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An information bulletin on Non-Wood Forest Products

non-wood NEWS

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EDITORIAL

Forest-dependent communities have always recognized the importance of NWFPs in their everyday lives – whether as food, shelter or medicine. Over time, recognition of the importance of NWFPs in poverty alleviation and knowledge of the multiplicity of uses and benefits deriving from NWFPs have grown steadily and many NWFPs are now traded at all levels: locally, regionally, nationally and globally (although figures on this trade are often unorganized, missing or incomplete, e.g. on bushmeat).

The Special Features section in this issue of *Non-Wood News* emphasizes the economic importance of NWFPs and provides information on economic benefits at the local level (see the Siberian Pine Syrup Project pp. 5–6) through to the global level (see trade figures on pp. 8–9).

Traditional knowledge is a significant aspect of NWFPs, touching as it does on issues of benefit-sharing, bioprospecting and biopiracy, all of which have been covered extensively in this issue (see p. 15). Information on NGOs working with NWFPs has also been included, but we would like to hear more about NGO activity at both the grassroots and international level so please continue to send us your contributions.

Coverage of products in this issue ranges from the versatility of bamboo (used equally successfully to build houses or produce T-shirts) to the extensive use of medicinal plants worldwide. There is information on products from both tropical and temperate forests, as well as from the vast boreal areas. NWFPs exist in all regions of the world and consequently the Country Compass section is particularly rich, with information from 34 countries.

Information dissemination and networking are key aspects of today's knowledge society – both of which have always been important aims of *Non-Wood News*. In 2005 we carried out an auto-evaluation exercise in order to improve our service and to give you an opportunity to make suggestions and comments. Over 600 readers completed our questionnaire (see pp. 69–70 for full results) and we were delighted that so many of you took the time to share your ideas. Thank you for such an excellent response.

This issue has started to reflect some of your suggestions and to address your comments – the most important of which regarded frequency: a vast majority wanted *Non-Wood News* to be issued at least twice a year (with many keen to see it as a quarterly newsletter). Accordingly, we will now be bringing you two issues yearly, which we ultimately hope will lead to a shorter and more streamlined product.

In conclusion, while many of us are not part of forest-dependent communities, we are definitely part of a wider global NWFP community. Our aim with *Non-Wood News* is to continue to disseminate knowledge on NWFP activities from all societal levels around the world in order to raise the profile of NWFPs and emphasize their importance – economically, ecologically and socially.

NON-WOOD NEWS

is compiled by Tina Etherington, Forest Products Service of the FAO Forest Products and Economics Division. Assistance for this issue was provided by Marisalee Palermo; 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 30 September 2006, to:**
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Non-wood forest products (NWFPs) are goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests. Non-timber forest products (NTFPs), 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.

ECONOMIC VALUE OF NWFPS

Forestry products gain market in Brazil

Food, fashion and furniture. These are the profits that come from the forest.

Almost 8 400 people visited the Forest Market, the first fair on sustainable forestry products held in Brazil, from 5 to 8 November 2005 in São Paulo. Visitors had the opportunity to learn about 204 enterprises with projects reflecting the biodiversity of ecosystems such as Amazonia, the Atlantic forest and savannah. A group of four environmental organizations (Amigos da Terra, Imazon, Imaflora and the Reserva da Biosfera da Mata Atlântica) joined together to conduct the fair with products originating from forests, all produced in a sustainable manner.

The principal objective of the event, i.e. increasing business and making contacts for future business, was quite successful: the majority left the event with orders or contacts for sales. With products directed as much at retail stores as at the industries of transformation, the fair offered honey, oils and materials for cosmetics, bags of vegetable leather and timber for furniture designers. "The forestry economy is a reality in terms of employment and income," affirmed the director of Amigos da Terra, Roberto Smeraldi. Quantifying this reality was one of the challenges faced by the organizers.

Listed below are some of the cases that can be considered emblematic of the diversity of commercial relations regarding NWFPs established during the Forest Market and that show their market potential.

- The Kayapó People of the Indigenous Territory of Bau sold their entire crop of Para nut oil, for a total of R$50 620.
- Artisans linked to SEBRAE of Tocantins state sold at retail R$7 250 jatoba dolls and golden grass (*capim dourado*) products.
- The APA cooperative from Rondonia estimated that through contacts made during the fair it will increase sales of cupuacu (plant of the cacao tree) pulp by 100 tonnes starting with the next harvest.
- Five São Paulo companies requested native cacao from the next harvest from the producers along the riverbanks of the Urucurituba in Amazonas state.

"We do not have an exact notion yet what the forestry economy represents for Brazil. What will come to São Paulo will be only a sample of the innumerable types of products and services that the forest can generate," stated Smeraldi. The list is extensive and covers items such as typical fruits, cosmetics, handicrafts and vegetable leather.

The intention was to offer visibility for small businesses, such that they become part of the most varied productive chains. As an example, Smeraldi made reference to native cacao, produced on the river plains of the Amazonas River. In Amazonia, native cacao, a tree that can reach up to 15 m, has special characteristics that make it an interesting product for predetermined niches in the market, such as the cosmetics, pharmaceutical and fine chocolate industries. This cacao has a larger content of major fats than the cultivated species, which makes it more resistant to heat. "But as it is missing the structured productive chain, this special cacao often falls into the common grave of cultivated cacao," Smeraldi stated. "This is the type of product that we will show at the fair." (*Sources: O Estado de S. Paulo*, 13 October 2005 and 2 November 2005 and *Mercado Floresta*, 11 November 2005.)

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Amigos da Terra
AMAZÔNIA BRASILEIRA

NTFPs in the Russian Far East: challenges and opportunities

The Russian Far East is a land of "NTFP opportunities" for local forest-based communities yet external persuasion is still necessary to prove this fact to local stakeholders. It is a vast geographically and climatically diverse region, extending from the Arctic Ocean to the Sea of Japan. There are areas on the southern part of the region – the Primorie and southern part of Sakhalin Island – where the ecosystems are quite diverse and highly regarded species, such as *Schisandra chinensis* and *Actinidia* spp. can be found. However, most of the region is represented by the "usual" (boreal ecosystem) NTFPs that in most cases can be found on both sides of the Pacific, although sometimes represented by endemic species and subspecies.

Nevertheless, even these "usual" and widespread plants have enormous potential as NTFP resources. Yet, as a result of the degradation of indigenous cultures, lack of small business development history and federal support, they are mostly neglected as important tools for community economic development and cultural revival.

The literature research of the World Conservation Union (IUCN)-Canadian International Development Agency (CIDA) Project "Building Partnerships for Forest Conservation and Management in Russia" demonstrated that 33 species, growing just on the Kamchatka Peninsula, can be used as wild vegetables; 22 species have edible berries and fruit; 28 make herbal teas; 14 can be used for weaving; and 251 are useful for medicinal purposes.

Many of the products derived from these plants have clear marketing opportunities. However, less than a dozen are widely used by local communities as food sources (some berries, wild onions, nuts and mushrooms), and only two, *Vaccinium vitisidaea* and fern, are sold commercially. This is surprising because the region has a long history of NTFPs; many, such as charcoal, honey, herbal teas and turpentine, were listed as major export items 150 years ago. There are several Native nations that were intensively using NTFPs before the Russians started exploring Kamchatka in the eighteenth century.

Why are NTFPs not bringing money into the pockets of forest-based communities, and in many places are not even viewed as an important resource?

As usual, there is no simple answer. On the one hand, the traditional knowledge of

both Native and Russian populations about wild harvested plants has been seriously eroded; most people now know just a few plants that can be harvested from the forest or tundra, compared with 150 years ago when Itelmen Native people were reported to use over 100 wild plant species intensively. On the other hand, there are many barriers for NTFP market development in Russia by local communities. There are psychological barriers since many people do not believe in their own ability to change their lives and they wait for somebody else to help. Problems for distant villages are the lack of processing equipment and skills, knowledge about markets and marketing, and the money necessary to set up a business. High transportation costs and taxes are also a difficulty. Natural resource managers and authorities often neglect the advantages that NTFP-based business development could create for local communities and environment preservation.

As demonstrated in the Russian Far East and by the IUCN-the Netherlands Foundation Project "Gifts of Mountain Shoria Forests" in the Kemerovo region in Siberia, international projects can assist local communities to overcome many challenges in starting an NTFP business. An important key to success is long-term assistance to remote communities in product marketing, marketing strategies, sustainable harvesting practices, etc.

It is usually difficult to convince donor agencies or local authorities that without effective long-term support many NTFP projects are doomed because of the nature of the resource. Long-term initiatives, which could be self-sustainable over time, such as regional and/or national marketing centres for small NTFP producers, need to be developed to enable people to help themselves out of poverty though the sustainable use of NTFPs. (*Contributed by:* Nikolay Shmatkov, IUCN – The World Conservation Union, Office for Russia and the Commonwealth of Independent States (CIS), 3, bld. 3, Stoliamy Per., Moscow 123022, Russian Federation. Tel./fax: +7 (095) 609 3411; e-mail: nikolay.shmatkov@iucn.ru; www.iucn.ru and www.dary-lesa.com)

Selling forest products to improve livelihoods in the Gambia

Poor communities in the Gambia are now earning a regular income by selling forest products, thanks to an FAO programme, funded by the Government of Norway, which helps communities to build up markets for local products. In a pilot area of 26 villages suffering from extreme poverty, people learned about the potential value of forest products and how they could be marketed more successfully.

Villagers interested in marketing forest products have set up their own businesses and organized themselves in producer associations to sell honey, logs, fuelwood, mahogany posts, handicrafts and palm oil at nearby markets. They are also earning additional incomes from tree nurseries and ecotourism.

"Before the start of the project, villagers had not explored the market potentials of handicrafts made of rhun palm leaves, because they did not have the practical skills or market knowledge. Now they are selling products such as chairs, tables, lampshades, baskets and beds made of these leaves," said Sophie Grouwels, an FAO community forestry expert.

In the 1990s, the Government of the Gambia introduced community forestry, giving ownership to the communities, in an attempt to improve forest management. Despite this change, communities still did not have many incentives to conserve the forests until the programme was introduced. "People who used to shun managing forests or exploited them, are now asking for more forests to own and manage in order to earn more income," said Grouwels. "Given the success of this project, FAO hopes its methodology will be applied in other parts of the Gambia and in other countries."

More information can be found in *Empowering communities through forestry: Community-based enterprise development in the Gambia* (Forestry Policy and Institutions Working Paper 8) available at www.fao.org/docrep/008/j6209e/j6209e00.htm or by contacting Sophie Grouwels, Forestry Officer, Community-based Enterprise Development (CBED), Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. E-mail: sophie.grouwels@fao.org; www.fao.org/forestry/site/25491/en

Mushrooms: cash crops from the forest floor

British Columbia's wild mushroom industry is unregulated and unmonitored. Accurate figures do not exist for amounts harvested, dollar values or the number of pickers. Import information from the Japanese Embassy in Vancouver is used to make educated guesses as to how many tonnes of fungi are being exported from the province. But, according to British Columbia's Ministry of Forests, there is one certainty: "there's a ton of stuff coming out of the forest".

Richard Winder, a director of the South Vancouver Island Mycological Society agrees that it is difficult to unearth hard data. He estimates that in 2004, 200 tonnes of morels, 100 tonnes of chanterelles and 100 tonnes of pine mushrooms were plucked out of the forests. More specifically, the chanterelle industry in northern Vancouver Island, which has wetter conditions and a longer growing season, flourished, enabling 100 pickers to sell to three buyers for much of the year. "I'm not sure what that translates into dollars, but it is an important sector in the NTFP sector."

The Government of British Columbia has been asked repeatedly for funds to determine how many wild mushroom dollars – and how much lost tax revenues – are being sliced out of the forests. (*Source: Globe and Mail* [Canada], 17 October 2005.)

TRUFFLE AUCTION HITS NEW HIGH

Truffles are famously expensive, but a charity auction attended by some of the United Kingdom's most famous restaurateurs set a new record yesterday – £63 000 for a *tartufo bianco* (white truffle) weighing 1.2 kg. (*Source: The Independent* [UK], 14 November 2005.)
(*Please see p. 47 for more information.*)

SPECIAL FEATURES

Nepal's lokta resources and handmade paper

The area around Kailash village in Nepal's Binayak Pimidanda Community Forest is endowed with abundant lokta (*Daphne* spp.), which is a preferred raw material for handmade paper. "If the forest is properly managed, it can supply more than 20 000 kg of dry lokta bark per year on a regular and sustainable basis," added Sushil Gyawali, Assistant Project Monitoring Officer at the Asia Network for Sustainable Agriculture and Bioresources (ANSAB) office in Kathmandu.

After a thorough study – with the full participation of the local people – it was decided that prospects were sufficiently promising to embark on the establishment of a papermaking enterprise. ANSAB, with funding support from the Ford Foundation, has played an important part in the establishment of the paper factory, initially lending technical, financial and administrative support.

"Prior to the establishment of the community forest, local people used to cut lokta at random. The raw material was sold to business people and contractors from elsewhere," recalled Surat B. Singh, chairperson of the Management Committee of the Malika Handmade Paper Industry. "Without proper management, the lokta resource was dwindling fast. Many business people were making profits, but the locals were still poor."

Today, the Malika Handmade Paper Industry in Kailash village is one of the best-managed community enterprises in Nepal. A report by Dyuthan Choudhari, of the International Centre for Integrated Mountain Development, stated that: "the model is designed around forestry resources based on the forest user group (FUG)'s common property, which provides sustainable income to local communities who have full rights over the resource".

(*Source:* extracted from: Shree Binayak Pimidanda Community Forest: more than a paper tiger by H. B. Singh [in *In search of excellence, exemplary forest management in Asia and the Pacific*, ed. P.B. Durst, *et al.*].)

Growth of the bamboo sector in China

The annual growth of bamboo area averages 126 000 ha according to the statistics of the Sixth National Forest Resources Survey. The production value of China's bamboo sector in 2004 was 45 billion yuan, a growth of more than 120 percent over that of 2000. Exports were US$600 million in 2004, an increase of 20 percent over 2000.

The great development of the bamboo industry has been achieved during the Tenth Five-Year Plan period. The bamboo sector has become one of the four largest forest industries in the country.

Bamboo forests cover 4.84 million ha in China, an increase of 631 800 ha compared with the 4.21 million ha recorded in the Fifth National Forest Resources Survey. (*Source:* People's Daily online, 8 December 2005.)

Cuban pine resin in the international market

Cuba's forestry sector is boosting the production of by-products, as part of a strategy to increase the island's offers in the international market.

Baracoa's Integral Forestry Company, in western Cuba, has increased production of pine resin, an essential component in several industrial products.

Pine resin is used to make wax, paint, soap, adhesives and pharmaceuticals, among other products in high demand. In addition, it is the raw material used to produce turpentine and colophony, which fight harmful insects.

Obtaining pine resin is a manual process and was resumed after nearly a decade, despite the vast areas of pine trees that exist in the region.

Experts predict an annual extraction of 100 tonnes of pine resin, so the country's exporting potential will increase. (*Source:* CubaXP, 9 June 2005.)

NWFP cooperatives and the Siberian Pine Syrup Project

Native cooperatives in Kamchatka are growing larger and working hard. These cooperatives create exclusive merchandise with NWFPs and NTFPs, using traditional methods that reflect how people have been living in symbiosis with nature for centuries and how they continue to intensify and hand down their knowledge of forest resources and their properties, which are profoundly linked to their social and spiritual life.

Equally important is that this knowledge is today the basis of a "local sustainable livelihood strategy", together with other elements such as ethnotourism and ecotourism (native dances, the possibility of visiting the villages and surroundings, etc.); cultural activities; fishing and hunting; and reindeer herding. These are all helping the communities to enter economic processes to counter the economic difficulties that the region is suffering.

The cooperatives are usually composed of artisans and herbal and resource experts, mostly women. As an example, the Aleskam Native People's Community Cooperative is composed mainly of women, who cover the crafting, marketing and management roles, and two men – a biologist/medical herb specialist and a video documentarist – to film the production processes and record the indigenous way of using resources for official cultural archives and use in native schools.

A product of another group, the Tarija Native Peoples' Community, is dwarf Siberian pine syrup, followed by Mrs Elena Posvolskaya and monitored by the World Conservation Union.

With the sustainable harvesting of dwarf Siberian pine needles, Mrs Posvolskaya manages to produce a sweet and tasty syrup that is much enjoyed when used with tea, as well as by itself. At the same time, the pine syrup's medical properties act against throat infections, coughs and

colds. This product shows how centuries-old indigenous knowledge regarding the medicinal properties of the pine is used today, fusing traditional knowledge, sustainable harvesting and production with economic support, and how this has actually changed Mrs Posvolskaya's social and family role.

"Before starting this project," Mrs Posvolskaya said, "my husband used to give me just enough money at the beginning of the month to buy food for meals and a few basics for myself. Today I have my own money, and he is constantly asking me to teach him marketing skills. My future plans are about expanding the sales on foreign markets, to fortify the market I already have in Moscow." (*Contributed by:* Alessandro Toffoli, Via Bartolomeo Eustachio 4, 00161 Rome, Italy. E-mail: 79ale@fastwebnet.it)

Moss is a cash crop for mountain people in the United States of America

Moss is the all-purpose sponge of the forest, storing water, releasing nutrients and housing tiny creatures. But across Appalachia and in the Pacific Northwest, it is more than this. It is a way to make ends meet when jobs are few. Picking is hard work on a hot day. And it pays only about US$5 a sack. What is picked could end up in a floral arrangement or a craft project. Along the way, it will support more than a dozen jobs, from people who sort it, dry it and package it to those who ship and sell it. Nationwide, it is hard to tell how many people make a living from moss.

Moss is not commercially grown, so buyers depend on the wilderness. However, some state and national forests have already banned harvesting, worried about what they will lose when moss leaves the ecosystem.

Ethical pickers will not strip the logs bare, but will always leave clumps behind to help the spore-driven plant regenerate. To thrive, it needs moisture, cool temperatures and shade. How long it takes to grow back is a question that has some scientists and United States Department of Agriculture (USDA) Forest Service officials wrestling with the regulation of this secretive industry, where there are plenty of opinions but few facts.

North Carolina's Pisgah and Nantahala national forests expect to ban moss collection from 1 January 2006 after studies there indicated a growback cycle "in the order of 15 to 20 years," says botanical specialist Gary Kauffman of the Forest Service. This is twice as long as some veteran pickers and moss buyers think it will take. Although Kauffman agrees that the science is still lacking, Pisgah and Nantahala will probably err on the side of caution, meaning that the forests will be off-limits to the 100–200 pickers a year who typically get permits.

Sue Studlar, a West Virginia University biologist argues that overall, moss is "mined, rather than sustainably harvested" and that large-scale removal can inadvertently damage other species, from ferns to salamanders. The Monongahela national forest banned mossing in 2001 until it could study the impact. Two years later, Studlar concluded that picking should be discouraged near limestone cliffs and wet areas, that no log or rock should be stripped bare and that known "biodiversity hot spots" should be off-limits. But "potentially, if you did it right", moss could be harvested without harming the ecosystem. It falls off in clumps naturally as it regenerates and pickers could harvest these remnants.

The Monongahela, which covers nearly 1 million acres (approximately 404 700 ha) in West Virginia, may someday restore moss-picking permits. Mossers say that they and others should be allowed to take non-timber products from the forest, including ginseng root and medicinal herbs such as goldenseal, before the loggers destroy them.

Pat Muir, a botanist at Oregon State University, estimates that mossing was a US$8.4–33.7 million business in 2003, with anywhere from 4.2 to 17 million lbs (1 905 000 to 7 711 070 kg) being harvested in the two dominant regions, Appalachia and the Pacific Northwest. (*Source:* Environmental News Network [ENN], Daily Newsletter, 17 October 2005.)

Economic benefits of conserving the rain forest

Conservation can bring in more dollars than it costs. Africa's large mammals are famed for their ability to attract tourist dollars, but wildlife reserves without these mammals can still make enough money to benefit local people, say researchers.

In one of the first studies to consider the costs and benefits of protecting different numbers of species, scientists at Canada's University of Alberta concluded that rain forest conservation can more than pay for itself, and is more profitable than clearing forests and using the land for farming.

Working in Uganda's Mabira Forest Reserve, researchers found that tourists were willing to pay much more than the current US$5 entry fee for a chance to spot some of the reserve's 143 bird species. The study, published in the *Proceedings of the National Academy of Sciences*, recommends increasing the fee to about $47. The high charge would mean fewer visitors and so less of an impact on the forest. But enough tourists would still be willing to pay the fee to allow the reserve to protect 80–90 percent of its bird species while bringing greater economic benefits to local communities.

Lead author Robin Naidoo thinks Mabira might be representative of other reserves across the developing world. Many protected areas are under pressure from impoverished local populations who exploit them for resources such as timber, fuel and food. "The key is developing a mechanism whereby revenues flow back to the people who need them most, and in whose hands the future of these reserves lies – the local residents," he says. "This will give them an economic incentive to protect tropical forests because they can earn more by preserving them than by chopping them down and farming the land," he adds. (*Source:* SciDev.Net, 1 November 2005.)

POTENTIAL ECOTOURISM: SOME EXAMPLES

- **The Kenya Wildlife Service estimates that 80 percent of Kenya's tourists are drawn by the country's wildlife and that the tourism industry generates one-third of the country's foreign exchange earnings.**
- **Domestic and international travellers make more than 275 million visits a year to the 388 recreation areas administered by the United States National Park Service, generating direct and indirect economic benefits for local communities of more than US$14 billion annually and supporting almost 300 000 tourist-related jobs.**
- **Prior to the civil war in Rwanda, tourists visiting the country's mountain gorillas provided more than $1 million in annual revenues, enabling the government to fund anti-poaching patrols and employ local residents. Tourism is once again on the upswing, with hundreds of foreign visitors a month paying $250 each to see the gorillas.**
- **More than half of all international visitors to Nepal include a trip to at least one national park. Before civil strife reduced numbers, more than 80 000 tourists visited the Royal Chitwan National Park and 50 000 trekkers visited the Annapurna Conservation Area each year.**
- **The more than 60 000 visitors a year to the Galapagos Islands contribute in excess of $100 million to Ecuador's economy.**

(*Source: State of the World's Forests 2005.*)

La valeur monétaire de la forêt suisse en tant qu'espace de détente

Les résultats de la présente étude fournissent, pour la première fois, des chiffres relatifs à la valeur récréative de la forêt suisse pour l'ensemble de la population du pays. D'une comparaison entre les conclusions de diverses études portant sur la fonction récréative de forêts locales, sur la valeur du paysage pour le tourisme et sur les dépenses touristiques en Suisse, il ressort que les présents résultats sont tout à fait plausibles.

Par rapport aux études menées jusqu'à présent, les présents résultats offrent quelques améliorations car ils reposent, d'une part, sur le comportement observable des individus (au contraire de l'évaluation contingente) et peuvent être considérés, d'autre part, comme l'appréciation exprimée d'une sélection représentative de la population suisse et non seulement des habitants d'une certaine région (contrairement aux méthodes des coûts de transport et aux évaluations contingentes appliquées à ce jour). Les résultats peuvent donc être interprétés comme une moyenne représentative de l'ensemble des types de forêt des forêts périurbaines, mais également de l'ensemble des types de forêts.

La méthode appliquée examine le comportement des usagers de biens publics lors de leur déplacement. Les frais de transport occasionnés par un déplacement en forêt à des fins récréatives constituent une limite inférieure du consentement à payer et de la valeur monétaire de cette fonction récréative, qui est à l'origine du déplacement. Les frais de transport englobent les dépenses liées au déplacement ainsi que le coût en temps nécessaire à ce déplacement. Pour l'ensemble des bénéfices récréatifs, le coût en temps (coût d'opportunité) est intégré dans les calculs relatifs au séjour en forêt.

À partir des coûts de la visite en forêt (séjour et déplacement) et de la fréquence, nous pouvons tracer une courbe de demande qui représente la relation entre le nombre moyen de séjours en forêt par an et les coûts de ces séjours. Elle permet de déduire l'utilité globale de la fonction récréative de la forêt pour un visiteur moyen. Cette utilité varie entre 1 670 et 2 422 francs suisses (frais de déplacement uniquement) et entre 1 178 et 3 066 francs suisses par an (frais de déplacement et frais de séjour), selon que l'on se fonde sur le concept d'utilité nette (gain de satisfaction) ou sur celui d'utilité brute (gain de satisfaction et dépenses réelles). En extrapolant ce chiffre à la population suisse de plus de 18 ans, l'utilité de la fonction récréative des forêts suisses varie entre 9,7 et 14,1 milliards de francs suisses par an (frais de déplacement) et entre 6,8 et 17,8 milliards de francs suisses par an (frais de déplacement et frais de séjour).

Nous sommes toutefois d'avis d'intégrer le coût d'opportunité du séjour dans l'optique du problème examiné (calcul de la valeur récréative monétaire de la forêt) et de nous baser par conséquent sur le montant de 6,8 à 17,8 milliards de francs suisses par an. (*Source:* Martin Baur, Walter Ott, concept, Claire-Lise Suter Thalmann, Office fédéral de l'environnement (OFEV), Division des forêts, 3003 Berne [Suisse])

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***Mondia whitei*, a socio-economically important plant**

Mondia whitei (Hook. f.) Skeels, locally known as *mulondo*, is consumed in Uganda and represents a source of local income. It is one of the few species commonly retailed on the streets of Kampala, another being *Canarium schweinfurthii* Engl. Mulondo is claimed to improve appetites, ease abdominal pains, alleviate nausea and is used to treat fever. Tubers are eaten raw, their taste depending on the age of the plant: young tubers are sweet tasting, whereas mature tubers have a slightly bitter taste.

The species is gathered and sold locally at the markets of Kampala and its suburbs. From Kampala it is redistributed to other towns and to the islands of Sesse. Many people, including harvesters, intermediaries, wholesalers and hawkers earn a living from the collection and sale of the plant.

No estimates exist on the harvest and trade of mulondo and we do not how much is harvested or how much is marketed. A recent rapid appraisal indicated that the species wholesales for between US$0.2–0.3/kg and retails at more than US$2/kg. The contribution of this species to socio-economic livelihoods needs further study.

Consumption and trade in mulondo are increasing. There are more consumers and traders now than ten years ago. Yet mulondo is a slow-growing plant that takes about 15 years to attain a tuber of sufficient size for consumption. The ecological implications of intense harvesting of such a slow-growing plant to satisfy this increasing demand are that harvesting is unsustainable and the species may be threatened. Indeed the plant is reportedly becoming much harder to locate in the wild. (*Contributed by:* John R.S. Tabuti, Ph.D., Senior Lecturer/Ethnobotanist, Department of Botany, Makerere University, PO Box 7062, Kampala, Uganda. Fax: +256 (0) 41 531 061; e-mail:jtabuti@botany.mak.ac.ug)

TRADE IN NWFPS

International trade in NWFPs

Tables 1 and 2 present total import values of raw materials, as well as semi-processed and processed products, for 1992 and 2002. All figures are in current rather than real US dollars, so that the growth in trade of most goods appears more than it actually is.

Most of the 28 commodities listed in Table 1 are unprocessed, although a few semi-processed products are included. For 2002, their total import value amounted to US$2.7 billion. Excluding the two commodities that were not coded in 1992 (mushroom categories 070959 and 071239), the total value of the remaining 26 increased from US$1.9 to $2.1 billion between 1992 and 2002.

Table 2 lists 34 commodities at different stages of processing, originating from both inside and outside forests, with a total import value for 2002 of US$7 billion. By comparison, the value of global imports of wood-based forest products for the same year, including fuelwood and charcoal, amounts to US$141.4 billion. Excluding the five commodities for which trade data cannot be compared because codes did not exist in the 1992 HS, the total value of trade of the remaining 29 increased from US$4 billion in 1992 to $6.2 billion in 2002.

Between 1992 and 2002, import values of the 55 commodities in the two tables

TABLE 1. **Global import values of key NWFPs for which HS code refers to a single product, 1992 and 2002**

HS code	Commodity description	Global import value ('000 US$)	
		1992	2002
060410	Mosses and lichens for bouquets, ornamental purposes	9 352	25 476
070952	Truffles, fresh or chilled	4 201	23 656
070959	Mushrooms other than *Agaricus*, fresh or chilled	n.a.	364 412
071239	Mushrooms (excl. 071331/33) and truffles, dried	n.a.	219 458
200320	Truffles, prepared or preserved, not in vinegar	3 049	11 012
080120	Brazil nuts, fresh or dried	44 344	59 848
080240	Chestnuts, fresh or dried	109 958	184 663
230810	Acorns and horse chestnuts for animal feed	1 216	7 380*
120792	Shea nuts (karite nuts)	5 155	5 136*
121110	Liquorice roots	33 455	24 310
121120	Ginseng roots	389 345	221 435
121190	Plants and parts, pharmacy, perfume, insecticide use n.e.s.	689 926	777 980
121210	Locust beans, locust seeds	22 395	40 239
130110	Lac	25 286	25 653
130120	Gum arabic	101 312	105 510
130190	Natural gum, resin, gum resin, balsam, not gum arabic	92 755	96 535
400130	Balata, gutta-percha, guayule, chicle and similar gums	26 726	13 605
130214	Pyrethrum, roots containing rotenone, extracts	27 865	26 173*
140110	Bamboos used primarily for plaiting	37 562	50 054
140120	Rattan used primarily for plaiting	118 987	51 327
140210	Kapok	11 920	2 826*
170220	Maple sugar and maple syrup	43 632	116 202
200891	Palm hearts, otherwise prepared or preserved	16 082	67 514
320110	Quebracho tanning extract	51 938	45 173
320120	Wattle tanning extract	63 877	34 168
320130	Oak or chestnut extract	8 653	917*
450110	Natural cork, raw or simply prepared	7 874	110 702
530521	Abaca fibre, raw (*Musa textilis*)	15 221	20 374

* 2001 value (as no longer in HS 2002).
Notes: n.a.: not applicable as this code did not exist in the HS 1992 version. n.e.s.: not elsewhere specified.
Source: UN, 2004.

increased by 50 percent, from US$5.5 billion to $8.3 billion. However, the total global import value of all commodities listed in the 1992 and 2002 HS, as recorded by trading countries, increased almost two and a half times, from US$2.24 trillion to $5.56 trillion. In addition, the share of global trade of the 55 commodities decreased from 0.25 percent to 0.15 percent, mostly as a result of a decline in the price of raw materials and because other materials gained in popularity.

Products that saw no real increase in their traded values are shea nuts, gum arabic, balata, gutta-percha, kapok, tanning extracts of quebracho and black wattle, Brazil nuts, sago flour and wickerwork. These originate in developing countries and were traded as raw materials. Commodities that saw their import values sharply increase are mosses/lichens and foliage for flower bouquets, truffles, other mushrooms, maple syrup, cork, mucilages and thickeners from locust bean (carob), essential oils not elsewhere specified, live animals other than farm animals, natural honey and raw reptile skins. They represent semi-processed products and are mainly produced and traded by developed countries (Europe, North America) and China.
(*Source: State of the World's Forests 2005*.) Trade figures for 2004 will be given in the next issue of *Non-Wood News.*

TABLE 2. **Global import values of selected commodities for which HS code includes NWFPs among others, 1992 and 2002**

HS code	Commodity description	Global import value ('000 US$)	
		1992	2002
010600	Animals, live, except farm animals	183 922	404 633
030110	Ornamental fish, live	137 886	240 965
040900	Honey, natural	268 184	657 612
041000	Edible products of animal origin n.e.s.	80 389	175 770
051000	Ambergris, civet, musk, etc. for pharmaceutical use	134 088	93 942
060491	Foliage, branches, for bouquets, etc. - fresh	n.a.	587 689
060499	Foliage, branches, for bouquets, etc. - except fresh	n.a.	103 998
071230	Mushrooms and truffles, dried, not further prepared	134 205	286 661*
200390	Mushrooms n.e.s., preserved, not pickled	n.a.	82 848
080290	Nuts edible, fresh or dried, n.e.s.	222 915	403 243
090610	Cinnamon and cinnamon-tree flowers, whole	95 626	81 332
090620	Cinnamon and cinnamon-tree flowers, crushed or ground	8 531	18 606
110620	Flour or meal of sago, starchy roots or tubers	18 063	10 060
120799	Oil seeds and oleaginous fruits, n.e.s.	62 297	161 428
130232	Mucilages and thickeners, from locust bean, guar seeds	141 335	254 683
130239	Mucilages and thickeners n.e.s.	138 579	374 674
140190	Vegetable materials n.e.s., used primarily for plaiting	39 670	38 181
140200	Vegetable materials for stuffing/padding	n.a.	3 751
140300	Vegetable materials for brush/broom making	n.a.	23 519
140410	Raw vegetable material primarily for dyeing and tanning	31 063	33 855
140490	Vegetable products n.e.s.	63 859	127 767
320190	Tanning extracts of vegetable origin	20 515	50 450
320300	Colouring matter of vegetable or animal origin	152 082	384 133
330129	Essential oils, n.e.s.	312 524	533 464
330130	Resinoids	61 359	37 282
380510	Gum, wood or sulphate turpentine oils	31 232	35 418
380610	Rosin and resin acids	166 133	224 360
410320	Reptile skins, raw	11 252	78 366
430180	Raw fur skins of other animals, whole	44 025	88 240
460110	Plaits and products of plaiting materials	17 198	38 927
460120	Mats, matting and screens, vegetable plaiting material	215 957	196 784
460191	Plaited vegetable material articles not mats or screen	44 732	120 719*
460210	Basketwork, wickerwork products of vegetable material	789 991	968 044
660200	Walking sticks, seat-sticks, whips, etc.	10 769	44 369

* 2001 value (as no longer in HS 2002).
Notes: n.a.: not applicable as this code did not exist in the HS 1992 version. n.e.s.: not elsewhere specified.
Source: UN, 2004.

DIFFICULTIES ASSOCIATED WITH COLLECTING, COMPILING AND ANALYSING TRADE DATA ON NWFPs

- **The term is not included in international commodity descriptions or in product classification systems.**
- **Listings that describe or categorize NWFPs within commodities vary considerably, as does their aggregated value, since there is no agreement among countries, agencies or authors on terminology.**
- **International commodity nomenclature and product classification schemes are silent as to whether products originate from farms or the forest.**
- **Several NWFPs are traded as processed or semi-processed products or as ingredients in other commodities and cannot easily be identified.**
- **Changes in product nomenclature in international statistical systems – with codes deleted, merged, split or added – make comparisons difficult over time.**
- **Not all countries report accurately on their trade.**

(*Source: State of the World's Forests 2005.*)

Feeding minds: fighting hunger

Public-private partnerships and global trade in NWFPs

Poverty reduction stands out as one of the United Nations' most important goals since its creation. However, several decades later, poverty still persists. UN agencies now recognize that working with the public sector alone is insufficient and over the past decade they have been actively encouraging the participation of the private sector in development initiatives.

Typically, this involves the private sector, civil society and the public sector with a UN agency or other developmental non-governmental organization (NGO) acting as a neutral broker to ensure that a target population benefits from a given activity. These activities could either be aimed at improving the general economic environment (e.g. advocacy on issues such as human rights and peace, and service delivery such as provision of electricity and water) or aimed at specific economic subsectors.

A few partnerships are known to have targeted the NWFP subsector, with the aim of ensuring improved livelihoods through sustainable market development for NWFPs. These initiatives include the following.

- The Swiss pharmaceutical company Novartis is in partnership with Chinese state-owned pharmaceutical companies and rural households in China in order to secure availability of the medicinal plant *Artemisia annua*. This plant contains the active ingredient used in the production of the malaria drug Coartem. Because of high demand, plantations of *A. annua* have been established, thereby reducing reliance on wild plants. Novartis has also initiated planting trials in Africa with a view to diversifying the source of raw material. The World Health Organization (WHO) has played a major role by assuring tropical countries as to the effectiveness of the product and also ensuring continued demand for the Novartis product.
- The Shea Butter Production Initiative is a partnership between the United Nations Development Fund for Women (UNIFEM), the Government of Burkina Faso, a French cosmetic company (L'Occitane), a Canadian NGO (Centre canadien d'étude et de coopération internationale, CECI) and local partners. In the partnership, CECI played a major role in the technical aspects of product development and UNIFEM supported the development of producer groups and educated women producers about new market opportunities. Producer groups were also assisted in sourcing new outlets for their products, especially in international markets. Shea trade fairs have been organized annually and one of the participants, L'Occitane, now purchases directly from the women producers. The women have equally benefited from improved processing technologies, saving time and energy.
- In Ghana, a public partnership exists between a timber company (Samartex), landowners, tenants and state authorities, with the technical support of the German Development Service. The ensuing project aims to cultivate on a sustained basis former areas of forestry clearance for the purpose of preserving biodiversity and creating additional sources of income for the rural population. This Oda-Kotoamso Community Agroforestry Project is run with financial support from Deutsche Investitions und Entwicklungs-GmbH. A major outcome has been the development of a patented method permitting the extraction of a natural sweetening substance from the fruit of an indigenous tree, *Thaumatococcus daniellii*, with high economic potential. A factory is currently under construction for large-scale production and at the same time, cultivation of *T. daniellii* is being encouraged.

While not exhaustive, these three examples illustrate a diversity of driving forces behind the partnerships. In the first case, the driving force is to produce an affordable malaria treatment for rural households. In the second, it is the improvement in the living conditions of women who are the dominant labour force in the shea trade. The Ghana case is driven by sustainable forest management. There are, however, a number of issues worth mentioning that could undermine the potential success of such initiatives with respect to poverty alleviation.

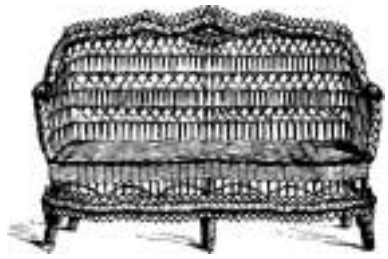
- In the case of *T. daniellii* and *A. annua*, there is an ongoing attempt to synthesize chemically the active substances that make these plants economically important, which could mean that initiatives focused on them may be unsustainable in the long term.
- There is much talk on the economic gains for participating populations. However, there is far less information available about the consequences on existing plant populations when demand rises suddenly.
- Another issue is that of supply. These plants all have a harvesting season of a few months in the year. The *A. annua* partnership is the only one that has attempted to address this issue by encouraging planting in different geographic regions. Furthermore, the shea project, in a drought-prone region, could mean that another potential uncertainty factor has been added to the long-term risks of the project.

(*Contributed by:* Okwen TenjohOkwen, Via Iberia 66, 00183 Rome, Italy. E-mail: okwen@excite.com)

GLOBAL TRADE OF RATTAN PRODUCTS

Rattan comprises about 600 species in 13 genera and is widely distributed in tropical Asia and the Pacific, as well as in Africa.

The International Network for Bamboo and Rattan (INBAR) estimates the global trade of rattan products to be in the range of US$4 billion and the domestic trade to be $2.5 billion. These figures show the importance of the rattan economy, which has become, in terms of export value, almost 40 percent of the $10 billion trade of primary tropical timber products covered by the International Tropical Timber Organization (ITTO). This huge economic importance results from the fact that rattan cane has long been used as one of the most popular materials for furniture. (*Source:* Chinese Academy of Forestry.) ***(Please see pp. 44 and 73 for more information.)***



Trade data on NTFPs in India

Trade data on NTFPs compiled from monthly statistics of the foreign trade of India (exports) prepared by the Directorate-General of Commercial Intelligence and Statistics, Kolkata (India) reveal that the share of NTFP exports has been significant when compared with wood products.

NTFP exports from India were approximately US$154.18 million (Rs6 784 crore) from 2000 to 2001, as compared with the approximately $5.50 million (Rs242 crore) of wood products exported during the same year (Rs44 = US$1).

For figures covering the past eight years, please contact Ms Alka Shiva, President and Managing Director, Centre of Minor Forest Products (COMFORPTS), HIG 2, No. 8B, Indirapuram, GMS Road, PO Majra, Dehra Dun 248 001 (Uttaranchal), India. E-mail: shivamfp@nde.vsnl.net.in *or* Shivamfp@vsnl.com

Trade measures – tools to promote the sustainable use of NWFPs?

An assessment of trade-related instruments influencing international trade in NWFPs and associated management and livelihood strategies.

Through the Norway Partnership Programme (NPP) "Forests for Sustainable Livelihoods", funding was provided in 2004 and 2005 to enable FAO to analyse trade-related instruments influencing trade in NWFPs and their applications and impacts on poverty alleviation and sustainable forest management. The NPP complements and accelerates implementation of ongoing activities of the FAO Programme "Promotion and Development of Non-Wood Forest Products (NWFPs)". TRAFFIC, an international NGO focusing on trade in wild plants and animals, was selected to carry out the global analysis because of its knowledge on and experience in international trade issues and their social, economic and environmental impact on sustainable forest management. Case studies on specific NWFPs in international trade were carried out in Cameroon, Bolivia and Papua New Guinea and the results of these studies were incorporated into the global analysis. A comprehensive report, summarized below, has been produced and is to be published in the near future by FAO.

NWFPs have an important role to play in the livelihoods of many rural communities, particularly in developing countries, where they provide a broad range of subsistence and commercial livelihood opportunities. While most of the trade is domestic, for some NWFP species and products, international trade is significant and generates income for resource harvesters and collectors as well as for many other actors in the commodity chain. The patchiness of information on trade in wild plants and animals makes it difficult to estimate total and relative levels of use for both domestic and commercial purposes, and this is complicated by the difficulty in distinguishing between subsistence use and trade for commercial purposes. The value of international trade, for which data are comparatively better, has recently been estimated at US$11 billion per year.

