producing honey, Fritz Vollrath of the Mpala Research Centre and Ian Douglas-Hamilton of the Nairobi-based conservation organization, Save the Elephants, have reported. The African honey bee is known to be particularly vicious, being able to chase invading elephants for several kilometres. Consequently, elephants have learnt to avoid beehives. The scientists reported that even empty hives were enough to keep off elephants, probably through their smell. (*Source:* New Vision (Kampala), 13 November 2002.)



**Uganda: Arua to process honey for export**

A private enterprise, Bee Natural Products (BNP), has set up a honey processing plant in Arua to produce honey for export. The company's managing director said that production was expected to begin in January 2003 at the start of the honey harvesting season. Although some of the honey would be consumed locally, European markets were mainly targeted; the total investment in this region (West Nile) would cost BNP about US$600 000.

Collection centres would be established in Nebbi, Moyo, Arua, Adjumani and Yumbe. BNP said they would sensitize beekeepers on quality requirements and provide them with equipment as loans to the farmers to enable them to collect sufficient honey. The government is expected to provide stainless steel storage and export buckets. (For the full story please see: http://allafrica.com/stories/ 200211220298.html) (*Source: The Monitor (Kampala)*, Uganda, 22 November 2002.)

## ECOTOURISM

**Environmental impact assessment**

Under FAO's programme of work on the appropriate utilization of forest products, the use of environmental impact assessment (EIA) is promoted as an aid to informed decision-making. EIA can be applied to predict the positive and negative consequences of any forest utilization, both for timber or non-timber products, and help in finding mitigation measures. Among some recent activities a literature review was carried out aimed at finding the state of the art of EIA in forestry and main organizations involved in various aspects of EIA. A study on the environmental impact assessment of ecotourism (particularly in protected areas) will be carried out in the next six months by an FAO volunteer working for the Forest Utilization and Environment programme. We welcome any studies/reports/information on EIA and certification of ecotourism.

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***Brazil: Bananal Island on the ecotourist trail***

Bananal Island in Brazil is the largest fluvial island in the world, with an area of two million hectares. It is divided into two protected areas, the Indigenous Park and the Araguaia National Park. The island is inhabited by the Karaja and Javae Indians, and they are beginning to see ecotourism as a means of guaranteeing their survival. The island has attracted the interest of researchers worldwide because of its unusual combination of scrubland, swampland and tropical forest. (*Source: Amazon News*, 14 March 2002.)

**Ghana: 14 ecotourism sites**

In a bid to promote tourism, 14 sites have been selected to undergo a rehabilitation programme under a community-based ecotourism project in Ghana. These sites are Amedzofe, Boaben-Fiema, Bobiri, Liati Wote, Bunso, Domama, Bonwire, Tafi-Atome, Tanoboase, Xavi, Tangzule, Paga, Red Volta and Weciau.

Nurtured by the Nature Conservation Research Centre (NCEC), a non-governmental organization, the project is being funded by USAID in collaboration with the Ghana Tourist Board, project site committees, the United States Peace Corps and the Netherlands Development Organization which advises the public about the ecotourism site. Funding for the 14 sites started in January 2002 under the first phase. The purpose of the project is to conserve some natural areas for holiday and other recreational purposes aimed at helping project communities to reduce poverty, create employment and

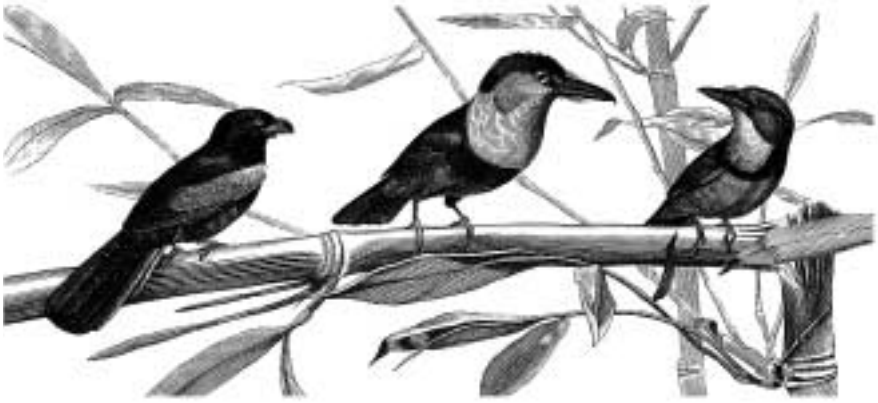
| Environmental and social impacts of different activities in the field of ecotourism | |
|---|---|
| **Impact on fauna** | **Source** |
| (+) Improved knowledge/data about animal distribution and behaviour | - scientific research on wildlife is more intensive in ecotourism areas owing to increased public awareness<br>- financial gains of ecotourism are partly used for scientific research |
| (+) Locals promote the protection of wildlife | - locals, working in ecotourism, gain a better understanding of wildlife and change their views concerning the value of fauna because they:<br>- recognize their dependence on wildlife<br>- feel personally connected with wild animals and/or admire them |
| (-) Decline of rare or spectacular species | - introduction of exotic species by tourists<br>- capture and killing of rare animals for souvenirs<br>- keen wildlife tourists prefer to seek out rare or spectacular animals for observation and photography which increases stress on them |
| (-) Habitat alteration/destruction | - road, track, campsite and lodge construction<br>- extraction of fuelwood<br>- forest fires caused by tourists (accidentally)<br>- vegetation clearing in order to provide better views for tourists |
| (-) Death of individual animals | - hunting<br>- vehicle accidents<br>- bigger animals, which have become used to humans, are killed in order to prevent potential tourist injuries and damage to vehicles and campsites<br>- animals may die after they have been startled by tourists |
| (-) Spread of epidemics and diseases | - humans or exotic animal species, which have been introduced by ecotourists, may transfer disease-causing agents to animals (e.g. mountain gorillas are very susceptible to human viruses and bacteria) |
| (-) Unnatural and unhealthy food dependency | - feeding by tourists<br>- inappropriate waste disposal and dumping places, which are easily accessible for wild animals |
| (-) Unnatural concentrations of wildlife | - establishment of artificial assistance such as water-holes and salt-licks<br>- inappropriate waste disposal and dumping places which are easily accessible for wild animals |
| (-) Unnatural species composition and physical population conditions | - establishment of artificial assistance such as water-holes and salt-licks<br>- artificial feeding programmes (mainly during winters or dry periods)<br>- inappropriate waste disposal and dumping places which are easily accessible for wild animals<br>- feeding by tourists<br>- feeding and baiting by guides |
| (-) Creation of migration barriers (especially for small animals) | - road, lodge and campsite construction |
| (-) Alteration of animal distribution (spatial and temporal displacement) and behaviour | - tourist overcrowding<br>- wildlife viewing on inappropriate observatory facilities<br>- guides actively seek rare or spectacular species which are shy by nature<br>- taming of wild animals<br>- animals are caught to show them to tourists<br>- tourists causing stress to wildlife by getting too close<br>- increased hunting pressure driven by the demand for souvenirs such as furs, skins, stuffed animals, teeth or horns |
| (-) Increase in scavenger numbers and species | - inappropriate waste disposal |
| (-) Disturbance of predator-prey relationship | - human hunting activities<br>- supporting predators by disturbing preys<br>- (*Example 1:* night hunting activities of leopards are observed with white spotlights which confuse prey species)<br>- (*Example 2:* King shags and Magellan penguins in Patagonia tend to move away and leave their nests open for attack when tourists are visiting breeding colonies)<br>- tourist traffic may cause shy predator species to avoid favourable hunting sites/times and therefore support less shy prey species |

**Environmental and social impacts of different activities in the field of ecotourism**

| Impact on fauna | Source |
|---|---|
| (-) Alteration of relationship between competing species | - waste disposal favours "problem animals"<br>- some animals are more sensitive than others to human traffic (e.g. while barking deer, sambar and Sumatran rhino moved away from frequently visited areas in Gunung Leuser National Park in Indonesia, primates, squirrels and hornbills became used to visitors)<br>- spectacular species are visited and disturbed more frequently |
| (-) Alteration of intraspecific relationships (individuals spend less time for breeding, nursing the offspring or social interactions) | - animals are concentrating on tourists and observe their behaviour<br>- tourists are particularly attracted by young animals and want to touch them or separate them from their parents (if separation is prolonged, the young can be rejected by the parents) |
| (-) Fish decline in enclosed inland water bodies | - overfishing by tourists<br>- overfishing for food supply of tourists<br>- unregulated discharge of sewage changes water quality<br>- oil leakage from motorboats leads to contamination of water bodies<br>- input of detergents, soaps and faecal material changes water quality<br>- sedimentation of water bodies caused by track/road construction:<br>- ditches next to roads/tracks<br>- erosion on tracks next to water courses or in hilly terrain |

(*Contributed by:* Dirk Gaul, Volunteer, Forest Utilization and Environment Programme, FAO.)

*(Extract from a forthcoming paper prepared by FAO's Forest Utilization and Environment programme. The full report will also cover flora and other environmental and socio-economic impacts and will be available shortly from the programme's Web page)*



provide tourism awareness centres as well as strengthening the existing tourism management terms at each project site in management and banking skills.

Ghana Tourist Board said that the fact that people were nowadays changing from mass tourism to alternative or rural tourism, where people select nature as a priority, was another factor that prompted them to create an ecotourism based on ecological nature.

Since the project started last year, three awareness programmes have taken place at the Bobiri forest reserve at Kubease to educate people about relevant issues in connection with the project, of which the third and final one under the first phase was held in December 2002. (For the full story see: http://allafrica.com/stories/200301230579.html) (*Source: Ghanaian Chronicle (Accra)*, 23 January 2003.)

**Ghana: farmers asked to protect ecology for tourism**

A Peace Corps Volunteer, Ms Rita Tiltges, has urged farmers in the Bunso area of the East Akim district to protect the ecological balance in the area to promote ecotourism. Speaking at a two-day workshop on ecotourism awareness organized for 60 farmers by the Ghana Tourist Board, Ms Tiltges said that with the creation of the arboretum by the Plant Genetic Resource Centre in the area they stood to benefit from tourism.

The Eastern Regional Manager of the Ghana Tourist Board announced that the arboretum was among four ecotourism attractions being developed in the region and urged the people to invest in the provision of lodges, handicrafts, and to develop good sanitation and a friendly attitude towards tourists. (For the full story see: http://allafrica.com/stories/200301290556.html) (*Source: Accra Mail (Accra)*, 30 January 2003.)

**Nigeria: goldmine in the forest**

Despite the government's commitment to environmental protection in the country, Nigeria's tourism sector has not been able to create jobs and wealth for the unemployed young people in the local communities.

International attention is now focused on achieving sustainable tourism development through the use of conservation of the ecosystem. This refers to the natural environment of trees, fishes and animals. Nigeria is no exception. The wind of change has encouraged people to plant trees and start to respect the environment. During the World Tourism Day (WTD) on 27 September 2002, tourism officials around the world planted trees, which are synonymous with conservation.

What role can ecotourism play in the pursuit of sustainable development, economic growth and the integration of the Nigerian economy to the global economy?

Stakeholders in the leisure and tourism industry around the globe are proud of the ecotourisn concept. Countries, including those not considered to have an edge in the sector, highlight their ecotourism potential. Why? Foreign currency receipts from international tourism in 1996 amounted to US$423 billion, which outstripped exports of other products or services. Today, tourism is consolidating its position as the fastest-growing industry in the world: statistics from the World Tourism Organization (WTO) in June 2000 showed that international tourist arrivals reached 666 million in 1999, an increase of 4.1 percent over the previous year.

WTO and the United Nations advised nations to embrace ecotourism. The Secretary-General of WTO, Francesco Frangialli, in his message for the WTD said that the 14th General Assembly of WTO did not hesitate in deciding the theme for this year's WTD as: "Ecotourism: the Key to Sustainable Development". Frangialli said that the theme reflected the "growing recognition by the international community of the potential of tourism, and ecotourism in particular, to contribute to the sustainable development process".

Nigeria now has seven national parks, which were created in line with government policy on the preservation of the natural heritage. Yet Nigeria does not do enough ecotourism, although every state in the federation, including the Federal Capital Territory, has one form of ecotourism potential or another. Stakeholders concentrate more on seminars and symposia, business tourism, cultural/religious and sports tourism. It is commonplace to have exotic animals poached and hunted for livelihood. By the 1980s, it was obvious that Nigeria had lost about 90 percent of its original tropical rain forest cover to bush burning, logging and other forms of illegalities in the agricultural subsector. In addition, rare monkeys, chimpanzees and gorillas are being hunted. It is for this reason that the WTD subtheme was titled: "Ecotourism in Nigeria: problems and prospects".

It is important to be more realistic and to encourage rural people to stop indiscriminate bush burning, poaching, killing of animals for livelihood, hunting and so on. The main question is: What can be done to optimize the opportunities inherent in ecotourism in Nigeria?

Ecotourism is expected to play an important role in promoting sustainable development in the entire tourism industry. Put succinctly, ecotourism, which represents rare trees, exotic animals and space, creates jobs and wealth. That was the main message implicit in the Québec Declaration, which summed up the deliberations of more than 1 100 delegates who took part in the three-day World Ecotourism Summit in May 2002.

Another prominent issue raised at the summit was the key role that small and medium-sized enterprises are expected to play if they are given the opportunity and the necessary technical, marketing and financial support.
WTO stressed the need to involve as many stakeholders as possible (but particularly representatives of the local communities which receive the tourists) in the different phases of developing ecotourism, from policy definition through marketing to the distribution of benefits.

Nigeria, blessed with a rich ecosystem, has enormous prospects in ecotourism. (*Source:* Extracted from an article by Justina Okpanku in *This Day (Lagos, Nigeria)*, 21 October 2002; http://allafrica.com/environment/)

## CERTIFICATION OF ECOTOURISM – A TOOL TO MAXIMIZE ENVIRONMENTAL AND SOCIAL BENEFITS OF ECOTOURISM

**Ecotourism and nature tourism are the fastest-growing sectors of the travel and tourism industry. This is the reason why today many businesses falsely describe themselves as ecotourism operators in order to attract "green" consumers. These operators contribute to reducing the credibility of the complete ecotourism branch. In that context, certification could provide an opportunity to reveal "free riders" and identify ecotourism operators that operate according to the ideals of ecotourism.**

**At present more than 100 competing ecolabels for nature-based tourism exist, of which none has reached significant market acceptance. The variety of labels and the often controversial methodologies and processes of the certification systems behind them cause considerable confusion and a feeling of helplessness among tourists who want to act as environmentally friendly as possible.**

**The reduction of certification programmes or the formation of an accreditation body which certifies the certifiers are necessary steps for the future. Furthermore, the use of a uniform, easily understandable label has to be regulated and monitored in a much stricter way than is done at present with most brands. Standard controls should not stop after certification. Inspections have to be continued, both announced and unannounced. After certification has expired, the label should be withdrawn immediately, which will increase credibility.**

**It is essential for a certification programme to find influential supporters who comply with the standards. Therefore, promotion of a single label by well-known and publicly accepted non-governmental organizations, such as the World Wide Fund for Nature or Greenpeace, is an additional tool to raise consumer awareness as well as credibility. Governments, on the other hand, could provide budgets or tax incentives for certified operators in order to recognize their efforts towards nature conservation and the well-being of local communities. Moreover, they could deny contracts to uncertified companies in environmentally sensitive areas.**

***Current developments***

**Rainforest Alliance, supported by the Ford Foundation, is carrying out a feasibility study for the formation of a Global Sustainable Tourism Stewardship Council (STSC). Based on the model of other accreditation bodies, such as the Forest Stewardship Council (FSC), the STSC is supposed to establish international criteria for accreditation, monitor compliance with such criteria, promote consumer awareness and increase credibility of certification schemes. The STSC would cover both the sustainable tourism and ecotourism sectors.**

**Results will be made available on the Rainforest Alliance Web site (www.rainforest-alliance.org/). (*Contributed by:* Dirk Gaul, Volunteer, Forest Utilization and Environment Programme, FAO.)**

**Training courses – ecotourism**

The following courses took place in Georgetown, Guyana:
25-30 November 2002. Visitor interaction skills for ecotourism
10-15 December 2002. Community ecotourism mapping.

**For more information, please contact: Training Coordinator, Iwokrama International Centre, 67 Bel Air, Georgetown, Guyana.**
**Fax: +592 2 259199;**
**e-mail: iwokrama@iwokrama.org *or* mhoosein@iwokrama.org;**
**www.iwokrama.org *or* www.iwokrama.com** ●

***I think that I shall never see a poem lovely as a tree.***

**Joyce Kilmer**

# NEWS AND NOTES

**"Non-Wood Forest Products (NWFP) consist of goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests."**
**«Les produits forestiers non ligneux sont des biens d'origine biologique autres que le bois, dérivés des forêts, des autres terres boisées, et des arbres hors forêts.»**
**«Productos forestales no madereros son los bienes de origen biológico distintos de la madera derivados de los bosques, de otras tierras boscosas y de los árboles fuera de los bosques.»**
**(FAO's working definition)**

## AGRIBUSINESS IN SUSTAINABLE NATURAL AFRICAN PLANT PRODUCTS (ASNAPP)

The ASNAPP project, cofunded by the United States Agency for International Development (USAID), was initiated in 1999 to help develop the natural products sector in Africa by promoting income-generating activities for rural entrepreneurs in such a way that improves the livelihoods of rural communities.

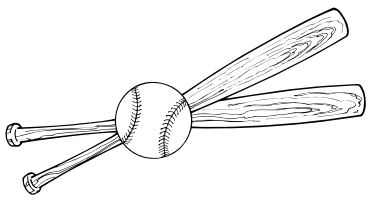
ASNAPP's overall aim is to build capacity for the development of sustainable natural plant product businesses in a socially and environmentally sensitive manner. ASNAPP uses a market-driven, commodity-systems approach which minimizes the risk to growers and is focused on crop clusters such as teas, dyes, spices and aromatic plants. A subfocus of the project is the commercialization of plants that are also used in traditional medicine and can assist in primary health care.

ASNAPP uses ongoing training programmes to promote organic production methods, business development skills and education.

**For more information, please contact: The Center for New Use Agriculture and Natural Plant Products, Rutgers, The State University of New Jersey, 59 Dudley Road, New Brunswick, New Jersey 08901, USA.**
**Fax: +1 732 9329441;**
**www.asnapp.org/**

## BASEBALLS

The inner core of high-quality baseballs contains a cork ball encased within a rubber ball. Cork is the bark of the cork oak tree (*Quercus suber*), which is native to Europe (primarily Spain and Portugal) and North Africa, and natural rubber comes from the "sap" (or more accurately, the latex, a compound produced in defence to a wound) of the rubber tree (*Hevea braisliensis*), which is native to Brazil and grown in Malaysia, Indonesia, Thailand, India and China. (*Source:* http://wood.orst.edu/common)



## BIOPHARMING

In early July, a United States biotechnology company called Epicyte announced that it had won a broad patent on the production of antibodies in plants. The patent, assigned to Scripps Research Institute, allegedly covers any kind of antibody produced in any kind of plant. (*Source:* Epicyte Press Release, 9 July 2002 [www.epicyte.com/home.html].)

## BIOPIRACY

**Biopiracy in Africa**

Africa stands to lose huge benefits from its biodiversity for lack of legal protection against biopiracy, concluded the Second South-South Biopiracy Summit held in Johannesburg, South Africa during the World Summit on Sustainable Development (WSSD). Biodiversity – the fifth thematic area of WSSD – is Africa's richest asset. The knowledge that African people have developed over centuries on the properties of plants, seeds, algae and other biological resources is now coveted by scientists for medicinal, agricultural and other purposes.

Biopiracy is the theft of biological matter, such as plants, seeds and genes. In the absence of laws regulating access to these resources, pharmaceutical, agrochemical and seed multinationals exploit Africa's biological wealth and obtain of intellectual ownership rights to the resources and knowledge of communities. Multinational companies make huge profits from African biodiversity but do not share them with the communities that discovered, kept and transmitted the knowledge, activists argue.

Thousands of patents on African plants have been filed. To name just a few: brazzeine, a protein 500 times sweeter than sugar from a plant in Gabon; teff, the grain used in Ethiopia's flat "injera" bread; thaumatin, a natural sweetener from a plant in West Africa; the African soap berry and the Kunde Zulu cowpea; and genetic material from the West African cocoa plant.

Increasingly, developing countries are going to court over patents on their indigenous plants. The latest patent to make headlines involves the Hoodia cactus from the Kalahari Desert. For centuries, the San people of southern Africa ate pieces of the cactus to stave off hunger and thirst. Analysing the cactus, the parastatal Council for Scientific and Industrial Research (CSIR) in South Africa found the

molecule that curbs appetite and sold the rights to develop an anti-obesity drug to pharmaceutical company Pfizer. It could be worth billions of US dollars. The San complained. Its council threatened a lawsuit. Earlier this year [2002] the CSIR agreed to share eventual royalties, and the Hoodia cactus became a landmark case whereby indigenous communities stake a claim on their knowledge and the profits derived from it.

"Western medicine is protected. Wildlife is protected. But our knowledge isn't, like it's worth nothing," said T.J. Matiba, a Venda traditional healer, founder and president of South Africa's Council of Traditional Healers since 1985.

Paradoxically, the poorest people in the world live in the world's biodiversity hot spots. If they derive a benefit from their natural resources and indigenous knowledge, they would be keen to protect them. That approach, however, is in conflict with world trade rules.

The UN Convention on Biological Diversity, ratified by 183 countries and in force since 1993, recognizes the sovereignty of states and communities over their genetic resources. But the Trade Related Intellectual Property Rights agreement (TRIPS) of the World Trade Organization (WTO) does not. Since 1995, WTO requires its member countries to comply with TRIPS. It has been said that this contradiction creates "schizophrenia" between patent legislation and protection of indigenous knowledge.

The root problem is that the existing system of intellectual property rights and patents does not accommodate non-Western systems of knowledge ownership and access. Under international law, an invention qualifies for patent protection only if it is new and involves an inventive step. This excludes traditional products, developed and handed down over generations. The system is rooted in the European industrial and scientific tradition. It views knowledge as a commodity owned by an individual or a company with the goal of trade, whereas indigenous knowledge has a transgenerational, communal and cultural nature. (*Source:* Extracted from UN Integrated Regional Information Networks, cited in BIO-IPR, 2 September 2002, GRAIN Los Baños [grain@baylink.mozcom.com].)

**Biopiracy in Asia-Pacific**

Genetic Resources Action International (GRAIN) and Kalpavriksh (an Indian environmental action group) have published a new briefing on the state of traditional knowledge and biodiversity in the Asia-Pacific region. Most people across Asia, a region rich in biodiversity, are directly dependent on plant genetic resources for their livelihoods. But both these resources and the knowledge related to them are under threat. The quest for "green gold" by transnational companies and global institutions is penetrating all countries of the region, bringing with it a rise in the problem of biopiracy. The misappropriation of traditional knowledge has been helped by changes in regulations – mainly the introduction of intellectual property rights. Governments are increasingly trying to manage rights to biodiversity and traditional knowledge through exclusive monopoly systems, while mechanisms to protect and strengthen the collective rights of local communities remain weak.

This 30-page briefing provides details, with numerous examples, of the changes that are occurring in the Asia-Pacific region, from international agreements and regional initiatives to action taken by farming communities. Many people at the grassroots level are working to fight back and protect their resources and knowledge from blatant exploitation. Emerging strategies on what communities and organizations could do to ensure the further strengthening of community rights are outlined. (GRAIN and Kalpavriksh, *Traditional knowledge and biodiversity in Asia-Pacific: problems of piracy and protection*, October 2002, 30 pp., is available on GRAIN's Web site: www.grain.org/publications/tk-asia-2002-en.cfm) (*Source:* BIO-IPR resource pointer [grain@baylink.mozcom.com].)

**Biopiracy in South America**

The National Institute of Industrial Property (INPI), Brazil is preparing a database of the medicinal plants used by Indians, in partnership with indigenous communities. Xavante Indian leaders asked INPI to patent the medicinal formulas of plants used by indigenous communities, which are being targeted by international biopiracy, often sponsored by large world pharmaceutical companies. INPI informed the Xavante Indians that the formulas can only be patented after the Congress resolves the question of Brazil's natural genetic heritage.

IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis) statistics reveal that Brazil's natural heritage is estimated to be worth $R 2 trillion. Specialists in the areas of environmental law and patent law have criticized the lack of legislation regulating the sector. (*Source: Amazon News*, 25 April 2002.)

*Lepidum meyenii*

**Peruvian farmers and indigenous people denounce patents on maca extract**

Indigenous peoples' and farmers' organizations from the Andes and the Amazon gathered at the offices of the Ecological Forum in Lima, Peru on 28 June 2002 to denounce formally United States patents on maca (*Lepidum meyenii*), the high-altitude Andean plant (of the Cruciferae [mustard] family) that has been grown for centuries by indigenous people in the Puna highlands of Peru, both as a staple food crop and for medicinal purposes.

Today, companies are selling maca-based products as natural enhancers of sexual function and fertility. While maca exports have the potential to create new

markets and income for Peruvian farmers, recent United States patents on maca may actually foreclose the opportunity for the true innovators of the Andean crop.

Efrain Zuniga Molina of the Association of Maca Producers of Valle del Mantaro (Peru) said that the Andean region was becoming known as the "biopiracy capital" of the world. "We've seen patents on ayahuasca, quinoa, yacon, the nuña popping bean, and now maca." A representative of the maca growers' association in the Department of Huancavelica (Peru) said that these patents claimed novel inventions, but that everyone knew they were based on the traditional knowledge and resources of indigenous people.

The farmers are calling on two United States companies to abandon patents related to maca, and they are asking the Peruvian Government and the World Intellectual Property Organization (WIPO) to investigate and condemn monopoly claims related to maca that appropriate traditional knowledge of farming communities. (The Geneva-based WIPO promotes intellectual property as a means of protecting traditional knowledge.) (*Source:* ETC Press Release [www.etcgroup.org/search2.asp?srch=maca].)

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**Fax: +1 204 2847871;**
**www.etcgroup.org**

## BIOPROSPECTING

**FRIM in deal for drug bioprospecting**

The Forest Research Institute of Malaysia (FRIM) has signed a memorandum of understanding with Japanese-owned Nimura Genetic Solutions (M) Sdn Bhd (NGS) to collaborate in bioprospecting of new drugs. FRIM, and the country at large, are expected to benefit from collaborative research and development programmes through technology transfer, intellectual property rights and patent ownership related to new discoveries in drug and food supplements.

FRIM director-general Datuk Dr Abdul Razak Mohd Ali said that NGS would benefit from FRIM's vast experience in tropical rain forest diversity, its large pool of research expertise and the extensive range of supporting research facilities available within FRIM's campus.

Nimura specializes in isolation, characterization, fermentation and extraction of useful and active compounds from micro-organisms, particularly from the soil for the purpose of drug discovery. FRIM will stand to benefit from royalties once NGS has been able to isolate and test microbes against bacteria and disease organisms and then sell the microbes to pharmaceutical manufacturers.

FRIM said that drug discovery was a very lengthy process requiring between 10 and 15 years of painstaking research and development, and the cost exceeded US$150 million ($M 570 million) for the development of a single drug. (*Source: New Straits Times*, 4 March 2002, cited in BIO-IPR Listserve [grain@baylink.mozcom. com].)

**UN conference backs indigenous peoples' drug payout**

A global environmental conference in April 2002 hammered out guidelines to encourage big business to pay indigenous communities for the right to use native plants to make commercial drugs and cosmetics. Delegates from 166 countries adopted global guidelines at the end of a two-week United Nations-sponsored conference designed to encourage leading pharmaceutical and biotechnology companies to strike deals with countries where they use genetic resources. (For the full story, please see: http://enn.com/news/wire-stories/2002/04/04222002/reu_drugs_46994.asp) (*Source:* Conserve Africa International [info@conserveafrica.org].)

## CAN NON-TIMBER PRODUCTS HELP SAVE TROPICAL FORESTS?

For some time now, tropical forest conservationists have been wondering whether encouraging the sale of products such as mushrooms, berries or medicinal herbs may reduce the need for farmers to cut down tropical forests. In a new volume in the Tropenbos-Kalimantan Series, Wil de Jong explores whether commercialization of such forest products can actually reduce tropical deforestation.

Most of the material for this study comes from West Kalimantan, an Indonesian province on the island of Borneo. Local Dayak farmers grow rice, manioc and bananas as their staple food in agricultural fields for which lush primary forest had to be cut. However, they also collect numerous non-timber forest products (NTFPs). In fact, 630 species were recorded for which people had some use or other.

The secret of making a success of the idea that the commercialization of NTFPs can help save tropical forest lies in understanding local forest management.

Managing forests is common practice among farmers in West Kalimantan, and in many other places in the world as well. Local farmers protect parts of the original forest to assure the supply of timber and non-timber products. In Kalimantan, these forest remnants may be owned by individuals, families or communities. Something that is possibly more important is that local people are able to achieve a perfect combination of forest management and agriculture. Even though Dayak farmers slash forests to create agricultural fields, significant areas of such farmland are reconverted sooner or later into forest. Hence a typical farm will consist of some agricultural land, but large portions will also be forested, possibly being the natural forest remnants, "secondary" forests that only recently started to grow on what was previously agricultural land, or so-called forest gardens. The latter are small forest plots that used to be agricultural land a long time ago and that have now been restored to full-grown forest areas.

The Kalimantan findings suggest that commercialization of some kind of forest product is likely to influence local forest management. Rubber is a case in point. Rubber collected from the wild in the Amazon basin is produced as a tree crop in West Kalimantan and other provinces in Indonesia. The study shows that in one of the study villages rubber is produced on land previously used for agriculture or forest gardens. In one village, the shift to rubber production did not significantly reduce the conversion of natural forest to agricultural land, but it did increase the rate at which local farmers converted agricultural land back to forests.

Whether these sorts of impact from forest product commercialization actually contribute to the conservation of tropical forests depends partly on the standards employed. One of the chapters in this book compares natural forests and forest gardens in terms of their "forest quality". Natural forests have the highest number of species and a more complex forest structure. However, managed forests, especially forest gardens, have a species richness and forest structure that compare more than favourably with any other tree or non-tree vegetation. The kinds of managed forest in which commercialized forest products are likely to be produced therefore provide better biodiversity conservation, carbon sequestration and water regulation services than most other alternatives, except natural forests.

The new Tropenbos volume concludes that commercialization of NTFPs is more likely to happen if it can be incorporated in existing forest management practices. In that case, commercialization does contribute to tropical forest conservation, if one accepts the high quality and value of managed forests. (W. Jong. 2002. *Forest products and local forest management in West Kalimantan, Indonesia: implications for conservation and development*. Tropenbos-Kalimantan Series 6. MOF-Tropenbos Kalimantan Programme, Balikpapan, Indonesia.) (*Source: Tropenbos International Newsletter*, 27 July 2002.)

## COMMERCIALIZATION OF NON-TIMBER FOREST PRODUCTS IN MEXICO AND BOLIVIA: FACTORS INFLUENCING SUCCESS

A three-year project, funded by the Forestry Research Programme of the United Kingdom Department for International Development (DFID) is analysing the opportunities and constraints to commercialization of NTFPs. The research focuses on the relationship between poverty, gender and successful commercialization of NTFPs, and is interested both in identifying the factors that contribute to successful commercialization and in looking at the impact of (different types of) commercialization on communities.

One of the greatest challenges facing the research team was to design a research methodology that could be successfully applied across different communities, commercializing different products, in different geographical areas. Research hypotheses were jointly developed to provide an integrating framework for the project, and research questions were developed iteratively to provide a cross-checking mechanism against the research tools to ensure that enough of the right information was going to be generated. Attempts have been made to achieve methodological integration with survey tools solidly based on results of community, household, and market-level research, and to provide data for a multidisciplinary research team.

Initial stages of data analysis centred around the production of a matrix, matching the research tool (which would provide the information source) to the research question to be answered. In addition, the project cycle has been planned to facilitate some triangulation of results, among all the project partners. This has also highlighted the importance and value in early joint analysis workshops.

**For further information please contact: Ms Elaine Marshall, Senior Programme Officer, DFID/FRP project manager: NTFP commercialization in Mexico and Bolivia, UNEP-WCMC, 219 Huntingdon Road, Cambridge CB3 0DL, UK.**
**Fax: +44 1223 277136;**
**e-mail: elainem@unep-wcmc.org**

## CONTRIBUTION OF TREE PRODUCTS TO FOOD SECURITY

Malnutrition is one of the causes of poverty even though it is also its consequence. In all sustainable agricultural projects that aim to improve the livelihoods of people living in project areas, food security means, at all times, a physical, social and economic access to sufficient, safe and nutritious food which meets dietary needs and food preferences for an active and healthy life. For the rural and urban poor living in the humid western and central Africa, the failure to meet their daily nutritional needs can make the difference between life and death, illness and health, especially among children and women. Fortunately, domestication activities, well in place in this area, provide desirable and low-cost tree products with considerable values of energy (fats and sugars), proteins, essential amino and fatty acids, and minerals, as well as dietary fibres. For this benefit to be consistent, the adoption of tree cultivation is a prerequisite, and especially of *Dacryodes edulis*. The fruits (safou) of this constitute a good example of abundantly consumed tree products and a market survey in Yaoundé (Cameroon) markets has revealed that the intake ranged from five to 16 fresh fruits per consumer per day during the production period of June to September.

The biochemical composition of priced fruits in Yaoundé markets is as follows: lipids 31.9-60.80 g/100 g; available carbohydrates 4.54-8.74 g/100 g; crude proteins 6.6-16.10 g/100 g; available energy 593.6-633.1 kcal/100 g; dietary fibres 8.43-24.31 g/100 g; vitamin C 24.5-28.35 mg/100 g; vitamin A 620.20-690.04 µg/100 g; and iodine value 59.64-74.60 g iodine/100 g fat. Mineral composition shows ranges of 0.16-690.0 mg/100 g for calcium; 0.12-450.0 mg/100 g for magnesium; 0.104-8.51 mg/kg for iron; 0.03-0.78 mg/kg for zinc; and 0.012-0.70 mg/kg for copper.

Moreover, *in vitro* protein digestibility data have shown that the yields of digestibility are 34.3-72.5 percent for fresh pulp and 42.0-76.7 percent for sun-dried pulp. These values show how important safou is in contributing to meeting daily nutritional needs in consumers.

The biochemical composition of safou, apart from showing a great variation in nutrient contents and protein digestibility – thus an asset for superior trees' selection and improvement – leads to important conclusions *vis-à-vis* the species contribution to nutritional security. Since the edible portion of safou has on average a raw weight of 47.80 g, it can be concluded that at 88.55 percent dry matter the following quantities of fruits will be needed to cover the recommended dietary allowances (RDA): 35 fruits for the RDA in calories, 52 fruits for the RDA in proteins, 21 fruits for the RDA in vitamin C, 15 fruits for the RDA in vitamin A, 23 fruits for the RDA in iron and calcium, and 16 fruits for the RDA in magnesium. These figures are very encouraging for domestication activities because safou is consumed in households throughout the day from breakfast to dinner in various cooked and combination forms.

This great nutritional value constitutes, on the one hand, an important incentive for increased adoption of tree cultivation among rural communities in western and central Africa. On the other hand, it is the basis for product development to expand the safou market and its use in the food industry to boost the livelihoods of smallholder farmers. (*Contributed by:* Edouard Kengni, Cameroon.)

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**Edouard Kengni, ICRAF West Africa, PO Box 2067 (Messa), Yaoundé, Cameroon.**
**E-mail: ekedou@yahoo.com**

## FIRST FSC-CERTIFIED COSMETICS AND MEDICINES

With the certification of more than 221 000 ha of forest in Telemaco, Borba, in Paraná state in Brazil, Klabin Industries is the first company in the world to get the Forest Stewardship Council (FSC) certification for cosmetic and medicinal ingredients.

The rich biodiversity in these forests, with more than 80 000 ha of native forest, allows the extraction of raw materials for producing medicines and cosmetics. The company maintains species under a management system that integrates a complex set of strategies.

The programme started in 1984 and earned FSC certification in 2001. The production of medicines and cosmetics is based on more than 80 medicinal plants, and contributes to improving the quality of life of employees by providing income as well as social and medical assistance.

Today Kablin's medicines have a 97 percent acceptance rate by users (more than 40 000 treatments) because the products are guaranteed to be 95 percent effective, and they cost less than 50 percent of the cost of normal chemical medicines. (*Source:* FSC News+Notes, March 2002 [fscoax@fscoax.org].)

# NEWS AND NOTES

## FOLK MEDICINE ON THE RISE

Assigning itself a Herculean task, the World Health Organization (WHO) has taken a first step towards becoming the global watchdog over unconventional medicine. The organization, a United Nations agency, has long focused on Western medicine, but it is looking closely at non-Western treatments, because at least 80 percent of the people in the world's poorest countries use them. Few of those countries can regulate their folk healers or share their plant lore, which may be a miracle cure or a poison.

The group's mission to catalogue and give information about such treatments begins as they grow more popular in the West, and as the danger of some folk remedies increases the numbers potentially at risk.

As defined by WHO, folk medicine – sometimes called traditional and alternative/complementary medicine – includes practices from chiropractic care and fad diets in Manhattan to porcupine quill injections in South Africa, shamanistic trances in Siberia, Arabic unani medicine and faith-healing with chicken guts in the Philippines.

Today, the Western-trained doctors who run the health organization acknowledged that they were making a very modest beginning, on a budget of US$500 000, less than one twentieth of 1 percent of the organization's US$1.1 billion annual budget. The group's ultimate goal is to catalogue all folk remedies, making sure the plants are saved in botanical gardens and the products patented country by country. It also envisions writing common codes of ethics and training for folk healers. But for the moment, WHO is simply surveying the way different countries train their practitioners and control their medicines. It is compiling the existing studies and has published papers on 100 of the roughly 5 000 medicinal plants that experts believe are in use.

In China, where 95 percent of hospitals have folk medicine wards, treatments are relatively advanced. But the practice is most prevalent in Africa, where at least 80 percent of people use it, sometimes because it is the only alternative. A WHO survey found that while there was only one medical doctor for every 50 000 people in Mozambique, there was a traditional healer for every 200.

Africa is also the least regulated continent. Most African healers learn their art by apprenticeship, so education is inconsistent. But some African countries are taking the first step towards regulation by creating healers' associations and offering courses on topics such as sanitary practices.

Folk practices are still also common in the West. For instance, in France, where homeopathic medicine is popular, 75 percent of people questioned say they have tried alternative medicines, compared with 42 percent of Americans who responded to a 1997 survey. (*Source:* Extracted from an article in NYTimes.com, 17 May 2002, cited in Conserve Africa Foundation, 16 June 2002.)

## "IDEOTYPES" FOR INDIGENOUS FRUIT-TREE DOMESTICATION

The enormous tree-to-tree variation in a wide range of fruit and kernel characteristics of wild trees with domestication potential offers great opportunities for the identification and selection of individual trees that combine three to four desirable traits. These trees can be rapidly multiplied by simple low-technology vegetative propagation techniques within participatory tree domestication programmes to reduce poverty in rural communities, while maintaining the social and cultural benefits of such species.

The quantitative characterization of fruits and nuts in a number of populations of *Dacryodes edulis* (safou or African plum), *Irvingia gabonensis* (bush mango or dika nut) has recently been undertaken in Cameroon and Nigeria. A similar study has also been done on *Sclerocarya birrea* (marula) in South Africa and Namibia. Publications are available on the results of these studies.

Work in progress is expanding this concept to *Barringtonia procera* (cutnut) and *Inocarpus fagifer* (Tahitian chestnut) in the Solomon Islands.

I am interested in expanding this approach to other non-wood forest products, not only indigenous fruits or nuts, through collaborative projects/student supervision anywhere in the tropics. (*Contributed by:* Prof. R. Leakey, Australia.)

**For more information, please contact:**
**R. Leakey, Professor of Agroecology, Agroforestry and Novel Crops Unit, School of Tropical Biology, James Cook University, PO Box 6811, Cairns QLD 4870, Australia.**
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**e-mail: roger.leakey@jcu.edu.au;**
**http://cnsfse01.jcu.edu.au/schools/tropbio/index/html**

## IMPROVED GUM/RESIN TAPPING TECHNIQUE IN SOME SPECIES

Gums and resins form an important group of non-wood forest products. Millions of people worldwide, especially in developing countries, depend on the collection of gums, resins and latex for their livelihoods. However, the market for these products has been declining, mainly as a result of the unscientific and brutal tapping methods, overexploitation leading to the death of the tapped trees and the erratic supply of these products in the market. Commercial tapping of gum and resin is done by blazing, peeling or making deep cuts on the bole. On account of injurious and wasteful tapping and overexploitation the populations of

# NEWS AND NOTES

gum- and resin-producing plants have declined markedly. In the absence of cultivation of these plants, there is grave concern regarding wild germplasm loss. Simple and effective tapping techniques which ensure optimum yield and regeneration of tapped trees, and their sustainable production, have been developed for gum arabic (*Acacia senegal*), gum ghatti (*Anogeissus latifolia*), neem gum (*Azadirachta indica*), guggul (*Commiphora wightii*) and gum karaya (*Sterculia urens*).

The introduction of new tapping methods using ethephon (2 chloroelhyl phosphonic acid), a plant growth regulator, have increased exudation of gum/gumresin in certain plants such as *Anogeissus latifolia, Acacia senegal, Commiphora wightii, Sterculia urens* and *Mangifera indica*. These methods also ensure the sustainable yield, regeneration and survival of the tapped trees. Ethephon is safe, inexpensive and non-toxic. It is used for enhancing the rubber yield in rubber trees, ripening of fruits (mango, bananas and citrus), induction of abscission, flowering, root initiation, seed germination and breaking of dormancy.

The first systematic study on the improvement of resin tapping was carried out during the Second World War because of the urgent need for oleoresin. Chemical stimulation experiments on resin flow by the application of sulphuric acid, hydrochloric acid and sodium hydroxide have been carried out. The prolongation of oleoresin flow by acid stimulation resulted in 50 to 100 percent higher productions. The oleoresin flow is also prolonged by inoculating wounds on pine trees with the suspensions of pitch canker fungus, *Fusarium lateritium* and *F. pini*. Ethephon (2 chloroethylphosphonic acid) and paraquat (1,1 dimythyle 4, 4' bipyridium chloride), or other herbicides when administered alone or in combination into the stem, induces extensive oleoresin soaking within the stem of pines. The treatment does not induce oleoresin soaking in *Abies balsamea, Larix laricina. Pseudotsuga* and *Tsuga canadensis* treatment induces formation of gum cavities in the secondary xylem and cortex of cherry, peach, plum and prune.

Application of indol 3-acetic acid (IAA) morphactin (EMD-7301) and kinetin (6-furfuryl aminopurine) increase the number of gum ducts in *Sterculia urens* but was ineffective in *Commiphora wightii*. An increase in the number of vertical resin ducts due to application of growth regulator was also reported in *Pinus halepensis* . These reports, however, do not mention the effect of the hormones on the amount of gum or gumresin secreted.

Application of ethephon enhances exudation of gum and gumresin in certain hardwood species. Neem gum which contains about 35 percent protein has great potential for industrial use, but the neem tree (*Azadirachta indica*) is generally not tapped because of the meagre amount of exudation. Administration of ethephon and paraquat (1,1'-dimethyle 4,4' bipyridium salt) into the sapwood of neem mediated copious gum exudation. The treatment induced formation of gum ducts and cavities in the sapwood.

Guggul, an oleo-gumresin exuded by *Commiphora wightii* is the source of an important drug, the guglip, which possesses hypocholestraemic and hypolipaemic activities and is used in the control of atherosclerosis, the main cause of coronary heart disease. The traditional tapping methods used are unproductive and destructive. Owing to wasteful and injurious tapping techniques, the natural population of this small tree of the semi-arid regions of India has depleted fast. An improved tapping technique using the "Mitchie Golledge" knife coupled with ethephon application can enhance guggul production by about 22 times over that obtained from control and rapid wound healing. April and May are the peak months for guggul tapping as established by localization of resins using epifluorescence microscopy.

*Anogeissus latifolia* occurs commonly in dry deciduous forests of India. Besides providing fuelwood and timber, the tree yields a valuable gum called gum ghatty. Gum ghatty has been used in India for calico printing, in confectionery, ceramics, food and pharmaceuticals. An improved tapping method based on the application of ethephon yielded an approximately 466-fold increase in gum. A similar method was successfully tested in *Mangifera indica*.

Gum arabic produced by *Acacia senegal* has various uses. *Acacia senegal* trees in India do not yield gum. A study indicated that 0.8 to 0.9 kg of good-quality gum can be obtained per tree by introducing ethephon through a hole in the sapwood in April/May.

A dry exudate from *Sterculia urens* known as gum karaya is one of the least soluble gums used in many industries such as petroleum and gas, textiles, paper and pulp, pharmaceutical medicine and several other products. The commercial tapping of karaya is done by blazing, peeling or by making deep cuts at the base of the bole with an axe. These methods often lead to the death of the tapped trees. On account of crude tapping methods and overexploitation, the population of karaya trees has declined markedly. In the absence of cultivation of these trees in regular plantations, there is grave concern about the loss of wild germplasm of *S. urens*. Currently, the governments of Madhya Pradesh, Rajasthan and Uttar Pradesh have imposed a ban on the tapping and collection of gum karaya to allow the recovery and regeneration of this tree.

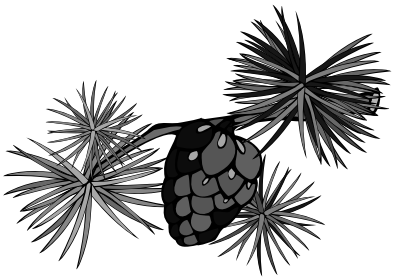
As gum karaya is vital for tribal economy and its trade value is substantial, there is a pressing need to develop a scientific and sustainable tapping method to increase the yield and ensure the survival of the tapped trees. A simple and safe technique of tapping with substantial increase in the yield is being developed using ethephon to enhance gum yield and wound healing. After 45

days a thick wound tissue develops at the injured region and almost replaces the damaged tissue. The wound is completely healed 60 days after tapping. The yield increases by approximately 20 to 30 times more than the control. There is a marked difference in the yield among individual trees, presumably owing to heterozygosity. The systematic and scientific tapping technique using ethephon as a stimulating agent for gummosis or gumresinosis could ensure substantial improvement and sustainable production of these materials. *The concentration used for treatment is critical for each species. If it exceeds the optimum amount there is a possibility of dieback and death of the plants*.

The future of the natural gum and resin industry is uncertain and, therefore, a thorough economic study of the national and international trade is necessary. Synthetic products are preferred by the industry because of the uncertain supply and cost of natural gums and resins. However, unstable oil prices, decreased production and the high cost of the synthetic material create a promising future for natural gums and resins. In spite of the competition from synthetic products, natural gums and resins are preferred in certain industries as they are superior.