Effective NWFP trade faces practical challenges as NWFPs are often small in size, come from many different sites and a far larger range of species and products exists than for the two key traded resources – timber and fisheries. NWFP trade is, accordingly, far more complex and difficult to understand and regulate, since NWFPs cannot be successfully regulated as a uniform commodity.

International trade in NWFPs is regulated through a broad range of trade-related instruments that impose mandatory trade controls. Some of these, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and certain national species conservation measures, have their basis in the conservation of biodiversity, while others, such as import tariffs or phytosanitary certificates, are used for capturing revenue or for food health and quality control. There are also many trade-related instruments such as trade rules within the World Trade Organization (WTO) that are based on enhancing trade liberalization, covering a broad range of products in international trade. For these instruments NWFPs are not the key commodities being targeted and impacts are not always supportive of sustainable use and trade.

NWFP trade is also affected by voluntary trade measures developed by the private sector, such as certification and ecolabelling schemes that generally aim to achieve the dual aim of biodiversity conservation and the equitable distribution of benefits to the

communities for whom such trade plays a key livelihood role.

Trade-related instruments, such as CITES, which aim to ensure biodiversity conservation, do not always achieve this goal and, in certain cases, have had a negative impact on the species concerned and on those whose livelihoods are linked to the trade. There are, however, a number of examples of win-win situations and there is increased recognition within the biodiversity conservation sector of the need to incorporate determination of livelihood impacts into decision-making processes for the regulation of trade in wild plants and animals.

Tariffs are used by both importing and exporting countries as a means of generating revenue and, normally in the case of developing countries, as a protectionist measure. Excessive tax rates can be counterproductive since they may encourage illegal trade in the products in order to avoid tariffs. This situation often results in a lower price being paid to collectors and harvesters.

While tariff-based trade measures can have an impact on trade in NWFPs, the impact of non-tariff measures is probably greater. For instance, phytosanitary controls can become a trade constraint where they cause delays and they are normally more onerous on small cooperatives and local communities that may lack the resources to meet the required standards. Non-tariff import controls can prove restrictive as well as complex and overlapping, creating unnecessary burdens on both enforcement personnel and traders. Furthermore, such a regulatory environment is frequently more open to exploitation.

Certification and labelling schemes have focused mainly on timber products; the certification of NWFPs has largely been available though forest-related certification schemes for the last five years. Consequently, it is difficult to assess the performance of certification for NWFPs since insufficient case studies and sources of information exist. In general, NWFPs are not considered ideal for certification programmes because the products are generally traded on a small scale in local markets and where they are traded internationally, it is frequently for a specific industry and on a relatively small scale. Therefore, only some of the more popular products are considered suitable for certification and related initiatives should be carried out on a case-by-case basis.

There are a number of areas where inadequate research has been carried out and insufficient literature exists to determine the impact of trade-related measures. These include international and regional trade agreements, regional and bilateral biodiversity-related agreements and tariff and non-tariff measures. In the latter case, the existing literature needs to be updated.

It is clear that NWFPs play a critical role in the lives of millions of people around the world and that trade-related instruments do have an impact, both positive and negative, on the sustainable use and conservation of NWFPs and on the livelihoods of those dependent upon them. Resource users, regulators, NGOs, policy-makers and all other stakeholders accordingly need to continue emphasizing the important role of NWFPs and advocating the adoption of trade-related measures that are supportive of their conservation and sustainable use. (*Contributed by:* Markus Burgener, Senior Programme Officer, TRAFFIC East/Southern Africa, c/o The South African National Biodiversity Institute, Private Bag X7, Claremont, 7735, Cape Town, South Africa. Fax: 27 21 797 7186; e-mail: burgener@sanbi.org; www.traffic.org)

PhytoTrade Africa: adding life to trade

PhytoTrade Africa is the Southern African Natural Products Trade Association, representing over 50 members across the southern African region in order to develop a viable, sustainable and ethical natural products industry.

PhytoTrade Africa is unique in the way it is tackling business, poverty alleviation, environmental sustainability and benefit-sharing in one practical package. It reaches marginalized producers all over southern Africa and seeks to combine both organic and fair trade standards.

Southern Africa is rich in biodiversity that has contributed to the fabric of domestic life for centuries. The demand for raw materials produced by PhytoTrade's members is growing rapidly, as the results of generations of traditional use and refinement become globally recognized.

PhytoTrade Africa is a member of the International Federation for Alternative Trade. In addition, some members will achieve organic certification this year. While all members are signatories of the PhytoTrade Africa Fair Trade Charter, PhytoTrade is currently developing ways to apply these standards to the cosmetic industry.

All products from PhytoTrade Africa's members can be defined as follows.

Wild harvested. Through extensive research, PhytoTrade Africa has chosen seven indigenous tree species, each producing fruits containing valuable constituents for the cosmetics industry. These fruits are naturally organic and have been sustainably harvested by marginalized rural producers for generations. By creating viable and ethical markets for these products, local value is added, and the traditional culture associated with their usage is secured. In this way, rural producers' livelihoods and food security are enhanced and the trees are conserved.

From educated and empowered producers. PhytoTrade Africa's members are supported by a dynamic management team that provides advice and training on a wide variety of key topics including quality standards; export procedures; market

penetration strategies; business planning; certification criteria; health and safety issues; cosmetic formulation; oil processing; supply chain management; and regulatory environments. In addition, the welfare of each producer is considered with fair prices paid and long-term buyer relationships nurtured.

Within equitable relationships. The communities that harvest these products are organized groupings of rural producers who have a proven business capability to manage production. The roots of every product are firmly planted within these communities and for this reason all intellectual property and genetic rights are protected, and any patents that may arise from research and development are co-owned through the supply chain. Through the creation of coordinated partnerships linking producers, regional organizations, governments and industry, benefit-sharing as envisaged under the Convention on Biological Diversity is ensured.

Implications for the cosmetic industry

- Quality ingredients.
- Every ingredient has a rich African cultural heritage.
- Every producer has been fairly treated.
- Every material has been sustainably harvested.
- By purchasing PhytoTrade Africa products, customers will be providing support to communities that will reinvest the money for themselves, from paying for school uniforms, to school fees, or even a school.

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Aggressive strategy for MFP exports planned

With competition in the minor forest product (MFP) export sector hotting up, a government-sponsored body has planned an aggressive strategy for tapping virgin markets.

The Shellac Export Promotion Council (SEPC) has launched an MFP information centre, which will build a community of stakeholders by bringing producers, traders, cooperatives and exporters under its umbrella and providing them with a platform to highlight problems vis-à-vis support measures needed for export development. To realize its goal, SEPC is also conducting market surveys and developing an export promotion strategy to nurture and groom new and upcoming exporters, promote international competitiveness and identify scope and export potentials.

India's MFP exports at present amount to US$362 million, comprising only 4 percent of global trade. Global imports are estimated to be $9 billion. New and emerging global markets such as South Asia and some western countries in this sector remain largely untapped.

MFPs include bamboo, medicinal herbs, cane, honey, tamarind (both dried and seed), lac, shellac, amla, tendu leaf and others. According to a study, some 50 million tribals in the country depended on MFPs for meeting their subsistence consumption and income needs.

Northeast India is home to a wide variety of economically important NWFPs, including medicinal plants, with vast potential for exports all over the world. With 35 percent of India's forests in this region, it is identified as the richest biodiversity habitat. However, for lack of focus and cohesiveness among growers, the trading community and government policies, this sector has not seen its optimum growth.

Major markets for Indian MFPs are the United States, United Kingdom, Germany, France, Japan, China (Hong Kong SAR) and United Arab Emirates. (*Source:* Press Trust of India, 2 November 2005.)

Exports of Korean ginseng

Exports of Korean ginseng have been on the rise for the third year in succession. If the increase in exports continues, the Republic of Korea expects the amount to surpass US$100 million in 2005, a feat that has not been repeated since 1996.

The Korea Agro-Trade Corporation said that ginseng worth $33 million was shipped overseas between January and June in 2005, up almost 11 percent from the same period in 2004. Ginseng is widely consumed around the world for its effects in boosting vitality. (*Source:* Chosun Ilbo, Republic of Korea, 22 August 2005.)

High sales boost plant extract drug company

Phytopharm, which develops drugs based on medicinal plant extracts, said its sales had grown to £7.4million for the year ending 31 August 2005, compared with £1.1 million the previous year. Losses before tax had dropped to £3 billion from £6.8 billion.

Chief executive Richard Dixey said the highlight of the year had been signing a worldwide licence agreement with Unilever to develop a cactus extract to be used in slimming products. The hoodia cactus is used by the San bushmen of the Kalahari as an appetite suppressant. (*Source: The Guardian*, 3 November 2005.) ●

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"Non-wood forest products (NWFPs) 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)

ALASKA PAPER BIRCH TREE WOODS HOLDS POTENTIAL FOR NEW DRUGS

Saplings of the Alaska paper birch tree (*Betula neoalaskana*) produce a sticky resin on new branches that discourages snowshoe hares from eating them. Some scientists think that such chemical defences could be useful drugs and a new natural resource for Alaskans to tap. Two American researchers thought so highly of birch trees' promise that they took a 600-mile (approximately 966 km) journey up and down the Porcupine River to clip birch twigs from different locations. They found that new twigs were more heavily encrusted with resin nodules the further north they went.

In the late 1970s, researchers noticed that Alaska birches seemed to protect themselves from hares by producing resinous glands on saplings and stems growing close to the ground. These stems are stubbled with tiny beads of papyriferic acid, a sweet compound with a bitter aftertaste. Twigs growing higher on mature trees do not have the glands. The papyriferic acid on sapling twigs causes snowshoe hares to pass more sodium with their urine. This loss of sodium indicates birch defences, such as papyriferic acid, which are potential hypertension drugs.

The north has a bumper crop of birch and other trees and shrubs that seem to be loaded with papyriferic acid and other potentially valuable chemicals.

Since the birches with the highest concentrations of the chemical are between Fort Yukon and northwest Canada, there is potential for villagers to start a new industry of harvesting young birch and other woody plants. This sort of small industry is already under way in Minnesota, where researchers from the University of Duluth have joined a biotechnology company to harvest birch bark for betulin, a chemical effective as a herpes and skin cancer drug and as a component of cosmetics.

Plant/mammal interactions can lead to the identification of potential drugs and one of the strongest plant/mammal interactions is between hares and the trees and shrubs of northern Alaska and northern Canada. (*Source: Anchorage Daily News*, 7 August 2005.)

ARSENIC-EATING FERNS HOLD HOPE FOR TAINTED SOILS

State pollution fighters planted a small patch of pitiful-looking plants inside a wire cage in Tacoma's Point Defiance Park (Washington, United States) and labelled them poison. The 100 subtropical ferns inside the test plot near Fort Nisqually are part of a two-year, US$30 000 experiment in pollution control that began in April 2005 on Vashon and Maury Islands with the primary objective of finding out whether the ferns take arsenic from the soil.

Four years ago, scientists in Florida found that Chinese brake ferns (*Pteris vittata*) thrive on arsenic, sucking the poison out of the soil and concentrating it in their fronds. A company now markets the ferns as a pollution solution for arsenic-plagued communities. Scientists in the Florida laboratory experiments measured arsenic concentrations in the ferns that were as much as 200 times higher than in the soil where the plants grew. "The fronds themselves will become poisonous," said Marian Abbett, an environmental engineer who oversees the Ecology Department's Tacoma smelter project.

Ecology Department officials decided to test whether the ferns will grow locally and reduce soil contamination in areas affected by windborne arsenic from the former Asarco smelter. Its smokestack and buildings have been demolished but the site, adjacent neighbourhoods and nearby shoreline are the focus of a federal Superfund cleanup. Beyond that, elevated concentrations of arsenic, lead and cadmium still taint soils in a 1 000 square mile (2 590 km^2) area around Puget Sound.

Chinese brake ferns resemble native sword ferns but they are considered invaders in Florida, where they dominate their habitat. "We don't think they will be an invasive here," Abbett said. "They like the warmer, tropical climate."

Bhaskar Bondada, a Washington State University plant physiologist who studied the fern in Florida, said that the beauty of this plant is that it only accumulates arsenic in the fronds, which are easily picked. But in the process the fern also converts arsenate to arsenite, which is more toxic, he said.

The Institute for Environmental Research and Education on Vashon Island believes that the ferns should be studied, but urged caution since they could prove to be invasive. Moreover, the fronds might have to be buried in a hazardous waste repository.

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"We have to harvest the leaves," Abbett said. "They can't just fall back on the ground." Nor does the Ecology Department plan to compost them, she said. The plan is to test the arsenic concentrations and decide whether the fronds are hazardous before dumping. Regular soil testing also is planned. (*Source:* Environmental News Network [ENN], 21 June 2005.)

BARK PAINTINGS

Lake Sentani, near West Papua's capital Jayapura, is home to traditional Sentani bark paintings. The bark from the kombou tree is soaked for a few weeks, then pounded until flat and dried in the sun before being painted, using charcoal, lime and ochre. The designs signify mutual harmony in social relationships. Common motifs include the fish, which represents people's livelihood and the lizard, which is believed to have oracular qualities. (*Source:* Green Left Weekly online [Australia], 9 November 2005.)

BIOPIRACY, BIOPROSPECTING AND TRADITIONAL KNOWLEDGE

Traditional knowledge: a legal and market conundrum

Protecting biological or genetic diversity is an investment for the future of any society. Genetic diversity is useful for the development of new products and processes such as for crops and pharmaceuticals. Genetic information is contained in a seed and is what is required for tracing the genome of a species. Significant quantities of biological material are not required. A "few seeds" from a location can give all the information about the genome, thus making biopiracy very simple. (*Source: The Financial Express* [Mumbai, India], 7 September 2005.)

India's digital library will stop biopiracy

The Traditional Knowledge Digital Library (TKDL) is a US$2 million research project to cull medicinal information from the literature of doctors who practise Ayurveda, Unani and Siddha, and produce a fully illustrated and exhaustively referenced database that will secure this traditional wealth in the public domain. The BBC reports, "according to WHO, 70 percent of the people living in India use traditional medicine for primary health care".

Protecting this vital health information from patents will also benefit consumers of alternative medicines from India in the rest of the world. So far, 36 000 formulations have been published in a retrievable source in five international languages, so that patent examiners can readily access records transcribed from Ayurvedic texts.

This library will prevent biopiracy and can be copied by indigenous rights workers around the world. (*Source:* Guerrilla News Network [United States], 12 December 2005.)

African women against biopiracy

Despite recent court rulings, "biopiracy" – non-locals patenting treatments based on plants used by indigenous communities – continues to be a problem. The construction of databases and knowledge archives about native group uses of local plants is an increasingly popular way of combating biopiracy (by establishing "prior art" and blocking patents), but such projects are not easily accomplished. Indigenous knowledge is often an oral tradition and remote communities in the developing world may not be willing to share this knowledge with outsiders.

The Management of Indigenous Knowledge Systems Project is a South African effort to identify and protect the unique local biosystems used by local communities as medicines, based on the authority – and knowledge – of female traditional leaders. The result has been even greater than a knowledge archive.

Female traditional leaders from the Eastern Cape said that the initiative to manage indigenous knowledge systems was community-driven. Before embarking on the Management of Indigenous Knowledge Systems Project, female traditional leaders from the Rharhabe Kingdom focused on how commercial exploitation of traditional foods could help develop their communities. However, they later realized the need to link the management of indigenous knowledge systems on traditional foods with that of traditional medicines in order to make their promotion of rural livelihoods or development effective. The sources of traditional foods and medicines are largely indigenous plants and grains. Some medicines are also acquired from animals and reptiles.

The female traditional leaders said that they intended to uplift the socio-economic well-being of their communities through the establishment of community business enterprises that produced, marketed and sold traditional foods and medicines.

One notable aspect of the project is that it aims to stop not just institutional biopiracy (from pharmaceutical concerns, for example) but also casual biopiracy from local city dwellers. Apparently, a number of useful plants are being overharvested by South African urbanites looking for medicinal or nutritional supplements. (*Source:* WorldChanging [United States], 25 July 2005.)

Curbing biopiracy

To control biopiracy, many developing countries are demanding disclosure requirements as a positive obligation by patent applicants, making it mandatory to disclose the source or country of origin of

genetic resources and associated traditional knowledge (TK).

This requirement ensures that the patent applicant will comply with the access and benefit-sharing legislation of the host country. It will also enable patent offices to be more vigilant when examining patent applications. Moreover, it will serve as a critical tool for gene-rich countries to track down applications based on genetic resources and related TK, and enable adequate challenges to specious patents. (*Source:* The Rising Nepal, 29 July 2005.)

Harpagophytum procumbens

Moves to protect devil's claw (*Harpagophytum procumbens*)

Botswana, Namibia and South Africa are engaged in talks to protect the devil's claw plant (sengaparile or *Harpagophytum procumbens*) from a German company that wants to have patent rights over it.

Botswana's Deputy Permanent Secretary in the Ministry of Environment, Wildlife and Tourism, Tutu Tsiang, said yesterday that the talks involve government officials from the three countries. She said that since the plant grows in the three countries it would be unfortunate for the company to claim rights over it. She was not aware whether there were plant species exported to other countries to be processed and patented. There was confusion in 2004 when CITES said that it wanted to put sengaparile on its list of endangered species. The plant grows in sandy areas such as the Kgalagadi desert and is known to have medicinal value. (*Source:* Mmegi/*The Reporter* [Gaborone], 4 August 2005.)

Amazon countries team up to tackle biopiracy

Representatives from patent offices in six Latin American nations that share the Amazon Basin have agreed to work together against biopiracy – the unauthorized commercial exploitation of their native species.

According to the Rio Declaration signed on 1 July in Rio de Janeiro, Brazil – Bolivia, Brazil, Ecuador, Peru, Surinam and Venezuela will share information and jointly develop policies to tackle the phenomenon. Together with Colombia and Guyana, the countries are members of the Amazon Cooperation Treaty Organization, which was created in 1978 to promote sustainable development in the region and which organized the Rio meeting.

The countries are concerned that researchers could patent drugs and other products derived from their native species, including products based on traditional knowledge such as herbal medicines, without sharing the benefits fairly. To tackle this threat more efficiently, they agreed to harmonize their intellectual property laws and share technical information included in patents.

The Amazon Basin is one of the most biologically diverse regions on earth, with many species found nowhere else on the planet. (*Source:* SciDev.Net [United Kingdom], 18 July 2005.)

Patenting of Peruvian plants

Around 500 products based on plants native to Peru are registered in patent offices in the United States, Europe and Japan, but many of them may have been produced by breaking Peruvian laws on access to biodiversity and traditional knowledge.

This complaint was voiced by Santiago Roca, the president of Peru's National Institute for the Defence of Competition and the Protection of Intellectual Property, at the first meeting of intellectual property officials from the eight Amazon Basin countries that took place in Brazil from 30 June to 1 July 2005.

These hundreds of products were derived from just seven native plants from Peru. The statistics on the number of products based on native Peruvian plants came from a study by a commission set up by the Peruvian Government to examine patent registries in Europe, Japan and the United States. The report, which was completed in January 2005, laid the foundations for verifying whether the applications for patents were legal.

Roca said authorities from his country will now investigate whether patent applications infringed Peruvian legislation on access to genetic resources, which requires prior consent from and compensation for the indigenous communities that possess the traditional knowledge used in developing the products. Peru's "regime for the protection of indigenous peoples' knowledge related to biological diversity", which was adopted in 2002, regulates these questions in the country and orders remuneration in exchange for access to traditional knowledge; these monies go into a fund to be distributed to the communities involved.

Of the 500 products, two or three cases of proven legal infractions will be selected, to demand the revocation of the patents and "the success of this first step will set a precedent" that will pave the way for a broad offensive against biopiracy, said Roca.

Biopiracy is defined as biological theft, or the unauthorized and uncompensated collection of indigenous plants, animals, microorganisms, genes or traditional communities' knowledge on biological resources by corporations that patent them for their own use. Countries with great biological diversity such as those of the Amazon jungle must protect the traditional knowledge and wealth held by traditional indigenous peoples, just as industrialized nations apply pressure around the world to fight the piracy of their products, such as software, films and CDs, Roca argued.

The meeting of intellectual property officials was a first step towards the sharing and exchange of information on biopiracy and cooperation and international negotiations on patents. Achieving effective recognition of "collective rights" requires an effort by all

countries, because national laws generally only protect the copyright and intellectual property rights of individuals or companies, not of the communities that developed the knowledge in the first place.

A pressing question now is to obtain reparation for indigenous communities for the knowledge that they have collected over centuries and that is being used to develop food products, pharmaceuticals and cosmetics. This will be a "long process", and is a particularly sensitive issue in the Amazon jungle region because of its immense biodiversity, Roca said, pointing out that each hectare in this part of South America contains more biological diversity than all of Europe combined.

Peru's experience could make a significant contribution to Brazil's struggle in the area, since many species are shared by both countries, such as the *quiebra piedra* (literally, "stone breaker") plant used to make herbal tea for people suffering from kidney stones or gallstones. (*Source:* Inter Press Service News Agency, 4 July 2005.)

Andean nations seek United States patent protection for native medicines

Colombia, Ecuador and Peru are turning the tables on United States trade negotiators accustomed to winning tough safeguards for drug patents by demanding similar protection for traditional therapies such as roots and leaves. Demands for protection against what these nations call the misappropriation of traditional knowledge will be one of the most contentious issues during trade talks this week and next in Washington.

The Andean nations want "minor" protection for their native plants and the ways they are used, such as a rule requiring companies to inform indigenous tribes of any patent applications based on traditional knowledge and negotiate payment, according to Carlos Correa, a Buenos Aires-based consultant to these nations.

"Existing rules protect things that are made in labs, not things taken from the wild or cultivated over generations," said Renee Marlin-Bennett, chairperson of the Global Intellectual Property Project at the American University in Washington. The proposed changes would "redirect the rules to rectify some of the embedded imbalance" between rich and poor, she said.

While it is difficult to quantify the magnitude of the issue, these nations are moving to catalogue it. The Government of Peru created a commission on biopiracy that has identified ten plant species of local origin for which patents have been granted or applied for in the United States, Europe or Japan.

In 2001, New Jersey-based Pure World Botanicals Inc. won a patent for an ingredient in the Peruvian plant maca and is now marketing it as a "natural Viagra". The Peruvian commission is preparing a legal challenge. Chris Kilham, a consultant for Avignon, France-based Naturex, which now owns Pure World, said the company's patents are legitimate. Still, he said that Pure World had erred in not sharing the patent rights with Peruvian communities.

The United States says that it has investigated most of the frequently cited examples of biopiracy and found little supporting evidence. It has "significant concerns" about the explicit notification proposal and instead is offering compromises that will guard against patent abuses, a trade official said.

Representatives of pharmaceutical companies such as New York-based Pfizer and Whitehouse Station and New Jersey-based Merck oppose acceding to the Andean nations' demands, saying their solution addresses a problem that does not exist. "Right now there is no evidence of biopiracy," said Mark Grayson, a spokesman for Pharmaceutical Research and Manufacturers of America in Washington, a lobbying and marketing group that represents drugmakers.

The Andean nations' demands for prior notification and negotiated payment have been picked up by India and Brazil, which want similar provisions written into a broader WTO agreement. (*Source:* Bloomberg [United States], 17 November 2005.)

Is Brazil beating biopiracy or biodiversity research?

Brazil's Amazon rain forest is teeming with life – an estimated 30 percent of the planet's animal and plant species – that could yield raw materials for new medicines. Brazil fears that foreign researchers may exploit its biodiversity without paying the country a fair share of the profits.

However, Brazilian efforts to deter such biopiracy risk stifling both local and foreign research. The Government's strict rules controlling research on Brazil's wild species have forced some scientists to move their projects to neighbouring Bolivia, Ecuador and Peru.

And although concerns about biopiracy are widespread in Brazil, a member of the congressional committee investigating biopiracy says that the committee has not found evidence for even a single case.

Brazilian researchers interviewed say Brazil does not have enough knowledge about the very biodiversity it is desperate to protect. They agree that the best way to protect the Amazon's biodiversity would be for Brazil to invest more in home-grown research. (*Source:* Associated Press/mongabay.com, 1 November 2005.)

Bioprospecting programme in Malaysia

More minority groups are expected to contribute plant species known to have medicinal value to the Sarawak Biodiversity Centre's bioprospecting

programme. Those expected to do so in the next few months include the Bisayas from Limbang, Kayan-Kenyahs from Sungai Asap, Melanaus from the Mukah division and Ibans from Selangau and Betong.

The State Planning and Resource Management Minister said the centre had met leaders of these groups to discuss taking part in its traditional knowledge documentation programme. "The centre already has a collection of some 9 000 plant extracts in its natural product library from over 600 plant species from the local communities," he said. These species were contributed by the Bidayuhs, Penans, Kelabits, Lun Bawang and Malays from the various regions.

The Minister said the state had to build up a critical mass of scientific expertise in order to have access to research findings and good research partners to jumpstart its biotechnology initiative. "When the new laboratories are fully commissioned and the research team adequately trained, the centre will be on track to bring in some discoveries," he added. (*Source: Malaysia Star*, 16 June 2005.)

Bioprospecting in the Pacific region: who will benefit?

In the Verata district of Fiji, people turn to their Community Trust Fund for scholarship support for local students. In Faleaupo, Samoa, the cost of construction of a primary school was donated by a foundation in return for the community's conservation of their rain forest. Both the trust fund and the school's construction were made possible by bioprospecting.

Plants that have been used for traditional medicines, in many cases for thousands of years, are targeted. Evidence has shown that scientists have more than ten times the chance of finding an active chemical in a medicinal plant than in one collected at random.

The process of drug discovery takes about 15 years from sample collection to having a marketable drug. It is estimated that only one in 10 000 chemicals investigated ends up as a saleable drug and the cost of coming up with one drug is US$800 million.

A major issue related to the work of bioprospecting is who will benefit if medicines are found. In the past, plants and marine organisms were often collected from developing countries by western researchers and the source country received little in return.

This neo-colonial "open access" policy was turned on its head by the 1993 Convention on Biological Diversity, which gave sovereign rights of biodiversity to the source country but encouraged it to allow access to outside researchers under mutually agreed terms.

Pacific countries have been slow to develop this so-called "access and benefit-sharing" legislation.

In the examples cited above, it was the collecting group working with the local community that ensured a wide range of benefits was made available to the source area. Responsible scientists understand the importance of preserving the biological diversity from which chemicals are derived and, to further this preservation, they seek partnerships that will allow source communities to undertake conservation efforts.

No chemical derived from a Pacific organism has yet been fully developed into a marketable drug. But several are showing promise.

- A medicinal tree from Samoa called *malamala* (*Homalanthus nutans*) has been found to be active against HIV/AIDS. United States scientists are trying to identify the gene that tells the plant to make the chemical.
- A district in Fiji has licensed plants and marine organisms for testing in Japan and set up a conservation trust fund of $30 000 with the proceeds.
- An orange sponge (*Jaspis coriacea*) and the makita tree (*Atuna racemosa*) in Fiji have produced chemicals for medical research. The United States company involved is giving 2–5 percent of the proceeds from sales to support further research in Fiji.
- A chemical from a medicinal tree in Fiji has been patented as an anti-diabetes drug.

The Universities of the South Pacific (USP) and Papua New Guinea (UPNG) are playing leading roles in the development of biodiversity through the use of biotechnology, having set up local enterprises to increase local ability to perform the work. Both universities have received a prestigious International Cooperation in Biodiversity grant given by the United States Government to partnerships of United States and overseas universities working to discover drugs and conserve biodiversity. USP is working with the Georgia Institute of Technology and UPNG with the University of Utah, with funding of about $3 million over a five-year period.

Collaboration such as this is helping to bring benefits to the people of the Pacific and, ultimately, to the people of the world. (*Source: Islands Business*, Suva, Fiji.)

BIRD FLU IS ALSO A FOREST PROBLEM

Bird flu – known technically as avian influenza – is a highly contagious viral disease that occurs naturally in birds. It can be caused by any one of about 20 different strains of the influenza virus.

Besides the potential impact of the disease on humans, its effect on livelihoods is clearly devastating. In Asia, nutritional patterns, income-generating activities and even sociocultural patterns have been adversely affected. Animal breeding has become an issue for the privileged and, as a result, the poor, with limited options, have become even poorer. Equally important are the economic losses caused by fear of the disease; tourism,

international trade options and business travels are sectors that have been severely affected.

The introduction of the bird flu virus – H5N1 – into Africa has raised new questions on an already complex international problem. How can African governments, with limited resources, effectively monitor migratory birds? With the disease spreading simultaneously through Africa and Europe will the world pay enough attention (through awareness raising, technical and financial assistance) to the needs of Africans? What is the best method to control the disease for populations in which bushmeat is a non-negligible component of their daily diet? What impact will this have on livelihoods, progress towards Millennium Development Goals and the fight against malaria and HIV/AIDS in Africa? (*Contributed by:* Okwen TenjohOkwen, Via Iberia 66, 00183 Rome, Italy. E-mail: okwen@excite.com)

Bushmeat or edible wild mammals, reptiles, birds and insects that live in forests or trees can account for up to 85 percent of the protein intake of people living in or near forests. (*Source:* www.fao.org/forestry/site/28821/en)

BOREAL FOREST GARDEN

The Taiga Rescue Network (TRN), in collaboration with LandLab Ltd (a TRN participant organization), recently presented an exhibit at London's 2005 Chelsea Flower Show, arguably the world's most prestigious horticultural event. The show takes place annually, generates huge media coverage and draws up to 34 000 visitors per day for five days in May.

The silver medal-winning boreal forest garden was designed as a boreal forest clearing with native plants. Everything in the garden had some use, whether edible or medicinal – thus promoting NTFPs. Not only did the garden introduce thousands of people to the boreal/taiga forest, but it also promoted naturalized landscapes in urban settings.

TRN's purpose at Chelsea was to raise awareness about the boreal forest, the threats it faces, and the indigenous peoples and rural communities that depend on it for cultural, social and economic sustainability. To emphasize the boreal forest's importance for these communities and to raise awareness about alternative economies, TRN chose to focus on the value of NTFPs. To this end, TRN produced an NTFP factsheet for distribution at the show and financed three invited guests from the boreal forest to come to Chelsea and introduce the public to how their respective communities use the forest, and why sustainable forest use is so important to their lives.

The NTFP factsheet, entitled *Our life, medicine path: non-timber forest products of the boreal*, introduced NTFPs and issues related to their management and development; briefly outlined the medicinal/cultural uses of six plants in the garden; raised awareness about intellectual property rights related to NTFPs; and suggested options for citizen and NGO activism on the subject.

The boreal forest garden project definitely raised awareness about the boreal forest and its sustainability in a very large and new audience forum, primarily within the United Kingdom, but also in the Russian Federation, western European countries (e.g. Italy and Sweden) and North America. (*Contributed by:* Damien Lee, Information Coordinator, Taiga Rescue Network, Box 116, 96223 Jokkmokk, Sweden. Fax: +46 971 12057; e-mail: info@taigarescue.org; www.taigarescue.org)

BOSWELLIA SERRATA: A TREE OF POSSIBILITIES

The *salga* or *Boswellia serrata* tree, is part and parcel of everyday life in rural Jharkhand (India). It is also known as *salahi-mann* by the Oraon people and as *salga daru* by the Mundas.

The tree yields a type of Indian frankincense or *loban*, which is a golden-yellow, transparent and fragrant resin that oozes out of the tree. People of all religions have used the salga tree resin as incense and villagers also often plant the tree because of its numerous uses in daily life.

The most attractive aspect of the salga tree is its tenacity. It requires no special care or extra water to survive the often harsh climes of Jharkhand. The small tree is often used as a fence around kitchen gardens and is popular among farmers to line their fields. It does not cast any shadow over crops, allowing adequate sunlight. In addition, it grows faster than the rest of the local trees and thus fulfils the rural people's need for fuel.

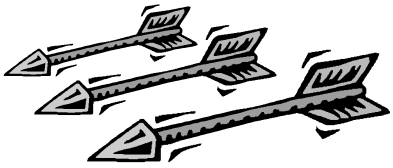
One of the tree's major characteristics is that it does not require a large quantity of water and it is therefore usually planted in midsummer, using a very simple process: a branch is cut and planted in the soil. Salga can be grown in any type of soil and wherever there is minimum moisture. People often plant a forked and mature branch near the village well, which serves a dual purpose: it can be used as the base for the pulley used to draw water from the well and, as time passes, the branch grows into a live tree and acts as a permanent pillar.

Popular belief is that salga is not attacked by termites and insects and the twigs are kept as hooks in cattle sheds to act as a repellent against flies and mosquitoes. Experts believe that the presence of a particular chemical, boswellic acid, is partly responsible for this characteristic.

Salga also has some medicinal properties. A paste of its bark – *salai*

guggul – is used to treat normal wounds. Many medicine companies use this paste as one of the ingredients in medicines for gout, rheumatism and other joint pains. Villagers use a salga twig as a toothbrush (*datun*) and as a cure for pyorrhea.

In spite of its numerous uses it is disheartening to see that there are no systems, as yet, in Jharkhand to collect such an important forest by-product. Had it been given due attention, this plant would have definitely proved to be an effective source of employment and revenue. (*Source: Calcutta Telegraph* [India], 23 August 2005.)



BUSHMEN'S QUIVER TREE THREATENED BY CLIMATE CHANGE

A famed desert tree used for generations by Africa's bushmen to make quivers for their arrows is threatened by global warming, a conference heard today.

With a stocky trunk topped by a tangle of forked branches, the quiver tree (*Aloe dichotoma*) has iconic status in Namibia, where its blue-green crown stands out vividly against a parched landscape.

"The quiver trees are in the early stage of a poleward (southward) range shift," Wendy Foden, a researcher at the South African National Biodiversity Institute, told a conference on climate change science in Johannesburg. A shift towards the poles and away from the equator is precisely what one would expect as a response to warming conditions, Foden said. "If there is no expansion in the quiver trees' range, then models forecast a 76 percent reduction in their population over the next 100 years," she said. "Even with dispersal its numbers could be down more than 30 percent over the next century," she added.

For the quiver tree, any migration it makes would have to come about as a result of seed dispersal via the wind or from droppings from birds or other animals that digest the seeds. This may help the species but not individuals, some of which are over 150 years old. (*Source:* Reuters, 18 October 2005.)

CHALLENGES IN THE CONGO BASIN

Surrounding the Sangha River, in the centre of the Congo Basin, are more than 3.5 million ha of unique forested landscape covering parts of Cameroon, the Republic of the Congo and the Central African Republic. The area is unique because it houses not only a group of large mammals such as the forest elephant, western gorilla and bongo, but is also home to more than 12 different ethnic groups of hunter-gatherers and farmers, who have been dwelling in these forests for years.

For many of these forest-dependent people, bushmeat is their most important forest resource, both for subsistence and income. Unluckily for them, most bushmeat originates from very charismatic mammals, often the focal point of conservation. In the past, the hunting of these animals was a sustainable practice but today, with commerce and guns, the situation has become more complex and some animals such as the gorilla are now on the World Conservation Union (IUCN) red list of species in danger of extinction. This has resulted in a strict anti-poaching policy in certain areas, banning hunting and trapping and only allowing agricultural practices on the outskirts of villages. Villagers, often living in extreme poverty, are not even allowed to put traps in their fields and they see a substantial amount of their crops being destroyed by forest animals. Removing hunted animals from their diet also has implications on their protein intake. For these people, conservationists are seen in the same light as the previous colonizers who deprived them of their natural resources.

Over one million tonnes of wild meat/year is consumed in the Congo Basin, equivalent to 4 million head of cattle. (*Source:* Center for International Forestry Research [CIFOR].)

The challenge for the World Wildlife Fund (WWF), Wildlife Conservation Society (WCS), German Technical Cooperation Agency (GTZ) and country governments in their management of the national parks and surrounding buffer zones in the Sangha Tri-National Region, is to conserve the great biodiversity while at the same time improving the well-being of forest dwellers. CIFOR has taken up this challenge and is working with WWF on a new landscape management strategy for the Sangha region to achieve win-win outcomes for both environment and livelihoods. CIFOR and its partners will identify the trade-offs between development and conservation in the region, explore where conservation and development can fruitfully coincide and identify the so-called "best practice" for the region. If CIFOR succeeds in helping WWF to find a way to integrate conservation and development, it would really provide research that makes a difference. (*Contributed by:* Marieka Sandker, Associate Expert, Forests and Livelihoods Programme, CIFOR-Cameroon, c/o IITA-HFC, PO Box 2008, Messa, Nkolbisson, Yaoundé, Cameroon. E-mail: MSandker@cgiar.org)

CPF SOURCEBOOK FOR FUNDING IN FORESTRY

The online Collaborative Partnership on Forests (CPF) Sourcebook on Funding for Sustainable Forest Management helps users to identify information on funding sources, funding policies and delivery mechanisms of donor countries, with particular focus on sustainable forestry management projects in developing countries. It covers a wide range of funds, from those supporting individuals and small NGOs to those available to larger

institutions, forest enterprises and governments. The entire sourcebook can be accessed interactively via the Web site at: www.fao.org/forestry/cpf-sourcebook.

One component of the sourcebook is the "funding news alert" (electronic newsletter) that is sent monthly to subscribers. This news alert compiles funding news related to forestry. Its goal is to cast the net wide so that fund seekers worldwide learn of funding opportunities in a timely manner. All back issues of the forestry funding news alerts can be found on the sourcebook's discussion platform: www.fao.org/forestry/foris/community/main/listthreads?forum=1

For more information, or if you wish to subscribe or contribute to the next issue, please contact: Edward Kilawe, Consultant on International Forest Policy, Forestry Department (FONL), FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy.
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DOES *BACOPA MONNIERI* IMPROVE COGNITIVE FUNCTION IN OLDER AUSTRALIANS?

Recent research carried out by Annette Morgan of Southern Cross University, New South Wales, Australia investigated the efficacy and safety of *Bacopa monnieri* in improving memory in healthy Australians over the age of 55 years. A review of the literature showed that in the current demographic climate of an ageing population, memory impairment and dementia are increasingly prevalent. Older Australians are using complementary medicines to enhance cognitive function. The evidence for many complementary medicines is largely empirical and good-quality clinical trials are lacking.

Bacopa monnieri is a herbal medicine that has been used in India since antiquity for its cognitive enhancing effects. A number of preclinical and clinical studies support this traditional usage. However, many of these studies are methodologically flawed; for example, by a lack of blinding, small sample sizes or the use of outcome measurements that have not been properly validated. A well-designed study by Stough *et al.* (2001) demonstrated the positive effect of *Bacopa* on cognitive function in healthy people between 18 and 60 years of age; the current study was employed to replicate and extend these findings by assessing the efficacy of *Bacopa* specifically in the older population.

A clinical trial was carried out to assess the effects of 12 weeks of a standardized extract of *Bacopa monnieri* (300 mg/day) on memory in people over 55 years of age. From the 126 people who elected to participate, 98 people met the study entry criteria and commenced the trial. Of these, 81 participants completed the trial and provided evaluable data for the end-point analysis.

Primary outcome measures were well-validated neuropsychological tests to measure verbal and visual memory objectively, and a memory complaint questionnaire to measure subjective memory complaints. The results demonstrated that *Bacopa* significantly improved memory acquisition and retention in older Australians. This concurs with findings from previous human and animal studies, as well as supporting traditional Ayurvedic claims and uses. The use of *Bacopa* was associated with gastrointestinal tract (GIT) side effects, particularly increased bowel movements, nausea and abdominal cramping, findings infrequently reported previously. These effects may have been a result of the GIT irritant effects of the saponin component of the herb, or possibly of the cholinergic stimulation of autonomic and motor responses in the GIT, or both.
(*Contributed by:* David Cameron, Wollongbar, New South Wales, Australia.)

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Some 80 percent of people living in developing countries depend on NWFPs, such as fruits and herbs, for their primary health and nutritional needs. *(Source:* www.fao.org/forestry/site/28821/en)

DOMESTICATION

Population preferences for local fruit-tree species: implications for the domestication of *Dacryodes edulis* and *Irvingia gabonensis* in Cameroon

Since 1994, the World Agroforestry Centre (ICRAF), in collaboration with its local partners, has undertaken a domestication programme for local fruit trees and medicinal plants in Central and West Africa. The domestication programme consists in developing vegetative propagation techniques and promoting the integration of the higher genotypes in agrarian systems.

From the participative investigations, a list of priority species was drawn up for the region. These species, including *Irvingia gabonensis, Dacryodes edulis, Chrysophyllum albidum, Ricinodendron heudelotii* and *Garcinia cola*, are used as models for the implementation of the domestication programme. However, a great variability in preferred species was noted among countries, even among various localities of the same country.

Furthermore, the present study aims at determining the priorities and choices of the population for the integration of fruit trees in four different localities in Cameroon. From the results obtained, it was clear that there is an important

variation in fruit preferences according to the sites studied and whether the choices were made by men or women.

In localities where the population is large and other income-generating activities are sought, farmers attach much more importance to exotic species, while in the areas where forest cover is still important, the preferences are for local fruits. The differences between the priorities of men and women are especially of commercial, compatibility and facilitated cultural values, which can be explained by the differences in the strategies of production according to gender. Preferences for the exotic as well as for local fruit species are also determined by the following criteria: consumption, medicinal and compatibility with other cultures. To satisfy its numerous needs, the population prefers to retain a diversity of fruit trees on its farms.

An important stage in the domestication of the trees is the mass multiplication of those having characteristics appreciated by the population. Thus, the study shows the importance of a participative approach in the identification of preferred characteristics, by using *I. gabonensis* and *D. edulis* as examples. The results suggest differences in the preferences noticed among communities and even among various groups of the same village. The desired characteristics are guided by the principal objective of the producer (consumption versus commercialization), market opportunities and food practices.

These preferences should be used for the selection of the "higher trees" and aim for the development of varieties by vegetative propagation methods at a lower cost, practised by ICRAF in collaboration with the farmers. (*Source:* English summary of a paper by Mbosso, C., Degrande, A., Schreckenberg, K., Tchoundjeu, Z., Enyong, L. and Boyd, C. *Préférences des populations pour les espèces fruitières locales: implications pour la domestication de* Dacryodes edulis *et de* Irvingia gabonensis *dans la zone forestière du Cameroun*.) (*Contributed by:* C. Mbosso, World Agroforestry Centre [ICRAF], BP 2067 Yaoundé, Cameroon. E-mail: cmbosso@yahoo.fr)

Sustaining forest resources

Tree domestication has been identified as one of the major ways of preserving natural forest resources and preventing their extinction. Given that human beings across generations have relied on forests for food, clothing, medicine, shelter and so on, it is incumbent on the various stakeholders to look for ways of sustaining forest resources as they come under pressure from a fast-growing population. This means taking food, medicinal and other useful trees out of the natural environment and adapting them, by either improving their quality or their production cycles for wider cultivation.

This was the subject of a one-week seminar – "Domesticating High-value Trees for the African Humid Tropics: Propagation, Integration and Marketing" – that ICRAF organized in Yaoundé last week. The seminar brought together participants from the West and Central African subregions that are endowed with a wide variety of natural resources but paradoxically host some of the world's poorest populations.

Participatory tree domestication in agroforestry is a farmer-driven and market-led process. The purpose of the regional course, therefore, was to teach and extend recent advances made in the domestication of high-value trees in the African humid tropics. The regional coordinator of ICRAF, Dr Zac Tchoundjeu, said the domestication of tree species and medicinal plants remains an indispensable economic succour to the African humid tropics.

Following a survey carried out by agroforestry researchers in the African humid tropics, various species were identified and are being domesticated, including two species of *Irvingia gabonensis* (bush mango), *Dacryodes edulis* (African plume), *Ricinodendron heudelottii* (the sauce spicing nut, njansang), *Garcinia cola* (bitter kola) and *Cola nitida* (kola nut). Others are vegetables such as *Gnetum africana* (eru) and medicinal plants such as *Prunus africana* and *Pausinystalia yohimbe*.

The ICRAF authorities say they have registered spectacular results in the domestication of these species. (*Source: The Post* [Buea, Cameroon], 16 October 2005.)

TREE DOMESTICATION – PROGRESS TOWARDS ADOPTION

"Tree domestication – progress towards adoption" is the focus of a recent issue of *Forests, Trees and Livelihoods*, Vol. 16(1). It covers contributions to the tree domestication sessions of the First World Agroforestry Congress held in Orlando, Florida, United States in July 2004, which was the fourth meeting looking at the potential for domesticating the underutilized tree species that are important for subsistence farmers around the world.

Products from these species were in the past gathered from natural forests as NTFPs, but many of them are now becoming new cash crops producing what are called agroforestry tree products (AFTPs). This change has come about in the short space of 14 years since the first conference in 1992 that highlighted the potential of these overlooked "Cinderella" species.

Articles included in this issue include: Domesticating indigenous fruit trees as a contribution to poverty reduction; Putting participatory domestication into practice in West and Central Africa; The cultivation of camu camu (*Myrciaria dubia*): a tree planting programme in the Peruvian Amazon; and Towards the development of miombo fruit trees as commercial tree crops in southern Africa.

For more information, please contact: Michael S. Philip, Editor, *Forests, Trees and Livelihoods*, Luton Cottage, Bridgeview Road, Aboyne, Aberdeenshire AB34 5HB, United Kingdom. E-mail: philipfor@aboyne93.fsnet.co.uk; www.foreststreesandlivelihoods.co.uk/index.htm)

EL CAMU CAMU LOGRA CERTIFICACIÓN ORGÁNICA

Al haber aprobado los estándares internacionales establecidos, la firma SKAL International ha decidido conceder al CEDECAM la certificación orgánica de este cultivo emblemático de la Amazonía peruana. El certificado es válido para los mercados de EE.UU., Europa y Japón.

La certificación orgánica, conocida también como biosello, sello verde o certificación ecológica es la garantía que el camu camu está exento de insumos prohibidos, pesticidas, agroquímicos o cualquier otra sustancia tóxica para el organismo humano y que puede alterar el carácter ecológico del producto. Los beneficios son tangibles en diferentes niveles:

- Para los exportadores, la certificación se convierte en una poderosa estrategia de marketing que facilitará la internacionalización de este producto. Podrán ofrecer pulpa de camu camu, pulpa concentrada y/o liofilizada con el sello verde, lo que les permitirá incursionar con mayor éxito en un mercado tan competitivo como el de bebidas nutracéuticas y la industria farmacéutica.
- Para la región Loreto, esto es un hecho inédito, pues se convierte en el primer recurso de la biodiversidad amazónica con esta distinción, con lo cual nos ubicamos a la altura de la actual tendencia mundial de producir productos naturales. Constituirá, al mismo tiempo, un incentivo para que la población ribereña se dedique más a este cultivo, generando empleo productivo.
- Para los productores de camu camu que se orientan al mercado internacional representa una oportunidad para obtener mayores ingresos, que en opinión de los exportadores es del orden del 30% adicional al precio actual; pero al mismo tiempo, significa un reto porque tienen el compromiso y la obligación de cumplir con las normas establecidas.
- Para los consumidores a nivel nacional e internacional, el biosello obtenido significa una garantía de la calidad y el carácter orgánico de los productos con camu camu.

Cómo fue el proceso y a quiénes involucra

El proceso de certificación ecológica se inició en enero del presente año cuando CEDECAM contrató los servicios de SKAL International, empresa holandesa de reconocida trayectoria, altamente especializada en certificación de sistemas agrícolas y reconocida a nivel internacional, siendo la certificadora más grande de América Latina.

Javier García, Presidente ejecutivo de CEDECAM, manifiesta que la certificación ecológica del camu camu se inscribe dentro de la estrategia de posicionamiento de este recurso en el mercado internacional de productos orgánicos en el marco del proyecto «Programa integral para el aprovechamiento racional del camu camu en cuencas seleccionadas de Loreto» que implementa CEDECAM con el apoyo de la Unión Europea, Agro Acción Alemana, CESVI de Italia e Hivos de Holanda.

SKAL analizó las parcelas de camu camu, los rodales naturales y el proceso de transformación industrial de este recurso de la biodiversidad amazónica, teniendo en cuenta las entradas y salidas de insumos durante este proceso. Visitaron 17 comunidades ubicadas en las cuencas del Mazán/Napo y Ucayali/Tapiche, que son las áreas de intervención del proyecto. Se garantiza una oferta sostenible de fruta de los rodales naturales de estas cuencas mediante planes de manejo que actualmente están en proceso de implementación por las comunidades organizadas con el apoyo de CEDECAM.

Se pueden obtener alrededor de 60 t de fruta en la cosecha 2005-2006 con una proyección creciente.

Este logro de CEDECAM y de los actores de la cadena productiva del camu camu directamente involucrados en el proceso, trae consigo la responsabilidad de cumplir rigurosamente con las normas establecidas para renovar el certificado anualmente sin problema alguno. El CEDECAM asume el compromiso de vigilar estrechamente el cumplimiento de las normas, sistematizar, documentar los procesos y capacitar permanentemente a los productores.

El CEDECAM es una asociación civil sin fines de lucro, que articula a los productores de camu camu con el mercado; no produce ni comercializa directamente. En este sentido, juega el rol de «bisagra» entre la oferta y la demanda del mercado. Se preocupa de garantizar la calidad y, a partir de ahora, de velar por el carácter orgánico en la fase agrícola y de transformación de la pulpa en la UNAP para los mercados de exportación.

Es probable que con la certificación y la creciente demanda del mercado, las exportaciones de camu camu superen en esta cosecha las 150 t de pulpa. (*Fuente: Revista Bosques Amazonicos virtual*, junio 2005.)

ETHNOFORESTRY PARADIGMS

Recent research by John Studley of Loughborough University, United Kingdom on ethnoforestry paradigms has been presented in his doctoral thesis entitled “Sustainable knowledge systems and resource stewardship: in search of ethnoforestry paradigms for the indigenous peoples of Eastern Kham”.

This study examines resource stewardship from an alternative neglected angle – that of knowledge sustainability and synergistic bridging. The main outcomes of the study include the cognitive mapping of

forest values among "Tibetan minority nationalities" in Eastern Kham, their spatial distribution and the coincidence of changes in forest values with cultural or biophysical phenomena.

Abstracts of the research (in English, Tibetan and Chinese) are available from the Loughborough University Web site at: www-staff.lboro.ac.uk/~gyjfs/phd_study.htm

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FOREST COSMETICS AND FRAGRANCES

Sourcing Brazilian rain forest ingredients for cosmetics

Brazilian personal care ingredients specialists Beraca Ingredients have been involved in a government-led expedition to search Amazonian rain forests for ingredients that can be used in cosmetic formulations. The expedition headed to the sustainable reserve of Cujubin, in the northern Brazilian municipality of Jutai, and included government officials and a representative from Conservation International.

Beraca says that it is hoping to explore the rain forests for cosmetic ingredients in a way that is sustainable to the environment, while combining local resources in an effort to benefit the region. "The production of the copaíba oil and of other forest products for the cosmetics industry has a great potential to provide sustainable and economic means for this region."

Copaíba oil is an oily resin that is extracted from the Amazonian tree, *Copaifera officinalis*. These dense trees grow from 15 to 30 m high and the resin is extracted from the tree trunks. It is commonly used as a fragrance component in perfumes, as a preparation in soaps, creams and lotions, and as an emollient.

A seminar that focused on participative planning within the region was held during the first stage of the project and included 100 members of the local population from Jutai. The discussions centred on forming social structures whereby the farming of the land for ingredients could be better managed.

The aim is to maximize land utilization, while supporting a sustainable economic and ecologically balanced future. In turn this should lead to improvements in education and the health services, which will be the responsibility of the government. The next step will be for the community to organize themselves in a local association, with the aim of providing reliable supplies of copaíba oil and rubber to various industries, including the cosmetics industry. (*Source:* Cosmetics Design [France], 22 September 2005.)

Shellac may combat skin disorders

Ivy Cosmetics announced on 5 August that it has identified a unique property of shellac, a natural resin secreted by the insect *Laccifera lacca*.

In collaboration with Kitasato University, the company has confirmed that the powder or extract of shellac can inhibit the production of interleukin-8, one of the causal factors of skin disorders. The company and the university have concluded that shellac-derived substances can be used in external skin preparations.

Ivy has applied for patents for these findings. (*Source:* Japan Corporate News, 8 August 2005.)

Forest berries find their way to cosmetics

The Lumene company is a trailblazer in the use of berries in cosmetics. The company's products now include arctic cloudberry extracts. Research to find new raw materials from Finnish nature has led Lumene to using arctic forest berries such as cloudberry, lingonberry and cranberry, as well as pine and birch extracts in its products. For example, cloudberry, lingonberry and cranberry are used in face creams, pine bark extracts in men's products and birch sap and birch leaf extracts in body care products. Cloudberry seed oil is used to protect skin from radical damage and to enhance regeneration. Pine extracts are used to prevent premature skin ageing and birch leaf extract to boost circulation. Cranberry is an old, well-known medicinal herb in Finland.

Using Finnish ingredients is important to Lumene since many arctic berry species have a high concentration of active ingredients because of the short but light Nordic summer. The fact that Finnish nature is considered to be pure is also an important factor for Lumene and its customers.

Developing cosmetics from berries has been ongoing for six to seven years. It took two to three years of development before Lumene had a product containing berry extracts on the market.

Lumene uses approximately 100 000 kg of berries each year, the major part of which is cloudberry. In order to obtain 1 kg of cloudberry seed oil, 100 kg of berries are needed. Although Lumene uses only the oil from the seeds, other parts of the berries do not go to waste and are made into juices and jams.

Lumene has not had problems with berry procurement so far, even though there is a small risk since crops vary from season to season.

Face care products containing cloudberry represent Lumene's most successful sales both in Finland and abroad. Lumene's products are available in Scandinavia, the Baltic countries, the Russian Federation and the United States. In the Russian Federation cloudberry is well known, but in the United States it has so far been unknown. Gaining United States markets is notoriously difficult.

In Finland Lumene is the leading cosmetics brand with a 27 percent market share. (*Source:* forest-fi, 22 August 2005.)

NEWS AND NOTES

***Aniba rosaeodora*: a quest to save a tree**

Until the perfume Chanel No. 5 went on the market in 1921, pau-rosa or Brazilian rosewood (*Aniba rosaeodora*) was just another tree that grew in abundance in the Amazon. But the enduring popularity of that fragrance, which includes rosewood oil as a main ingredient, began a process that has led to a black market trade in the oil, and the tree itself being designated an endangered species.

Worldwide, demand for perfumes, soaps, balms and scented candles has skyrocketed in recent years, helped by rising women's incomes and aromatherapy. Because of rosewood's cachet, demand for the oil far outstrips the legal supply and some fragrance manufacturers will pay high prices to obtain it.

According to academic and industry studies, legal rosewood oil production in Brazil is now barely one-tenth of its peak in the late 1960s, when annual output was 300 tonnes. The number of registered mills, which turn rosewood tree trunks into oil through an inefficient process that seems to devour trees, has also fallen drastically, from more than 50 in the 1940s to fewer than eight today.

About six years ago, Avive, a community group in a small island town in the middle of the Amazon River, began an effort to try to revive the industry, but this time on a sustainable basis. Rather than simply cutting down trees and hauling away their trunks, Avive decided to prune branches and leaves every five years or so, thereby extending the usefulness of individual rosewood trees for decades.

Today the project's members, most of them rural women, have planted and are tending more than 3 000 rosewood saplings in the heart of the jungle. They also distil rosewood oil and manufacture about 1 000 bars of soap a month at a small plant there. The group has begun harvesting other exotic fragrances from trees for soaps and salves, always taking care to replace what they take.

But Avive's task has not proved easy. Jungle lots that the government has placed under the group's care have been razed by invaders. The concentration of oil in rosewood leaves can be twice as much as that in the trunk. But larger volumes of branches and leaves are needed to produce the same amount of oil, and since this requires extra labour, it is more convenient and profitable for mill operators to stick to the old predatory system.

Higher labour and operating costs mean a higher price for the finished product. Intermediaries have balked at paying this premium so long as illegal supplies are still available, but some users say they would gladly buy the environmentally friendly rosewood oil if only it were made available to them. (*Source: Silves Journal* via *The New York Times*, 30 August 2005.)

Sandalwood fragrance

Sniffing sweet fragrances not only soothes your senses, but can also improve your mood. A researcher has now developed a "medical perfume" which, when sniffed, can also cheer you up. The sandalwood perfume, which was unveiled recently, contains chemicals that hit the base of the brain via the nose. They then regulate the dopamine levels that affect depression and anxiety.

Inventor Dr George Dodd said the perfume could be more effective than prescription drugs. "One or two sniffs will be enough. We've done trials with hundreds of people." The perfume is expected to reach the shelves in 18 months. (*Source:* NewKerala.com [India], 28 October 2005.)

INCENSE

The world of aromatherapy suggests many types of essential oils that are useful for healing. But incense can also be utilized as a remedy for certain conditions. Headaches are a common ailment many people face, but with the calming effects produced by certain aromas, symptoms can be relieved.

Incense and aromatherapy work because our sense of smell is a direct path to the brain. This process activates our limbic system and is the reason why certain odours trigger an immediate response. Particular aromas are known to stimulate the brain to produce essential chemicals. Many of the ingredients used in incense contain phytochemicals, which are chemicals found in plants that have protective, disease-preventing properties.

Incense or aromatherapy is not a substitute for seeking medical attention. Once you have attempted to identify the cause of the discomfort (stress, hormones, sinusitis), you can find the particular ingredient for your symptoms.

Incense recommended for headache relief include the following.

Borneol (*Dryobalanops camphora*), a resin derived from the camphor tree, is refreshing and cleansing. Its camphor-like aroma opens the nasal passages, so it is especially beneficial for headaches brought on by sinus problems. Borneol smells wonderful even when it is not burning. It kills bacteria, purifies the air and stimulates the adrenal cortex of the brain. Borneol is a primary ingredient in Buddhist incense.

Spikenard (*Nardostachys jatamansi*), a woody herb found mainly in Nepal, is closely related to valerian. The dried roots are used, and have a musky aroma that helps enhance contemplation.

Star anise (*Illicium verum*) comes from a small tree native to southwestern China that produces a fruit that ripens into the shape of a star. It is well known for its liquorice taste and an extract is used in making true liquorice. Star anise contains certain phytochemicals and angiotensin-

converting enzyme (ACE) inhibitors, which lower blood pressure. This can produce a calming effect and help reduce pain. (*Source: Llewellyn Journal* [United States], 7 November 2005.)

LES SOURCES DE LA FERTILITÉ ET DE LA DURABILITÉ

Les rameaux des arbres, particulièrement deux des feuillus dicotylédones composent la canopée tant en climat tempéré que tropical. Ces rameaux sont fait de bois dont la composition protéique est très différente du bois des tiges (bois caulinaire). Ces protéines sont associées à des composés dont on ne parle peu que sont les polyphénols, eux-mêmes associés aux sucres et aux celluloses.

Si l'arbre est stable, il en va autrement des rameaux de la canopée qui offre un milieu de vie extraordinaire que nous apprenons à connaître depuis une décennie et qui n'a de cesse de nous émerveiller et de nous confondre. Nous constatons tous les jours que des millions d'enfants africains souffrent de graves carences en protéines, alors que le feu servant à cuire de maigres rations est largement disponible.

Ainsi, avons nous tiré leçon de cet état de fait et utilisé les rameaux des arbres abattus pour l'exploitation du bois caulinaire, et nous les avons employés pour le sol, où fongus et chaînes trophiques ont tôt fait de transformer un sol pauvre à base de kaolinite en un sol diversifié biologiquement et structuré physiquement. Ainsi, la diversité biologique de la canopée s'est transformée en un sol riche, fertile et d'une utilisation durable bien au-delà d'une année et ce en redonnant la fertilité obtenue après une fragmentation donnant des morceaux ne dépassant pas 10 cm de longueur. En région tropicale, cela remplace la jachère qui, pour restaurer la fertilité primitive, peut prendre des dizaines d'années.

Des augmentations de rendement de l'ordre de 30 pour cent en matière sèche se sont manifestées tant en Côte d'Ivoire qu'à Madagascar, en République dominicaine, au Sénégal, puis en en Belgique, au Canada, en France et en Ukraine. Ainsi, l'utilisation des rameaux fragmentés est à la base d'une pédogenèse contrôlée et ne peut être associée à un engrais ou à un amendement humique comme plusieurs le proposent.

Ainsi les rameaux fragmentés bouleversent tous les paramètres du sol et des cultures en éliminant des parasites tels les nématodes parasites des racines, augmentent les rendements à la récolte, diminuent de moitié la consommation d'eau, réduisant ainsi les méfaits de la salinité tout en stabilisant le pH. (*Contribution de:* professeur Gilles Lemieux*;* Groupe de coordination sur les bois et rameaux, Département des sciences du bois et de la forêt, Université Laval, Québec G1K 7P4, Canada. Télécopie: (1) 418-656-5262; courriel: gilles.lemieux@sbf.ulaval.ca)

MANEJO DE SEMILLAS FORESTALES NATIVAS DE LA SIERRA ECUATORIANA Y NORTE DEL PERÚ

Los Andes del Norte conforman la ecoregión más biodiversa del planeta, considerando la cantidad de especies de flora y fauna y los tipos de ecosistemas que se encuentran en este rincón noroccidental del continente sudamericano. En muchas partes de la cordillera de los Andes, es posible viajar un largo día, desde la zona costera del Pacífico hasta la cuenca del Amazonas, cruzando bosques tropicales húmedos o secos, bosques de montaña bajos, bosques de niebla de montaña alto, páramos o punas y una serie de humedales. La región Andina también es el hogar de una gran diversidad cultural. Pueblos indígenas y mestizos habitan diferentes pisos altitudinales como sustento de su vida y para desarrollar sus actividades agrícolas, sociales y económicas. Todo esto hace de los Andes una zona privilegiada a escala mundial, ya que en ninguna otra región se encuentra tanta biodiversidad y diversidad en capital humano concentrado.

La deforestación en los Andes y la pérdida de ecosistemas en general, son casi tan famosos como su diversidad. Por una serie de razones históricas, económicas y políticas, la convivencia, de la relativamente alta densidad de población con el medio ambiente no ha sido siempre positiva, lo cual ha promovido una degradación ambiental muy severa. Esta degradación es actualmente muy grave, pues resulta que: en la región con más alta biodiversad del mundo no hay suficientes áreas silvestres preservadas para un funcionamiento ecológico natural; en una región montañosa, con suelos muy fértiles, falta tierra cultivable como resultado de la erosión; y en el continente mas húmedo del mundo, falta agua para vivir.

Entre las respuestas a los grandes problemas ambientales presentes en los Andes del Norte, siempre ha surgido la forestación. En los últimos años ha tenido mucho éxito la reforestación social o comunitaria, o sea la integración entre reforestación, agricultura y manejo forestal, y por la participación social que este tipo de forestación promueve. Esta modalidad de forestación, además, utiliza muchas especies de árboles, ya que se trata de una actividad multipropósito y aprovecha los diversos fines de la diversidad forestal andina. Es así que la forestación comunitaria ha revalorado

una gran cantidad de especies nativas de los Andes, y ha aumentado la agrobiodiversidad del paisaje cultural andino.

Sin embargo, el hecho de que este tipo de forestación tiene un enfoque social y menos industrial, no significa que pueda prescindir de bases técnicas y académicas de alta calidad. Es precisamente éste, uno de los factores limitantes para que la forestación reciba una mayor acogida. No existe suficiente conocimiento de la taxonomía, de la silvicultura, del uso y la comercialización de especies que las comunidades campesinas usan o pueden usar en su práctica diaria. Un gran problema es la utilización de material genético de calidad. Si bien la incorporación de una diversidad de árboles en el paisaje andino requiere altas inversiones laborales, igualmente implica muchos beneficios. Estos beneficios pueden aumentar –eventualmente– en más del 50% con una semilla de buena calidad. Sería un desperdicio dedicar tanto tiempo y esfuerzo a un árbol de mala procedencia genética.

Con estos elementos la corporación EcoPar y la fundación EcoCiencia con el apoyo financiero y técnico del programa Fosefor en los Andes, ejecutaron un plan de recolección de información, de conocimientos prácticos y de capacitación con organizaciones campesinas y demás actores de la cadena forestal en el manejo de semillas forestales de calidad. Uno de los productos de este programa es la presente publicación, en la cual se recopila toda la información actualmente disponible sobre el manejo de semillas, el manejo en vivero y en plantaciones de especies forestales nativa y exóticas. Esta información es producto de una investigación en fuentes primarias y secundarias, refleja especialmente la experiencia de la gente del campo: campesinos y campesinas, técnicos, viveristas y de los proyectos impulsados por el Fosefor. (*Fuente:* Ordóñez, L., Arbeláez, M. y Prado, L. 2004. *Manejo de semillas forestales nativas de la Sierra ecuatoriana y Norte del Perú* [Com-Eds].)

Myrica gale

MYRICA GALE

Myrica gale, also known as sweet gale or bog myrtle, is a small deciduous shrub with reddish brown buds that grows in bogs, wet heaths and fens. It used to be common throughout the United Kingdom, but as wetlands were gradually drained its habitat was removed and it retreated further north, finally making its home in the Scottish Highlands. The leaves of this sweet-scented plant are resinous and were used to flavour beer. Another well-known use was as an insect repellent. The bark was hung in wardrobes and stuffed into mattresses to repel fleas.

Recently, a Scottish company has started harvesting this plant to extract the oil for its insect-repelling properties. With £750 000 of commercial and government funding for research into the plant, there is huge commercial potential for the Highlands.

Bog myrtle, like many plants, was thought of as a medicine, and at one time was the standard treatment for scabies. The leaves were made into “gale tea”, which was a cold remedy as well as being a useful astringent for upset stomachs.

Belonging to the Myricacea family, there are about 50 species of wax myrtles worldwide. They are nearly all aromatic and have a history of being used as a medicine.

They are found in soaps, stomach remedies and catarrh mixes and can still be found in many herbal dispensaries. (*Source: Edinburgh Evening News* [Scotland, United Kingdom], 8 October 2005.)

NON-PROFIT ORGANIZATIONS AND NGOS

Biodiversity Research and Development Centre (BIRD)

The Biodiversity Research and Development Centre is a government-registered NGO located in Kathmandu, Nepal, which aims at biodiversity conservation, environmental improvement, social services awareness activities and poverty alleviation, working in an area with a diverse mix of ethnic groups and cultural traditions and a high biodiversity value of global importance.

BIRD’s main goal is to integrate conservation with development by safeguarding the area’s biodiversity; improving the socio-economic condition of the local people; and developing and studying development models for social enlistments.

BIRD’s objectives are to conduct scientific field studies and research and development projects at different levels, from grassroots to national planning, to promote the biodiversity sector; promote and facilitate development of natural resource-based microenterprises to enhance the livelihoods of local communities; and facilitate and develop physical infrastructures for biodiversity conservation and the sustainable collection, production and market management of medicinal and aromatic plants (MAPs) and NTFPs.

BIRD has been working to fulfil its mission in the control and management of natural resources and improvement in the biodiversity sector. It works directly with rural people and related organizations at the grassroots level to improve their socio-economic condition through biodiversity development and commercial utilization of local resources. BIRD also encourages local-level initiatives to manage NTFP-based enterprises to improve rural livelihoods. It coordinates with relevant stakeholders to devise and facilitate policy formulation on biodiversity management and NTFP conservation, utilization and marketing.

Finally, BIRD acts directly in developing and disseminating the market price information system of NTFPs/*jaributi* (MFPs) from local to national level for better information among relevant stakeholders.

For more information, please contact: Rana B. Rawal, Chairperson, Biodiversity Research and Development Centre (BIRD), GPO Box 23162, Mitranagar, Ramhiti Phant, Boudha-6, Kathmandu, Nepal. E-mail: ribdrawal@wlink.com.np

Pragya, India

Pragya is a non-profit organization that has been engaged in the holistic and sustainable development of vulnerable neglected communities and ecosystems in the high altitudes of the Himalayas through promoting the conservation and cultivation of endangered medicinal and aromatic flora together with the ethnic cultural heritage of the area.

The organization facilitates appropriate, sustainable and stable development of the region, empowerment of communities and the conservation and revival of ethnic culture, including local languages, arts and crafts and music and dance.

For more information, please contact: Dr Visvarup Chakravarti, Pragya, A-212A Sushant Lok I, NRM-CTM, Gurgaon-122002, (Haryana), India. E-mail: info@pragya.org; www.pragya.org

Tree Aid

Tree Aid, a well-established charity set up in 1987, has planted more than six million trees across Africa and has protected many more. "Not only do trees provide wood for homes, food, medicines and fuel, but they allow communities to develop an income from their products, such as shea butter, soaps and gum," says Miranda Spitteler, Tree Aid's chief executive. A donation of £18 covers the cost of a zizyphus tree, which bears vitamin-packed fruit. For donations of £550 or over, you can be linked with your own Tree Aid project and the charity will keep you closely involved with its progress.

For more information, please contact: Tree Aid, Brunswick Court, Brunswick Square, Bristol BS2 8PE, United Kingdom. Fax: +44(0)1179096617; e-mail: xuela.edwards@treeaid.org.uk; www.treeaid.org.uk

United Plant Savers

United Plant Savers is a Vermont-based non-profit organization with the goal of preserving North America's native medicinal plants. It has about 2 000 members nationwide and for each member the focus is on its "at risk" list, about 20 plants in danger of disappearing as a result of habitat loss and overharvesting.

Plants such as ginseng and bloodroot, which can be used to treat a number of ailments including stress and skin cancer, are of particular concern. The root of the plant is used to create remedies, but harvesting the plant kills it. Therefore, teaching harvesting ethics is crucial to ensure that native medicinal plants continue to thrive in the wild. Root dividing, pruning and seed planting are a few of the ethical harvesting methods promoted by the organization.

For more information, please contact: United Plant Savers, PO Box 400 E. Barre, VT 05649, United States. Fax: +1 (802) 476 3722; e-mail: info@unitedplantsavers.org; http://unitedplantsavers.org

NON-TIMBER FOREST RESOURCE ENTERPRISES: FATTY OILS FOR EDIBLE AND NON-EDIBLE PURPOSES

It has been emphasized many times that no single non-timber forest resource (NTFR) enterprise offers adequate livelihood opportunities and ensures people's security throughout the year. Consequently, India and other countries need to select and manage five or six NTFR species on the basis of their harvesting times and biological calendar, i.e. time of planting, maturity of plant parts required for the enterprise, etc. in order to guide NTFR management in the right direction.

Another important point is that in raw material production for a particular commodity, such as fatty oils from oilseeds, more than one species should be extensively propagated so that any failings can be averted. For example, although a massive campaign was launched to produce fatty oils for refined cooking oil from palm oil (*Elaeis guinunsis*), the species could not meet the shortage of edible oil in India; other species of the Palmae family should have been grown, in accordance with the sustainability of climate and ecology.

Similarly, *Jatropha curcas* was grown vigorously in different parts of India during 2005 to produce fatty oils to be added to diesel at 20 percent as biofuel. It is suggested that other species such as *Pongamia pinnata* and *Mucuna prurens* be grown simultaneously, following trials on the use of their fatty oils as biofuel. The Centre of Minor Forest Products (COMFORPTS) for Rural Development and Environmental Conservation, Dehra Dun has been preparing a project for undertaking such trials on about 12 plants yielding oilseeds.

COMFORPTS has been specifically working for NTFR utilization and propagation management and its services may be obtained, through its MFP database, by any country for the selection of NTFR species for different enterprises.

For more information, please contact: Ms Alka Shiva, President and Managing Director, Centre of Minor Forest Products, HIG 2, No. 8B, Indirapuram, GMS Road, PO Majra, Dehra Dun – 248 001 (Uttaranchal), India.
E-mail: shivamfp@nde.vsnl.net.in; Shivamfp@vsnl.com

NWFP FABRICS

Bamboo charcoal textile products

Taitei. On 11 November the Ministry of Economic Affairs (MOEA) launched a series of textile products made of bamboo charcoal which the ministry says can make Taiwan's textile industry more competitive on the world market.

MOEA took two years to develop the technology of bamboo charcoal textiles with the help of the Taiwan Textile Research Institute and several textile companies.

To produce bamboo charcoal, the bamboo, which needs to be four to five years old, is burned at 700–750°C. The charcoal is then finely graded and inserted into fibres to create a new form of textile.

Clothing made of bamboo charcoal textiles has the advantage of absorbing odours, retaining heat, blocking out electromagnetic radiation and maintaining low humidity.

MOEA also introduced a new Phyllotex trademark for its line of bamboo charcoal products which includes (besides clothing) soap, lotion, shampoo and pillows. (*Source:* BharatTextile.com, 13 December 2005.)

Bamboo T-shirts

Bamboo fibre T-shirts are the most comfortable and softest textile product. Made from a 21/1 ring spun yarn, the bamboo T-shirt is 70 percent bamboo fibre and 30 percent cotton and is preshrunk. Bamboo fibre T-shirts are naturally antibacterial, biodegradable and extremely soft.

Bamboo clothing will never stick to the body or skin, even on the hottest of days, and will always make you feel extremely cool under any condition.

The species used for bamboo fibre is

Phyllostachys heterocycla pubescens, commonly known as moso bamboo. This is the largest of the temperate zone bamboo species and is the most economically important species in China. It is generally used for construction purposes and as edible bamboo shoots.

Moso bamboo is prevalent throughout China. Bamboo Textile's factory, however, owns and maintains its own plantations on a large mountainside located in Zhejiang Province, which is south of the factory in Suzhou.

Bamboo is known to be the fastest-growing plant on earth, making it naturally highly renewable. Bamboo's growth characteristics enable it to spread rapidly across large areas and, consequently, it is known to improve soil quality in degraded and eroded areas of land. In addition, bamboo's natural growth habits allow it to reproduce in abundance without the use of fertilizers and without the need for pesticides.

The process to make bamboo fibre and yarn is similar to the process used to make rayon. Stalks of bamboo are essentially crushed and pulped to separate the natural fibres. These are then mixed with chemicals such as caustic soda to convert the plant fibre into textile quality fibre. (*Source:* I-Newswire.com (press release) [United States].)

Modi: ethnic and exquisite

Modi or "modern indigenous" is a fashion and home designer collection of indigenous handmade crafts infused with a stylish contemporary twist. The line was initiated by the Non-Timber Forest Products Task Force (NTFP-TF), a network of organizations that works with upland and rural communities on issues of land tenure, resource management and livelihood based on NTFPs, with the hope of establishing a regular demand for these crafts and thereby ensuring a stable source of income for the artisans. Modi was also established to preserve and promote the continuation of the traditional arts and lifestyles of these artisans and elevate the perceived value of handmade and culturally related products.

NTFP-TF's vision is to preserve indigenous crafts and raise them to a much higher level where more value is placed on the traditions and culture of the people who fashion them.

Modi will be featuring new designers yearly to present fresh design concepts and an interesting product line. And through design clinics organized by the NTFP-TF, the featured designers will all have the chance to interact and consult with the artisans, who are considered creative partners in this worthy endeavour.

Simply put, through Modi the NTFP-TF aims to spark a renewed interest in and appreciation of all indigenous crafts. (*Source: Philippine Daily Inquirer*, 19 August 2005.)

United Nations recognizes bark cloth as world heritage

Uganda's bark cloth has been named as part of the world's collective heritage recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Speaking yesterday, Augustine Omare Okurut, who heads the Uganda National Commission for UNESCO, said the global body had proclaimed the "art of bark cloth making in Uganda as a masterpiece of the world's intangible heritage". The proclamation "is an honour to Uganda and a recognition of the indigenous textile production skills of Ugandan craftsmen". "It will strengthen the activities aimed at preserving the bark cloth production skills in Uganda as well as promoting the bark cloth and its use in Uganda and internationally."

Okurut said that bark cloth is used in

various festivities, including burials, and has invaluable commercial potential when exploited for handicrafts.

He said research was being undertaken on making bark cloth, which is extracted from a ficus tree popularly known as *omutuba* in central Uganda. Okurut said that the tree was becoming endangered and that if it were to be commercially exploited the local people would be encouraged to grow it for posterity and improve their welfare. He also said bark cloth making had been left to a few traditional artisans because of the lack of a market, adding that this could result in the tree's demise.

Okurut said researchers had been to various places, including Busoga and Bunyoro, but discovered that Buganda was the only place where bark cloth is widely used. (*Source: New Vision* [Uganda], 3 December 2005.)

Fabrics with a healing touch

With people becoming increasingly health conscious all over the world, Ayurvastra fabric, which is dyed using various Ayurvedic herbs, sandalwood, neem and turmeric, is climbing the popularity chart.

Ayurvedic herbs have various medicinal properties and when they are dyed with the fabric, give it a cooling effect. They are good for various skin disorders, asthma and other ailments. Clinical trials are currently under way at the government Ayurvedic college in the state capital. Some clothing materials are also dyed using pomegranate and jaggery.

The Ayurvedic herbs are boiled at a particular temperature and the fabric is dipped in it for at least four hours and, in some cases, a whole day. For making sandalwood saris, first the yarn and then the cloth is dyed in sandalwood.

The Handloom Weavers Development Society is at present exporting to Italy, Germany, United Kingdom, United States, Singapore and Malaysia; export earnings last year amounted to Rs1 crore (Rs10 million).

The technology used in making Ayurvastra cloth is being utilized for making coir mats, mattresses, doormats and carpets. Delhi-based wool weavers from Himachal Pradesh, Ladakh and Orissa have entered into partnership with the society to make Ayurvedic wool. Discussions have also been held with Kanchipuram weavers to produce Ayurvedic Kanchipuram saris.

However, the lakh weavers in the society are facing marketing problems and efforts are consequently being made to popularize these innovative products. (*Source:* Rediff, [India], 28 September 2005.)

NWFP FUELS

Bamboo-fuelled power plants in India

Indian scientists have successfully developed two unique power projects using bamboo to generate electricity. The plants, with a capacity of 1 MW each, will be commissioned in Assam by February 2006. "This would be the first of its kind where we are using bamboo and its wastes to generate electricity," said the Director of the National Mission on Bamboo Applications (NMBA). "It would not only be cost effective but also highly ecofriendly."

NMBA is an agency set up by the central government to promote value addition and commercialization of the country's 80 million tonnes of annual bamboo crops.

India is the second highest bamboo-producing country after China. More than 55 percent of India's annual bamboo crops are grown in the northeastern region.

"Bamboo grows in the wild abundantly and all we need to do is to propagate cultivation further so that we can use it as an alternative for wood in the near future," NMBA said. (*Source:* Webindia123 [India], 15 December 2005.)

***Ipomoea fistulosa* – the crisis fuel of wetlands**

Fuel in rural Bangladesh is a problem, with fuelwood becoming more scarce every day. The problem is particularly acute in Sunamganj, a northeastern district of Bangladesh situated in typical wetlands. Most of the district remains under water for at least half the year. The main fuelwood collected in the low-lying areas is koranch (*Pongamia pinnata*), hijal (*Barringtonia acutangulata*), kadam (*Anthocephalus kadamba*) and sheora (*Streblus aspera*). People lop parts of these species during the monsoon season, while during the dry season different reeds and shrubs meet their fuel demand.

Fuelwood in these low-lying areas is diminishing at an alarming rate and, facing this acute fuel scarcity, people are now using cow dung, rice husks, etc. as alternative fuel sources, but they are not enough to meet demand. It is time to address the suffering of the people in the wetlands; government agencies and NGOs should come forward to solve the energy crisis in these areas.

During my recent visit to Sunamganj, I saw people planting ipomoea (*Ipomoea fistulosa*) along the sides of the road. Plant growth is luxuriant and once ipomoea is planted it can be harvested year after year. It also has a soil-binding capacity and protects the soil of the newly constructed "kacha" road in rural areas. The species is now used as fuel during the monsoon season and can survive under water for a considerable time. Thus, if properly planted, it will partially meet the demand for energy. In the meantime, a well-planned system should be developed so that poor rural people can have a sustained supply of energy.

Planners are requested to keep ipomea in mind since it is very easy to grow and can provide a sustained yield. (*Contributed by:* A.Z.M. Manzoor Rashid, Assistant Professor, Department of Forestry, Shahjalal University of Science

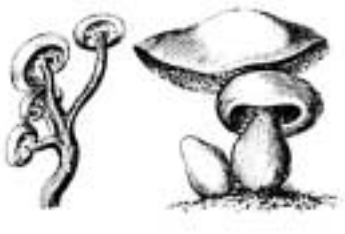
and Technology, Sylhet-3114, Bangladesh. E-mail: pollen-for@sust.edu)

Mushrooms as fuel?

New research could move shiitake mushrooms out of the kitchen and into the petrol tank. These fungi grow on fallen logs in the forest. They digest the wood and turn it into sugars that they use for food.

Now scientists with the United States Department of Agriculture (USDA)'s Agricultural Research Service are investigating whether this technique could be used to produce fuel. The researchers have discovered and copied the shiitake gene, Xyn11A, which gives the mushroom the ability to produce the enzyme xylanase that dissolves wood into sugar. Now that the researchers have isolated the gene, they are looking into whether it can be used to produce vats of the enzyme for digesting rice hulls or other harvest leftovers into sugars that could be used for making ethanol or other fuel types.

This research was published in 2005 in *Protein Journal.* (*Source:* LiveScience, 2 December 2005.)



POISON FROG PRODUCTION AND EXPORT

Poison frog production and export are new NWFP tools to keep rain forests standing and alleviate rural poverty in Central and South America.

Many Central and South American countries have colourful poison dart frogs in their faunal listings. According to CITES Appendix II, most of these frogs are endangered and worldwide trade is controlled. Yet hardly anything is being done to preserve their original habitats in order to prevent these outstanding frogs from terminal extinction. Several species are in fast decline – *Dendrobates arboreus*, Panama; some *Minyobates* in Colombia; and several *D. histrionicus* variants in the Chocoan rain forest belt of Ecuador and Colombia. One species is possibly already extinct in the wild (*D. speciosus*, Costa Rica) as a result of new diseases (particularly chytrid fungus), devastating oil palm monocultures (Ecuador, Peru), cattle farming (Colombia, Ecuador, Peru), devastating monocultures of soya and other crops (Brazil) and local or global climate change caused by large-scale deforestation.

Some species are protected in a few national parks or reserves, but are still endangered there by the chytrid fungus, climate change and forest fires (Brazil).

In 2004, in a first unique rescue operation, IUCN-SPN-NL helped to finance in Peru the purchase and protection of the last original habitats and refuges of *Dendrobates mysteriosus*, a project currently managed by three local NGOs. The tiny refuges will receive international registering, while an intensive production process with marked reproductors will provide sufficient funds to maintain the reserves by exporting some juvenile frogs.

This shows that not in all cases do hundreds or thousands of hectares of forest need to be protected: for poison frogs or *Atelopus*, small areas of only a few hectares can make the difference between extinction and survival. Funding agencies should, therefore, meet this need for small-scale funding for the selected original habitat conservation of endangered species.