The tapping methods used are brutal and injurious to the plants, often leading to their death. The technology available is old and the innovations are essential for a sustainable yield and quality control. A concerted effort by researchers and agencies such as research institutions, universities and non-governmental agencies is urgently needed to improve all aspects of the industry such as tapping, collection, processing, grading, classification and marketing. R&D is completely lacking in the area of utilization of natural gums and resins. The industry depends entirely on traditional and certain ad hoc investigations by individuals. Research into genetic improvement and the selection of species for the production of gums and resins should be initiated, possibly leading to the establishment of plantation of these species. The gum and resin industry can provide employment and a steady additional income to rural people. (*Contributed by:* M.N.B. Nair, India.)

**For more information, please contact: M.N.B. Nair, Thekkepulikkoottil, Nechipuzhoor PO, Arunapuram 686754, Kerala, India.**
**E-mail: mnbnair@vsnl.com**



### TREE RESIN MAY HELP CONTROL CHOLESTEROL

**For more than 2 000 years, healers in India have used a tree resin as a folk medicine to treat a variety of ailments. Modern researchers now find it effective in controlling high cholesterol.**

**The tree is known in India as guggul. Its sap contains a compound that blocks the action of a cell receptor, called FXR, which helps regulate a body's cholesterol level, said David D. Moore, a molecular biologist at the Baylor School of Medicine in Houston, United States. He is co-author of a study that appeared in Science Express, the electronic version of the journal *Science*. Moore said that results suggest that other compounds that could affect FXR could also control cholesterol and that this mechanism is completely different from the action of statin drugs, "which are taken by millions to control cholesterol". (For the complete article, visit: www.startribune.com/stories/484/2717208.html) (*Source:* Associated Press, 3 May 2002, cited in *CFRC Weekly Summary*, 8 May 2002.)**

## INDIGENOUS/TRADITIONAL KNOWLEDGE

**Indigenous knowledge dossier**

SciDev.Net has launched a new dossier on indigenous knowledge that has been compiled by the Netherlands Organization for International Cooperation in Higher Education (Nuffic), and is available on the Web (www.scidev.net/dossiers/indigenous_knowledge/index.html).

The indigenous knowledge dossier critically addresses key issues relating to the potential contribution of indigenous knowledge (IK) to science and development. It does so by presenting the experiences and perspectives of those working in the field – through analytical policy briefs and topical opinion articles – as well as providing links to external Web sites, and offering access to electronic versions of key reports and documents within the field of IK.

**For more information, please contact: Elma Leidekker, Information specialist and member editorial team IKWW, Nuffic/OS-IK Unit, PO Box 29777, 2502 LT The Hague, the Netherlands.**
**Fax: +31 70 4260329;**
**e-mail: leid@nuffic.nl *or* info@scidev.net;**
**www.nuffic.nl/ik-pages *or* www.scidev.net**

**Traditional Ecological Knowledge Prior Art Database**

The Traditional Ecological Knowledge Prior Art Database (T.E.K.*P.A.D.), a new project at the American Association for the Advancement of Science's Science and Human Rights Program, aims at protecting indigenous knowledge against inappropriate patents based on this knowledge. T.E.K.*P.A.D. currently contains more than 40 000 entries already in the public domain documenting traditional uses of natural resources. The Web site cross-references plant names, medicinal applications of these plants, and prior art, and links to the United States Patent and Trademark Office and European Patent Office databases. T.E.K.*P.A.D. operates on the principle of

"defensive disclosure" which, by describing information in a printed publication or other publicly accessible medium, helps establish as prior art.

T.E.K.*P.A.D. also contains a "Biopiracy Hot List", which contains examples of plants targeted by Western pharmaceutical companies and corporations. The entries are linked to archived documentation of prior art in the T.E.K.*P.A.D. database. Additionally, traditional knowledge holders can submit their knowledge to the database if they wish to place it in the public domain. (The database can be accessed at: http://ip.aaas.org/tekpad)

**For further information, please contact: Stephen A. Hansen, Senior Program Associate, Science and Human Rights Program, American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005, USA.**
**Fax: +1 202 2894950;**
**e-mail: shansen@aaas.org**

**Traditional Knowledge Digital Library**

The National Institute of Science Communication (NISCOM) of the Council of Scientific and Industrial Research, New Delhi (India) is developing a Traditional Knowledge Digital Library (TKDL), in collaboration with the Department of Indian Systems of Medicine and Homeopathy, Government of India, Ministry of Health and Family Welfare, in order to protect India's traditional knowledge from biopiracy.

The TKDL proposes to digitize, in phases, information available in the public domain on ayurveda, unani, siddha, naturopathy and folklore. The first phase will cover ayurveda. An interdisciplinary team comprising ayurveda experts, computer programmers, scientists, patent examiners and technicians has been working on the project since October 2001.

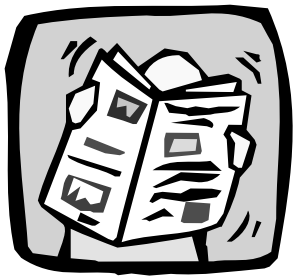
The TKDL has been patterned on the International Patent Classifications and has been ratified by the World Intellectual Property Organization. Traditional Knowledge Resource Classification, an innovative structured classification system for the purpose of systematic arrangement, dissemination and retrieval, has been evolved by V.K. Gupta, Director of NISCOM, for about 5 000 subgroups against one group in international patent application, i.e. AK61K35/78 related to medicinal plants.

The TKDL will be available in different foreign languages (e.g. English, French, German, Spanish), as well as Indian languages, which will make it accessible to patent examiners globally. It will be made mandatory for patent examiners to refer to TKDL before granting patents on non-original inventions.

**For more information, please contact: Mr V.K. Gupta, Chairman, TKDL Task Force and Director NISCOM, NISCOM, Dr K.S. Krishnan Marg (near Pusa Gate), New Delhi 110 012, India.**
**Fax: +91 11 5787062;**
**e-mail: vkg@niscom.res.in;**
**www.niscom.res.in**

**Women's knowledge of forest products represents a vast database of species which scientists are unable to catalogue. Tribal women in India, for example, know medicinal uses for some 300 forest species. (*Source:* Gender. Key to sustainability and food security. FAO. Plan of Action for Women in Development, 1996-2001.)**

## JOURNALS AND NEWSLETTERS



***Biological Conservation Newsletter***

The *Biological Conservation Newsletter* is a monthly publication of the National Museum of Natural History, Smithsonian Institution. The newsletter contains articles on conservation research and current news, as well as an extensive searchable bibliography of current literature, making the newsletter a valuable resource for the biological diversity/conservation community.

**For more information, please contact: Dr Gary A. Krupnick, Editor and Webmaster, Department of Systematic Biology – Botany MRC 166, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0166, USA.**
**Fax: +1 202 7862563;**
**e-mail: krupnick.gary@nmnh.si.edu;**
**http://rathbun.si.edu/bcn/**

***Journal of Bamboo and Rattan***

The *Journal of Bamboo and Rattan* Rattan is a peer-reviewed scientific journal that provides a forum for scientific articles and reviews on all aspects of fast-growing, multipurpose pliable species. The scope of the journal encompasses income security, craft industry, small to medium-size enterprises, industrial fibre and fuel. Articles related to the natural distribution and conservation of species, genetics and biotechnology, harvesting and production systems, and environmental applications are also included, as well as papers on marketing and policy restraints in relation to bamboo, rattan and related species.

# NEWS AND NOTES

***The International Journal of Forest Usufructs Management***

*The International Journal of Forest Usufructs Management* is published half yearly. Review/research articles on various issues/aspects of NTFPs are solicited.

**For more information, please contact: Ms Alka Shiva, President and Managing Director, Centre of Minor Forest Products, HIG-2, No. 8, Indirapuram, PO Majra, Dehra Dun 248 171, India.**
**Fax: +91 135 629936;**
**e-mail: shivamfp@nde.vsnl.net.in;**
**www.angelfire.com/ma/MinorForestProducts**

***Organic Production of Medicinal, Aromatic and Natural Dye Plants***

FAO's Crop and Grassland Service (AGPC) has commissioned the Foundation for Revitalization of Local Health Tradition (FRLHT), Bangalore, India, to bring out a global newsletter on "Organic production of medicinal, aromatic and natural dye plants" (MADPs). The newsletter aims to bring together the experiences of persons and organizations in organic agriculture/ horticulture and forestry, from across the globe, in one volume.

**For more information, please contact: Series Editor, Organic Farming Annual, Foundation for Revitalization of Local Health Tradition (FRLHT), 50 M.S.H Layout, II Stage, 3rd Main, 2nd Cross, Anandnagar, Bangalore 560 024, Karnataka, India.**
**Fax: +91 080 3334167;**
**e-mail: archna.singh@frlht-india.org *or* sumy.oommen@frlht-india.org**

## MOSQUITO REPELLENT NEEM CREAM

The use of neem oil, leaves, stem and bark as an insecticide is not new in India. However, nowadays the preparation of various products in different forms is emerging. In search of an alternative and safe method of protection from mosquitoes, vanishing-based, perfumed neem cream has been prepared by the Malaria Research Centre, Delhi. It gives 90 to 100 percent protection against malaria vectors and about 70 percent against *Culex quinquefasciatus*.

The ingredients of this cream comprise vanishing base, perfume and 5 percent neem oil, mixed thoroughly in an appropriate proportion. Four to five grams of neem cream should be applied on exposed body parts. The cream has been accepted by users owing to its easy application, pleasant odour, a repellent action of up to four hours after application and no adverse reactions. It has been found to be better than other creams. (*Source: Natural Product Radiance*, March-April 2002.)

## NTFPS FROM TERMITES

In South Africa, there is a great deal of interest in and research into termites. In Africa and Australia mainly tribal communities and farmers are using them in many forms, such as medicines, pesticides and fertilizers.

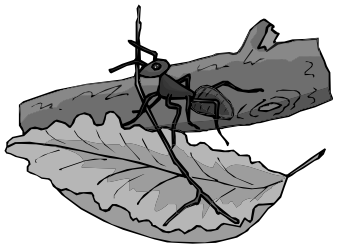
A resin-type substance produced by termites through their excreta and secretions is used to strengthen their houses, which are not even affected by floods. The secretions can be used as a cement and it could be very useful to discover other similar uses, for instance waterproofing.

Antibacterial and antifungal properties have also been found in termite house soil. Consequently, termites may prove to be a blessing in disguise and not only a nuisance. Termite queens are also reported as being edible in China and Southeast Asian countries.

Surprisingly, gold particles have been found in termite house soil. Researchers have cleaned the termite soil in large sieves by dipping and washing in water many times until finally, when all the mud has passed through the sieves, only the gold particles are left. Termite house soil is sold as gold for medicinal purposes and many other purposes. Termite house soil is used for diabetes, joint pains, arthritis and many more diseases. Afeucan tribal people and villagers all use it; they make a cake out of the soil and apply it like a poultice on joint pains.

Detailed studies are being carried out on termites, their houses and soil. There are possibilities for research in Indian forests and also in other parts of the world where very old termite houses are available, both in moist and dry areas.

Termites and their soil are without doubt an NTFP of animal and mineral origin like mica sand, etc., and many wonderful uses may be discovered for termite insects and their houses. (*Source:* Extracted from an article by Ms Alka Shiva, Centre of Minor Forest Products, Dehra Dun, in MFP NEWS, XII(4), 2002.)



## SWEETER THAN SUCROSE

*Stevia rebaudiana*, also called sweet honey leaf, is a herbaceous perennial, native to Brazil, Venezuela, Colombia and Paraguay where the native Guarani have been using it for more than 1 500 years to sweeten otherwise unpalatable

medicinal drinks since it is a natural herbal sweetener. Dry *Stevia* leaf is up to 30 times sweeter than sucrose. The sweetness in *Stevia* is attributed to the two compounds, stevioside and ribaudioside A, which can be up to 250 times sweeter than sucrose. Stevioside has a few advantages over artificial sweeteners in that it is stable at high temperatures and has a pH range of 3 to 9. *Stevia* is used as a sweetener or flavour enhancer in Japan, China, the Republic of Korea, Israel, Brazil and Paraguay. (*Source: Science Reporter*, September 2002, cited in *MFP NEWS*, XII(4), 2002.)

## TRAINING COURSES

**Harvesting, Handling and Processing Wild Floral Greens**

Two NTFP training sessions were held in Port McNeill, British Colombia, Canada in September 2002.

- Harvesting and Handling Floral Greens (Module 1), such as salal, conifer boughs, ferns and mosses, to ensure that products meet market requirements and that these products are harvested in a safe, sustainable and efficient manner.
- Adding Value to Floral Greens (Module 2) provided hands-on training in designing and producing value-added products such as wreaths, garlands and moss baskets.

**For more information, please contact: Diane Carley, Communications Coordinator, NTFP Demonstration Project, Sointula, BC, Canada. E-mail: dhcarley@island.net; www.island.net/~ntfp**

PROSEA - Plant Resources of South-East Asia 12 - Achmad Satiri Nurhaman

*Lophopyxis maingayi*

**Medicina tradicional herbolaria, fitofármacos y suplementos alimenticios**

Tlaxcala, Tlaxcala, México, 7 de septiembre a 30 de noviembre de 2002. Seminario universitario de 13 sesiones teórico-prácticas dirigido a empresarios, médicos tradicionales, profesionistas, promotores de salud, funcionarios, miembros de ONG, técnicos y personas interesadas en terapias alternativas.

Organizado por la Red Mexicana de Plantas Medicinales y Aromáticas S.C.L. (REDMEXPLAM), el Jardín Botánico Universitario de Plantas Medicinales, Secretaría de Investigación Científica de la Universidad Autónoma de Tlaxcala y Ecología y Desarrollo de Tlaxcala y Puebla A.C.

**Para más información, dirigirse a: Yolanda Betancourt Aguilar, Directora del Programa de Educación Ambiental y Divulgación Científica, Jardín Botánico Universitario, Av. Universidad N° 1, Tlaxcala, Tlax., México. Correo electrónico: hierbas@profigy.net.mx; www.redmexicana.cjb.net**

**2002-2003 Kleinhans Fellowship, Rainforest Alliance research in tropical NTFPs**

This fellowship provides US$15 000 per year for two years to one individual conducting research to understand better and improve the impacts of non-timber forest product (NTFP) harvest and marketing on rural livelihoods and tropical forest ecosystems. The fellowship area is restricted to Latin America.

**For more information, please contact: Deanna Newsom, TREES Program Associate, Rainforest Alliance, Goodwin-Baker Building, 65 Millet Street, Suite 201, Richmond, Vermont 05477, USA. Fax +1 802 4343116; e-mail: dnewsom@smartwood.org; www.rainforest-alliance.org/programs/research/kleinhans.html**

**Sustainable NTFP Management for Rural Development**

The International Centre for Community Forestry, IIFM, Bhopal organized the 3rd International Training Course on Sustainable NTFP Management for Rural Development from 26 November to 13 December 2002 in Bhopal, India. The course was developed to address the prevailing situation of NTFP management in the Asian and African regions.

**For more information, please contact: Dr Prodyut Bhattacharya, Course Director, Indian Institute of Forest Management (IIFM), Nehru Nagar, PO Box 357, Bhopal 462 003, Madhya Pradesh, India. Fax: +91 755 772878; e-mail: prodyut@iifm.org; www.iifm.org**

**New diploma/M.Sc. in Woodland Management, Products and Services**

Non-wood functions and products of forests are a major component of this new course.

**For more information, please contact: Dr Richard Mather, Forest Products Research Centre, Buckinghamshire Chilterns University College, Queen Alexandra Road, High Wycombe, Buckinghamshire HP11 2JZ, UK. Fax. +44 1494 605051; e-mail: rmathe01@bcuc.ac.uk; www.fprc.co.uk or www.fh-eberswalde.de/ifeit/**

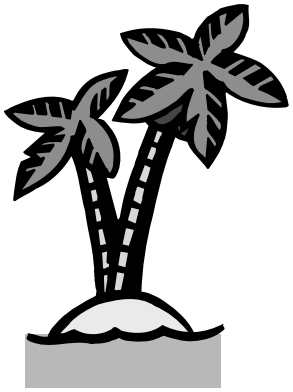
# NEWS AND NOTES

**Training Center for Tropical Resources and Ecosystems Sustainability (TREES) 2003 international training courses**

TREES, a unit of the College of Forestry and Natural Resources (CFNR), University of the Philippines Los Baños, regularly offers international training courses and study tours. Their 2003 courses and study tours include:

- Biodiversity monitoring and assessment techniques, 22 April-2 June 2003 (6 weeks)
- Study tour on forestry and environment training management, 13-26 May 2003 (2 weeks)
- Forest products marketing, 3 June-14 July 2003 (6 weeks)
- Agroforestry for sustainable development, 3 June-14 July 2003 (6 weeks)
- Social forestry for sustainable rural development, 9 September-20 October 2003 (6 weeks)
- Participatory approaches in forestry and natural resources development projects, 21 October-1 December 2003 (6 weeks)

**For a complete list of courses and more information, please contact:**
**The Director, Training Center for Tropical Resources and Ecosystems Sustainability (TREES), College of Forestry and Natural Resources, University of the Philippines Los Baños, PO Box 434, College, Laguna 4031, the Philippines.**
**Fax: +63 49 5363340;**
**e-mail: trees@laguna.net;**
**www.apafri.org/trees/index.htm**



**Diplomado latinoamericano a distancia en plantas medicinales y aromáticas**

En 2003 iniciará el primer Diplomado latinoamericano a distancia en plantas medicinales y aromáticas que será impartido a través de Internet y contará con la asistencia científica y técnica de expertos en fitoterapia, aromaterapia y medicina tradicional.

**Para más información, dirigirse a:**
**Miguel Ángel Gutiérrez Domínguez, Director del Jardín Botánico Universitario, Secretaría de Investigación Científica, Universidad Autónoma de Tlaxcala, Av. Universidad N° 1, C.P. 90070 Tlaxcala, Tlax., México.**
**Fax: 246 4 62 23 13 y 290 73;**
**correo electrónico: jardinbotanicouniversitario@hotmail.com *o* hierbas@prodigy.net.mx;**
**www.geocities.com/redmexicana *o* www.procomverde.org.co**

**XV Curso intensivo internacional de manejo diversificado de bosques naturales tropicales**

Turrialba, Costa Rica,18 de agosto al 13 de septiembre del 2003.

El Curso para el manejo diversificado de bosques naturales tropicales es un curso estratégico brindado por el de Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), institución líder en esta temática en América Latina, región que cuenta con la mayor extensión de bosque natural productivo en el mundo.

Este curso reviste en la actualidad una singular importancia debido a la urgente necesidad de hacer compatibles la necesidad de conservación de los recursos forestales con el desarrollo de las poblaciones asentadas en su entorno, a través del manejo diversificado de los recursos existentes.

El evento está dirigido a personal técnico-profesional que labora en relación con el manejo de los recursos forestales tropicales: investigadores, docentes, productores, regentes, extensionistas, funcionarios de la Administración Forestal del Estado, entre otros.

*Objetivos:*

- Ampliar y actualizar los conocimientos sobre manejo sostenible de bosques naturales tropicales, abarcando la diversidad de bienes y servicios que proveen.
- Conocer y compartir experiencias relacionadas con los aspectos sociales, económicos y ambientales que influyen en la toma de decisiones en el manejo diversificado de los bosques naturales.

**Para más información, dirigirse a:**
**Fernando Carrera, Coordinador del curso, CATIE 7170 Turrialba, Costa Rica.**
**Fax: +506 5561533;**
**correo electrónico: fcarrera@catie.ac.cr;**
**www.catie.ac.cr/catie**

## URBAN FORESTS AND URBAN NTFPS

A recent edition of *The Overstory* (No. 106) introduces the importance of non-timber forest products from urban trees and forests, with examples from New England in the northeastern United States. Contents include: Defining “urban forest” and “urban NTFPs”; Sources of urban NTFPs; Use and markets for urban NTFPs; Urban NTFP collectors; The value of urban NTFPs; and Urban advantages.

**For more information, please contact:**
**E-mail: overstory@agroforester.com;**
**www.agroforester.com/overstory/overstory.html** ●

## AGARWOOD (*AQUILARIA* SPP.)

During the 12th Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Plant Committee meeting (13-16 May 2002, Leiden, the Netherlands), Barbara Gravendeel, Leiden University, presented a CITES-funded study to develop species-specific DNA markers in agarwood (*Aquilaria*) (PC12/Inf. 1). Describing the basic characteristics of the 15 *Aquilaria* species, Ms Gravendeel explained that the wood could be infected by a fungus that produced a resin (gaharu) used in rituals, medicines and perfume. She said that gaharu was highly priced and that global demand was higher than available supply, and that there was only one species of *Aquilaria* on Appendix II. She noted that, because gaharu-containing wood was usually traded as dry samples, it could not be identified at the species level. She stated that there were few species- and region-specific mutations in *Aquilaria*, and that further work was necessary to isolate DNA in wood samples and to develop an easy-to-apply test for customs officials.

In reply to the European Union's inquiry about the time required to develop the test, Ms Gravendeel responded that six months were needed if fresh samples were available, although there were difficulties when working with old or contaminated wood. Mexico inquired about identification of species based on gaharu's phytochemical characteristics. Oceania asked whether there was any trade information on other gaharu-producing genera.

Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC) introduced a document on agarwood (PC12/Doc. 8.3), noting the increasing importance of DNA testing in distinguishing species. The representative from TRAFFIC identified several recommendations including, *inter alia*, the need for ground-truthing of populations in agarwood harvesting areas, and further field research on gaharu trade dynamics. Oceania emphasized the need for a reporting mechanism and links with traders to understand the total agarwood trade. The representative from Oceania added that *Aquilaria* could be a good candidate for the significant trade review process. Several delegates suggested that an Appendix III listing might be appropriate, to which the secretariat replied that the main advantage of an Appendix III listing was that the exporting and importing countries might eliminate the illegal trade. Central and South America and the Caribbean called for further taxonomic efforts to assess the species. The committee agreed to support the recommendations made by TRAFFIC, and that the chair would include the comments in her report to COP-12. (*Source: Earth Negotiation Bulletin*, 21(19), 20 May 2002 [www.iisd.ca/linkages/cites/CITP2/].) [*Please see under International Action for more information on CITES.*]

## BRAZIL NUTS

**Brazil nut oil, a luxury product**

Virgin Brazil nut oil "made in Amapa" is being exported worldwide. It is hoped that, in the long term, the oil will challenge the dominance of olive oil on the national and international markets. As well as being nutritious and rich in selenium, the product comes with a "green seal". The production area in Laranjal do Jari, Brazil, is protected by environmental laws and is managed by cooperatives formed by the traditional populations of the region. (*Source: Amazon News*, 4 April 2002.)

**The nut that could help save the Amazon**

Brazil nuts are the only commercial nut found exclusively in Amazon forests. Sustainable harvesting of these nuts not only provides a livelihood for people, but also protects the forests from being cleared for agriculture.

The Martinez family has a 300-ha plot of forest next to Tambopata National Reserve in Peru's southeastern Amazon rain forest. But instead of cutting down the forest for farmland as other homesteaders in the area have done, the Martinez family harvests Brazil nuts.

The Brazil nut tree (*Bertholletia excelsa*) is found in the forests of Peru, Bolivia and Brazil. It is one of the Amazon's longest-living trees, often reaching 1 000 years, and has a very complex and specialized biology. Its flowers depend on orchid bees for pollination. Once pollinated, a coconut-sized seed pod containing some 20 seeds, or nuts, develops for at least 15 months before falling to the forest floor. The only way for the nuts to get out of the seed pod is if a 3-kg rodent, the agouti, releases them. Squirrel-like in appearance and habits, the industrious agouti – the only forest creature capable of gnawing through the fallen seed pods – eats some nuts and buries others for the future, inadvertently planting new trees.

Brazil nuts do not only make good food for agoutis – humans like them too. Attempts to cultivate the tree on plantations have failed, making Brazil nuts the only commercial nut found exclusively in Amazon forests. "This important distinction has converted Brazil nut harvesters into guardians of the forest," explains Martinez.

There are about 1 000 Brazil nut concessions in and around the Tambopata National Reserve. When side activities such as transportation and processing are considered, the Brazil nut industry generates employment for some 20 000 people – or 25 percent of the Amazonian state of Madre de Dios. Concessions are granted by the Peruvian Government and harvesters must pay a tax based on production. Most operations are small family businesses, struggling to

meet basic needs during the short January to March harvesting season.

The work is exhausting, even for the hardy. Harvesters use machetes to split open the hard seed pod and empty the tiny nuts inside, still in their dark-brown shells, into large sacks. A full sack weighs 75 to 85 kg, and must be carried out of the forest on the harvester's back, attached by a strap around the forehead. Some of these sturdy adventurers walk for several hours before reaching a road or river to transport their cargo to processing plants, where the nuts are shelled and packaged for sale.

Martinez decided there must be a better way. He and a brother teamed up with other harvesters and the Amazon Conservation Association (ACCA) to devise simple methods to improve their labour. One of Martinez's favourite methods is a small, human-powered cart that enables harvesters to wheel numerous sacks out of the forest at a time. The team has also mapped more than 40 000 ha of Brazil nut forest concessions to help the harvesters' activities. In addition, they have produced a short, local television series. The show's star attraction is the legendary Don Pancho, an elderly Brazil nut harvester who teaches the trade to his young nephew and a visiting student.

However, falling prices are threatening the struggling industry: just two years ago Brazil nuts were fetching more than double their current rate. Peruvians outside the Amazon region have not yet acquired a taste for the homebred nut, leaving Brazil nuts at the mercy of the international market which favours cashews, almonds and peanuts.

"Marketing is a major problem," says Vanessa Sequeira, field director of ACCA's Brazil nut project, explaining that most people outside the Amazon are not aware of the nut's important conservation role. In response, the group mounted a consumer education campaign under the banner "Save the Amazon, eat a Brazil nut". ACCA, together with the World Wide Fund for Nature (WWF), also promoted certification of Brazil nut forests. In March 2001, Peru's standard for Brazil nut harvesting was recognized by the Forest Stewardship Council (FSC) – the first FSC standard for a non-timber forest product.

Despite these advances, Sequeira worries that time is running out for the majority of Peru's harvesters. This past year, she says, many could not afford to harvest their concessions because of low prices and high transportation costs. In addition, the Peruvian Government has not yet established a regulatory framework that would facilitate Brazil nut harvesting. If the trend continues, many harvesters could be forced to turn to damaging extractive industries for economic survival, such as panning for gold or slash-and-burn agriculture, converting these long-time friends of the forest into foes.

The Brazil nut tree is part of the delicate web of life in the Amazon. Apart from orchid bees, agoutis and the Brazil nut harvesters, the life of many other plants and animals is intertwined with this tree. The empty seed pods, for example, fill with rainwater and provide breeding grounds for damselflies, a poison frog and a toad, all of which depend on these small ponds on the forest floor. The major threat to the trees – and the myriad forms of life that depend on them – is forest clearing. The sustainable harvesting of Brazil nuts is therefore a vital way of providing protection for Peru's forests. (*Source:* WWF International Press Office [Press@wwfint.org], written by Stephanie Boyd, a freelance journalist based in Peru.)

**Fungus damages Brazil nut exports**

Last year, according to statistics from the Federal Office of Agriculture (Brazil), Amazonas exported around 3 200 tonnes of Brazil nuts, while Brazil as a whole exported 9 600 tonnes during the same period. However, much of the produce exported has been returned owing to the presence of a fungus which contravenes European Union legislation on food hygiene. The Ministry of Agriculture and the European Union are discussing methods of controlling the fungus. (*Source: Amazon News*, 13 February 2003 [newsletter@amazonia. org.br].)

## BURITI (*MAURITIA FLEXUOSA*)

**Research shows that buriti oil could prevent skin cancer**

A biologist from the Federal University of Acre, Nívea Maria de Paula Fernandes, has spent the last six years studying the economic and nutritional importance of the buriti palm (*Mauritia flexuosa*), which is commonly found on Amazonia's floodplains. Her study revealed that buriti oil has the ability to filter and absorb the ultraviolet rays which cause skin cancer.

In the light of this discovery, a well-known cosmetic company has already begun large-scale production of moisturizing products using buriti oil. (*Source: Amazon News*, 28 February 2002 [newsletter@amazonia.org.br].)

**Craft goods made from buriti: the new hope for sustainable development**

The Colonia Cinco Mill (Brazil) will manufacture furniture and craft goods in buriti. The next four years will be decisive in Acre's sustainable development project. The state governor, Jorge Viana, has asked the population of Acre to be involved with the project. The Colonia Cinco Mill is doing just that, forming a partnership with SEBRAE to manufacture craft goods and furniture from buriti palms. The project has already attracted attention from potential clients.

The aim of the project is to improve the local population's quality of life. The community is already in the first phase of production: collecting the raw material. The project has been approved by SUFRAMA which will fund it to the tune of $R 18 000. (*Source: Amazon News*, 8 January 2003 [newsletter@amazonia. org.br].)

## DEVIL'S CLAW (*HARPAGOPHYTUM* SPP.) AND CITES

The issue of trade in *Harpagophytum* spp., a medicinal plant used for the treatment of polyarthritis, back and joint pains, was discussed in 2002 during the 12th meeting of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Plants Committee (13-16 May, Leiden, the Netherlands) and the 12th Conference of Parties to CITES (3-15 November, Santiago, Chile).

**Plants Committee Meeting**

During the 12th CITES Plant Committee meeting, on 14 May, Domitilla Raimondo, National Botanical Institute, South Africa, presented a report on the status of trade and management of Devil's claw (*Harpagophytum* spp.), perennial creeping herbs found in southern Africa. She said that these savannah grassland plants were traditionally harvested, mainly in communal areas, and were used to treat arthritis, rheumatism and other ailments. She reported that Namibia was currently the main exporter, with 92 percent of trade, while Botswana had 5 percent and South Africa 3 percent. She added that Namibia and Botswana opposed an Appendix II listing because of the income local people derived from trade, although Botswana believed an Appendix III listing could help with gathering trade figures. She stated that South Africa would follow the recommendations of Namibia and Botswana.

Berit Hachfeld, Institute of Botany, University of Hamburg, Germany, presented her research in Namibia and South Africa on the occurrence and density of *Harpagophytum procumbens*, used in the medicinal trade. She said that Devil's claw was restricted to sandy habitats in savannah ecosystems with 150 to 500 mm rainfall, but was not evenly distributed throughout its range in southern Africa. Noting that Devil's claw tended to occur in overgrazed areas with low grass coverage, she stressed the necessity of researching the surrounding vegetation and land use systems when considering Devil's claw issues.

Africa introduced a common statement made by participants at the Regional Devil's Claw Conference (PC12/Doc. 8.1.1), held in Windhoek, Namibia, on 28 February 2002. The representative said that the conference highlighted stakeholder and regional collaboration as necessary for the sustainable development and trade of Devil's claw. He noted that some participants expressed opposition to a potential CITES listing as it could decrease trade and have negative impacts on poor, rural communities.

During the discussion, the United Kingdom and other delegations noted that CITES had a public relations problem in southern Africa, but that an Appendix III listing of Devil's claw could be beneficial to range states. Oceania emphasized the need for more monitoring. Germany stressed links with importers and traders to overcome lack of trade information (PC12/Doc. 8.1.2). The secretariat added that monitoring was more important than intensive ecological research and that CITES could play an important role in addressing non-CITES-listed species, and that there was a need to develop further the documentation explaining the role of an Appendix III listing. The representative for IWMC-CH said that a species listing could be interpreted as leading to prohibition and suggested that the Plants Committee recommend export quotas at COP-12.

Chair Clemente suggested that the next Plants Committee meeting be held in southern Africa to try and change some of the negative views held about CITES and CITES listings.

On 16 May, Africa introduced a draft report on Devil's claw (PC12/WG *Harpagophytum*). It was recommended that, *inter alia*, range states provide an update on the trade and biological status of *Harpagophytum* spp., and that species could be listed on Appendix III if enough information were provided to range states. The Plants Committee supported the recommendations, which were to be included in the chair's report to COP-12.

**COP 12**

During COP 12, on 5 November, Plants Committee Chair Clemente introduced the report on the biological and trade status of Devil's claw to COP (Doc. 46, see www.cites.org/eng/cop/12/doc/E12-46.pdf). The report contained draft decisions directing, *inter alia*: range states to provide an update on implementation by the 14th Plants Committee meeting; and range and importing states to negotiate for sustainable management programmes with the Devil's claw industry. South Africa and Uganda supported the European Union's suggestion to list the plant as an Appendix III species. Delegates adopted the report and its decisions. On 14 November, plenary accepted the Plants Committee's recommendation (Doc. 10.2) to repeal Decision 11.111 on the biological and trade status of *Harpagophytum*.

In addition to Devil's claw, discussions on the sustainable use of and trade in NWFPs were related to *Guaiacum* spp. (curb trade), *Aquilaria* spp. (trade in resins [gaharu]), species traded for medicinal purposes and *Paphiopedilum* orchids. (For further information, please refer to the CITES home page [www.cites.org]. The Earth Negotiation Bulletin provides reports on the 12th CITES Plants Committee Meeting [www.iisd.ca/linkages/cites/CITP2/] and COP 12 [www.iisd.ca/cites/cop12/].) [*Please see under International Action for more information on CITES.*]

## *GARCINIA LUCIDA*

*Garcinia lucida* is a small tree providing several non-timber forest products to rural households in southern Cameroon. In a Ph.D. study supported by the Central African Regional Programme (CARPE), Tropenbos International and the Free University of Brussels, Nicole M. Guedje identified the conditions for its sustainable exploitation.

*G. lucida* can be found in undisturbed or mature forests at altitudes above 500 m. Its bark is used as an additive in palm wine, while its bark and nuts also serve as an antidote to poison and a cure for stomach pains. People often extract the bark by stripping the stem all around, but this also kills the tree.

The study combined a plant demographic survey with experiments on different harvesting techniques and participatory monitoring and evaluation, in order to provide tools for an efficient, socially appropriate and sustainable management system for *G. lucida*.

The study revealed that the largest trees are selectively exploited. This has serious consequences for the species' continual regeneration. The practice of stripping the tree all around the stem is extremely destructive, resulting in a 74 percent mortality rate. Stripping only one or two thirds of the bark surface proved to be the least damaging practice, permitting trees to recover the extracted bark surface within five years, on average. The plant demographic survey demonstrated that *G. lucida* flowers and produces fruits throughout the entire year and that seeds germinate within a few weeks of falling. With a germination rate of approximately 82 percent, and a seedling survival rate of 39 percent, *G. lucida* has effective regeneration strategies.

Transition matrices were constructed to model the population dynamics of *G. lucida*. The properties of the matrices were expressed in terms of population growth rate and stable structure. The model was then used to identify the processes or the life stages that regulate or limit the population dynamics. The model was also used to assess the impact of the actual exploitation and to simulate the effects of successive debarking and different harvesting levels on the renewal of the harvestable trees.

It was ascertained that the actual exploitation of *G. lucida* bark does not jeopardize the existence of the population, as it hardly reduces the availability of harvestable trees. The judicious regulation of resource access and the application of improved exploitation methods could encourage sustainable management of the resource. Low-impact exploitation methods, with harvesters keeping to the levels of bark removal specified in the tests, should reduce tree mortality and allow the recovery of harvestable trees within a reasonable time span. As a consequence, the number of adults, fruit production and the regeneration of trees would increase and the genetic quality of the trees would be preserved. Traditional conservation practices and domestication of forest tree species are other management methods that could guarantee a sustainable and commercial exploitation of the resource.

The study indicates that the management of tree populations in their natural environment can be a successful way of achieving sustainable forest management. A participatory approach is required involving the forest gatherers in the evaluation and selection of the most appropriate harvesting practice. To achieve this, various extension programmes should focus on the NTFP-dependent population, in particular on those who rely on the trading of NTFPs for their main source of cash income. Integrating these recommendations into multipurpose use forest management schemes will have a positive effect on forest biodiversity conservation and improve the welfare of local people. (Nicole Marie Guedje. 2002. *La gestion des populations d'arbres comme outil pour une exploitation durable des produits forestiers non ligneux: l'exemple de* Garcinia lucida *[Sud Cameroun]*. Ph.D. thesis, Free University of Brussels [to be published in the Tropenbos-Cameroon Series].) (*Source: Tropenbos International Newsletter*, 27, July 2002.)

## GINSENG

The Appalachian forests of southern West Virginia yield all manner of earthly delights: the blush of a rare orchid in the leaf litter, the earthy fragrance of a truffle. But nothing is more valuable and sought after today than wild American ginseng. Writer David Taylor takes us into the backwoods with native George Albright to look for "sang", as ginseng is known in these parts. Sang, or *Panax quinquefolius*, is the American version of Asian ginseng (*Panax ginseng*), which the Chinese have used to treat a wide variety of ills for several thousand years. In Chinese medicine, Asian ginseng is considered "hot" (a mild stimulant), while its American cousin is "cool" (a calming tonic).

Over the past decade, the price of domesticated ginseng, which is easily cultivated, has plunged to about US$15 a pound [0.4536 kg] while the price of the wild variety – West Virginia is one of the nation's leading exporters – has soared, commanding up to US$500 per dried pound. (A gnarled approximation of the human body, achieved only by wild varieties, gives ginseng more therapeutic properties, according to traditional Chinese medicine.)

In 2001, Americans themselves spent about US$170 million on ginseng supplements and on ginseng products, ranging from teas and chewing gum to tinctures, snack chips and "smart" drinks, which are nutrient-enriched drinks marketed to counter stress. Its growth in popularity has come despite the lack of

scientific proof that ginseng has medicinal powers.

Ginseng's effectiveness, or its lack thereof, is not likely to be definitively determined in the near future, partly because the traditional underwriters of large-scale clinical studies – pharmaceutical companies – have little incentive to test an ancient nostrum that is already widely sold and largely unpatentable. In the meantime, ginseng's most therapeutic effect may be in breathing economic life into poor, rural communities in the southern Appalachian mountains.

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## LOCUST BEAN PRODUCTS

Locust bean is a leguminous tree crop of the family Mimosaceae. It grows in an uncultivated state and is well distributed throughout the tropical regions, particularly the savannah areas. Some of the known varieties are *Parkia bicolor, Parkia clappertonianna, Parkia fillicoida* and *Parkia biglobosa* with *Parkia clappertonianna* being one of the species commonly found in Nigeria and referred to as African locust bean. The fruit of the locust bean tree is of high economic importance: its edible seed is used as a food condiment after fermentation; the yellow part of the fruit (pulp) is sweet to taste and is processed into a valuable carbohydrate food known as *sikomu* and *dodowa* among the Yoruba and Hausa people of Nigeria, respectively. The seeds of the plant are embedded in the pulp and covered by the pod. The seeds are processed into a food condiment commonly called *iru* by the Yorubas and *daudawa* by the Hausas in Nigeria. *Iru* is used as a food seasoning and as an ingredient in preparing household stews. The pods of *Parkia biglobosa* and *Parkia clappertonianna* and other savannah species are suitable for paper and pulp production when mixed with some imported pines. The fruits are used in the preparation of protein foods. Locust bean products are a source of income generation among women and children in the rural areas.

The pods are removed by a process known as decortication, and the yellow pulp is washed away after soaking in water thereby leaving the clean seeds for further processing. The clean seeds are cooked for about 24 hours and allowed to cool down to room temperature before washing again to remove the seed coats. The locust bean seeds from which seed coats have been removed are covered in an airtight container for three, seven or more days, which causes the seeds (beans) to ferment and take on the characteristic odour. The hard condiment (*iru woro*) is the product of a short period of fermentation while the soft condiment (*iru pete*) is fermented for longer periods. After fermentation, the product can be used directly as a soup ingredient. For effective storage and preservation, *iru* can be salted and dried or stored directly inside the household refrigerator after fermentation. The product is also packaged and sold for income.

Using the same procedure, the yellow part of the fruit (pulp) is processed to the local food item known as *sikomu* or *dodowa*. After the fruit pods are removed, the pulp is moistened and fermented. After fermentation, the product is filtered and the filtrate is cooked for about one hour to deactivate the enzymes and destroy the antinutritive agents. *Sikomu* can be taken with some other food items as a suitable meal or stored in a refrigerator for later use.

The locust bean tree is widely distributed in the tropical savannah regions of the world and grows in the wild or uncultivated state. Locust bean products are of high economic value and serve as an income-generating venture for rural households. The products, if well processed, have great export potential. (*Contributed by:* A.M. Olaniyan, Nigeria.)

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## MEDICINAL PLANTS

**Natural wealth from the Malaysian rain forest: *Rafflesia cantleyi***

*Rafflesia cantleyi* is one of several species of the genus *Rafflesia*. This parasitic plant is rare and extraordinary in that it grows out of a particular creeper on the forest floor. The *Rafflesia* flower sometimes measures one metre in diameter from petal to petal, hence justifying its entry into the *Guinness Book of Records* as the largest flower in the world. Indigenous forest communities and traditional midwives use it during childbirth. (*Source: Malaysian Timber Bulletin*, 8(2), 2002.)

*Rafflesia cantleyi*

*Malaysian Timber Bulletin*

**Brazil: IBAMA creates a centre for the management of medicinal plants**

Every market in Brazil has at least one stall selling medicinal plants. The collection of these plants in not always carried out in an ecologically sound manner. The popularity of certain products often leads to predatory exploitation, placing some species at risk of extinction.

IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis) is creating a Medicinal Plants Centre to improve control over this trade and encourage the sustainable

management of 221 native species considered to be "conservation priorities". IBAMA also intends to publish a book entitled *Strategies for the conservation and management of the genetic resources of medicinal and aromatic plants*, the first report on the status of such species.

The World Health Organization estimates that the world trade in medicinal plants is worth half a trillion US dollars annually. In 2000, sales in medicinal plants in Brazil grew by 15 percent in relation to 1999. By comparison, the synthetic medicine industry saw a growth of just 4 percent. The consumption of medicinal plants is set to double in the next few years.

The centre will launch an online database about medicinal plants in April 2003.

Some of the most endangered species are rosewood (used in the perfume industry), arnica, ipe roxo (used in the treatment of cancer) and unha-do-gato (used to treat hepatitis C).

Many medicinal plant species are exported. According to IBAMA figures, 2 842 tonnes were exported in 1998, 1 531 to the United States and 1 466 to Germany.

IBAMA has created the centre in response to concerns about biopiracy. (*Source: Amazon News*, 5 December 2002.)

PROSEA - Plant Resources of South-East Asia 12 - Achmad Satiri Nurhaman

*Gunnera macrophylla Blume*

**Ghana: conservation and sustainable use of medicinal plants**

A three-year project (1999-2002) on the conservation and sustainable use of the medicinal plants in Ghana, funded by the Darwin Initiative for the Survival of Species, has recently been completed. The project involved collaboration between six organizations, three in Ghana and three based in the United Kingdom. Full details of the project and all project outputs have been posted on the Web [www.unep-wcmc.org/species/plants/ghana]. This includes medicinal plant accession and specimen data from the University of Ghana Herbarium and Aburi Botanic Garden, distribution maps for each species, a manual on medicinal plants, a home gardens manual and an ethnobotanical survey.

A copy of the Web site is also available on CD-ROM, for users without access to the Internet.

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**India: a new Centre for Medicinal Plants Conservation and Research (CMPR)**

A new centre has come into existence under the Arya Vaidya Sala, Kottakkal for the conservation of medicinal plants. Work on field, *in vitro* and seed gene banks is already under way. The centre will concentrate on the rare, endangered and threatened medicinal plants of South India. Laboratories for medicinal plant taxonomy, pharmacognosy, phytochemistry, pharmacology and plant tissue culture propagation are being set up. The laboratory will be fully operational by mid-2003.

CMPR would like to establish linkages with organizations involved in medicinal plant conservation and research.

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**Global Information Network on Medicinal Plants (MEDPLANT)**

MEDPLANT is a global network of networks dedicated to supporting and linking existing regional initiatives to build partnerships and improve collaboration on the sustainable use and conservation of medicinal plants.

MEDPLANT emerged out of a recognition that few mechanisms exist to allow organizations and agencies working on medicinal plant issues to share information on their activities, their successes and challenges. Although several regional initiatives exist, there is an expressed need for an international network that would allow existing regional networks to maintain their regional identity while sharing their experiences and learning from lessons of other agencies/individuals around the world.

To address this need, MEDPLANT has created an information sharing and interactive Web site (http://source.bellanet.org/medplant/).

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**The role of the medicinal plants industry in fostering biodiversity conservation and rural development**

The growing demand of consumers worldwide for herbal and natural products to meet both their health care needs and dietary supplements has opened up new opportunities for the medicinal plants-based industries. However, this market-propelled demand has created tremendous pressure on the natural resources, which contribute more than 90 percent of the current demand for the raw materials of medicinal plants. The local communities mostly belonging to tribal communities and the rural poor do not benefit from the increased commercial activities as only a fraction of the total markets return reaches them.

A recent publication collates information describing concepts, approaches and practical experiences of the researchers, practitioners and commercialization experts in the field of medicinal plant use in the South Asian region. The research findings and case studies reported provide models and mechanisms not only on how to use the threatened medicinal plant resources wisely but also how to enhance local benefits in a sustainable manner.

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## MUSHROOMS

*taiga-news- No. 40 - 2002*

**Mushrooms represent a small part of the kingdom known as Fungi**

Fungi are some of biology's most ancient and some of the earth's largest organisms. They provide us with some of our most potent medicines as well as being highly sought after as prized gourmet delectables (such as morels, truffles and boletes).

Mushrooms are the fruiting body of a larger underground organism. The mushroom itself is similar in function to an apple on a tree. The mushroom emerges from the soil like an apple from the branch of an underground tree and just as the apple is filled with seeds to assure prosperity, the mushroom bears spores, the fungal equivalent of seeds. Billions of spores are produced, floating literally everywhere on the air currents surrounding us. Evidence of this can be seen by the large variety of fungi that appear seemingly out of nowhere on cheeses or bread.

Thinking back to the analogy of fungus to a fruit on a tree, the mushroom is just the tip of the iceberg: meaning that the tree itself is more grand and complex than the apple it produces. In the case of fungus, the "tree" is known as mycelium. The mycelium is present all year round underground and is only revealed by the occasional seasonal appearance of mushrooms. These underground organisms can be huge, covering square miles and growing up to an inch daily. If you could see this mycelium it would look somewhat like a dense underground spider's web covering the entire forest floor.

The large mycelial "spider's webs" survive in essentially two ways: by decomposing dead organic matter such as logs, stumps and litter; or by forming a symbiotic relationship with living plants and trees.

As the spider's web-like mycelium spreads out across the forest floor, it actually surrounds the roots of trees and often penetrates the roots of plants, connecting them not only with each other but also with the entire forest floor. These organisms can cover square miles of forest floor and there can be up to one mile of microscopic mycelia strands in one centimetre of soil. When rain comes to the forest it soaks into the soil and passes through this fungal sieve. The mycelial web acts as a filter absorbing nutrients and moisture, which can be utilized by plants and trees. The mycelium then becomes a kind of underground superhighway carrying nutrients and moisture to plants and trees from areas beyond the reach of their roots. The mycelial web can expand the absorption area of roots significantly. In turn the mushrooms are gaining sugars and nutrients produced by plants and trees during photosynthesis. (*Source:* US Forest Service [http://greennature.com/article1480.html].)