Another problem is that many wild collected Dendrobatids are stolen in the countries of origin by "professional" smugglers (Peru and Panama are most affected currently). These illegal frogs turn up in great numbers in Europe or the United States. Smugglers often concentrate on stealing young poison frogs since they can be camouflaged and sold more easily than adults.

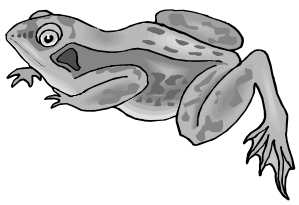
To fight this illegal trade and to install a functioning network of protected original habitats, the NGO INIBICO (located at Tarapoto, Peru) has developed sustainable production methods for many species of poison frogs. These methods are applied in original forest and allow poor forest settlers or natives to earn an extra or exclusive income. In 2004, INIBICO, together with INRENA, established Peru's first Concession of Faunal Management of 3 861 ha near Tarapoto (consisting of a buffer zone of a new regional park), where poor forest settlers are trained to produce nine species of local poison frogs, two tree boa species, orchids (*in vitro* culture based) and commercial insects for export.

The producers are organized as an NGO (ASPRAVEP) and maintain a biological field station and recollecting centre, where tadpoles and froglets are raised to juveniles. Since poison frog *in situ* production is only possible in standing original forest or high secondary forest, producers learn to value their forest plots. The ASPRAVEP project was recently featured in a Discovery Channel documentary entitled "Frogs of gold".

ASPRAVEP is exporting its first frog shipments in 2006 and the financial outcomes of this type of NWFP production will be available at the end of the year.

The experience gained in Peru will be transferred to those neighbouring countries having the same severe rain forest loss.

The project's success is also based on the World Bank Development Marketplace Grant won in 2002 (Poison dart frog ranching to protect rain forest and alleviate poverty, project no. 1761). (*Contributed by:* Dipl. Biol. Rainer Schulte, INIBICO, Jr. Ramírez Hurtado 608, Tarapoto, San Martin, Peru. E-mail: inibico@terra.com.pe; www.inibico.org)



NEWS AND NOTES

TREES FOR HEALTH FOREVER

Traditional plant-based medicine is of great importance for the health security of people in southern Africa. It is based almost entirely on the collection of wild plants from increasingly fragmented and beleaguered natural forest and conservation areas. In the past, collection was largely for personal use and undertaken by the healers themselves. However, in order to supply the growing urban populace collection is increasingly commercial and, if left uncontrolled, threatens the future of species in high demand and the forests and environments in which they live. Commercialization has generated a whole suite of trade-dependent livelihoods that are in turn threatened by overexploitation. Remedying this situation requires concerted effort on the part of foresters, national park managers, herbalists, traders and the public itself. However, although it is easy to say action is needed, it needs to be evidence-based; in other words, it should be based on good-quality information arising from objective research.

The Forest Research Programme (Department for International Development [DFID]) funded a three-year project in Malawi, Zambia and South Africa with the intention of providing a scientific basis for the sustainable management of medicinal trees in southern Africa. The focus of the project was bark from indigenous species in natural forests and was based on pioneering work by the CPWild consortium in South Africa (www.cpwild.co.za) while consideration of resource inventory issues developed work initiated by the FAO GCP/RAF/354/EC project (see *Non-Wood News* 9).

Bark comprises around 60 percent of the mass of plant-based medicine for sale in South African wholesale herb markets and many of the species in high demand are becoming scarce within forests close to the markets. As a consequence, 36 percent of the bark material in the Durban herb market originates from neighbouring countries, especially Mozambique (19 percent). A market survey undertaken by the project indicates that although the relationship between traders and herbalists is quite different in southern Malawi and the Copperbelt province of Zambia, even here long-distance, crossborder trade of medicines is taking place. Furthermore, the people engaged in the collection, trade and administering of herbal medicines are often poor with vulnerable livelihoods heavily dependent on forest resources.

As a contribution to the scientific basis for the sustainable management of commercial collection of medicinal bark the project established a large-scale experiment on the impact of bark harvesting on the trees. The results indicate that there is a range of physiological responses and pathological consequences of bark wounding. Miombo species appear to be more sensitive to bark wounding than afromontane species because of termite activity and the drying and lifting of bark remaining on the tree, which may be part of the reason why the roots are more often harvested in these environments. Even within montane forest species there has been a range of responses to bark wounding from rapid regrowth to no regrowth at all. Knowledge of the species' response to wounding is therefore required to provide a sound basis for management prescriptions for commercial harvesting. Sustainable harvesting also needs to be based on knowledge of the numbers, sizes and locations of populations of the required species. Obtaining such data for a single species in a forest, especially when the species is often rare, is problematic. The project developed and tested several methods for medicinal bark inventory.

The findings of the project were presented at the November workshop to representatives of ten countries drawn from forestry departments, ministries, research, education, traders and herbalists within the Southern African Development Community (SADC) region. The response was a resolution committing participants to further action towards the sustainable management of medicines and NWFPs through the formation of a regional NWFP working group. The project team are now preparing for the inaugural meeting of the working group and completing a handbook for sustainable bark harvesting for use by local forest resource managers. (*Contributed by:* Jenny Wong, Wild Resources Limited, Robinson Building, Deiniol Road, Bangor, Gwynedd LL57 2UW, United Kingdom. Fax: +44 1248 354997; e-mail: info@wildresources.co.uk; www.wildresources.co.uk/treesforhealth/index.html)

TWIGS AND YOUNG TREES ARE FALLING PREY TO HUMAN HYGIENE

Of late the saplings and younger plants from the saal forest reserve in the West Singhbhum district are being cut before they can mature, to accommodate a simple and regular human need – dental hygiene.

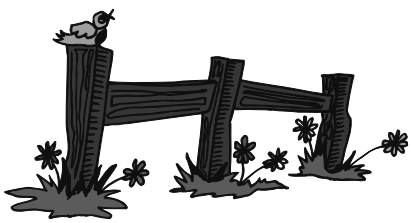
NEWS AND NOTES

Every day, hundreds of tribal villagers bundle up young twigs or *tadduns*, which are used for cleaning teeth. They sell the twigs in various village *haats* (*markets*). Officials working for the vast stretches of the saal forest maintain that the twigs cut for this regular use greatly disturb the proper growth of the plant. The twigs generally used are the newly formed ones that grow immediately after the rains. By cutting off the twigs, experts say, the villagers are retarding the natural growth of the plant.

This problem is especially rampant as hundreds of forest and revenue villages in the district depend on minor forest products for their livelihoods. Although a considerable part of the tribal population in the district has switched over to other agricultural activities, the poorer tribals still feed their daily needs by selling forest produce, of which the twigs are an easily available option. Moreover, the Land Settlement Record gives a number of rights to forest dwellers and villagers, including the right to exploit forest products for domestic use. Consequently, their use of the forest produce, although harmful in many ways, is completely legal.

The demand for tadduns has lately increased since the numbers of truck drivers in the area who shuttle between the mine heads of iron ore and the steel plants have also risen. The truckers and others, who follow traditional methods of brushing their teeth, still prefer this option because of habit and easy availability.

The divisional forest officer (Saranda), however, feels that this trend is on the decline; the forest department has initiated several schemes to divert tribals who are engaged in cutting and selling twigs as tadduns. (*Source: The Telegraph* [India], 22 November 2005.)



Adhatoda vasica nees

VASAKA (*ADHATODA VASICA* NEES)

Vasaka (*Adhatoda vasica* Nees) is a small gregarious evergreen shrub occurring throughout the plains of Bangladesh. The timber of the thicker stems is used for gunpowder charcoal and as a fuel for brick burning.

Vasaka is a well-known drug in the Ayurvedic and Unani medicine systems and is recommended for a variety of ailments such as bronchitis, asthma, fever, jaundice and consumption. The pharmacological action and therapeutic properties of *A. vasica* are attributed to vasicine and the essential oil. The fluid extract of the leaves is a useful remedy for asthma, especially in combination with belladonna. Compound preparations containing *A. vasica* are now available from pharmaceutical manufacturers.

The leaf is excellent as manure and is scattered over the fields just before the rainy season commences. It is then worked into the soil by plough and left to decay with the moisture, thus forming mould.

As fuel it is almost exclusively used in the process of boiling down cane juice and is collected in large heaps some days prior to cutting down the sugar cane.

A yellow dye obtained by boiling the leaves is used for dyeing coarse cloth. It gives a greenish-blue colour when combined with indigo. (*Source: The New Nation* [Bangladesh], 3 September 2005.)

"WILDLIFE INTERPOL"

Officials from ten Southeast Asian countries gathered in Bangkok to launch a regional Wildlife Enforcement Network to combat criminal syndicates that smuggle exotic wildlife across borders for immense profits. The agency, heralded as a "wildlife Interpol", will ensure sharing of information between countries where the black market trading of items such as bushmeat, fur, pet birds, animal skins and reptiles is proving difficult to control. The global illegal wildlife trade is estimated to be worth at least US$10 billion a year, slightly less than the trafficking of arms and narcotics. (*Source:* Wildlife Enforcement Network [WEN], 2 December 2005.) ●

Take advice from a tree
Stand upright and strong
Defy the storms
Remember your roots

Author unknown

BAMBOO

Bamboo attracts global audience

Delegations from four nations – Bhutan, Cuba, Ghana and Timor-Leste – will visit Guwahati in the next six months under the aegis of the Cane and Bamboo Technology Centre (CBTC) to acquire bamboo technology in a bid to develop the bamboo sector in their countries.

A five-member team from the Royal Bhutan Forest Development Corporation will arrive this week to chalk out modalities for having their artisans trained in bamboo technology. They will study bamboo plantations and bamboo processing equipment. Altogether 31 species of bamboo grow in Bhutan, probably the largest variety found in any Himalayan country.

Cuba is also rich in bamboo and skills in developing bamboo products would go alongside its tourism promotion policy. Bamboo provides good raw material for making furniture and complementary building materials; new technology, incorporated into existing enterprises, would help to boost tourism. The country is especially interested in acquiring skills in weaving bamboo mats. A two-member technical team from Cuba is expected to arrive next month.

Ghana is interested in cluster development (i.e. bringing artisans together in common facility centres to develop products) in the bamboo sector and would like to learn from CBTC experiences.

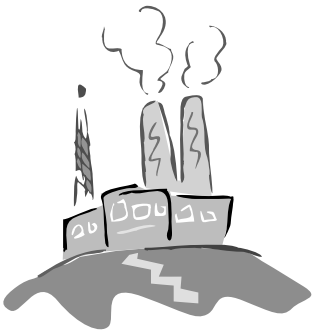
Timor-Leste wishes to upgrade its skills in building bamboo houses. Bamboo grows widely in the country and can be used for several purposes.

Employment generation is the biggest concern in all these countries and development of the bamboo sector could make a significant contribution towards employment. (*Source: Calcutta Telegraph*, 14 October 2005.)

Bamboo flavone for prostate patent approved

Tramford International Ltd announced that the patent for "bamboo flavone application in antiprostate disease drugs" developed by Future Solutions Development Inc. (FSD), the newly acquired subsidiary of the company, was approved by China's State Intellectual Property Bureau in November 2005. Together with this approval, the same patent also received approval from Patent Cooperation Treaty (PCT), the international patent registration and administration organization. The treaty makes it possible to seek patent protection for an invention simultaneously in each of a large number of countries by filing an "international" patent application. FSD filed this patent under PCT for China, the United States and Japan. The approval is the first step for FSD to enter markets in the United States and Japan.

The scientists at FSD discovered that bamboo flavone is effective in relief symptoms of inflammation caused by prostatitis, prostatic hyperplasia and prostate cancer. About 50 percent of all men are affected by prostate illnesses during their lifetime. The bamboo flavone, as a natural extract ingredient, poses no long-term side effects and is a viable option in fighting these illnesses. (*Source:* Tramford International Press Release, 23 November 2005.)



Bamboo solution to lake pollution

The World Agroforestry Centre (ICRAF) has launched a bamboo project on the Lake Victoria Basin as a solution to water pollution. ICRAF was asked by the Swedish International Development Cooperation Agency to develop an ecological wastewater treatment that would serve the dual function of filtration and purification of polluted Lake Victoria waters.

The development comes in the wake of reports by the Lake Victoria Environmental Management Project (LVEMP) that Lake Victoria's pollution has reached alarming levels. The Lake Victoria Basin supports a population of 30 million people who depend on its waters but only 30 percent have access to clean water. Water-borne diseases such as cholera, typhoid and dysentery are common in about 90 percent of the population.

However, the report, written by ICRAF scientists Willy Kakuru and Chin Ong, says that bamboo is a promising alternative since it can take up nitrogen, phosphorus and heavy metals. These metals are attributed to pollution of some of the aquatic ecosystems.

The ICRAF project has already started pilot sites in Kisumu to demonstrate bamboo's potential for wastewater treatment. The main focus is to expand the project to the whole Lake Victoria Basin, including Uganda, Rwanda and the United Republic of Tanzania. Pilot activities are soon to be extended to Kampala and Mwanza and later to other towns on the lakeshore.

The project is expected to offer great potential for income and employment for communities around the Lake Victoria Basin.

The report says that in China the annual export value from bamboo products is estimated to be more than US$600 million, with the total value of the bamboo industry estimated at $12 billion, almost double the total gross domestic product (GDP) of the three East African countries. According to the scientists, promotion of value addition in bamboo products will create an incentive for planting bamboo.

Since indigenous bamboo is now restricted to mountainous areas and is a government protected resource, ICRAF says that there is an urgent need to diversify bamboo species and products.

Further plans include the promotion of linkages to markets for bamboo products and improving the skills of local artisans in the efficient use of bamboo raw materials for high-value products. (*Source: East African* [Kenya], 7 November 2005.)

PRODUCTS AND MARKETS

For more information, please contact: Dr Willy Kakuru or Chin Ong, ICRAF, PB1752, Kampala, Uganda. E-mail: w.kakuru@cgiar.org or C.Ong@cgiar.org or visit the LVEMP Web site: www.lvemp.org/

Bamboo houses

The lean, tall and gracious bamboo is an ecofriendly natural resource of great utility that has been meeting the wide-ranging needs of human society from time immemorial.

Indonesia is the world's largest producer of bamboo. About half a million people in Southeast Asia derive their employment directly from bamboo cultivation, extraction and processing. From birth to death, bamboo plays a crucial role in the lives of millions. China has succeeded in turning bamboo into a lucrative foreign exchange earner through the production and export of many innovative bamboo products.

India, which has the second highest resource of bamboo in the world (bamboo forests cover 10.03 million ha – 12.8 percent of the country's forests), is also planning to exploit the global market for bamboo products. There is a huge demand and supply gap insofar as bamboo is concerned: the supply of bamboo at present is about 13.47 million tonnes, while demand is pegged at 26.9 million tonnes. India hopes to overcome the gap by raising commercial bamboo plantations. According to the International Network for Bamboo and Rattan (INBAR), the Indian bamboo industry is estimated to grow to a US$5.7 billion sector by 2015, as against the $174 million sector in 2000.

A large proportion of the tribal population in the country is dependent on bamboo for its livelihood. In Karnataka, Medhara tribals who have been making a living for centuries through bamboo products are finding it hard to make ends meet on account of an acute shortage of bamboo.

Possibly no other natural species is used to make as many products as bamboo. From the traditional weapons of the aboriginals to the scaffoldings of modern high-rise buildings, bamboo continues to play a role in human civilization.

In recent years, there has been a growing emphasis on promoting the cultivation of bamboo varieties. Bamboo that has traditionally been used in paper and rayon production is now being used for buildings in many parts of the world. In Bangalore, the Indian Plywood Industry Research and Training Institute has developed the technological elements for building dwellings with reinforced bamboo. There is a move to popularize the cost-efficient and ecofriendly bamboo houses in both the rural and urban areas of India. The Bangkok-based Asian Institute of Technology (AIT) has played a key role in popularizing bamboo houses in rural pockets of Thailand, with a high degree of success. (*Source: Central Chronicle* [India], 21 November 2005.)

(*Please see pp. 29 and 30 for more information on bamboo.)*

CHESTNUTS

Just as sweet as a chestnut

The chestnut, also known as sweet chestnut, originally from Asia Minor, was first introduced to Europe by the Ancient Greeks. In the poorer, mountainous regions of the Mediterranean, where even the humblest cereals cannot be grown, the chestnut has long been a dietary staple: dried and ground into flour and made into bread or soup; and fed to pigs to give their meat a more nutty taste.

Chestnuts are the only nuts to contain significant amounts of vitamin C; amazingly, 100 g of chestnuts contain as much vitamin C as 100 g of lemons. They are beneficial in building resistance to infection, particularly the common cold, and contain antioxidant nutrients that help to protect against cancers, heart disease and stress and promote healthy gums and bones. It is no wonder that the seventeenth century herbalist John Evelyn recommended chestnuts for a good complexion, while his contemporary Nicholas Culpeper suggested that they prevent scurvy. Vitamin C is used in many skin care products as it helps in the formation of collagen, the skin's support fibre, and improves skin texture.

Chestnuts also contain minerals – phosphorus and potassium in particular – which are essential for nerve function, muscle control, blood pressure control and heart health. They are rich in complex carbohydrates and are, therefore, a good source of energy.

Grinding chestnuts into flour offers a gluten- and cholesterol-free alternative for making bread and pasta; ideal, not only for those who are wheat-intolerant, but also for anyone looking for variety and a rich, distinctive flavour.

Chestnuts have a lower protein content than most nuts and, unlike other nuts, have little oil, making them lower in fat and calories. They are also a good source of fibre.

Absolutely nothing is "done" to chestnuts; they are an unadulterated wild food and the spiky husks are discarded on the forest floor to turn to mulch, acting as natural compost. (*Source:* The Times online [United Kingdom], 19 November 2005.)

Scientists trying to resurrect American chestnut trees

Chestnut trees used to be as plentiful in the eastern United States as oaks and maples are today. About 25 percent of forested land, stretching from Maine to northern Georgia, was composed of chestnut trees. They were big, substantial trees, some surviving 400 years, often measuring more than 8 ft (2.4 m) in diameter and reaching 120 ft (36.6 m) into the sky, filled with nuts, having long, thin green leaves and, starting around mid-June, tiny blooms.

But the tree known as the "redwood of the East" because of its resistance to rot and its value as lumber is now an extremely

rare treasure in a region where it was once abundant. Sometime in the late 1800s, a different variety of chestnut tree, perhaps from Asia, was imported into the United States carrying blight. The affliction was not discovered until 1904, and it was soon determined that the American chestnut tree was not resistant to the disease.

Over the next 50 years, 4 billion chestnut trees, about 99.9 percent of the eastern population, succumbed.

The loss proved tragic on several counts. Residents of Appalachia lost a steady income from lumber and nuts – chestnuts at one time produced about 50 percent of the entire forest nut crop. Wildlife also suffered because the once bountiful food supply all but disappeared.

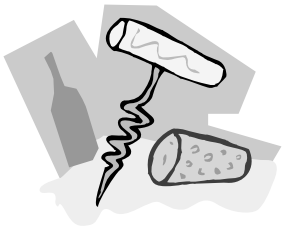
However, more than 50 years after the tree bordered on extinction, an effort is now under way to bring back the chestnut. Scientists are working to develop a blight-resistant strain in the rolling hills of southwestern Virginia, and there is hope that sometime towards the middle of the century the chestnut tree will come home. "Our goal is to restore the American chestnut to the eastern forest," said the president and chief executive officer of the American Chestnut Foundation.

Accomplishing that ambitious objective is going to take time. The foundation is in the third year of what stands to be a 30-year project. But results thus far show promise and there is optimism that the venture ultimately will become the most successful nature restoration programme in the nation's history. (*Source:* Scripps Howard News Service, 16 November 2005.)

CORK

Wine company abandons cork stoppers

Concerned by overwhelming proof that a significant amount of wines sealed with traditional tree bark cork are spoiled by cork taint, Don Sebastiani & Sons today announced that they will focus exclusively on using alternative closures for their entire product line. With annual case production approaching two million, the company is now the largest wine company



in the world to abandon totally the traditional cork closure.

Cork taint occurs when natural mould in corks causes a chemical reaction that produces trichloroanisole, commonly called TCA. The compound can give wine an unpleasant, musty odour. (*Source:* Business Wire (press release) [United States], 8 August 2005.)

Alcan seeks to turn tables on cork diehards

Montreal-based aluminium giant Alcan Inc. is in the forefront of the movement to convert cork diehards to the view that screw caps really are better, notwithstanding their hard-to-shake association – in the minds of many – with cheap jug wine. The key reason for the switchover is that inert screw caps are a superior seal against oxygen, whereas about 10 percent of wines stopped with cork are affected by cork taint. Cork taint can deaden a wine's subtle and complex flavours or leave it smelling musty and bad-tasting, according to the industry. Screw tops are also better at maintaining freshness than either natural or synthetic corks, according to studies. (*Source: Globe and Mail* [Canada], 7 November 2005.)

Conserving cork forests in the Mediterranean

In recent years, the use of cork alternatives, specifically plastic wine bottle stoppers, has been increasing. Their use threatens the economy, environment and cultural traditions of the cork-producing regions of western Spain and eastern Portugal where cork oak trees (*Quercus suber*) dominate large swaths of the Iberian Peninsula. In the cork-producing areas of the Peninsula, cork oak forests (*montados*) represent around 21 percent of the forest area and are responsible for the production of more than 50 percent of the cork consumed worldwide.

Careful forest management provides for the continued removal of the cork oak's bark in a cycle of nine to fifteen years, while helping to maintain a unique ecosystem of high biodiversity and creating the conditions for a diverse range of woodland products. Villagers gather edible fungi for their own consumption, use rockrose bushes for firewood in their traditional stone bread ovens and tap local beehives for honey flavoured with native lavender and rosemary. On even a small patch of cork land a farmer can raise a herd of goats, a few cows and some pigs, which forage for acorns and graze beneath the trees.

The recent growth of synthetic cork has prompted concern that by threatening traditional cork production, these new stoppers could undermine the economic basis of cork harvesting and thereby the cork-producing areas. Economic pressures could force farmers to convert their forests, which would disrupt the natural ecosystem, increase erosion and lead to possible desertification.

The Rainforest Alliance is working with the cork industry and cork landowners in Portugal, Italy and Spain, helping them to meet the conditions for Forest Stewardship Council certification. The SmartWood certification of cork forests paves the way for the conservation of one of the last remaining natural forest ecosystems in western Europe and with it, the environmental, economic and cultural stability of the cork-producing regions. The Alliance is also working to educate consumers about the fact that cork can be harvested sustainably and in harmony with the environment. (*Source:* Rainforest Alliance, *2004 Annual Report* and *Rainforest Matters* [rainforestalliance@ra.org].)

For more information about Rainforest Alliance's SmartWood programme, please see: www.rainforest-alliance.org/news/2005/cork.html?tr=y&auid=980992

Rainforest Alliance

PRODUCTS AND MARKETS

EDIBLE INSECTS

Creature-eating source of income and nutritious food

As Mexico's centuries-old tradition of eating insects becomes more lucrative, researchers are trying to convince poor communities to cash in on eating the creatures as a source of income and nutritious food. With a protein content almost twice that of beef, some insects could become a welcome diet supplement among the estimated 20 million Mexicans who live in extreme poverty on incomes of US$1/day or less.

In many towns, especially in southern Mexico, insects are a regular part of the diet and although many Mexicans are still repulsed by the thought, the insect-eating movement is winning converts in a variety of ways. Consider the chocolate-covered locusts, locusts in sweet sauce, worm Jell-O and worms covered in clear, hard candy invented by biologist Juan Garcia Oviedo of the National Polytechnic Institute of Mexico. They have been a big hit in test groups and children love them.

Farmers on the outskirts of Mexico City were spending large amounts of money on pesticides to kill grasshoppers, Garcia Oviedo said, until they found they could get more money for the edible bugs at local markets than for their crops. It is also more environmentally sound, researchers say, noting that in Aztec times, pest control was accomplished largely by eating rather than spraying.

In Tlaxcala state, maguey worms are raised all year. Currently available only in certain seasons, farmers can now produce the worms throughout the year by using cut maguey leaves and *in vitro* production of larvae. Increased availability would improve the market for the sought-after white and red wrinkly worms – actually caterpillars – which are fried and sold with butter and garlic for as much as $40 for 12 at some upmarket Mexican restaurants, about 15 times the price paid to those who gather them.

The insect renaissance also seeks to revive ancient practices in Mexico, such as "hidden" insect ingredients, for those too squeamish to swallow a locust whole. In some villages in southern Mexico, insect "contamination" is hardly accidental. A few ground-up insects are added to hot chilli salsa in villages as a nutritional boost. Garcia Oviedo applies that same principle to modern products, such as grinding up grasshoppers into hot dogs and enriching tortillas by adding a high-protein powder made from milling less commercially valuable larvae. Nevertheless, Mexican food safety standards treat insect content as contamination, rather than as a potential main ingredient.

The biggest challenge, however, is reviving an appetite for some of the estimated 360 insect species that the Mexicans' ancestors used to eat, such as stink bugs, honey ants, beetle grubs, water beetle larvae, bees and fly eggs. So far, Garcia's test groups have been successful. (*Source:* EITB [Spain], 14 June 2005.)

Insectes comestibles au Sud-Bénin

Plus de 500 espèces d'insectes sont consommées par les humains dans les régions tropicales et subtropicales. La pratique de l'entomophagie contribue à compenser les carences en protéines et en lipides par rapport à la viande de poulet et de porc. La demande mondiale de viande s'accroît et il devient important de trouver des sources alimentaires ayant un meilleur rendement. Les insectes sont consommés depuis plusieurs décennies au Bénin, renferment une source très importante en protéines animales pouvant remplacer valablement certaines viandes et ainsi lutter contre la malnutrition infantile. Une étude préliminaire a été menée pour répertorier sommairement les insectes de quelques régions du Sud-Bénin. Au total, quatre espèces sont comestibles: *Ormesson* spp., *Rhynchophorus phoenicis, Brachytrupes membranaceus* et *Macrotermes falciger*. Les espèces *Macrotermes falciger* et *Oryctes* spp. sont plus consommées que les autres. Les différents résultats sont dus aux espèces consommées, aux techniques de récolte, aux usages culinaires, aux communautés consommatrices et à l'importance économique. Les premiers résultats obtenus nous permettrons de faire des travaux sur l'analyse chimique des différents insectes répertoriés et de déterminer les taux de pourcentage en protéine, lipides et la valeur calorique.

Cette première étude fait partie des priorités du Plan d'action pour la biosécurité en République du Bénin, la conservation et pour l'utilisation durable des ressources biologiques (Article 6 b, page 7 de la Convention sur la diversité biologique). (*Contribution de:* M. Sévérin Tchibozo, Centre de recherche pour la gestion de la biodiversité et du terroir 04 B.P. 0385 Cotonou, Bénin. Télécopie: +229 21303084; courriel: tchisev@yahoo.fr; site Web: www.hyperinfo.de/arccona; www.web-africa.org/cerget)

Edible insects on sale in the United Kingdom

Add a chocolate coating and apparently people in the United Kingdom will eat anything – even ants, scorpions and worms. London's Fortnum & Mason store has started stocking a range of novelty drinks and nibbles containing the insects, as well as hornets and snakes.

The bizarre bites apparently boost energy levels and the libido and are coated in honey, chocolate or vodka in order to help the medicine go down.

Tom Dalton, the founder of Edible which produces the insect appetizers, said: "We are shifting about 750 000 units a year and Fortnum & Mason sold around 1 500 of our giant ants covered in chocolate in the last two weeks alone".

Animal rights activists claim that the treats are twisted and cruel. (*Source:* DeHavilland [United Kingdom], 31 October 2005.)

GINSENG

Ginseng guidelines

An international standard on ginseng will take several more years to be adopted, as discussion at the Codex Commission yesterday revealed a wide difference of opinion on the scope of the standard. The standard proposed by the Government of the Republic of Korea a few years ago has made slow progress with Codex decision-makers because of diverse opinions as to ginseng's status and the significant number of different species on the market.

In some countries, including within Europe, ginseng is not listed as a food ingredient. A Codex guideline would recognize its status at international level as a food. (*Source:* Food Navigator [France], 5 July 2005.)

Root of the matter in the Republic of Korea

The largest ginseng producer in the Republic of Korea is poised to cash in on the Chinese public's increasing appetite for health care products with Korean red ginseng expecting to become the latest "Korean wave" export to hit China. The Korea Ginseng Corporation (KGC) has been producing red ginseng for more than 100 years; Cheong-Kwan-Jang is the top brand in the Republic of Korea. KGC expects annual sales in the Chinese market to reach US$30 million next year.

There are three main types of ginseng: "Asian ginseng", a collective term used to refer to the Chinese and Korean varieties, American ginseng and Siberian ginseng. The best Asian ginseng grows in the eastern regions between 30° and 48°N latitude. This area includes northeast China's Jilin Province and the Korean Peninsula.

Today, authentic wild mountain ginseng is very difficult to find. People now cultivate it in fields.

Korean ginseng is categorized into three types, according to the processing methods used: fresh or raw ginseng is unprocessed, with its original shape intact; white ginseng is peeled and dried in the sun; and red ginseng is steamed and dried to a brown hue and can be kept for longer.

KGC's sales reached 305 billion Korean won ($290 million) in 2004; 70 percent of its products are for domestic consumption. Its exports reached $55 million in the same year; approximately $27 million of which were exports to Hong Kong SAR and the Chinese mainland. (*Source: China Business Weekly*, 7 November 2005.)

Ginseng export restrictions toughened in the United States

The United States Fish and Wildlife Service issued a ruling this month that it is increasing the age limit for ginseng (American ginseng, *Panax quinquefolius*) roots eligible for export from five to ten years this season. The five-year age restriction, enacted in 1999, was the first ever on ginseng exports. The change is meant to halt the rapid disappearance – caused by overharvesting – of wild ginseng on private land and in national parks and forests. The age restriction also applies to ginseng grown under simulated wild conditions unless the grower obtains an exemption from the agency.

Ginseng is a slow-growing, long-living perennial herb. The age of ginseng can be determined in two ways: by counting the scars on the plant's underground stem caused by the yearly loss of its above-ground stem or by counting the number of above-ground compound leaves, also known as "prongs". Plants with three prongs are five years old and those with four prongs are ten years old.

The primary market for ginseng is overseas. Most of the dried root goes to East Asia, where it has been prized for centuries for medicinal properties.

Hunting ginseng to generate extra cash – at least US$250/lb (453.6 g) – has long been a practice among some residents of the Appalachian Mountains. Virginia is one of the largest exporters of ginseng in the nation and with West Virginia accounts for approximately 18 percent of the 60 000 lb (27 200 kg) annual national harvest. In the past three years, the state agriculture department certified 4 000 lbs (1 800 kg), 5 000 lbs (2 270 kg) and 3 600 lbs (1 633 kg) of ginseng for export at an annual value approaching $1 million. (*Sources:* RedNova.com [United States], 12 August 2005 and *Southern Standard* [United States], 25 September 2005.)

HONEY

Honey used as an antibiotic

Australian researchers have found honey to be effective as an antibiotic cream to prevent infections when applied to catheter sites in kidney dialysis patients. Kidney specialist David Johnson said honey also had an advantage over the commonly used antibiotic ointment, mupirocin, in that hospital "superbugs" such as *Staphylococcus aureus*, commonly known as golden staph, had not developed resistance to it. "There are no documented cases of honey-resistant bacteria," Professor Johnson said. (*Source:* NEWS.com.au [Australia], 26 August 2005.)

Honey's healing qualities stump scientists

A type of honey produced in northern New South Wales has attracted interest from scientists and doctors for its healing properties. Doctors are recommending

jelly bush honey to help treat ulcers, burns and sores. But scientists cannot work out the honey's active ingredient.

Dr Craig Davis, from Queensland's Department of Primary Industries, says he has spent years researching the jelly bush honey's antibacterial properties. "I can't put a name to it; it's a floral chemical that the tree makes and secretes into the nectar that the bees collect," he said. "When the bees have collected that nectar they put it into the honey and when the honey is used it seems to have this additional factor." (*Source:* ABC Regional online [Australia], 10 September 2005.)

Honey production in Malaysia

Malaysia's Agriculture and Food Industry Minister said local farmers should consider venturing into honey production to offset imports of related products. He described honey as a lucrative commodity, which could provide at least RM2 500 a month. Malaysia imported some 2 520 tonnes of honey worth RM17.6 million last year and Sabah imported 49 tonnes worth RM1 million during the same period. The Government's aspiration is to make Malaysia one of the major honey producers in the world, he added.

The honey bee species *Apis cerena* is unique, thriving on acacia trees, coconut plantations and pristine jungles for its food and nectar, available mainly in Kudat, Kota Marudu and Pitas. In this respect, people were urged to refrain from indiscriminate felling of trees, an action that could reduce the food resources of these bees, he said.

The Government has allocated RM200 000 this year as start-up capital for farmers in Sabah interested in promoting the honey industry. (*Source: Daily Express* [Malaysia], 20 September 2005.)

Honey exports from Nepal to the European Union likely to resume

Exports of Nepali honey, once greatly in demand in Europe, are likely to resume soon as a result of the latest efforts being made in quality testing for European standards.

The European Union banned the import of Nepali honey in 2002, stating that its quality did not meet European standards. The use of pesticides in beekeeping and brood harvesting was a major reason for halting honey exports completely for the last three years.

Nepali honey is famous in Europe, especially in Scandinavian countries, and about 100 tonnes of honey used to be exported from Nepal every year. (*Source:* Xinhuanet [China], 26 October 2005.)

Brazilian honey has flavours and colours for all tastes

Brazil is the seventh largest producer and exporter of honey in the world. In 2004 honey exports exceeded US$43 million, with a volume of 21 400 tonnes, i.e. 47.5 percent of the yearly production of 45 000 tonnes. This position was reached as a result of the quality and variety of the honey, mostly wild, and also to the space left open by China, which faced sales restrictions because of the use of pesticides in production. In fact, in 2001 China, the largest honey producer in the world with 275 000 tonnes/year, was prohibited from exporting because of the strong presence of pesticides in the product.

According to the Brazilian Apiculture Confederation (CBA), around 70 percent of the domestic production is of wild honey with 173 catalogued honey plants.

With the return of the Chinese to the market, however, Brazil did not manage to maintain the rhythm of growth of foreign sales. From January to April 2004, Brazil exported 8 700 tonnes, which generated $20.4 million. In the same period in 2005, exports totalled just 3 300 tonnes, equivalent to $6.6 million. This is a significant reduction in terms of volume and revenue. However, because of the quality of Brazilian honey, one of the paths followed by the CBA is prospecting new importer countries to maintain foreign sales.

The Arab market is considered favourable. Last year the countries in the League of Arab States imported 50 000 tonnes of honey from China.

Apiculture may also be considered an excellent option for diversification of cultures and for farmers' income generation, mainly in the poorest regions of the country, as is the case in the north and northeast of Brazil. According to the CBA, between 2002 and 2005, 150 000 jobs were generated, guaranteeing greater opportunities in the interior and thus avoiding a rural exodus by many families. Apart from providing incentives for production, regional associations and cooperatives were created for the honey to be traded. (*Source:* ANBA (Brazil-Arab News Agency) [Brazil], 29 June 2005.)

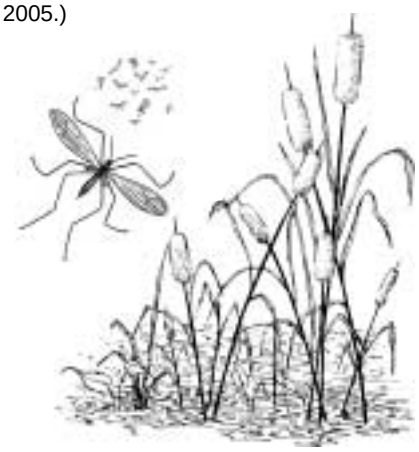
MEDICINAL AND AROMATIC PLANTS

***Artemesia annua* shows "potential" in preventing breast cancer**

An extract of the sweet wormwood plant (*Artemesia annua*), used for centuries to fight malaria and shown to target and kill cancer cells, may help prevent breast cancer, researchers have found. The two bioengineers with the University of Washington in Seattle found that the substance artemisinin seemed to prevent breast cancer in rats that had swallowed a cancer-causing chemical. The study appears in the latest issue of the research journal *Cancer Letters*.

Because artemisinin is widely used in Asia and Africa as an antimalarial drug, it has a track record of being relatively safe. The results "indicate that it may be a potent cancer-chemoprevention agent ... additional studies are needed to

investigate whether the breast cancer prevention property of artemisinin can be generalized to other types of cancer". (*Source: World Science*, 20 December 2005.)



***Artemisia annua* fights malaria**

Artemisia annua, more commonly known as wormwood or sagewort, has been applied for a variety of ailments, including haemorrhoids, coughs and fevers. China and Viet Nam are the main sources of the plant native to Asia, but they have been unable to meet a steep increase in demand. The World Health Organization (WHO) says demand for artemisinin-based combination drug treatment rose to 30 million courses in 2004, from just 2 million courses in 2003.

Last year, after trials in several countries, it was found that the plant grows well in East Africa – fitting, as Tanzanian health officials call malaria this country's number one killer, with roughly 100 000 fatalities, mainly children, each year.

Resistance to other antimalarial drugs has grown over the years, leading WHO in 2001 to recommend artemisinin-based combination drug treatment.

Some farmers who have been growing maize and beans for years are switching to *Artemisia annua*, a medicinal herb from which artemisinin is extracted to make a drug or a combination of drugs used to treat malaria. The treelike plant, which grows up to six ft (1.8 m) is extremely valuable and does not need as much care as maize, largely acting as its own pesticide and insecticide. Farmers expect to earn about US$36 when they harvest the plant's thick foliage, compared with about $22.7 from maize crops. Scientists are working on a synthetic version, but this has not yet been perfected. However, switching back once the *Artemisia annua* market fades should not be a problem for farmers, since the medicinal plant takes less toil on the soil than maize.

In the meantime, increased *Artemisia annua* supplies could bring down the costs of artemisinin-based treatment, crucial in a poor country such as the United Republic of Tanzania. Artemisinin-based combination treatments cost about $2 a dose. Other antimalarial drugs cost between 10 and 15 cents.

A cheaper alternative to artemisinin-based combination drug treatment for malaria is for people growing the plant in their gardens to pluck and dry a few leaves to make an infusion taken over seven days. There have been no widely recognized scientific studies of such infusions. (*Source:* Guardian Unlimited [United Kingdom], 17 June 2005.)

Recognizing the antimalarial properties of *Artemisia annua*, the Foundation of Italian Doctors for Africa (Fondazione Italiana Medici per l'Africa – FIMA ONLUS) has prepared a project covering its cultivation and free distribution in Burundi.

For more information, please contact: FIMA, piazza Monte Grappa 9, 00044 Frascati, Rome, Italy. E-mail: info@fimaonlus.it; www.fimaonlus.it/

Fighting malaria with traditional medicinal plants

East African scientists have translated new findings regarding the antimosquito properties of indigenous African plants into a low-cost and effective mosquito repellent that could play a role in reducing malaria transmission. Their research, presented at the Fourth Multilateral Initiative on Malaria (MIM) Pan-African Malaria Conference in November 2005, is indicative of a surge of scientific interest in the antimosquito properties of indigenous plant life.

Scientists from Kenya, working with investigators from other East African research institutions, tested oils extracted from 150 East African plants for their ability to repel malaria-carrying mosquitoes and found that 20 of them appeared to be effective. They then formulated a mixture of the oils into a cream that is now being sold under the brand name Mozigone. Tests showed the cream was more effective than DEET, the chemical found in most widely used consumer brands of mosquito repellent and was also less expensive to produce.

Scientific efforts to derive new malaria medicines from indigenous plants have intensified since artemisinin, an extract of the wormwood plant (*Artemisia annua*) emerged as the leading drug for fighting the disease.

Scientists have also discussed:

- the potential for a Brazilian plant known as "Indian beer" to prevent malaria. Laboratory studies have shown that the plant can kill the malaria parasite early in its lifecycle before it matures and does the most damage to the human body;
- two plants used by traditional herbal practitioners in Burkina Faso to treat malaria. Used in combination, *Pavetta crassipes* and *Mitragyna inermis* exhibited antimalarial properties when tested against a laboratory culture taken from a drug-resistant form of the malaria parasite;
- the antimalarial activity of methanol extract of *Adansonia digitata* (African baobab tree) in mice infected with a rodent form of malaria. The traditional use of baobab as a malaria treatment is well known throughout the West Africa region. The results of the test indicate that A. *digitata* bark extract was able to reduce malaria parasites in the mouse.

(*Source:* The Fourth Multilateral Initiative on Malaria [Dakar], 14 November 2005.)

PRODUCTS AND MARKETS

DEVELOPING AN INTERNATIONAL STANDARD FOR THE SUSTAINABLE WILD COLLECTION OF MEDICINAL AND AROMATIC PLANTS

Medicinal and aromatic plants (MAPs) are offered in a wide variety of products on the market. An estimated 40 000–50 000 plant species are used in traditional and modern medicine throughout the world. The great majority of MAP species is provided by collection from the wild. This trend is likely to continue in the long term as a result of numerous factors, including the high costs of domestication and cultivation. Moreover, cultivation is not necessarily the most beneficial production system for some MAP species. Wild collection secures valuable income for rural households, especially in developing countries; may provide incentives for conservation and sustainable use of important habitats; and can strengthen local economies. Approaches to sustainable wild MAP collection that engage local, regional and international collection enterprises and markets are urgently needed to provide specific guidance for industry, collectors and other stakeholders on sustainable sourcing practices.

The German Federal Agency for Nature Conservation (BfN) has provided start-up funding for the development of an International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP). The project is implemented by the Medicinal Plant Specialist Group (MPSG) through IUCN-Canada and by WWF/TRAFFIC Germany. This standard will bridge the gap between already existing but mostly very abstract guidelines and management plans developed for specific local conditions. Stakeholders involved will receive an easy to handle list of criteria, indicators and verifiers that will enable them to prove the sustainability of wild collected plant material. ISSC-MAP covers social and economic factors, but clearly focuses on ecological aspects addressing two important elements that are often left aside: the need for resource assessments and the question of annual sustained yields.

The development of ISSC-MAP builds on existing principles, guidelines and standards for sustainable forest practices, organic production and good agricultural practices, fair trade and product quality.

Drafts of the standard and other documents related to the project are available on the project Web site (www.floraweb.de/map-pro). Comments on the current draft are welcome and can be sent to MAP-Standards-Criteria@wwf.de/ (*Contributed by:* Susanne Honnef, Species Conservation Section/TRAFFIC, WWF Germany, Rebstöckerstr. 55, 60326 Frankfurt/M., Germany. Fax: 0 69/7 91 44-213; e-mail: honnef@wwf.de; www.wwf.de)

***Boswellia ovalifoliolata* (Bal. et Henry)**

Boswellia ovalifoliolata (Bal. et Henry), a narrow endemic and endangered plant from the hot spots of India's Tirupati-Tirumala-Nallamalai hills, belongs to the family Burseraceae, and is vernacularly known as *konda guggilum* in Telugu. This medium-sized deciduous tree is narrowly distributed on the foothills of the eastern parts of the Tirumala hills up to an altitude of about 300 m.

The plant flowers from December to February and the fruits appear between April and June. Leaf fall occurs from December to February and new foliage appears in April to May. The plant trunk secretes oleoresin, a secondary metabolite that is a pale yellow liquid and hardens on exposure. Amyrins are the chief constituents of this gum together with resin acids and volatile acids. The tribals of the Tirumala hills (Lambadi, Sugali and Nakkala) and the local healers of surrounding villages use the gum extensively to cure a number of diseases. They make deep incisions on the main trunk to extract the gum but unknowingly cause damage to immature plants, leading to the depletion of the plant in its natural habitat. It has now become endangered and is listed in the CITES red data book under medicinal plants.

The gum and fresh leaf juice are used for mouth and throat ulcers. Shade-dried gum is powdered, dissolved in water, mixed with curd and given orally to cure amoebic dysentery. The gum powder mixed with sour milk is taken on an empty stomach for stomach ulcers and, mixed with the plant *Pedalium murex*, is made into paste and applied on the affected parts of the body to cure hydrocoele. A decoction of the stem bark is used for joint or rheumatic pains. (*Contributed by:* Dr (Mrs) N. Savithramma, Associate Professor, Department of Botany, S.V. University, Tirupati 517 502, India. E-mail: drnsavithri@yahoo.com)

Mappia foetida

The Western Ghats are home to the medicinal plant *Mappia foetida*,

commonly known as *narakya* or *amruta*. The alleged illegal international trade of this plant is now becoming an issue of concern. *Mappia foetida* is sought after for its high concentration of camptothecin – an agent used in drugs to treat cancer in countries such as Japan, Germany, Spain and China.

Besides Karnataka, *Mappia foetida* is found in Satara, Pune, Kolhapur, Raigad, Ratnagiri and Jalgaon in Maharashtra. Interestingly, most of the land on which it grows belongs to the forest department, yet the plant has been plundered unchecked for the last eight to ten years.

Dr P.S.N. Rao, director of the Botanical Survey of India, Pune, who has undertaken a study on this plant says: "Of late, a worldwide search for plant- and animal-based anticancerous drugs has gathered momentum and so the plant is being regularly harvested from reserve forest zones in Maharashtra. According to figures from the Forest Research Centre at Wada in Thane district, about 16 lakh/kg of this plant powder was exported to Japan and Spain from Maharashtra during 2002. While intermediaries sell it for Rs1 700/kg, the villagers who supply the dried bark and wood to the dealers receive just Rs2–3/kg."

However, Rao feels that instead of including the plant on the endangered species list, it should be cultivated on a large scale to procure foreign exchange. The debate now revolves around whether its potential should be exploited in a scientific manner or whether it should be put on the endangered species list. (*Source: Indian Express* [India], 3 July 2005.)

***Stephania brachyandra* shows capability to treat melanoma**

Researchers at New Zealand's Wellington School of Medicine are working on a possible treatment for melanoma derived from a Vietnamese herb. This herb's potential came to light through a project that aims to save endangered medicinal plants and develop sustainable incomes for Vietnamese hill tribes, whose people are among the poorest in Asia.

The company behind the project, Forest Herbs Research Ltd, has registered a provisional patent to protect the intellectual property of the project for the benefit of the hill tribes, and is exploring options for commercializing the discovery.

The Director of Forest Herbs, Peter Butler, says the find was unexpected. "We certainly weren't looking for a cure for cancer. Our expertise is in natural products to control *Candida albicans* outgrowth." Butler says the patent for the melanoma treatment will be assigned to a collective of the hill tribes in the Sa Pa district, near the Chinese border. The plant, with antimelanoma properties, is a very rare tuber found at high altitudes in the forest. Methods have been developed to propagate and cultivate it to protect the wild stock and to provide a viable base for an industry.

The tuber of the plant *Stephania brachyandra* has traditionally been used for many purposes, including as a relaxant and sleep aid. New research has shown that its antimelanoma properties are untapped.

The Forest Herbs' team in Viet Nam has some other exciting prospects for the plants of the northern hills of Sa Pa. The aid project has funded a commercial essential oil still, set up on one of the communes to produce oils from traditional herbs that showed promise in early trials. Mr Butler said that one of these, a fast-growing member of the mint family, *Elsholtzia penduliflora*, has excellent potential and that traditionally it has been rubbed into sore muscles. There is also demand from international fair trade organizations, which will be supplied when production increases. (*Sources:* Forest Herbs press release, 13 October 2005 and All Headline News, 9 November 2005.)

For more information, please contact: Forest Herbs Research Ltd, 142 Collingwood St, Nelson, New Zealand. Fax: +64 3 545 6056; e-mail: enquiries@forestherbs.co.nz

***Stevia rebaudiana* to cure diabetes**

Stevia (*Stevia rebaudiana*), a high-value medicinal plant whose dry leaves are far sweeter than sugar and can be used by diabetics, has been successfully cultivated in the Debang valley district of Arunachal Pradesh and is ready for commercial harvesting.

The Regional Research Laboratory (RRL) of Jorhat has adopted several villages at Roing in the Debang valley to motivate 300 farmers to cultivate the plant. The particular area was selected since its climate was ideal for the cultivation of stevia.

RRL has provided technical assistance to the villagers besides acting as a facilitator to help them find marketing opportunities through links with businesses from as far away as Hyderabad. Stevia plants yield 2 500 kg of dry leaves per acre (0.405 ha) per year and 1 kg of green leaves can fetch Rs125.

In Arunachal Pradesh, almost 30 species of medicinal plants were identified as being commercially viable for cultivation. Nearly 7 000 farmers cultivate various medicinal and aromatic plants in the northeastern states, including 30 to 35 large entrepreneurs who are mainly tea planters. (*Source: Financial Express* [India], 27 November 2005.)

Natural products are the only source of medicine for 75 to 90 percent of people living in developing countries. (*Source:* www.fao.org/forestry/site/28821/en)

Moringa oleifera

MORINGA OLEIFERA

The ultimate multipurpose tree

The versatile moringa plant abounds in nutrients and vitamins. The concept of using multipurpose trees has gained popularity in recent years and no discussion of these trees would be fitting without including moringa.

A measure of the versatility and usefulness of a tree is the number of names it has been given. One of moringa's more common international names is "horseradish tree" because of the flavour of the roots. Another is "mother's best friend" because of the nutritional value of its fresh or dry leaves. Widely consumed to increase protein, calcium and iron in the diet, moringa leaves are also packed with vitamins A, B and C. Recent research has revealed that moringa leaf powder may contain seven times the vitamin C content of oranges, four times the vitamin A content of carrots, and three times the potassium content of bananas. When added as a supplement to a child's diet, just 25 g of the leaf powder reportedly supplies all the calcium and vitamin A daily needs, about half the protein and potassium daily needs, and about three-quarters of the iron daily needs.

Moringa's value for human nutrition is not restricted to its leaves. The flowers are cooked and used in many dishes, and the seeds are boiled, sautéed or fried before consumption.

The plant is also called "drumstick tree" on account of its long and slender nutritional fruits or pods, which look like drumsticks. The immature green pods are probably the most esteemed and widely used of all the tree parts. Many countries throughout Asia use them in their traditional dishes.

Several other uses of this versatile tree deserve mention: moringa seeds are the source of a fine oil called *ben* or *behen* oil, prized for many years for its culinary uses, its burn quality of illuminating without smoke, and its lubricating capabilities for very small machinery, such as in watches. Moringa seeds are also effective in clarifying water.

No discussion about this tree would be complete without mentioning its medicinal value. In India's traditional medicinal practices, every part of the plant has been used since ancient times for the prevention of various diseases or to treat assorted ailments.

Moringa is easily propagated and established. Little or no attention is required to keep the tree thriving and growing well. In fact, stem growth of up to 10 ft (approximately 3 m) or more in one year is not uncommon. (*Source:* Thomas Marler in *Pacific Sunday News*, 31 July 2005.)

Moringa tree production gets US$60 million boost

Farming and propagation of the moringa tree, referred to by medicinal scientists as "Africa's wonder tree", has gathered momentum in Zimbabwe with Tree Africa donating US$60 million towards the large-scale cultivation of the tree.

Moringa became popular recently after tests conducted by scientists in West Africa and India revealed that it can boost the human immune system while the seeds can be used to process oil and for water purification.

Tree Africa programme adviser Mr Jacob Jepsen said the money would go a long way towards expanding moringa tree cultivation and conservation projects in Zimbabwe. "This exotic plant has a lot to offer and we would like people to have access to it. It originates from India, but is cultivated in Binga, Mazowe and on a small scale in the Matabeleland south, north and Nyanga areas," Mr Jepsen said.

Tree Africa encourages everybody to establish nutrient herbal gardens that would see them improve their health. "The moringa tree is highly nutritious in Vitamins A, B and C and it is also a good source of calcium, phosphorus, protein and carbohydrates. The plant does not cure HIV/AIDS as people have been speculating of late," Mr Jepsen said.

Moringa tree leaves and roots can be pounded differently into powder form and used to spice food or as herbal tea. The plant is being processed into capsules but Tree Africa encourages people to use the unprocessed powders since no traces of other essentials are destroyed. The leaves can be chewed fresh while the flowers can be used as relish.

Tree Africa's Harare offices also sell genuine moringa tree seedlings for less than the exorbitant prices charged by some unscrupulous dealers. (*Source: The Herald* [Harare], 30 June 2005.)

Farmers' drumstick beats drought

In a country where hundreds of debt-ridden farmers routinely take their lives after their crops fail, growing drumsticks may be a solution. The drumstick tree (*Moringa oleifera*) is one of India's most common trees, with a vegetable crop of triangular, ribbed pods with winged seeds. The tree's bark, roots, fruit, flowers, leaves, seeds and gum also have medicinal uses including as an antiseptic and in treating rheumatism, venomous bites and other conditions.

Growing drumsticks makes eminent good sense in a country such as India with patchy irrigation systems.

Drumsticks can be grown using rainwater without expensive irrigation techniques since the yield is good even if the water supply is not.

While it takes only US$110–130 an acre (0.405 ha) to farm drumsticks, returns from the crop easily range from $440 to $1 550. (*Source:* BBC Newsroom, 28 November 2005.)

Zimbabweans living with HIV/AIDS turn to herbal medicines

Moringa powder is the latest medical craze for Zimbabweans battling with one of the world's highest HIV/AIDS infection rates. Many of those testing positive for HIV/AIDS believe that herbs from the baobab-like moringa tree, which grows in Binga in northern Zimbabwe, help boost the immune system and fight off colds.

However, Zimbabwe Medical Association (Zima) said the hype over moringa was unwarranted and that there was no evidence to support the fact that the herb helps reverse the symptoms of HIV/AIDS. (*Source:* Mail and Guardian online [South Africa], 26 August 2005.)

RATTAN

Silvicultural and sustainable management of rattan production systems

Rattan and NTFPs have rarely been considered major forest products by forestry research institutes, which have not paid enough attention to these plants as a way of improving sustainable livelihoods and reducing the impact of logging overexploitation through the utilization of alternative sources of income.

This neglect changed in the 1970s as a result of supply shortages from the wild, which made several forest research institutes intensify their studies in the taxonomy and biology of rattan in order to develop methods for growing it in plantations. Several programmes have been developed and the importance of this product is now recognized. However, although great advances have been made in the understanding of rattan both in the wild and as a plantation crop, there is still much that is unknown and many problems that could threaten the sustainable utilization of the canes still remain unresolved.

A recent dissertation by Edoardo Pantanella (resulting from cooperation between the University of Tuscia, Italy and FAO) describes the silvicultural and sustainable management of rattan. Through the review of several studies on ecological, managerial and economic issues, the main aim of the paper consists in analysing rattan profitability and sustainability.

Rattan gross revenues show great economic potential in comparison with timber. Rattan can be harvested with continuity and with shorter rotation cycles and does not require large financial investment for maintenance, machinery and harvesting equipment or processing machineries.

From an ecological point of view, rattan management systems, if maintained within a sustainable level, avoid damage to local fauna and flora since they do not disturb local habitats in the same way as other forest utilizations.

Pantanella concludes that rattan is an important means of livelihood in almost all equatorial and tropical countries and one of the most important NTFPs worldwide.

However, being considered a minor forest product, rattan is not a priority issue on the political agenda on account of its low visibility (no lobbies, regional instead of international markets, difficulty in monitoring, data ignored in national accounting schemes) in comparison with other major commodities.

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Hippophae rhamnoides

SEA BUCKTHORN (*HIPPOPHAE RHAMNOIDES*)

Breakthrough in the fight against acne and eczema

Sea buckthorn is an extraordinary plant that has been recognized for centuries in Eurasia for its exceptional medicinal and nutritional benefits. Its berries are so rich in vitamins and nutrients that it has been speculated that the plant must have been grown by ancient plant cultivators.

The oil of sea buckthorn has general nourishing, revitalizing and restorative action. It can be used for acne; dermatitis; irritated, sore, dry and itching skin; eczema; skin ulcers; postpartum pigmentation; burns; scalds; cuts; and tissue regeneration. The stimulation of tissue regeneration is helpful in the treatment of burns, bedsores and poorly healing wounds. Sea buckthorn oil helps reduce the damaging effects of sun radiation and effectively combats wrinkles, dryness and other symptoms of malnourished or prematurely ageing skin. It is utilized in anti-ageing skin creams and lotions.

The berries appear to be an unsurpassed natural source of vitamins A and E, carotenes and flavonoids. Sea

buckthorn berries are second only to rosehips and acerola in vitamin C content. They are also rich in several other vitamins, including B1, B2, K and P as well as in more than two dozen microelements.

The restorative action of sea buckthorn oil may be in part a result of its high content of essential fatty acids (EFAs), carotenes, tocopherols and phytosterols, which are all important for the maintenance of healthy skin. The EFA content in sea buckthorn oil is 80–95 percent. Major EFAs are oleic and linoleic. Others are pentadecenoic, palmitoleic, heptadecenoic, linolenic, eicosenoic, eicosadienoic, erucic and nervonic.

Among the carotenes found in sea buckthorn are alfa- and beta-carotenes, lycopene, cryptoxanthin, zeaxanthin, taraxanthin and phytofluin. Tocopherols are mostly vitamin E and gamma-tocopherol. Phytosterols of sea buckthorn include beta-sitosterol, beta-amirol and erithrodiol. Taken internally, sea buckthorn can help prevent gums from bleeding; recuperate mucous membranes; heal peptic and duodenal ulcers; combat urinary tract and cervical erosion; help solar and cancer radiation injuries; and is a source of carotenes, phytosterols and EFAs. (*Source:* I-Newswire.com [United States], 7 July 2005.)

Tribes in India to grow wonder plant

After years of experiments, the successful plantation of sea buckthorn (*Hippophae rhamnoides*) in the cold deserts of Himachal Pradesh's tribal areas of Kinnaur and Lahaul Spiti districts opened the doors for the prosperity of tribal people who are being encouraged to grow the "wonder plant". These cold deserts, where minimum temperatures dip to -40°C during winter, are bereft of any vegetation and are perpetually short of fuelwood, food and fodder. The efforts made earlier to provide green cover for the cold deserts under desert development programmes resulted in developing green patches only in some isolated pockets but sea buckthorn is an ideal plant for cultivation in such harsh and hostile weather conditions.

Sea buckthorn is a deciduous shrub, widely distributed in the cold deserts. It has an extensive root system for soil stabilization; a nitrogen-fixing ability for fertility; high vitamin C content; provides best-quality fuelwood and fodder; and its fruits and seed oil have a high economic value for cosmetics, medicines and beverages.

The plant can withstand extreme temperatures ranging between -43°C and +40°C and can grow in dry, arid zones with 300 mm rainfall.

Except for China and the Russian Federation, which developed sea buckthorn as a major horticultural and agro-industrial crop, this wonder plant has remained neglected.

Three species of sea buckthorn, namely *H. rhamnoides, H. tibetana, H. salicifolia* and *Hippophae rhamnoides* ssp. *turkestanica* have been identified so far and successfully cultivated in cold dry zones. The Baspa, Bhaga and Kaza valleys have unique plant species of sea buckthorn with fewer thorns, dense fruiting and large fruits that can be identified and selected for promotion on a commercial and industrial scale.

Sea buckthorn is used for fuelwood, fencing around fields and houses and for fodder, while herbal doctors use the plant for curing lung diseases and headache. It is also used for making wines and jams but these practices have now become almost extinct as a result of the commercialization of agriculture and the availability of other options.

A series of meetings has been organized with the tribal people to popularize sea buckthorn and make its cultivation compulsory in at least a 2-ha area in each desert development project.

Experts and environmentalists feel that keeping the Chinese experience in view, sea buckthorn's potential should be fully explored for developing it as an agro-industrial crop that would also help in vegetation rehabilitation and more job opportunities for poor tribal people with limited options. (*Source:* Rediff [India], 19 September 2005.)

Ladakh berry beverage

Delhi-based FIL Industries Ltd today launched the Ladakh berry premium sea buckthorn beverage in India. The Ladakh berry (also known as sea buckthorn, *Hippophae rhamnoides*) is extracted from the light yellow or orange sea buckthorn berries that grow in the wild on the hillsides of Ladakh.

Sea buckthorn is a powerhouse among fruits and vegetables, containing over 100 nutrients, eight vitamins, 24 minerals and 18 amino acids. The juice is highly stress-resistant as it contains natural vitamins C, E, A and beta-carotene and flavonoids. It has no preservatives and serves as an antioxidant that slows the ageing process, reduces cholesterol, boosts immunity, nourishes the brain and eyes and improves memory. (*Source:* agencyfaqs.com [India], 24 October 2005.)

SHEA BUTTER (*VITELLARIA PARADOXA*)

L'arbre à karité (*Vitellaria paradoxa*)

Source d'une des plus anciennes huiles d'Afrique, l'arbre à karité (*Vitellaria paradoxa*) est un arbre indigène d'Afrique, semi-domestiqué, à croissance lente, présent sur une bande de végétation qui s'étend sur 5 000 km au

sud du Sahel, à travers 16 pays africains, du Sénégal à l'Ethiopie et l'Ouganda. L'utilisation du beurre de karité et de l'arbre lui-même a été documentée il y a environ 4 000 ans en Egypte antique. Dès 1354, l'arbre à karité a été documenté comme produit de grande valeur commerciale régional de l'Afrique occidentale par le voyageur marocain Ibn Battuta.

Le développement moderne de l'arbre à karité comme ressource économique et alimentaire a commencé en Afrique occidentale dans les années 50 et a considérablement augmenté ces dernières années. Environ 610 000 tonnes de noix ont été rassemblées à travers la zone africaine du karité durant 2 000 récoltes. Environ 10 pour cent de cette production ont été exportés, principalement vers l'Europe et le Japon, tandis que 545 000 tonnes ont été traitées localement dont 131 000 tonnes environ de beurre de karité. L'exploitation économique de l'arbre à beurre de karité d'Afrique est devenue l'objet d'une industrie dynamique, essentiellement grâce à l'esprit d'initiative, à la résistance physique et au courage des femmes africaines des zones rurales

Les essais d'étude sur la productivité, étant donné la maturation lente de l'arbre. (10 à 20 ans), le manque de continuité dans la recherche et les efforts de développement, ont laissé d'énormes lacunes dans notre compréhension des facteurs biologiques et environnementaux de la productivité du karité. Durant les quatre dernières décennies, des technologies employées au niveau des villages pour améliorer le traitement du karité ont été développées et couronnées de nombreux succès en Afrique de l'Est et centrale. *Source: Atelier international sur le traitement, la valorisation et le commerce de karité en Afrique. Actes du séminaire.* CFC Document technique no 21. FAO, Rome.

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Shea butter becoming popular in Europe

With its natural healing and moisturizing properties and its ability to combat the ageing process, shea butter is fast becoming the answer to fighting skin complaints. Although relatively new to America and Europe, shea butter has been used in Africa for centuries as a skin and hair care balm. Today it is used as a cream, at various levels of refinement, by men and women all over the world.

As we become aware of the effects of chemicals and toxins in our bodies, organic products are increasingly viewed as the number one choice for our health and beauty demands. Naturally rich in essential vitamins (A, E and F) and acids the skin needs, shea butter is 100 percent natural. Vitamins A and E help maintain the skin and keep it clear and healthy, preventing premature wrinkles and are especially good for sun-damaged skin and mild skin issues. Vitamin F acts as a skin protector and rejuvenator and soothes rough or dry skin.

Shea's versatility makes it the new and more efficient alternative to cocoa butter. (*Source:* Fashion.ie [Ireland], 13 December 2005.)

SHELLAC

Lac cultivation in Viet Nam

Shellac represents the sole natural resinous substance secreted by a small insect (*Laccifer lacca* Kerr) while it lives and develops as a parasite on some lac host trees and plants. The resin is in essence the nest of the *Laccifer lacca* whose product is termed as "sticklac" when just harvested, "seedlac" when crushed and washed clean and "shellac" when processed and commercialized in the form of very thin scales.

Shellac has several particular features such as non-toxicity, insulation and adhesiveness, which are not present in artificial plastic, hence the use of shellac in the manufacture of superior quality paint for the electronics, aviation and canning industries, among others. Pharmacologically, shellac is used as a detoxicant, an antidote and a tooth analgesic.

Shellac has long been produced in the South and Southeast Asian region, including Viet Nam and the Lao People's Democratic Republic. In 1937, the two latter countries produced 357 tonnes of sticklac, valued at approximately Fr.Fr.1 million.

In Viet Nam, lac is cultivated mainly in the northern provinces. The host trees and plants for lac insects to parasitize include *Protium serratum, Cajanus cajan, Dalbergia hupeana* var. *laccifera*, *Ficus racemosa, Pterocarya tonkinensis* and *Saraca dives*, with the first three giving highest yields. In the province of Nghe An, local people have long harvested natural sticklac and cultivate lac themselves. In 1964, their sticklac output topped 64 tonnes; by 1981, this stood at 3 tonnes. Without incentive policies, there was a drastic decrease in sticklac output. Only a few locals kept up the trade, cultivating lac on natural trees and plants.

One of the main causes of lac's decline was that farming households found it difficult to cultivate host trees, particularly perennial trees that could give high yields such as *Protium*

serratum and *Dalbergia hupeana* var. *laccifera*.

In early 2004, Nghe An Provincial Forestry Subdepartment launched a sectoral scientific study on "Adopting technical measures to propagate the *Dalbergia hupeana* var. *laccifera* as a host tree for lac cultivation". As a perennial found in natural conditions, distributed mainly in the districts of Ky Son and Tuong Duong and a number of villages in Que Phong district, the *Dalbergia hupeana* var. *laccifera* is a medium-sized tree usually growing on hillsides and foothills; it is shade-demanding when young and light-demanding when mature.

Mountain farmers have taken advantage of natural *Dalbergia hupeana* var. *laccifera* for lac cultivation. They go to look for the trees in forests and mark them once found so that the trees then become their own. One *Dalbergia hupeana* var. *laccifera* may nourish lac insects for many years and yield 60 kg of sticklac per year.

As it is difficult to propagate the tree, the locals often chop at its roots to get shoots for future nurseries and cultivation. Using this technique, the rate of survival of seedlings is fairly low and it is impossible to meet the local people's demand for lac host trees. Consequently, Nghe An Provincial Forestry Subdepartment and the research team have germinated 7 000 cuttings in an indoor nursery in Ky Son. In 2005, it is estimated that 2–3 ha will have been put under *Dalbergia hupeana* var. *laccifera* by individual households in Ky Son.

This success is expected to open up new directions for lac-cultivating households in the three districts of Ky Son, Tuong Duong and Que Phong, thus helping to restructure crops in the mountain and highland districts with a view to accomplishing the target of cultivating 5 000 ha of lac host trees for lac cultivation in Nghe An Province by 2010. (*Source: Extracted from*: article by Nguyen Tien Lam in *NTFP Newsletter*, 2[4], October 2005.)

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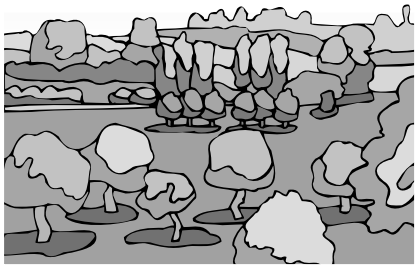

Growing lac insects for resin in an agroforestry system in Indonesia

Lac is a natural resin produced by the scale insect *Laccifer lacca*, which is a parasite of certain host trees. Used mainly to make lacquer and glossing material, lac is a commodity that has been traded in the international market since the early twentieth century. Lac is also used today in electronics, printing, textiles, clothing, cosmetics and food. The United States and Japan are major importers of lac resin, while India and Thailand are the leading exporters.

Because of the increasing market demand for resin, growing lac has become an enterprise in Indonesia. Local governments have set up lac cultivation projects in areas where a high population of *kesambi* (*Schleicera oleosa*) host trees abound. Today, policy-makers and business people in the East Nusa Tenggara Province continue to promote lac resin production.

Lac insects are found only in certain regions (Alor, Sumba, Flores and Rote Islands) of East Nusa Tenggara at altitudes between 100 and 500 m. Many of these places have no roads or even bicycle trails. The first officially recorded lac production in Alor district was in 1993, totalling 206 tonnes. Since then, accumulated production up to 1999 was approximately 1 610 tonnes of stick and scraped lac.

Most lac growers are traditional farm families practising shifting agriculture. Expertise is passed on from father to son. Each family usually has only a few big host trees in the forest or in the garden. With the government ban on wood exploitation, highland farmers are turning to non-wood products, such as lac, together with livestock as sources of additional income.

Lac growing involves the inoculation of lac insects into perennial host trees. The farmers take a few days to tie the broodlac (mother cell with the female lac insect) on to the hosts. After three to four months, farmers return to harvest the broodlac, which usually takes a week.

During harvesting, the branches bearing lac are cut down and the broodlacs are tied to new hosts. The harvested host trees are left alone for one to two years for the regrowth of branches.

Lac yields depend on the weather. If the weather is bad, especially during the rainy season, there may not even be enough broodlac to inoculate the next crop.

Despite declining production, lac growing in East Nusa Tenggara has good economic potential because of low labour costs. It also requires only low-level investment (since sticklac is obtained from the empty broodlac a month after inoculation and can cover two-thirds of the cost); provides quick and regular income; is easily transported; and trees as perennial hosts can be readily found or grown. (*Source:* Extracted from: article by M. Kudeng Sallata and I. Made Widyana [in *APANews, Asia-Pacific Agroforestry Newsletter*, 26, July 2005].)

TRUFFLES

White magic

The white truffle of Alba – the *tartufo bianco*, which comes from the woods of the Italian province of Piedmont, where it is dug from the earth by specialist hunters and their dogs – is the king of all fungi, one of the world's most sought-after and

most expensive delicacies, commanding prices which make it more valuable, per gram, than gold.

The white truffle is found in five different varieties, determined by the species of tree on whose roots it originates. Depending on whether it is associated with, for example, the willow, oak, poplar or hazelnut, its colour can range from white, sometimes veined with pink, to grey verging on brown.

Truffles are part of the vast family of fungi, found all over the world. The tuber itself is born – like most fungi – underneath the leaf mould, in the early summer months, attaching itself to the tree roots like the parasite it is. Sufficient rain in August can swell the truffles in size. Attempts to grow them commercially have failed.

Black summer and winter truffles also grow in parts of France, where they are hunted using pigs in the Perigord region, Italy, Spain and Croatia. Some black truffles have also been found occasionally in British woods and there is clearly money to be made by anyone who locates a large amount.

Alba itself has become the centre of the truffle trade, with a weekly market where fungi from all over central Italy are bought and sold, while shops sell related products such as highly flavoured truffle oil or preserved truffles. (*Source: The Independent* [United Kingdom], 14 November 2005.)

Secretive truffle growers in New Zealand

Second only to espionage as the world's most mysterious occupation, truffle growing is taking off in Wairarapa, New Zealand. An industry insider revealed there are at least nine truffle growers in the region, but they like to keep their identities strictly under wraps.

The reason for the truffle growers' notorious secretiveness comes down to the sheer value of their crops. Truffles can fetch up to US$3 500/kg so the potential for a grower who has a hundred or so trees in his truffle orchard – known in the business as a "truffiere" – is huge.

Truffles are the fruits of specific varieties of fungi that grow underground, in a symbiotic relationship with tree roots. They usually grow with oaks and hazelnut trees, but they may also grow with sweet chestnut, some pines and other tree types.

In New Zealand truffles generally fruit between May and August, but growers have to be quick to harvest them since they are ripe for only a matter of days. They also have to have a well-trained dog that can sniff out the truffle's location.

There are two main varieties of truffle grown commercially in New Zealand – the *Tuber melanosporum*, which produces the Perigord black truffle originally found in the south of France, northern Italy and northeastern Spain and the *Tuber borchi*, which produces an Italian white truffle called *bianchetto*.

The industry took off in the late 1980s after a mycologist began growing tree seedlings, which he deliberately infected with the Perigord black truffle fungus. Since then, would-be truffle growers around New Zealand have bought infected seedlings from Crop and Food Research in the hope of making mega dollars.

The oldest truffle plantations in the region are eight years old, but it can take five to ten years for the truffle fungi to fruit and even then there is no guarantee that they will fruit at all. (*Source: Wairarapa Times Age*, 9 November 2005.)

Hidden delicacy in Oregon's forests

Oregon's forests are home to a treasure for mushroom hunters in search of truffles. They are the United States' largest source of truffles but lag behind France, Spain, Italy and other parts of Europe. Oregon's annual harvest is roughly 10 tonnes, compared with more than 100 tonnes for all of Europe.

Truffles grow underground and rely on trees to host them and animals eating them to distribute their spores. Many Oregon truffles grow near the roots of Douglas firs, but they can also be cultivated on hazelnut and oak trees. (*Source: Seattle Times*, 6 December 2005.) ●

COUNTRY COMPASS

ANGOLA

Forests play key role in country's development

Angola's Deputy Minister of Agriculture and Rural Development said that forests and fauna play an important role in the country's development, as they are the sources of goods and services of economic, social and environmental character. According to the deputy minister, who was speaking at today's opening session of a seminar on regional public consultation for the participative drafting of policy and legislation on forests, fauna and forests play an important role in the poverty reduction and food security of rural communities.

Angola has enormous potential in forests, wild fauna and huge protected areas, a fact that gives the southern African country a valuable basis for its economic, environmental and social development.

Acknowledging the importance of these resources, the deputy minister said that forests are the sources of subsistence and income for the majority of the rural population, as they contribute to the substantial reduction of poverty in the country. (*Source:* Angola Press Agency, 6 December 2005.)

AUSTRALIA

Greenridge Health and Herb Festival

This Festival is held in August each year in the northern New South Wales city of Lismore. The area is subtropical, with an annual rainfall of about 1 400 mm and the volcanic soils are krasnozems. In pre-European times, the area supported the largest subtropical rain forest in Australia but most has been cleared for agricultural purposes.

The festival is a no-profit, signature event that showcases the use of herbs in complementary medicines and regional cuisine and promotes healthy lifestyles, a healthy natural environment and community participation. It provides a means to stimulate, network and learn new techniques and build expertise in the use of herbs and complementary medicine through a close link with and involvement of the School of Natural and Complementary Medicine of Southern Cross University.

This year's festival featured a herb garden area, a bush food cooking area, woodworking demonstrations and quality cabinet work display, a bush food farm tour and demonstrations on the use of herbs in natural medicine treatments.

Indigenous non-wood forest crops grown in this region are lemon myrtle (*Backhousia citriodora*), tea tree (*Melaleuca alternifolia*) and macadamia (*Macadamia integrifolia*).

Lemon myrtle is in increasing use as a food additive and as a flavouring (in confectionery, tea, etc.) and the citral-type oils are similar to those found in lemon grass. There is some evidence of insecticidal properties but there are indications that some skins are sensitive to its use.

Tea trees are planted extensively on moister, lower-lying soil types. The trees are harvested periodically and the oils extracted. These are used in creams and have antifungal and antimicrobial properties. Plantations are now based on highly selected genotypes with very large yields of sought-after oils.

Macadamia is also planted extensively in this region, mainly for nuts for the food industry. However, the oil is valuable and the chippings left from kernel extraction are used for the production of macadamia oil that is used in cosmetics as well as in cooking.

Work on these products and other potential products is being carried out by the Centre for Phytochemistry and Pharmacology at Southern Cross University. (*Contributed by:* David Cameron, PO Box 5237, East Lismore, Wollongbar, New South Wales 2480, Australia. Fax: +61 2 6621 2917; e-mail: dlcam@bigpond.net.au)

Leatherwood honey under threat by logging

Leatherwood honey is highly prized all over the world. But beekeepers in southern Tasmania are sounding a warning about their unique local product, saying logging of the leatherwood trees that give the honey its distinctive taste is threatening their industry. A new report is calling for changes to timber harvesting in southern Tasmanian forests to ensure the survival of the state's unique leatherwood honey industry. Beekeepers have welcomed the Forests and Forest Industry Council study that has looked at how much leatherwood is needed to sustain their hives. The forestry industry says that it is working to preserve the trees and there is no cause for alarm. (*Source:* ABC online [Australia], 28 November and 19 December 2005.)

Fungi and mosses in Australia's forests

Tasmania's native forests could be a gold mine for new human medicines, says a leading mushroom expert. They may even hold the key to a breakthrough cancer treatment.

University of Tasmania fungi researcher Sapphire McMullan-Fisher said the island's native forests were an untapped resource for new drugs. She said that Tasmania's forests were full of fungi and mosses with active ingredients that could be useful for medicine.

Ms McMullan-Fisher estimates that only 40 percent of Tasmania's native mushrooms have been scientifically named. The other 60 percent remain a mystery to science. There is a major lack of research into Tasmania's native fungi and in Australian fungi as a whole. "There are about 10 to 15 people Australia-wide studying fungi but there are 2 000 Australian scientists investigating plants," she said. The lack of information about the native fungi has also seen bioprospectors all but ignore them.

Ms McMullan-Fisher said interest in fungi and mosses had waned particularly in the past 30 years. The lack of understanding had serious consequences. She said most forest reserves in Tasmania were based on large plant types and did not take into account fungi and mosses, which may be becoming extinct without our even knowing it.

Ms McMullan-Fisher said the Tasmanian Aborigines probably had a far

more in-depth understanding of the island's fungi and which varieties were edible, poisonous or beneficial in medical treatments. "Unfortunately not much remains of what the Tasmanian Aborigines knew because we came in and didn't bother to learn." (*Source:* Hobart Mercury [Australia], 2 October 2005.)

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BHUTAN

Forest policy and income opportunities from NTFP commercialization in Bhutan

The forests in Bhutan, as in much of the developing world, are state owned. Forests are seen today as central to sustainable development, but the forest bureaucracy, by mandate and institutional culture, is control-oriented and not predisposed to promote rural people's income opportunities. The overall aim of this research study is broadly to assess the policy context for NTFP commercialization in Bhutan. The documentary analysis shows that forests in the country are a source of conflict of interest between the state and the rural people. Exports of NTFPs can take place only with the express approval of the government. A permit application can take as little as one day or as long as 128 days to process. There is an apparent move towards incorporating NTFPs in forest policy. The three case studies from different regions and altitudes show that there is no uniform forest policy on NTFPs.

The first case study was on *Cordyceps sinensis*, a high-altitude valued medicinal plant and a restricted species as of 2003. The policy restriction and the high value of the product resulted in revenue loss and was a source of "park-people" conflict.

There is however no such policy restriction for *Tricholoma matsutake*, a high-value mushroom in the temperate region. The government instead is fully supportive of this industry. The regular income from the mushroom has brought economic prosperity to the local community and much-needed foreign exchange to the country.

The third case concerns *Piper pedicellatum*, a low-altitude medicinal plant, which has a very low cash value compared with *Cordyceps* and *Tricholoma*, but is still a major source of cash for people in remote poor rural districts.

The future of NTFP commercialization in Bhutan looks promising, particularly after the lifting of the ban on *Cordyceps* collection in 2004. This opens up a brave new world for forest policy development for NTFPs in the country. (*Source:* abstract of Ph.D. thesis of Namgyel, P. 2005. *Forest policy and income opportunities from NTFP commercialization in Bhutan*. International and Rural Development Department, University of Reading, United Kingdom. *Contributed by:* Phuntsho Namgyel, Ph.D., Council for RNR Research for Bhutan, Ministry of Agriculture, Royal Government of Bhutan, PO Box 119, Thimphu, Bhutan. E-mail: phuntshonamgyel2001@yahoo.com)

BRAZIL

Felling trees is prohibited – and the Para nut tree dies standing

The legal prohibition against felling Para nut (*Bertholletia excelsa*) trees, a symbol of Amazonia, creates cemeteries of dead standing trees that cover the Maraba region in the southeastern Para state: all the result of the deforestation of the surroundings. The majority of the trees are those that have survived both legal and illegal felling.

The Para nut tree, under normal conditions, produces fruit continuously and can live for up to 500 or 600 years. The surrounding forest is essential for its survival, as it offers protection from the wind, nourishment from the ground and a route for the pollen-making bees to do their job. The progressive removal of forest from around the Para nut leaves it isolated as its genetic flow is interrupted when pollination does not occur.

Reforestation does not work if other forestry species native to the area are not planted as well. The Para nut tree is a forest tree. It is useless to protect one without the other. (*Source: O Estado de S. Paulo*, 25 September 2005.)

CAMBODIA

Improvement of the sustainable management and utilization of NTFPs in Cambodia

This 36-month project (PD 275/04 Rev. 3 [I]) will promote the sustainable management of NTFP resources by improving social, economic and legal aspects of NTFP production and trade. Specifically, the project will help strengthen the local management of NTFPs in four provinces (Kampong Chhnang, Kampong Thom, Mondulkiri and Rattanakiri) through the development of villagers' associations in collaboration with local communities and NGOS; and build local capacity to integrate local villagers better with NTFP markets by addressing the socio-economic and legal aspects of existing market channels. (*Source: ITTO Tropical Forest Update*, 15[1], 2005.)

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CAMEROON

Boosting NTFPs

Actors in the NTFP subsector want activities in the area organized. Meeting in Yaoundé for two days, experts – most of them from the Ministry of Forestry and Wildlife – discussed ways and means of rendering the subsector more organized by adopting a legal framework that will regulate it, reinforcing research and putting in place a perfect national management synergy. All these are being developed within the framework of the Project for Institutional Support and Sustainable Management of Non-timber Forest Products in Cameroon, for which the Yaoundé workshop was organized.

Speaking at the workshop, the project's coordinator, Jeanne Balomog stated that NTFPs are diverse and include all forest resources besides wood. She said the non-timber forest sector faces problems because it is not well known and mastered, whereas the products that range from fruits, vegetables, medicinal plants, and building and furniture material such as rattan constitute a source of livelihood for millions of people. Mrs Balomog said that almost everyone exploits or uses NTFPs in one way or another. She added that because of the vast nature of the subsector, it is difficult to quantify what it contributes to the national economy but disclosed that, from statistics, it injects more than CFAF300 million into the economy yearly.

The Yaoundé workshop was therefore aimed at helping the government to maximize the contribution of NTFPs to the socio-economic development of the country through sustainable management and promotion. Research has been carried out on ways to boost the subsector and the workshop was a forum to share the findings with other partners.

The major concern was about the state of NTFPs in Cameroon, the criteria of identifying the diverse activities to ensure proper promotion, mastery of the areas to be promoted, priorities in capacity building and instruments to be used that will cater for problems arising.

The workshop took place with the help of FAO; the outcome was a harmonized national strategy to boost the contribution of NTFPs to the national economy. (*Source: Cameroon Tribune*, 5 December 2005.)

Non-timber/special forest products in Ndian division

A study carried out by the World Resource Institute (WRI, 2000) concludes that it is extremely difficult to quantify the economic importance of non-timber forest products (NTFPs) because of lack of statistics.