**The story of Buddha Mushroom – *Tricholoma matsutake***

*A student at the University of Reading (UK) is carrying out a research project centred on "Forestlands, Forest Policy and NTFPs in Forest Rich Bhutan Himalayas".*

The village of Geynekha in the Thimphu district, located at an altitude above 2 600 m, is one of many characteristic secluded village communities in the Bhutan Himalayas. The main occupation of the people is subsistence farming on their small landholdings. Both young and old natural forests cover more than 80 percent of the village. This surrounding forestland of pine, spruce, hemlock and fir trees is rich in mushrooms. The villagers collect more than ten different species of wild mushrooms for sale in the weekly vegetable market in Thimphu,

the Bhutanese capital – a distance of half a day's travel on foot to the main motorway.

One day in 1988, Aum Kuchum, an old and poor woman from Geynekha with a large family, while selling her collection of wild mushrooms in the Sunday vegetable market in Thimphu, was surprised when a group of Japanese tourists took particular interest in one of her mushroom species. This led to the Japanese tourists, through a Bhutanese business firm, arranging the first dispatch of the famous matsutake mushroom from Bhutan to Japan.

The Japanese enjoy the strong aroma and flavour of the matsutake mushroom and have a long history of eating it as a great delicacy on special occasions. In 1998, about 3 495 tonnes of matsutake were consumed in Japan, of which 247 tonnes were from domestic production. The balance of 3 248 tonnes was imported from China, the Democratic People's Republic of Korea, the Republic of Korea, Canada, Morocco and Mexico. The import value was estimated at 16.7 billion yen (US$156 million).

The Bhutanese firm, which took up the idea of the Japanese tourists and started exporting matsutake, continued its monopoly of the matsutake trade for some five years. However, by 1997, there were nine Bhutanese export firms involved in the matsutake trade. The forest gate price for the grade A matsutake rose steeply from Nu 50 (more than US$1) in 1991 to Nu 800 (more than US$16) in 1998. In 1997, Bhutan exported more than 15 tonnes of matsutake to Japan and other Southeast Asian countries. But not all of this amount came from Geynekha; as the news of the high cash value of the matsutake spread, it was discovered in more forest areas.

The wholesale price of matsutake in Japan is a trade secret with the Bhutanese export firms. However, general knowledge is that it ranges from US$30 to $70 per kilogram.

For the first time in their community history the village people saw a huge amount of cash flowing, and their income level rising. Today, thanks to the matsutake industry, Aum Kuchum and her family live a self-sufficient life. Currently, seven out of her 15 family members are engaged in the full-time collection of matsutake during the season. In 1998, the family's income from matsutake collection was reported to be Nu 50 000 (US$1 000).

The villagers think that the matsutake mushroom in their forest is a godsend. Since they did not have a common local name, they christened it the Buddha Mushroom, after the Enlightened Beings in the Buddhist faith.

As the matsutake has now become a highly prized item, the village community does not allow outsiders to stray into their forest lands. This is interesting because the surrounding land from which the matsutake is collected is a government-reserved forest permitting access and a right to collect NWFPs by every Bhutanese citizen. To date, there has been no legal challenge to the actions of the Geynekha village community.

For the long-term sustainability of the matsutake resource, the Department of Forests and the Ministry of Agriculture's National Mushroom Centre have framed rules on the starting and closing dates of collection, and a minimum size for collection. In addition, the National Mushroom Centre has provided training for the farmers on mushroom harvesting methods and mushroom ecology. (A detailed report is available on the Web [www.moa.gov.bt/Publication/Matsutake_Yusipang.doc].)

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## PAU-ROSA (*ANIBA ROSAEODORA*)

Common names: pau-rosa, pau-rosa itauba (Brazil); enclit rosenhout (Suriname); cara-cara (Guyana); bois de rose, bois de rose femelle (French Guiana); rosewood (English).

**Basil perfume could save pau-rosa wood**

Nilson Borlina Maia is a man with a mission to transform a herb used to season pizzas into perfume, thereby saving some of the most threatened vegetable species in Amazonia. Not bad, for the researcher whose work has been selected to be presented at an international congress in Canada. Maia has proved that basil, principally used in Italian cuisine, can be exploited commercially to produce linalol, an essential oil used in the composition of famous perfumes. Pau-rosa (*Aniba rosaeodora)*, a threatened species, is currently the only source of linalol for the perfume industry.

Among coriander, orange, bay, cinnamon, camomile and lavender, basil does not have the highest quantity of linalol – only 30 percent of its oil is formed by the substance, compared with 86 percent of pau-rosa oil, but it is the easiest to cultivate.

Maia is now studying the best conditions of cultivation to increase the levels of linalol and make the oil better suited to the needs of the perfume industry. The technology needed to produce a very pure oil, $CO_2$ supercritical extraction, is not currently available in Brazil and researchers are negotiating a partnership with an American company. The research began in 1999 and has cost just $R 4 500, financed by the National Council for Scientific and Technological Development. Maia's work was one of four projects chosen from around the world to be presented at the 26th Congress of the Canadian Scientific Horticultural Society in August 2002.

It is still early to cite figures, but linalol production could reduce the cost of the product, which is used to give fragrance

and fix perfumes. To attract the perfume industry, Maia is relying on the product's ecologically correct characteristics. After decades of exploitation, pau-rosa has become extremely rare. The oil is processed and sold abroad, driving a millionaire market. It is a classical example of the theft of Brazil's genetic heritage, as the country does not receive anything from the exploitation of the species. (*Source: Amazon News*, 23 May 2002.)


**Rosewood, a sweet aroma that could fade away**

The tree from which the famous oil used in the manufacture of perfumes is extracted is in danger of extinction. The Amazonian caboclos have to go ever deeper into the forest to find the rosewood tree, from which one of perfume's principal ingredients is extracted. The rosewood oil extractors spend three months at a time in the forest. The trunks are cut by hand and, weighing 100 kg, are then carried on the extractivists' backs. They earn very little for their labour.

The extraction of the oil from the tree's leaves could save the species. A research project by the University of Campinas, Brazil could allow production to continue without destroying the trees.

The disappearance of the species is not only causing concern among environmentalists. The cosmetics and perfume industries are also worried. Without the tree, which only exists in Amazonia, classic perfumes would have to modify their original formulae. Rosewood oil has a unique perfume and is rich in linalol, a substance that fixes the aroma on the body. Synthetic linalol has long been rejected by high-quality perfumiers. Research has been conducted on other plants such as sacaca and even basil.

The University of Campinas is proposing the extraction of linalol from the leaves of the rosewood tree. Researchers have already presented the alternative product to perfumiers, who all approved the substitute. The advantage of the process is that the trees do not need to be felled to obtain the product. The "ecologically correct" product should drive up the price of the oil. The research team is carrying out field tests on the plantation and extraction of rosewood. The research should help remove the species from the endangered species list. (*Source: Amazon News*, 18 July 2002.)

## *QUASSIA AMARA*

La *Quassia amara*, conocida en Costa Rica con el nombre común de "Hombre grande", es de amplio uso por sus propiedades medicinales, principalmente como tónico en afecciones hepáticas, debido al estímulo que ejerce sobre los órganos digestivos aumentando las secreciones salivales y biliares.

Durante ocho años, el Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) de Turrialba, Costa Rica, realizó investigaciones en la Reserva indígena de Kekoldi, Talamanca, Limón, sobre este arbolito de amplia distribución en la América tropical, para valorar la importancia económica de la biodiversidad vegetal útil presente en los bosques, con el propósito de buscar alternativas de desarrollo en el ámbito rural y mejorar la situación de las familias rurales y la de la economía de los países tropicales.

El CATIE, como resultado de este esfuerzo interdisciplinario e interinstitucional, en el que participaron el Laboratorio de Ensayos Biológicos (LEBI), el Centro de Investigación de Productos Naturales (CIPRONA), ambos de la Universidad de Costa Rica, y el Instituto Tecnológico de Costa Rica, entre otros, publicó en 1995 el documento *Potencial de* Quassia amara *como insecticida natural*.

En el año 2001, la empresa nacional Bougainvillea S.A., una empresa nacional con 16 años de experiencia en la utilización de la *Quassia amara*, se incorpora a la iniciativa de la Oficina de Biodiversidad para el Apoyo al Desarrollo Empresarial (OBADE), dentro del Programa de apoyo al desarrollo del uso de la biodiversidad por pequeñas empresas (BID-FOMIN/INBIO), y se da inicio al Proyecto de investigación aplicada para producir un insecticida botánico a partir de la madera de la *Quassia amara*.

Actualmente se implementa el Proyecto en la región del Caribe de Costa Rica, y se construye la infraestructura de la planta piloto para la extracción y elaboración del producto natural, y para su evaluación y posterior uso en la agricultura nacional.

Históricamente, ya en 1917 se hace referencia al uso de la *Quassia amara* como insecticida contra los áfidos (Homópteros), conocidos como pulgones.

Se debe a las investigaciones realizadas en el CATIE, por el personal del área de fitoprotección, que la investigación de validación del producto se dirige al control de la mosca blanca (*Bemisia tabaci*), que constituye un problema en diversos cultivos agrícolas en América. Constituye la meta del Proyecto que, luego de la etapa de validación del insecticida botánico y del estudio de mercado, y de acuerdo a los resultados satisfactorios obtenidos, lanzar la etapa de producción y contribuir de esta manera al desarrollo agrícola sostenible.

Actualmente, las poblaciones de *Quassia amara* se encuentran distribuidas de manera natural en las regiones húmedas y bajas de Costa Rica, y un aprovechamiento irracional podría conducir en un futuro cercano a la extinción de la especie en su ambiente natural. Por esta razón, Bougainvillea S.A., con recursos propios, está llevando a cabo en forma paralela acciones de domesticación de la especie y con la participación de agricultores interesados de la región ha establecido siembras en condiciones agroecológicas en Matina, Limón. La meta es contar con una

población de 100 000 arbolitos para el año 2005, para abastecer la demanda nacional e internacional.

En la actualidad existen ya 16 000 arbolitos plantados y se cuenta con un dispositivo de investigación aplicada, constituido por el conocimiento ("know how") sobre el manejo de un recurso natural subutilizado, que constituye la clave del éxito para el futuro de la empresa. Sin embargo, es importante señalar que la implementación de la empresa no ha sido fácil, por diversos factores, entre ellos técnicos y de infraestructura, que surgen precisamente cuando se busca establecer un modelo de desarrollo a nivel rural.

La gestión de la biodiversidad, tal como se promueve actualmente en nuestros países, necesita con urgencia de un enfoque diferente por parte de los investigadores de las universidades, si se proponen contribuir al desarrollo, así como por parte de las empresas cuya respuesta a las necesidades técnicas debe corresponder a las particularidades especificas necesarias para obtener el desarrollo industrial de un producto de la biodiversidad, y que no es sólo la clásica respuesta de la investigación de punta, que es de suma importancia, pero no suficiente.

En el aspecto de la infraestructura, a parte la infraestructura en comunicación ya existente en ámbito rural pero que no contribuye específicamente al desarrollo industrial, resulta necesario contar a nivel rural con el suministro de energía eléctrica que posibilite la instalación de equipos de alta eficiencia tecnológica y que contribuyen a disminuir la contaminación.

Finalmente, el cambio de actitud de los profesionales al sentirse en adecuadas condiciones en el medio rural, va a contribuir al desarrollo rural de los países tropicales y a disminuir la contaminación del medio ambiente urbano.

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## SANDALWOOD

Because of the overall interest in plant-based products, there is a growing need to help traders authenticate and check the quality of plants. To date, there is little formal regulation on the quality of plants being traded and this could result in more people suffering adverse responses if poor-quality material or incorrect plants are supplied. There are also many conservation issues in the increased demand for plants. Although many plants being supplied to the trade are from renewable sources, some, such as sandalwood, are not always being sustainably harvested.

Dr Melanie Howes has been studying the quality and source of sandalwood extracts currently being traded in the United Kingdom. Few companies could confirm the source of their sandalwood, and many extracts did not meet the international standard for sandalwood oil of a minimum free alcohol (santalol) content of 90 percent. The results were presented by Professor Monique Simmonds at a conference in February 2002 on the Industrial Leadership for the Preservation of Medicinal and Aromatic Plants, held in Philadelphia, United States. The aim of this project is to enable companies to locate good-quality sandalwood from renewable sources. (*Source: Kew Scientist*, Issue 21, April 2002.)

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## SEABUCKTHORN

Seabuckthorn (*Hippophae* spp.) is a thorny temperate bush which grows in temperate climates and is indigenous to the regions of Lahaul and Spiti, Kinnaur and some parts of Chamba in Himachal Pradesh, Kumaon and Gharwal Hills of Uttaranchal, the Ladakh area of Jammu and Kashmir and some parts of Sikkim.

It grows widely and abundantly in the temperate climates of Europe and Asia. In Asia, it is commercially grown in China, the Russian Federation, Nepal and Pakistan. It is regarded as a “magic plant” because of its high nutritional value, medicinal properties and its ability to replenish and conserve the soil in the fragile ecosystem of the temperate Himalayas.

It is indigenous to the temperate Himalayan region, but it is paradoxical that few people know of its existence and tremendous medicinal value. It is time for research institutions, government agencies and the pharmaceutical and cosmetic industries to understand the global trends and benefits of evolving advanced technologies for utilizing seabuckthorn and bring about a new revolution in the Asian economy.

Seabuckthorn is a thorny bush which grows in temperate climates. It grows selectively in the snow-covered mountains of the Himalayas and can withstand temperatures as low as minus 40°C. It can even flourish in rocky, sandy or marshy soils. Its well-developed root systems extend 3 m vertically and 10 m horizontally, producing 30 to 40 sister plants of several generations, which hold soil particles and stones even on steep slopes. Its extensive root system protects the soil against erosion by high-velocity winds, which are a common feature of cold deserts. Thus, the plant is considered to be an effective soil binder in the erosion-prone soils of cold and barren mountains.

Seabuckthorn has many reputed nutritional and medical properties. Its fruit and other plant parts are used in

making herbal remedies against malnutrition, skin diseases, lung problems, ulcers, gastro-intestinal problems and colds. It is reported that it can also be used against cancer to counteract the effects of free radicals. It has been prescribed for patients with coronary disorders since it is believed to reduce cholesterol levels drastically.

It is rich in Vitamins A, B and K and is the richest source of Vitamin C. It is also a potential source of proteins, organic acids, carotenoids and flavonoids, etc. The fruit is the main repository of these compounds but the whole plant is a rich source of nutrients. It is also extremely rich in minerals such as iron, cobalt and molybdenum. Thus, seabuckthorn has great medicinal properties and is currently used in about 200 industrial products such as medicines, cosmetics and health food products. (*Source:* Extracted from an article by A.K. Choudhary and R.C. Jaggi in *Tiger Paper*, 29(1), January-March 2002.)

## VEGETABLE IVORY

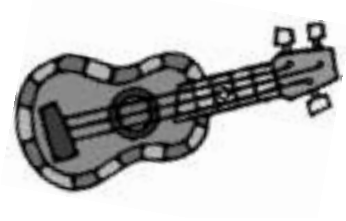
**Project to produce vegetable ivory in Amazonia**

Palm seed, with properties similar to ivory, could be an alternative source of income in Acre, Brazil. A joint project funded by the non-governmental organizations Centre for the Workers of Amazonia (CTA) and BrasilConnects hopes to organize production and create a market in Brazil for vegetable ivory, as the seed of the jarina palm is known. The palm is found in the states of Acre, Rondonia and part of Amazonas. Practically unknown in Brazil, the species is also found in Ecuador, Peru and Colombia, where the exportation of the product, principally to the United States, is worth around US$50 million per year.

The partnership will undertake a survey of resources and studies of the management, collection, processing and commercialization of the jarina (*phytelephas* ssp.) seeds in two agro-extractivist settlements in Acre, São Luís do Remando and Porto Dias. Rocio Chacchi Ruiz, coordinator of the non-timber part of the Forest Management Programme at CTA, said that these communities have already worked with timber and non-timber extractivism, but the collection of jarina is still sporadic and disorganized.

Vegetable ivory is the product of the polishing of the jarina seeds. With physical characteristics similar to animal ivory (durability, colour, shine), it is used in the production of jewellery, craft goods and other objects, such the embellishment of guitars. The Brazilian species, with a diameter of around 3 cm, is smaller than that found in Ecuador, with a diameter of approximately 6 cm, but can be used in the same way.

The aim of CTA is not only to organize local families to collect the product but also to help them attain the highest possible level of processing and train them to manage the business. As well as financial support of $R 200 000, in two years' time BrasilConnects – the São Paulo-based organization which aims to provide an incentive for Brazilian culture and ecology – will act in a managerial role, publicizing the product and identifying potential markets. BrasilConnects is already talking with a jewellery designer in São Paulo to foster the use of jarina and other Amazonian raw materials. Jarina could become an important alternative source of income in the state of Acre. (*Source: Amazon News*, 1 August 2002.)



## VEGETABLE LEATHER

**Vegetable leather constructs forest citizenship in Acre**

In 1988, ecologists began to look at what was happening in Amazonia with a certain reverence, particularly the struggle of forest people. In Rio de Janeiro, environmentalists participated in a march to Pão de Açúcar mountain and mounted a banner stating simply "Save Amazonia". The aim of the demonstration was to call attention to the struggle faced by rubber tappers in Acre to defend the forest. One month later, the leader of the rubber tappers, Chico Mendes, was murdered.

It was this incident that inspired Rio-based businesswoman, Bia Saldanha, one of the inventors of vegetable leather, to seek alternative ways to participate in the movement to defend the forest. She and her partner, João Augusto Fortes, decided to open up the market to forest products. As business people, they thought that the best contribution they could make would be to open up a new horizon for the rubber tappers of Amazonia, through the development of economic alternatives. They established a shop called Ecomercado in Rio de Janeiro and began to research products, resulting in the discovery of "vegetable leather", a traditional product of rubber production. Saldanha and Fortes invested time and money in the development of the product. The result was a new fabric called "Tree Tap" which may be used in the production of accessories such as bags, rucksacks, caps and other clothing articles.

Today, 200 families produce the vegetable leather in the Alto Jurua

Extractive Reserve and the Kaxinawa Indigenous Territory. Saldanha attributes the project's success to the social movement of forest citizenship which is the legacy of Chico Mendes and the support of the state government. She added that the construction of "forest citizenship" is the essence of the project. One of the most important results of the project is the improvement in the rubber tappers' quality of life through the creation of an alternative source of income. "The way in which we have developed the vegetable leather is in harmony with and valorizes the rubber tappers' culture and environment."

The company hopes to establish a factory in the Xapuri region of Acre. The rubber tappers have gained a source of income, but Saldanha and Fortes know that vegetable leather can bring them other riches. There are certification projects involving vegetable leather, which could bring parallel benefits, and also issues of food security and even social questions.

The award-winning project now exports to Italy, France and the United States, with support from the World Wide Fund for Nature. "It is not only vegetable leather which is successful. It is the whole concept of socially and environmentally responsible products, in which we are pioneers, which is expanding," Saldanha said. (*Source: Amazon News*, 26 September 2002 [newsletter@amazonia. org.br].)

**Amazonia produces ecological sandals**

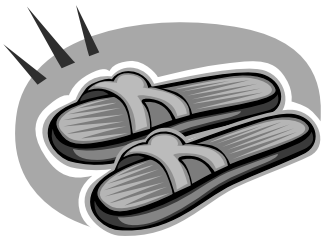
The D'arvore sandal, made from vegetable leather and other natural rubber derivatives, is the result of the project to develop products using raw materials taken from the Amazonian rain forest. The project is sponsored by Ecoamazon and the Association of Small-scale Rural Producers and Extractivists of Epitaciolância and Brasiléia. The aim is to contribute towards the improvement of the social and economic conditions of the population of Amazonia.

According to the project's coordinator, João Tezza, experiments were carried out using various types of material. The products selected are extracted from the rubber tree and are used to manufacture both the soles and the straps of the sandals. "If necessary, we can reinforce the straps with animal leather or canvas," Tezza explained. "It was because of the origin of the products that we selected the name of the mark: D'arvore (From the tree)," he added.

Twenty-eight associations of rural producers in Acre's Extractivist Reserves are responsible for the production of the rubber products, along with the Kaxinawa Indians. An institution in Rio Grande do Sul has been contracted to manufacture the sandals.

Tezza said that in buying a D'arvore sandal, consumers are participating in a broader project: that of environmental preservation. In June 2002, the project received the World Bank's "Innovative Social Initiative" prize, worth US$10 000. The aim of the project, launched in 2001, is to make sustainable development viable.

The project is coordinated by Ecoamazon and financed by the non-governmental organization, WWF-Brazil. (*Source: Amazon News*, 25 July 2002.)



**Amazonlife wins New Ventures Prize**

Amazonlife, the Brazilian company which manufactures bags and accessories in vegetable leather, was one of the three winners of the international New Ventures Prize. The socially and environmentally correct company will receive investments of US$500 000 for marketing its product, the development of new products and increasing its product distribution. Business consultants Booz Allen Hamilton will offer their expertise to the company and a number of potential investors have expressed an interest.

Amazonlife has become internationally known thanks to its partnership with a French fashion house, which created a line of products using vegetable leather. The company is now researching other Amazonian products, such as seeds, dyes and fabrics woven by Indians, and now needs new investments in order to expand.

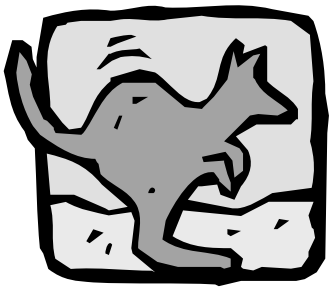
The prize is a showcase for sustainable business which rewards companies with the potential to create "profitable solutions to environmental and development challenges". The aim is to guide the winners, through investment and training, from peripheral markets to the world's key markets. (*Source: Amazon News*, 21 November 2002.) ●

***All my life I've eaten fruit from trees I did not plant.***

**Ralph Waldo Emerson**

# COUNTRY COMPASS

## AUSTRALIA



**Bioprospectors seek treasure in Australian forests**

Fortune-hunting scientists are scouring vast tracts of Australia's tropical rain forests for plants to produce new antibiotics and other drugs which could be worth billions of dollars. Like the gold rush of 150 years ago that lured thousands of hopeful treasure seekers, "bioprospectors" and global drug giants have staked claims to areas of forest hoping to tap jungles that harbour diverse and unique plant life. The yield so far from Australia's northern rain forests, mainly in Queensland and Western Australia, is several new compounds for antibiotics, new pesticides which are close to commercial production and a pill that could prevent prostate cancer. Scientists caution that it takes 15 years and a huge investment to bring a new pharmaceutical product to market, and only one in a thousand discoveries makes it. Agrochemicals and dietary products are quicker to market, and even they offer pay-dirt worth hundreds of millions.

Bioprospectors range from scientists with licence claims, through to large numbers of "illegal" hopefuls. Multinational companies will not deal with unlicensed groups. As with prospecting claims, access to rain forests is the must-have asset for bioprospectors, especially those who want to raise money from stock exchange listings.

Cairns-based EcoBiotics, now raising $A3 million (US$1.7 million) in working capital, has exclusive access to large tracts of Queensland state rain forest through the Australian Rainforest Foundation and private holders. It is also negotiating for access to Queensland rain forest under state control and has exclusive access to about 172 000 ha of some of the last rain forest in the Solomon Islands to the north of Australia.

Australian science group BioProspect already holds agreements with the Queensland government for access to plants, soil, insects, marine organisms and animals in state-owned areas, as well as a collection licence for Western Australia. This does not give it a monopoly over particular plants, but is the first step to eventual patents on chemical discoveries in plants. The plants found to yield valuable chemicals are the most closely guarded secrets of Australia's bioprospectors and are the lucrative intellectual property of the forest hunters.

The Queensland tropical rain forest is unique because of the very old geology of the area, which produces 15 different forest types, while in general the Amazon basin has about five different forest types. Australian rain forests also have more tree species than the whole of North America and Europe. The fight for survival by large numbers of organisms produced novel chemicals and survival solutions, making Australian forests among the world's most productive. Australia is also the only country in the world which combines large rain forests with a developed economy, an established legal system and high-level medical and general scientific research.

Targeting plants which it believes are likely to produce payoffs from gaps in the pharmaceutical and agrochemical markets, EcoBiotics says it is applying for patents for four new antibiotic chemical compounds, and is working on others to combat intestinal parasites and bacteria. BioProspect has a major natural insecticide close to commercial production, has just patented a product for termite control and is close to launching dietary and health products in the United States. (*Source:* Extracted from [BIO-IPR] Resource pointer, 26 November 2002 [http://story.news.yahoo.com/news?tmpl=story&u=/nm/20021107/lf_nm/science_australia_antibiotics_dc_1].)

## BANGLADESH

Rattan, a climbing palm belonging to the Palmae family, is popular and widely used for furniture making both in Bangladesh and abroad. Nowadays, furniture made from cane is a mark of aristocracy, especially to the urban dwellers of Bangladesh.

Cane used to be abundant in the Indian subcontinent, especially in Assam and Bengal. However, as a result of population pressure, fragile socio-economic conditions and overexploitation, production of cane is now declining at an alarming rate. Consequently, cane furniture industries are facing acute problems, especially in Bangladesh, owing to the scanty and uncertain supply of raw materials.

In Bangladesh the rattan resource in forest areas is decreasing since no scientific management strategies have been adopted, only indiscriminate harvesting. In recent years the local supply has become so insignificant that the rattan industries have to depend mainly on the import of raw materials. However, raw material supply is not always regular, which has adversely affected the quality and sometimes the price of the end product.

Since rattan production is also decreasing in other countries, such as India, Myanmar, Thailand, the Philippines and Malaysia, their attention is now diverted to the end product, rather than export. Some countries may even put an embargo on the export of raw canes. This situation will create uncertainty for the prestigious cane industries of Bangladesh, as they are now mostly dependent on the import of raw materials.

The extension of cane cultivation to save these industries is therefore urgently needed. Only an integrated effort by governmental and non-governmental organizations and individuals to cultivate cane on a large scale may successfully halt this alarming situation.

Eight to ten species of rattan grow in different areas of Bangladesh, a few species of which are of commercial value. A priority list of these commercial rattans is shown in the Table below.

**List of priority cane species with areas of availability**

| Local name | Scientific name | Areas where grown |
|---|---|---|
| Golla | *Daemonorops jenkinsianus* | Sylhet, Chittagong, Chittagong Hill Tracts |
| Jali | *Calamus tenuis* | All over the country |
| Bhudum | *Calamus latifolius* | Chittagong Hill Tracts, Cox's Bazaar |
| Bara | *Calamus viminalis* | Chittagong, Chittagong Hill Tracts |
| Udum | *Calamus longisetus* | Teknaf of Cox's Bazaar |

Cultivation techniques for rattan or cane developed in the Bangladesh Forest Research Institute, Chittagong may be utilized for the large-scale cultivation of the species. If a sustained supply of quality raw materials can be ensured, perhaps one day the rattan-based furniture industries of the country may become a potential foreign exchange-earning enterprise, which will assist the development of the country.

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## BOLIVIA

**Dinámicas de la economía extractiva en la Amazonía boliviana**

Son escasos los trabajos que analizan la dinámica económica de la economía extractiva que se desarrolló en la Amazonía boliviana desde fines del siglo pasado hasta el presente. Un trabajo de indiscutible valor para ayudar a entender la evolución de la economía amazónica del norte boliviano es la tesis de doctorado de Dietmar Stoian, *Variaciones y dinámicas en las economías extractivas: los vínculos urbano-rurales del uso de recursos forestales no madereros en la Amazonía boliviana*, defendida en la Universidad de Friburgo, Alemania, en 2000 (en inglés). Esta investigación fue realizada en el marco de un acuerdo de colaboración entre el proyecto PROMAB y el Centro de Investigación Forestal Internacional (CIFOR).

Este trabajo realiza un recorrido por los distintos ciclos de la economía extractiva identificando las condiciones que dieron lugar a la emergencia, a fines del siglo pasado, de la economía gomera y la posterior transición de tres ciclos gomeros hasta mediados de la década de los 90, cuando se producen importantes cambios en la economía regional impulsados por el rápido desarrollo de procesos extractivos de castaña, palmito y madera, y la expansión de la base industrial para el procesamiento de esos productos. Esa transición de la economía extractiva regional está acompañada simultáneamente por la diferenciación de los asentamientos rurales, crecientes procesos de urbanización y la expansión de la frontera agrícola. Condicionado por esos procesos se produce un intenso cambio en la reestructuración de las diferentes estrategias de subsistencia de los hogares como resultado de una mayor articulación entre los espacios urbano y rural.

El autor alerta que pese a los cambios en la economía de los productos no madereros a lo largo del tiempo, tal economía ha demostrado una gran capacidad de adaptación a esos cambios. En ese marco, el trabajo considera necesario explorar cuáles son los factores que garantizan un cierto grado de estabilidad de la economía de productos no madereros y cuáles de esos factores podrían ser controlados al nivel regional.

Por un lado, los productos no madereros son parte de los sistemas de subsistencia de las poblaciones rurales y periurbanas que combinan agricultura y extractivismo, lo que les permite articular actividades de subsistencia con otras orientadas a la generación de ingresos monetarios. Factores que pueden ayudar a reforzar la importancia de los productos no madereros en esas estrategias son la seguridad de tenencia junto con una más equitativa distribución de beneficios para las poblaciones. Por otro lado, se indica que algunos factores que pueden poner en riesgo la importancia de este sistema en las estrategias de vida de la población así como la estabilidad de la economía extractiva en su conjunto, son la volatilidad de los mercados, las relaciones laborales de explotación así como la sobreexplotación de la base de recursos naturales.

Para obtener una copia electrónica de este documento puede ponerse en contacto con Dietmar Stoian a: [stoian@catie.ac.cr]. (*Fuente:* Lista Bosques Bolivia [ppacheco@gis.net].)

## BRAZIL

**Draft guidelines for the certification of forest management for NWFP in the Atlantic forest of Brazil (in Portuguese)**

Since 2001, the project Sustainability and Forest Certification in the Atlantic Forest has been elaborating and testing guidelines for the certification of sustainable forest management of the Atlantic forest in Brazil. The project is implemented by an association of local non-governmental organizations, with technical support from the Forest Stewardship Council.

The NWFPs which are important in the area and which are considered for the purpose of the guidelines are: piacava fibres (*Attalea funifera*), palmito (*Euterpe edulis*) and erve maté (*Ilex paraguariensis*). The project has now produced version 4.2 of its draft guidelines for the certification of forest management for NWFP in the Atlantic forest, which will now be submitted to the Brazilian Council of Forest Management.

# COUNTRY COMPASS

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**Brazilian fruits: guarana**

Researchers at ten institutions in northern Brazil have begun to create a DNA map of one of the most important species in Amazonia. They aim to discover the gene responsible for protecting guarana from diseases and pests. The trade in guarana is worth $R 100 million per year in Brazil.

The fruit, which was discovered by the Indians, will be studied by the Amazonian Network of Genome Research, which forms part of the Brazilian Genome Project. The genetic mapping of one of the most important species of guarana, *Paullinia cupana*, begins this week. Brazil is the only producer of guarana in the world, producing 5 000 tonnes per year. It could produce much more but scientists need to find new methods of combating diseases, which devastated plantations ten years ago. (*Source: Amazon News*, 24 October 2002.)

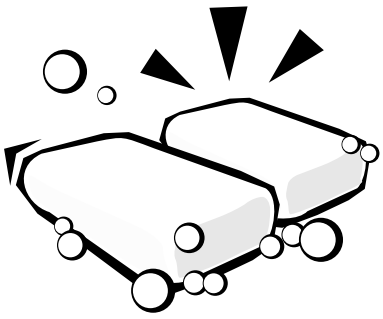
**Brazilian fruits: camu-camu**

Although still relatively unknown to the general public in Brazil, the camu-camu (*Mycriaria dubia*), a native fruit found in the Brazilian and Peruvian Amazonia, is attracting interest from researchers. The cherry-sized dark-red fruit is an important source of vitamin C. It has 100 times more vitamin C than oranges and four times more than acerola. It also contains high levels of antioxidants and potassium. The fruit is found throughout Pará, Amazonas, Rondônia, Roraima, Maranhão and parts of Tocantins, and is also known by other names: caçari, in Amazonas; araçá-d´água and araçá-azedo in Rondonia; and crista de galo in Maranhão.

The camu-camu has an enormous economic potential. Researchers from the State University of Campinas (UNICAMP) are working on improving methods of extracting the juice.

Researchers at the National Institute of Amazonia Research (INPA) are carrying out field research on the viability of cultivating the camu-camu, as the species has never been domesticated. The natural occurrence of the fruit on the banks of river inlets makes harvesting a difficult and time-consuming process. Researchers are trying to adapt the camu-camu tree to upland areas and initial results are encouraging.

Brazil needs to expand the production of camu-camu in order to access the international market. Pará already exports to Japan and the United States, where the product is marketed in tablet form as “Camu-Plus”. (*Source: Amazon News*, 31 October 2002.)



**Soap made in Maranhão achieves success in the United States**

In hand-made packaging, the bars of soap made from babaçu oil hide one of Maranhão’s greatest success stories. They are produced in a tiny factory by the women of Ludovico, a town located 350 km from the capital São Luís. The small company opened its doors in 1996 with grants from European non-governmental organizations and the United Nations Children’s Fund (UNICEF). The production of this ecologically correct product has increased the income of the local population threefold. Before the company was created, local people lived precariously, trading babaçu for rice and beans. The company uses babaçu nuts that have fallen on the ground. A new municipal law passed in 1996 gave them the right to collect the nuts regardless of who owns the land on which they are found. The soap factory has the capacity to produce 12 000 bars per year and now exports 10 000 bars to a Chicago-based firm.

The company is planning to develop other products for export, including sweets and organic crystallized fruits. (*Source: Amazon News*, 13 January 2003.)

**Extractive reserves to have sustainable management plans**

By the end of this year, 11 of Brazil’s 30 extractive reserves will have operational sustainable management plans. This means that these sustainable-use conservation areas, with a total area of 5 million hectares, will have a document which defines priorities for exploiting natural resources. The reserves which will have management plans are: Alto Tarauacá, Cazumbá-Iracema and Chico Mendes (Acre); Jutaí and Médio Juruá (Amazonas); Barreiro das Antas, Lago do Cunhã and Rio Ouro Preto (Rondônia); Rio Cajari (Amapa); Tapajós-Arapiuns and Soure (Pará).

The plans will permit residents to manage timber and wild animals in the reserves for the first time. The reserves already produce rubber, nuts, palm hearts, vegetable essences, oils, honey, fish and fibres. The management plans will guarantee the sustainable use of natural resources, helping to preserve the forest for future generations.

The extractivists have their rights to natural resources guaranteed by law and receive financial assistance to reform their houses and purchase equipment. The management plans will be elaborated with support from IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis). Local residents create a symbiotic relationship with the forest which guarantees the survival of both.

In Brazil, there are currently 30 extractive reserves, 23 of which are located in Amazonia, with a total area of 5 million hectares. (*Source: Amazon News*, 6 February 2003.)

## CAMEROUN

Dans le cadre de la «revue du secteur rural», menée au Cameroun sous la coordination de la Banque mondiale, une étude a été élaborée en 2002 sur la commercialisation de quatre produits forestiers non ligneux dans la zone forestière du Cameroun, par des chercheurs du Centre pour la recherche forestière internationale (CIFOR, Cameroun), du Programme de l'Afrique centrale pour l'environnement (CARPE) et du jardin botanique de Limbé.

Les produits forestiers non ligneux (PFNL) étudiés sont: *Gnetum* sp., *Ricinodendron heudelotii, Irvingia* sp. et *Prunus africana*. Le rapport de cette étude décrit les deux premiers PFNL en français et les deux derniers en anglais.

En milieu rural, les produits forestiers non ligneux sont à privilégier pour une mise en œuvre de nouvelles stratégies visant la découverte de moyens de lutte contre la pauvreté. Dans ce processus, les produits traditionnellement utilisés par les populations des zones rurales pour leur alimentation et santé sont privilégiés.

Les feuilles du *Gnetum* génèrent des revenus substantiels aux ménages des zones rurales. La production potentielle de cette liane n'a pas encore été estimée puisqu'aucun inventaire n'a été réalisé au Cameroun. Le *Gnetum* est produit tout au long de l'année en raison de sa forte capacité d'adaptation à la saison sèche. Il est présent aussi bien sur les marchés nationaux, régionaux qu'internationaux. Le volume total de vente sur les sept marchés commercialisant le *Gnetum* au Cameroun est passé de 44 427 tonnes en 1997, à 25 254 tonnes en 1998. Le sud-ouest du pays totalise à lui seul un volume commercial de 44 234,89 tonnes de *Gnetum* en 1997. De tous ces marchés, Idenau est celui qui enregistre les flux les plus importants avec 44 200 tonnes en 1997 et 25 157 tonnes en 1998 avec une marge hebdomadaire par commerçant de 104 575 francs CFA. La France et la Belgique importent environ 600 tonnes de *Gnetum* par an de l'Afrique centrale; cinquante pour cent proviennent du Cameroun. L'étude a révélé qu'en termes de rapports d'équité entre les producteurs et les commerçants, le prix de vente du *Gnetum* au niveau du producteur représente 42 pour cent du prix de vente du produit au consommateur. Par conséquent, le paysan pourrait améliorer son niveau de vie sur la base de l'exploitation du *Gnetum*, surtout si la filière était assainie. La première bataille doit être menée contre les contrôles abusifs qui rançonnent les commerçants, alourdissant ainsi les coûts d'exportation du produit. Il est aussi souhaitable que la législation en matière d'exploitation des PFNL soit allégée pour permettre à un plus grand nombre d'habitants des zones rurales d'accéder à un titre d'exploitation.

La graine du *Ricinodendron heudelotii*, communément appelée Njansang, Ezezang ou Essang, est un PFNL commercialisé dans les marchés nationaux et internationaux. Au Cameroun, les plus grands marchés de *Ricinodendron heudelotii* en termes d'offre et de demande sont les marchés du Mfoundi et de New Bell, approvisionnés en grande partie par le marché de Sa'a et de ses environs. La valeur totale de vente du *Ricinodendron heudelotii* dans les sept marchés suivis par le CIFOR (Sa'a, Mbalmayo, Ekondo-Titi, Mfoundi, Abong-Mbang, Limbé, New Bell) est passée de 227 344 290 francs CFA en 1997, à 323 691 865 francs CFA en 1998. Cette augmentation témoigne de l'importance économique de la ressource et révèle la nécessité d'améliorer sa production. Cela contribuerait à augmenter les quantités, ventes, revenus et bénéfices des commerçants et producteurs et pourrait également stabiliser l'offre et pallier aux aléas naturels tels que le vieillissement et le repos végétatif des arbres. Par ailleurs, la graine de *Ricinodendron heudelotii* est constituée à plus de 50 pour cent de matières grasses. Elle est donc une source de protéines importante. La valorisation d'une huile végétale à base de graines de *Ricinodendron heudelotii* est un secteur à explorer et développer pour lutter contre la pauvreté, la misère et la famine au Cameroun.

***For our English-speaking readers, the above CIFOR report covered four NWFPs, two in French and the following two in English.***

***Irvingia gabonensis* and *Irvingia wombolu* are widely utilized in many parts of western and central Africa and are identified as high-priority species for sustainable agroforests, conservation and the improvement of rural poverty/livelihoods. The Centre, South, East, Littoral and South West Provinces are the production and commercializaton centres of *Irvingia* sp., with more than 49 percent and 30 percent of trade volumes occurring in the South and Centre Provinces, respectively. The trade values in 1997 were estimated at more than 58 million CFAF and 35 million CFAF for the South and Centre Provinces, respectively. The total value of trade in 1998 stood at about 160 million CFAF (US$228 571) in nine major markets in the forest zone of Cameroon. The proportion of transportation costs alone may be higher than 64 percent of the total cost depending on the distance of the market from the production zone or distribution market. The margins gained by the traders were 30 percent of the total value of sales. The farmer receives about 63 percent of the selling price received by the traders from consumers. Women and children are principally involved in the production and commercialization of *Irvingia* spp., with more than 90 percent of traders being women. In these border markets, the weekly net margins for traders are as high as 14 000 CFAF; meanwhile, in a national market without foreign traders, the margin is as low as 310 CFAF. Sales of processed kernels are reported to the United Kingdom, the United States and Europe, with about 100 000 potential consumers. Despite this huge and growing potential**

**market, the main supply niche from wild populations can no longer meet the demand. It is, therefore, necessary to intensify production to take advantage of evolving niches. There is also a need for research into better processing and storage methods, better technologies for depulping, cracking and industrial processing of *Irvingia* spp. The results of such endeavours could have an extremely beneficial effect on poverty alleviation and improved livelihoods in the forest zones of western and central Africa.**

**Industrial exploitation and commercialization of *Prunus africana* bark started in the 1970s and was concentrated in West Province with the establishment of the first medical factory called PLANTECAM in Dschang in 1972. The company was giving a fixed annual amount of 100 000 CFAF to the local community for the exploitation of barks. Later on, the exploitation was extended to the Mount Cameroon area. PLANTECAM was exploiting around 1 200 to 1 500 tonnes of bark per year until 1999. After 1999, this amount was reduced to 300 tonnes by law, owing to the increased exploitation pressure on the species. PLANTECAM was obliged to close down. Some local enterprises are exploiting *Prunus*, processing and exporting from 325 to 1 225 kg per year worth Θ173 000 to Θ654 000, respectively.**

## CANADA

**Property rights in the sustainable management of non-timber forest products in British Columbia**

Non-timber forest products (NTFPs) is a term used to describe more than 200 species of forest resources, other than timber, harvested for commercial, personal and traditional purposes in British Columbia, Canada. The report "Property rights in the sustainable management of non-timber forest products" provides the institutional context to move the discussion of managing NTFPs in British Columbia to the development stage. NTFPs can be characterized as common pool resources (CPRs) and as such are inherently difficult to manage from a typical state-based regulatory approach. While a great deal of literature has been written on CPRs, little of that literature focuses on NTFPs. This report examines the literature regarding the management of CPRs, the role property rights play in the stewardship of forest resources, and presents a legal review of the existing structure of property rights and resource management institutions in British Columbia.

The report concludes that, given the complex ecological, social and economic characteristics which define NTFPs, a single management approach will not provide an effective, efficient and equitable management regime for NTFPs. After examining various management models (ranging from state to common property and private approaches) and operational constraints, the report finds that, in principle, government agencies should maintain a prescriptive role, but minimize any operational role. The report recommends that a mix of management systems be used, drawing from the strengths of each in appropriate circumstances. Given that there are no active models specifically designed to manage NTFPs in British Columbia, the report recommends that a pilot project be initiated to test and monitor a variety of approaches. If the report's recommendations are accepted, the pilot will provide further opportunities for research into how property rights can be used to overcome CPR management issues as they pertain to NTFPs. (To view an electronic copy of the report go to: www.for.gov.bc.ca/HET/Index.htm)

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**Bighorn concern**

Non-governmental organizations (NGOs) are mounting a campaign to resist moves to weaken the protected area status of the Bighorn Wildland in western Alberta, Canada. This area is wanted by industry for petroleum exploration and logging but NGOs consider it one of the last remaining intact wilderness areas in the region and are seeking to expand the protected area to include the boreal forests of the Bighorn foothills. (For more information, visit: www.wildcanada.net/new_site/action_centres/bighorn/bighorn.asp) (*Source: taiga-news*, Issue 38, Winter 2002.)

**Non-timber forest products at UBC Malcolm Knapp Research Forest**

The Malcolm Knapp Research Forest (MKRF) of the University of British Columbia (UBC) is developing a strategic plan to implement NTFP projects in its 5 000 ha of forest in Maple Ridge, British Columbia. During the first phase of the project, Katja Eisbrenner, a master's student from Germany, is investigating the capabilities and opportunities of different NTFPs at MKRF with an emphasis on the current market situation and a broad-scale NTFP inventory.

During a visit to Port McNeill in July 2002, Ionut Aron (Research Coordinator at MKRF) and Eisbrenner met team members of the North Vancouver Island Demonstration Project to discuss such topics as NTFP inventory, sustainable

harvesting, current market development and project implementation.

It was interesting to see that although the location, size and local markets are different for the two projects the main questions remain the same (e.g. How many plants or mushrooms can be harvested sustainably?).

Given these similarities the information gained through the discussion was important for further project planning at the MKRF. (For further information on the MKRF project, please contact: katja.eisbrenner@web.de *or* visit: www.island.net/~ntfp) (*Source: beneath the Trees*, October 2002, Diane Carley [dhcarley@island.net].)

**NTFPs: economic development while sustaining our northern forests**

A fact sheet "Non-Timber Forest Products: Economic Development While Sustaining Our Northern Forests" has been produced by the Saskatchewan Environmental Society

Northern Saskatchewan is going through a profound and important period of change.

First Nations, Metis, non-aboriginal residents, forest and mining companies and different levels of government are attempting to balance values that often conflict, while mapping out their economic futures. The timber-based forest industry is cyclical, often facing economic instability and there are well-documented environmental concerns about the widespread clear-cutting of our forests. Mechanization of forestry means fewer jobs as more trees are cut down. More and more of the mills and manufacturing plants are located in larger centres outside the forest, leaving only seasonal jobs for forest communities.

Now, more than ever, it is time to consider seriously generating forest-based economic development in northern areas that provides long-term economic, community and environmental sustainability. Currently in Saskatchewan, the forestry industry is limited to relatively few timber-based primary products. By diversifying the economy in the northern forests, northern Saskatchewan can better achieve sustainable economic development.

The importance of the harvest of non-timber forest products and the creation of value-added products to economic diversification is evident. The gathering of non-timber forest products has cultural and spiritual values and connections to the forest that cannot be excluded from forest policy.

For Aboriginal people, these values are part of the roots of not only a stable community, but of a culture. Historically, forestry development has taken place on traditional Aboriginal land without Aboriginal involvement. The forestry industry has been dominated by large, multinational, non-Aboriginal-owned companies. The National Aboriginal Forestry Association (NAFA) has found that while 80 percent of Aboriginal communities in Canada are in forested areas, few forest-based businesses are owned by Aboriginal people. NAFA has also concluded that there are many obstacles for Aboriginal people becoming involved in the forestry industry, which include: institutional, cultural and economic barriers. (The full pdf version of the fact sheet is available on the Web [www.lights.com/ ses/non-timber.html].) (*Source:* Taiga Rescue Network.)

## COSTA RICA

Seven outstanding community initiatives were selected for recognition with the Equator Prize 2002. These communities received the prizes and international recognition at an awards ceremony held on 30 August 2002 at the World Summit on Sustainable Development in Johannesburg, South Africa. Drawn from a pool of more than 420 total nominations and 27 remarkable finalists, these communities represent outstanding achievements in reducing poverty and conserving and sustainably using biodiversity.