In Ndian division in the Southwest Province of Cameroon, many studies on NTFPs have been carried out by the Korup Project. These studies were based essentially on a description of harvesting and processing techniques and not on economic importance.

However, it is important to note that NTFPs play an important role in improving the living standards of the Ndian rural population.

NTFPs currently harvested in the area include the following.

1. **Chewing stick (*Garcinia manii* and *Masscularia acuminata*) and hausa stick (*Carpolobia lutea*).**
   The woody parts of these plants are harvested and while chewing sticks are predominantly used for personal dental hygiene, hausa sticks are used mostly by cattle rearers to facilitate the management of cattle herd displacements. These products are the most exploited NTFPs in the area. After harvesting, the villagers arrange them in bundles of 40–50 sticks of about 1 m long, which they sell at CFAF2 000 per bundle to intermediaries who come and buy in the villages. Nigeria serves as the principal market for these products. Chewing sticks are sold throughout Nigeria while hausa sticks are limited to the northern states of Nigeria and sometimes find their way to customers in Chad, the Niger and northern Cameroon.
   Intermediaries are predominantly Nigerian traders who are not only well organized but also have preferential access to other players along the product chain once it gets to Nigeria. Attempts by Cameroonians to access the Nigerian market have been unsuccessful because of their lack of understanding of the market structure. For example, some Cameroonians have had bitter experiences when they decided to transport chewing sticks to Nigeria. They were obliged to abandon the products there and return penniless as no one was willing to buy at the price the sellers could offer.
   Because of the poor road network in Ndian, the preferred period to exploit is the rainy season (April–November) when rivers leading to the creeks are full, enabling the easy evacuation of the products to Nigeria by boat.
2. **Bush mango (*Irvingia gabonensis* and *I. wombulu*).**
   This NTFP is highly consumed in Ndian and is used for preparing soup. Bush mango is sold at the local markets as well as exported to neighbouring Nigeria. The price varies depending on the harvesting period and ranges between CFAF7 500 and 14 000 per bucket of 15 litres.
3. **Njansang (*Rhicinodendron heudolotii*).**
   Njansang seed is a very popular condiment used in Cameroonian dishes. It is mostly collected by women and sold at local markets. A glass of about 0.2 litres costs between CFAF150 and 200.
4. **Bitter kola (*Garcinia manii*).**
   Bitter kola is a fruit used both as a stimulant and as a medicine. Production varies according to the season. When production is high, the price varies between CFAF8 000 and 15 000 for a 15 kg bag and between CFAF18 000 and 30 000 per bag during periods of low production.

Forestry controls. The local forestry service controls trade in NTFPs using two main instruments:

Sensitization. With the assistance of the administrative authorities the forestry service has so far organized numerous working sessions with traditional village authorities during which they are educated and encouraged not to allow any harvested NTFPs to leave the village without relevant documents from the service.

Exploitation control. This involves carrying out spontaneous checks in forests and transport services to ensure that harvesting and marketing are carried out as required by the law.

Nevertheless, the results obtained to date have been far from satisfactory, because most transportation of the products takes place during the night.

It is forestry policy in Cameroon to generate revenue for its activities through auction sales of illegally harvested forest products. However, when the local forestry service succeeds in confiscating large amounts of illegally harvested chewing sticks, for example, it is difficult to sell as there is no buyer. This is because trade is dominated by Nigerian business men who show a great deal of solidarity among themselves and would boycott the auction of a fellow member's confiscated merchandise. Furthermore, anyone who dares purchase auctioned chewing sticks would find their goods confiscated once they enter the Nigerian market by members of the chewing stick union.

Nonetheless, from January to June 2003, the Delegation of Environment and Forestry for Ndian division realized a revenue of CFAF117 100 from the auction sales of seized NTFPs.

Therefore, as can be seen, the export of NTFPs is complex and almost totally escapes control of the forestry service. Only the local populations, and especially the Nigerian buyers, reap benefits, leaving the state with practically nothing.

We think that for this activity to be beneficial to all stakeholders involved, certain actions have to be taken. These include:

- the creation of one or two sale points with the institution of a sales or market day and a day for loading to Nigeria;
- the regulation of this activity by the attribution of community forest and issue of exploitation permits for special forest products in the case of chewing sticks; and
- providing the local forestry service with a motorized boat for efficient control in the maritime area, which is the principal outlet of the product.

(*Contributed by:* Liyong Emmanuel Sama, Divisional Delegation of Forestry and Wildlife, Mezam, PO Box 4081, Bamenda, Cameroon. E-mail: esama-1@yahoo.co.uk)

CANADA

Quebec creates first boreal forest park

The Government of Quebec is taking steps to protect a huge swath of its boreal forest. It announced that it was teaming up with the Cree nation of Mistissini to create the 11 000 km^2 Albanel-Témiscamie-Otish Park, the first boreal forest park in the province and the first park inhabited by a First Nation that continues to practise its traditional way of life. Mistissini is a Cree community of 3 460 on an arm of Lake Mistissini, the largest freshwater lake in Quebec. The park will include Lake Mistissini, Lake Albanel and surrounding lands.

The park contains three distinct ecosystems, including boreal forest, taïga and subarctic vegetation at the foot of the Otish Mountains, and patches of tundra that cover their peaks.

The First Nation will continue to have its rights to fish, hunt and trap in the area as well as other rights specified under the James Bay and Northern Quebec Agreement. The park's creation will also ensure protection of sites within it that are sacred to Mistissini elders. "One of the main reasons we want to make this park is to allow the Cree hunters to continue the traditional way of life and by that I mean hunting and getting food from the land," said Kathleen Wootton, the deputy chief of Mistissini. "There are also ancient trees in that area that are tall and very thick and we want to preserve those as well. Once this park is all set up and ready, no mining and no forestry or any other development can ever happen on that land."

The government says tallymen will continue to play a role after the park is created. Tallymen, or traditional grassroots resource managers, are custodians of a community's land base in the region. (*Source:* CBC Montreal, 16 November 2005.)

On estime que, dans l'ensemble du Canada. 2,5 millions de Canadiens vivent dans les 522 communautés dépendant de la forêt boréale. *Source: Point de vue*, Automne 2005, No 03.

Aboriginal ecotourism

Rose and Ric Richardson are a Métis couple living and working in Saskatchewan (www.culturalnative.com). At their business, they promote the pride and dignity of Métis people and work on ensuring that cultural knowledge is shared with their own people and others. They work with traditional medicines found in the northern boreal forest and teach some uses of these in the "medicine walk" part of their ecotourism business. They also lobby the governments of Saskatchewan and Canada to promote sustainable practices in the use of the resources of the boreal forest, as well as to gain support for aboriginal ecotourism.

They believe ecotourism can help to preserve the traditional knowledge of native people, as well as provide an economic basis from which they can offer opportunities based on the sustainable use of natural forests. (*Source: Taiga News*, Issue 50, spring 2005.)

COUNTRY COMPASS

CHILE

Towards development of the Chilean basket willow sector

About 300 species of Salix trees and shrubs, as well as many other varieties and hybrids, are distributed at various latitudes in Europe, Asia, North America, and northern and southern Africa. The only species native to South America is *Salix humboldtiana* (Chilean willow), which grows wild along watercourses in Argentina, southern Brazil, Chile and Uruguay.

Many shrub forms of *Salix* species – including *Salix viminalis, S. purpurea, S. cinerea, S. caprea, S. triandra, S. alba* var. *vitellina* and *S. fragilis* – are used in wickerwork and basketry. Chile has an optimal climate and soils for growing *S. viminalis*, which is well known for its qualities in the production of baskets, packaging and furniture. Introduced into the country in colonial times, *S. viminalis*, also known as basket willow, now grows wild, often along watercourses and around springs, and has spread from the centre of the country to the south.

The suitability of flexible shoots or switches of *S. viminalis* for making handicraft items was discovered in the small town of Chimbarongo, 200 km from Santiago, in the early twentieth century. People began to cultivate the species and artisans were trained to produce furniture that reached the capital and elsewhere in the country. In Chile, activities related to the cultivation and manufacture of basket willow products have remained concentrated in the Chimbarongo area.

By the end of the 1990s, 223 ha were under *S. viminalis* cultivation in Chimbarongo, divided among 88 plantations, most of them belonging to small-scale producers. About 1 200 workshops were producing a wide range of willow articles, most of which were sold on the local market. However, producers and intermediaries had begun to export a large amount of basket willow (800 tonnes of dry material per year, valued at US$750 000), so that the local artisans lacked the raw material needed for their products. (*Source:* extracted from Towards development of the Chilean basket willow sector by M.I. Abalos Romero [in *Unasylva*, 221(56), 2005/2].)

CHINA

Promotion of NTFPs in Guangxi Autonomous Region, China based on sustainable community development

This three-year project (PD 73/01 Rev. 5 [I,M]) aims to promote the sustainable use and management of promising NTFPs in order to contribute to the social and economic development of the project sites in Fangcheng district, Shansi and Ninming counties, Guangxi region. The project will conduct field surveys of the three promising NTFPs to determine their distribution, production, processing and markets and establish three demonstration plots of 100 ha each to enhance the participation of local communities in managing and utilizing the selected NTFPs on a sustainable basis. Training courses will be organized for key stakeholders involved in promoting NTFPs and the project will also establish three community-based cooperatives to promote selected NTFPs at the project sites. (*Source: ITTO Tropical Forest Update*, 15[1], 2005.)

For more information, please contact: International Tropical Timber Organization (ITTO), International Organizations Center, 5th Floor, Pacifico-Yokohama 1-1-1, Minato-Mirai, Nishi-ku, Yokohama, 220-0012 Japan. Fax: +81 45 223 1111; e-mail: itto@itto.or.jp; www.itto.or.jp

CUBA

Developing bamboo

A project to develop bamboo in Cuba aims to obtain and multiply in vitro four species useable as lumber in order to expand the use of bamboo throughout this Caribbean island. The result will be "the production of laminate wood, artisanal items and the use of its waste as an energy source," said Fernando Martirena, deputy director of the structures and materials research and development centre at the Central University de las Villas.

Some 1 200 ha will be planted with the support of the Swiss agency for Development and Cooperation. The plantations are in addition to another 1 000 ha already developed in eastern Cuba.

Bamboo grows in the temperate zones of Asia and the Americas, and is known for its structural resistance, lightness and perennial growth. Until now, its utilization in Cuba has been very limited. (*Source:* Tierramérica [in CFRC weekly summary], 29 September 2005.)

CZECH REPUBLIC

Bumper mushroom crop

Millions of Czechs are taking to the countryside after record rainfall in July and August produced a bumper mushroom crop. This year's Czech mushroom season started three months earlier than usual and the crop may be more than double the average of 20 000 tonnes, according to the Prague-based Czech Mycological Society. About 2 billion koruna (US$86.5 million) of mushrooms are gathered annually, says the group, which estimates that as many as six million people, or two-thirds of the population, are gathering the plants.

The mushroom-picking season in the Czech Republic normally begins in late September and continues through October. This year, gatherers say they are already collecting as much as 60 kg of mushrooms in a few hours in the dense

forests that cover about a third of the country. In July, rainfall in the Czech Republic was triple the average from 1961 through 1990.

Measures to protect the environment have helped to improve the quality of the mushrooms. Sulphur dioxide emissions have fallen 90 percent and traces of nitrogen oxide dropped more than 40 percent between 1990 and 2003, according to the Czech Environment Ministry, helping to reduce acid in the soil and allowing certain types of mushrooms including chanterelles to re-emerge after a 30-year hiatus. (*Source:* Bloomberg [United States], 14 September 2005.)

DEMOCRATIC REPUBLIC OF THE CONGO

Beekeeping in Bas-Congo

Bas-Congo Province lies between the coast and Kinshasa in the Democratic Republic of the Congo. It covers an area of nearly 55 000 km2 and has an estimated population of 3.9 million. Soils are either deep sand or clay in the districts of Cataractes and Lukaya where beekeeping is practised and a system of shifting cultivation is used to produce crops.

Traditionally, areas of the bush/savannah have been protected from fire which has led to the establishment of forest reserves (called *nkuunku* in Kikongo). After a certain number of years decided by the village chief, they are allocated to families for growing their field crops. These areas of forest were normally left for between 15 and 20 years but are now more likely to be cut down after five or six years or less, because of the shortage of good fallow land. This has led to the invasion of coarse grass species and *Chromolaena odorata* (Siam weed) which are generally burnt during the dry season, resulting in a further loss of forest species.

The forest fallow is the only practical method of maintaining soil fertility and providing the range of NTFPs that maintain rural life in Bas-Congo. Unless land is returned to forest fallow after cropping it becomes virtually useless after a relatively short time and considerable effort is then needed to rehabilitate it.

Hunting for honey has been a traditional activity in Bas-Congo, as in much of Africa, but beekeeping has only been practised in the area since the early 1980s. The beehive in common use is the top bar hive introduced from Kenya. Beehives are always sited in areas of fairly thick bush or forest and therefore usually in the *nkuunku*. Beekeepers choose these areas to provide shade and seclusion and to enable them to get away from the hive without being followed by the bees after inspecting or harvesting the honey. (*Source: Some honeybee plants of Bas-Congo Province, Democratic Republic of Congo* by P. Latham, 2005.)

ECUADOR

El Ecuador posee una valiosa diversidad de ecosistemas que albergan una multiplicidad de especies de flora y fauna, así como un variado paisaje. La rica biodiversidad está entre las más abundantes del planeta por unidad de superficie territorial. Los bosques, con aproximadamente 11,45 millones de hectáreas ofertan a las comunidades locales y a la población en general una amplia gama de recursos maderables, no maderables y paisajísticos, además de otros valiosos servicios ambientales.

Las acciones de forestación y reforestación impulsadas históricamente no aportaron significativamente a la conservación de los bosques. El limitado alcance de esas acciones, favoreció el incremento de la presión extractiva de los productos forestales maderables, contribuyendo al deterioro del importante patrimonio genético contenido en la rica biodiversidad forestal.

El Ministerio de Ambiente, ante la importancia de proteger el patrimonio genético forestal y su apropiada administración, impulsa la valoración de los productos que ofertan los bosques, apoya la iniciativa de forestación, la de reforestación y promueve el establecimiento de plantaciones forestales.

En este contexto, con el propósito de favorecer la conservación de los bosques y por ende, el de las fuentes semilleras de las especies forestales nativas, promulgó la presente publicación sobre la norma de semillas forestales, instrumento que fomenta la producción, la investigación, la comercialización, la promoción y el uso de semillas forestales de procedencia y calidad conocida. Con ésta aspiramos mantener la reserva genética del país e impulsar el incremento de la cobertura boscosa, en especial con las especies forestales nativas. (*Fuente:* Fabián Valdivieso Eguiguren, Ministro del Ambiente. *Norma de semillas forestales*. Ministerio del Ambiente, República del Ecuador. Sitio web: www.ambiente.gov.ec)

FIJI

Bark paper

Bark paper is ecologically sound, perfect for rural dwellers and sustainable. It is no wonder that handmade paper production has taken off in some parts of rural Fiji.

For centuries, Fijians have made a bark cloth (*masi*) from the bark of the mulberry tree that serves a multitude of traditional purposes from clothing to ceremonial decoration and offerings. Therefore, papermaking was a logical adjunct to this existing skill. The handmade paper project in Fiji was initiated by Pure Fiji.

Paper is made from the cellulose found in plant fibres, which are literally beaten to a pulp and dispersed in water. Cellulose fibre, the main ingredient of

paper, is available in a number of different forms, e.g. bast, leaf and grass fibres. All living plants contain cellulose, but some yield a higher percentage of useable fibre than others. Fibre from ginger, selected grasses, bamboo, sugar cane, banana stalks, pineapple leaves and hibiscus bark can all be used.

Realizing a golden opportunity, the Wainimakutu Mothers' Club was determined to make a success of the project. And they did. Particular attention was given to the use of the outer bark (*kulina*) from the paper mulberry tree, which is normally discarded in the *masi*-making process.

The papermaking project was almost entirely run by the women of these rural communities, empowering them in ways they had never experienced before. Together with training in papermaking, Pure Fiji provided the women with some basic, simple business skills.

Today, papermaking is the major income earner for the village and brings in between US$1 000 and $3 000 a week. With this money the women of Wainimakutu have been able to expand their papermaking facilities with a new drying hut and generator, and create an ongoing fund for improving health care and schooling.

In recognition of these village women's business acumen and vigilance, they were given a Special Recognition Award and $2 000 cash, prizes donated by the Australian High Commission. The award was a surprise inclusion in the Westpac 2005 Businesswoman of the Year Awards. (*Source: Fiji Times*, 22 October 2005.)

GHANA

Bamboo, a good substitute for wood timber

Ghanaians should embrace bamboo and rattan as substitutes for timber since the nation's forest resources continue to diminish at an alarming rate. Mrs Gifty Ohui Allotey, Programme Administrator, Bamboo and Rattan Development Programme said bamboo could effectively replace wood since it had been found to be the fastest-growing plant that could be a substitute for timber. "It could be used for almost all the wood needs of the nation including furniture, construction work, furnishings for buildings such as flooring and ceilings as well as handicrafts and household items," she said. (*Source:* GhanaWeb, 13 September 2005.)

INDIA

Mizoram to give thrust to minor forest products

In a bid to promote the export of minor forest products (MFPs) in Mizoram, the government has worked out a strategy for tapping virgin markets with the help of the Ministry of Commerce and several major companies.

The project aims to set up manufacturing units wherever it can, to use the resources, backing the existing ones and bringing in new ventures from outside, in order to encourage various minor forest producers across the state.

The industry department officials stated that bamboo and cane would be used as the core raw material to increase the production of MFPs in the region.

Financial assistance would be provided to young entrepreneurs to set up their own units in their respective areas, where they would also be given training and marketing assistance. (*Source:* Webindia123, 18 November 2005.)

The Scheduled Tribes (Recognition of Forest Rights) Bill, 2005

The Bill lays down a simple procedure for recognition and vesting of forest rights in the forest-dwelling scheduled tribes so that rights, which stand vested in forest dwelling tribal communities, become legally enforceable through corrective measures in the formal recording system of the executive machinery. It also reinforces and utilizes the rich conservation ethos that tribal communities have traditionally shown and cautions against any form of unsustainable or destructive practices.

The Bill includes the right to hold and live on forest land, under individual or common occupation, for habitation or for livelihood. It also provides the right of ownership access to use or dispose of MFPs. It provides for adequate safeguards to avoid any further encroachment of forests and seeks to involve democratic institutions at the grassroots level in the process of recognition and vesting of forest rights.

This Bill is a logical culmination of the process of recognition of forest rights enjoyed by the forest-dwelling Scheduled Tribes on all kinds of forest lands for generations. (*Source:* Press Information Bureau, Government of India, 13 December 2005.)

Working with the real health experts: the traditional healers of Chhattisgarh

Over 17 percent of the population of the Indian state of Chhattisgarh is affected with sickle cell anaemia. It is at present incurable and modern medical systems are searching for a cure. Patients approach the traditional healers of Chhattisgarh as a last hope and with the help of traditional medicinal knowledge these healers give immense relief to such patients. Healers consider it a curable disease if diagnosed at an early stage; they use medicinal herbs such as *indra jau* in their treatment.

Many patients with different types of cancer come from different parts of India to the capital of Chhattisgarh. When modern science surrenders, the treatment of traditional healers begins. In addition, although the healers are not aware of the word "AIDS", they use traditional medicine to treat HIV-positive patients. There are many success stories.

COUNTRY COMPASS

Chhattisgarh is rich in biodiversity. Native and traditional healers have immense traditional medicinal knowledge of herbs and insects. Surprisingly, healers do not charge for treatment: they were told by their ancestors that earning through knowledge would result in loss of knowledge. Instead, they earn their livelihood from forest products and cultivation of agricultural crops.

Healers use traditional diagnosis methods, e.g. the healers of southern Chhattisgarh use red ants to diagnose diabetes. Besides herbs and insects, the healers also use medicinal soils and excreta of wild animals, and over 500 types of herbal glasses and bowls. The use of wooden glasses prepared from *koha* wood for heart patients is popular among the traditional healers of Chhattisgarh plains. Traditional allelopathic knowledge is used to enrich herbs with medicinal properties: there is a specific time and collection method for each herb.

Although I do not have a formal education in ethnobotany, as an agronomist my interest in weeds and homeopathy motivated me to document this traditional medicinal knowledge – without waiting for financial help. Initially I published the results in national and international science journals, but later found this publication procedure costly, lengthy and time consuming. After publishing over 100 research papers and attending over 70 conferences I decided to disseminate this knowledge through the Internet.

Many years of extensive surveys have resulted in a huge amount of information: over 13 000 research documents are now available at www.botanical.com/. I am also documenting this information in Hindi through regional magazines, as well as contributing articles and photographs to Ecoport (www.ecoport.org), where over 10 000 photographs based on my surveys can be found.

All this work is purely an individual attempt, without any financial assistance, and is really only a drop in the knowledge ocean. I trust that my ongoing work will motivate young researchers worldwide to document the traditional knowledge present in their areas. Through my work one can imagine the quantum of knowledge present in other parts of the earth.

The traditional healers, herb collectors and natives of Chhattisgarh have rich knowledge that is time tested and has no side effects. Unfortunately these traditional healers are still waiting for recognition and honour from civil society. They are not legally allowed to practise their knowledge; my dream is to provide them with a legal licence to practise. I believe that with the combination of knowledge and experience of these healers, as well as of modern medical practitioners and researchers, we can achieve a disease-free world. (*Contributed by:* Pankaj Oudhia, SOPAM, 28-A, College Road, Geeta Nagar, Raipur – 492001 Chhattisgarh, India. E-mail: pankajoudhia@yahoo.com)

Revival of the silk industry in Jharkhand

Once a hub for tasar silk, Jharkhand is looking for central assistance for revival of its famous product. Before the state's creation, the region used to play a major role in enabling undivided Bihar to contribute 50 percent of the nation's total raw silk production.

Mostly the tribals were the rearers of silkworms, producing about 438 tonnes of tasar silk and about 8 tonnes of mulberry silk every year, benefiting from natural races such as *laria, modia* and *sarihan* in the suitable agroclimatic conditions of southern Bihar, now Jharkhand. This was largely because a total of 2 325 km^2 in the region is covered by tasar food plants, 90 percent of which are *saal* trees, with the rest *arjuna* and *asan* trees that attract silkworms – although far behind southern states such as Tamil Nadu and Andhra Pradesh.

The story has been different since Jharkhand's emergence as a separate state, with the production of cocoons coming down to 9 tonnes and that of mulberry to 2 tonnes per year, according to a report by the state sericulture directorate.

The state, however, recently received some hope when the Central Silk Board promised to increase silk production in Jharkhand by 640 tonnes, funding Rs383 crore over a period of ten years. (*Source:* Express Textile [India], 1–15 November 2005.)

Sericulturists go natural, experiment with lac and neem

With an annual silk production of about 15 000 tonnes, India trails behind China as the major producer of silk with an output exceeding 55 000 tonnes. India may be lagging behind China in silk production but that does not seem to deter the country in undertaking research and development to add value to this sector. Both China and Japan are already developing newer value-added products made from silk derivatives. The Bangalore-based Central Sericulture Technological Research Institute (CSTRI) has experimented with natural dyes and is looking at the prospect of commercializing this product.

"We have been experimenting with lac. Natural products including natural dyes are gaining ground globally. There is good potential to commercialize this kind of product," sources said. Lac is produced by the insect *Coccus lacca* and has application in numerous products such as paint. CSTRI officials said that the real challenge lay in identifying and developing more natural dyes.

The challenge stems from the fact that there are not enough safe mardents (binding agents that are used for fixing the colour on the fabric). Typical mardents such as dichromates are strictly prohibited because of rising concern about environmental pollution. Interestingly, besides lac, natural dyes have been produced using a whole range of materials such as neem and even gooseberry (*amla*).

In the interim, both Japan and China have already diversified into manufacturing quality products using silk derivatives. One such product is fairness cream, which has cericin as a raw material, derived by degumming silk yarn. The process of degumming, which helps to add lustre to the yarn, subjects the yarn to high pressure and temperature. Cericin is also used to manufacture toilet soap. (*Source: Economic Times* [India], 20 December 2005.)

COUNTRY COMPASS

INDONESIA

Promoting selected NTFPs based on a community participation approach to support sustainable forest management in East Kalimantan

The International Tropical Timber Organization (ITTO) has recently approved a 36-month project (PD 277/04 Rev. 3 [I]) that aims to increase the contribution of NTFPs to forest sector earnings in East Kalimantan through the establishment of small-scale NTFP industries focusing on medicinal plants from the forests and an NTFP marketing system. Project activities will focus on the establishment of plantations for selected NTFPs on both state and private lands, as well as on the development of technical guidelines for the sustainable management of NTFP resources, the establishment of appropriate NTFP processing techniques and the development of small-scale NTFP industries and business plans. (*Source: ITTO Tropical Forest Update*, 15[1], 2005.)

For more information, please contact: International Tropical Timber Organization (ITTO), International Organizations Center, 5th Floor, Pacifico-Yokohama 1-1-1, Minato-Mirai, Nishi-ku, Yokohama, 220-0012 Japan. Fax: +81 45 223 1111; e-mail: itto@itto.or.jp; www.itto.or.jp

ISLAMIC REPUBLIC OF IRAN

Destruction rate of Iran's forests worries experts

With some 142 000 ha of forest land destroyed annually, the Islamic Republic of Iran is considered to be among the top countries not properly safeguarding its natural heritage. Forests are considered an important factor in the ecotourism industry. Based on the latest statistics, 12.48 million ha of land in Iran are forests.

A report by Iran's Department of the Environment does not present a hopeful future for forests. For example, Arasbaran forests, designated a reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) were some 250 000 to 300 000 ha in 1976 but today destruction has left no more than 164 000 ha of these forests.

Iran's official body in charge of the preservation of forests has announced that annually 100 000 ha of forests are restored; nevertheless, as experts note, this is a very low number considering the area destroyed. (*Source: IranMania News*, 2 December 2005.)

KENYA

Game park wildlife at risk as farmers turn poacher

Poachers are once again stalking Kenya's game parks, 30 years after the slaughter of whole herds in supposedly protected reserves.

Four years of drought are driving Kenya's rural poor to switch from subsistence farming to animal trapping, in order to supply a booming underground trade in bushmeat. An estimated 20 000 wild animals, including antelopes, zebras, buffaloes and giraffes, are dying each year around Tsavo National Park, the largest park in Kenya.

A report for the Born Free Foundation found that more than half the meat on sale in some Nairobi butchers' shops was not beef or mutton, as advertised, but game meat. The quality and taste of legal or illegal meat vary little. (*Source:* Telegraph.co.uk [United Kingdom], 15 July 2005.)

Kenya launches new poaching crackdown to protect its wildlife

The Kenya Wildlife Service is launching a US$1.25 million (£700 000) scheme to bolster its wardens' fight against poachers in the savannah land of Tsavo, where lions, elephants, rhinoceros and deer are still falling to hunters. Some killers are ivory traders, seeking a quick profit selling elephant tusks, but others are poor villagers, searching for meat to add to the cooking pot. (*Source: The Independent* [United Kingdom], 23 September 2005.)

LIBERIA

Community forestry practicable in Liberia?

In an effort to include the respective communities in the governance and management of forest resources for commercial and non-commercial purposes, an international workshop on community forestry aimed at sharing vision and an action frame for community forestry in Liberia is taking place in Monrovia.

While the Environmental Desk (EnDe) welcomes the Unity Party's platform declaration on natural resource management as positive, EnDe considers that the development of a community forestry policy document aimed at including rural people in the management of the nation's rich forest resources is imperative. In the absence of a present well-defined and workable framework for community forestry, the incoming government might not address the question of subsistence; livelihood improvement and poverty reduction; the social, cultural and religious significance of timber and non-timber products; wildlife management; the conservation of biodiversity; and maintaining the quality of the environment in a short period of time.

Community forestry is one aspect of the New Forestry Law of Liberia. The other two aspects for which a policy or framework has been developed are commercial forestry and conservation.

The idea of community forestry would be workable in Liberia only if we are

prepared literally to kick inequities out of natural resource management. The In-Country Coordinator of the Liberia Forest Initiative, John Woods, observed that generally, communities have claims to land but they do not own it. He added that if community forestry is to be established in Liberia, the participants must review the land tenure system and recommend how forest landownership can be conferred on communities.

He challenged the workshop also to consider capacity building facilities for communities to build up sociocapital and skills to control and manage their own forests. This would curtail uncontrolled access to forest resources, which has led to the loss of an estimated average of 1–2 percent of the forest every year. "Similarly, an estimated US$60 million is traded in bushmeat each year without taxes or fees." (*Source: The Inquirer* [Monrovia], 13 December 2005.)

Asociacion de agronomos indigenas del cañar "A.A.I.C."

MALAYSIA

Rare find in newly gazetted forest

The gazetting of 7 504 ha of forest at Bukit Bauk, Dungun as a recreational area has led to an unexpected find – rare camphor trees (*Dryobalanops aromatica*) and the *Livistonia endauensis* fan palm. Researchers have also found 89 species of trees and plants endemic to Bukit Bauk. Most Dryobalanops species of camphor trees in the country were the result of more than 40 years of replanting in logged-over forests but those found in Bukit Bauk were endemic. The aromatic resins from these species are highly sought after by producers of camphor and camphor oil. (*Source: New Straits Times* [Malaysia], 13 July and 7 August 2005.)

Orang Asli and *gaharu* (species of the genus Aquilaria)

The Orang Asli community needs to find an alternative source of income in future because of the depletion in resources and the need to practise sustainable non-timber forest resource management. Dr Lim Hin Fui of the Forest Research Institute Malaysia said that most *gaharu* harvesters in Peninsular Malaysia were Orang Asli and a good grade of *gaharu* could fetch RM5 000–6 000/kg while lower grades fetch RM4/kg. He said that international trade in *gaharu* was now regulated and, as such, a permit was needed to harvest it but the community hardly ever applies for such a permit.

Speaking at the International Conference on Indigenous People 2005, Dr Lim noted that, since 1985, encroachment by Thais on Malaysian forests to search for *gaharu* had also resulted in depletion of the resource. "The Orang Asli's continued dependence on *gaharu* remains doubtful; they need to find alternative sources of income."

Gaharu, one of a few NTFP products well known internationally (e.g. in the Middle East for wealth, hospitality and medicinal purposes), is produced from the resinous, fragrant and highly prized heartwood of the Aquilaria species of the family Thymelaeaceae.

Dr Lim said that their study in 2003 in Hulu Perak showed that of the 71 households surveyed in seven Orang Asli villages, 57 households (80 percent) generated a cash income from *gaharu* harvesting. The average monthly income derived from the sale of *gaharu* was RM69 or 20 percent of the monthly household cash income. (*Source:* Bernama [Malaysia], 4 July 2005.)

MYANMAR

Alungdaw Kathapa National Park

Alungdaw Kathapa National Park is located in a mountainous area approximately 100 miles (160 km) west of Mandalay. It was classified as a reserved forest as early as 1893 and, although it was logged selectively for teak in the past, it remains mainly undisturbed. Large mammals living in the park include elephants, gaur, banteng, sambar and a relatively large population of tigers. The exceptional management features include the conservation of natural forests and wildlife, including tigers; ongoing research; environmental education; and the development of ecotourism. (*Source: In search of excellence, exemplary forest management in Asia and the Pacific*, ed. P.B. Durst, *et al.*)

NAMIBIA

The humble mushroom turns money-spinner

Mushrooms are said to be an ideal substitute for meat and could provide relief for meat lovers who live with the painful condition of gout as a result of eating beef. A handful of oyster mushrooms could replace a chunk of meat, while at the same time reducing cholesterol because of the vitamins and proteins that they contain. Because mushrooms represent a highly nutritious food that is good for one's health, a new trend has now begun where these umbrella-shaped vegetables are being farmed commercially in different parts of the country.

The University of Namibia (Unam)'s new mushroom production house and Marine and Coastal Resources Research Centre assist communities through viable mushroom cultivation projects in order to improve their living standards. These initiatives are seen as a mechanism by which Namibians could tackle poverty and unemployment and ensure food security. Experts and agronomists say that not only is mushroom farming an easy and quick way of farming, compared with beef production, but people can also turn mushrooms into a money-spinner as well as a food source.

Researcher and mushroom scientist at the University of Namibia Pauline Kadhila-Muandingi said that awareness campaigns are being conducted to mobilize the community on growing mushrooms as a cash crop. Traditionally, many Namibians know and eat mushrooms, especially in the villages where they are picked from the

wild, but much needs to be done to turn mushroom cultivation into an agricultural business for the benefit of all the people.

While most locals know what a mushroom tastes like, many of them find it strange that such a vegetable can be cultivated. Unlike other crops, mushrooms can grow all year round and can be cultivated to fruition in a short span of four to six months, while impressive results can be achieved in the first nine weeks under humid conditions.

Muandingi said that the mushroom is a medicinal relish that helps boost the body's immune system, while at the same time it acts as a defence against various types of cancer.

The production of oyster mushrooms, which could easily be cultivated from grains of wheat, is easy to maintain with the right type of humidity at a temperature of 22°C.

Project manager at the Centre, Flip van Vuuren said the projects are geared towards assisting the poorest of the poor to feed themselves and earn some money. During the first few months, the coastal community members at Henties Bay will earn N$300 a month and once this initiative becomes fully operational, the cooperative would pay each of its 15 members a salary of between N$1 500 and N$2 000 a month.

Unam said the greatest danger of poverty is when Namibians overlook the fact that sustainable solutions to poverty and unemployment should come from within the country. This statement strongly echoes President Pohamba's comment that solutions to Namibia's challenges must be "home-grown". It is in view of this that taking science to the people, like the commercialization of mushroom production, and translating these technologies into innovative income-generating enterprises would pave the way for socio-economic development for many Namibians. (*Source: New Era* [Windhoek], 26 October 2005.)

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NEPAL

Certification of NTFPs

The demand for environmentally friendly products in Europe and America and awareness among consumers there to buy these products has created an opportunity for Nepali NTFPs to gain a foothold in international markets through the certification of forests.

According to the Asia Network for Sustainable Agriculture and Bioresources (ANSAB), about 602 865 kg of raw and processed NTFPs worth about US$500 000 (Rs35.1 million) were exported in 2004.

Forest certification is carried out by the Forest Stewardship Council (FSC) with certification responsibility being given to the Federation of Community Forestry Users Nepal (FECOFUN). According to FECOFUN, 23 species of NTFPs have been certified by the FSC and Nepal is the first country in Asia and fifth in the world to obtain an FSC certificate.

Lack of proper management and manufacturing companies in the country is the major drawback. However, in a one-year period ten Nepalese companies and Aveda Corporation, a United States-based manufacturer of NTFPs, have joined ANSAB to manufacture the certified products.

According to the Community Forest Division, the concept of the certification of forests is evolving – an outcome of the decline of the tropical rain forests. (*Source:* Gorkhapatra [Nepal], 16 September 2005.)

Every year villagers in Nepal gather some 15 000 tonnes of medicinal plants from the wild, pack and dry them and sell them to traders for export. The sale of these plants, oils and resins provides most of their income, while they also rely on the plants for food, medicines and fuel. (*Source:* Rainforest Alliance, *2004 Annual Report*.)

NICARAGUA

Beekeeping as a sustainable use of the rain forest

For the last three years, the Danish NGO Nepenthes (www.nepenthes.dk) in cooperation with the Nicaraguan NGO Fundación del Rio (FdR), has been working with a DANIDA-supported project on environmental awareness among young local people.

FdR owns part of one of the rain forest-covered Solitiname Islands. A main activity has been the construction of El Quebrachio Rain Forest Centre, 50 km east of San Juan. The centre is situated in the forest buffer zone of the Indio Maiz Forest Reserve, part of the Central American forest corridor. Here classes of children and teachers from 48 schools spend a few days learning about the forest and how it can be used in sustainable ways. There are footpaths through the forest where medicinal plants, spices and other useful forest products are demonstrated.

Beekeeping is a small part of the project, but there has been great interest in learning the business. A Nicaraguan professional beekeeper has been engaged to give regular training at the centre. (*Source:* Extracted from an article by Ole Hertz in *Bees for Development Journal*, 76, September 2005.)

NIGERIA

Nigeria to earn US$6 billion from neem tree

Nigeria may earn US$6 billion from the neem tree, popularly called *dogonrayo*, in a fresh push by the federal government to expand the nation's foreign exchange earnings through a consistent diversification of the economy.

COUNTRY COMPASS

The Director-General of the National Research Institute for Chemical Technology (NARICT) Zaria, Dr Ebenezer Okonkwo, said that the production of a wide range of products from the neem tree has commenced under a public-private partnership.

Annually, India exports as much as $2 billion worth of neem tree products, ranging from pharmaceuticals, fertilizers, germicidal bathing soap, antifungal creams, toothpaste and oil. Nigeria's neem potential has been put at three times more than India's capacity.

Two plants are being established in Kastina and Kebbi to mass produce a range of products from the tree. The "immediate task is the development of a biopesticide plant from the neem and implementation of the establishment of biopesticide manufacturing plants in Kastina and Kebbi states by NARICT".

In addition to biopesticides, three other products containing neem oil will be produced for exports: for the production of soap (neem oil has the added advantage of being germicidal); as an alternative to palm kernel oil; fertilizers; and powdered grade azadirachtin.

Okonkwo said that each of the two plants would be built in India at a cost of N$50 million and that with successful model projects in the two states, the plants would be extended to other states of the federation.

Already 2 000 youths have found gainful employment in the collection of neem seeds for the institute and, given the fact that neem is readily available throughout Nigeria, the income-generating benefits of the tree should soon spread across the nation.

Neem, which is known for its potency in the treatment of malaria, was said to have been introduced to the country's flora in 1928 when it was established in Borno Province.

Until the partnership was set up, the economic uses of neem seeds were not known to Nigerians and the seeds were therefore left to waste; this initiative should turn neem into a huge foreign exchange earner for the nation. (*Source: Vanguard* [Nigeria], 16 September 2005.)

Omo Forest Reserve: another opportunity for ecotourism

In the southwestern part of Ogun state lies the 1 305 km^2 Omo Forest Reserve. Many animals that are being threatened by the activities of loggers and tree takers can be found here.

A recent paper by Dr (Otunba) S. Kehinde Sanwo examines the attraction of the Omo forests for casual visitors and tourists and the possibilities of upgrading the forest reserve to a wildlife park in order to promote ecotourism within it and save the rich biodiversity of this tropical rain forest. The paper recognizes the saving grace (i.e. from total destruction), resulting from the participatory management of part (142 km^2) of the Forest Reserve for elephants by the Ogun State Ministry of Agriculture (Forestry Division) and the Omo Forest Conservation Foundation (OFCF), a community-based organization. The need to encourage further OFCF and similar private initiatives to complement the work of the Government in environmental conservation and utilization through sustainable ecotourism is highlighted.

In the Omo Forest Reserve, other attractive ventures can also be incorporated to generate funds and attract tourists, such as mushroom growing, apiary sciences, sericulture, wild rat domestication, crocodile breeding, reptile housing, a bird sanctuary and a snailery. In fact, it would be most desirable to designate the entire Omo Forest Reserve as a wildlife park. The Ogun State Government has already indicated that it intends to start profitable sustainable sericulture at the reserve in early 2006.

By investing in its conservation of the gene pool, its wild forests, animals and environment, a viable sustainable ecotourism business will soon evolve that should bring in millions of dollars for the Ogun State Government. In this way, the Omo Forest will regain its lost glory.

This paper therefore recommends that OFCF be assisted in order to encourage further private participation and save the last frontier of wild forests in Ogun state for the future of our children and for revenue generation from ecotourism.

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PAPUA NEW GUINEA

Agarwood and the perfumed forests of Papua New Guinea

Worldwide sources of agarwood (*Aquilaria malaccensis*, also referred to as eaglewood and aloeswood, and more locally as *gaharu*) are dwindling, so that its discovery in Papua New Guinea in 1997 provoked intense harvesting.

To curb the rate of destruction, the Worldwide Fund for Nature (WWF) has been working with local communities in the country, who own about 97 percent of the land, offering workshops to help them map their land, predict the location of the agarwood trees and develop ways of managing their resources sustainably. WWF is teaching them how to extract agarwood resin without killing the trees and is ensuring that the local communities know its real value, so they are not fooled by traders. WWF is also helping communities designate certain regions as official wildlife management areas, which will help to protect them from being handed over as concessions to loggers and mining companies.

Agarwood could provide a long-term sustainable livelihood for some of the poorest people in the country and also boost the survival prospects of the world's third largest remaining rain forest and all the wonders it contains. (*Source:* WWF, 21 October 2005.)

PARAGUAY

Palmito (NWFP)

El palmito, *Euterpe edulis* Mart., es la única especie de palmera productora de palmito comestible a nivel comercial del Paraguay. Es endémica en el Brasil, el

Paraguay y la Argentina y se desarrolla en el estrato medio del Bosque Atlántico. Forma agrupaciones florísticas conocidas como *palmitales*, en sitios con características particulares que aún necesitan ser mejor estudiadas desde el punto de vista ecológico y medioambiental. Se localiza únicamente en los suelos arcillosos de la cuenca de Río Paraná y es muy exigente en cuanto a condiciones ecológicas. Habita en suelos arcillosos y húmedos, y crece mejor cuando está protegido de la luz excesiva por doseles altos de copas de árboles tropicales.

Familia: Arecaceae
Genero: *Euterpe*
Especie: *Euterpe Edulis*
Nombre común: Palmito

Su desmedida explotación comercial va acabando con las reservas en el Paraguay, ya que cada árbol tarda de 10 a 15 años en estar apto para el consumo. Presenta un tallo único, por esta razón la extracción de la yema apical significa su muerte. La explotación netamente extractiva y el reemplazo del bosque nativo, principalmente por especies exóticas de rápido crecimiento, ha reducido drásticamente su área de distribución.

La mayor parte de las especies alimentarias de la familia de las Palmáceas son apreciadas por sus frutos. Sin embargo, existe aproximadamente un centenar de palmeras que dan lugar a un palmito suficientemente grande como para su comercialización y consumo humano. Los palmitos son los brotes terminales tiernos que según el país de origen presentan características diferentes, por ejemplo variando el sabor desde dulce hasta amargo.

En Europa, únicamente se obtiene el palmito de la «palmera enana» o «palmito» (*Chamaerops humilis*), que no se encuentra cultivada, sino que crece de forma espontánea en el área mediterránea, de donde es originaria. En la actualidad, la mayor parte del palmito comercializado como brotes comestibles en los mercados europeos proviene de especies afines cultivadas en América latina, como por ejemplo el (*Euterpe edulis*) que producen un delicado, tierno y blanco manjar. Sin embargo, su uso resulta poco ecológico, pues la obtención de los palmitos supone la muerte de la palmera. De ahí que se le conozca también como corazón de palmera. Su rendimiento es muy bajo y para obtener un kilo de palmitos se requieren una o dos palmeras de 10 años. Debido a que su consumo va en aumento es urgente mejorar el conocimiento de las técnicas que puedan asegurar su regeneración y utilización de una forma sostenible, principalmente en los países tropicales, incluido el Paraguay. (*Contribuido por:* Díaz Lezcano, Maura y de Pedro, J.L. (E.T.S. de Ingenieros de Montes, Madrid, España.)

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PERU

Wildcrafting rhatany (*Krameria lappacea*)

Rhatany (*Krameria lappacea*) is a medicinal and dye plant native to Ecuador, Peru, Argentina and Chile. The roots are traditionally used against inflammation and minor injuries, and in dental care. The red root extracts contain mainly tannins (catechins and proanthocyanidins). Recently more attention has been given to the occurrence of neolignans and to antioxidant and antimicrobial activities.

Despite its traditional use over the entire distributional range, commercial sourcing mainly takes place in Peru. According to figures facilitated by PROMPEX (Comisión para la Promoción de Exportaciones, April 2005) Peru exported an average of 33 tonnes of rhatany per year between 2000 and 2004 (see Table). Total exports amounted to about 180 tonnes of dried rhatany since 2000. Some 96 percent of this amount (approximately 170 tonnes) was exported to Germany; the remaining 4 percent largely went to France, Spain and the United States. The plant is also widely sold on local markets but no data are available on the total harvest of rhatany in Peru. All rhatany is collected from natural populations and no cultivation of the species has been attempted.

Krameria lappacea

Annual exports of *Krameria lappacea* roots from Peru (tonnes)

Year	Germany	Other countries	Total
2000	36 000	299	**36 299**
2001	29 000	3 655	**32 655**
2002	41 500	2 907	**44 407**
2003	24 000	1 292	**25 292**
2004	24 000	3 020	**27 020**
2005 (March)	14 985	200	**15 185**
Total 2000–2005 (March)	**169 485**	**11 373**	**180 858**
Average annual exports 2000–2004	30 900	2 234.6	**33 135**

(*Source:* Towards a standardization of biological sustainability: wildcrafting rhatany (*Krameria lappacea*) in Peru by M. Weigend and N. Dostert [in *Medicinal Plant Conservation*, 11].)

For more information, please contact: Maximilian Weigend, Institut für Biologie – Systematische Botanik und Pflanzengeographie Freie, Universität Berlin, Altensteinstr. 6, 14195 Berlin, Germany *or* Nicolas Dostert, Botconsult GmbH, Bergmannstr. 19, 10961 Berlin, Germany.

Brazil nut concessions

One hundred and thirty pioneering Brazil nut producers in the Amazonian region of Madre de Dios, Peru recently won formal Brazil nut concessions from the Peruvian National Institute for Natural Resources (INRENA). The establishment of these concessions effectively ensures legal protection for 225 000 ha of primary tropical forest in the path of a planned highway connecting Brazil to the Pacific.

Supported by the Critical Ecosystem Partnership Fund, the Amazon Conservation Association worked with its Peruvian counterpart, the Asociación para la Conservación de la Cuenca Amazónica and INRENA to establish formal, long-term contracts with local producers. Under these contracts, Brazil nuts are harvested from mapped areas, according to management plans that incorporate the highest standards of sustainable forest management.

Brazil nuts are harvested from natural stands, not plantations, because the trees depend intimately on a complex web of pollinators, seed dispersers and abiotic conditions. Even short-term productivity therefore depends on managing these natural stands in an ecologically sustainable fashion.

Most of the Brazil nut harvesters in this region are small-scale producers, with stands that are seldom larger than 1 000 ha. The project has successfully stabilized land tenure in collaboration with other land titling initiatives in the area, while also providing an economically viable and sustainable alternative to logging.

Of the total area, 27 000 ha of Brazil nut concessions have also been certified – for the first time anywhere – by the Forest Stewardship Council in recognition of producers' adherence to the strictest international standards for forest management. The result is a benefit for growers, the forests and consumers seeking to use their purchasing power to support conservation. (*Source:* CEPF E-News, September 2005.)

RUSSIAN FEDERATION

Oran – traditions and the nature of Kamchatka

From 18 to 29 July 2005, the first international ethno-ecological youth summer camp "Oran – traditions and the nature of Kamchatka" took place in the Menedek settlement close to Anavgaj native village, Bystrinsky district, deep inside the Kamchatka Oblast.

The peninsula, located in the Russian Far East and composed of the Kamchatka region and the Koriakia autonomous district is home to almost 12 300 indigenous people (Itelmen, Koriak, Eveni and Chukcha) with 42 percent of its territory covered by forests.

The camp was organized under the aegis of the Canadian International Development Agency (CIDA)-World Conservation Union (IUCN) project "Building Partnerships for Forest Conservation and Management in Russia", by a partnership between IUCN, ProSibiria E.V., administration of the Bystrinsky district, Bystrinsky Information Centre, Dulipki Native People's Community, Kamchatka Herbal Tea NGO, Menedek NGO and many other volunteers and organizations. A large number of local people from the villages of Anavgai and Esso took an active part in achieving such a unique project.

Participants were selected from both local and international youth, with participants from Canada (including a young First Nation man), France, Germany, Italy, Switzerland and the United States, as well as from other Russian regions. Some members of the native traditional dance group *Nurgenek* joined the camp – as teachers of dances and songs, and as participants to learn native crafting skills.

One of the purposes of the summer camp was to share traditional knowledge, beliefs and ceremonies "through a coeducation of Russian youth and people from other countries". Coeducation started by living under the same roof as village elders and the master crafters. For native participants, the camp provided a possibility to strengthen the awareness of their traditions; for international participants, it was an occasion to learn about native culture by living it, as well as playing an active role in its preservation.

At the same time, native cooperatives and associations, together with organizers from the CIDA-IUCN project, provided information on their current projects and results, enabling them to expand their knowledge of NTFPs and traditional handicrafts.

During those ten days we lived together, cooking local meals, dancing and joining forces to help in the organization of the camp, while simultaneously learning the life of the indigenous people through the many master classes and field trips organized to show sustainable resources and production skills.

Examples of master classes included birch bark weaving, wood and bone carving, fur and skin traditional treatment and beadwork and ornaments, which covered the manufacturing of different pendants and ornaments made with stones from the river, leather and wild salmon skin discarded from lunch. Every

class was given the possibility to practise skills learned.

A field trip organized by the Kamchatka Herbal Tea NGO demonstrated the harvesting and preparation of herbal tea, showing how harvesting continues in the same naturally sustainable and forest-caring way, and introducing the role of cooperatives and projects inside the life and economy of today's communities. Visiting the Sleeping Beauty Hill played a key role in expanding the participants' knowledge about the traditional natural resource use that generations of Itelmen, Koriak and Eveni indigenous people harvest for mushrooms, roots, herbs, berries and nuts as food and for medicinal and cultural uses.

Personally, I joined the camp to learn about the traditional way of life of the indigenous people and to propose possibilities to local cooperatives as to how to export their products in a fair trade.

Every one of my expectations was fulfilled thanks to the immensely warm and hospitable native people. The camp was a unique source of knowledge – of nature and of NTFP resources and the important economic role they play in local communities. (*Contributed by:* Alessandro Toffoli, Via Bartolomeo Eustachio 4, 00161 Rome, Italy. E-mail: 79ale@fastwebnet.it)

UGANDA

Ugandan farmers take on mulberry cultivation to produce silk

The cultivation of mulberry plants (*enkenene*), used for rearing silkworms (*Bombyx mori* L.), is becoming a new income venture worthy of serious investment. Sericulture is the feeding of silkworms on the leaves of mulberry plants to produce silk cocoons from which raw silk or silk yarn is produced. Silk is a high-value natural fibre for making precious textiles, carpets and other products that are in great demand on the international market.

According to the agriculture minister, "Silk production in Uganda is a promising agro-enterprise aimed at increasing household incomes, reducing poverty in rural areas and diversifying sources of the country's foreign exchange earnings".

In the late 1990s, a number of farmers took on the cultivation of mulberry plants and later embarked on the rearing of silkworms but failed to exploit their potential. As a result, the Mobwe Factory, now farmer-owned, has been established by a group of various farmers engaged in the sericulture business, funded by the African Development Foundation and the Danish International Development Agency (DANIDA).

With the acquisition of the factory, a number of farmers from Bushenyi, Kanungu, Mbarara, Kashongi, Isingiro and Wakiso districts have now been trained on how to plant their mulberry gardens and on the techniques of rearing silkworms for cocoon production. However, a total of 15 000 farmers are still needed to supply cocoons to the already established factories in Kawanda, Wakiso and Bushenyi districts.

The rearing of silkworms requires at least 1 acre (0.405 ha) for mulberry establishment and a rearing house of 30 x 20 ft (9.1 x 6.1 m) fitted with rearing beds, silkworm eggs, spinning frames, spray pumps, disinfectants, herbicides, fertilizers/manure, polythene sheets, secateurs and pruning saws. In order to become a regular supplier of cocoons, sufficient land for the mulberry plants should be prepared by removing perennial weeds such as couch grass (*lumbugu*) and planting at the onset of the rains, with cuttings taken from mature sections of the mulberry stem (8–10 months old). After 21 days, farmers harvest the cocoons and sort them before selling them to rearing units. At the units, the cocoons are categoized into grades A, B and C. One kg of grade A sells for USh28 000, B for USh1 200 and for C USh800. The cocoons are later boiled for 15 to 30 minutes before being brushed in cold water. This eases the removal of the thread from the cocoons.

The reelers dry or stifle the cocoons and reel them into silk threads, which are used for weaving. The factory capacity is 1 tonne per day but because of the limited number of farmers supplying cocoons, the factory is unable to operate every day.

China has placed an order of 6 tonnes of threads per month. India requires 8 tonnes and Japan 100 tonnes per year; Egypt 200 tonnes per month and Zimbabwe and South Africa 100 kg. Despite these requirements, Uganda only produces 20 tonnes annually. (*Source: New Vision* [Kampala), 30 November 2005.)

UNITED REPUBLIC OF TANZANIA

United Republic of Tanzania bans export of unprocessed sandalwood

The United Republic of Tanzania has banned the export of unprocessed sandalwood trees. This action followed press reports in recent months that the highly priced tree was being harvested indiscriminately and exported to Europe, the Middle East and Asia, especially to India where sandalwood is widely used to manufacture expensive perfumes.

All institutions charged with protecting Tanzania's natural resources, including the Tanzania National Parks Authority (Tanapa), were directed to intensify anti-poaching patrols in national parks where the tree is illegally harvested. Stricter laws would be introduced to regulate trade in the tree and ensure that only crude oil extracted from the tree is exported.

The tree fetches up to US$5 000 per tonne. Hundreds of containers of all sizes

are believed to have been shipped out in recent years.

Poaching of the tree in national parks follows its depletion in areas where harvesting is allowed by the Ministry of Natural Resources. However, the ministry only permits the cutting of the tree trunk from selected forests and not the uprooting of the entire stem. The ministry's guidelines have been largely ignored. Several cubic metres of the tree, worth millions of Tanzanian shillings, were intercepted last year.

The Arusha Regional Forestry Secretariat confirmed that sandalwood is one of the 12 nationally protected trees. It was upgraded to the class A level of highly valued tree species last year to protect it from extinction.

Apart from making perfumes, sandalwood is also an ingredient in lotions, soap and candles. Mashed into a paste, it is used in folk medicine and spread on the skin to purify the complexion and heal rashes. (*Source: East African* [Kenya], 10 October 2005.)

Bamboo trade and poverty alleviation in Ileje district

A study was carried out recently to investigate the impact of the bamboo economy on poverty alleviation in the Ileje district, Mbeya region of the United Republic of Tanzania. The study, by Milline Mbonile on behalf of Research on Poverty Alleviation (REPOA), investigated among other things, the relationship between the bamboo trade and sustainable resource management in the district, which is one of the leading districts in the bamboo trade in the Mbeya region and probably in the whole country. The most popular bamboo product marketed all over the country and abroad is the winnowing basket. Recently, however, some bamboo weavers have been producing special decorated bamboo goods.

There are two major sources of bamboo in the Ileje district: forest reserves in the highlands and along river valleys; and small plots, where most bamboo is grown very close to households, particularly near river valleys.

Based on this study, recommendations have been made to both the local and central governments. The research showed that the bamboo trade employs a reasonable proportion of the population in Ileje district and is a good source of income. (*Source:* IPPMEDIA-Guardian [United Republic of Tanzania], 21 May 2005.)

For more information regarding this study, please contact: Dr M. Mbonile, Department of Geography, PO Box 35049, University of Dar-es-Salaam, Dar-es-Salaam, United Republic of Tanzania.
E-mail: mmbonile@hotmail.com

UNITED STATES OF AMERICA

Acorn abundance could significantly reduce this year's deer harvest

Biologists cannot predict when bumper crops of acorns will appear, but they do know that hunters kill fewer deer in years of acorn abundance. Each year the Missouri Department of Conservation conducts a survey to determine the abundance or scarcity of acorns. This knowledge is important because a wide array of wildlife relies heavily on the fruit of oak trees for food. Acorn counts from thousands of trees give biologists valuable information about how ducks, squirrels, deer and turkeys will fare in the coming year.

The annual survey covers the portion of the state where forest dominates the landscape, approximately half the state. The result is a series of acorn production indices broken down by region and oak tree type – red or white. Over the past 46 years, the overall index for all oak trees throughout the survey area has been 133. Last year, the number was 116. This year's overall index is 152 – producing a bumper acorn crop.

The news is similar throughout most of the survey area. The only exceptions are white oaks in the west Ozark and the Ozark border at the western edge of the survey area. Even in these areas, the overall acorn crop is above average. In the eastern Ozark, white oak acorn production is up 55 percent compared with the average of the last 46 years.

All this would be little more than scientific trivia except for one thing – the upcoming firearms deer season. In autumn, deer gorge on high-energy foods in preparation for winter. In forested areas, this means acorns. When acorns are scarce, deer flock to trees that did produce acorns. This simplifies hunters' work. If they can find acorns, they will find deer.

Hunting is much tougher in years of acorn abundance. Deer do not have to travel far to find their favourite food, so they spend less time on the move and they are scattered unpredictably throughout the forest.

This effect is already showing up in early deer harvest statistics. A Conservation Department's deer management expert said he expects this year's deer harvest to be low because of the superabundance of acorns.

The Conservation Department experts do not know all the factors that have led to this year's acorn bounty. Annual data point to some correlations between weather and acorn production. The number of red oak acorns seems to be higher two years after abundant spring rainfall, and white oaks are more productive in years with mild spring weather.

Oak trees are divided into white and red families. Acorns on white oaks mature in one year, so unfavourable conditions during the flowering or growing season

affect that year's crop. Red oak acorns take two years to mature, so the results of bad conditions are not apparent until the following year. (*Source:* Jim Low, Kansas City infoZine [United States], 21 November 2005.)

Evaluating the role of forest management in huckleberries

Understorey species such as huckleberries (species in the genus Vaccinium) are important ecosystem components of forest communities in the Pacific Northwest (Oregon and Washington in the United States and British Columbia in Canada). Forest understorey species contribute to biological diversity and long-term ecosystem productivity, are well correlated with mammalian and avian abundance and are important for wildlife since they contribute browse, berries and cover.

Often overlooked, however, in the long-standing and human extensive use of NTFPs, huckleberries are currently used in the Pacific Northwest in the floral market, as wild food and as medicinals and for landscaping. (*Source:* Kerns, B.K., Alexander, S.J. and Bailey, J. D. 2004. Evaluating the role of forest management in huckleberries. *Economic Botany*, 58(4): 668–678.)

For more information, please contact: Susan J. Alexander, Regional Economist, Alaska Region, USDA Forest Service, PO Box 21628, Juneau AK 99802, United States. Fax: 907 586 7852; e-mail: salexander@fs.fed.us

Medicinal plants in the United States

In the United States alone, medicinal and nutritional herbs are a US$4 billion-plus industry and worldwide the figure is at least $20 billion annually. The Appalachian Mountains in western Maryland and West Virginia support a unique and exceptionally diverse flora, including many plants that have a long history of medicinal use. In recognition of the need to conserve wild native plants, to explore scientifically and understand their true medical efficacy, and to generate economic benefit for the people of the Appalachian region, the University of Maryland Biotechnology Institute (UMBI) and Frostburg State University, in collaboration with West Virginia University, have established the Appalachian Center for Ethnobotanical Studies (ACES).

The centre's goal is to conduct multidisciplinary research and education programmes on native plants with potential medicinal properties, conservation of these plants and Appalachian ecosystems as a whole, preservation of Appalachian culture as it relates to the harvesting and traditional use of medicinal plants, and the exploration of economic benefit to the region that may be derived from the managed development of botanical resources.
(*Source:* Newswise, 5 October 2005.)

For more information on the Appalachian Center for Ethnobotanical Studies, please visit: www.umbi.umd.edu/nande/EthnobotanySymposium.html

Oregon's chanterelles

Oregon's chanterelle harvest is big – 500 000 pounds (227 000 kg) were collected in 1999, the year that the Pacific golden chanterelle was made the state's official mushroom. Accurate statistics are hard to come by, because chanterelles grow only in the wild, brought to market by independent foragers and dealers who operate on a cash basis. No one has found a way to cultivate them, even though they sprout up abundantly in many parts of the world.

The chanterelle season in the northwest lasts throughout autumn and may run into December, depending on the rainfall. Unlike most mushrooms, chanterelles are bright in colour. The caps and stems are burnished orange, so they match the hue of autumn leaves. Lighter-coloured and slightly meatier white chanterelles also grow in Oregon.

Chanterelles picked from Oregon's coniferous forests are actually a distinct species from the chanterelles that grow in eastern Canada and Europe. Scientists made this discovery only recently, which created the impetus for the official state mushroom designation.

Worthy as the chanterelle is, having an official state mushroom at all may seem silly. It does, however, bring public awareness to the unusual challenges of the foraging economy. Much collecting takes place on federal and state lands that are in the tug-of-war zone over where and how much timber should be harvested. Suffice it to say, fewer trees equal fewer mushrooms. (*Source: Portland Tribune* [United States, 23 September 2005.)

VIET NAM

NTFPs and biodiversity conservation

Viet Nam is endowed with rich fauna and flora: 11 400 vascular plants, about 700 sea and freshwater grasses, 826 large-size mushroom species, 310 animals, 840 birds, 260 reptiles, 120 amphibians, 2 038 sea fish, over 700 freshwater fish,

7 750 species of insect and thousands of non-vertebrates. It is for this reason that the country is recognized as one of those with the highest biodiversity in the world, constituting an important basis to discover, select and develop its NTFPs of high and distinctive economic values.

Up to now, Viet Nam has possessed a group of traditional NTFPs, such as cinnamon, anise, cardamom *Amomum aromaticum Roxb.*, pines, eaglewood, *Monrinda officinalis*, shellac and many other prospective NTFPs such as *Panax vietnamensis, Scaphium macropodium, Canarium album, Ganoderma lucidum, Calamus tetradactylus* and *C. platyacanthus*.

THE VIET NAM NTFP WORKING GROUP

An initiative to form a working group on NTFPs was raised during a recent NTFP network workshop. This working group will consist of key institutions and organizations active in the field of NTFP conservation and development, both national and international, and act as a core group for facilitating cooperation and information sharing among NTFP actors in Viet Nam. A tentative overall goal is "to support the NTFP network to initiate and implement networking activities more effectively and more sustainably".

It is a great pity, however, that Viet Nam's resource of precious NTFPs is now on the verge of depletion in view of prolonged poor management and excessive harvesting and exploitation, specifically of *Panax vietnamensis*, eaglewood and *Cupressus torulosus* driven to near extinction, *Monrinda officinalis, Anoetochilus setaceus* and *Coscinium fenestratum* seriously on the decline, which cannot meet domestic consumption and export demands.

At this point, it is essential to find necessary solutions to the rehabilitation of NTFPs currently on the decline, and simultaneously develop prospective ones for domestic consumption and export, for hunger alleviation and poverty reduction, and for the improvement of people's living conditions, particularly those in mountains.

A recent issue of the NTFP newsletter focused on "NTFPs and biodiversity conservation" with the aim of helping to conserve the biodiversity of Viet Nam's forests. (*Source:* NTFP newsletter (Viet Nam NTFP Network,) 2(4), October 2005.)

For more information, please contact: Ms Nguyen Thi Bich Hue, Communications Officer, IUCN Viet Nam, Non-timber Forest Products Subsector Support Project, 8 Chuong Duong Do Street, Hoan Kiem, Hanoi, Viet Nam. Fax: (844) 9 320 996; e-mail: hue.nguyenbich@ntfp.org.vn *or* network@ntfp.org.vn; www.ntfp.org.vn

Bamboo coal and essence for export

The Da Lat Urban Management Company has succeeded in producing bamboo coal and essence for export after one year of experiments with Japanese experts' guidance. The products are made from locally available materials with Japan technology.

Bamboo coal is used as activated charcoal for the medical sector and to grow clean vegetables in greenhouses, while bamboo essence is a biological product used in organic vegetable and pesticide production.

The company will export one 8-tonne container of bamboo coal and essence to Japan per month and will gradually increase its exports based on the Japanese partners' demand. (*Source: Viet Nam Economic Times*, 20 September 2005.)

Pine resin: first Vietnamese ink factory creates local market

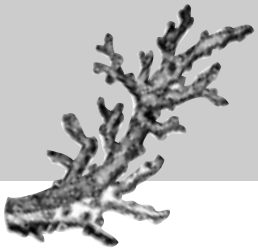
The first-ever offset printing ink factory in Viet Nam, Pacific Ink, opened recently in Bac Ninh Province. Currently in its first phase of production, the US$ million facility will produce 3 000 tonnes of ink per year.

Pacific Ink said that previously the local market has had to import 90 percent of its ink supply and the factory will now reduce cost and time. Pine resin, the main ingredient in printer's ink, is abundant in Viet Nam and the factory makes use of this natural resource. Pacific would also cooperate with Hanoi Polytechnics University to train students in the factory's laboratory.

Pacific Ink is the first company in Viet Nam to join a newly formed National Association of Printing Ink Manufacturers (NAPIM). Pacific stressed that prices would be much lower than those of imported products. (*Source:* VietNamNet, 25 October 2005.) ●

An optimist takes the risk of losing. A pessimist misses the chance of winning.

Hazrat Inayat Khan



TRADITIONAL MEDICINES COULD HELP AFRICAN ENVIRONMENT

Growing plants used in traditional medicines could rescue Africa's driest regions from total soil degradation and provide much-needed income and health care for the rural poor, said the World Bank in a report published last week.

It says that the global market for traditional medicines and the plants they are derived from is worth about US$65 billion, partly because of demand for plants used as raw materials in western medicines. Being able to capture even 1 percent of this – $650 million – would mean a significant injection of cash for Africa's arid regions, says Warren Evans, the World Bank's director of environment.

Millions of people in sub-Saharan Africa struggle to make a living from arid land that not only gets little rain but has also been damaged by overgrazing, deforestation and poor irrigation practices. According to the report, growing medicinal plants "can help check runoff and erosion, control flooding, purify water and protect against wind".

The report identifies 38 plants that could grow in dry conditions. One is a type of acacia tree that is the source of gum arabic, used to treat inflammation of the throat and stomach. The Sudan's dry savannahs are a major source of the gum, with a global market worth $90 million. Another of the plants, known as devil's claw (*Harpagophytum procumbens*), is grown in the arid grasslands of southwest Africa. It has anti-inflammatory properties and is used to treat arthritis.

The report stresses the need for growing indigenous plants. Although non-native plants might hold more commercial promise, it says, they could threaten local biodiversity. (*Source:* SciDev.Net [United Kingdom], 31 October 2005.)

CONSERVATION OF THE CENTRAL ALBERTINE RIFT

Home to the world's remaining mountain gorillas and many other endemic species of mammals, birds and plants, the Central Albertine Rift region has become the focus of joint conservation efforts by the governments of the Democratic Republic of the Congo (DRC), Rwanda and Uganda. On 14 October 2005 ministers from the three African nations signed the Tripartite Declaration on the transboundary natural resource management of this biodiverse region.

This declaration recognizes the need to conserve the unique ecosystem of the Central Albertine Rift Transfrontier Protected Area Network through a collaborative management of eight parks and establishes a strategic management system that will enable sustainable conservation of natural resources for the benefit of the people of Rwanda, Uganda, the DRC and the international community.

The eight parks will be managed as one collective ecosystem and the countries have pledged to collaborate further on research, monitoring, community-based conservation, knowledge sharing and ecotourism to ensure sustainable biodiversity conservation. (*Source: African Wildlife Foundation*, 25 October 2005.)

For more information, please contact: P. Thomson, Communications Officer; e-mail: pthomson@awf.org; www.awf.org

TRANSFRONTIER CONSERVATION AREAS

The World Bank has approved a US$10 million credit for the conservation of Mozambique's biodiversity and natural ecosystems through the promotion of sustainable use and the development of natural resources by local communities.

The transfrontier conservation area and tourism development project, for which the bank approved the credit, represent the second phase of a 15-year initiative known as the Transfrontier Conservation Area (TFCA) programme, the long-term objectives of which are to conserve biodiversity in the southern Africa region and emphasize regional collaboration in the management of transfrontier resources.

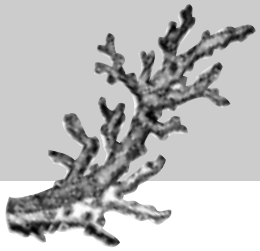
A World Bank press release said the funds would be used to establish and manage conservation in three areas on the Mozambican border with significant transborder biodiversity linkages with neighbouring countries. Public sector and local community capacity would be strengthened to manage biodiversity and natural resources, while the private sector is to be engaged through the promotion of ecotourism.

Environmentally sustainable tourism development links the conservation and development objectives of TFCA by providing an economic alternative to the unsustainable, destructive use of natural resources, as well as a direct economic incentive to maintain the natural ecosystems and their biodiversity.

Further financing for the project will come from a $10 million grant by the Global Environment Facility and a $3.7 million grant from the Japanese Policy and Human Resources Development Fund. (*Source:* IRIN [in Reuters Alert, 2 December 2005].)

BALTIC FOREST

Twenty-five partners from nine Baltic Sea countries (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, the Russian Federation and Sweden) have agreed to cooperate to enhance sustainable regional development based on the management



and use of forests as a resource and establish and employ multipurpose, cross-sectoral and transnational forest sector cooperation.

The partners expect that the Baltic forest will improve the economic, ecological and social optimization of the forest sector, ensure a broadened awareness and implementation of current knowledge and have a substantial and durable impact on management of the forest resources.

For more information, please contact: Johan Svensson, Skogsvårdsstyreslen, Västernorrland, Sweden. E-mail: johan.svensson@svsmn.svo.se *or* Baltic 21 Secretariat e-mail: secretariat@baltic21.org; www.baltic21.org

TWENTY PERCENT OF THE WORLD'S MANGROVES LOST OVER THE LAST 25 YEARS

Approximately 20 percent of the world's mangrove forests have disappeared over the last 25 years as a result of overexploitation and conversion to other uses, according to a new FAO study. Mangroves today cover around 15 million ha worldwide, down from 18.8 million ha in 1980, according to the study. However, during the same time frame the annual rate of mangrove deforestation dropped from around 185 000 ha per year in the 1980s to 105 000 ha per year during the 2000–2005 period, it added.

Mangroves are salt-tolerant forest ecosystems commonly found along sheltered coastlines, in deltas and along riverbanks in the tropics and subtropics. Millions of fishers, farmers and others depend upon them as a source of wood, medicinal plants and food. (*Source:* FAO Newsroom, 9 November 2005.)

ASIAN NATIONS TO BUILD BIODIVERSITY CONSERVATION CORRIDORS

The six Asian countries sharing the Lancang-Mekong River have pledged to build Asia's first biodiversity conservation corridors for wild species movement and the maintenance of viable populations. The corridors are unprecedented in Asia and the news is a blessing to wildlife and plants struggling for survival in their highly fragmented habitats in the Mekong River Basin, the state media reported this week.

This is a timely and necessary initiative, said Jin Liqun, vice-president of the Asian Development Bank (ADB), the main sponsor of a decade-old subregional economic cooperation programme involving Cambodia, China, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam.

Habitat fragmentation, mainly caused by rapid economic development, poses a growing threat to the rich animal and plant diversity in the greater Mekong subregion (GMS). The initiative was adopted at a recent conference of GMS environment ministers and is expected to get a nod from the heads of government of the six GMS countries, who are now in Kunming, capital of southwest China's Yunnan Province for the second GMS summit. (*Source: Financial Express* [India], 5 July 2005.)

EUROPEAN UNION TO GIVE €30 MILLION FOR BIODIVERSITY CONSERVATION IN CHINA

The European Commission (EC) said it will give €30 million towards a technical cooperation programme on biodiversity in China. "The programme will support China to manage its ecosystem sustainably and to contribute to the implementation of the international conventions related to biodiversity," the EC's China branch said in a joint statement with the United Nations Development Programme (UNDP) and China's State Environmental Protection Administration (SEPA).

UNDP will contribute US$500 000 to the project. SEPA, which will be responsible for achieving the programme's overall objectives, will make an in-kind contribution of US$265 000.

"This is an unprecedented large-scale government-led initiative bringing together, for the first time, all relevant parties at national, subnational and community levels to agree on a common and innovative strategy to address China's biodiversity conservation challenges," said the UNDP's senior deputy resident representative in China.

The five-year programme has a total budget of €52 million and will mainly focus on the western and southern provinces of China, according to the statement.

China has approximately 10 percent of all species within its borders. (*Source:* Forbes – United States, 6 November 2005.) ●

FAO

FORESTRY DEPARTMENT

Global alliance

In the last issue I reported on the initiative to create an NWFP global alliance. Readers may be wondering if there has been any development since. The answer is unfortunately "nearly nothing". At the International Conference on Non-Timber Forest Products in Victoria, British Columbia in August 2005, Jim Chamberlain and I introduced the concept in our respective presentations. I believe the idea was supported in general terms by the audience. It was discussed at the ensuing NTFP subgroup meeting of the North American Forestry Commission. Most people agreed that it would be a commendable initiative. For any alliance or partnership to be truly meaningful, I think concrete activities to address common interests rather than simply exchanging information are crucial and these require some funding support. In the meantime, INBAR proposed an NTFP global partnership and held a meeting in Morocco in December 2005. I do not know if the partnership initiative garnered strong support from a wide audience and had an official kickoff. Some people may be a little confused by the two initiatives.

What I personally propose is to join all the forces to create synergy. The name can be alliance, partnership or whatever. ITTO is planning an international workshop on NTFPs in 2007 in collaboration with FAO and INBAR. Could we launch a unified initiative then? There is, of course, lots of groundwork to do, including potential funding.

For more information, please contact: Hikojiro Katsuhisa, Chief, Forest Products Service, Forest Products and Economics Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. E-mail: Hikojiro.Katsuhisa@fao.org

Non-Wood Forest Products Programme

There have been quite a few changes within the NWFP programme. Paul Vantomme has taken a two-year leave of absence to work with ITTO in Japan, while Sven Walter is now working in Cameroon for FAO as the Technical Adviser of a regional NWFP project (see pp. 71–72 for more details).

However, even with reduced regular personnel, the programme's current activities cover trade issues and resource assessment guidelines. Information dissemination continues through publications and other media, including translation of our material into French and Spanish. However, because of current resource shortages, we are unable to update our Web page as often as we would like. We hope to address this shortcoming this year.

Evaluation of non-wood forest products information

An evaluation of NWFP information (i.e. *Non-Wood News* and the *NWFP Digest*) took place from August to October 2005. A short questionnaire was sent to a random selection of those in our *Non-Wood News* database. From 2 328 questionnaires sent (either by e-mail or as a hard copy) we received 627 replies (an encouraging 27 percent return). A synthesis of the results follows.

Where are our readers? Replies by region can be seen in the table on p. 70 and were divided equally (50 percent each) between temperate and tropical countries. India is one of the most important users (73 respondents) followed by Cameroon (22).

A VOLUNTEER'S EXPERIENCE AT FAO

The first guarantee that you'll have when entering FAO headquarters in Rome is that you will become hopelessly and utterly lost in it, and the first days you'll be begging for Icarus' wings to make your way out of the labyrinth. But after having successfully passed the challenge of assisting a meeting in the A-wing on the second floor while coming from the D-wing's fourth floor, the sky clears and sitting delighted in the great conference room you think you've really made it. Your triumph lasts until the speaker begins and after hearing "FAO's FOP looking at the impact of the UNFCCC's CDMs on LUCC" your head starts spinning and you find yourself tangled up again in a maze of confusion.

However, those brave and competent volunteers ready to struggle though the thresholds of acronyms and hierarchies, will find FAO a great place. It's a place where experts from all over the world come together. It's a place where you can have lunch on the terrace with a spectacular view of Rome, while hearing conversations in Japanese, Arab and Spanish all around you (although pay attention to the rude seagulls wanting to steal the food from your plate). It's a place where you can learn about the world's strategies for fighting hunger and poverty.

As a volunteer at FAO you are guaranteed to have a great and enriching time and it can open doors for you to the world. For example, I worked on FAO's NWFP programme on synthesizing case studies from all over the world for a global study on how NWFPs contribute to poverty alleviation and this experience stood me in good stead because I now work on forests and poverty alleviation as a JPO for CIFOR in Cameroon. (*Contributed by:* Marieka Sandker, Associate Expert, Forests and Livelihoods Programme, CIFOR-Cameroon, c/o IITA-HFC, PO Box 2008, Messa, Nkolbisson, Yaoundé, Cameroon; e-mail: MSandker@cgiar.org

(Please see p. 20 for information on Marieka's work with CIFOR.)

Responses by region (percentage)	
Africa	18.5
North and Central America	21
South America	4
Asia	31.5
Europe	22
Oceania	3
Total responses	**627**

Who are you? Seventy-six percent of the respondents to this question were male and 24 percent female. This is an interesting result since NWFPs are traditionally more the domain of women (they carry out most of the collection and use of these products).

Who do you work for? Forty percent of the respondents were from academic or research institutions, 18 percent from NGOs and 14 percent from government or the public sector. A lower share of respondents came from the private sector, mainly from herbalist or agroforestry plantation owners.

Use and impact. Seventy-eight percent use our NWFP information "several times a year". Information is used for different purposes, e.g. academic activities (projects, theses, scientific proposals, workshops) policy advice; and NGO activities. Sixty percent state that they quote our information.

Satisfaction. Ninety-eight percent of the 516 replies to this question rated our NWFP information as either "very good" (49 percent) or "good" (49 percent).

Strengths and weaknesses. Respondents were asked to list the strengths and weaknesses of our NWFP information products. As expected, readers did not all agree: for some they were too long, for others too brief; users from the academic sector criticized the lack of scientific approach of the articles, while those mostly from communities and NGOs found it excessive. Specific comments include the following:

Non-Wood News

Strengths

- Very good coverage of non-wood topics around the world and often the only source for this field of research.
- Detailed information and good references to the source material.
- Information source is considered reliable and authoritative.

Weaknesses

- It should be published more frequently (maybe in a shorter version). Often news is already out of date when the publication reaches users.
- Difficult to be used for topic-focused search.
- It should be published in the three main FAO languages (English, French and Spanish).

NWFP Digest

Strengths

- Good overview of what is going on in this field.
- Easy to access and delivered frequently.
- Up to date.

Weaknesses

- Message may arrive truncated
- Lacks details and statistical information.

Suggestions for improvement. Although many of you were satisfied with the present format and content ("jam-packed with useful information"; "up-to-date news at the international level"; "excellent overview of NWFP news"; and "world vision plus local vision"), the following general suggestions were made: statistics are necessary (based on UN COMTRADE database statistics); fewer pages; pdf format (*NWFP Digest*); more trade/market issues; a more scientific approach; higher frequency (*Non-Wood News*), with most suggesting four/year; better format, more pictures.

Importance to continue? Ninety-eight percent thought FAO should continue producing its NWFP information products (78 percent "very important", 20 percent "important", with "2 percent quite important".

How are we addressing your comments? All the comments and suggestions have been reviewed and will be taken into account in future issues. As mentioned in the editorial, there has been an immediate response to the issue of frequency (which many respondents mentioned): *Non-Wood News* will now be published twice a year. We also recognize that some more work needs to be done on gender aspects and NGO issues (which we are starting to address – see pp. 27–28). We are now also including a specific section on indigenous knowledge (see pp. 15–18). We have included more statistics (see COMTRADE figures on pp. 8–9). In addition, we are currently indexing all past issues of *Non-Wood News*. This will eventually be available on our home page and will facilitate topic-based research (one of the indicated weaknesses).

Thank you to all those who responded and who willingly offered their suggestions and comments.

Is coverage adequate?

	Yes	No	Don't know	Total response
Products	81% (389)	9% (45)	9% (45)	**479**
Events	70% (329)	10% (46)	21% (98)	**473**
Publications of interest	75% (359)	13% (64)	12% (56)	**479**
Gender aspects	35% (162)	19% (88)	46% (212)	**462**
Indigenous knowledge	57% (275)	24% (117)	19% (90)	**482**
NGO issues	38% (173)	21% (95)	41% (187)	**455**
Total respondents				**488**

For more information, please contact: Tina Etherington at the address on the first page.

FAO IN THE FIELD

Projet «Renforcement de la sécurité alimentaire en Afrique Centrale à travers la gestion et l'utilisation durable des produits forestiers non ligneux» (GCP/RAF/398/GER)

En Afrique centrale, la consommation et le commerce des produits forestiers non ligneux (PFNL) contribuent à la sécurité alimentaire de la population. Les PFNL importants incluent les plantes comestibles, les plantes médicinales et les rotins. La valorisation des PFNL offre une opportunité pour les populations rurales et les autres acteurs concernés d'accroître leurs revenus sur la base d'une gestion durable des ressources forestières. Il a été demandé à FAO de soutenir les pays d'Afrique centrale, d'identifier et de mettre en œuvre des mesures politiques afin de promouvoir la gestion durable des PFNL et la distribution équitable des bénéfices.

Objectifs

- La prise de conscience et la connaissance du rôle des PFNL pour renforcer la sécurité alimentaire.
- Les bases sont établies pour une intégration systématique d'informations sur les aliments forestiers dans les programmes et politiques pertinents.

Généralités

Le projet «Renforcement de la sécurité alimentaire en Afrique centrale à travers la gestion et l'utilisation durable des produits forestiers non ligneux» contribue à faciliter les actions des gouvernements, des organisations non gouvernementales (ONG) et du secteur privé des six pays d'Afrique centrale (Cameroun, Congo, Gabon, Guinée équatoriale, République centrafricaine et République démocratique du Congo). Il vise à renforcer la sécurité alimentaire dans la région à travers l'utilisation durable des PFNL des forêts denses humides et des systèmes agroforestiers.

Le projet du Gouvernement allemand d'une durée de trois ans (2005-2008) supplémente et appuie le Programme régulier du Service des produits forestiers de la FAO pour renforcer la contribution des PFNL à la sécurité alimentaire et favoriser la création des revenus et l'aménagement durable des forêts en Afrique centrale. Ce projet fait partie intégrante de la stratégie du Département des forêts de la FAO pour le développement «des forêts du bassin du Congo» et ses trois priorités stratégiques d'appui à la gestion durable ces forêts qui sont:

- améliorer les conditions de vie des populations plus pauvres;
- renforcer la coopération sous-régionale;
- renforcer et organiser la collecte et la gestion pour harmoniser les forêts et leurs politiques sectorielles.

Le projet fonctionne dans le cadre établi par la Conférence des Ministres des forêts d'Afrique centrale (COMIFAC) et la Conférence sur les écosystèmes des forêts denses humides d'Afrique centrale (CEFDHAC). Il est élaboré sur les conclusions des précédents projets forestiers tels que ceux du Programme de partenariat Commission Européenne – FAO pour l'Afrique, et en liaison avec les projets régionaux en cours d'agences telles que la Gesellschaft für Technische Zusammenarbeit (GTZ), l'Organisation internationale des bois tropicaux (OIBT), l'Organisation africaine du bois (OAB), le Centre international pour la recherche en agroforesterie (CIRAF), le Centre pour la recherche forestière (CIFOR), le Fonds mondial pour la nature (WWF) et les ONG locales.