Among the winners was the Talamanca Initiative in Costa Rica, in recognition of an outstanding community initiative associated with a World Heritage Site. A collaborative partnership of three community-focused organizations – Asociación ANAI, APPTA, and CBTC – the Talamanca Initiative has worked since 1983 to integrate biodiversity conservation and socio-economic development in the Talamanca region of Costa Rica. The initiative's biodiversity conservation efforts include the establishment of the Gandoca-Manzanillo National Wildlife Refuge, a last sanctuary for the endangered manatee, and the development of Central America's only permanent raptor migration monitoring programme. To encourage sustainable socio-economic development, the initiative has promoted crop diversification and organic agriculture, with APPTA's processing system becoming the largest volume producer and exporter of organic products in Central America.

The initiative has also run a Regional Training Center since 1991, and has helped establish 13 local ecotourism ventures.

As an example of the gains that have been made through the initiative's work, the income in villages has risen by up to sixfold and communities have been able to engage in sustainable income-generating pursuits that also work to protect their natural environment. (*Source*: www.undp.org/equatorinitiative/secondary/awards.htm)

## GHANA

**Bushmeat hunting in Ghana**

An American-based environmental group claims that hunting wild animals in Ghana has become a serious problem. Conservation International reports that more than 30 percent of wild animal meat supplied to local markets in Ghana contains dangerous chemicals. This is creating serious health and environmental risks in the country. Conservation

International says that hunters use extreme methods to kill wild animals, including poison, forest fires and guns. These methods are dangerous for humans, wildlife and the environment. The country now suffers from a lack of wildlife because so many animals have been killed.

The crisis was the subject of a two-day conference in Accra in August 2002. More than 200 participants attended, including government officials, non-governmental organizations, tribal leaders and representatives of the animal meat trade. Their goal was to find ways to limit the amount of bushmeat eaten by Ghanaians and to create other economic possibilities. Currently, the country's animal meat trade is a US$350 million industry.

Officials released an action plan at the close of the Accra conference. It calls on the Ghanaian Government to examine and improve its wildlife laws. It also urges a ban on the use of extreme hunting methods and a halt to wildlife exports. The action plan also calls for stronger government supervision of the bushmeat industry to protect public health and the dying out of rare animals.

In addition to health and environmental concerns created by this crisis, officials say that Ghanaian culture could also be affected. According to Okyeame Ampadu-Agyei, the head of Conservation International in Ghana, most ethnic groups in the country believe the animals being hunted are linked to the people's ancestors. Local tribes consider the animals to be signs of their history and family traditions. Mr Ampadu-Agyei considers that Ghanaian culture and history are in danger. In the past, local rulers helped protect the country's wild animals by enforcing traditional rules and customs. He added that if Ghana is not careful, all its wildlife will disappear and nothing will be left to show the nation's children. (*Source:* Green Nature Web site [http://greennature.com/article1788.html].)

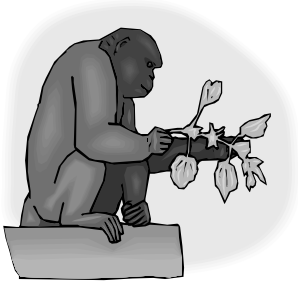
**Most preferred bushmeat**

During recent surveys in Ghana, of the 11 wild animals listed in terms of bushmeat preference, the grasscutter (*Thryonomis swinderamus*) was the most preferred, accounting for 65.1 percent of the total preference. This was confirmed by the fact that it was the most sought after and consumed bushmeat in the restaurants and chop bars throughout Ghana. It is also the most abundant in all the markets surveyed. It remains the most important bushmeat species throughout West Africa in terms of volume of trade and preference and is also an indication of an overdependence of consumers on a single species. Such overdependencies probably resulted in the overexploitation of this species as some of the traders had reported that much smaller sizes are now being hunted and sold, as compared with previous years. Even though the species breeds prolifically and is reported to be a destructive farm pest, the current rate of exploitation could be more than the reproductive capacity of the populations in the wild could sustain.

The high dependence of consumers on this single species provides justification for the promotion of the grasscutter domestication programme. This is because there is currently adequate demand for the meat of this species and any investment is most likely to pay off readily and contribute enormously to reducing the high market demand on other wild animal species. The preference of grasscutter is followed by Maxwell's duiker (*Cephalophus maxwellii*) (19.9 percent of total preference).

It has been observed that most exploited species were those considered to cause damage to agricultural areas. In fact, all the 11 preferred species, except for the pangolin (*Manis* sp.), were farm pests eating maize, cassava and cocoyam among other crops. Altogether, they constituted more than 80 percent of all the bushmeat sold in the markets and restaurants.

Survey results showed that primates were not a favoured species for human consumption since traditionally people do not prefer them as a protein source. Therefore, the apparent disappearance of the primates in their natural habitats, especially the Miss Waldron's Red Colobus (*Procolobus badius waldronii*), could not be attributed to bushmeat consumption alone, but to other causal factors such as habitat destruction and changes in ecological conditions. (For the full story, please see: http://allafrica.com/stories/200211100069.html) (*Source:* Extracted from Public Agenda (Accra), Ghana, 7 November 2002.)



## GUATEMALA

INFORMAYA is a group of professionals of Maya origin, whose activities concern the development and provision of information and communication technologies to reduce poverty and to protect the environment in Guatemala. INFORMAYA is currently preparing a project on the sustainable management of NWFPs.

The goal of this project is to establish a source of knowledge about the current and potential use of Guatemala's NWFPs, especially the economic, ecological and social importance of dye-producing NWFPs historically used by Maya communities in the production of textiles. This information would be relevant for those communities involved in the production of textiles and would also help to increase the importance of managing NWFPs for the promotion of development and the management of forest resources for biodiversity conservation.

Guatemala is world-renowned for the colour, quality and abundance of its weavings, as is shown by the continued daily use of the regional indigenous costumes. To produce these extraordinary textiles, traditional technologies such as hand-loom, operated only by women, and the foot-

loom, operated by men, are used. Currently these looms are also used to produce decorative household articles such as tablecloths, placemats, rugs and blankets, as well as clothing designed for export.

A Handbook of Natural Dyes of Guatemala will be one of the project's outputs.

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## INDIA

### Applied Environmental Research Foundation

The Applied Environmental Research Foundation (AERF) is a non-governmental organization which was founded in 1994 by research scientists from various fields. AERF believes that environmental conservation and sustainable development will be achieved only through specific research, dissemination of information, awareness generation and, most important, people's participation. The organization has initiated a range of research cum implementation projects, covering traditional conservation systems such as sacred groves, studies of shifting cultivation practices, use of indigenous knowledge in natural resource management and agrobiodiversity conservation research.

Future projects include:

- action research programme to establish an effective network of existing sacred groves for the conservation of biodiversity;
- study on status and trade of some valuable non-timber forest products/plants from the Northwestern Ghats;
- training workshops to generate awareness about indigenous knowledge and biodiversity conservation among the Konyak tribal communities from Mon District, Nagaland, India.

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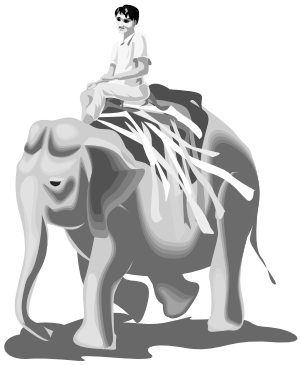
### *Study of nomadic Vaidus, their traditional medicines in and around Pune City and linkage of these practices to the biodiversity of Western Ghats areas*

**Vaidus are a non-pastoral, landless, semi-nomadic migrant group of people who came to western Maharashtra from Hyderabad (Andhra Pradesh) some 50 years ago. They moved on donkeys and lived a nomadic life. From 1960, some Vaidus decided to settle and built more permanent dwellings, to which they periodically return after a spell of three to six months of collecting and selling medicines. Some such semi-permanent settlements are around Pune City, where the Vaidus sell their traditional medicines of plant and animal origin. The Vaidus have genuine knowledge of certain plant and animal origin indigenous medicine.**

**The medicinal commodities sold by Vaidus include various seeds, leaves, fruits, decoctions, ointments, animal teeth, nails, etc. It is important to find out and study the collection sites of these commodities. This study has initiated the process of documentation of traditional livelihood activities of the Vaidus. Serious efforts have been made to prepare an elaborated inventory of Vaidu medicines, their prescriptions, methods of application, preservation and their relationship with existing biodiversity.**



### Scientific harvesting of kullu (*Sterculia urens*) gum

Gum karaya (*Sterculia urens*), popularly known as *kullu* in Madhya Pradesh, is one of the large number of valuable NTFPs found in abundance in the dry deciduous forests of Madhya Pradesh, Maharashtra, Andhra Pradesh, Tamil Nadu and Gujarat. In response to disease or injury to its trunk, the tree exudes a transparent and viscous gum, called *katila* or *kullu,* which is widely used in the pharmaceutical, food and paint industries.

The gum tappers among the forest-dependent population aim to extract the maximum quantity of katila from kullu trees existing naturally in their neighbouring forests. However, the traditional method of gum tapping from kullu is destructive as well as wasteful. It involves inflicting deep and wide wounds by random axe-strikes on the kullu tree trunk. This method not only inflicts irreparable damage (often a deadly blow) to the kullu trees, the gum extracted in this manner is also coloured and impure, thus, fetching a very low price in both national and international markets.

Recognizing the importance of local awareness generation and skill building for the sustainable and non-destructive harvest of kullu gum, the newly established International Centre for Community Forestry (ICCF) at the Indian Institute of Forest Management, Bhopal organized field-level training in scientific gum harvesting techniques in Sheopur Forest Division of Madhya Pradesh, from 3 to 9 April 2002. This field-level training was intended for the gum collectors as well as the frontline staff of the Sheopur

Forest Department. A total of 132 people, including 110 gum collectors from ten different villages and 22 Forest Department staff members were trained in the theory and practice of non-destructive kullu gum harvesting during the six-day course.

Many issues related to the management of NTFPs in general and gum karaya in particular came up for discussion during the course of this training. Forest Department staff shared with the trainers the major constraints to effective forest protection and community-based NTFP management in the area.

It would be necessary to follow up this training with a series of motivational and monitoring visits to the target villages to promote the adoption of scientific gum tapping techniques by the kullu gum collectors. At present, there is no material incentive for the collectors to practice the improved technique, other than the possibility of extracting valuable and Grade I gum from the existing kullu trees throughout their life span. (*Contributed by:* Bharati Joshi.)

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**For further details of this training and/or information on ICCF, please contact:**
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[*Please see under News and Notes for more information on gums and resins.*]

### *Ex situ* conservation of medicinal and aromatic plants in India with special reference to Madhya Pradesh, India

A recent paper embodies the recent trends in *ex situ* cultivation of medicinal and aromatic plants (MAPs) as an alternative to biodiversity conservation and as an additional source of income with special reference to Madhya Pradesh, India. Efforts have been made to highlight the problems encountered in the cultivation of these plants for necessary policy considerations if this emerging sector is to become a financially rewarding and ecologically sustainable one.

The study was sponsored by the Madhya Pradesh Minor Forest Produce Federation as an activity to promote the cultivation of MAPs.

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### Indian villagers to take charge of forests under World Bank programme

The World Bank has launched a programme that seeks to put villagers in some of the poorest areas of southern India in charge of tropical forests where they forage for fuel and food. The Washington, DC-based Bank said that a US$108 million credit programme would encourage tribal groups, migrant grazers and landless communities to take on primary responsibility for managing forests in parts of the state of Andhra Pradesh.

The project, to be implemented in 14 of the state's poorest districts and overseen by the local forestry department, follows a similar programme, launched by the Bank in 1994, which brought Andhra Pradesh officials and forest communities together to manage woodlands. That joint project, which ended in 2000, drew criticism from environmental and conservation campaigners over the stake held by forest communities in relation to officials from the forestry department. The villagers received less than 50 percent of revenues from bamboo trees and tendu leaves (used to make tobacco rolls), despite being promised an equal share from non-timber products.

The six-year project, initiated in 2002, will give villagers more income than they received under the previous programme because it will also include a share of revenue from timber sales. It will start by laying the groundwork for local people to get involved in the management of the four million hectares of forestland through a series of training sessions with villagers, non-governmental organizations and state officials.

The Bank hopes that by giving local communities the knowledge and skills to manage the forests, by maintaining healthy trees and combating illegal practices, such as logging for fuelwood, the programme will not only increase the wealth of local people, but also help to conserve the rich plant and animal life in the areas. Forest officials will supervise the work of the villagers, ensuring that the forests are preserved, the produce marketed and accounts maintained. A series of village committees will eventually be set up to take over sales of forest products and accountancy work. (*Source:* Extracted from RECOFTC E-letter No. 2002.15 of 31 July 2002.)

*Phyllantus emblica*

### Profitable cultivation of *Phyllanthus emblica*

In 1994, Mr Rajendra established Nivee Gardens Nursery in Palladam, Tamil Nadu, an arid region of South India. Over the course of eight years, Nivee Gardens Nursery has become a significant supplier of various fruit and medicinal tree saplings and crops. This nursery currently cultivates *Phyllanthus emblica, Mangifera indica, Tamarindus indica, Psidium guajava, Coco nucifera* and *Manilkara achras* on its 15 acres [6.08 ha], and employs 75 people.

Nivee Gardens Nursery uses innovative grafting techniques and

intercropping systems to produce quality products and generate economic profit. It is estimated that after four years, *Phyllanthus emblica* can generate an average annual profit of Rs 95 000 (approximately US$1 975) per acre [approximately US$800/ha].

Through Nivee Gardens Nursery, Mr Rajendra's objective is to promote dryland development through cultivation of non-timber forest products and other fruit-trees, adopt the latest technology in the market, create national and international awareness of medicinal plant cultivation, and become a global player in the supply of various medicinal herbs and other natural products. (*Contributed by:* Diji Chandrasekharan, Cornell University, USA [e-mail: dc90@cornell.edu].)

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### Cultivation and marketing of medicinal plants

The medicinal plants sector has traditionally occupied an important position in the sociocultural, spiritual and medical arena of rural and tribal lives in India.

The global context suggests several tremendous opportunities in both medical material and expertise for India, a country unrivalled in terms of diversity of medicinal systems and practices, in addition to being a major storehouse of biological diversity with two of the 14 megabiodiversity areas of the world located within its borders. Moreover, medicinal plants are one of the most important components of the non-wood forest products sector, which supplies more than 80 percent of India's net forest annual export earnings.

The nature and dynamics of the domestic trade of medicinal and aromatic plants (MAPs) involves central and regional markets through a number of private dealers and agencies, government or government-controlled corporations and cooperatives all having upstream linkages with numerous local and "road-head" markets, which in turn have myriad intermediaries, small shopkeepers and agents feeding them with primary supplies.

The goal of a recent study was to test the feasibility of introducing medicinal plant cultivation and marketing as a livelihood for farmers in the proposed area. The farmers have a limited set of agricultural skills and are unable to take risks.

The study emphasized the collection of quantitative and qualitative information with the aim of meeting the set of objectives. In order to view the whole picture, institutes working in the field were visited and a literature review was carried out and primary data collected from traditional farmers as well as people in the trade and cultivation of MAPs. Financial and statistical tools were employed to draw conclusions from the data obtained.

On the basis of the crops suggested by experts, certain crops were identified and from them eight MAPs were shortlisted for their technical suitability. These were compared with the traditional crops, and the cultivation of MAPs was found to be a profitable preposition. Applying three criteria, i.e. economic feasibility, market feasibility and environment/resource management feasibility, four medicinal plants were selected to be grown in the proposed area: ashwagandha, senna, isabgol and lemon grass. These plants can effectively utilize waste and fallow lands and can become the source of additional livelihoods. (*Source:* Extracted from the Executive Summary of *Feasibility study for cultivation and marketing of medicinal plants as livelihood for farmers in Harda and Dewas districts of Madhya Pradesh, India*, by A.K. Bhattacharya, Kunal Shekhar and Yogesh Kumar.)

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## INDONESIA

### The alternative approach of community forest management

The non-governmental organization Down to Earth has recently concluded a special report entitled *Forests, people and rights*, which provides very detailed analytical information on the forest situation in Indonesia. The following paragraphs have been extracted from the chapter "Community forest management: the way forward".

According to the study, forest people have been regarded by Indonesia's powerful wood industry and successive governments in Jakarta as an obstacle to the profitable exploitation of the forests and their skills and knowledge were unrecognized, until very recently.

However, community forest management provides an alternative approach which puts forest people at the centre of decision-making and sees them, not as a problem to be dealt with, but as a key part of the solution. In Indonesia, the community forestry movement starts from the premise that the domination of the state, the centralized nature of forest management and the state's refusal to recognize adat (indigenous) rights are the major causes of deforestation and forest degradation.

Community-based natural resource management seeks to guarantee access and control over forest resources for people living in and around forests who depend on them for their economic, social, cultural and spiritual well-being. Forests should be managed to provide intergenerational security and increase the likelihood of sustainability. This is based on three principles:

- The rights and responsibilities over forest resources must be clear, secure and permanent.
- The forests must be properly managed so that there is a flow of benefits and added value.
- Forest resources must be transferred in good condition to ensure their future viability.

Communities wanting to retain, construct or develop community-based management schemes face major challenges: the wider political and economic imperatives of international financial institutions which prioritize revenues from timber; central government policies entrenched in the past; rampant corruption, etc.

Forest people face internal challenges too. Decision-making within traditional indigenous communities may be hierarchical. Women, the poorest members of the community – particularly the landless or low status families – and seasonal forest users may not have a voice in how resources are apportioned. And they also undergo changes: people who practised subsistence forest farming and had little need for cash even a generation ago now want money to pay for clothing, medical care, outboard motors for canoes (and diesel for them), school uniforms and books. Transport and accommodation costs incurred during visits to lobby local and central government officials are becoming a common budget item for forest people.

The forests on which these traditional lifestyles depend have also changed. Large tracts of forest formerly reserved intact as insurance for hard times or as a legacy for future generations have been at best logged over and at worst cleared for plantations. The valuable resins, rattans and forest fruits which used to be traded are becoming scarcer, as are the medicinal plants used by shamans for traditional healing. As the forests disappear, so do the skills and knowledge of indigenous communities.

Indigenous communities are not the only ones living in and around what remains of Indonesia's forests. Migrants from other areas, even other islands – peasant farmers dispossessed by plantations and urbanization, transmigrants and miners – are all laying claim to these lands and resources. Some may have lived there for several generations. Negotiations between all these groups must take place to avoid conflict.

Indonesia's forest people are well aware of the need to adapt their institutions to a changing world and are discussing such issues as identity, sovereignty and legal representation both within their own communities and with others. They are using new opportunities provided by the regional and national indigenous people's alliances (AMA and AMAN) to move these debates forward.

Civil society organizations and a growing number of funding agencies in Indonesia and abroad recognize that consistent support for forest people to develop their own strong, dynamic, inclusive and democratic organizations is vital in order to gain wider support for community-based forest management and effect a shift away from "the timber-mining" regime that has proved to be so disastrous until now. (Article extracted from: *Forests, people and rights*, by Liz Chidley, edited by Carolyn Marr. Down to Earth, International Campaign for Ecological Justice in Indonesia, Special Report, June 2002 [http://dte.gn.apc.org/srfin.htm].) (Source: *WRM Bulletin*, No. 60 in RECOFTC E-letter No. 2002.15, 31 July 2002.)

**Orang Rimba: habitat and resources management for the Kubu in Sumatra**

The "Habitat and Resources Management for the Kubu" project is a cooperation between WARSI (Conservation Information Forum), OD (Operasjon Dagsverk, Norway) and RFN (Rainforest Foundation, Norway). The activities of the project support habitat and resources management for the Orang Rimba (Kubu), an indigenous people in Jambi province.

The total number of Orang Rimba (the name means "people of the forest") recorded is more than 2 500 individuals, most of whom live in the forest. Here, the Orang Rimba have developed a traditional system of forest resources management, based on enrichment and selective enhancement of many tree and plant species. They generally collect non-wood forest products, hunt and practise swidden cultivation.

The entire region in which the Orang Rimba are found was until recently covered by lowland tropical forest. Most of the people still occupy the remaining forested areas; however, they are now increasingly marginalized because of large-scale forest clearance, especially for oil-palm plantations. Resettlement efforts by the government are not compatible with the livelihood pattern of the Orang Rimba, and most of those who take part in resettlement projects leave the settlement once free food and other handouts are ended.

The Orang Rimba need security of access to land and forest resources. Development activities that ignore this requirement are meaningless.

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**Forest people's welfare in decline owing to deforestation**

The Orang Rimba depend fully on the forests inside the Bukit Dua Belas National Park (TNBD); there are more than 20 groups, each comprising between 20 and 40 members. Accompanied by some of his family members, Tumenggung Tarib (Tumenggung is a title of the chief of a group of Orang Rimba) takes care of the group's farm where they grow cassava, their favourite staple food. They gather food from forests, can identify hundreds of kinds of plants and animals and know how to hunt wild animals.

The Orang Rimba respect life: this is reflected in their customs. A woman must

give birth to her baby in a certain location in the forest, which is blessed by the gods. The selection of the location is made by the group shaman, who is also responsible for leading any ritual held by the group. Orang Terang (villagers) are prohibited from attending any of the rituals, Tumenggung Tarib said. Should one of the family members die, the group will "melangun", or move to other locations in the forest. The more important the social position of the deceased, the farther away they move. Unfortunately, they cannot continue to live the nomadic lifestyle and move as far away as they need. Deforestation has decreased the 60 500 ha of the TNBD size significantly, which reportedly has lost 30 percent of its areas.

According to anthropologist Robert Aritonang of WARSI, a non-governmental organization (NGO) managing forests and its indigenous people, deforestation in the area started in the 1980s. At the time, the government cleared thousands of hectares of forests within months for transmigration sites.

The Orang Rimba chose to go farther inside the forest although they were disappointed by the reduction of their homeland. But, the deforestation did not stop here. Currently, illegal logging continuously reduces their forests. The Orang Rimba occasionally go to nearby villages to sell rattan or to buy cigarettes, coffee, sugar, biscuits or clothes.

Aritonang asserted that the Orang Rimba must be prepared to start a new way of life because of the alarming level of deforestation in the national park. The World Bank has predicted that the forests in Sumatra island will vanish by 2005.

Despite knowing that their forests will possibly be gone in the near future, the Orang Rimba still expect to continue to live in their own way; those who have continuously made contact with villagers prefer to live in the forests. "I know how Orang Terang live. Villages are too noisy and I am unable to breathe. The forest is my home. Here, it is quiet and I can breathe fresh air," said Tumenggung Tarib, who had visited Jakarta to receive an award from Kehati, an environment NGO.

Orang Rimba, sidelined for years by the government, have voiced their simple yet important hope: to keep their forests green. They are a minority but they do not deserve to be forgotten. (*Source: The Jakarta Post*, 19 November 2002.)

**The Indonesian Nature Conservation newsLetter**

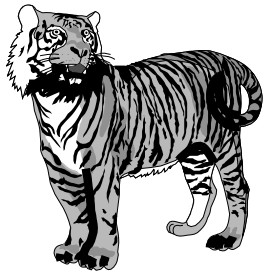
The Indonesian Nature Conservation newsLetter (INCL) is a non-profit Internet e-mail list. Messages appear in digest format and are sent out once a week in both English and Bahasa Indonesia (English and Bahasa Indonesia editions differ and are not just translations). There are about 1 500 members. (Further information may be found on the Web [www.pili.or.id] *or* [www.nature-conservation.or.id/].)

**To join, please send an e-mail to: Muchamad Muchtar [ngo-move@indo.net.id] *or* Ed Colijn [edcolijn@bart.nl].**

**Non-timber forest products and trade in eastern Borneo**

In a recent article *Non-timber forest products and trade in eastern Borneo*, by B. Sellato, a broad range of non-timber forest products of plant and animal origin collected from the Borneo rain forest and subsequently traded are presented. These products include resins, latex, rattans and bird's-nests. A recent article discussed their local and regional uses and whether they are or have been targeted for local or international markets. The author also presents – for the northern part of the Indonesian province of East Kalimantan – a history of trade in these products based on various written sources (Dutch colonial archives, official Indonesian statistics, local scholarly texts) and oral sources (interviews with nomadic Punan people, Dayak swidden farmers, Malays in the coastal ports, Chinese and Arab traders, intermediaries disseminating inland products on international markets). This historical reconstruction suggests that, despite the fact that some of these products have been traded on world markets for almost two millennia, their systematic and unsustainable exploitation only began in the seventeenth century.

Since then, the products have been extracted along a front that has gradually progressed from the coastal regions via the rivers towards interior parts of the island. This exploitation ended in the 1990s, with almost complete depletion of these resources. The local forest communities (Dayak and Punan) are neither wise conservationists nor primitive destroyers of the forest, but simply economic stakeholders. Their sensible, pragmatic strategies have enabled their long-term survival in local forests under any circumstances with respect to world market demand. (*Source: Bois et forêts des tropiques*, 271(1), 2002.)



## KENYA

**Plants for Life**

The Kenya Forestry Research Institute (KEFRI) was established in June 1986 in order to undertake forestry research and development on behalf of the government. It has a clear mission to carry out user-oriented multidisciplinary research to generate technologies and disseminate them to enhance development, management and conservation of forests, trees and allied resources in order to contribute to improving the welfare of the people of Kenya. KEFRI's research and development activities are implemented through four core research programmes: Farm Forestry, Natural Forests, Dryland Forestry and Forest Plantations.

Falling under the Dryland Forestry programme is the Non-wood Forest Product subprogramme whose priority

research areas include gathering information to improve the utilization of non-wood forest resources as well as documenting the indigenous knowledge attached to them. These resources include food plants, gums and resins, tans and dyes, essential oils, fibres and medicinal extracts – products representing renewable resources that could be sustainably exploited for profit and still conserve most of the biological diversity and ecosystem functions of the forests. Medicinal and wild food plants are important non-wood forest products in improving people's food security and health conditions.

In 1990, a project was initiated under the Non-wood Forest Products subprogramme for the purpose of conducting field research on nutritional (fruits, vegetables, etc.) and medicinal plants in relation to their status and conservation perspectives. Dealing with food and medicinal plants, the essence of life, the project was named Plants for Life. Its objectives are gathering information to improve the conservation, sustainable utilization and development of these resources.

In order to promote the results of its objectives, Plants for Life has initiated several extension and promotional activities. These involve setting up demonstration botanic gardens on the farms of selected model traditional medical practitioners, supplying seeds and seedlings of medicinal and nutritional (fruits) plants to herbalists and small-scale farmers and assisting them to start their own medicinal plant groves. Local communities are thus directly involved in the Plants for Life database, first as sources of information on medicinal and nutritional resources and later as conservators and promoters of the same in their communities.

The Plants for Life project undertakes the following activities:

- ethnobotanical surveys in order to reveal medicinal and nutritional plants used by the local communities, mode of harvesting and any other relevant information;
- scientific identification and classification of medicinal and nutritional plants accompanied by a preserved herbarium voucher specimen;
- raising seedlings of the popular and more frequently used species and developing suitable propagation techniques for the rare and difficult ones;
- establishing a demonstration botanical herbal garden at KEFRI headquarters, Muguga and plant groves at different ecological zones (Gede, Ramogi, Kibwezi, Kitui);
- supplying seedlings and seeds and nursery equipment to selected traditional medical practitioners/ herbalists and interested small-scale farmers and assisting them to establish their own herbal gardens/groves on their own farms;
- building up a database with the necessary basic information required for the conservation, sustainable use and management of medicinal and nutritional plants.

Systematic ethnobotanical surveys on the indigenous medicinal and food plants have been conducted in Siaya, Kitui and Kajiado districts. Hot-spot surveys to capture important information have also been conducted in South Nyanza, Machakos, Kakamega, Isiolo and Baringo districts. At the present stage, the Plants for Life database has documented information on 960 medicinal and nutritional species.

A total of 14 traditional medical practitioners and interested small-scale farmers collaborating with Plants for Life have benefited from the project by establishing their own medicinal plant groves on their farms.

The future of herbal medicine and its practice in Kenya will depend on the successful introduction of medicinal plants into the prevailing agriculture and agroforestry systems. To save medicinal plants for sustainable use, non-destructive harvesting methods need to be devised. In particular, research should be directed at the efficacy of leaves or fruits in cases where roots and barks are used. Trade in medicinal plants should always be subject to a permit for specified variable quantities. (*Source: Medicinal plants: the role of the Kenya Forestry Research Institute (KEFRI) Plants for Life projects in conservation, management and development*, cited in the Phytomedica List, 25 September 2002.)

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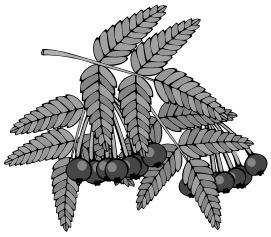
**Elders to protect Arabuko-Sokoke Forest**

Village elders in Malindi and Kilifi districts have formed an association to prevent the destruction of the world-famous Arabuko-Sokoke Forest. Elders from the two districts resolved to form the association as a matter of urgency as the forest was facing extinction. (For more information, please see: http://allafrica.com/stories/200211080095.html) (*Source: The East African Standard (Nairobi)*, Kenya, 7 November 2002.)



## MALI

**Groups use – and conserve – forest bounty**

Communities in the Kita district in southwestern Mali are selling wood, honey and other products from local forests to increase their earnings while improving forest management to ensure that future generations can enjoy the bounty.

A project supported by the United Nations Development Programme (UNDP) has helped set up more than 90 rural groups to manage marketing of wood from the forests. The groups cooperate closely with the Ministry of Rural Development on the sustainable use of forest products. These efforts have helped put more than 110 000 ha of forest

under management and set up seven protected forest areas. The project also aided 15 villages in setting up land management plans.

The International Labour Organization is a partner in the initiative, along with the Ministry of Rural Development. The Governments of Mali and Norway and UNDP have provided US$1.7 million for the project, which began four years ago.

Through the initiative, more than 100 women's organizations earn money by producing soap and charcoal, beekeeping, farming, and marketing shea nuts which are used to make shea butter, a cosmetic product. The proceeds have helped finance schools and health centres and provided resources for the savings and credit association that supports the activities of the forest management federation and women's organizations.

The project supports these activities through training – conducted in Bambara, the local language – in management, forestry, sustainable charcoal production and soap making. The project has also provided training for elected officials from local communities and the district in public administration to promote decentralization and natural resources management. (*Source: UNDP Newsfront*, 24 April 2002.)

## MÉXICO

**El mercado de plantas medicinales en México: situación actual y perspectivas de desarrollo**

En México se tiene estimado que existen cerca 30 000 especies de plantas de las cuales en 1997 el Instituto Nacional Indigenista documentó 3 000 con usos medicinales, esto es el 10 por ciento del total de la riqueza florística del país.

Estudios realizados por Betancourt y Gutiérrez reportan que de manera cotidiana se comercializan frescas o deshidratadas cerca de 250 especies provenientes principalmente de las zonas centro y sur del país.

Actualmente ninguno de las grandes empresas mayoristas del país maneja la totalidad de estas especies, algunas incluso se dedican principalmente a comercializar plantas nacionales y otras tienen preferencia por las especies extranjeras.

Este trabajo tiene como antecedente inmediato al proyecto de Mercados verdes herbolarios, que fue apoyado en 1999 por el Fondo de América del Norte para la Cooperación Ambiental (FANCA) y que tuvo como objetivo principal llevar a cabo la capacitación de campesinos, principalmente mujeres, de la región centro-sur de México en cuanto a la conservación, uso, manejo sustentable, cultivo orgánico, procesamiento y comercio justo de plantas medicinales.

En México, a excepción del valioso trabajo realizado entre 1987 y 1995 por Paul Hersch Martínez (1996) sobre la extracción no planificada y el mercadeo de la flora medicinal silvestre en el sudoeste del Estado de Puebla, son relativamente escasas las investigaciones que incorporan elementos de comercialización de los recursos herbolarios y de sus productos derivados.

La recolección y venta de plantas medicinales en México comparte características socioeconómicas, culturales y ambientales con lo que sucede en otros países latinoamericanos:

- los patrones de consumo de acuerdo con la farmacoterapia dominante;
- el consumo no industrial del recurso principalmente en comunidades rurales e indígenas;
- el excesivo intermediarismo en la comercialización de las plantas medicinales y sus productos derivados;
- los recolectores son principalmente mujeres campesinas de zonas marginadas;
- el incremento sustantivo de la recolección en la época de estiaje por ser una de las pocas actividades económicas que permite ingresos a la familia;
- más del 90 por ciento de las plantas medicinales que se consumen provienen de poblaciones silvestres sin algún tipo de manejo sustentable;
- los principales actores sociales que intervienen en la cadena de comercialización son: el recolector, el acopiador local, el acopiador regional, el mayorista y el detallista;
- la recolección excesiva de algunas especies con alta demanda comercial ha provocado una fuerte disminución de sus poblaciones llegando incluso a considerarse como amenazadas y en peligro de extinción;
- la carencia de un programa nacional de plantas medicinales que integre efectivamente los distintos aspectos relacionados con estos recursos: etnobotánica, botánica, ecología, fitoquímica, farmacología, toxicología, cultivo, procesamiento, control de calidad, establecimiento de microempresas, comercialización y promoción;
- el incremento en la adulteración o sustitución de plantas completas o de sus partes así como de sus productos fitofarmacéuticos.

Este trabajo, como se mencionó al inicio, comenzó en 1999 como parte del Programa Nacional de Plantas Medicinales (PRONAPLAMED) que llevan a cabo los miembros de la Red Mexicana de Plantas Medicinales y Aromáticas S.C.L. (REDMEXPLAM), en la que participan campesinos, recolectores, médicos tradicionales, amas de casa, estudiantes, industrializadores, promotores y comercializadores principalmente del centro y sur del país.

Es importante señalar que el procesamiento de las especies nativas la realizan principalmente empresarios mexicanos; las transnacionales procesan y comercializan preferentemente especies exóticas. Las empresas mexicanas atienden generalmente enfermedades comunes de la mayoría de la población, mientras que las empresas extranjeras atienden principalmente enfermedades frecuentes en la clase media y zonas urbanas.

El consumo de plantas medicinales en comunidades indígenas y personas de niveles socioeconómicos bajos se ha mantenido a pesar de persecuciones, hostigamientos, prohibiciones y desinterés de los distintos niveles del gobierno.

# COUNTRY COMPASS

A la fecha lo que más interesa a las empresas extranjeras es adquirir en el país la materia prima vegetal, poniendo generalmente obstáculos para la introducción de productos herbolarios mexicanos ya elaborados. Los productos fitofarmacéuticos nacionales tienen muchas barreras para su comercialización fuera del país tanto por el proteccionismo local como por la poca competitividad y la carencia de estímulos financieros gubernamentales.

Especies de procedencia nacional de particular interés fuera del país en estos momentos son las siguientes: Damiana de California (*Turnera diffusa* var. *aphrodisiaca*), Cuachalalate (*Amphypteringium adstringens*), Zarzaparrilla (*Smilax* spp.), Zacatechichi (*Calea zacatechichi*), Hierba de la pastora (*Salvia divinorum*), Raíz de Jalapa (*Ipomoea purga*), Árnica mexicana (*Heterotheca inuloides*), Flor de tila, tila estrella (*Tillia, Ternstroemia*), Flores de Azahar (*Citrus* spp.), Valeriana mexicana (*Valeriana edulis* ssp. *procera*), Flores de manzanilla (*Matricaria recurita*), Albahaca (*Ocimum basilicum*) y Orégano mexicano (*Lippia graveolens*).

Los países actualmente con mayor demanda de materias primas y extractos de plantas medicinales nacionales que BANCOMEXT y REDMEXPLAM tienen registrados son: Alemania, Estados Unidos (mercado hispano), España, Francia, el Japón, Holanda, Suiza e Italia.

Las principales plantas medicinales que se importan en grandes volúmenes a nuestro país a través de agentes extranjeros y empresas nacionales son: Anís estrella (*Illicium verum*), Hoja sen (*Senna angustifolia*), Boldo (*Peumus boldus*), Algas pardas (*Fucus vesiculosus*), Fenogreco, alholva (*Trigonella foenum-graecum*), Ginko (*Ginkgo biloba*), Ginseng (*Panax* spp.) y Equinacea (*Echinacea purpurea, E. angustifolia*).

Los países más importantes de donde provienen estas importaciones son: China, Alemania, Viet Nam, Chile, Guatemala y Estados Unidos.

Entre las adulteraciones más frecuentes de las plantas medicinales que se consumen o exportan de México se señalan:

| **Especie original** | **Especie con la que se adultera** |
|---|---|
| *Capsella bursa-pastoris* | *Lepidium virginicum* |
| *Amphypteringium adstringens* | *Cyrtocarpa* spp., *Quercus* spp., *Alnus* |
| *Taxodium mucronatum* | *Cupressus* spp. |
| *Turnera diffusa* | *Turnera ulmifolia* |
| *Smilax* spp. | *Pteridium aquilinum* |
| *Salvia officinalis* | *Buddleia perfoliata* |

Especies nativas que se exportan en grandes cantidades, principalmente a Europa y América del Norte, para adulterar especies locales con alta demanda internacional:

| **Especie original** | **Especie con la que se adultera** |
|---|---|
| *Arnica montana* | *Heterotheca inuloides* |
| *Valeriana officinalis* | *Valeriana edulis* ssp. *procera* |

Factores importantes que determinan el incremento del consumo interno de plantas medicinales, aromáticas y sus derivados:

- crisis socioeconómica;
- crisis del sector salud: deterioro de la calidad de los servicios médicos;
- búsqueda de la automedicación;
- movimientos sociales por el «regreso a la naturaleza»;
- incremento desmesurado de los precios de medicamentos de patente;
- desconfianza de sectores de la población por los medicamentos alopáticos.

Algunas características del mercado nacional de plantas medicinales, aromáticas y sus productos derivados:

- la situación marginal de los recolectores de plantas medicinales en la cadena de comercialización de plantas medicinales;
- el empresario mayorista y minorista tiene una alta tasa de ganancia;
- las plantas medicinales que se cultivan son principalmente especies exóticas, tales como manzanilla, hierbabuena, té limón, tomillo, albahaca, romero, etc.; y se emplean generalmente como suplementos alimenticios o bebidas, como condimento y en menor medida como medicinales;
- más del 85 por ciento de las especies que se comercializan en México provienen de la recolección silvestre, sin contar con programas de manejo y sin ningún control o seguimiento de las dependencias gubernamentales responsables;
- las instituciones de los gobiernos federales no cuentan con la mínima información sobre la recolección silvestre de plantas medicinales;
- el predominio de la recolección sobre el cultivo es expresión de la marginación o el desprecio que se ha tenido de la medicina tradicional y específicamente de la herbolaria;
- la procedencia de materias primas de la recolección silvestre no necesariamente corresponde a precios bajos para el consumidor pero conlleva, entre otras cosas, mayor heterogeneidad y disponibilidad, y peligro de adulteraciones, contaminaciones y baja calidad;
- el incremento en la demanda de plantas medicinales provoca entre otras cosas la pérdida del manejo sustentable tradicional que hacían los médicos tradicionales, los recolectores y comunidades indígenas. Para la nueva generación de recolectores y/o cultivadores no importan la hora del día, la época del año, las partes usadas, la forma de secado, las técnicas de recolección, la conservación de individuos y poblaciones, etc.;
- la actividad de recolección involucra a toda la familia pero principalmente a mujeres y niños;
- el 75 por ciento de las plantas medicinales que se comercializan en

# COUNTRY COMPASS

México provienen de comunidades indígenas y rurales de la región centro-sur;
- la adulteración o sustitución de las materias primas se ha incrementado debido a los precios altos de algunas especies, el incremento de la demanda y la escasez o disminución de poblaciones silvestres, etc.

**Para más información, dirigirse a: Miguel Ángel Gutiérrez Domínguez y Yolanda Betancourt Aguilar, Jardín Botánico Universitario, Secretaría de Investigación Científica, Universidad Autónoma de Tlaxcala, Red Mexicana de Plantas Medicinales y Aromáticas S.C.L., Apartado Postal 332, C.P. 90000 Tlaxcala, Tlax, México.**
**Correo electrónico: hierbas@prodigy.net.mx; www.geocities.com/redmexicana**

## MYANMAR

**NWFPs in Paukkhaung Model Forest**

The forests of Myanmar are rich in a wide range of NWFPs. It is well accepted that NWFPs, if sustainably managed, are important potential sources of revenue. About 75 percent of the total population in rural areas depend on forests to meet their social and economic needs. Most of the NWFPs are essential for domestic consumption as well as for cash income. As the population increases, so does the demand for NWFPs. The western parts of the Bago Yoma forests lying in Paukkhaung Model Forest are abundant in NWFPs, which fall into six categories:
- fibre products, including bamboo, grasses and plant fibres;
- food products, including bamboo shoots, mushrooms and *Zizyphus jujuba*. Wild honey is seasonally collected for household use;
- medicinal and cosmetic products;
- extractive products: the most common oleoresin is found in *thitsi* (*Melanorrhoea usitata*), the product from which is used for caulking boats, as a non-fouling paint, as a coating upon surfaces to be gilded and, predominantly, for Burmese lacquer work;
- animal products other than food, including honey and beeswax, and *pwenyet* a dammar [resin] made by a small stingless bee (*Melipona* sp.) which is collected and used for caulking boats;
- miscellaneous products: leaves and thatch used for roofing and walls of buildings, and various kinds of orchids.

(*Source: Model Forest Approach News*, April 2002.)

**For more information, please contact: Regional Model Forest Project (GCP/RAS/177/JPN), FAO Regional Office for Asia and the Pacific, 39 Phra Atit Road, Bangkok, Thailand.**
**Fax: +66 2 6974445;**
**e-mail: hontat.tang@fao.org**

## NAMIBIA

**Integrated Rural Development and Nature Conservation (IRDNC)**

IRDNC is a Namibian non-governmental organization which seeks to link conservation and the sustainable use of wildlife and other natural resources to the social and economic development of rural communities in Namibia. It operates as a field-based project-implementing agency in the Kunene and Caprivi regions. It also undertakes non-profit socio-ecological consultancies throughout southern Africa.

Wildlife has always been one of Africa's most valuable natural resources. In the past, both wild animals and wild plants made a significant contribution to the traditional economies of indigenous African people and played an important part in their cultural heritage.

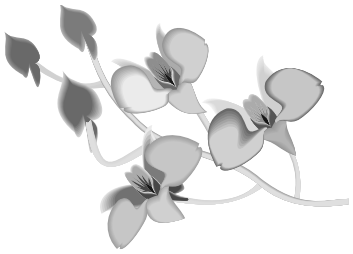
The enforcement of élitist and protectionist nature conservation policies during the colonial era resulted in the alienation of most African people from wildlife and often created hostility towards the conservation authorities. Eurocentric education and values, which until recently did not recognize wild animals as a valuable economic resource, also contributed to a general belief that wildlife conservation was in opposition to rural development in communal areas.

In spite of this, wildlife-based enterprises have become major generators of foreign exchange in many African countries by annually attracting large numbers of tourists wishing to hunt big game or simply see wild animals in their natural habitats. However, because of past discriminatory legislation and practices, the rural people who live with the wild animals on communal land have received little or no direct benefit from the tourists who visit their areas.

IRDNC therefore believes that nature conservation and tourism policies, legislation and practices must be democratized to ensure a future for wild animals both outside and inside proclaimed national parks and game reserves. Environmental awareness and the importance of wildlife conservation are an essential part of all Namibians' education. Communal area residents have the capacity to participate actively in wildlife conservation and the ecotourism industry. If rural communities share in the management of their wildlife resources and gain direct financial benefits from ecotourism and sport hunting, Namibia's communal areas can become important tourist destinations and make a major contribution to the country's economic development.

IRDNC's goal is sustainable social, economic and ecological development in communal areas of Namibia.

**For more information, please contact: IRDNC, Box 9681, Windhoek, Namibia.**
**Fax: +264 61 228530.**



## NEPAL

**Small grants make big gains for local culture and environment**

Two small-scale projects, one to protect a forest with temple ruins and the other to enable solar energy use, are making a big impact in Nepal. Both rely on community action and are supported by the United Nations Development Programme (UNDP) Global Environment Facility (GEF) Small Grants Programme, which provides up to US$50 000 for projects which conserve local biodiversity and improve livelihoods.

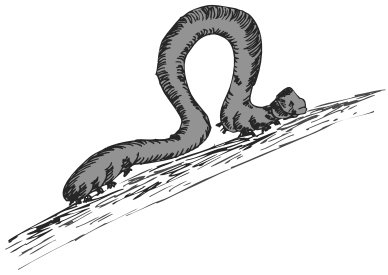
In Kankrebihar in Surkhet district in western Nepal, villagers protect unusual temple ruins and conserve the surrounding forest, home to many animal and plant species. The initiative, begun two years ago, helped set up 17 community organizations to mobilize resources for conservation and development activities. According to the UNDP, the project has helped bring the magnificent ruins and the need to preserve them to national attention. They are unique in Nepal and, if well restored, could become an important tourist site.

The community groups prepare their own plans and decide what activities are needed for their conservation and development projects. Local organizations now protect 167 ha of forest and have established a museum devoted to Tharu culture, the heritage of one of Nepal's largest ethnic groups.

There are 18 projects supported by the UNDP GEF Small Grants Programme under way in different areas of Nepal, demonstrating how communities can find a balance between economic development and environmental conservation. (*Source: Newsfront*, 27 November 2002.)

**Nepalese Forester e-group**

The Nepalese Forester e-group is run on a voluntary basis for discussion and information sharing on various issues concerning the forestry sector of Nepal. (To subscribe to the group send a blank message to: nepaleseforesters-subscribe@yahoogroups.com)



## NIGERIA

**Forest insects and food importance in Owo, Ondo State**

In Nigeria and many other tropical countries protein energy malnutrition is endemic owing to a deficiency in the diet. The low-income rural dwellers who constitute the majority of the people in particular are at risk. This includes the people of Owo in Owo Local Government Area (LGA).

The problem of food inadequacy and nutrition imbalance in Nigeria, especially in Owo LGA, is not the dearth of food resources but that of the use and appreciation of food diversities provided by nature. The colonial influence and unstable government policies have contributed to the narrowing of the food resources base of the nation to a few grains, maize, beans, cassava and yams.

However, for centuries the people of Owo in Ondo State have depended on forest insects to supply part of the animal proteins essential to maintain a balanced diet. Insects are a group of non-conventional sources of cheap protein. The population of insects has been estimated at between 2 million and 80 million worldwide out of which 2 000 have been recorded as edible in Nigeria where there are about 20 000 species of insects. The insects used as traditional food and sources of protein in Owo are summarized in the Table below, which is based on a survey carried out in February 2001 in the study area.

**Insects and their uses in Owo Local Government Area**

| Local name (OWO) | Common name | Scientific name | Habitats | Edible part | Uses |
|---|---|---|---|---|---|
| Ugo | Palm weevil | *Rhyncoporus phonenicis* | Oil and coconut palm | Adult | Food (snacks) |
| Ufau | Palm worm | *Rhyncoporus phonenicis* | Oil and coconut palm stem (dead) | Larvae | Food (snacks) |
| Oguduma | Night beetle | *Dynastes hercules* | Forest soils | Adult | Food (snacks) |
| Oyin | Honey bee | *Apis mellifera* | Forest trees | Beeswax | Food (snacks), medicines |
| Olu osunsun | Queen termite | *Macroterines* spp. | Dead wood, termitarium | Adult grubs | Food (snacks), medicines |
| Osunsun | Winged termite | *Macroterines* spp. | Termitarium | Adult | Food (snacks), medicines |
| Iwunku | Caterpillar worm | *Marca testulatis* | Trees, e.g. obeche | Larvae | Food and cloth weaving |
| Akuta or elete | Grasshopper | *Zonocerus variegates* | Forest lands/ farms | Adult | Food and medicines |
| Ure | Cricket | *Gryllotalpa africana* | Soils, burrows | Adult | Food or medicines |

(*Source:* Field surveys.)

This report has shown that beyond timber, the forest provides non-timber products essential for human survival. It is suggested that forest policies in Ondo State and Nigeria should be holistic enough to cater for all forest resources, both timber and non-timber, especially edible forest insects.

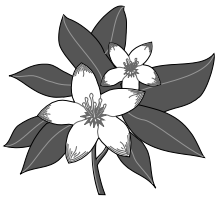
**For more information, please contact: M.F. Adekunle (Lecturer/Researcher) *or* S.A. Oluwalana (Associate Professor), Department of Forestry and Wildlife Management, University of Agriculture, PMB 2240, Abeokuta, Nigeria.**
**E-mail: adekunle@unaab.edu.ng**

**Borno signs agreement with the Sudan on gum arabic**

The Borno State government (Nigeria) has signed a partnership agreement with the Republic of the Sudan, as part of the efforts to boost gum arabic production. Borno State governor, Alhaji Mala Kachallah, said that the state government has set aside N 20 million for the project, adding that the plantation will cover an area of 48 km$^2$ in all the 27 local government areas. In addition, he revealed that the state will distribute standard gum arabic seedlings to farmers in all the producing areas of the state at no cost.

Kachallah explained that the venture demonstrated the government's intention to be the best gum arabic seedling producer in the world; to date, the state was only second to the Sudan in the production of gum arabic seedlings. Under the ongoing plan, the governor explained, about 34 million seedlings would be raised and distributed annually until the target of 40 million seedlings was realized.

In the first phase of the programme, about 8 km$^2$ of land would be cultivated. The programme aimed at creating job opportunities for the unemployed youth, and the gum arabic plantation would help in the fight against desertification, because its roots would stabilize the soil. (http://allafrica.com/stories/200211110862.html) (S*ource: Daily Trust (Abuja)*, Nigeria, 11 November 2002.)



**Gum arabic**

JIGAWA Gum Arabic Processing Company has raised one million gum arabic seedlings as part of its long-term development plan. Its general manager, Alhaji Hamza Turabu, said that the seedlings were obtained from five nurseries located at Maigama, Sule Tankarkat, Garki, Dansobe and Andaza. Two other nurseries, he said, would be opened at Balango and Kirikasanma. With appropriate backing from the state government, the company had the potential to raise new plantations amounting to 1 000 ha per year. The company, which started operations in January 2002, was already involved in the management of the 750 ha of gum arabic in the state.

Turabu said some 170 tonnes of the commodity, valued at N 17 million, had been sold to companies in the United States since the start of company operations. JIGAWA would install machinery for the gum arabic laboratory at Maigatari by the end of December "to ensure the processing of Grade 1 gum arabic required in the international market", he said. The company, in conjunction with experts from the United States, had trained 60 gum arabic farmers on modern techniques of managing gum arabic plantations and marketing options available in the international market.

A mass mobilization campaign had commenced to sensitize farmers to embrace the project "because of its high economic value". Gum arabic attracts N 100 000/t in the market and each tree has a maturation period of five years. It can be exploited thereafter for up to 25 years. Turabu advised the federal and state governments to focus on the planting of gum arabic to check erosion and desertification. (http://allafrica.com/ stories/ 200211270016.html) (*Source: Vanguard (Lagos)*, Nigeria, 26 November 2002.)

## PORTUGAL

**Botanical Museum – Instituto Politécnico de Beja/Escola Superior Agrária de Beja (Portugal)**

The Botanical Museum is located at Escola Superior Agrária/Instituto Politécnico de Beja (Portugal), a polytechnic institution devoted to research and teaching. It organizes temporary exhibitions of items from the collections of economic botany of the Department of Environmental Sciences. These collections began to be assembled in 1996 and since then they have been enriched with items donated by private enterprises and collected in fieldwork.

The department's staff has given several lectures and short courses on economic botany and has opened a museum to maintain a display of exotic and local items, thus raising public awareness of the conservation of traditional plant crafts and knowledge.

The museum displays the items and organizes the collections using modern techniques, but its basic philosophy takes its inspiration from the Museum of Economic Botany which opened in the Royal Botanic Gardens at Kew, United Kingdom, in 1847, for economic and educational purposes.

Since 1998 several economic botany courses have been held in Escola Superior Agrária de Beja, allowing the local community to interact with the museum collections and information. The museum has organized three thematic exhibitions: Vegetable Gums and Resins (1999); Aromatic and Medicinal Plants in Ancient Egypt (2000); and Discreet Treasures (2002), and promotes ethnobotany research with undergraduate students from local schools.

The collections contain about 1 700 items (2002), from raw materials to manufactured objects. They include very fine samples of exotic spices, plant fibres, plant dyes, gums and resins, medicinal and aromatic plants, among many other categories. (*Contributed by:* Luís Mendonça de Carvalho and Francisca Maria Fernandes.)

**For more information, please contact: Luís Mendonça de Carvalho, Escola Superior Agrária de Beja; *or* Francisca Maria Fernandes, Escola Superior de Educação de Beja, Campus do Instituto Politécnico de Beja, Museu Botânico, Rua Pedro Soares, 7800 Beja, Portugal.**
**Fax: +351 284 388207;**
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**www.esab.ipbeja.pt/museu/index.htm**

## RUSSIAN FEDERATION

**Forest Club of Russian non-governmental organizations (NGOs)**

The Russian NGOs' Forest Club is an informal working group consisting of representatives from the largest NGOs working actively for Russian forest conservation. The club also publishes a Forest Bulletin, copies of which are available on their Web site: www.forest.ru/eng/bulletin/.

**Vast, wild forests in the Russian Far East protected in historic conservation measure**

In a historic conservation measure, six areas of wild forestland in the Russian Far East totalling 690 000 ha were designated as protected areas in June 2002. These areas are now off-limits to all major industrial activity, with some of the land designated as "areas of traditional use" for the indigenous Evenk people. All of the protected areas are located in the vast Amur River watershed in the Russian Far East. The area hosts some of the most pristine forests and watersheds in the world.

It was the culmination of years of advocacy by the local organization Amur Socio-Ecological Union (SEU), with assistance from the non-profit organization Pacific Environment, which is based in Oakland, United States, as well as the Russian Far East branch of the World Wide Fund for Nature. Of the six areas, five are wildlife refuges that allow a limited amount of human influence while protecting large habitat areas for flora and fauna. One area was designated a natural monument, which protects a particular species in a small area. In this case, the natural monument protects Siberian pine forests. This designation is the single largest in the history of the Amur region and one of the largest in the world. Local activists claim this designation is the culmination of two hard years of expeditions, mapping, public education and advocacy.

The Amur river begins in the Russian Far East, flows along the Russian/Chinese border, then through the Russian Far East, and empties into the Sea of Okhotsk. Flowing over 2 700 miles, it is considered one of the world's ten great rivers. It winds unencumbered by dams through a wide diversity of landscape, including desert, steppe and temperate forests. The Amur region in the Russian Far East is home to a wealth of the Russian Federation's biodiversity. (*Source:* RECOFTC E-letter 2002.13, 1 July 2002.)

## SOUTH AFRICA

**The first legal harvesters of protected medicinal plants**

There has been considerable growth in the medicinal plant industry in South Africa over the past few years. Large urban markets (e.g. Durban and Johannesburg) have developed for trade in traditionally used medicinal plants and products. This shift from subsistence use to commercial trade of medicinal plants has led to an increased intensity and frequency of medicinal plant harvesting from wild habitats. Cultivation of medicinal plants is minimal in South Africa. Consequently, certain popularly traded species have become overexploited and are now rare or extinct in the wild (e.g. *Siphonochilus aethiopicus, Warburgia salutaris*). This has resulted in the forced use of alternative species and a geographical shift in the harvesting pressure to previously unexploited areas.

The barks of many different forest and woodland tree species are used, although a relatively small number are in high demand and intensively used. Intense and frequent harvesting of bark from species with a high market demand often results in ring-barking of trees. The trees subsequently die, and the species become rarer over time. This practice is obviously unsustainable and will almost certainly result in the extinction of many forest and woodland tree species. As a result, many of them have become protected under the laws governing the harvesting of medicinal and other plant material in KwaZulu-Natal. These are contained in Chapter 8 of the KwaZulu-Natal Nature Conservation Act [No. 9 of 1997].

In order to address the growing need for natural forest areas to provide socio-economic benefits to surrounding communities, new national legislation (National Forest Act No. 84 of 1998) has directed the management of these areas towards a participatory approach. The "Commercial Products from the Wild Project" set the basis for a participatory forest management system in uMzimkulu district by establishing a bark harvesters' association (Sizamimphilo). This association is a legal entity that can interact with the state forestry department responsible for the management of the forests in the area. Several institutional options were considered before an association was selected as the appropriate legal vehicle. The administrative requirements of trusts and cooperatives were found to be too onerous for the harvesters, most of whom only have basic literacy and educational backgrounds.

A core group of bark harvesters from uMzimkulu district selling their products in Durban herb market were approached at the market end to help to solve the problem of uncontrolled bark harvesting. The harvesters were largely willing to participate in discussions around a solution. This was because the harvesters,

mostly women living in uMzimkulu district, depend almost entirely on bark harvesting and trade to sustain their livelihoods. The harvesters were aware that their operations were illegal but, given that they did not have access to other economic opportunities, they continued to struggle against this conflicting and risky system of earning a living. They were therefore open to any solution that would resolve this conflict and allow them to earn a living legally. The primary challenge faced by the core group of harvesters from uMzimkulu district was to recruit a critical mass of harvesters from the area to join in discussions, because an exercise in participatory sustainable resource utilization required that the majority of harvesters, traders and suppliers from the target district be involved in a joint natural resource management system.

In all meetings, state resource managers (Department of Water Affairs and Forestry [DWAF]) were present to provide for open discussions on mutual problems, to shorten administrative procedures and to empower both groups to come to a common understanding of the problems involved. A first joint meeting was held at Durban herb market to clarify the intentions and objectives. A second meeting was held at the Nzimankulu forest to identify and discuss the problems in the forest, to discuss alternatives and better harvesting techniques, and to assist the harvesters to form an association through which an agreement could be negotiated with DWAF. Additional follow-up meetings were held, both at the market and in the forest, to maintain regular communication.

With the assistance of an external facilitator, a medicinal plant harvesters' association, Sizamimphilo Association, was eventually formalized and a constitution developed. The members of Sizamimphilo participated directly in drafting the constitution. The association agreed on the following rules for sustainable resource use:

- Sustainable resource harvesting practices to be implemented in the forests should contribute to the recovery and conservation of the forests.
- Bark harvesters should be able to continue with harvesting the bark resources with improved operating conditions, reduced effort and costs, minimized resource harvesting impacts, and better opportunities for the development of viable, productive small businesses.
- Rules for controlling resource harvesting must be simple, practical and easy to manage, and cause minimal interference with effective harvesting.
- A constructive, collaborative relationship between DWAF (resource managers) and the association (legal commercial bark harvesters) should facilitate: i) effective and sustainable bark harvesting; and ii) the elimination of undesirable, destructive, and illegal commercial bark harvesting from the forests.

On 30 May 2002, DWAF issued the General Licence under sections 7, 15 and 23 of the National Forests Act [No. 84 of 1998] to the Sizamimphilo Association, for the harvesting of bark under the guidance of the management plan for natural forests in uMzimkulu district. The management plan provides guidelines for resource harvesting, planting for alternative resources and monitoring of resource use impacts, and stipulates the arrangements between DWAF and the association.

Interestingly, harvesters from other districts have now joined the association, and an allied association has been established in Pietermaritzburg. (*Source:* Nicci Diederichs, Coert Geldenhuys and Dominic Mitchell, Science in Africa Web site [www.scienceinafrica.co.za/2002/november/bark.htm].)

## SPAIN

### Economic study on the pine nut sector in Spain

The stone pine, *Pinus pinea*, is a forest species of considerable interest in Spain owing to its ability to adapt, its ecological and protection functions and its economic importance. It covers more than 390 000 ha and is distributed mainly from the central plateaus to the southern and eastern coast of Spain. This interest, formerly based on timber exploitation, is directed nowadays towards its most valuable product: the pine nut. The pine nut is a dry fruit with a variety of uses, as a culinary condiment, in pastries and sweets and as part of traditional recipes. Although its consumption is not extensive, it is an important ingredient in certain Mediterranean regions, and because of its variety of uses it reaches high prices in the market. However, there seems to be a total lack of information on this sector, despite its considerable economic benefits and the fact that it generates employment for about 150 000 people in Spain. Exploitation is carried out in an unprofessional and disorganized way. The control of volumes of the species gathered is poor and the statistical data of the administration hardly ever coincide with those offered by companies. Moreover, these companies are extremely reluctant to communicate or even to associate with each other. In most cases, there is a scarcity of professional ability to provide statistics on volumes produced and marketed, destination markets, etc.

Harvesting is generally carried out from the ground, picking up the pine cones or detaching them from the tree

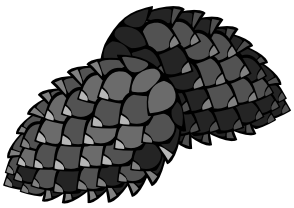
with the help of sharp tools. Only in some regions is it common to climb the trees to do this. The pine cones are stored and dried either in the sun or in stoves. The former is the most common and economical, but it forces the drying process to be concentrated over a shorter time. Stove drying permits production in a continuous way, although the risk of damaging the pine nuts inside the cone is much greater.

Afterwards, the pine nuts obtained are processed to extract the white kernel from its casing. This is cleaned (separated from the shell debris), classified and packed. It is then either sent direct to the final consumers, or for processing in the manufacture of products containing this ingredient. This whole process is carried out in different ways according to the region where it takes place.

Exploitation is underregulated and sometimes chaotic and would require more attention to compliance with normative regulations, remuneration by contract, etc. Some companies are still trying to decide whether to rush into the professional level that some of the bigger companies in the dried fruit sector have acquired over the years through experience, or whether to remain as family-type small companies. These are comfortable and flexible, but not very practical when competing with the big companies that intervene with more and more force in the sector. The white pine kernel is also seen to have a substantial internal market, in which the processing companies and distributors absorb the whole product, but it is the external market which provides the major part of the benefits. However, this valuable market is in danger if the Spanish producers are not able to optimize their resources and improve the market structure, as well as to negotiate its promotion, against the periodic appearance of new international competitors.

In conclusion, it is clear that the sector should opt finally for transparency and make significant structural and, particularly, conceptual changes in order to continue providing important benefits to the forest and rural sector. (*Source: Pinenut in Spain*, by D. Jesús Barranco Reyes and D. Sigfredo Fco. Ortuño Pérez, Department of Forestry Economics, Technical University Madrid, Spain. Contributed by Prof. José L. de Pedro, E.T.S. de Ingenieros de Montes, Madrid, Spain.)

**For more information, please contact: Prof. Sigfredo Ortuño, E.T.Superior de Ingenieros de Montes, C/Ciudad Universitaria s/n, 28040 Madrid, Spain. Fax: +34 543 9557; e-mail: sortuno@montes.upm.es**



## UGANDA

**On the verge of silken riches**

According to Uganda Export Promotion Board (UEPB), trade officer Othieno Odoi, Uganda has the potential of being one of the leading producers of silk yarn in the world. He said that UEPB, under the strategic government intervention programme, realized that textiles was one of the issues being earmarked. That is why they have undertaken the silk subsector with a view to completing the textile sector in order to compete in the United States initiative African Growth Opportunity Act.

Uganda is not meeting the demand in foreign markets, especially in Egypt, which needs at least 500 tonnes per month. Instead, Uganda can only supply 200 tonnes every month. Othieno said that Uganda has the silk yarns in abundance and the favourable climate which enables faster growth of the mulberry trees which support the production of silk yarns. "Following the national stakeholders workshop for silk farmers, which we held at Kanungu, we decided on an action plan among farmers to make sure that we meet the production levels required," he stated. In order to boost farmers, UEPB distributed silk planting materials in western Uganda as part of their ground work. Following the high demand for silk in foreign markets, it will help farmers increase their incomes by an average of U Sh 150 000 per month.

In the rural areas 0.1 ha of mulberry trees can earn a farmer a good capital within 21 to 23 days. The harvest period of the silk cocoons, which farmers eventually sell, can fetch U Sh 2 800 per kilogram compared with other crops. (For the full story see: http://allafrica.com/stories/200212120565.html) (*Source: New Vision (Kampala)*, 12 December 2002.)

**Developing niche markets**

Uganda has the potential to produce for niche markets. Spices such as cardamom grow well in Uganda; ecotourism is still underdeveloped. A bark-cloth project in Rakai is in touch with Western fashion houses. Uganda's economic future will depend a lot on whether it can identify and exploit areas where there is a comparative advantage. (For the full story see: http://allafrica.com/stories/ 200211280347.html) (*Source:* Extracted from *New Vision (Kampala)*, Uganda, 28 November 2002.)

**The Netherlands spark off moringa bid**

Professor Richard Kasawuli of the National Agriculture Research Organisation, Kawanda has said that, according to the Uganda Export Promotion Board, the Netherlands want 10 tonnes of moringa from Uganda per month, and that they would pay US$40 per kg of moringa. At the moment, because of very little production, moringa is consumed locally at U Sh 30 000/kg. The small trees are the source of ben nut oil. The roots of a newly planted moringa tree can be harvested after ten years. (For the full story see: http://allafrica.com/stories/200301240235.html) (*Source: New Vision (Kampala)*, 24 January 2003.)

# COUNTRY COMPASS

## UKRAINE

**NWFPs of Transcarpathia**

In 2001, Transcarpathia exported 2 134.3 tonnes of mushrooms and forest berries to the value of US$2.8 million. The value of the timber industry's output was US$10.9 million, while its exports amounted to US$1.7 million. Therefore, the value of the exported mushrooms and berries is 1.6 times higher than that of timber and forms 15.6 percent of the timber industry's output. In spite of this, the supply of these NWFPs comes from non-state enterprises, even though this kind of state enterprise activity is one of the most profitable.

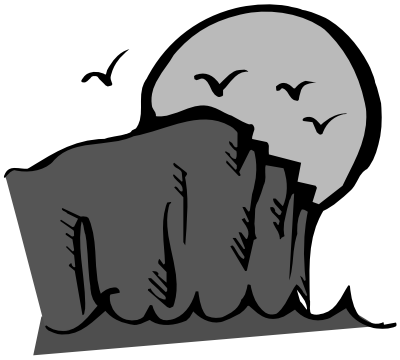
NWFPs are also an important source of income for Transcarpathians, especially for those living in mountain districts, where the unemployment and wage levels are lower than the regional average. For example, in Mizhgirja district, an experienced mushroom gatherer earns up to 100 and more hryvnias per day (the average monthly wage is 170 hryvnias).

The total production value of mushrooms and berries was US$40 400; the budget income (payments for the right to purvey local forest resources) was US$152 000. (*Contributed by:* George Kushnir [george_uzh@rambler.ru].)

## UNITED KINGDOM

**First group certification and unique non-timber certification awarded in the United Kingdom**

The world's first group chain-of-custody certificate and a unique non-timber chain-of-custody certificate were awarded recently in the United Kingdom by SGS Qualifor. Forest Enterprise, a United Kingdom firm that manages deer populations on forestland in accordance with certification requirements, received chain-of-custody certification for its production of venison, a non-timber forest product. Forest Enterprise intends to market venison from these deer populations with the Forest Stewardship Council label indicating its origin in certified well-managed forest. (*Source: Forest Stewardship Council News and Notes*, April 2002.)



## UNITED STATES

**World's first green-certified maple syrup**

Merck Forest is the world's first producer of maple syrup that is certified as sustainably produced by the SmartWood Program of the Rainforest Alliance (accredited by the Forest Stewardship Council). Auditors carefully examine their forest and its management to ensure that their maple products and their timber products are made in a way that is safe and sustainable to their forest. (*Source: Rainforest Alliance* [newsletter@ra.org], 9 December 2002.)

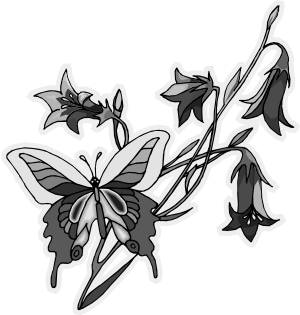
## ZIMBABWE

**Wildlife producer communities**

Wildlife producer communities under Campfire earned US$22 million last year, providing attractive financial returns for rural communities. Nearly 90 percent of the income generated by Campfire was derived from sport hunting, which has become one of the fastest growing tourism products. Sport hunting alone earned Zimbabwe nearly US$70 million in 2001 and prospects for the 2002 hunting season, which began in May, are brighter. Zimbabwe has about 150 registered safari operators and some of them operate in Campfire areas.

Although competition was high with South Africa, Namibia and Botswana and, to a lesser extent, with Zambia, Mozambique and the United Republic of Tanzania, Zimbabwe's success lay in the good quality of trophies, reputable hunting operations and access to a variety of hunting areas from state land, private land to Campfire concessions.

The head of Campfire, Mr Charles Jonga, said that the project's wildlife districts exceeded US$2 million annually and that, unlike many other developments or biodiversity conservation initiatives, Campfire had been underpinned by a viable and growing market for its products. The growth of the trophy-hunting sector within Zimbabwe provides a robust indicator for the global market. (*Source: The Herald*, Harare, 15 June 2002 [http://allafrica.com/stories/200206170655.html].)



**Medicinal plants and traditional medicines in Zimbabwe**

In Zimbabwe, people take some of their illnesses to modern medical practitioners and others to traditional healers. In some cases, the same illness is referred at different stages and sometimes simultaneously to both types of practitioners. Sex, economic status and the level of education of the patient do not appear to be important factors in the choice of therapy.

Cooperation between the traditional and modern medical practitioners is encouraged. Although the state is officially concerned only with the modern health sector, it has allowed the traditional sector to develop on its own without too much government control. Traditional healers were given, through their association, ZINATHA, and the Medical Council, the main power in the

selection and control of their activities. This has been made possible by the Traditional Medical Practitioners Act passed by parliament in 1981. The act established a council known as the Traditional Medical Practitioners Council. The council is mainly concerned with issuing licences, and the supervision, control and promotion of the practice of traditional practitioners and research. Traditional healers represent a separate school of thought, a science that needs the recognition and the resources to develop itself. More than 500 different types of plants are used by traditional healers for medicinal purposes.

In 1994, ZINATHA randomly collected more than 200 plant medicines and asked modern medical scientists at the Zimbabwe Regional Drug Control Laboratory to test them. About 95 percent of these medicines proved to be good medicines. The Zimbabwe Regional Drug Control Laboratory is a joint project of the World Health Organization and the Ministry of Health, Zimbabwe. HIV/AIDS clinical trials that were monitored by medical scientists and physicians from the Ministry of Health were carried out in 1993/94. The trials were not conducted in order to find a cure for AIDS, but to find out the extent to which some traditional medicines can remove or reverse AIDS symptoms.

The trials showed that some traditional remedies can remove or reverse AIDS symptoms. ZINATHA took another step forwards. Several plant medicines used to reverse AIDS symptoms were collected, extracted and analysed with the assistance of modern research organizations. The extraction and purification of active agents were carried out at the University of Zimbabwe, while screening was done outside Zimbabwe. The next stage involved the identification and isolation of pure compounds from some of the plants shown to have very active principles against HIV/AIDS. This has already been done. A patent has been applied for – and granted – for their first most promising compound.

The first patent is jointly owned by ZINATHA and the University of Zimbabwe. Both organizations stand to benefit through a share of payable royalties if the drug reaches the marketplace.

Many traditional healers have successful professional secrets that they do not wish to relinquish. They have worked out some strategies aimed at protecting their knowledge and resources, one way being to refuse to be interviewed, particularly by research workers, or to assist them in any way. Under pressure some of them agree to be interviewed but give wrong information; they lie. Traditional healers can only pass on their secrets freely to scientists and members of the public once there is profit from their inventions. Patenting is one important mechanism for the protection of traditional knowledge and practices.

In collaborative research, ZINATHA, because of the exploitation that often takes place, insists on the need for proper, transparent and honest collaboration between healers and scientists. Ways of preventing exploitation of traditional healers by scientists, universities and pharmaceutical companies have been worked out. These include the need to involve traditional healers in research design, its execution and evaluation and the need to acknowledge the contribution of healers in those studies published with their assistance. Such recommendations have, however, often met with scant response.

Because of the growing demand for traditional medicines, ZINATHA has formed a company registered as ZINATHA Enterprises (Pvt) Ltd, which is now processing and distributing those traditional medicines in great demand. Any traditional healer can purchase shares in the company. The increasing demand for plant medicines has come at a time when some medicinal plants are becoming difficult to find in some parts of the country largely because of population pressure. ZINATHA launched it own tree planting programme in 1986 and a few local government authorities donated land for this purpose. The central government is willing to sell large parcels of land for this purpose but ZINATHA does not have funds for this at present. There has never been any budgetary provision for the promotion of traditional medicine as a system of health care in its own right. Huge amounts of funds are allocated to the Ministry of Health and other ministries and departments for the promotion of modern Western medicine alone. (*Source:* Phytomedica list, 25 August 2002.)

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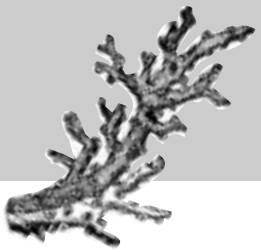
**For more information, please contact: Prof. G. Chavunduka, President, Zimbabwe National Traditional Healers Association (ZINATHA), 40 The Chase, Mount Pleasant, Harare, Zimbabwe. www.enda.sn/africaso.org/zinatha.html** ●

# ECONOOK



## AFRICAN SUPER PARK

The South African, Mozambican and Zimbabwean presidents will launch an African "super park" adjoining the Kruger National Park in Mpumalanga. President Thabo Mbeki, together with his Mozambican and Zimbabwean counterparts, Presidents Joachim Chissano and Robert Mugabe, will sign a treaty on 9 December to establish formally one of the world's largest transfrontier conservation areas, the Great Limpopo Transfrontier Park (GLTP).

The agreement seals a two-year process of intensive preparations for the establishment of the 35 000 km$^2$ park. The GLTP will extend across South Africa's Kruger National Park, Mozambique's Limpopo National Park and the Gonarezhou National Park in Zimbabwe.

Spokeswoman for South Africa's Environmental Affairs and Tourism Minister Valli Moosa, Phindile Makwakwa, said that South Africa had launched a three-year operation to release thousands of wildlife from the Kruger National Park to Mozambique's Limpopo National Park as part of the development of the Transfrontier Park. (http://allafrica.com/stories/200212040085.html) (*Source:* South African Press Association (Johannesburg), South Africa, 3 December 2002.)

*Grammatophyllum speciosum Blume*

*PROSEA - Plant Resources of South-East Asia 12 - Iskak Syamsudin*

## AMAZONIA REPRESENTS 53 PERCENT OF STANDING TROPICAL FOREST

It is common knowledge that Amazonia is the world's largest intact tropical forest, but never before have so many data on the current state of its conservation been presented in one publication. The chapter on Amazonia in a recent book from Conservation International is signed by 36 authors. The experts state that Amazonia has 34 ecoregions, of which 17 are dense tropical forest. The total area is 6 241 270 km$^2$. The largest part – 63.7 percent of the total – is in Brazil. Amazonia currently represents 53 percent of the world's standing tropical forest. Around 40 000 plant species are found in Amazonia, of which around 30 000 are endemic. (*Source: Amazon News*, 12 December 2002.)

## ARKIVE

ARKive is the Noah's Ark for the online era. Film, photographs and audio recordings of endangered species are being amassed and preserved digitally in a Web-based collection to be made accessible to all via the Internet. It will be a vital resource where everyone can learn about the importance of biodiversity and the urgent need to conserve it. ARKive will create digital profiles for each species, including up to ten minutes of moving footage, six still images and two minutes of audio, together with useful facts and cross-references.

ARKive requests anybody owning photographs or moving footage of any Red List species to contact them. Copyright remains with the image owner, and all images are credited with links to the owner's contact details.

It is ARKive's ultimate aim to cover the 6 000 animals and 33 000 plants on the IUCN international Red Lists.

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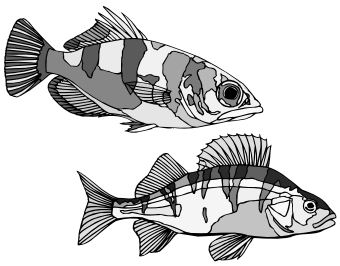
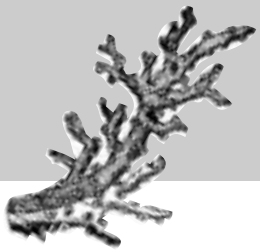
**For more information, please contact the ARKive media team: Richard Hughes or Cameron Milne, PO Box 366, Bristol, BS99 2HD, United Kingdom.**
**E-mail: richard.hughes@wildscreen.org.uk *or* cameron.milne@wildscreen.org.uk; www.arkive.org.uk/index.html**



## BENEFITS OF PRESERVING FORESTS

Preserving the forest is good business sense. It may be difficult to imagine that an intact forest is more valuable than a soya plantation or a cattle ranch or that a preserved coral reef is more valuable than the fishing industry, but that is exactly what the authors of an article published in *Science* have concluded.

For the population in general and for the planet, if not the farmer, rancher or fisherman, preserving nature is more profitable than destroying it, researchers say. They studied five cases of intact ecosystems that have been transformed by human activity. In all cases, the human population ended up as the losers by some US$250 billion per year. What the population gains in food and products, it loses in soil quality, erosion, the recycling of nutrients, drinking-water, climate regulation, carbon capture, pollination, the biological control of species, biodiversity – as much for hunting as for medical research – and even tourism and leisure. One of the report's principal authors, researcher Robert Costanza of the University of Maryland, has said that these services are normally ignored in economic calculations and argues that, without the environment providing them free of charge, we will have to pay for them at a later date.



Costanza said that this was a "conservative estimate" of the value of these services. In order to maintain a global network of conservation areas, covering 155 of land-based ecosystems and 30 percent of marine ecosystems, the world would spend just US$45 billion per year. According to researchers, this would give a return of between US$4.4 trillion and US$5.2 trillion and allow the sustainable use of resources. These areas would be remote with a sparse population. (*Source: Amazon News*, 15 August 2002.)

## INDIA GIVES COMMUNITIES A STAKE WHILE PRESERVING THE BIOSPHERE

An innovative initiative is helping to secure the future of the Gulf of Mannar Biosphere Reserve in South India and its globally significant marine coastal life by involving local communities in promoting ecotourism and other ventures that create jobs while protecting the area's threatened natural environment. The local Ramanathaswamy Temple draws tourists from all regions of India, and this flow of visitors can be a springboard for introducing ecotourism to the Biosphere Reserve.

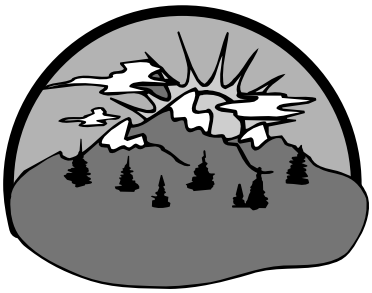
The Gulf of Mannar Biosphere Reserve – the first of its kind in South and Southeast Asia – is one of India's biologically richest coastal regions. It is home to 3 600 species of plants and animals, including 17 mangrove tree species. The reserve is among a world network of biosphere reserves recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) for their role in conserving ecosystems, fostering sustainable development and supporting research and education on these issues. The United Nations Development Programme (UNDP), with the Global Environment Facility, has allocated US$7.5 million for the programme. Cofinancing by the Government of India and the Tamil Nadu government brings the total project funding to US$26.5 million.

The initiative will strengthen the role of local communities, particularly women, in managing the reserve in ways that are ecologically sound, equitable for groups with a stake in the unique area, and economically viable. The M.S. Swaminathan Research Foundation, a regional centre supporting environmentally friendly rural development, is implementing the project. The Tamil Nadu government is setting up the Gulf of Mannar Trust to support the project. The first such institution in India, the trust will also help other coastal areas of Tamil Nadu replicate the initiative's successful results. (*Source: UNDP Newsfront*, 1 May 2002.)

## PROTECTED AREA IN AMAZONIA WILL TRIPLE OVER THE NEXT TEN YEARS

President Fernando Henrique Cardoso announced during the United Nations Summit of Sustainable Development that the Protected Areas of Amazonia will be tripled over the next ten years. US$395 million will be invested in the project with the money coming from the Global Environment Facility (GEF), the World Bank, the World Wide Fund for Nature (WWF) and other partners. The protected area of Amazonia should be increased to 500 000 km$^2$, or 12 percent of the total area of Amazonia, including 23 different ecoregions and benefiting diverse local communities. The money will be used for the identification and demarcation of new areas, as well as the consolidation of existing areas.

The first phase of the programme will cost US$81.5 million over the next four years. The Brazilian Government will contribute US$18.1 million; US$30 million will come from a new fund established by the GEF; US$16.5 million from WWF; US$14.4 million from the German development agency (KfW) and a further US$2.5 million from other partners. (*Source: Amazon News*, 5 September 2002.) ●



***Unless we find beauty and happiness in our backyard, we will never find them in the mountains.***

**Anon**

# INTERNATIONAL ACTION

## FAO

### FOREST PRODUCTS DIVISION

**NWFPs and certification**

The FAO NWFP Programme aims at analysing the relevance and applicability of certification in the field of NWFPs as a means of: i) increasing market opportunities and revenues for NWFP producers; and ii) encouraging sustainable management of the resources providing NWFPs. In order to assess the (potential) contribution of certification to the sustainable use of NWFPs, the programme activity aims at achieving the following immediate objectives:

*Objective 1. The status of NWFP certification is documented.*

Sound information on the status of NWFP certification is scarce and dispersed. In addition, available information is often biased, since it is compiled by organizations or institutions attached to specific certification programmes. This programme activity aims at documenting sound and state-of-the-art information on the certification of NWFPs. Papers related to NWFP certification have been submitted on various occasions (World Forestry Congress, Québec, Canada, September 2003; IUFRO All Division 5 Conference, New Zealand, March 2003; CIFOR/BMZ,GTZ,DSE International Conference on Rural Livelihoods, Forests and Biodiversity, Bonn, Germany, May 2003) and a draft working paper has been made available (www.fao.org/forestry/FOP/FOPW/NWFP/new/doc/x554e.htm).

*Objective 2. The impact of NWFP certification is analysed.*

The impact of certification on the sustainable use of NWFPs is not yet well documented. Does certification promote the environment-friendly exploitation of NWFPs? Does it contribute to the improvement of the livelihood of rural populations? Case studies have been commissioned for the beginning of 2003 in order to assess the ecological and socio-economic impact of certification for selected NWFPs in different locations. These case studies cover different product categories, geographical areas and certification schemes and will compare the use of certified with uncertified products.

- Devil's claw (*Harpagophytum procumbens*, medicinal plant) in Namibia (producing country), carried out by the Centre for Research Information Action in Africa, Southern Africa Development and Consulting;
- Devil's claw (*Harpagophytum procumbens*, medicinal plant) in Germany (importing country), carried out by TRAFFIC Europe, Germany;
- Shea butter (*Vitellaria paradoxa,* foodstuff/cosmetics) in Ghana, carried out by Technoserve;
- Brazil nuts (*Bertholletia excelsa*, foodstuff) in Bolivia, carried out by Bolinvest; and
- Rattan (furniture) in Viet Nam, carried out by the NTFP Research Centre.

The results will be made available at the end of the year on the FAO home page and in hard copy. Preliminary results will be presented at the CIFOR Conference in Bonn.

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[*Please see under Forthcoming Events for more information.*]

**Medicinal plants**

FAO has commissioned two papers on the "Impact of cultivation and gathering of medicinal plants on biodiversity". The papers are available on the home page of FAO's Non-Wood Forest Products Programme. The papers have also been published in: FAO. 2002. *Biodiversity and the ecosystem approach in agriculture, forestry and fisheries*. Satellite event on the occasion of the Ninth Regular Session of the Commission on Genetic Resources for Food and Agriculture. Rome, 12-13 October 2002. Inter-Departmental Working Group on Biological Diversity for Food and Agriculture.

*1. Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues, by Uwe Schippman, Danna J. Leaman and A.B. Cunningham.*

- Wild or cultivated: What does the market want?
- Wild or cultivated: What do people need?
- Wild or cultivated: What do the species and ecosystems require?

The authors conclude their paper with the following key recommendations:

1. To overcome significant knowledge deficits, a global medicinal and aromatic plant (MAP) cultivation survey should be commissioned by an international organization. This survey should also assess public domestication programmes, as well as *in situ* and *ex situ* conservation efforts for wild populations of species in cultivation (e.g. in protected areas, in gene banks and botanic gardens).
2. Wild harvesting of MAPs will continue to prevail owing to the economic reasons outlined above. Sustainable wild harvest management schemes need to be supported by governments and authorities.
3. Primary producers need help to improve returns from sustainable harvesting of MAPs. Community-based, small-scale cultivation enterprises need to be strengthened to enable them to compete with large-scale, high-technology cultivation.
4. Secure *ex situ* field gene banks need to be developed, particularly for habitat specific, slow-growing species with high susceptibility to being overharvested.
5. Medicinal plant domestication programmes need to be expanded, taking fuller advantage of the genetic and chemical diversity within species over wide geographical areas.
6. Capacity to assess and monitor the conservation status of MAPs and to manage harvest within the limits of sustainability is extremely limited worldwide and needs to be developed through training courses and curriculum

development in ethnobotany and applied ecology.

7. Management planning has to take into account the diversity of tenure systems which apply to medicinal plants to a far greater degree. Clarification of user rights over the resource and access to it, particularly where it is considered common property, needs to be recognized as a crucial factor enabling or preventing a sustainable harvest from wild populations.
8. Ecolabelling and other social and economic incentives to strengthen market credibility and competitiveness of biodiversity-friendly products need to be promoted.
9. Conservation of medicinal plants currently lacks priority in policy and law. There are opportunities to change this within the implementation of legal instruments such as the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
10. The Global Environment Facility (GEF) needs to consider medicinal plant conservation as a programme priority worthy of funding.
11. Medicinal plants warrant priority in national efforts to implement the Global Strategy for Plant Conservation of the CBD.
12. Local communities can take more responsibility for the sustainable harvest of medicinal plants only if they have the choices afforded by adequate income, control over the resource and the knowledge and skills required. On the issue of intellectual property rights it needs to be elaborated how the country, the local user or other entity can be adequately compensated for use of the resource by outsiders.

(The full report is available at: www.fao.org/docrep/005/aa010e/aa010e00.htm#topofpage)

*2. Impact of cultivation and gathering of medicinal plants on biodiversity: case studies from India,* by K. Ramakrishnappa. The case studies highlight the need and some of the means for preserving the rich biodiversity of the region while also underlining the relationship between biodiversity, economic sustenance and preservation of cultural traditions and environmental resources. Medicinal plants have a specific role in serving the needs of indigenous medicine, of the pharmaceutical industry, and of providing genetic resources for future propagation and cultivation inside and outside their natural habitat.

The case studies also show that modern development has impacted on the biodiversity of medicinal plants in varied and complex ways, and they illustrate examples where urban demands exploit rural poverty and illiteracy. This leads to immediate deterioration of the rural environment and a delayed but relentless impoverishment of national biodiversity and cultural assets. It is, therefore, essential that the collection and cultivation of medicinal plants be viewed in a holistic way to achieve long-term success in the protection of species and in providing socio-economic benefits to society, locally and nationally.

Analysis and hindsight perception show that reversal of this trend can come about through managing the demand for medicinal plants within an equitable, farmer-centred system of quality assured products produced under an organic or similar, well-certified regime. The outcome of such an approach can be expected to correct past mistakes and generate a relatively stable but flexible mechanism for enhancing prosperity and socio-economic development for rural populations as well as for preserving biodiversity of medicinal plants and their ecosystem companions, while also ensuring that the livelihoods of existing collectors and cultivators are assured.

(The full report is available at: www.fao.org/docrep/005/aa021e/aa021e00.htm#topofpage)

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**Le Programme PFNL de la Commission européenne (CE) et de la FAO**

Le Programme de partenariat Commission européenne-FAO pour la gestion durable des forêts dans les pays ACP d'Afrique a chargé la Division des produits forestiers (FOP) de la FAO de développer des techniques appropriées pour assister les gestionnaires de ces ressources. Une gestion durable des ressources permet non seulement de lutter efficacement contre l'insécurité alimentaire et la pauvreté dans les régions où ces ressources sont présentes, mais aussi d'aider efficacement les programmes de gestion des ressources forestières grâce au soutien et à la participation des communautés locales dont les intérêts sont directement pris en compte. Pour limiter les mauvaises pratiques de récolte observées un peu partout, la Division des produits forestiers se propose de développer des méthodologies simples que les utilisateurs pourront utiliser pour évaluer les potentialités des ressources. Cette évaluation pourra déboucher sur des plans d'exploitation durable afin d'éviter la surexploitation qui risque à terme d'entraîner la disparition des ressources et a également des conséquences environnementales et sociales graves.

Pour l'élaboration du guide des méthodologies pratiques d'évaluation des ressources des produits forestiers non ligneux, six consultants nationaux ont collaboré pour réaliser des études sur des produits de cueillettes de différentes zones écologiques du Bénin, Cameroun, République centrafricaine, Kenya, Malawi et Zambie. Ce document sera publié très prochainement.

Parallèlement au travail d'élaboration des guides pratiques des méthodologies

## INFORMATION SUR LES EFFORTS DE LA FAO POUR AMÉLIORER LES CONNAISSANCES SUR LES RESSOURCES FOURNISSANT DES PRODUITS FORESTIERS NON LIGNEUX EN AFRIQUE

**Dans le cadre du Programme de partenariat Commission européenne-FAO en vue de soutenir la gestion durable des forêts dans les pays ACP d'Afrique, la Division des produits forestiers de la FAO a entrepris une série d'études. Ces études réalisées par des experts nationaux ont consisté en des tests d'efficacité des diverses techniques d'évaluation des ressources en produits ciblés de milieux écologiques différents. Les paragraphes suivant proposent un résumé de trois de ces études:**

***Étude de cas au Malawi***

**L'étude sur le *Test des techniques de quantification de la récolte des champignons sauvages* a été réalisée par Gérald Meke. Les travaux ont commencé en février 2002 après signature du contrat. Il a fallu une assez longue période pour collecter les données sur le terrain et identifier les différentes espèces de champignons dans la zone d'étude afin de proposer différentes méthodes pour le test. L'étude a montré qu'il existe de nombreuses espèces de champignons comestibles au Malawi. Cependant, la technique d'échantillonnage doit viser un nombre très limité d'espèces pour parvenir à une bonne estimation de la productivité des zones étudiées qui doivent être accessibles aux récolteurs de champignons.**

**L'auteur a noté que l'une des possibilités pour surmonter les nombreux obstacles à l'estimation de la production des champignons sauvages reste le bord de route. C'est une zone privilégiée où l'on peut rencontrer de nombreux collecteurs qui vendent ensuite leurs produits et où l'on peut obtenir des données sur la production. La productivité de cette culture en bord de route peut être estimée, mais l'idéal reste l'accompagnement des collecteurs sur les sites de récolte, ce qui est parfois très difficile en milieu villageois.**

**Le document produit fourni d'autres informations intéressantes sur le rôle des connaissances locales dans le développement et la promotion de techniques pour la gestion durable de certaines espèces de PFNL.**

***Étude de cas en Zambie***

**En Zambie, l'étude a porté sur le test de deux types d'approches d'inventaires des ressources sur un même site. Il s'agit de faire des inventaires dans la forêt nationale de Mwekera en utilisant la méthode d'échantillonnage en grappe, puis de comparer les résultats d'inventaires de ressource unique à ceux d'inventaires multiressource. L'inventaire de plus d'une dizaine de produits sauvages a été pris en compte dans cette étude. Le rapport de l'expert a mis en évidence les points suivants:**

- **La difficulté d'évaluer la quantité de certaines ressources spécifiques dans un écosystème formé d'une association végétale comportant un très grand nombre d'individus; surtout si la ressource ciblée n'est pas facilement détectable dans son habitat parce qu'elle est occultée par d'autres espèces plus abondantes.**
- **La méthode adaptative stratifiée de l'échantillonnage peut produire certains résultats impossibles à interpréter dans un contexte de multiprocesseur.**

**Cette étude recommande cependant la poursuite des efforts de recherche pour parvenir à établir des méthodes plus performantes capables de fournir des résultats biométriques valides.**

***Étude de cas au Kenya***

**Ben Chikamai a entrepris une étude dans la forêt sèche située le long de l'autoroute Nairobi-Mombasa (division de Kibwezi, district de Makueni) au Kenya, pour tester certaines techniques pour la quantification des fruits du baobab (*Adansonia africana*). La méthode utilisée pour cette étude modifie les méthodes utilisées par différents chercheurs (Jessen, 1955; Peters et Hammond, 1990; Phillips, 1993; Gregoire *et al.*, 1995; California Agricultural statistics series, 2001; et Wong, 2001b) et change également l'architecture de l'arbre. La conclusion de l'étude montre que le choix d'une méthode basée sur le critère de taille des branches ou sur l'augmentation du nombre de branches peut améliorer la qualité de l'estimation de la production fruitière, mais seules des études approfondies pourraient le confirmer.**

pour évaluer les ressources en produits forestiers non ligneux, la Division des produits forestiers considère aussi que la promotion et valorisation de ces ressources est très important. Des études pour mesurer l'impact de la contribution de ces ressources dans la lutte contre la pauvreté et l'insécurité alimentaire dans les zones rurales les plus défavorisées ont été entreprises. Ces études ont porté sur le *Gnetum africanum* (espèce de légume sauvage) et les chenilles comestibles (insectes) dans la région du bassin du Congo, deux espèces de produits forestiers émergents surexploités et dont la vente constitue une source de revenus importante pour les ménages pauvres ainsi que des recettes substantielles pour l'administration, notamment les municipalités et les services de contrôles routiers. Les dernières études réalisées au Cameroun, en République centrafricaine, République du Congo et République démocratique du Congo contiennent des

informations intéressantes et qui s'interrogent sur le silence qui a toujours pesé sur l'existence de ces deux produits pourtant largement commercialisés au niveau local, et faisant partie de l'alimentation des habitants de ces pays.

Les informations détaillées sur les études de cas du Programme de partenariat Commission européenne-FAO et sur les deux produits provenant du bassin du Congo sont disponibles auprès du Programme des produits forestiers non ligneux.

**Pour plus de détails, veuillez contacter: François Ndeckere-Ziangba, Fonctionnaire forestier chargé du Programme des produits forestiers non ligneux, Division des produits forestiers de la FAO, Viale delle Terme di Caracalla, 00100 Rome, Italie.**
**Fax: +39 065705618;**
**mél.: Francois.Ndeckere@fao.org *ou***
**non-wood-news@fao.org**

## FAO IN THE FIELD

**Opération Acacia: Projet d'appui à la sécurité alimentaire, la lutte contre la pauvreté et la dégradation du sol dans les pays producteurs de gommes et résines**

Le rôle et l'importance des plantes produisant les gommes et les résines en Afrique ne sauraient être surestimés. Les produits les plus importants en terme commercial sont la gomme arabique, la myrrhe et l'encens. Les essences qui produisent les gommes appartiennent en majorité aux espèces du genre *Acacia*, l'une des familles arborées les plus rencontrées en Afrique, particulièrement dans ses régions arides et semi-arides. Dans les pays de bordure du Sahara, ces essences, pour la plupart encore à l'état de formations naturelles, ont prouvé leurs effets positifs dans plusieurs domaines. Outre leur rôle de production de gomme, fourrage, bois de feu, qui permet de diversifier les sources de revenus des ménages, les arbres assurent le maintien de conditions propices à l'agriculture en protégeant les cultures contre l'érosion hydraulique et éolienne, en atténuant les extrêmes climatiques et, surtout, en restaurant la fertilité des sols par recyclage des éléments minéraux lessivés en profondeur et par fixation de l'azote atmosphérique.

En renforçant la composante «gomme», le projet vise à améliorer et pérenniser les systèmes agraires et pastoraux, à diversifier et augmenter les sources de revenus des ménages et ainsi contribuer à la sécurité alimentaire des populations concernées, sans parler du rôle direct de la gomme dans l'alimentation traditionnelle. De plus, le travail de récolte, nettoyage et conditionnement de la gomme au niveau de l'exploitation familiale est essentiellement assuré par les femmes et les enfants. Le projet s'adresse donc particulièrement aux personnes les plus pauvres et vulnérables de la société rurale.

Le projet «opération *Acacia*», financé par le Gouvernement italien et exécuté par la FAO, est la phase préparatoire d'un programme d'appui à long terme aux pays producteurs de gommes et résines et aux réseaux mis en place. Le projet s'adresse aux agropasteurs des zones sèches subsahariennes et vise avant tout à améliorer les systèmes agroéconomiques dont ils dépendent. Outre les produits et filières concernés, le projet pourra servir de support au développement d'autres cultures arborées utiles à l'équilibre environnemental et au développement des communautés rurales.

Le projet se compose de trois volets complémentaires:

a) développement d'actions pilotes dans six pays producteurs de la région visée;
b) préparation d'un programme décennal pour les pays associés;
c) assistance à la coopération régionale et aux réseaux intéressés.

**Pour plus de détails, veuillez contacter: Michel Malagnoux, Forestier (zones arides et production de bois de feu), Service de la conservation des forêts, de la recherche et de l'enseignement forestier, Division des ressources forestières, Département des forêts, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italie.**
**Fax: +39 0657055137;**
**mél.: michel.malagnoux@fao.org;**
**www.fao.org**

**Appui à la relance de la production et de la commercialisation de la gomme arabique au Niger**

La FAO a soutenu le Gouvernement nigérien entre décembre 2000 et novembre 2002 à travers le TCP/NER/0066 «Appui à la relance de la production et de la commercialisation de la gomme arabique au Niger», réalisé par le Ministère de l'hydraulique, de l'environnement et de la lutte contre la désertification. L'objectif principal a été d'aider le gouvernement, sur la base d'un bilan du potentiel actuel et une évaluation des aspects écologiques, socioéconomiques, technologiques et légaux, à élaborer une stratégie nationale pour la relance de la production et la commercialisation de la gomme arabique au Niger.

La version préliminaire de cette stratégie a été discutée et validée en octobre 2002 lors d'un atelier national à Niamey. Cet atelier a réuni 80 participants du secteur privé (producteurs et commerçants), de la société civile, la recherche, des projets et des services techniques.

**Pour plus de détails, veuillez contacter: Gérard Jacques Bernard, représentant de la FAO, PO Box 11246, Niamey, Niger.**
**Mél.: FAO-NER@field.fao.org;**
***ou***
**Sven Walter, Programme PFNL, Division des produits forestiers, Département des forêts, FAO.**
**Fax: +39 0657055618;**
**mél.: sven.walter@fao.org**

## COMMUNIQUÉ FINAL (TCP/NER/0066)

***Atelier national de validation de la stratégie nationale et du plan d'action pour la relance de la production et de la commercialisation de la gomme arabique au Niger.***
***Niamey, 29-31 octobre 2002***

**Du 29 au 31 octobre 2002, s'est tenu à Niamey, l'atelier de validation de la stratégie nationale et du plan d'action pour la relance de la production et de la commercialisation de la gomme arabique au Niger.**

**Ont pris part à l'atelier, outre les représentants des administrations concernées, les institutions de recherche et de formation, les représentants de la société civile, des producteurs ruraux, du secteur privé, des projets de développement ainsi que les partenaires au développement, notamment la FAO, le PNUD, la Coopération italienne, etc.**

**La cérémonie d'ouverture, placée sous la présidence d'Adamou Namata, Ministre de l'hydraulique, de l'environnement et de la lutte contre la désertification, s'est déroulée en présence du Directeur de Cabinet du Premier Ministre, des représentants des institutions internationales ainsi que des membres du corps diplomatique.**

**Dans son intervention, Marchal Daniel, Représentant p.i. de la FAO a, tout en insistant sur l'importance considérable du secteur gommier dans la lutte contre la désertification et la pauvreté, rappelé que la FAO soutient le processus de relance de la production et commercialisation de la gomme arabique depuis décembre 2000 à travers le TCP/NER/0066 «Appui à la relance de la production et de la commercialisation de la gomme arabique au Niger».**

**Il a par ailleurs précisé que le TCP s'est déroulé en trois phases dont l'aboutissement est l'élaboration du document de la Stratégie nationale et du Plan d'action. Il a ensuite souhaité que cette stratégie soit désormais un cadre de référence pour le Gouvernement du Niger en matière de soutien à la production et à la commercialisation de la gomme arabique.**

**Quant au Ministre de l'hydraulique, de l'environnement et de la lutte contre la désertification, il a d'abord adressé ses vifs remerciements à la FAO et aux autres partenaires du développement qui soutiennent le Niger dans ses efforts de relance de la filière gomme arabique; tout en rappelant le caractère participatif du processus auquel les producteurs ruraux ont largement contribué. Il a par ailleurs indiqué que ce long processus, soumis à l'approbation des participants à l'atelier, s'inscrit dans le cadre de la stratégie de réduction de la pauvreté et du Programme d'action national de lutte contre la désertification et de gestion des ressources naturelles. Il a aussi informé les participants sur le fait que le gouvernement accorde une importance particulière à ce secteur comme en témoignent les directives données par le Président de la République depuis Mairéré (arrondissement de Mayahi) lors de la fête nationale de l'Arbre (édition 2001) et les efforts que le gouvernement déploie en débloquant chaque année près de 700 millions de francs CFA sur fonds propres pour appuyer le programme gommier. Ces efforts et la démarche ont eu un écho favorable au plan national et auprès des partenaires du développement du Niger.**

**Les travaux de l'atelier se sont déroulés en séance plénière puis les participants se sont répartis en quatre commissions.**

**Après une introduction sur les objectifs et les principales activités du TCP, six thèmes ont fait l'objet d'exposés portant entre autre sur les résultats techniques du projet:**

- ***Thème 1*. Ressources et produits: la gestion des ressources gommières et les technologies de production de gomme arabique ont été abordés.**
- ***Thème 2*. Acteurs et marchés: les aspects socioéconomiques de la filière commerciale de la gomme arabique et les perspectives globales du commerce et de la coopération ont été traités.**
- ***Thème 3*. Mesures d'accompagnement portant sur les aspects institutionnels et de collecte des données et sur l'examen de l'avant-projet de décret fixant les règles de gestion des gommeraies.**
- ***Thème 4*. Visions et axes stratégiques dont les principaux points développés sont les principes, fondements, objectifs et les trois axes de la stratégie à savoir: axe 1: la création d'emplois et l'augmentation des revenus par une production soutenue d'une gomme de qualité; axe 2: le développement du potentiel et la gestion durable des ressources gommières; axe 3: le renforcement des capacités des acteurs.**

**Et les deux derniers thèmes sur la mise en œuvre de la stratégie:**

- ***Thème 5*. Mise en œuvre de la stratégie, avec la présentation des propositions de fiches de projets.**
- ***Thème 6*. Élaboration du plan d'action avec la présentation du canevas du plan d'action et des mandats des quatre commissions à savoir: trois commissions relatives aux axes stratégiques et une quatrième commission sur le mécanisme du suivi et d'évaluation de la mise en œuvre de la stratégie.**

**Les exposés ont donné lieu à des débats enrichissants sur les principaux points suivants:**

- **les questions liées à une meilleure connaissance du potentiel et des caractères génétiques des espèces gommières, ainsi que la différenciation des espèces *Acacia senegal* et *Acacia laeta*;**
- **la mise en place urgente des cadres législatifs appropriés et fiscaux incitatifs;**
- **la clarification du statut foncier des espaces à reboiser, l'intégration agriculture élevage et la production de la gomme;**
- **les problèmes du soutien financier à la commercialisation de la gomme;**
- **le caractère informel de la circulation de la gomme entre le Niger et le Nigéria;**
- **les difficultés de collecte de données et leur fiabilité aux échelles nationale, sous-régionale et internationale;**
- **les besoins de capitalisation des connaissances scientifiques et techniques acquises dans la sous-région;**
- **le développement de la coopération avec d'autres pays producteurs en vue de faire face à la concurrence des produits de substitution de la gomme;**
- **la création des conditions essentielles pour la labellisation de la gomme du Niger.**

**L'analyse approfondie du document de stratégie a ainsi permis aux participants de le valider sous réserve de la prise en compte des amendements apportés.**

## AFRICAN RATTAN RESEARCH PROGRAMME

The African Rattan Research Programme is a research initiative of the Department of Anthropology, University College, London and the Royal Botanic Gardens, Kew, United Kingdom.

**Land tenure and its implications for rattan cultivation in Southwest Province, Cameroon**

Land tenure is a major determining factor in people's willingness to cultivate rattan and other perennial NTFPs, but its importance varies with location and the socio-economic category of the farmer.

Three contrasting zones were selected for the current African Rattan Research Programme's studies of the socio-economic importance of rattan for rural livelihoods: relatively remote "off-road" settlements; "border" settlements located near the boundary with Nigeria; and relatively accessible "on-road" settlements. Some indigenous farmers from "on-road" and "border" settlements, as well as migrant farmers, from other parts of Cameroon living in "on-road" settlements, have relatively secure land tenure arrangements. Farmers in these categories are interested in cultivating rattan cane. In contrast, short-term migrants residing in "cross-border" settlements show little interest in cultivating rattan for two main reasons.

First, they usually rent farmland on an annual basis and therefore have relatively insecure land tenure arrangements. Second, they tend to view farming as a tool for short-term financial gain. Although indigenous farmers in "off-road" settlements have relatively secure land tenure arrangements, there is little incentive for them to cultivate rattan while relatively large stocks of it remain in the surrounding forests and while access to market is so limited. (*Source:* African Rattan Research Programme, Briefing Note No. 1, December 2002.)

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**For more information, please contact:**
**African Rattan Research Programme.**
**E-mail: afrirattan@aol.com;**
**www.africanrattanresearch.com;**
***or* University College London, Gower Street, London, WC1E 6BT, UK.**
**www.ucl.ac.uk;**
***or* Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, UK.**
**Fax: +44 20 83325197;**
**www.rbgkew.org**

## CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

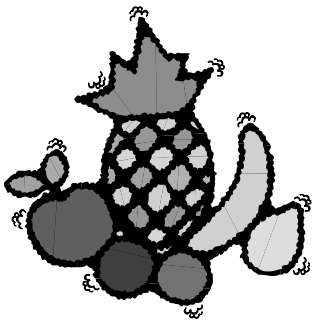
CITES is an international agreement to which States (countries) adhere voluntarily. States that have agreed to be bound by the Convention ("joined" CITES) are known as Parties. Although CITES is legally binding on the Parties – in other words they have to implement the Convention – it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to make sure that CITES is implemented at the national level.

Not one species protected by CITES has become extinct as a result of trade since the Convention entered into force and, for many years, CITES has been among the largest conservation agreements in existence, with now 160 Parties.

**For more information, please contact: CITES Secretariat, International Environment House, chemin des Anémones, CH-1219 Châtelaine, Geneva, Switzerland.**
**Fax: +41 22 7973417;**
**e-mail: cites@unep.ch;**
**www.cites.org**
[*Please see under Products and Markets for information on the activities of CITES in the field of agarwood (*Aquilaria *spp.) and Devil's claw (*Harpagophytum *spp.).*]

## INTERNATIONAL CENTRE FOR UNDERUTILISED CROPS (ICUC)

The International Centre for Underutilised Crops (ICUC) is an autonomous, non-profit, scientific research and training centre, and is based at the University of Southampton, United Kingdom. The centre was established (in 1988) to address ways of increasing the use of underutilized crops both for food, medicinal and industrial products, and also for environmental improvement.



**ICUC Fruits for the Future project**
The Fruits for the Future project is part of a larger fruits programme, which was established in 1995 with an overall goal to increase income, alleviate poverty and improve the livelihood of poor farmers through the promotion of underutilized tropical fruit-trees (UTFTs). The programme also implements a regional project on the improvement of UTFTs and technology transfer through the UTFANET (Underutilised Tropical Fruit in Asia Network).

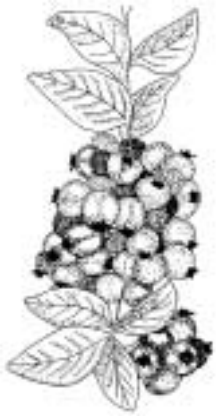
The ICUC Fruits for the Future project (funded by DFID-FRP and the Community Fund, United Kingdom) was established out of demand for up-to-date research information on different aspects of production, propagation, harvest and post-harvest of underutilized tropical fruit-trees; and includes information materials such as: monograph series, publications and Web and/or CD-ROM and video-based extension materials and practical training courses aimed at extension workers and farmers. The project is implemented in partnership with local public and private sectors, international organizations, including the International Center for Research in Agroforestry (ICRAF), the International Plant Genetic Resources Institute (IPGRI) and FAO (the NWFP Programme), and with international and national non-governmental organizations (NGOs).

In addition to the programme objectives, the project aims to provide access to information for a variety of end users, from small farmers, NGOs, extension organizations, and entrepreneurs to researchers, students and policy-makers, and to create public awareness of the potential benefits

Species selected, and on which information materials (monograph, extension leaflets, Web- and/or CD-ROM-based information) are already available are: *Tamarindus india, Ziziphus mauritiana, Dacryodes edulis, Adansonia digitata*, and *Annona cherimola, A. muricata, A. reticulata, A. senegalensis* and *A. squamosa*. Publishing work is in various stages of progress for the following species: *Ricinodendron heudelotii, Artocarpus heterophyllus, Garcinia mangostana, Strychnos cocculoides* and *Pouteria campechiana*.

The impact of this project has already been demonstrated through the ongoing development of new programmes on underutilized fruit-trees in the regions of Asia, Africa and Latin America. The project has highlighted areas of particular importance to the promotion of underutilized species and these are being targeted for further research and development.

**For more information, please contact: Angela Hughes, International Centre for Underutilised Crops, Department of Civil and Environmental Engineering, Lanchester Building, University of Southampton, Southampton SO17 1BJ, UK.**
**Fax: +44 23 80677519;**
**e-mail: A.Hughes@soton.ac.uk;**
**www.civil.soton.ac.uk/icuc** ●



# RECENT EVENTS

## INTERNATIONAL WORKSHOP: ENDANGERED MEDICINAL PLANT SPECIES IN HIMACHAL PRADESH

**18-19 March 2002**
**Mohal-Kullu, Himachal Pradesh, India**

**The Indian Himalayas are a rich reservoir of plant diversity and medicinal plant diversity is an important component of that. As one among the top repositories of medicinal herbs, the state of Himachal Pradesh in Himalaya is one of the major sources of raw material to the global market. Unsustainable extraction of medicinal herbs has led to the endangerment of several of its high-value taxa. *Ex situ* cultivation through community involvement is regarded as a probable solution to meet the raw material market demand while diluting *in situ* extraction pressure. There is an urgent need for committed action by the different groups involved to conserve this valuable medicinal resource.**

**The workshop took place against this background and also that of the International Year of Mountains 2002. Forty experts from India and abroad and from diverse disciplines attended the workshop. The major funder of the workshop was the World Resource Foundation through Rothamsted International (IACR, UK), together with sponsorships from G.B. Pant Institute of Himalayan Environment and Development, Kosi-Almora, India, and the Centre for Advancement of Sustainable Agriculture, New Delhi.**

**Participants deliberated on various issues under technical sessions: i) Endangered species diversity, characterization and evaluation; ii) Production through cultivation; iii) Trade, linkages and ethics; and iv) Conservation approaches. In addition there were presentations in the inaugural and plenary sessions.**

**In the plenary session, participants prioritized endangered medicinal plant taxa for immediate action for conservation through *ex situ* cultivation. Key factors, such as technological feasibility, economic viability, ensured marketing and farmers' acceptance available for each of the prioritized taxa, were taken into consideration. Steps were identified and agreed to be taken up by various partners. At the end of the workshop, a coordinating group finalized the actions necessary to carry forward the conservation programme in Himachal Pradesh.**

**This workshop was highly productive and the forum specially stressed the involvement and crucial role of the indigenous community in the conservation of endangered medicinal plants. The proceedings will be made available for global release.**

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**For more information, please contact the workshop convener: Dr Hemant K. Badola, G.B. Pant Institute of Himalayan Environment and Development, Himachal Unit, Mohal-Kullu 175 126, Himachal Pradesh, India. Fax: +91 1902 22720; e-mail: badolahk@hotmail.com *or* hkbadola@rediffmail.com**

*Fagerlindia fasciculata (Roxb.) Tirveng*

*PROSEA - Plant Resources of South-East Asia 12 - Iskak Syamsudin*

## INTERNATIONAL SYMPOSIUM ON MEDICINAL PLANTS AND PHYTOMEDICINES

**International Colloquium on Medicinal Plants, Health, Environment and Development**
**and**
**International Workshop on Sustainable Trade and Conservation of Medicinal Plants**
**RABAT, MOROCCO**
**2-4 MAY 2002**

The meetings were convened and organized by the Moroccan Network of Medicinal and Aromatic Plants, University of Rabat/Faculty of Medicine and Pharmacy; the Centre for Development and the Environment (SUM)/University of Oslo (UiO), Norway; Conserve Africa International, London and Denzil Phillips International, London, United Kingdom.

The symposium focused on R&D issues relating to medicinal plants for traditional human and veterinary medicine, aromatic and cosmetic plants, phytomedicines and other plant-derived natural products.

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**For more information, please contact: Ernest Rukangira, Executive Director, Conserve Africa International, 24 Carterhatch Road, Enfield, Middlesex, London EN3 5LS, UK. Fax: +44 20 89482673; e-mail: Ernest@conserveafrica.org; www.conserveafrica.org**

## INCOME OPPORTUNITIES FROM FIELD AND FOREST-LANDOWNERS CONFERENCE

**GLOUSTER, OHIO, USA**
**8-9 JUNE 2002**

Participants had the opportunity to learn from national experts about ways they can diversify the income they earn from their land by the use of special forest products. Topics included: woodland plants and mushrooms, agriculture, business development and stewardship, with numerous subtopics within each

# RECENT EVENTS

group including wild simulated ginseng, mushroom cultivation, composting, speciality crops, markets and trends, business and marketing planning, watersheds and agroforestry.

**For more information, please contact:**
**Cynthia Brunty, PO Box 21, 87 1/2 High Street, Glouster, Ohio, USA.**
**www.forestrycenter.org/cfrc/Calendar/detail.cfm?whichevent=374**

## ODYSSEY OF NATURAL PRODUCTS – V SEANN WORKSHOP

**PARO, BHUTAN**
**2-5 SEPTEMBER 2002**

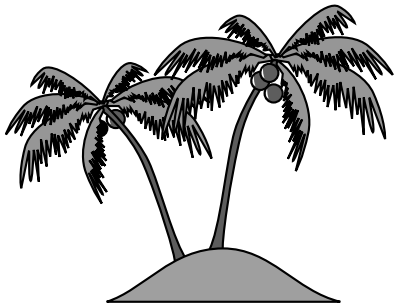
Presentations at the V South East Asian Countries NTFP (non-timber forest products) Network (SEANN) workshop covered a wide variety of subjects, including medicinal plants, edible mushrooms, fruit products, etc.

**For more information,**
**please contact:**
**M.K. Bhattacheryya, General Manager, Bhutan Tourism Corporation Ltd, c/o RCPL Travel Services, 61 Shivalik Apts, Alaknanda, New Delhi 110019, India.**
**Fax: +91 11 6437561;**
**e-mail: travel@rcplonline.com *or* mk1208@rediffmail.com;**
**www.cog.ca/ifoam2002/ *or* www.rcplonline.com/bhutan/**

## 33RD INTERNATIONAL SYMPOSIUM ON ESSENTIAL OILS

**LISBON, PORTUGAL**
**4-7 SEPTEMBER 2002**

Plenary lectures covered: Scents from rain forests – new results; Essential oils: sample preparation and analysis; Biosynthesis of essential oils; Biological activities of the essential oils; Essential oils biodiversity; Volatile signals: chemical structures and ecological aspects; and New trends in intellectual property relating to perfumery materials.



**For more information, please contact:**
**Organizing Committee, *33rd ISEO*, Faculdade de Ciências de Lisboa, Centro de Biotecnologia Vegetal, Departamento de Biologia Vegetal, C2, Piso 1, Campo Grande 1749-016 Lisbon, Portugal.**
**Fax: +351 21 7500048;**
**e-mail: acsf@fc.ul.pt**

## SECOND EXPERT MEETING ON HARMONIZING FOREST-RELATED DEFINITIONS FOR USE BY VARIOUS STAKEHOLDERS

**ROME, ITALY**
**11-13 SEPTEMBER 2002**

This meeting built upon the discussions and results of the first meeting. Some 60 international experts discussed a draft analytical framework on some core definitions.

This process on harmonizing forest-related definitions is closely linked with the Kotka process led by FAO, as well with the UNFCCC process on developing definitions for afforestation and reforestation under article 12 of the Kyoto Protocol, and with Intergovernmental Panel on Climate Change (IPPC)-led processes, such as those on Good Practice Guidance, IPCC task 2.

The proceedings of the First Expert Meeting, which took place in January 2002, are online (www.fao.org/forestry/climate). The full report including the analytical framework and annexes, can be found at: www.fao.org/forestry/fop/fopw/Climate/climate-e.asp

**For more information or for hard copies, please contact:**
**Dr Wulf Killmann, Director, Forest Products Division, FAO Forestry Department, Viale delle Terme di Caracalla, 00100 Rome, Italy.**
**Fax: +39 0657055618;**
**e-mail: Wulf.Killmann@fao.org**

## 8TH INTERNATIONAL CONGRESS OF THE INTERNATIONAL SOCIETY OF ETHNOBIOLOGY

**ADDIS ABEBA, ETHIOPIA**
**16-20 SEPTEMBER 2002**

The theme of the congress was Peoples and Biodiversity, emphasizing the role of ethnobiology in promoting the sustainable use of biodiversity. The congress contributed to the core goals of ethnobiological research and the empowerment of traditional and indigenous peoples to maintain and manage biodiversity for better livelihoods, while conserving biological and cultural diversity around the world. It builds upon a strong body of cross-cultural understanding and research that has been documented at the seven earlier congresses.

Topics covered included: Ethnobiology and food security; Ethnobiology and regional development; Sustainable development of biodiversity; Participatory biodiversity conservation; Ethnobiology and the "Reconstruction of Afghanistan"; Traditional knowledge protecting the values of indigenous and traditional peoples and local communities; Intellectual property rights and ethnobiological research; Ethnomedicine and public health; and Medicinal plant ethnoecology.

**For more information, please contact:**
**Dr Fassil Kebebew, Liaison Officer, ICE-Congress 2002, PO Box 30726, Addis Abeba, Ethiopia.**
**Fax: 251 1 627730;**
**e-mail: fassilkeb@hotmail.com *or* bioresearch@telecom.net.et;**
**http://guallart.dac.uga.edu/ISE/**

# RECENT EVENTS

## CELEBRATING MOUNTAIN WOMEN CONFERENCE

**THIMPHU, BHUTAN**
**1-4 OCTOBER 2002**

The conference was an opportunity to articulate concerns and share experiences and ideas about the future of mountain women's livelihoods and cultures. Five thematic areas were the basis of the conference's activities: Natural resources and environment; Health and well-being; Entrepreneurship; Legal, political and human rights; and Culture and indigenous knowledge.

**For more information, please contact: Ms Ojaswi Josse, Coordination Unit of Celebrating Mountain Women, IYM 2002 Secretariat, ICIMOD, PO Box 3226, Kathmandu, Nepal.**
**Fax: +977 1 524509;**
**e-mail: ojaswi@icimod.org.np;**
**www.mtnforum.org/calendar/events/0205mwaa.htm**

## THE WILD MUSHROOM WORKSHOPS

**PORT MCNEILL AND NEARBY FORESTS, CANADA**
**5-6 OCTOBER (MODULE 1); 26-27 OCTOBER (MODULE 2) 2002**

Organized by The North Island Non-Timber Forest Products Project.
Module 1: Introduction to Wild Mushrooms (identification, harvesting, handling, preparing)
Module 2: Wild Mushrooms for Commercial Pickers and Buyers.

**For more information, please contact: Diane Carley, Communications Coordinator, NTFP Demonstration Project, Sointula, British Columbia, Canada.**
**E-mail: dhcarley@island.net;**
**www.island.net/~ntfp**

## SPECIAL FOREST PRODUCTS PRODUCTION AND MARKETING CONFERENCE

**CAPE GIRARDEAU, MISSOURI, USA**
**25-26 OCTOBER 2002**

The purpose of the conference was to enlighten landowners on the numerous ways to earn income from their woodland other than just growing trees for timber production, and to give them some good background information on what is involved in marketing these products.

Marketing is the dominant constraint for most special forest products (SFP) producers, either owing to a lack of understanding about how to market or simply a failure to realize that developing a market is part of the process. Presentations explored SFP market opportunities for the food, floral, medicinal and crafts sections and addressed the questions: How does one market SFPs? How does marketing differ for each type of SFP?

**For more information, please contact: Dr Gene Garrett, Director, University of Missouri Center for Agroforestry, 203 ABNR-Forestry, Columbia, Missouri 65211, USA.**
**E-mail: GarrettH@missouri.edu;**
**http://ilvirtualforest.nres.uiuc.edu/Conferences/SFP_Marketing_Conference.html**

## 3RD ROTHAMSTED INTERNATIONAL BIOMARKET

**ROTHAMSTED, HERTFORDSHIRE, UK**
**5-7 NOVEMBER 2002**

Advances in molecular biology give us new opportunities to draw judiciously upon the rich natural product resource base provided by the world's diverse flora and fauna and to use the associated expertise to develop novel practices and products that can be more efficient, cost competitive, better targeted and generally more sustainable.

The BioMarket meeting brought together entrepreneurial groups from around the world to help initiate successful partnerships between those who are involved in the research, development and commercialization of innovative products and services from plant and microbial sources.

**For more information, please contact: Dr Roger Atkin or Amanda King, Rothamsted International BioMarket, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ, UK.**
**Fax: +44 1582 760981;**
**e-mail: biomarket@bbsrc.ac.uk;**
**www.bioproduct.info/index.php**

## FIRST ANNUAL REGIONAL ENVIRONMENTAL FORUM

**PHNOM PENH, CAMBODIA**
**14-15 NOVEMBER 2002**

Governance plays an integral role in biodiversity management and trade in NTFPs is perennially a key issue in the Mekong region. A group of 35 independent researchers and civil society advocates from Cambodia, Viet Nam, the Lao People's Democratic Republic, Thailand, Myanmar and China met at the First Annual Regional Environmental Forum (REF) for Mainland Southeast Asia. The purpose of the REF, organized by the Cambodian Institute for Cooperation and Peace (CICP), Thailand

# RECENT EVENTS

Environment Institute (TEI), and the World Resources Institute (WRI), was to discuss environmental governance challenges in the Mekong region.

After two days of deliberations, participants agreed on a joint statement providing concrete recommendations to governments, multilateral institutions, private corporations and civil society groups for strengthening environmental governance in the region. The REF Consensus Statement is available on the Web (www.ref-msea.org/consensus_statement.doc). A compilation volume of papers from the REF will be available in 2003.

**For more information about the REF, please visit:**
**www.ref-msea.org**
***or* contact:**
**Kao Kim Hourn, Cambodian Institute for Cooperation and Peace (CICP), PO Box 1007, Phnom Penh 12202, Cambodia.**
**Fax: +855 23 362520/722759;**
**e-mail: cicp@camnet.com.kh**

## THE NATIONAL HONEY SHOW

**LONDON, UK**
**14-16 NOVEMBER 2002**

Lectures included: Propolis – future medicine?; Household poverty reduction through beekeeping amongst Uganda rural women; and The gender issues in beekeeping.

**For more information, please contact:**
**Rev. H.F. Capener, Honorary General Secretary, 1 Baldric Road, Folkestone, Kent CT20 2NR, UK.**
**Fax: +44 1303 254579;**
**e-mail: mathon@zbee.com;**
**www.honeysow.co.uk**

## FSC GENERAL ASSEMBLY 2002 (WITH SIDE MEETING ON NTFP)

**OAXACA, MEXICO**
**22-26 NOVEMBER 2002**

One of the side meetings organized by FSC members was the Non-timber Forest Products Focus Group Meeting organized by the Falls Brook Centre. The focus group has members from more than 20 countries and is being reinvigorated after two years of dormancy. It serves as a general information network for NTFPs and has focused specifically on the certification of NTFPs within the structure of the FSC certification programme. As part of the work coordinating these meetings, the Falls Brook Centre is assembling a database of individuals and organizations active in the NTFP field. To be included in the database on a new NTFP listserve and to be informed of events, publications, etc., please contact Ramsey Hart (ramsey@fallsbrookcentre.ca).

**For more information, please contact:**
**FSC Secretariat, Forest Stewardship Council (FSC), Avenida Hidalgo 502, Oaxaca 68000, Oaxaca, Mexico.**
**Fax: +52 951 5162110;**
**e-mail: ga2002@fscoax.org;**
**www.fscoax.org/ga_2002/default.htm**

## INTERNATIONAL CONFERENCE ON HIMALAYAN BIODIVERSITY

**KATHMANDU, NEPAL**
**10-13 DECEMBER 2002**

In recognition of The International Year of Mountains (IYM) 2002 and The International Year of Ecotourism, 2002, this conference was organized by the Himalayan Resources Institute, Nepal, in collaboration with the Biodiversity Research Group, Central Department of Zoology, Tribhuvan University, Nepal, the Ecological Association of Nepal and Nepal Biotechnology Association.

The conference theme was "Conservation of Himalayan Biodiversity for Human Welfare". The following major topics were covered: Himalayan flora and fauna; Biodiversity conservation; Indigenous knowledge on biodiversity conservation; Trade-related property rights (TRIPs); and Ecotourism.

**For more information, please contact:**
**Mr Ram Bhandari, President, Himalayan Resources Institute (HIRI), New Baneshwor, Kathmandu, Nepal.**
**E-mail: hirinepal@mail.com.np**

## SYMPOSIUM ON HISTORY AND FOREST BIODIVERSITY – CHALLENGES FOR CONSERVATION

**LEUVEN, BELGIUM**
**13-15 JANUARY 2003**

The symposium focused on the effects of history on the species composition and richness of forests. It showed how the integration of historical work, vegetation science, zoology, ecology and others result in an added value for understanding forests, their management, conservation and expansion.

**For more information, please contact:**
**Sofie Bruneel, Laboratory for Forest, Nature and Landscape Research, Catholic University of Leuven, Vital Decosterstraat 102, B-3000 Leuven, Belgium.**
**Fax: +32 16 329760;**
**e-mail: forestbiodiv@agr.kuleuven.ac.be *or* sofie.bruneel@agr.kuleuven.ac.be;**
**www.agr.kuleuven.ac.be/lbh/lbnl/forestbiodiv/**

# RECENT EVENTS

## EXPERT CONSULTATION ON TRADE AND SUSTAINABLE FOREST MANAGEMENT: IMPACTS AND INTERACTIONS

**ROME, ITALY**
**3-5 FEBRUARY 2003**

Convened at FAO headquarters and bringing together 73 participants from 26 countries, representing government, international organizations, non-governmental organizations and the private sector, the expert consultation provided a forum to debate how current developments in trade policies and market development affect the sustainability of forest management, and how sustainable forest management is changing trade patterns and market share.

The expert consultation meeting constitutes one of the activities within FAO's international project on the Impact Assessment of Forest Products Trade in the Promotion of Sustainable Forest Management. The project is financed by the Japanese Government. FAO will publish the results of this process and will convene a second expert consultation meeting later this year which will include trade policy-makers and trade specialists involved in debates on a new International Tropical Timber Agreement (ITTA), the implementation of the World Trade Organization (WTO) Doha Declaration, regional trade agreements and national trade policy-making.

Participants at the expert consultation met in a plenary session on 3 February to hear presentations on trade and forest management, global trends in trade of forest products and services, public policies and initiatives; trade agreements and restrictions, governance and trade in forest products and services, cross-sectoral policy impacts and new markets for environmental services. On 4 February, participants debated the issues in four working groups: trade measures and policies; trade, finance and industrial structure; governance and trade; and extrasectoral influences and the environment. A closing plenary session was held on 5 February to hear the results of the working groups' debates and comments on the draft Co-Chairs' Summary Report of the meeting. (*Source: Earth Negotiation Bulletin*, 79(01), 7 February 2003 [www.iisd.ca/linkages/sd/tsfm/].)

**For more information, please contact: Dr Christian Mersmann, Trade and Marketing in Forest Products and Services, Forest Products Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy.**
**Fax: +39 0657055137;**
**e-mail: christian.mersmann@fao.org;**
***or* visit:**
**FAO's Forest Products Trade programme:**
**www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=1141&langId=1**

## 3RD WORLD CONGRESS ON MEDICINAL AND AROMATIC PLANTS FOR HUMAN WELFARE

**CHIANG MAI, THAILAND**
**3-7 FEBRUARY 2003**

**For more information, please contact: Congress Secretariat WOCMAP III, Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand.**
**Fax: +66 53 944934/892259;**
**e-mail: secretariat@wocmap3.org *or* wocmap3@yahoo.com;**
**www.wocmap3.org**

## INCREASING THE EFFECTIVENESS OF TRANSBOUNDARY CONSERVATION AREAS IN TROPICAL FORESTS

**UBON RATCHATHANI, THAILAND**
**17-21 FEBRUARY 2003**

Ecosystems and species do not recognize political boundaries. In the many cases where borders between countries bisect tropical forests, transboundary conservation programmes can make an important contribution to biodiversity conservation while supporting regional integration and economic development. At the same time, transboundary conservation programmes present many challenges.

These challenges were addressed at this international workshop. The World Conservation Union (IUCN) and the International Tropical Timber Organization (ITTO) brought together people with experience and knowledge of protected area issues to discuss opportunities for increasing the effectiveness of transboundary conservation areas in tropical forests. The workshop also contributed to the IUCN World Parks Congress regarding the role of cooperation across borders in tropical forest conservation and management.

**For more information, please contact: TBCA Meeting Secretariat, Attention: Dena Cator and/or Sonja Canger, Forest Conservation Programme, IUCN – World Conservation Union, rue Mauverney 28, CH-1196 Gland, Switzerland.**
**Fax: +41 22 9990025;**
**e-mail: transboundary@iucn.org;**
**www.iucn.org/themes/fcp/activities/transboundary1.htm**

# RECENT EVENTS

## FAO COMMITTEE ON FORESTRY (COFO) – SIXTEENTH SESSION

**ROME, ITALY**
**10-14 MARCH 2003**

COFO-16 brought together heads of forest services, senior government officials, international organizations and NGOs to identify emerging policy and technical issues, to seek solutions and to advise FAO and others on appropriate action.

The major forestry policy issues that were presented and debated at COFO included:

- The role of the Regional Forestry Commissions in implementing the IPF/IFF proposals for action
- Forests and freshwater – issues and options
- National forest programmes (NFP) as a mechanism to implement the key outcomes of the World Food Summit: five years later and the World Summit on Sustainable Development.

In addition, the following FAO programmes in forestry were presented to member countries for discussion and advice:

- The future of forests: implications of the Forestry Outlook Study for Africa (FOSA)
- Review of FAO programmes in the forestry sector, including follow-up to the requests and recommendations of the Fifteenth Session of the Committee, as well as the Programme Implementation Report:
  a) Developments in Forest Resources Assessment
  b) Harmonizing forest-related definitions: key to successful monitoring and reporting on forests
- Defining work objectives for FAO in key cross-cutting areas identified by countries and the FAO medium-term planning process:
  a) Forests, poverty and food security
  b) Forests and water
  c) Forest governance
  d) Forest biological diversity.

COFO members were invited to advise FAO on the emphasis it should accord to these work areas and the roles FAO is expected to have in terms of policy development and provision of technical expertise to member countries, in collaboration with partners such as NGOs and international agencies.

During COFO there were side meetings on the following topics: FAO support to member countries; Forests and water; Developments in forest resources assessment; Harmonizing forest-related definitions; NFP Facility; World Forestry Congress 2003; *Silva Mediterranea*; International Year of Mountains, as well as FAO-hosted Satellite Events led by other major forest organizations and a Poster Session, illustrating some of the field and normative programmes of FAO and partners.

COFO documents detailing the above topics and papers can be downloaded in PDF format from: www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=1400&langId=1&siteTreeId=3282>

**For more information, please contact:**
**R. Michael Martin, Chief, Forestry Information and Liaison, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy.**
**Fax: +39 0657055137;**
**e-mail: michael.martin@fao.org**

## ALL DIVISION 5 IUFRO CONFERENCE "FOREST PRODUCTS RESEARCH – PROVIDING FOR SUSTAINABLE CHOICES"

**ROTORUA, NEW ZEALAND**
**11-15 MARCH 2003**

This conference, which was organized by the International Union of Forest Research Organizations (IUFRO), served as a forum for the exchange of knowledge and experience in forest products research at the national and international levels. Participants discussed recent research progress, exchanged information and collaborated on research related to the conference theme "Forest Products Research – Providing for Sustainable Choices".

Discussions considered scientific progress towards meeting the rapidly increasing demands for forest products of all kinds, while maintaining the forest as the source of such products and a resource for the social, economic and environmental benefits.

This conference included a session on non-wood forest products under the IUFRO Group 5.11, chaired by Dr Jim Chamberlain. The session focused on research needs for sustainable management of non-wood forest products.

**For further information, please contact:**
**Dr Jim Chamberlain, Non-Timber Forest Products Research Technologist, US Forest Service, Southern Research Station, Coordinator, IUFRO Research Group 5.11 (Non-wood Forest Products), 1650 Ramble Road, Blacksburg, Virginia 24061, USA.**
**Fax: +1 540 2311383;**
**e-mail: jachambe@vt.edu;**
**www.sfp.forprod.vt.edu *or***
**www.forestresearch.co.nz/**

# RECENT EVENTS

## IUFRO PAPER ON CERTIFICATION AND BENEFIT-SHARING

**A voluntary paper, *Benefit-sharing arrangements in the field of non-wood forest products – status and links to certification*, was presented by FAO's NWFP Programme to the Conference Scientific Committee of the IUFRO All Division 5 Conference (Rotorua, 2003).**

**The paper discusses the relevance of benefit-sharing arrangements (BSA) and certification for NWFPs. BSA with regard to NWFPs have mainly been developed for species with medical properties in the areas of bioprospecting and trade. Other NWFPs covered by BSA include cosmetics, animal products and exudates (gum arabic).**

**Key certification schemes relevant for NWFPs are forest management certification, social certification, organic certification and product quality certification.**

**This paper describes BSA in the field of NWFPs and discusses linkages between BSA and certification as potential tools for the promotion of improved benefit-sharing.**

**The paper identifies crucial issues which should be taken into consideration when analysing BSA and certification systems, such as:**

- **Which certification programmes or BSA exist and under what conditions are they most suitable and for whom?**
- **Which mechanisms are most appropriate to facilitate the distribution of monetary benefits? Who should be the principal beneficiaries? How should they be organized?**
- **How relevant are these mechanisms in the promotion of the sustainable use of NWFPs, taking into account that they are only applied for selected species and specific locations?**
- **What are the impacts of certification and benefit-sharing as policy tools that provide a multitude of non-monetary benefits such as improved capacity, stakeholder participation and consultation, and the recognition of custom, tenure and user rights?**
- **How do certification and benefit-sharing mechanisms actually contribute to poverty alleviation? Will they remain tools providing benefits to a limited number of people or will these mechanisms contribute to the improvement of local livelihoods on a larger scale?**
- **Are certification and benefit-sharing mechanisms able to promote the production of NWFPs by forest-dependent people as opposed to the production of these products through farming? (This is particularly so for medicinal plants, where "competition" between farmed and wild-gathered products is high.)**
- **What is the potential of certification and benefit-sharing as market tools? For which products, certified or produced in the context of BSA, does a market actually exist that allows the payment of a premium price?**
- **How do the additional costs that result from certification and benefit-sharing influence the application of these mechanisms?**
- **How applicable are certification and benefit-sharing mechanisms for rural areas and dispersed people?**
- **How applicable and effective are certification and benefit-sharing mechanisms as tools for the improved traceability of supply chains?**
- **What methods can be applied in order to define sustainable harvesting levels, taking into account the lack of ecological information on many species providing NWFPs? Do species-specific standards sufficiently avoid negative ecological effects on the entire production system?**
- **Can certification programmes be used as voluntary control tools to monitor and evaluate the compliance with laws and regulations such as CITES?**

**The FAO NWFP Programme, in collaboration with other programmes, organizations and agencies, aims at contributing to this assessment by:**

- **collecting, analysing and disseminating information on: i) relevant stakeholders involved in certification and benefit-sharing (e.g. private sector, governmental and non-governmental organizations), as well as ii) existing certification and benefit-sharing mechanisms for NWFPs (e.g. labelling systems); and**
- **implementing case studies which aim at assessing the impact of certification and benefit-sharing on the sustainable use of selected NWFPs.**

***FAO's NWFP Programme presented two other voluntary papers, one on statistics and one on biometrics. All three papers are available from the Programme's home page.*** ●

# FORTHCOMING EVENTS

## INTERNATIONAL ECOTOURISM CONFERENCE 2003: SUSTAINABILITY OF ECOTOURISM DEVELOPMENT IN A COMPETITIVE GLOBAL ENVIRONMENT

**PUTRAJAYA, MALAYSIA**
**15-17 APRIL 2003**

The major objective of the conference is to provide an international forum for expertise from academia and private and public sectors to exchange information regarding policies, strategies, criteria and indicators, management, trends in research, local participation and successes in the sustainable development of ecotourism in a globalized environment.

**For further information, please contact: Dr Abdullah Mohd, Conference Chair, Faculty of Forestry, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.**
**Fax: +60 3 89432514;**
**e-mail: abdullah@forr.upm.edu.my;**
**www.econ.upm.edu.my**

## 4TH MINISTERIAL CONFERENCE ON THE PROTECTION OF FORESTS IN EUROPE – LIVING FOREST SUMMIT

**VIENNA, AUSTRIA**
**28-30 APRIL 2003**

The Ministerial Conference on the Protection of Forests in Europe (MCPFE) is a high-level political initiative for the cooperation of 40 European countries and the European Community. It addresses common opportunities and threats related to forests and forestry and promotes sustainable management of forests in Europe. Launched in 1990, it is the political platform for the dialogue on European forest issues.

Key issues of this Living Forest Summit will be biological diversity in Europe, climate change in the context of sustainable forest management, economic conditions for activities in the forest sector, as well as cultural aspects.

Simultaneous interpretation of the deliberations will be provided in English, French, German and Russian.

**For more information, please contact: Ministerial Conference on the Protection of Forests in Europe (MCPFE), Liaison Unit Vienna, Marxergasse 2, A-1030 Vienna, Austria.**
**Fax: +43 1 710770213;**
**e-mail: liaison.unit@lu-vienna.at;**
**www.mcpfe.org/index.html**

## MANGROVE 2003: CONNECTING RESEARCH AND PARTICIPATIVE MANAGEMENT OF ESTUARIES AND MANGROVES

**SALVADOR, BRAZIL**
**20-24 MAY 2003**

The Mangrove 2003 Conference will seek to promote the necessary link between the generation of knowledge and environmental management, in order to enhance local participation in solutions for socio-environmental problems.

**For more information, please contact: Conference Secretary, Universidade Federal de Bahia, Instituto de Geociências-Instituto de Biologia, Núcleo de Estudos Ambientais, Campus Universitário de Ondina, Salvador, Bahia, Brazil CEP 40170-290.**
**Fax: +55 71 3324085;**
**e-mail: mangrove2003@ufba.br;**
**www.mangrove2003.ufba.br**

## THE NAMCHE CONFERENCE: PEOPLE, PARK AND MOUNTAIN ECOTOURISM

**NAMCHE BAZAAR, KHUMBU, NEPAL**
**24-26 MAY 2003**

Presentations and workshops will cover a range of topics; however, special attention will be given to the role of parks in mountain ecotourism. Advantage should be taken of the expert opinion of the local people in assessing the accomplishments of Sagarmatha National Park, comparing this park with others around the world. The organizers' intention is to generate results that will be useful both to Sagarmatha stakeholders and to stakeholders in other remote tourism destinations.

**For more information, please contact: Dr Seth Sicroff, Director, Bridges: Projects in Rational Tourism Development, 219 W. Spencer Street #3, Ithaca, New York 14850, USA.**
**E-mail: sicroff@namche.net;**
**www.bridges-prtd.com**

## RURAL LIVELIHOODS, FORESTS AND BIODIVERSITY

**BONN, GERMANY**
**26-30 MAY 2003**

This event will be held to commemorate the tenth anniversary of the Center for International Forestry Research (CIFOR) and will be organized in collaboration with Germany's Federal Ministry for Economic Cooperation and Development (BMZ), Foundation for International Development (DSE) and Agency for Technical Cooperation (GTZ).

The conference will examine the role of forests in supporting rural livelihoods in developing countries and the maintenance of biodiversity. Its key objectives are to survey current knowledge and identify policy lessons and a future research strategy.

# FORTHCOMING EVENTS

### NWFP CERTIFICATION

**A voluntary paper, *Impact of certification on the sustainable use of NWFP – lessons learnt from four case studies*, has been submitted to the International Conference on Rural Livelihoods, Forests and Biodiversity by FAO's NWFP Programme.**

**The paper assesses the ecological, social and economic impact of certification for selected NWFPs, based on comparative case studies which are carried out in different locations. These case studies cover different product categories, geographical areas and certification schemes:**

- **Brazil nuts in Bolivia, with focus on forest management certification schemes**
- **Shea butter in Ghana, with focus on social certification schemes**
- **Devil's claw in Namibia (producing country) and Germany (importing country), with focus on organic and/or product quality certification schemes**
- **Rattan in Viet Nam, with focus on forest management certification schemes.**

**The use of NWFPs contributes significantly to rural livelihoods through the satisfaction of subsistence needs (e.g. foodstuff and medicine) and the generation of income.**

**The international trade in NWFPs involves high potentials and risks. The main benefit of the international trade in NWFPs is the high market value the products achieve compared with local or national markets. However, high market values combined with high demands may also cause unsustainable use since they might lead to overexploitation of species providing NWFPs. In addition, higher product values might not be equally shared among all stakeholders involved in the collection, processing, manufacture, trade and marketing of NWFPs.**

**Certification is perceived by various stakeholders as a tool for promoting the sustainable use of natural resources, including NWFPs. The three major dimensions of sustainability are: i) environmental friendliness; ii) economic viability; and iii) social equity. The FAO NWFP Programme, in the context of its programme activity, "Analysis of the relevance and applicability of certification and benefit-sharing mechanisms in the field of NWFPs", aims at analysing the actual and potential contribution of certification and benefit-sharing to the sustainable use of NWFPs.**

**For more information, please contact: Secretariat for the Bonn Conference on Rural Livelihoods, Forests and Biodiversity, Center for International Forestry Research (CIFOR), PO Box 6596 JKPWB, Jakarta 10065, Indonesia.**
**Fax: 251 622 100;**
**e-mail: bonnconference@cgiar.org;**
**www.cifor.cgiar.org/livelihoodconference.asp**

### SECOND ANNUAL SUSTAINABLE FOREST MANAGEMENT SUMMIT: MEETING EMERGING ECOLOGICAL, ECONOMIC AND SOCIAL CHALLENGES

**SAULT STE MARIE, ONTARIO, CANADA**
**9-11 JUNE 2003**

The goal of this meeting, which is being sponsored by The Great Lakes Forest Alliance (GLFA), is to provide a broad forum to discuss critically emerging forest resource issues in the Great Lakes Region. GLFA is a forum to foster and facilitate cooperative efforts that enhance management and sustainable use of the public and private forest lands in Michigan, Minnesota, Ontario and Wisconsin.

**For more information, please contact: Wendy Hinrichs Sanders, 7231 N. Rehor Road, Hayward, Wisconsin 54843, USA.**
**Fax: +1 715 6342006;**
**e-mail: forestls@lsfa.org;**
**www.lsfa.org**

### V IUCN WORLD PARKS CONGRESS

**DURBAN, SOUTH AFRICA**
**8-17 SEPTEMBER 2003**

The IUCN World Parks Congress meets every ten years. As the major global forum for protected areas, it offers a unique opportunity to take stock of protected areas; provide an honest appraisal of progress and setbacks; and chart the course for protected areas over the next decade and beyond. Some of the themes for this year include:

- Building the Global System: Arctic, Biosphere Reserves, Cave and Karst Protection, Grassland Protected Areas, Transboundary Protected Areas
- Understand and Prepare for Global Change
- Improving the Effectiveness of Protected Area Management
- Equity and People: Category V Protected Areas, Local Communities and Protected Areas, Non-material Values of Protected Areas
- Developing the Capacity to Manage: Information Management, Tourism and Protected Areas, Training and Protected Areas, Sustainable Financing of Protected Areas

**For more information, please contact: Kristin Lauhn-Jensen, World Parks Congress Officer, IUCN – World Conservation Union Headquarters, rue Mauverney 28, Gland 1196, Switzerland.**
**Fax: +41 22 9990002;**
**e-mail: kristin.lauhn-jensen@iucn.org;**
**www.iucn.org/themes/wcpa/**

# FORTHCOMING EVENTS

## XII WORLD FORESTRY CONGRESS

**QUÉBEC CITY, CANADA**
**21 TO 28 SEPTEMBER 2003**

The XII World Forestry Congress is being organized and hosted by Canada, with technical assistance from FAO, and will be held in Québec City, Canada from 21 to 28 September 2003. The congress will serve as a forum to exchange views and experience, discuss forestry issues and formulate broad regional or global recommendations. The congress provides the forestry sector with the opportunity to produce a periodical overview of the state of forests and forestry, discern trends, adapt policies and raise awareness with decision-makers, the public and all parties concerned.

The congress is not an intergovernmental meeting and has no formal constituencies or country delegations. As the main global forum on forests and forestry, the congress brings together the world forestry community, and all geographic regions have a shared interest in its preparations. The

***The following two abstracts are from voluntary papers on NWFPs which have been submitted by FAO's Non-Wood Forest Products Programme to the XII World Forestry Congress. The full papers will be available from the NWFP home page:*** **www.fao.org/forestry/FOP/FOPW/NWFP/new/nwfp.htm**

***Towards improved classification of non-wood forest products through existing international product classification schemes.***

**The purpose of the paper is to contribute towards improving the identification, classification and visibility of non-wood forest products (NWFPs) in international trade statistics by making proposals for amendments to existing international product classification schemes and for their implementation by countries. Internationally agreed upon product classification codes for major NWFPs and their use by the relevant agencies of countries trading in these products is an essential prerequisite to achieve more accurate international trade statistics on NWFPs and to assess their economic contribution.**

**A phased approach is suggested by addressing first those NWFPs which are traded internationally and by focusing on the most widely used product classification system: the Harmonized System (HS) of the World Customs Organization (WCO). The HS is harmonized with other existing major international and national product classification systems and, by adopting multidigit coding, is adequately flexible for incorporating the reporting on NWFPs and therefore capable of being adjusted to the contexts within which different organizational units operate and to the specific situation of individual countries.**

**FAO and the International Network for Bamboo and Rattan (INBAR) have initiated actions leading to the development of a proposal for amending HS codes for bamboo and rattan products, through an international expert meeting held in Rome in December 2002. Bamboo and rattan are the flagships of NWFPs, and it is hoped that the lessons learned on the elaboration and implementation of HS trade codes on bamboo and rattan can be expanded to other major groups of NWFPs, such as medicinal plants, forest-gathered wild vegetables, wild mushrooms, fruits and nuts.**

***Opportunities and challenges of non-wood forest products certification.***

**Non-wood forest products (NWFPs) such as medicinal plants, nuts or bushmeat are used by hundreds of millions of people for subsistence purposes and for the provision of income. The international trade in NWFPs involves high potentials and risks. In this regard, a discussion is emerging on the opportunities and challenges of certification as a tool to promote the sustainable use of natural resources, including NWFPs.**

**Certification schemes relevant to NWFPs include forest management, social, organic and product quality certification. These schemes focus, at different degrees, on social, economic, ecological and/or product quality issues.**

**Key requirements for the certification of NWFPs include the establishment of a limited and monitored permitting system, the development of clear tenure rights, limited access to harvesting sites, the development of niche markets and the implementation of quality control measures.**

**Information on NWFP certification is still insufficient in order to assess properly the usefulness and effectiveness of certification as a tool to promote the sustainable use of NWFPs. The available literature indicates opportunities, constraints and unclear issues, which require further in-depth analysis, in order to provide sound information on the pros and cons of NWFP certification.**

# FORTHCOMING EVENTS

## NWFP SIDE EVENT AT WORLD FORESTRY CONGRESS

The Center for International Forestry Research (CIFOR), FAO and the International Union of Forestry Research Organizations (IUFRO) will be cohosting a non-wood forest products "side event" – Strengthening Global Partnerships to Advance Sustainable Development of Non-Wood Forest Products – at the World Forestry Congress in Québec, Canada, in September 2003. By joining forces, CIFOR, FAO and IUFRO will be able to reach a very large proportion of the researchers and practitioners who have an interest in NWFPs. It will be an excellent opportunity to contribute to an improved understanding and focus in the area of NWFPs.

Suggestions for discussion topics were received following an announcement of this NWFP side event. Three major themes emerged from these suggestions, as were the subthemes that have been listed. This list of subthemes is not exhaustive and more may be added through the process.

To meet their goals, CIFOR, FAO and IUFRO are initiating an Internet-based electronic consultation to explore the issues, take stock of lessons learned, identify critical gaps in the knowledge base, and identify research, development and policy needs. They envision this phase working in a similar way to a round-table discussion or a working group. It is hoped that the major issues will be elaborated through this Internet-based dialogue. The hosts realize that some people may not have access to the Internet and they hope that colleagues who do will make a special effort to include these people in the discussions.

The only way this phase of the process will work is for people to volunteer to lead, and/or be part of, a discussion around one or more of the following (non-exhaustive) main themes.

*1. Commercialization: a reality check*
- Constraints to sustainable commercialization
- Characteristics of successful commercialization
- Assessing economic and non-economic value
- What happens when NWFPs are commercialized?
- Winners and losers?
- Ecological implications?
- Mid-term and long-term dynamics?
- Which interventions work and under what circumstances?
- Management implications of commercialization?
- Marketing to benefit local people
- Potential for certification

*2. Linking NWFP management with livelihood development*
- Resource inventory/monitoring
- Genetic diversity conservation
- Assessing sustainable harvest levels
- Assessing economic and non-economic value (cross theme)
- Resource management and domestication
- Natural forest management
- Cultivation and production, and genetic variability
- Agroforestry, farm forestry, agriculture
- Role of traditional ecological knowledge in developing management practices
- Acknowledging and respecting indigenous people's rights
- Understanding and improving markets for NWFPs
- Processing and value-added for sustainable development
- The (changing) role of NWFPs in household economic strategies
- Supporting NWFP-based development: what works?

*3. Institutional and policy dimensions*
- National and international levels
- (Inter)national collaboration
- Legislation and regulations
- Demonstration communities
- Integrating NWFPs and the timber industry
- Linking the forest sector to people's livelihoods
- Improving NWFP production and trade statistics.

Participating may mean proposing new, and expanding on already identified, subthemes, responding to requests for input, providing comments, identifying critical issues, gaps in knowledge and all those other items listed.

At the end of this phase, participants will have prepared a draft statement on the "state of the knowledge" regarding each theme. These will be shared through our community of peers to make sure they address the major issues, and that important issues have not been left out. As the e-consultation proceeds, people can participate further and contribute/assist with the preparation of case studies and/or state of knowledge reports on key topics as identified during the consultation phase (following a standardized format still to be elaborated).

The complete action plan can be found on the NWFP home page of the FAO Web site (www.fao.org/forestry/FOP/FOPW/NWFP/new/nwfp.htm). The e-discussion Web page can be found at: www.sfp.forprod.vt.edu/discussion/

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For more information, please contact:
Dr Jim Chamberlain, Non-Timber Forest Products Research Technologist, US Forest Service, Southern Research Station Coordinator, IUFRO Research Group 5.11 (Non-wood Forest Products)
1650 Ramble Road, Blacksburg, Virginia 24060, USA.
Fax: +1 540 2311383;
e-mail: jachambe@vt.edu;
www.sfp.forprod.vt.edu;
http://iufro.boku.ac.at/iufro/iufronet/d5/hp51100.htm

# FORTHCOMING EVENTS

role of the congress is advisory, not executive. Implementation of its recommendations is incumbent upon those to whom they are addressed – governments, international organizations, scientific bodies and forest owners. These recommendations will be sent to the next FAO Conference, which could resolve to endorse the Declaration of the Congress.

Discussions at the XII World Forestry Congress will focus on individuals, communities and forests under the theme "Forests, Source of Life".

**For more information, please contact: Jean-Louis Kérouac, ing.f., M.Sc., Secrétaire-général, Congrès forestier mondial 2003, World Forestry Congress, 800, Place d'Youville, 18th Floor, Québec, Québec G1R 3P4, Canada. Fax: +1 418 6949922; e-mail: sec-gen@wfc2003.org; *or* The Secretariat, XII World Forestry Congress, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. Fax: +39 0657052151; e-mail: WFC-XII@fao.org; www.cfn2003.org/**

**WORLD FORESTRY CONGRESS AND INDIGENOUS PEOPLE**

**The overarching theme of the 2003 meeting is "Forests, Source of Life" and for the first time in history of the World Forestry Congress, indigenous people will be visible and will have an active role. As a member of the organizing committee to the XII World Forestry Congress (XII WFC), the National Aboriginal Forestry Association (NAFA) of Canada wants to ensure the meaningful participation of indigenous people in a number of different ways. Three of the main activities that have been organized are the Indigenous Peoples' Forest Forum, the Indigenous Peoples' Forest Pavilion and a call for papers on indigenous people's forest issues.**

**INDIGENOUS PEOPLES' FOREST FORUM**

**NAFA is hosting and organizing an Indigenous Peoples' Forest Forum as an official side event. Approximately 200 indigenous people from around the world will take part in this two-day preparatory and strategy gathering. This side event is intended for indigenous community members, leaders, scholars and entrepreneurs in preparation for the XII World Forestry Congress.**

**The objectives include:**

- **full, effective and informed participation of indigenous people in the XII World Forestry Congress;**
- **creation of an Indigenous Peoples' Network on Forests;**
- **indigenous people's assistance in the development of forestry policies, practices, research and international cooperation;**
- **enhancing the indigenous people's vital role in the conservation and sustainable use and management of the world's forests;**
- **exchange of experiences, perspectives and information among indigenous people, as well as with non-governmental organizations, governments, research and education institutions, and the private sector on diverse forestry issues; and**
- **provide a forum in which indigenous people can raise key issues concerning sustainable forest management.**

**Sponsorships are being sought to enable the optimum participation of indigenous people at the XII World Forestry Congress and at the Indigenous Peoples' Forest Forum. Further details on eligibility for travel subsidies will be announced on the NAFA Web site as arrangements are made.**

**INDIGENOUS PEOPLES' FOREST PAVILION**

**The Indigenous Peoples' Forest Pavilion will showcase diverse, innovative and leading indigenous people's sustainable forest management initiatives at the XII World Forestry Congress. The pavilion will be designed to advance indigenous people's interests and approaches, highlight achievements and identify outstanding issues and concerns. There will be approximately 30 initiatives selected from around the world to be a part of the pavilion for the duration of the congress.**

**The pavilion will showcase approaches to sustainable forest management that: a) include elements of Indigenous governance systems and traditional land use practices; b) address unique Indigenous forest management objectives or cultural values; and c) enhance traditional rights to harvest. Subjects covered will include non-timber forest products and non-timber values.**

**CALL FOR PAPERS FOR AN INDIGENOUS PEOPLE'S FOREST PUBLICATION**

**NAFA will prepare a special indigenous people's publication on forest issues that includes research papers, case studies and concept papers. This publication will showcase indigenous people's knowledge and ability to engage in sustainable use and integrated management of their forests. To have a far-reaching and long-lasting impact, the release of this special publication will coincide with the gathering of the international forestry community at the XII WFC.**

**For more information on these three initiatives, please contact: National Aboriginal Forestry Association (NAFA), 875 Bank Street, Ottawa, Ontario K1S 3W4, Canada. Fax: +1 613 2334329; e-mail: ikima@nafaforestry.org; www.nafaforestry.org**

# FORTHCOMING EVENTS

**SIDE EVENT ON RESOURCES, TRADE AND MARKET STRUCTURE FOR BAMBOO AND RATTAN**
**Québec, Canada**
**20-21 September 2003**

**An International Workshop will be held by the International Network for Bamboo and Rattan (INBAR) as a side event of the XII World Forestry Congress.**

**For more information please contact: Maxim Lobovikov, Program Manager, International Network for Bamboo and Rattan (INBAR), Beijing 100101-80, People's Republic of China.**
**E-mail: mlobovikov@inbar.int; www.inbar.int**

PROSEA - Achmad Satiri Nurhaman

*Clusia rosea* Jacq.

## GLOBAL SUMMIT ON MEDICINAL PLANTS (GSMP)

**MAURITIUS**
**26 SEPTEMBER-1 OCTOBER 2003**

This international Summit on Medicinal Plants will be a forum for scientists, researchers and policy-makers to meet and discuss the key areas of conservation of medicinal plants, health care and ethnomedicine, etc. The main theme of the conference, which is being hosted by Century Foundation, is "Recent trends in phytomedicine and other alternative therapies for human welfare". The conference will draw attention to the vital importance of medicinal plants and other therapies in health care.

**For registration and further information on the conference, please visit: www.cenfound.org/global/global.html; *or* contact: Dr V. Sivaram, President, Global Summit on Medicinal Plants, Department of Botany, Post-Graduate Centre, Bangalore University, Kolar 563101, India.**
**Fax: +91 80 5244592;**
**e-mail: siva_v@vsnl.net *or* sivaram900@yahoo.co.uk;**
***or* Dr Anita Menon, Organizing secretary, Global Summit on Medicinal Plants, Century Foundation, # 35, 3rd Cross, Vignannagar, Malleshpalya, Bangalore 560075, India.**
**Fax: +91 80 5244592;**
**e-mail: cenfound@yahoo.co.uk; cenfound@sparrl.com**

## ENHANCING THE SOUTHERN APPALACHIAN FOREST RESOURCE

**HENDERSONVILLE, NORTH CAROLINA, USA**
**2-3 OCTOBER 2003**

The symposium will include three concurrent tracks with presentations including:

- A new look at traditional approaches
- The forest and the community
- Innovative approaches (including non-timber forest products)

**For more information, please contact: Ms Susan Moore, North Carolina State University, Raleigh, North Carolina 27695, USA.**
**E-mail: susan_moore@ncsu.edu; www.ncsu.edu/feop/symposium/**

## WORLD CONGRESS ON EXPORT POTENTIAL OF MEDICINAL PLANTS AND PRIMARY HEALTH CARE FOR TRIBAL DEVELOPMENT

**BHOPAL, INDIA**
**2-4 OCTOBER 2003**

This congress is the first of its kind and is an attempt towards the eradication of poverty and enriching the Green Health Campaign through the proper utilization of a US$62 billion market, and introducing one of the most ancient and rich traditional systems of medicine to national and international communities.

According to the organizers' market analysis and development, India's share of the global herbal market of about US$62 billion is only $1 billion; with $28 billion in the European Union, $10.8 billion in Asia, $9.8 billion in Japan, $6.9 billion in North America, $2.4 billion in the rest of Europe and $4.1 billion in other countries. The World Bank predicts that the global sale of botanical medicines will reach $3 trillion by 2050. The organizers hope that this conference will set a new agenda for the green earth movement.

The congress is being organized by People For Animals (Jeev-Jantu Kalyan Sangathan) Bhopal (M.P.), International Gayatri Pariwar, Bhopal, Oriental Institute of Science and Technology and Thakral College of Technology, Bhopal, and Sanjeevani Mahila Sangh, Bhopal. Sponsors of the congress are the Ministry of Tribal Affairs and the Ministry of Environment and Forest, Government of India, New Delhi.

**For more information, please contact: The Secretary General, World Congress on Export Potential of Medicinal Plants and Primary Health Care for Tribal Development, "Vasundhara Bhavan", E-4, Patel Nagar, Raisen Road, Bhopal 462 021, India.**
**E-mail: sugandh_09@satyam.net.in; www.gaytripariwar.org *or* www.niist.com**

PROSEA - Achmad Satiri Nurhaman

*Alocasia macrorrhizos*

# FORTHCOMING EVENTS

## CONGRESS ON GLOBALIZATION, LOCALIZATION AND TROPICAL FOREST MANAGEMENT IN THE 21ST CENTURY

**ROETERSEILAND, AMSTERDAM, THE NETHERLANDS**
**22-23 OCTOBER 2003**

The start of the twenty-first century has been marked by a multitude of forest-related international agreements and initiatives. Notwithstanding these efforts, deforestation continues unabated at the cost of 500 million people who depend on forests for their livelihoods. At the same time, tropical forest management is being reshaped through the emergence of new actors and partnerships. The role of the nation state has eroded, while that of the private sector and civil society is on the increase. Of particular interest is the potential of new global-local multistakeholder partnerships, which have received an impulse through globalization and localization (i.e. decentralization, democratization, devolution of power and political autonomy for indigenous people).

It has become clear that forest management in the exclusive hands of a single entity, whether government, private, non-governmental organization or local community, has proved to be inadequate, and that fora for stakeholder negotiations, alliances and joint actions are increasingly needed and emerging. Thus, tropical forest protection and management are increasingly the product of negotiations and joint actions between players at the global and local levels.

The question now arises as to whether and under what conditions the new alliances and partnerships will be able to curb the destruction and degradation of tropical forests. Will new strategic alliances be able to put sustainable forest management – understood as deliberate efforts to maintain the forests' ecological values, production services and their role as source of livelihood for the rural poor – into effect?

The congress will focus on the effects of global-local partnerships and agreements related to climate change and the international trade in forest products, these being two topical aspects of globalization with a potential impact on forest management and forest-related livelihoods. The first encompasses processes around the certification of timber and non-timber forest products, the World Trade Organization (WTO), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and strategies to combat illegal logging. The second centres on developments around the Kyoto Protocol, such as the Clean Development Mechanism, Joint Implementation and the $CO_2$ emissions trade. The objectives of the congress are:

- to bring together current knowledge on and experience with international partnerships and their effects on tropical forest conservation, management and poverty alleviation;
- to identify "lessons learned" and conditions for successful and effective multiscale partnerships;
- to discuss opportunities and bottlenecks in relation to multiscale partnerships for the livelihoods of forest-dwelling people and communities at the forest fringe, including potential exclusion of stakeholders under the new management arrangements;
- to define recommendations for policy and research on tropical forest management in a globalizing environment.

The two-day congress programme will include plenary sessions, regional and thematic workshops and a poster session. Keynote speakers and experienced scientists will be invited to make presentations at the plenary sessions. Proposals can be submitted for: a) Plenary sessions; b) Symposia and workshop sessions; c) Paper presentations; and d) Poster presentations.

The congress is being organized by: Amsterdam Institute for Global Issues and Development Studies (AGIDS); Centre for Latin American Research and Documentation (CEDLA); Institute for Environmental Studies (IVM); Amsterdam Institute for International Development (AIID); and Tropenbos International (TBI).

The schedule for participation is:

- Registration: 1 July 2003
- Papers due: 1 September 2003

Registration information will be available on the Web sites (http://gp.fmg.uva.nl/agids) and (www.tropenbos.org). Preregistering (at www.tropenbos.org) will ensure that you receive regular updates by e-mail as the event draws closer.

**For more information, please contact:**
**Dr Mirjam A.F. Ros-Tonen, Amsterdam Research Institute for Global Issues and Development Studies (AGIDS), University of Amsterdam.**
**E-mail: m.ros@frw.uva.nl**

## WOOD OF THE GODS CONFERENCE – FIRST INTERNATIONAL AGARWOOD CONFERENCE

**HO CHI MINH CITY, VIET NAM**
**10-15 NOVEMBER 2003**

*Aquilaria* trees producing agarwood, one of the world's rarest and most valuable natural products, are in danger of extinction. Worldwide deposits in natural forests, currently the only source of this valuable resinous wood, used for incense, perfume and medicine, are running out; yet demand continues to rise.

The Rainforest Project Foundation (TRP), a Netherlands-based organization, has been working for more than seven years to find a way to reverse this trend by devising methods of producing agarwood in a sustainable way. Using donations and European

# FORTHCOMING EVENTS

Commission funds they have succeeded in establishing plantation-based agarwood in Viet Nam and developing technologies to accelerate resin development in *Aquilaria* trees. TRP believes its approach provides a viable alternative to the present destructive harvesting and a methodology to save *Aquilaria* species for future generations.

TRP, in association with the National University of Ho Chi Minh City, An Giang University and the University of Minnesota, has decided to organize the First International Agarwood Conference with a view to sharing their experiences with others involved in the production, processing, marketing and trade of this highly prized natural product known in the ancient literature as "Wood of the Gods".

The meeting will include presentations by leading international research scientists and business people from Asia, the Near East, Europe and the United States, as well as a two-day field trip. This trip will be to the Mekong delta, the location of an ongoing agarwood development project implemented by TRP and its local and international counterparts. Site visits will be organized to a TRP nursery, local farmer-managed project plantations and agarwood inducement experiments. An informal workshop will follow in order to exchange ideas and formulate future directions for agarwood production, processing and marketing.

The Wood of the Gods Conference will cover four main topics:

- Ecology and cultivation of *Aquilaria*: botany, geography and ecology of *Aquilaria* genus, propagation and management of *Aquilaria* trees
- Sustainable production technology: agarwood formation mechanisms, artificial inducement of resin, chemistry of agarwood
- Conservation and legal status: protection of natural *Aquilaria* stands and legal framework, community participation in sustainable agarwood production
- Product development and sales: markets for agarwood products, price trends, marketing strategy – extraction technology and value-added product development.

English will be the official language of the symposium but interpreters In Japanese, Arabic and Vietnamese will be on hand to assist delegates from those regions.

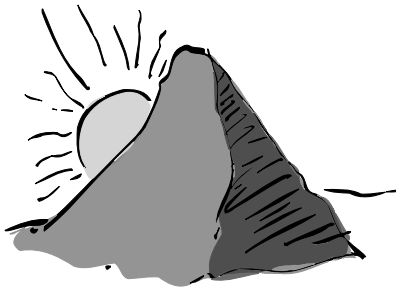
**For more information, please contact: The Rainforest Project Netherlands (TRP), Damrak 68 III B. Centrum, 1012 LM Amsterdam, the Netherlands.**
**Fax: +31 20 6240588;**
**e-mail: trp@euronet.nl;**
***or***
**The Rainforest Project Viet Nam, TRP 71 Lam Son, Tan Binh Dist, Ho Chi Minh City, Viet Nam.**
**Fax: +84 8 8487223;**
**e-mail: trp@hcmc.netnam.vn;**
**www.agarwood.org.vn/index.htm**
[*Please see under Products and Markets for more information on Agarwood.*]

## FIRST WORLD CONGRESS OF AGROFORESTRY

**CORLANDO, FLORIDA, USA**
**27 JUNE 27-2 JULY 2004**

Subtitled "Working Together for Sustainable Land-use Systems", this event will be of global significance and the results will help shape future agroforestry research, education and development.

**For more information, please contact: Mandy Padgett, Conference Coordinator, Office of Conferences and Institutes, University of Florida, PO Box 110750, Mowry Road Building 639, Gainesville,**
**Florida 32611-0750, USA.**
**Fax: +1 352 3929734;**
**e-mail: mrpadgett@mail.ifas.ufl.edu;**
**www.missouri.edu/~afta/Whats_New/Events_Cal.html** ●



***The scientist is not a person who gives the right answers, he is one who asks the right questions.***

**Claude Levi-Strauss**

# PUBLICATIONS OF INTEREST

**Altan, Y.** 2001. Some interesting endemic plants collected from the east and northeast of Turkey and their threatened categories. *Pakistan J. Bot.*, 33(2): 157-166.

**An, T. & Ziegler, S.** 2001. Utilization of medicinal plants in Bach Ma National Park, Vietnam. *Med. Plant Conserv.*, 7: 3-5.

**Apel, M.A., Sobral, M., Henriques, A.T., Menut, C. & Bessiere, J.M.** 2002. Chemical composition of the essential oils from Southern Brazilian *Eugenia* species. Part IV. Section Racemulosae. *Journal of Essential Oil Research*, 14(4): 290-292. (For more information, please contact: Programa de Pos-Graduacao em Ciencias Farmaceuticas, Faculdade de Farmacia, UFRGS, Av. Ipiranga 2752, 90.610-000, Porto Alegre, RS, Brazil.)

**Armesto, J.J., Smith-Ramirez, C. & Rozzi, R.** 2001. Conservation strategies for biodiversity and indigenous people in Chilean forest ecosystems. *Journal of the Royal Society of New Zealand*, 31(4): 865-877. ISSN 0303-6758. (For more information, please contact the authors at: Laboratorio de Ecologia de Bosques, Facultad de Ciencias, Universidad de Chile, Casilla 653, Santiago, Chile.)

**Arunachalam, A. & Arunachalam, K.** 2002. Evaluation of bamboos in eco-restoration of "jhum" fallows in Arunachal Pradesh: ground vegetation, soil and microbial biomass. *Forest Ecol. Manag.*, 159(3): 231-239.

**Aryeetey, E.B.D., Toulmin, C., ed., Delville, P.L., ed. & Traore, S.** 2002. Behind the norms: women's access to land in Ghana. In *The dynamics of resource tenure in West Africa*, p. 86-97. Oxford, UK, James Currey Ltd.

**Ashton, E.C. & Macintosh, D.J.** 2002. Preliminary assessment of the plant diversity and community ecology of the Sematan mangrove forest, Sarawak, Malaysia. *Forest Ecology and Management*, 166(1-3): 111-129. (www.elsevier.nl/locate/foreco)

**Atangana, A.R., Tchoundjeu, Z., Fondoun, J.-M., Asaah, E., Ndoumbe, M. & Leakey, R.R.B.** 2001. Domestication of *Irvingia gabonensis*. 1. Phenotypic variation in fruit and kernels in two populations from Cameroon. *Agroforestry Systems*, 53: 55-64.

**Atangana, A.R., Ukafor, V., Anegbeh, P.O., Asaah, E., Tchoundjeu, Z., Usoro, C., Fondoun, J.-M., Ndoumbe, M. & Leakey, R.R.B.** 2002. Domestication of *Irvingia gabonensis*. 2. The Selection of multiple traits for potential cultivars from Cameroon and Nigeria. *Agroforestry Systems*, 55: 221-229.

**Aumeeruddy-Thomas, Y.** 2001. Working with Tibetan doctors (amchis) for the conservation of medicinal plants and health care development at Shey Phoksundo National Park, Dolpa, Nepal. *Med. Plant Conserv.*, 7: 8-11.

**Bairy, K.L.** 2002. Wound healing potentials of plant products. *Journal of Natural Remedies*, 2(1): 11-20.

**Barnes, R.F.W.** 2002. The bushmeat boom and bust in West and Central Africa. *Oryx*, 36(3): 236-242.

**Berg, Å., Gärdenfors, U., Hallingbäck, T. & Norén, M.** 2002. Habitat preferences of red-listed fungi and bryophytes in woodland key habitats in southern Sweden – analyses of data from a national survey. *Biodivers. Conserv.*, 11(8): 1479-1503.

**Berglund, H. & Jonsson, B.G.** 2001. Predictability of plant and fungal species richness of old-growth boreal forest islands. *J. Veg. Sci.*, 12(6): 857-866. (www.opuluspress.se/)

**Blockhus, J., Wickramasinghe, A., Nurse, M. & Ruiz Pérez, M.** 2002. *Non-timber forest products and local livelihoods in Ritigala, Sri Lanka*. IUCN Asia. ISBN 974-90512-7-0.

**Blouin, G.** 2002. *A book on the traditional medicinal and other uses of the trees and shrubs of Atlantic Canada by the Mi'kmaq and Maliseet First Nations* (send request to: jeanne@fundymodelforest.net).

**Blujdea, V., Dragoi, S., Vancura, K., ed. & Hradilova, E.** 2001. *General overview on the forest products and services in Romania*. Paper presented at the Seminar on valuation of forest goods and services. A contribution to the work of the MCPFE, Opocno, Czech Republic, 19-21 November 2000. p. 48-54.

**Bodeker, G., Burford, G., Chamberlain, J. & Bhat, K.K.S.** 2001. The underexploited medicinal potential of *Azadirachta indica* A. Juss. (Meliaceae) and *Acacia nilotica* (L.) Willd. ex Del. (Leguminosae) in sub-Saharan Africa: a case for a review of priorities. *International Forestry Review*, 3(4): 285-298, 332-335. (For more information, please contact: Global Initiative for Traditional Systems (GIFTS) of Health, Green College, University of Oxford, Oxford OX2 6HG, UK.)

**Bosch, C.H., Siemonsma, J.S., Lemmens, R.H.M.J. & Oyen, L.P.A., eds.** 2002. *Plant resources of tropical Africa/Ressources végétales de l'Afrique tropicale. Basic list of species and commodity grouping/Liste de base des espèces et de leurs groupes d'usage*. PROTA Programme, Wageningen, the Netherlands. 341 pp. ISBN 90-77114-01-7.

**Branco, C.D.C., de Almeida, R. & de Albuquerque, U.P.** 2002. Use and conservation of medicinal plants and animals in Pernambuco State (northeast Brasil): a case study. *Interciencia*, 27(6): 276.

# PUBLICATIONS OF INTEREST

**Brown, K. & Lapuyade S.** 2001. A livelihood from the forest: gendered visions of social, economic and environmental change in southern Cameroon. *Journal of International Development*, 13(8): 1131-1149. ISSN 0954-1748. (For more information, please contact the authors at: School of Development Studies, Overseas Development Group, University of East Anglia, Norwich, NR4 7TJ, UK.)

**Bruna, E.M. & Kress, W.J.** 2002. Habitat fragmentation and the demographic structure of an Amazonian understory herb (*Heliconia acuminata*). *Conserv. Biol.*, 16(5): 1256-1266.

**Bulte, E.H. & Horan, R.D.** 2002. Does human population growth increase wildlife harvesting? An economic assessment. *J. Wildlife Manag.*, 66(3): 574-580.

**Bunyard, B.A.** 2002. *Preserving biodiversity in northeast Ohio. II. A two-year survey of fungal diversity within the West Woods Park of the Geauga County Park District*. (www.ursuline.edu/acadaff/biology/bunyard/mushroom_biodiversity.pdf)

**Burkill, H.M.** 2000. *Useful Plants of West Tropical Africa. 2nd edition. Vol.5 (Families S-Z)*. Royal Botanic Gardens, Kew, UK. ISBN 0-900347-40-7. (For more information, please contact: Royal Botanic Gardens, Kew, Surrey TW9 3AB, UK; fax: +44 20 8332 5197; www.rbgkew.org.uk)

**Cadoret, K., Pasiecznik, N.M. & Harris, P.J.C.** 2000. *The genus Prosopis: a reference database (version 1.0)*: CD-ROM. Coventry, UK, HDRA. ISBN 0-905343-28-X.

**Campos, A.J.J., Finegan, B. & Villalobos, R.** 2001. Diversified forest management: improvement of goods and services from the biodiversity of a neotropical forest. *Revista Forestal Centroamericana*, 36: 6-13.

**Casagrandi, R. & Rinaldi, S.** 2002. A theoretical approach to tourism sustainability. *Conservation Ecology*, 6(1): 13. (www.consecol.org/vol6/iss1/art13)

**Cech, R. & Cech, S.** 2002. *Growing at-risk medicinal herbs. Cultivation, conservation and ecology*. Williams, USA, Horizon Herbs. 314 pp. (For more information, please contact: Horizon Herbs, PO Box 69, Williams, Oregon 97544-0069, USA; www.horizonherbs.com. Price: US$14.95.)

**Chattopadhyay, R.N. & Das, N.** 2001. Nutritional evaluation of edible non-timber forest produces – a case study in South-West Bengal. *Indian Forester*, 127(11): 1232-1238.

**Colfer, C.J.P. & Resosudarmo, I.A.P., eds.** 2002. *Which Way Forward? People, Forests, and Policymaking in Indonesia*. A copublication of Resources for the Future and CIFOR. (For more information, please contact: Resources for the Future, Hopkins Fulfillment Services, PO Box 50370, Baltimore, MD 212, USA.)

**Coppen, J.J.W., ed.** 2002. *Eucalyptus. The genus* Eucalyptus. London, UK, Taylor and Francis. ISBN 0415278791. (For more information, please contact: Taylor and Francis Group, 11 New Fetter Lane, London EC4P 4EE, UK.)

**Costa, F. & Magnusson, W.** 2002. Selective logging effects on abundance, diversity and composition of tropical understory herbs. *Ecol. Appl.*, 12(3): 807-819.

**Cox, P.A., Ratchford, M.S., ed. & Gupta, M.P.** 2001. Ensuring equitable benefits: the Falealupo Covenant and the isolation of anti-viral drug prostratin from a Samoan medicinal plant. Symposium on "Ethnobotany-bioprospective effects on drug discovery in the next millennium", held at the Annual Meeting of the American Association for the Advancement of Science, Washington, DC, USA, 17-22 February 2000. *Pharmaceutical-Biology*, 39 (Suppl.): 33-40. (For more information, please contact: Institute of Ethnobotany, National Tropical Botanical Garden, 3530 Papalina Road, Kalaheo, HI 96741, USA.)

**Cunningham, T.** 2001. Return of the pepper-bark. *Med. Plant Conserv.*, 7: 21-22.

**Dalle, S.P., López, H., Díaz, D., Legendre, P. & Potvin, C.** 2002. Spatial distribution and habitats of useful plants: an initial assessment for conservation on an indigenous territory, Panama. *Biodivers. Conserv.*, 11(4): 637-667.

**Danell, E.** 2001. Mushrooms as a non-timber forest product and their potential for maintaining biodiversity. *Currents-Uppsala*, 25-26: 28-30. ISSN 1403-6304. (For more information, please contact the author at: Department of Forest Mycology and Pathology, Swedish University of Agricultural Sciences, SE-90187 Umea, Sweden.)

**de los Monteros, R.L.E.** 2002. Evaluating ecotourism in natural protected areas of La Paz Bay, Baja California Sur, Mexico: ecotourism or nature-based tourism? *Biodivers. Conserv.*, 11(9): 1539-1550.

**Demmer, J., Godoy, R., Wilkie, D., Overman, H., Taimur, M., Fernando, K., Gupta, R., McSweeney, K., Brokaw, N., Sriram, S. & Price, T.** 2002. Do levels of income explain differences in game abundance? An empirical test in two Honduran villages. *Biodivers. Conserv.*, 11(10): 1845-1868.

**Deutschman, D.H.** 2001. Design and analysis of biodiversity field experiments. *Ecol. Res.*, 16(5): 833-843.

# PUBLICATIONS OF INTEREST

**de Warnaffe, G.D. & Devillez, F.** 2002. Quantifying the ecological value of forests in order to integrate nature conservation in management planning: a multicriteria method. *Ann. Forest Sci.*, 59(4): 369-387.

**Dongmo, A.B., Kamanyi, A., Anchang, M.S., Nkeh, B.C.A., Njamen, D., Nguelefack, T.B., Nole, T. & Wagner, H.** 2001. Anti-inflammatory and analgesic properties of the stem bark extracts of *Erythrophleum suaveolens* (Caesalpiniaceae), Guillemin & Perrottet. *Journal of Ethnopharmacology*, 77(2-3): 137-141. (For more information, please contact: Faculty of Science, University of Douala, PO Box 24157, Douala, Cameroon.)

**Draulans, D. & Van Krunkelsven, E.** 2002. The impact of war on forest areas in the Democratic Republic of Congo. *Oryx*, 36(1): 35-40.

**Embaye, K.** 2000. The indigenous bamboo forests of Ethiopia: an overview. *Ambio*, 29(8): 518-521.

**Eriksen, M., Bjureke, K.E. & Dhillion, S.S.** 2002. Mycorrhizal plants of traditionally managed boreal grasslands in Norway. *Mycorrhiza*, 12(3): 117-123.

**Ewald, J.** 2002. Multiple controls of understorey plant richness in mountain forests of the Bavarian Alps. *Phytocoenologia*, 32(1): 85-100.

**Fine, P.V.A.** 2002. The invasibility of tropical forests by exotic plants. *J. Trop. Ecol.*, 18: 687-705.

**Fisher, J.B. & Jayachandran, K.** 2002. Arbuscular mycorrhizal fungi enhance seedling growth in two endangered plant species from south Florida. *Int. J. Plant Sci.*, 163(4): 559-566.

**Geissler, P.W., Harris, S.A., Prince, R.J., Olsen, A., Odhiambo, R.A., Oketch-Rabah, H., Madiega, P.A., Andersen, A. & Molgaard, P.** 2002. Medicinal plants used by Luo mothers and children in Bondo district, Kenya. *Journal of Ethnopharmacology*, 83(1-2): 39-54 [November 2002].

**Gemma, J.N., Koske, R.E. & Habte, M.** 2002. Mycorrhizal dependency of some endemic and endangered Hawaiian plant species. *Am. J. Bot.*, 89(2): 337-345.

**Gerwing, J.J. & Vidal, E.** 2002. Changes in liana abundance and species diversity eight years after liana cutting and logging in eastern Amazonian forest. *Conserv. Biol.*, 16(2): 544-548.

**Goswami, M., Haridasan, K., Basar, J. & Singh, K.A.** 2002. Biodiversity of medicinal plants and rattans in Arunachal Pradesh – prospects for commercial cultivation. *Resource management perspective of Arunachal agriculture*, 31-45.

**Grace, O.M., Prendergast, H.D.V., Staden, J. van & Jager, A.K.** 2002. The status of bark in South African traditional health care. *South African Journal of Botany*, 68(1): 21-30. (For more information, please contact: Research Centre for Plant Growth and Development, School of Botany and Zoology, University of Natal Pietermaritzburg, Private Bag X01, Scottsville 3209, South Africa.)

**Groombridge, B. & Jenkins, M.D.** 2002. *World atlas of biodiversity: earth's living resources for the 21st century*. Berkeley, California, USA, University of California Press. 340 pp.

**Grow, S. & Schwartzman, E.** 2001. The status of *Guaiacum* species in trade. *Med. Plant Conserv.*, 7: 19-21.

**Guillén, A., Laird, S.A., Shanley, P. & Pierce, A.R., eds.** 2002. *Tapping the green market certification and management of non-timber forest products*. ISBN 1-853838101. This new edition to the People and Plants Conservation Series looks at the rapidly growing interest in, and demand for non-timber forest products. They provide critical resources across the globe, fulfilling nutritional, medicinal, financial and cultural needs. (For more information, visit: www.earthscan.co.uk/asp/bookdetails.asp?key=3827)

**Gustad, G.** 2001. Non-timber forest products and harvesting of *Adansonia digitata* L. in the municipality of Cinzana, Mali. In *Aas (Norway)*. *Norges Landbrukshoegskole, NLH*. 68 pp. (For more information, please contact: Library, Agricultural University, POB 5012, N-1432 Aas, Norway; e-mail: lisbeth.eriksen@bibl.nlh.no)

**Gustafsson, L.** 2002. Presence and abundance of red-listed plant species in Swedish forest. *Conser. Biol.*, 16(2): 377-388.

**Hansen, D.M., Olesen, J.M. & Jones, C.G.** 2002. Trees, birds and bees in Mauritius: exploitative competition between introduced honey bees and endemic nectarivorous birds? *J. Biogeogr.*, 29(5-6): 721-734.

**Harsha, V.H., Hebbar, S.S., Hegde, G.R. & Shripathi, V.** 2002. Ethnomedical knowledge of plants used by Kunabi tribe of Karnataka in India. *Fitoterapia*, 73(4): 281-287. ISSN 0367-326X.

**Heikkinen, R.K.** 2002. Complementarity and other key criteria in the conservation of herb-rich forests in Finland. *Biodivers. Conserv.*, 11(11): 1939-1958.

**Hill, K.M., Takenaka, T. & Takeuchi, K., eds.** 2001. The WTO and IP rights: biodiversity and developing countries. In *Rethinking international intellectual property: biodiversity and developing countries, extraterritorial enforcement, the grace period, and other issues*. CASRIP Symposium Publication Series, No. 6, University of Washington, School of Law [July 2001].

# PUBLICATIONS OF INTEREST

(www.law.washington.edu/casrip/Symposium/Number6/Pub6Contents.html)

**Hoff, M., de Granville, J.J., Lochon, S., Bordenave, B. & Hequet, V.** 2002. A protected plant species list for French Guiana. *Acta Bot. Gallica*, 149(3): 339-354.

**Honnay, O., Verheyen, K., Butaye, J., Jacquemyn, H., Bossuyt, B. & Hermy, M.** 2002. Possible effects of habitat fragmentation and climate change on the range of forest plant species. *Ecol. Lett.*, 5(4): 525-530.

**Houghton, P.J.** 2002. The sausage tree (*Kigelia pinnata*): ethnobotany and recent scientific work. *South African Journal of Botany*, 68(1): 14-20. (For more information, please contact: Pharmacognosy Research Laboratories, Department of Pharmacy, King's College London, 150 Stamford Street, London SE1 9NN, UK.)

**Huang, H., Han, X., Kang, L., Raven, P., Jackson, P.W. & Chen, Y.** 2002. Conserving native plants in China. *Science*, 297(5583): 935-936.

**Ibáñez, R., Condit, R., Angehr, G., Aguilar, S., García, T., Martínez, R., Sanjur, A., Stallard, R., Wright, S.J., Rand, A.S. & Heckadon, S.** 2002. An ecosystem report on the Panama Canal: monitoring the status of the forest communities and the watershed. *Environ. Monit. Assess*., 80(1): 65-95.

**Ikechi Mgbeoji.** 2001. Patents and traditional knowledge of the uses of plants: is a communal patent regime part of the solution to the scourge of biopiracy? *Indiana Journal of Global Legal Studies*, 9(1) [Fall 2001]. 24 pp. (http://ijgls.indiana.edu/archive/09/01/mgbeoji.shtml)

**Jones, E.T., McLain, R.J. & Weigand, J.** 2002. *Non-timber forest products in the United States*. Lawrence, Kansas, USA, University Press of Kansas. (For more information, please contact: Institute for Culture and Ecology, PO Box 6688, Portland, OR 97228-6688, USA; www.ifcae.org/ntfp/)

**Jong, W.** 2002. *Forest products and local forest management in West Kalimantan, Indonesia: implications for conservation and development*. Tropenbos-Kalimantan Series 6. MOF-Tropenbos Kalimantan Programme, Balikpapan, Indonesia.

**Kashio, M. & Johnson, D.V., eds.** 2001. *Monograph on benzoin (balsamic resin from Styrax species)*. RAP publication 2002/21. (For more information, please contact: Dennis Johnson at DJohn37@aol.com)

**Kengue, J., Kapseu, C. & Kayen, G.J.** 2002. *3rd International workshop on the improvement of safou and other non-conventional oil crops. Yaoundé, Cameroon, 3-5 October 2000/3ème Séminaire international sur la valorisation du safoutier et autres oléagineux non-conventionnels. Yaoundé, Cameroun, 3-5 octobre 2000*. Presses Universitaires d'Afrique.

**Kessler, M.** 2002. Species richness and ecophysiological types among Bolivian bromeliad communities. *Biodivers. Conserv*., 11(6): 987-1010.

**Kizil, M., Kizil, G., Yavuz, M. & Aytekin, C.** 2002. Antimicrobial activity of the tar obtained from the roots and stems of *Pinus brutia. Pharmaceutical-Biology*, 40(2): 135-138.

**Kodandapani Narendran, Murthy, I.K., Suresh, H.S., Dattaraja, H.S., Ravindranath, N.H., Sukumar, R. & Narendran, K.** 2001. Non-timber forest product extraction, utilization and valuation: a case study from the Nilgiri Biosphere Reserve, Southern India. *Economic-Botany*, 55(4): 528-538.

**Kumba, F.F., Kaurivi, J.Z.U. & Katjivena, H.** 2002. A project of indigenous communities in Namibia to cultivate *Harpagophytum procumbens. Med. Plant Conserv.*, 8: 24-27.

**Kusters, K., Ros-Tonen, M.A.F., Van den Top, G.M. & Dietz, T.** 2001. The potential contribution of non-timber forest product extraction to tropical forest conservation and development: lessons from a case study of bamboo utilisation in a Sierra Madre community, the Philippines. *J. Bamboo and Rattan*, 1(1): 77-94.

**Lacuna-Richman, C.** 2002. The socio-economic significance of subsistence non-wood forest products in Leyte, Philippines. *Environ. Conserv.*, 29(2): 253-262.

**Lagos-Witte, S.** 2002. Conservation of medicinal plants in Central America and the Caribbean: a GEF project begins. *Med. Plant Conserv.*, 8: 21-24.

**Laird, S.A., ed.** 2002. *Biodiversity and traditional knowledge. equitable partnerships in practice*. A new book from Earthscan Publications and the People and Plants Conservation Series. Paperback price: £24.95. ISBN 1-85383-698-2. (www.rbgkew.org.uk/peopleplants/manuals/biological/contents.htm)

**Lal, J.B.** 2001. New forest management and silvicultural systems in the Himalayas for production of non-wood forest products. *Currents Uppsala*, 25-26: 21-27. ISSN 1403-6304.

**Lange, D.** 2002. The role of east and southeast Europe in the medicinal and aromatic plants' trade. *Med. Plant Conserv*., 8: 14-18.

**Leakey, R.R.B., Atangana, A.R., Kengni, E., Waruhiu, A.N., Usuro, C., Anegbeh, P.O. & Tchoundjeu, Z.** 2002. Domestication of *Dacryodes edulis* in West and Central Africa: characterisation of genetic variation. *Forests, Trees and Livelihoods* (special issue on *Dacryodes edulis*), 12: 57-72.

# PUBLICATIONS OF INTEREST

**Lemmens, R.H.M.J. & Bunyapraphatsara, N., eds.** 2003. *Plant Resources of South-East Asia No. 12(3). Medicinal and Poisonous Plants*. Leiden, Backhuys Publishers. ISBN 90-5782-125-7. 664 pp. (beautifully illustrated). The hardcopy edition (price:

e150) is distributed by: Backhuys Publishers, PO Box 321, 2300 AH Leiden, the Netherlands. A paperback edition will be available in January 2005

(price: e70). (For developing countries, a cheaper paperback edition [ISBN 979-8316-44-4] will be available in 2003 from the PROSEA Network Office, PO Box 332, Bogor 16122, Indonesia.) *(Some of the illustrations have been used in this edition of* Non-Wood News*.)*

**Leskien, D. & Flitner, M.** 2001. *Training tool on intellectual property rights, biotechnology and biological diversity*. Elaborated by GTZ and available in English, French, German and Spanish. (www.gtz.de/biotech/tool_e.htm)

**Liu, H.M., Xu, Z.F., Xu, Y.K. & Wang, J.X.** 2002. Practice of conserving plant diversity through traditional beliefs: a case study in Xishuangbanna, southwest China. Biodivers. *Conserv.*, 11(4): 705-713.

**Love, T. & Jones, E.T.** 2001. Why is non-timber forest product harvesting an "issue"? Excluding local knowledge and the paradigm crisis of temperate forestry. *Journal of Sustainable Forestry*, 13(3-4): 105-121.

**Lybbert, T.J., Barrett, C.B. & Narjisse, H.** 2002. Market-based conservation and local benefits: the case of argan oil in Morocco. *Ecological Economics*, 41(1): 125-144.

**Maas, J.B. & Ros-Tonen, M.A.F.** 2001. NTFP certification: challenges for research. *ETRFN News*, 32: 69-71.

**Madureira, M. do C. de, Martins, A.P., Gomes, M., Paiva, J., Cunha, A.P. da, Rosario, V. do, de Madureira, M. do C., da Cunha, A.P. & do Rosario, V.** 2002. Antimalarial activity of medicinal plants used in traditional medicine in S. Tome and Principe islands. *Journal of Ethnopharmacology*, 81(1): 23-29.

**Manjkhola, S. & Dhar, U.** 2002. Conservation and utilization of *Arnebia benthamii* (Wall. ex G. Don) Johnston – a high-value Himalayan medicinal plant. *Curr. Sci.*, 83(4): 484-488.

**Marcano-Vega, H., Aide, T.M. & Báez, D.** 2002. Forest regeneration in abandoned coffee plantations and pastures in the Cordillera Central of Puerto Rico. *Plant Ecol.*, 161(1): 75-87.

**Mason, C.F. & MacDonald, S.M.** 2002. Responses of ground flora to coppice management in an English woodland – a study using permanent quadrats. *Biodivers. Conserv.*, 11(10): 1773-1789.

**Matola, S.** 2002. Mesoamerican biological corridor threatened by hydroelectric dam. *Oryx*, 36(1): 12.

**Matos, D.M.S. & Bovi, M.L.A.** 2002. Understanding the threats to biological diversity in southeastern Brazil. *Biodivers. Conserv.*, 11(10): 1747-1758.

**Mayers, J. *et al.*** 2001. *Forestry tactics: lessons learned from Malawi's National Forestry Programme*. Policy that Works for Forests and People Series No. 11. London, International Institute for Environment and Development. ISBN 1-899825-85-1. (For more information, please contact: Earthprint Limited, Orders Department, PO Box 119, Stevenage, Herfordshire, SG1 4TP, UK; fax: +44 1438 748844; e-mail: orders@earthprint.co.uk; www.earthprint.com)

**Mayers, J. & Vermeulen, S.** 2002. *Company-community forestry partnerships: from raw deals to mutual gains?* Instruments for Sustainable Private Sector Forestry Series. London, International Institute for Environment and Development. ISBN 1-899825-94-0.

**Melkani, V.K.** 2001. Involving local people in biodiversity conservation in the Kalakad-Mundanthurai Tiger Reserve – an overview. *Curr. Sci.*, 80(3): 437-441.

**Mgumia, F.H.** 2001. The traditional ecological knowledge and biodiversity conservation of the miombo woodlands by the Wanyamwezi in Tanzania. In *Aas (Norway). Norges Landbrukshoegskole, NLH*. 109 pp. (For more information, please contact: Library, Agricultural University, POB 5012, N-1432 Aas, Norway; e-mail: lisbeth.eriksen@bibl.nlh.no)

**Milliken, W., Albert, B. & Gomez, G.G.** 1999. *Yanomami. A forest people – advances in Amazonian ethnobotany.* Kew, UK, Royal Botanic Gardens. ISBN 1-900347-73-3.

**Milner-Gulland, E.J.** 2002. Is bushmeat just another conservation bandwagon? *Oryx*, 36(1): 1-2.

**Mitaliya, K.D., Bhatt, D.C., Patel, D.M. & Joshi, P.N.** 2001. Medicinal value of some selected stembark used by tribals and rural folk in Gujarat. *Advances in Plant Sciences*, 14(1): 191-195.

**Moegenburg, S.M. & Levey, D.J.** 2002. Prospects for conserving biodiversity in Amazonian extractive reserves. *Ecology Letters*, 5(3): 320-324.

**Montambault, J. & Alonso, L.** 2002. High biodiversity discovered in remote region of Guyana. *Oryx*, 36(2): 113-114.

**Mukherjee, P.K.** 2002. *Quality control of herbal drugs*. India, Business Horizons. ISBN 81-900788-4-4.

**Narendran, K., Murthy, I.K., Suresh, H.S., Dattaraja, H.S., Ravindranath, N.H. & Sukumar, R.** 2001. Non-timber forest product extraction, utilization and valuation: a case study from the Nilgiri Biosphere Reserve, southern India. *Econ. bot.* [Bronx, NY, New York

# PUBLICATIONS OF INTEREST

Botanical Garden], 55(4): 528-538 [Oct./Dec.].

**Nath, S., Roy, P., John, M. & Leo, R.** 2001. *Honey hunters and beekeepers of Tamil Nadu*. (For more information, please contact: Bees *for* Development, Troy, Monmouth, NP25 4AB, UK; fax: +44 16007 16167; e-mail: busy@planbee.org.uk)

**Nautiyal, S., Maikhuri, R.K., Rao, K.S. & Saxena, K.G.** 2001. Medicinal plant resources in Nanda Devi Biosphere reserve in the central Himalayas. *Journal of Herbs, Spices and Medicinal Plants*, 8(4): 47-64.

**Nepal, S.K.** 2002. Involving indigenous peoples in protected area management: comparative perspectives from Nepal, Thailand, and China. *Environ. Manage.*, 30(6): 748-763.

**Oglethorpe, J.A.E., ed.** 2002. *Adaptive management: from theory to practice*. Gland, Switzerland and Cambridge, UK, IUCN. 166 pp.

**On, T.V., Quyen, D., Bich, L.D., Jones, B., Wunder, J. & Russell-Smith, J.** 2001. A survey of medicinal plants in BaVi National Park, Vietnam: methodology and implications for conservation and sustainable use. *Biol. Conserv.*, 97: 295-304.

**Osemeobo, G.J.** 2001. Wild plants in everyday use: conservation towards sustainable livelihoods in Nigeria. *Int. J. Sust. Dev. World*, 8(4): 369-379.

**Oyen, L.P.A. & Lemmens, R.H.M.J., eds.** 2002. *Plant resources of tropical Africa, precursor*. PROTA Programme, Wageningen, the Netherlands. 187 pp. ISBN 90-77114-02-5. (Also available in French.)

**Padmini, S., Rao M.N., Ganeshaiah, K.N. & Shaanker, R.U.** 2001. Genetic diversity of *Phyllanthus emblica* in tropical forests of South India: impact of anthropogenic pressures. *Journal of Tropical Forest Science*, 13(2): 297-310.

**Pahlen, M.C. von-der & Grinspoon, E.** 2002. Promoting traditional uses of medicinal plants as efforts to achieve cultural and ecological sustainability. *J. Sustain. For.* [Binghamton, NY, Food Products Press], 15(1): 81-93.

**Pakenham, T.** 2002. *Remarkable trees of the world*. Published by W.W. Norton. ISBN 0-393-04911-6. 192 pp. (Price: US$49.95; www.wwnorton.com/catalog/fall02/004911.htm)

**Parrotta, J.A.** 2001. *Healing plants of peninsular India*. Wallingford, UK, CABI Publishing. (For more information, please contact: USDA Forest Service, International Institute of Tropical Forestry, Rio Piedras, Puerto Rico.)

**Parungao, M.M., Fryar, S.C. & Hyde, K.D.** 2002. Diversity of fungi on rainforest litter in North Queensland, Australia. *Biodivers. Conserv.*, 11(7): 1185-1194.

**Pasiecznik, N,M.** 2001. *The* Prosopis juliflora – Prosopis pallida *complex: a monograph*. Coventry, UK, HDRA. ISBN 0-905343-30-1.

**Peña-Neira, S., Dieperink, C. & Addink, H.** 2002. Equitably sharing benefits from the utilization of natural genetic resources: the Brazilian interpretation of the Convention on Biological Diversity. *Electronic Journal of Comparative Law*, 6(3) [October 2002]. (http://www.ejcl.org/63/art63-2.html)

**Portilla, A.** 2001. Environmental economics and biological diversity. *Debate Agrario Lima*, 33: 25-37.

**Posey, D.A.** 2002. Commodification of the sacred through intellectual property rights. *Journal of Ethnopharmacology*, 83(1-2): 3-12 [November 2002].

**Potter, L.M.** 2002. Forests and grassland, drought and fire: the island of Borneo in the historical environmental record (post-1800). *Advances in Geoecology*, 34: 339-356.

**Prasad, R., Kotwal, P.C. & Mishra, M.** 2002. Impact of harvesting of *Emblica officinalis* (Aonla) on its natural regeneration in central Indian forests. *Journal of Sustainable Forestry*, 14(4): 1-12.

**Prieditis, N.** 2002. Evaluation frameworks and conservation system of Latvian forests. *Biodivers. Conserv.*, 11(8): 1361-1375.

**Rahhemtulla, Y.G. & Wellstead, A.M.** 2001. *Ecotourism: understanding competing expert and academic definitions*. Natural Resources Canada and Foothills Model Forest. ISBN 0-662-31082-9.

**Raipul, V.** 2002. Standardization of botanicals. Testing and extraction methods of medicinal herbs. India, Eastern Publishers. ISBN 81-900181-6-7. (www.easternpublishers.com)

**Rajbhandari, M., Wegner, U., Julich, M., Schopke, T. & Mentel, R.** 2001. Screening of Nepalese medicinal plants for antiviral activity. *Journal of Ethnopharmacology*, 74(3): 251-255. (For more information, please contact: Department of Pharmaceutical Biology, Institute of Pharmacy, Greifswald, Germany.)

**Ramakrishnappa, K.** 2002. Impact of cultivation and gathering of medicinal plants on biodiversity: case studies from India. In *Biodiversity and the ecosystem approach in agriculture, forestry and fisheries*. Rome, FAO.

**Rao, U.V.U.B. & Vedavathy, S.** 2001. Information on traditional uses of some non-timber forest products (NTFP) of Chittoor District, A.P. India. *MFP News*, 11(2): 6-8.

**Roe, D., Mulliken, T., Milledge, S., Mremi, J., Mosha, S. & Greig-Gran, M.** 2002. *Making a killing or making a living: wildlife trade, trade controls and*

# PUBLICATIONS OF INTEREST

*rural livelihoods*. IIED Biodiversity and Livelihoods Issues No. 6. London, IIED. A study by the International Institute for Environment and Development (IIED) and TRAFFIC, the wildlife trade monitoring network, found that despite the dependence of many rural populations on wildlife, few attempts have been made to investigate the effects that restricting trade in wildlife can have on local livelihoods.

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**Salafsky, N., Cauley, H., Balachander, G., Cordes, B., Parks, J., Margoluis, C., Bhatt, S., Encarnacion, C., Russell, D. & Margoluis, R.** 2001. A systematic test of an enterprise strategy for community-based biodiversity conservation. *Conservation-Biology,* 15(6): 1585-1595.

**Salido, S., Altarejos, J., Nogueras, M., Sanchez, A., Pannecouque, C., Witvrouw, M. & Clercq, E. de.** 2002. Chemical studies of essential oils of *Juniperus oxycedrus* ssp. *badia. Journal of Ethnopharmacology*, 81(1): 129-134.

**Sambou, B., Goudiaby, A., Ervik, F., Diallo, D. & Camara, M.C.** 2002. Palm wine harvesting by the Bassari threatens *Borassus aethiopum* populations in north-western Guinea. *Biodivers. Conserv.*, 11(7): 1149-1161.

**Sankaran, R.** 2001. The status and conservation of the edible-nest swiftlet (*Collocalia fuciphaga*) in the Andaman and Nicobar Islands. *Biol. Conserv.*, 97(3): 305-318.

**Satyal, G.S., Samant, S.S. & Kumar, K.** 2002. Indigenous knowledge and conservation of medicinal plants used by the Bhotia tribes in Kumaun Himalaya, India. *Int. J. Sust. Dev. World*, 9(2): 159-166.

**Scarano, F.R.** 2002. Structure, function and floristic relationships of plant communities in stressful habitats marginal to the Brazilian Atlantic rainforest. *Ann. Botany*, 90(4): 517-524.

**Schippmann, U., Leaman, D.J. & Cunningham, A.B.** 2002. Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues. In *Biodiversity and the ecosystem approach in agriculture, forestry and fisheries*. Rome, FAO.

**Schopp-Guth, A. & Fremuth, W.** 2001. Sustainable use of medicinal plants and nature conservation in the Prespa National Park area, Albania. *Med. Plant Conserv.*, 7: 5-8.

**Schreckenberg, K., Leakey, R.R.B. & Kengue, J., eds.** 2002. A fruit tree with a future: *Dacryodes edulis* (safou, the African plum). *Forests, Trees and Livelihoods* [special issue], 12: 1-152.

**Sene, A., Hammett, A.L. & Moore, K.** 2002. Non-timber forest products in Senegal. *Journal of Tropical Forest Products*, 8(1): 1-13.

**Shackleton, S.E., Shackleton, C.M., Cunningham, A.B., Lombard, C., Sullivan, C.A. & Netshiluvhi, T.R.** 2002. Knowledge on *Sclerocarya birrea* subsp. *caffra* with emphasis on its importance as a non-timber forest product in South and southern Africa: a summary. Part 1. Taxonomy, ecology and role in rural livelihoods. *Southern African Forestry Journal*, 194: 27-41.

**Shankar, U., Lama S.D., Bawa, K.S. & Shankar, U.** 2001. Ecology and economics of domestication of non-timber forest products: an illustration of broomgrass in Darjeeling Himalaya. *Journal of Tropical Forest Science*, 13(1): 171-191. ISSN 0128-1283.

**Shanley P., Luz, L. & Swingland, I.R.** 2002. The faint promise of a distant market: a survey of Belém's trade in non-timber forest products. *Biodivers. Conserv.*, 11(4): 615-636.

**Sheil, D. & Wunder, S.** 2002. The value of tropical forest to local communities: complications, caveats, and cautions. *Conserv. Ecol.*, 6(2): 9. (Online: www.consecol.org/vol6/iss2/art9)

**Singh, K.D.** 2000. *Guidelines on national inventory of village forests*. Jakarta, Indonesia, Centre for International Forestry Research. ISBN 979-8764-55-2.

**Singh, N.M.** 2001. Women and community forests in Orissa: rights and management. *Indian Journal of Gender Studies*, 8(2): 257-270.

**Singh, S.P.** 2002. Balancing the approaches of environmental conservation by considering ecosystem services as well as biodiversity. *Curr. Sci.*, 82(11): 1331-1335.

**Smith Olsen, C.** 2001. Trade in the Himalayan medicinal plant product Kutki – new data. *Med. Plant Conserv.*, 7: 11-13.

# PUBLICATIONS OF INTEREST

**Sonwa, D.J., Weise, S.F., Tchatat, M., Nkongmeneck, A.B., Adesina, A., Ndoye, O. & Gockowski, J.** 2000. Les agroforêts cacao: espace intégrant développement de la cacaoculture, gestion et conservation des ressources forestières au Sud-Cameroun. Paper presented at the second Pan African Symposium on the Sustainable Use of Natural Resources in Africa. Ouagadougou, Burkina Faso, 24-27 July 2000. 12 pp. (Electronic version: www.iucn.org/themes/ssc/susg/docs/pas2/sonwa.pdf)

**Sonwa, D., Weise, S.F., Tchatat, M., Nkongmeneck, B.A., Adesina, A.A., Ndoye, O. & Gockowski, J.** 2001. The role of cocoa agroforests in rural and community forestry in Southern Cameroon. Rural Development Forestry Network Paper, 25g: 1-10. London, Overseas Development Institute. (Electronic versions: www.odifpeg.org.uk/publications/rdfn/25/rdfn-25g-i.pdf; www.odi.org.uk/fpeg/francais/publications/rdfn/25/rdfn-25g-i-francais.pdf [French version]; www.odifpeg.org.uk/espanol/publications/rdfn/25/g-i.html [Spanish version, abstract only].)

**Sonwa, D.J., Okafor, J.C., Mpungi Buyungu, P., Weise, S.F., Tchatat, M., Adesina, A.A., Nkongmeneck, A.B., Ndoye, O. & Endamana, D.** 2002. *Dacryodes edulis*, a neglected non-timber forest species for the agroforestry systems of West and Central Africa. Forests, *Trees and Livelihoods*, 12: 41-55. Bicester, UK, AB Academic Publishers.

**Sugandhi, R.** 2002. *Funding sources world-wide*. 166 pp. (For more information, please contact: Dr R. Sugandhi, President, People For Animals, 179 Kalpana Nagar, Piplani, Bhopal 462 021, M.P., India; e-mail: sugandh_09@satyam.net.in)

**Tandon, V.** 2001. Mainstreaming conservation of medicinal plants. *Med. Plant Conserv.*, 7: 13-14.

**Tchoundjeu, Z., Kengue, J. & Leakey, R.R.B.** 2002. Domestication of *Dacryodes edulis*: state of the art. *Forests, Trees and Livelihoods*, 12: 3-14.

**Tchoundjeu, Z., Avana, M.L., Leakey, R.R.B., Simons, A.J., Asaah, E., Duguma, B. & Bell, J.M.** 2002. Vegetative propagation of *Prunus africana*: effects of rooting medium, auxin concentrations and leaf area. *Agroforestry Systems*, 54: 183-192.

**Tewari, J.C., Harris, P.J.C., Harsh, L.N., Cadoret, K. & Pasiecznik, N.M.** 2001. Prosopis juliflora: *a technical manual* (Hindi version). Coventry, UK, HDRA. ISBN 0-905343-27-1.

**Thiollay, J.M.** 2002. Forest ecosystems: threats, sustainable use and biodiversity conservation. *Biodivers. Conserv.*, 11(6): 943-946.

**Tonhasca, A., Blackmer, J.L. & Albuquerque, G.S.** 2002. Abundance and diversity of euglossine bees in the fragmented landscape of the Brazilian Atlantic forest. *Biotropica*, 34(3): 416-422.

**Turner, N.J. & Cocksedge, W.** 2001. Aboriginal use of non-timber forest products in northwestern North America: applications and issues. *Journal of Sustainable Forestry*, 13(3-4): 31-57. (For more information, please contact: School of Environmental Studies, University of Victoria, Victoria, B.C. V8W 2Y2, Canada.)

**Tyynela, T.M.** 2001. Social benefits of natural woodlands and Eucalyptus woodlots in Mukarakate, North Eastern Zimbabwe. *Forests, Trees and Livelihoods*, 11(1): 29-45. Bicester, UK, AB Academic Publishers.

**Uniyal, S.K., Awasthi, A. & Rawat, G.S.** 2002. Current status and distribution of commercially exploited medicinal and aromatic plants in upper Gori valley, Kumaon Himalaya, Uttaranchal. *Curr. Sci.*, 82(10): 1246-1252.

**Vancura, K., Hradilova, E., Vancura, K., ed. & Hradilova, E.** 2001. Seminar on valuation of forest goods and services. A contribution to the work of the MCPFE, Opocno, Czech Republic, 19-21 November 2000. Forestry and Game Management Research Institute, Jiloviste-Strnady, Czech Republic. 136 pp. (Seventeen conference papers on forest valuation are presented. The papers deal with valuation methodologies and cover valuation issues concerning forest externalities, biodiversity, forest services, and wood and non-wood forest products.)

**Van Mele, P., ed.** 2003. *Way out of the woods: learning how to manage trees and forests*. Newbury, UK, CPLPress. 143 pp. ISBN 1-872691-67-6.

**Vinay, K., Bhat, S.A. & Kumar, V.** 2001. Technology management in rural industries: governmental initiatives in India. *National Bank News Review Mumbai*, 17(3): 45-52.

**Visscher, A.** 2002. *Medicinal plants of the canopy: a selection from the Amazon rainforest of Peru*. (Online publication, Treemail, August 2002; www.treemail. nl/download)

**Vormisto, J.** 2002. Palms as rainforest resources: how evenly are they distributed in Peruvian Amazonia? *Biodivers. Conserv.*, 11(6): 1025-1045.

**Walter, S.** 2002. Certification and benefit-sharing mechanisms in the field of non-wood forest products – an overview. *Medicinal Plant Conservation*, 8. Newsletter of the IUCN Species Survival Commission, Medicinal Plant Specialist Group, Bonn, Germany. (www.fao.org/DOCREP/ARTICLE/001/AB542E01.HTM)

**Weiss, E.A.** 2002. *Spice crops*. UK, CABI Publishing. 411 pp.

# PUBLICATIONS OF INTEREST

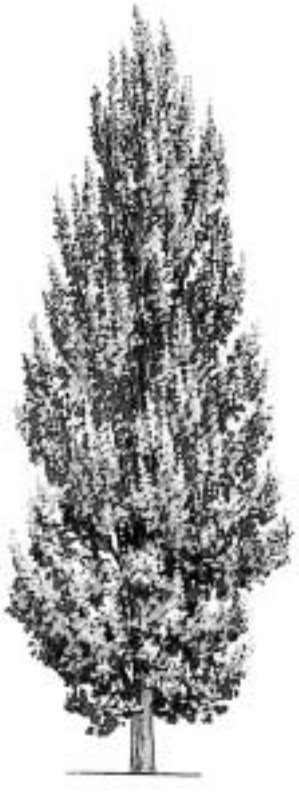
**White, F., Dowsett-Lemaire, F. & Chapman, J.D.** 2001. *Evergreen forest flora of Malawi*. Kew, UK, Royal Botanic Gardens. ISBN 1-900347-97-0.

**Williams, V.L.** 2002. Hawkers of health: Johannesburg's street traders of traditional medicine, South Africa. *Med. Plant Conserv.*, 8: 18-21.

**Williams-Linera, G.** 2002. Tree species richness complementarity, disturbance and fragmentation in a Mexican tropical montane cloud forest. *Biodivers. Conserv.*, 11(10): 1825-1843.

**Zapfack, L., Engwald, S., Sonke, B., Achoundong, G. & Madong, B.A.** 2002. The impact of land conversion on plant biodiversity in the forest zone of Cameroon. *Biodivers. Conserv.*, 11(11): 2047-2061.

**Zerbe, S.** 2002. Restoration of natural broad-leaved woodland in Central



## NEW PUBLICATIONS IN THE FAO NON-WOOD FOREST PRODUCTS SERIES

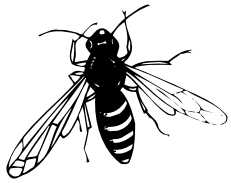
### *NO. 15. NON-WOOD FOREST PRODUCTS FROM TEMPERATE BROAD-LEAVED TREES*


**Temperate broad-leaved trees grow in very different ecosystems in the northern and southern hemispheres, but are also extensively found in many tropical and subtropical mountain areas. A wide range of non-wood products are derived from temperate broad-leaved trees, and their description is organized in this volume according to the part of the tree from which they are obtained (whole tree, foliage, flowers, etc.). This information is presented in order to raise awareness of, and assist in identifying, opportunities for the management and production of non-wood products from temperate broad-leaved trees. The intended audience of this publication ranges from interest groups in the forest, agriculture and rural development sectors to conservation agencies in developed and developing countries.**

**For more information, please contact Paul Vantomme, FAO NWFP Programme.**
**E-mail: paul.vantomme@fao.org**

***Forthcoming publications in the Non-wood Forest Products series:***

- **Wild edible fungi**
- **Bees and bee products (working title)**



## NEW WORKING PAPERS FROM THE FAO NWFP PROGRAMME

The following two new working papers have been produced by FAO's Non-Wood Forest Products Programme:

- FOPW/02/2 *La collecte et l'analyse des données statistiques sur les produits forestiers non ligneux – une étude pilote au Cameroun*.
- FOPW/02/4 *Data collection and analysis related to non-wood forest products – a pilot study in Suriname*.

Printed copies of both publications are available from the FAO NWFP Programme (non-wood-news@fao.org). Electronic versions are available on the NWFP home page (www.fao.org/forestry/FOP/FOPW/NWFP/nwfp-e.stm).

# PUBLICATIONS OF INTEREST

## OTHER RECENT PUBLICATIONS

### *NON-WOOD FOREST PRODUCTS IN 15 COUNTRIES OF TROPICAL ASIA: AN OVERVIEW*


**This a regional study which presents an overview of the socio-economic importance of the use of NWFPs in 15 countries of tropical Asia. (ISBN 974-90666-0-X)**

**An electronic version is available from FAO's NWFP home page (www.fao.org/forestry/FOP/FOPW/NWFP/new/nwfp.htm).**

**For hard copies, please contact: Patrick B. Durst, Senior Forestry Officer, FAO Regional Office for Asia and the Pacific, 39 Phra Atit Road, Bangkok 10200, Thailand.**
**E-mail: patrick.durst@fao.org**

*Documentation of unpublished literature/reports on non-timber forest products (1989-2001)*
Compiled by Dr Ram Prasad, IFS, Director, Indian Institute of Forest Management (IIFM) and Dr Manish Mishra. 2001.

This document provides the use and development of products other than wood derived from forests and forest lands, in the overall context of multiple use forestry for sustainable forest management. It presents a wide range of examples of non-timber forest products (NTFPs) in terms of their use and potential as sources of self-sufficient and sustained livelihoods for low-income rural communities, their commercial and industrial applications and their value in local or distant marketplaces. In addition, this report gives various examples of the management and use of NTFPs. The fact that this document deals with NTFPs separately from timber products is simply because of the specific complexity and neglected importance of this category of forest products. The document builds mainly on experiences from the dry zone tropical forests of India, but it will be of relevance and use to all regions and all products.

**For more information, please contact: Indian Institute of Forest Management, PO Box 357, Nehru Nagar, Bhopal 462 003 (M.P.), India.**
**Fax: +91 0755 772878;**
**e-mail: manishm@iifm.org**

### TWO NEW BOOKS ON BIODIVERSITY

***The commercial use of biodiversity: access to genetic resources and benefit-sharing***
**By Kerry ten Kate and Sarah A. Laird.**

**The authors explain the provisions of the Convention on Biological Diversity on access and benefit-sharing, the effect of national laws to implement these, and aspects of typical contracts for the transfer of materials.**

**They provide a unique sector-by-sector analysis of how genetic resources are used, the scientific, technological and regulatory trends and the different markets in pharmaceuticals, botanical medicines, crop development, horticulture, crop protection, biotechnology and personal care and cosmetics products. (For more information, please see: www.earthscan.co.uk/asp/bookdetails.asp?key=3839)**

***Biodiversity and traditional knowledge: equitable partnerships in practice***
**Edited by Sarah A. Laird.**

**This book offers practical guidance on how to arrive at equitable biodiversity research and prospecting partnerships. It draws upon experiences and lessons learned from around the world to provide case studies, analysis and recommendations in a range of areas that together form a new framework for creating equity in these partnerships. (For more information, please see: www.earthscan.co.uk/asp/bookdetails.asp?key=3595)**

**For more information, please contact: Earthscan Publications Ltd, 120 Pentonville Road, London N1 9JN, UK.**
**Fax: +44 20 72781142;**
**e-mail: earthinfo@earthscan.co.uk**

***Who owns the world's forests?***
*Who owns the world's forests? Forest tenure and public forests in transition. Forest trends*. By Andy White and Alejandra Martin. 2002. Washington, DC, USA. ISBN 0-9713606-2-6.
The report pulls together data from 24 of the 30 countries with the most forest. Together those 24 countries account for 93 percent of the world's forests.

Globally, governments claim to own and administer 77 percent of all forests. This includes large areas of forest that local communities manage without official recognition. Communities and indigenous people formally own 7 percent of the forests and officially administer an additional 4 percent that governments

# PUBLICATIONS OF INTEREST

have reserved for them. Individual landowners and private companies own the remaining 12 percent.

Forest ownership varies markedly between countries. In Canada, Guyana, Indonesia, Malaysia, Myanmar, the Russian Federation and all of central Africa governments own more than 90 percent of the forests and have handed over large portions of them to private companies in the form of forest concessions. In eastern and southern Africa governments also own most of the forest but have given out few forest concessions. Private individuals and companies own over half of the forest in Argentina, Australia, Finland, Sweden and the United States. Communal or cooperative ownership predominates in China, Mexico, and Papua New Guinea. In developing countries generally, indigenous people and local communities own or officially manage 22 percent of all forests, compared with only 3 percent in developed countries.

Over the last 15 years, the forest area that communities and indigenous people own and administer has more than doubled. It now stands at more than 380 million ha. The eight countries of the Amazon Basin now recognize indigenous people's rights to territories covering more than 100 million ha. Countries as diverse as Australia, Canada, Malaysia, the Russian Federation and the Philippines have recently taken major steps in the same direction. Community forest management has also gained official recognition in a number of South Asian and southern African countries. ●

### *VOICES FROM THE MOUNTAIN*

- ***Oral Testimonies from Southwest and northeast China***
- ***Oral Testimonies from Wollo, Ethiopia***
- ***Oral Testimonies from the Lesotho Highlands***
- ***Oral Testimonies from Mount Elgon, Kenya***
- ***Oral Testimonies from the Sudety mountains, Poland***

**Each collection in the Voices from the Mountain series contains a blend of anecdote, information, history, culture, knowledge, opinion and experience – with all the contradictions this may imply. These are the individual voices of the ordinary people on whose actions development depends. And they are at the heart of one of the key challenges of the next decade – how to meet national development needs without further marginalizing mountain people.**

**As the pace of development accelerates in mountain regions, so the social and physical environment is changing. Yet the demand for mountain riches – timber, minerals, water, tourism facilities – is more often driven by urban, lowland populations and industry than by highland communities. Mountain people are the custodians of diverse – sometimes unique – environments, essential to the survival of the global ecosystem. Further erosion of their ability to care for those assets will be the world's loss, not just theirs. (Copies are available free of charge to the media and to resource-poor organizations in the South. Otherwise, copies are available for £5.00 plus postage and packaging.)**

**For more information, please contact:**
**Kelly Hawrylyshyn, Panos, 9 White Lion Street, London N1 9PD, United Kingdom.**
**E-mail: KellyH@panoslondon.org.uk**

***Everywhere I have sought rest and found it not except sitting apart in a nook with a little book.***

**Thomas à Kempis**

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# WEB SITES

**Alaska HoneyBee Home Page**
**http://balder.prohosting.com/~starrier/index.htm**

**AllAfrica.com**
AllAfrica Global Media is the leading provider of African news and information worldwide, through news feeds to institutional and agency clients and through allAfrica.com. They post more than 700 new stories daily from more than 100 African media organizations and from their own award-winning reporters.
**http://allafrica.com/**

**ANDA International**
This site covers the conservation and development of the natural, historic and cultural resources of the Amazon.
**www.andainternational.com/**

**Australia's Fungimap**
**http://fungimap.rbg.vic.gov.au/**

**Cloud forests**
Launched by Strybing Arboretum, this is an educational site filled with interesting images, resources and information.
**www.strybing.org/cf**

**Databases**

*American Indian Ethnology Database*
This is an electronic database containing food, drug, dye, fibre and other plants used by native North American peoples (a total of over 47 000 items); 291 Native American groups and 3 895 species from 243 different plant families are represented.
**www.umd.umich.edu/cgi-bin/herb**

*Biodiversity Rights Legislation (BRL)*
GRAIN has just revamped the Biodiversity Rights Legislation (BRL) section of its Web site. The BRL is a full-text online database of laws and agreements defining rights over biodiversity in developing countries.
**www.grain.org/br**

*Gender and Sustainable Development Resource Directory*
This database places a focus on resources produced in the global South. Subjects include Agriculture, Fisheries and Forestry, Environment and Health.
**http://xel.stfx.ca/coady-library/intro.htm**

*Searchable World Wide Web Multilingual Multiscript Plant Name Database*
**http://gmr.landfood.unimelb.edu.au/Plantnames/**

*The PLANTS Database*
The PLANTS Database is a single source of standardized information about plants and focuses on vascular plants, mosses, liverworts, hornworts and lichens of the United States and its territories.
**http://plants.usda.gov/**

**European Forest Institute**
Interesting and new publications on forest certification can be downloaded from the European Forest Institute's Certification Information System (CIS) site.
**www.efi.fi/cis/english/**

**ForestryUSA.com**
ForestryUSA.com is a comprehensive source of information on American forestry and forest products sectors.
**www.forestryusa.com**

**Forest Health and Silviculture Images**
More than 3 500 images of more than 800 insects, diseases, plants, wildlife and management practices taken by over 150 photographers are now available online.
**www.ForestryImages.org/**

**Forestry Images**
A joint venture by the US Forest Service and the University of Georgia, Forestry Images holds nearly 4 500 colour .jpeg images of forest plants, insects, silvicultural practices, invasive organisms and general natural scenes.
**www.forestryimages.org/**

**ForestScience.info**
This new Web site contains comprehensive coverage of the world's scientific literature in forestry and related disciplines – dating back to 1939. The ForestScience.info database contains more than 600 000 research summaries, with more than 20 000 new additions each year.
**www.forestscience.info**

**GenderNet**
This World Bank site summarizes knowledge and experience, provides gender statistics and facilitates discussion on gender and development.
**www.worldbank.org/gender/index.htm**

**Glossary of Biodiversity Terms**
**www.unep-wcmc.org/reception/glossaryA-E.htm**

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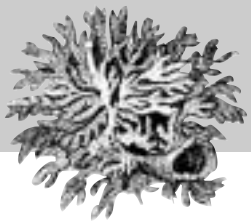


**Governments on the Web**
This site gives a complete listing of every government Web site (including local governments, embassies, political parties).
**www.ih.k12.oh.us/msesol/governments_on_the_web.htm**

**Green Nature**
**http://greennature.com/**

**Herb Data New Zealand**
The art and science of herbal medicines.
**www.herbdatanz.com**

**Herb Research Foundation**
A source of science-based information on the health benefits and safety of herbs that contains more than 300 000 scientific articles.
**www.herbs.org**

**INASP (International Network for the Availability of Scientific Publications)**
INASP is a cooperative network of partners aiming to improve worldwide access to information.
**www.inasp.info**

**NWFP BIBLIOGRAPHY**

FAO NWFP Programme's home page contains an extensive bibliography, which includes all the publications listed in previous issues of *Non-Wood News*. Readers are requested to send any additional bibliographic listings to the NWFP Programme (non-wood-news@fao.org).
**www.fao.org/forestry/FOP/FOPW/NWFP/new/nwfp.htm**

**Lasting Forests**
This site is devoted to improving rural, wildland, and natural resource management by providing useful information, concepts and ideas, as well as links for students, practitioners and landowners.
**www.lastingforests.com/**

**Macrofungi of Costa Rica**
**www.nybg.org/bsci/res/hall/contents.html**

**Medicinal Plant Specialist Group (MPSG) of the IUCN Species Survival Commission**
This site includes recent issues of the MPSG newsletter, *Medicinal Plant Conservation.*
**http://mpsg.org**

**Midwest Special Forest Products**
**www.specialforestproducts.com/**

**Mountain voices**
An online archive of in-depth interviews with mountain people around the world.
**www.mountainvoices.org**

**Networks or newsletters**

*CEPF E-News*
The Critical Ecosystem Partnership Fund is a joint initiative of Conservation International, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank. A fundamental goal is to ensure the civil society is engaged in biodiversity conservation. Their free monthly e-newsletter, CEPF E-News, includes the latest details about CEPF activities and opportunities.
**www.cepf.net**

*Community Forestry Resource Center (CFRC)*
The cfc-news listserve highlights events, activities and resources for individuals and groups interested in independent third-party certification of family forests and wood.
To subscribe, please send an email to listserv@iatp.org. In the body of the message type: [subscribe cfc-news]. For more information about CFRC, please visit:
**www.forestrycenter.org or www.mnforestcertification.org**

*Herbolaria Mexicana y Mercados verdes herbolario*
Herbolaria Mexicana y Mercados verdes herbolario son los boletines electrónicos de la Red Mexicana de Plantas Medicinales y Aromáticas (REDMEXPLAM) y de la Subred Iberoamericana para el Comercio Justo de Plantas Medicinales y sus derivados (RICOPLAM-RIPROFITO). Los dos boletines llegan actualmente a más de 2 000 suscriptores entre América Latina, Europa y Estados Unidos.

Para recibir ambos los boletines es necesario enviar los datos personales completos así como los de la empresa, organización o institución para la que se trabaja a cualquiera de las siguientes direcciones electrónicas: suscripcionboletin@latinmail.com;
**suscripcionboletinricoplam@hotmail.com**

*NWFP North America initiative*
An initiative is under way in North America to get non-timber forest products more integrated into forest research and management institutions. A NTFP listserve has been started to serve as a forum to exchange information concerning these products. To join, please visit:
**www.ulern.on.ca**

*Phytomedica Network*
The PHYTOMEDICA forum is an interactive e-mail discussion and learning process on the sustainable use and conservation of medicinal plants, the development of phytomedicines and other related natural products. Phytomedica now has 800 members (French- and English-speaking groups combined) and

# WEB SITES

is managed by Conserve Africa Foundation.
To join, please send a blank e-mail to:
**phytomedica-subscribe@yahoogroups.com**

**For more information, please contact:**
**info@conserveafrica.org**

*RIL-Afrique*
RIL-Afrique-L est un bulletin électronique sur les pratiques d'exploitation forestière à faible impact et durable en Afrique. Il est l'expression d'un réseau de communications, d'échanges et de discussions entre les différents acteurs du secteur forestier (professionnels ou non) et il s'adresse plus particulièrement à l'Afrique francophone.

Tous les numéros de RIL-Afrique-L sont disponibles sur le site Web de la FAO à l'adresse:
**www.fao.org/forestry/FOP/FOPH/harvest/RIL-Afrique-L/f-maildig-f.asp**

**Pour plus de détails, veuillez contacter:**
**Laura Russo: Laura.russo@fao.org**

*Sacred Earth Newsletter*
The Sacred Earth Newletter is a free Ezine which aims at a six-weekly publication cycle. It contains articles, news and reviews on all things herbal and/or ethnobotanical.
To subscribe, please send an e-mail to:
**www.sacredearth.com/Ezine/archiveindex.htm)**
**www.sacredearth.com**

*The North Island NTFP Demonstration Project Newsletters*
**www.island.net/~ntfp/pages/newsletters.html**

**NWFP articles**
Pankaj Oudhia works on medicinal herbs and insects in India and regularly writes articles based on ethnobotanical surveys. His many articles can be found on his Web site.
**http://botanical.com/site/column_poudhia/poudhia_index.html**

**Products made from wood (including NWFPs)**
- What's a Tree Done for You Lately?
  **http://wood.orst.edu/teachers.htm**
- Project Learning Tree
  **www.plt.org**
- The University of Kentucky Cooperative Extension lists more than 5 000 products made from wood.
  **http://forestry2.ca.uky.edu/conners/WoodUses.pdf**

**SciDevNet**
SciDevNet is a new Web site devoted to news and information on issues in science and technology relevant to developing countries. It is sponsored by Nature and Science, in association with the Third World Academy of Sciences, and carries a special section on intellectual property issues.
**www.scidev.net/dossiers/dossier.asp?xc=A005**

**Science in Africa**
Africa's first online science magazine. Ii includes a section on medicinal plants and indigenous knowledge.
**www.scienceinafrica.co.za**

**Sustainable Development Online (SDO)**
SDO is a Web portal on sustainable development, updated weekly with ±1 700 Web sites and currently less than 1 percent of broken links. It is continually updated and maintained and each Web site listed has been visited by one of SDO's researchers. If you have a web site that you would like to be listed, please submit it to SDO and one of their researchers will follow it up. In addition, there are 410 courses listed on SDO – 64 are courses that can be undertaken online at your own pace and convenience.
**E-mail: sd-online@ewindows.eu.org**

**Success Stories of Sustainable Forestry**
The United States Development Agency (USDA), in cooperation with the National Association of Resource Conservation and Development Councils, has just launched an interactive Web site that will collect and make available Success Stories of Sustainable Agriculture, Forestry and Community Development activities and projects, both domestic and international (with US partnerships).
**www.rcdsuccess.com/**

**The ginseng page**
**http://alternative-herbal-medicine.net/Ginseng/ginseng.htm**

**Trade in NWFP and Botanicals**
This is an annotated collection of guidelines, standards and regulations for trade in non-timber forest products (NTFPs) and botanicals.
**www.rainforest-alliance.org/news/archives/news/news44.html**

**Universities Worldwide**
This site includes hotlines to 6 287 universities in 169 countries. Universities not included in the listing can be added.
**http://geowww.uibk.ac.at/univ/**

**WildCanada**
Wildcanada.net is pioneering innovative ways to protect Canada's wildlands and wildlife.
**www.wildcanada.net/new_site/**

**World Agroforestry Center**
**www.worldagroforestrycentre.org/home.asp** ●

# READERS' RESPONSE

***Request for assistance* – Terminalia catapa**

I am writing from Peru. Does anyone have any information on the possible industrialization of the plant *Terminalia catapa*? This plant grows well in this part of the world. (Victor Acosta Avila, Romulo Espinar 117 [esquina Colegio Rosa Agustina], Iquitos, Loreto, Peru; e-mail: vicacost@yahoo.es)

***Request for assistance – Brazil***

I would appreciate receiving any information on NWFPs in the Brazilian Atlantic forest area. (Rodrigo Matta Machado, mattamac@mono.icb.ufmg.br)

***Request for information: medicinal uses of insects***

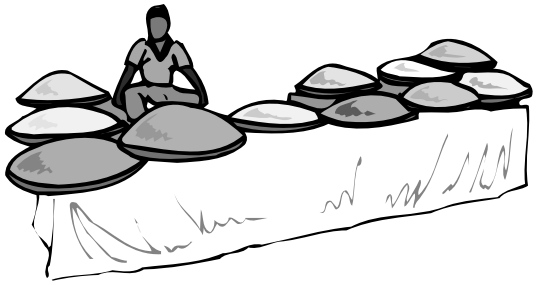
I am eager to know the details regarding ongoing projects and scientists involved in work on the medicinal uses of insects and mites. This is an unexplored area that requires immediate attention.

Here in India, the traders collect varieties of insects and mites from the forest and sell them to national and international markets. It is a sad fact that in our country very few researchers are working on this important aspect. The overexploitation of these creatures is now becoming a curse and their natural populations are decreasing dangerously.

I have done in-depth studies on the uses of insects and mites.

My article on traditional knowledge about medicinal insects, mites and spiders in Chhattisgarh, India can be found at: (www.botanical.com/site/column_poudhia/medicinal_insects.html).

I would like to have information regarding similar ongoing work in Africa and other parts of the world. (P. Oudhia, pankaj.oudhia@usa.net; www.celestine-india.com/ pankajoudhia)



***Request for information – charges for picking NWFPs***

Fallows, laurel leaves, thyme, cumin, linden tree and garden sage are accepted non-wood forest products in our country [Turkey]. These products can be grown in forests and forest areas belonging to the government. For example, if I want to pick these products in government forest areas, I have to pay a treasury charge to the Forest Directorate in the area.

I would like to learn about this type of situation in other countries in the world. Are there similar applications in other countries? Do they also pay any charges to the government or any other related institution? (Mustafa Yagcioglu, Economist/Turkey; e-mail: mustafayagcioglu@yahoo.com)

***The radical invents the views. When he has worn them out, the conservative adopts them.***

**Mark Twain**


"There is more to be harvested from forests than trees" proclaimed the back cover of the 1995 issue of *Non-Wood News*. Over the past ten years, *Non-Wood News* has demonstrated just how true that statement is, covering a variety of non-wood forest products, from bamboo and rattan, to mushrooms, medicinal plants, resins and nuts – to name just a few. *Non-Wood News* has also highlighted the vital role that non-wood forest products play in poverty alleviation and as food sources, and how food security is an important issue for forest-dependent people.

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