Après la mise en place institutionnelle initiale, une série d'études techniques ont été lancées pour analyser le potentiel des aliments forestiers à la contribution de la sécurité alimentaire en Afrique centrale. Des propositions, des partenaires et des sites pour la réalisation des activités pilotes, afin de tester les approches appropriées pour la production et la commercialisation des PFNL/aliments forestiers, seront identifiés lors d'un atelier régional. Basés sur les résultats de cet atelier, des tests sur le terrain, y compris le renforcement des capacités, sont prévus pour la seconde année/phase du projet. Pendant la phase de consolidation de la troisième année, toutes les conclusions du projet seront validées lors d'un atelier régional, et des actions de suivi seront identifiées.

Ce projet contribue au renforcement institutionnel dans la région, à l'amélioration des connaissances sur les ressources forestières et sur les systèmes de production agroforestiers, et assure une meilleure coordination entre les acteurs gouvernementaux, les bailleurs de fonds et les autres parties intéressées à la sécurité alimentaire et à la conservation des forêts.

Les bénéficiaires immédiats sont les agences gouvernementales et les services de vulgarisation responsables pour la conservation et l'utilisation durable des forêts, ainsi que pour l'assurance de la sécurité alimentaire dans les pays. Indirectement, les populations locales, qui n'ont actuellement pas accès à une alimentation adéquate, ni les moyens ou les connaissances pour améliorer leurs récoltes et leurs méthodes de production/marketing des aliments forestiers, profiteront des résultats du projet.

Résultats

- Contributions actuelles et potentielles des aliments forestiers à la sécurité alimentaire en Afrique centrale évaluées.
- Impacts de la gestion forestière sur les aliments forestiers évalués.
- Contribution commerciale des PFNL comestibles évaluée comme moyens de subsistance des communautés locales.
- Elaboration de directives politiques pour la contribution des PFNL à la sécurité alimentaire et à la gestion durable des forêts.

- Série d'actions et de suivi au niveau régional compilées, discutées et validées.
- Résultats du projet publiés et disséminés.

Le statut des activités

Dans la première phase du projet (juin 2005-juin 2006), trois revues régionales techniques sur la contribution des aliments forestiers à la sécurité alimentaire seront élaborées, y compris l'évaluation de: i) la production, la biologie et le risque de surexploitation des espèces forestières comestibles; ii) le contexte socioéconomique, y compris les aspects parité, l'impact du VIH/SIDA et la valeur nutritionnelle et médicinale des aliments forestiers; et iii) la structure légale gouvernant l'utilisation des PFNL comestibles. Les revues seront élaborées sur la base des informations existantes et les sources, à l'intérieur et à l'extérieur de la région, et seront complétées par six études nationales sur l'utilisation des PFNL en Afrique centrale. Par ailleurs, des études complémentaires sont réalisées sur les thèmes suivants:

- étude sur l'impact de l'exploitation du bois dans les concessions forestières et sur la disponibilité des PFNL en Afrique centrale;
- étude sur le cadre politique et institutionnel régissant l'utilisation des PFNL en Afrique centrale;
- études sur l'analyse nationale des instruments politiques relatifs au commerce des PFNL: applications et impact sur la réduction de la pauvreté et la gestion durable des forêts (Gabon, Guinée équatoriale);
- étude portant sur l'exportation des produits forestiers non ligneux et des aliments traditionnels de l'Afrique centrale sur les marchés régionaux et internationaux – état des lieux et stratégies de développement.

Pour plus d'informations, contacter: M. S. Walter, Conseiller technique, Représentation de la FAO au Cameroun, B.P. 281, Yaoundé, Cameroun. Courriel: Sven.Walter@fao.org et M.H. Katsuhisa, Chef du Service des produits forestiers, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italie. Courriel: Hikojiro.Katsuhisa@fao.org

SOUTH AND EAST ASIAN COUNTRIES NTFP NETWORK (SEANN)

SEANN was established in January 1995 under the aegis of the Centre of Minor Forest Products for Rural Development and Environmental Conservation, Dehra Dun with the overall objective of dealing specifically with issues related to minor forest products (MFPs) and non-timber forest products (NTFPs), comprising 26 categories of use, including medicinal plants.

The usefulness of SEANN depends entirely on the active participation and responsiveness of its member countries, which are Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, the Democratic Republic of Korea and the Republic of Korea, the Lao People's Democratic Republic, Malaysia, Maldives, Mauritius, Myanmar, Nepal, Pakistan, Papua New Guinea, the Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Viet Nam.

SEANN's more specific objectives are to popularize the concept and need for NTFP-oriented sustainable forest management; motivate propagation and harvesting methodology of MFP species for income generation; ensure social and economic changes with better utilization of raw NTFPs; prioritize research areas and work out economics of MFP crops (pure and intercrops); promote small-scale NTFP-based enterprises for rural development; investigate/promote improved marketing and trade of NTFPs; document NTFP information; strengthen database networks to ensure identification of site-specific appropriate choice of species for economic growth and environmental conservation; prepare a global directory of NTFP organizations and specialists; and organize meetings/small focused workshops by network members once a year.

SEANN has organized the following five workshops.

- The first SEANN workshop, held in India, evolved a standard MFP/NTFP classification and documentation manual.
- The second workshop, held in India, on evolving mechanisms for NTFP-oriented need-based sustainable forest management resulted in a book entitled *Approaches to sustainable forest management and biodiversity conservation with the pivotal role of non-timber forest products* by Dr M.P. Shiva and Sri S.K. Verma, IFS, published in 2002.
- The third workshop, held in Nepal, focused on community-based NTFP management. Six member countries of the SEANN network, India, Nepal, Malaysia, the Philippines, Sri Lanka and Thailand participated, with delegates from the Russian Federation, the United Kingdom, the United States, Canada and Australia also attending. Topics discussed included: assessment of NTFP resources, constraints of NTFP development, people's participation in community forest management and policy issues.
- The fourth workshop was held in the Philippines with the theme of non-wood forest products and biodiversity: SEANN agenda for conservation and development in the twenty-first century.
- The fifth workshop was held in Bhutan and focused on the odyssey of natural products.

Any member countries are invited to organize a SEANN workshop in their country in the future.

For more information, please contact: Dr M.P. Shiva, Chief Patron or Ms Alka Shiva, Patron SEANN, President and Managing Director, Centre of Minor Forest Products (COMFORPTS), HIG 2, No. 8B, Indirapuram, GMS Road, PO Majra, Dehra Dun – 248171(Uttaranchal), India. E-mail: shivamfp@nde.vsnl.net.in *or* Shivamfp@vsnl.com ●

RECENT EVENTS

NATIONAL WORKSHOP ON SUSTAINABLE NTFP MARKETING IN VIET NAM: ECONOMIC, SOCIAL AND ECOLOGICAL OPPORTUNITIES AND RISKS

HANOI, VIET NAM
28–29 JUNE 2005

This workshop explored the opportunities and risks of a growing NTFP market and was organized around four different topics:

- NTFP marketing worldwide and in Viet Nam – an introduction to concepts, opportunities and challenges;
- NTFP market information;
- NTFP marketing and biodiversity conservation;
- tools for market assessment and analysis.

For more information, please contact: Mr Maurits Servaas, NTFP Project Training Adviser, 8 Chuong Duong Do Hanoi, Viet Nam. Fax: 84 4 9 320 996; e-mail: maurits.servaas@ntfp.org.vn

AFRICAN HEALING WISDOM: FROM TRADITION TO CURRENT APPLICATION AND RESEARCH

WASHINGTON, DC, UNITED STATES
6–9 JULY 2005

This conference focused on two key questions to evaluate African traditional healing practices in the context of delivering affordable, sustainable and culturally sensitive care.

- What can African traditional medicines contribute to the prevention and control of infectious and chronic diseases and how can such contributions be validated and enhanced?
- What roles can traditional African health knowledge play in addressing issues of health disparities and equity, both at home and abroad, and how can these roles be enhanced?

For more information, please contact: The George Washington University Medical Center, Office of Continuing Education in the Health Professions, 2300 Eye Street, NW, Suite 313-D, Washington, DC 20037, United States. Fax: +1 202 9941791; e-mail: registration@africanmedicine.info; www.africanmedicine.info/

REGIONAL WORKSHOP ON SUSTAINABLE DEVELOPMENT OF THE RATTAN SECTOR IN ASIA

BEIJING, CHINA
24–30 JULY 2005

This workshop was organized under the auspices of the International Tropical Timber Organization (ITTO)-funded project, "Capacity building for the development of a sustainable rattan sector in China based on plantation sources" (PD 100/01 Rev. 3[I])) with technical support from the International Network for Bamboo and Rattan (INBAR).

Topics discussed included

- research and development (R&D) issues in the rattan sector as well as directions and strategies;
- business and investment opportunities in the rattan sector in Asia; and
- new directions and strategies in the R&D of rattan.

In addition, it provided a platform for key players in the rattan industry and government officials to interact, network and build strategic partnerships.

For more information, please contact: Huang Shineng, Ph.D., Assistant Project Director and Secretary of the Workshop Organizing Committee, Research Institute of Tropical Forestry, Chinese Academy of Forestry, Long Dong, Guangzhou 510520, China. Fax: (86 20) 8703 1622; e-mail: snhuang@pub.guangzhou.gd.cn

THE SECOND INTERNATIONAL NON-TIMBER FOREST PRODUCTS FAIR AND FORUM

MOSCOW, RUSSIAN FEDERATION
24–28 SEPTEMBER 2005

NTFP harvesting has a long tradition in Russian culture. Since the collapse of the Soviet era, small businesses have developed but are still confronted by many problems. Their participation at the Fair and Forum helped them to overcome some of these, broadening their marketing contacts and discussing problems such as bureaucratic and informational barriers.

The name of the fair, Gifts of the forest – culture of use, reflects its principal idea: to emphasize the sustainability of NTFP use and the importance of NTFPs in the revival of many cultural and commercial traditions. In fact, Russian boreal forests are threatened by illegal logging, overuse of economically accessible stands, forest fires and pests. The sustainable harvest of NTFPs is one of the possible alternative ways of using forest ecosystems, without destroying them. NTFPs consist of any resources of the forest other than timber, pulpwood or firewood. They include not only food products, such as herbal teas, preserved and fresh wild berries, mushrooms and fruits, but also a wide range of health products, natural cosmetics, medicine and crafts. As well as being an important source of additional income for forest-based communities these products have a high cultural and spiritual value. Moreover, buying sustainably harvested NTFPs helps local communities to maintain traditional knowledge or rediscover it.

The fair's participants were mostly private businesses (double the number of

2004), varying from an artist creating pictures on birch bark, to a company processing and canning wild mushrooms and plants. There were also native cooperatives and groups such as Aleskam, Esso Native People's Community and Kamchatka Herbal Tea, which are supported by the IUCN-CIDA project on Kamchatka and Sakhalin (see p. 62 for more information). They produce Siberian pine nuts, herbal teas, wild berry jams, birch bark crafts and other products from the taïga forest.

For more information, please contact: Nikolay M. Shmatkov, Forest Programme Manager, IUCN Office for Russia and the Commonwealth of Independent States, 3 bld. 3, Stoliamy Per., Moscow 123022, Russian Federation. Tel./fax: +7(095) 609 3411; e-mail: info@iucn.ru; www.iucn.ru or www.dary-lesa.com

INTERNATIONAL BAMBOO INVENTORY TRAINING WORKSHOP

BEIJING AND ZHEJIANG PROVINCE, CHINA
24 OCTOBER–4 NOVEMBER 2005

This workshop was jointly organized by the International Centre for Bamboo and Rattan (ICBR), the International Network for Bamboo and Rattan (INBAR), the Food and Agriculture Organization of the United Nations and the International Union of Forestry Research Organizations (IUFRO).

Although bamboo is an integral part of the tropical and subtropical forest, little is known about global bamboo resources. The rapid technological development of bamboo-processing technologies increases the importance of bamboo resources for poverty alleviation and sustainable environmental and economic development in developing countries. It is essential to develop remote sensing and on-the ground inventory methods to facilitate the global assessment of bamboo resources.

Topics at the workshop included remote sensing inventory methods and bamboo on-the-ground inventory techniques.

For further information on the workshop, please contact: Fu Jinhe Ph.D., Programme Officer and Coordinator of IUFRO 5th November 2005 Bamboo and Rattan, International Network for Bamboo and Rattan (INBAR), Beijing 100102-86, Beijing 100102, China. Fax: +86 10 6470 2166; e-mail: jfu@inbar.int; www.inbar.int *or* www.iufro.org/science/divisions/division-5

CONFERENCE ON FORESTRY AND FOREST PRODUCTS RESEARCH

KUALA LUMPUR, MALAYSIA
22–24 NOVEMBER 2005

This biennial national conference was designed to bring the latest findings in forestry and forest products to the private sector, researchers, academicians, forest managers, industrialists and policy-makers. Discussions embraced issues pertaining to natural and planted forests, improved processing and utilization of wood and non-wood products, conservation of biodiversity, forest ecology, socio-economics and the potential for new developments in forest industry.

For more information, please contact: The Secretariat, Conference on Forestry and Forest Products Research 2005 (CFFPR 2005), Forest Research Institute Malaysia, Kepong 52109, Kuala Lumpur, Malaysia, attention of Dr Lim Hin Fui; fax: 603 6280 4629; e-mail: ccffpr2005@frim.gov.my; www.frim.gov.my.

CAMEROON ETHNOBOTANY NETWORK (CEN), SECOND INTERNATIONAL SYMPOSIUM: PLANTS TO CURE HUMANS AND THE ENVIRONMENT

YAOUNDÉ, CAMEROON
6–7 DECEMBER 2005

The objective of this symposium was to contribute towards the valorization of plant diversity and, more specifically, ascertain concrete strategies to ensure effective application of research results.

Subtopics included medicinal plants, spice and aromatic plants, ornamental plants and green species, valorization technologies and intellectual property rights.

For more information please contact: CEN secretariat cenrce@yahoo.fr *or* Pr. Bernard-Aloys Nkongmeneck; BP, 812 Yaoundé; e-mail: nkongme@uycdc.uninet.cm

WORKSHOP ON MEDICINAL PLANTS CULTIVATION, EMPLOYMENT AND MARKETING (FOR FARMERS AND BUYERS)

INDIRAPURAM, DEHRA DUN, INDIA
20–21 DECEMBER 2005

The workshop was organized by the Centre of Minor Forest Products in order to improve the livelihoods of village and forest dwellers, including tribals and forest-based enterprises. Discussions were held to find remedial measures for economic cultivation and harvesting of medicinal plants; sort out problems of marketing and equitable distribution of profits from farmers to entrepreneurs; develop methodologies to forge linkages between farmers and buyers of medicinal plants raw material; and discuss difficulties of manufacturers of Ayurvedic medicines and Ayurvedacharyas. Useful recommendations emerged for cultivation of medicinal plants for boosting the economy.

For more information, please contact: Ms Alka Shiva, President and Managing Director, Centre of Minor Forest Products, HIG 2, No. 8B, Indirapuram, GMS Road, PO Majra, Dehra Dun – 248 001 (Uttaranchal), India. E- mail: shivamfp@nde.vsnl.net.in *or* shivamfp@vsnl.com ●

FORTHCOMING EVENTS

CONSERVATION AND THE AGRICULTURAL FRONTIER: INTEGRATING FORESTS AND AGRICULTURE IN THE TROPICS

NEW HAVEN, CONNECTICUT, UNITED STATES
7–8 APRIL 2006

Is agriculture responsible for deforestation? In discussions of forest conservation, the debate over the impact of forest clearing by smallholder farmers is of long standing. While some argue that the effects of traditional agriculture are mild and reversible, others suggest that smallholder forest clearing – especially in the context of population expansion – has drastic negative impacts on ecosystem integrity. Recently, the dimensions of this debate have expanded in the light of research showing that large-scale agricultural development projects, including plantation farming and ranching, may be changing the world's forest cover with previously unacknowledged speed and extent. Faced with the linked challenges of livelihood maintenance, forest degradation and sustainable development, what is a modern-day tropical forester to do?

Can initiatives along the agricultural frontier contribute to the ongoing and sustainable use of forest resources? In recent years, initiatives integrating agricultural production and forest management have proliferated in the tropics. Projects grounded in agroforestry and the management and harvest of timber and non-timber forest products have been offered up as compromises between the challenges of poverty, development and sustainable forest management. However, challenges remain, not only in assessing the effectiveness of these initiatives, but also in determining where, when, and how their lessons can best be scaled up in policy, legislation, and practice.

The Yale Chapter of the International Society of Tropical Foresters hopes that the conference will stimulate debate on a range of topics, including but not limited to such questions as the following.

- How can timber and non-timber forest product harvesting be integrated into agricultural management schemes? What impact do markets for these products have on ecosystems and livelihoods?
- Do income-generation schemes integrating agriculture and forest management have the potential to reduce poverty? Or do they further trap resource users inside the poverty net?
- What potential do agroforestry systems hold as a "middle ground" between agriculture and forest conservation? What institutional strategies have successfully motivated farmers to implement agroforestry systems?
- How does the legitimacy of biodiversity conservation in agricultural landscapes vary among actors, across regions, and across systems of government? What role does perceived legitimacy play in conflicts on the agricultural frontier?
- What methods exist to pinpoint the collateral effects of agriculture-related activities indirectly threatening biodiversity conservation, such as local development plans, market liberalization, and/or illicit crop production?
- How do local communities measure success at integrating conservation and agriculture? How do these standards compare with guidelines generated by policy-makers, researchers, conservationists or other communities?

For more information, please contact: Yale ISTF Conference c/o Tropical Resource Institute, Yale School of Forestry and Environmental Studies, 210 Prospect Street, New Haven, CT 06511, United States. E-mail: istf@yale.edu; www.yale.edu/istf/

TRAINING WORKSHOP ON POVERTY ALLEVIATION THROUGH BAMBOO-BASED DEVELOPMENT: POLICIES, STRATEGIES AND STAKEHOLDERS

LIN'AN AND ANJI COUNTIES, ZHEJIANG PROVINCE, CHINA
18–28 APRIL 2006

Over the past 15 years, China has achieved great progress in the development of the bamboo sector. A series of bamboo panel products of higher quality than wood have been developed. Bamboo curtains, mats and carpets appear on the international market. New products based on bamboo charcoal, vinegar and extracts of bamboo leaves, including medicinal products, natural pesticides, beverages and daily toiletries have great development potential. Bamboo shoots also have huge market potential as a natural high-fibre food.

The workshop will be carried out jointly by the International Network for Bamboo and Rattan (INBAR) and the Bamboo Industry Associations of Lin'an and Anji counties in Zhejiang Province, China. It will focus on policies and case studies from the two counties, where impressive developments have taken place in recent years.

For more information, please contact: Ms Jin Wei, INBAR Publications and Training Officer, International Network for Bamboo and Rattan (INBAR), Beijing 100102 86, China. Fax: +86 10 64702166; e-mail: wjin@inbar.int

FORTHCOMING EVENTS

INTERNATIONAL CONFERENCE ON THE ROLE OF FORESTS IN RURAL DEVELOPMENT AND ENVIRONMENTAL SUSTAINABILITY

BEIJING, CHINA
19–21 APRIL 2006

Forests are the world's predominant vegetation and play an important role in rural poverty alleviation, rural development and environmental sustainability. Rural communities have accumulated considerable knowledge and experience on managing and utilizing forest resources scientifically in order to coexist harmoniously with nature. They have also developed and established creatively many technical models that have produced good practical results.

The goals of the conference are to share and exchange these experiences and technologies, to promote the development of relevant disciplines and to enhance the sustainable utilization of forest resources.

The conference, sponsored by the Chinese Society of Forestry, the Korean Forest Society and the Japanese Forest Society, has as its theme "the role of forests in rural development and environmental sustainability".

Topics to be covered include:

- forests in developing rural economy: renewable wood and non-wood products;
- forests and livelihoods, indigenous agroforestry, forestry trade and economy;

- social forestry: participatory forestry, information dissemination and communication technology and forestry policy;
- forest environmental services: soil and water conservation, biodiversity conservation and restoration and combating desertification.

For more information, please contact: Ms Guan Xiuling or Ms Feng Caiyun, Symposium Secretariat, the Summer Palace, Beijing 100091, China. Fax: +86 1062889817; e-mail: csf_org@forestry.ac.cn

THE FIRST IFOAM CONFERENCE ON ORGANIC WILD PRODUCTION

BOSNIA AND HERZEGOVINA
3–4 MAY 2006

There is significant trade in organic wild products, including products for direct consumption, such as berries, mushrooms and a wide variety of herbs. There is also a growing interest in organic wild products by the body care medicinal herb sector. Statistics for this type of production are vague and parallel to the organic market; other concepts such as the NTFP scheme of the Forest Stewardship Council and other company-specific schemes have been developed.

This conference will focus on the harvesting of wild vegetable products from forests, natural lands, pastures and uncultivated land in the agriculture landscape. It will concentrate on current production that enters the organic market stream, but will also extend to other concepts, such as fair trade, sustainable forest management certification and good manufacturing practices.

Wild harvested production as a concept is very broad, and also encompasses commodities used for fibrous or industrial production. The term "wild" is not fully appropriate, since many so-called wild products are collected in areas such as pastures, commons and marginal or uncultivated agricultural land. Additionally, the concept of "wild" implies a lack of management, although in reality almost all land is managed, and the collection of wild products themselves should be subject to sustainable management. Nevertheless, for lack of better alternatives, the term wild harvested production is used here and is also a term used in the International Federation of Organic Agriculture Movements (IFOAM) basic standards. Other systems use other terms to describe similar production, such as natural/biodiversity products, NTFPs, NWFPs and MFPs. Some products that are wild can also be cultivated. This conference will not focus on such cultivation, although it will be addressed in a future session.

General objectives of the conference

- Establishment of the state of the art in organic wild production, the volumes, the participating countries and communities.
- Clarification of terms and definitions.
- Increasing understanding of the various initiatives for NTFPs, NWFPs, wild collection, etc.
- Exploring the possibilities of bringing initiatives together.
- Identification of challenges and opportunities for the sector.
- Information exchange and networking between actors in the sector, including forging commercial links.
- Increased visibility of wild production.
- Addressing sustainability in wild harvesting.
- Initiating further development of quality assurance and standards.
- Assisting IFOAM to develop further the concept of wild harvested production.

FORTHCOMING EVENTS

For more information, please contact: Agriculture Institute Banja Luka at polj.institut.bl@blic.net *or* Gunnar Rundgren at: gunnar@grolink.se; www.ifoam.org/events/ifoam conferences/IFOAM_Wild_Conference.html

THE FUTURE FOR WILD HARVESTS IN SCOTLAND

BEAULY, SCOTLAND, UNITED KINGDOM
10–11 MAY 2006

This NTFP seminar will bring together land managers, collectors, buyers, processors, researchers, funders and policy-makers to develop a picture of the whole sector and discuss what can be done to help it develop.

For more information, please contact: Elizabeth Hughson, Cluster Support Unit, Scottish Forest Industries Cluster, Confederation of Forest Industries Ltd, 5 Dublin Street Lane South, Edinburgh, EH1 3PX, Scotland, United Kingdom. Fax: +44 131 538 7222; e-mail: liz.hughson@confor.org.uk

CULTURAL HERITAGE AND SUSTAINABLE FOREST MANAGEMENT: THE ROLE OF TRADITIONAL KNOWLEDGE

FLORENCE, ITALY
8–10 JUNE 2006

This conference is being organized by the IUFRO Research Group of Forest and Woodland History and the IUFRO Task Force on Traditional Forest Knowledge.

Conference themes include the following.

- History of traditional forest knowledge and its landscape.
- Historical context of scientific forestry and traditional forest knowledge with respect to forest management.
- Conservation of traditional knowledge and cultural landscapes.
- Planning, management and monitoring methodologies for the conservation of cultural forest landscapes.
- Objectives and actions in European rural and environmental policies to preserve and support traditional knowledge.
- Good practices for including both traditional and scientific forest-related knowledge in forestry education, research and forest management activities in Europe.
- Exchange of information between traditional and formal (scientific) forest-related knowledge in European forest management.
- Application of traditional forest-related knowledge to forest ecosystems and biodiversity assessments and management.
- Conflicts regarding traditional forest knowedge in relation to forest science and forest management, and lessons learned from experiences/case studies in Europe on ways to avoid/resolve these conflicts.
- Benefits of social and cultural dimensions in sustainable forest management by maintenance/development of the material (wood in architecture, medicinal plants, traditional practices) and non-material aspects (recreation, well-being and health).

For more information, please contact: Dr Valentina Marinai, Department of Environmental Forestry Science and Technology, University of Florence, Via San Bonaventura 13, 50145 Florence, Italy. Tel./fax: +39 055 30231282; e-mail: info.forest@unifi.it

INTERNATIONAL TRAINING WORKSHOP ON BAMBOO AND RATTAN SUSTAINABLE MANAGEMENT IN DEVELOPING COUNTRIES

YUNNAN, GUANGDONG AND HAINAN, CHINA
12–22 JUNE 2006

This training workshop will combine courses with field visits and operational practices. The main courses will include:

- bamboo and rattan biodiversity and their utilization
- bamboo and rattan propagation and nursing technologies
- bamboo and rattan plantation and cultivation technologies, including plantations for shoot purposes
- an outline of rattan processing technologies and industrial utilizations of tropical bamboo species
- China's policy system supporting the bamboo and rattan sector and sustainable development strategies.

For more information, please contact: Fu Jinhe Ph.D., Programme Officer and Coordinator of IUFRO 5.11.05 Bamboo and Rattan, International Network for Bamboo and Rattan (INBAR), Beijing 100102 86, China. Fax: +86 10 6470 2166; e-mail: jfu@inbar.int; www.inbar.int *or* www.inbar.int/news/tc0602.htm

FORTHCOMING EVENTS

SPIRIT OF HEALING: TRADITIONAL MEDICINE, FAIR TRADE AND HEALTH FOR ALL

PENNSYLVANIA, UNITED STATES
16–18 JUNE 2006

This conference is being cosponsored by Herbalists Without Borders and Penn State's Interinstitutional Consortium for Indigenous Knowledge. It will explore the role of herbal medicine in primary health care and poverty alleviation. How can traditional medicine serve the primary health care needs of the majority of people who have little or no access to conventional medicine? How can medicinal plants bring in more income for poor communities? What type of regulatory and policy approaches help or hinder the provision of health care and a higher standard of living for the poor?

For more information, please contact: Jennifer Chesworth, Program Director, Herbalists Without Borders, 153 South Allen Street, State College, Pennsylvania 16801, United States. E-mail: jc@herbalistswithoutborders.org; www.herbalistswithoutborders.org

INTERNATIONAL CONFERENCE ON FORESTS, TREES, HUMAN HEALTH AND WELL-BEING

COPENHAGEN, DENMARK
28–30 JUNE 2006

Traditional medical and public health approaches to illness and health are among the successes of modern science. However, society today is faced with the increasing incidence of various forms of poor health related to modern lifestyles. Contributing factors have been identified as an increasingly sedentary population, levels of psychological stress related to urban living and contemporary work practices, and exposure to environmental hazards such as air pollution. These problems encourage new thinking about ways to prevent disease and promote health. Natural spaces and elements such as forests and trees have been seen as providing opportunities to ameliorate such trends.

For more information, please contact: Dr Kjell Nilsson, Forest and Landscape Denmark, Rolighedsvej 23, 1958 Frederiksberg C, Denmark. Fax: +45 3528 1508; e-mail: kjni@kvl.dk; www.e39.com.ee/en/m-main/c-current/d-15/.

IX CONGRESO LATINOAMERICANO DE BOTÁNICA

19-25 DE JUNIO 2006
SANTO DOMINGO, REPÚBLICA DOMINICANA

Para más información, dirigirse a: Sonia Lagos-Witte, Jardín Botánico Nacional, Apartado Postal 21-9, Santo Domingo, República Dominicana. Fax: 001809/3850446; correo electrónico: tramilca@codetel.net.do; sitio web: www.botanica-alb.org/index2.html

STUDY TOUR ON COMMUNITY-BASED FOREST COTTAGE INDUSTRIES

PHILIPPINES
20 JUNE–3 JULY 2006 (AND 19 JUNE–2 JULY 2007)

The study tour aims to provide participants with the necessary exposure to the different community-based forest cottage industries and related project sites in the Philippines.

The field visit to selected sites will focus on the following subjects: current strategies of the Department of Environment and Natural Resources (DENR) and recent developments in the implementation of the community-based forest management programme; small-scale handmade papermaking; household-based wooden novelty manufacture; rattan craft, bamboo craft, vine craft and other forest-based craft industries; small- to medium-scale furniture industries; cottage-based woodcarving; community-based and medium-scale industries for specialized wood products; and ecotourism.

For 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, Philippines. Fax: + (63 49) 536 3340 *or* 536 2639; e-mail: trees@laguna.net; www.uplbtrees.ph ●

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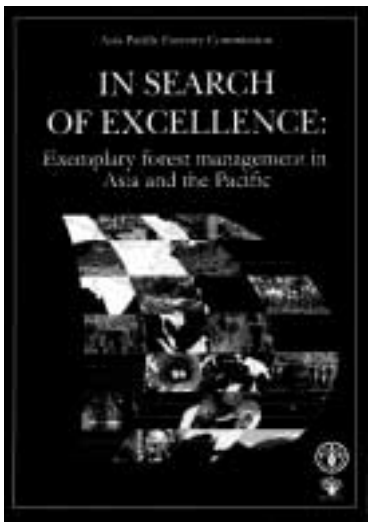

This book highlights the brighter side of forestry in a much-maligned region. A widespread call for nominations identified 172 forests in 21 countries that were perceived to be "well-managed". After careful vetting, 28 forests were selected for detailed case study analysis. The result is a kaleidoscope of ideas, approaches, inspiration and perspiration that tell the stories of people dedicated to building sustainable livelihoods through careful management of their forests. The entire book can be downloaded in a PDF format from www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/ae542e/ae542e00.htm
For more information and to obtain copies, please contact:
P. Durst, Senior Forestry Officer, FAO Regional Office for Asia and the Pacific, 39 Phra Atit Road, Bangkok, 10200 Thailand. Fax: (66 2) 697 4445; e-mail: Patrick.Durst@fao.org
(Please also see pp. 5 and 58 for case studies from this book.)

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For more information, please contact: FO-publications@fao.org. Available at: www.fao.org/forestry/site/26161/en/

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This CD-ROM contains 15 years of publications produced by FAO and its partners, mainly under the Forests, Trees and People Programme (FTPP). FTPP, which started in 1987 and ended in 2002, was an international community forestry programme designed to increase social and economic equity and improve well-being, especially of the poor, through collaborative and sustainable management of trees, forests and other natural resources. The CD-ROM includes more than 70 publications on participatory forestry and related subjects, organized according to series, theme and alphabetical order. It is hoped that these publications will contribute to strengthening human and institutional capacities that are necessary for the support of locally based sustainable

PUBLICATIONS OF INTEREST

management of forest resources. For more information, please contact: Dominque Reeb, Senior Forestry Officer (Participatory Forestry), Forestry Policy and Information Division, Forestry Department, FAO, 00100 Rome, Italy. E-mail: Dominique.Reeb@fao.org; www.fao.org/forestry/index.jsp

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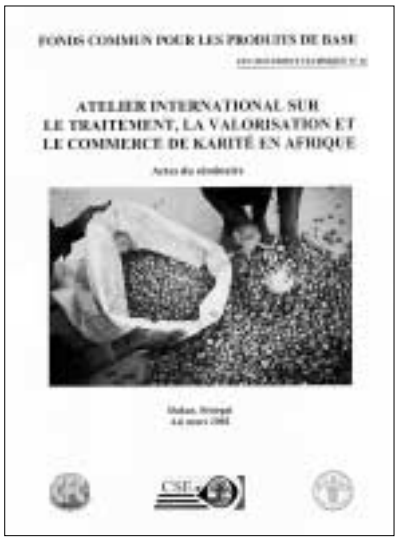
Copies de cette publication (en langue française uniquement) sont fournies gratuitement par le Programme sur les PFNL de la FAO en contactant: non-wood-news@fao.org. Les versions électroniques des démarches (en anglais et en français) sont disponibles au site: www.fao.org/documents/show_cdr.asp?url_file=/docrep/008/y5952f/y5952f00.htm



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This policy brief, which is based on the work of over 100 authors, was prepared by the IUFRO Special Project, "World Forests, Society and Environment". The report can be obtained by e-mailing the IUFRO WFSE-Coordinator at: Gerardo.Mery@metla.fi/

Jáger, L., ed. 2005. COST E30. *Economic integration of urban consumers' demand and rural forestry production. Forest sector entrepreneurship in Europe: country studies*. Acta Silvatica and Lignaria Hungarica. ISSN 1786-691X (print), ISBN 1787 064X (online). The country studies include considerable information on NWFPs. The hard copy of the book can be ordered from Laszlo Jáger, University of West Hungary, Faculty of Forestry, Ady E. str. 5, Sopron, H-9400 Hungary. E-mail: jagerla@emk.nyme.hu/
For more information, please visit: www.joensuu.fi/coste30/ASLG_2005.htm/

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For more information, please contact: Backhuys Publishers, PO Box 321, 2300 AH Leiden, the Netherlands (www.backhuys.com).

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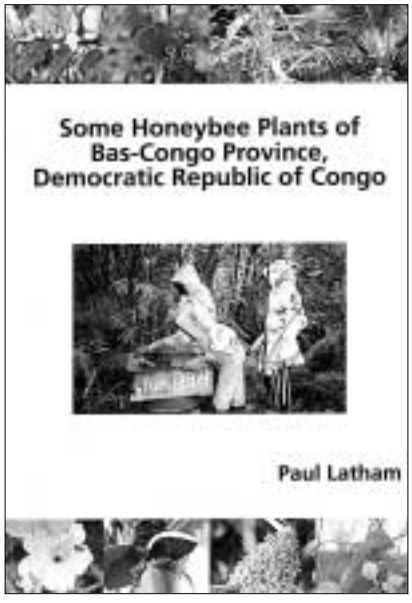

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The workbook is an interdisciplinary set of instructional materials that includes over 100 lesson plans and handouts covering the ecological, cultural, political and economic importance of NTFPs. The geographic focus of the workbook is on the United States, although the exercises can easily be adapted to scale up to the international arena or to scale down to focus on species and issues of regional or local importance. The workbook consists of seven modules – each including detailed lesson plans, activities, evaluation tools and ready-to-use teaching aids, such as PowerPoint presentations and handouts. Each module has a specific disciplinary orientation (history, culture, economics, ecology, policy) to facilitate easy adoption within these different disciplines. The curriculum encourages critical thinking about NTFP issues and their relationship to overall forest health, sustainability and biodiversity conservation. This is

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accomplished through interactive classroom and field activities. Both theoretical frameworks and research methods are introduced and there is an emphasis on building effective communication and collaboration skills. Faculties are encouraged to integrate individual lesson plans into their existing courses or use the workbook materials as the foundation for a new course or workshop. In addition, the Institute for Culture and Ecology is available to facilitate a set of workshops and courses based on the materials. This project was funded by the National Commission on Science for Sustainable Forestry. For more information, please contact: Institute for Culture and Ecology, PO Box 6688, Portland, Oregon 97228 6688, United States. E-mail: ifcae@ifcae.org/

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PUBLICATIONS OF INTEREST

Predny, M. L. & Chamberlain, J. L. undated. *Goldenseal* (Hydrastis canadensis): *an annotated bibliography*. The Southern Research Station, United States Forest Service. Goldenseal, a member of the buttercup family (Ranunculaceae), is a herbaceous perennial found in rich hardwood forests throughout the northeastern United States and Canada. Originally used by Native Americans as both a medicine and a dye, the herb was eventually adopted in the nineteenth century. The alkaloids in goldenseal have been found to have antibiotic, anti-inflammatory, antispasmodic and tonic effects.

The growing awareness of possible medicinal benefits has increased worldwide consumption which, combined with a continual loss of habitat, has greatly reduced wild populations. Goldenseal has been listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II since 1997. Demand for cultivated roots has increased as wild populations become scarce, motivating research into propagation and cultivation techniques. More attention should be focused on educating consumers about the appropriate uses of the herb in order to reduce overconsumption; working with growers to increase the profitability of cultivation and reduce pressures on wild plants; and identifying and tracking wild populations to determine the most effective management and conservation practices.

A searchable database and an electronic version are available at: www.sfp.forprod.vt.edu/prodarea/goldenseal.asp/
Hard copies can be obtained from the Southern Research Station, PO Box 2680, Asheville, NC 28804, United States or from Jim Chamberlain, Ph.D., CF, Research Scientist, Non-Timber Forest Products Coordinator, Research Group 5.11 (Non-Wood Forest Products), IUFRO United States Forest Service, SRS-4702, 1650 Ramble Road Blacksburg, VA 24060, United States. Fax: +1 540 231 1383; e-mail: jachambe@vt.edu or jchamberlain@fs.fed.us

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El uso de mercados y el pago de servicios ambientales es un tema que ha venido ganando terreno entre los hacedores de políticas, ambientalistas y agentes de desarrollo de todo el mundo. En el mundo en vías de desarrollo, Costa Rica ejerce el liderazgo en la aplicación de esos mecanismos. Este documento examina la literatura sobre la experiencia costarricense con el fin de visualizar lo que estamos aprendiendo de esa experiencia: ¿cómo ha calzado dentro de estas iniciativas la información técnica, científica y económica sobre los servicios ambientales? ¿Qué alcance tienen el monitoreo y la evaluación de estas experiencias iniciales? El objetivo principal de esta revisión bibliográfica es identificar y analizar los materiales comprendidos en la siguiente temática:

- los orígenes locales del concepto de pago y mercados de servicios ambientales y como estos han evolucionado a través del tiempo;
- el tipo de iniciativas existentes relacionadas con los mercados de servicios, y quien está participando en estas actividades;
- el conocimiento base que soporta el desarrollo de mercados;
- las iniciativas tomadas con respecto al monitoreo y evaluación de las experiencias con pagos y mercados de servicios ambientales y hasta dónde y con qué resultados la literatura toma estas iniciativas en términos de eficiencia económica, eficiencia ambiental equidad social y/o reducción de la pobreza.

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NEW PUBLICATIONS IN THE FAO NON-WOOD FOREST PRODUCTS SERIES

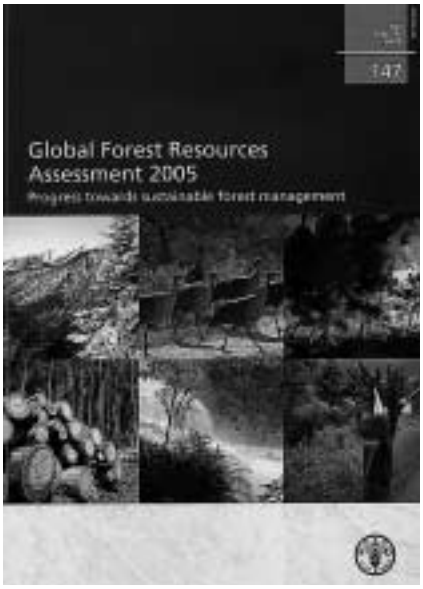
NO. 17. LOS HONGOS SILVESTRES COMESTIBLES

***Wild edible fungi*, no. 17 in FAO's NWFP publications series, has now been translated into Spanish: *Los hongos silvestres comestibles.* Perspectiva global de su uso e importancia para la población. Copies of this publication can be purchased from FAO's Sales and Marketing Group at: publications-sales@fao.org. An electronic version is available at: www.fao.org/docrep/008/y5489s/y5489s00.htm The French version will be available later this year.**

PUBLICATIONS OF INTEREST

Global Forest Resources Assessment 2005 (FRA 2005)

New FAO data show progress towards sustainable forest management at the global level, but also that biological diversity and forest ecosystems remain seriously threatened in several regions.



The main report of the *Global Forest Resources Assessment 2005*, launched at the Sixth Session of the United Nations Forum on Forests (UNFF6) in New York, gauged progress towards sustainable forest management, defined and measured in terms of the extent of forest resources and their contribution to the global carbon cycle; biological diversity; forest health and vitality; and the productive, protective and socio-economic functions of forests.

According to the report, there are more positive than negative trends at the global level, including a move in forest management towards multiple uses, including social and environmental benefits. Forests dedicated to the conservation of biological diversity have increased by 6.4 million ha per year to include 11 percent of all forests.

Forests for the protection of soil and water and for recreation have also increased significantly. Planted forests are expanding and provide an increasing proportion of the world's wood supply.

However, negative trends are still alarming in some regions. Forests are rapidly being lost to agriculture in Africa, Central America, South America and Southeast Asia, accounting for almost 90 percent of the world's deforestation of 13 million ha per year.

Primary forests, crucial for maintaining biological diversity, are converted to agriculture or degraded through logging at a rate of 6 million ha per year, mainly in South America and Southeast Asia.

Significant progress has been made in terms of political commitment, policies and legislation, with a majority of countries in the world taking steps to strengthen the policy and legal framework to improve the management and conservation of forests.

"There are positive and negative trends in all regions towards the goal of sustainable forest management which vary even more at the country level. To say more about the progress of forestry, it is necessary to upgrade monitoring and reporting processes in many countries," said Mette Løyche Wilkie, the coordinator of this assessment.

KEY FINDINGS ON NWFPs INCLUDE THE FOLLOWING

One-third of the world's forests are primarily used for the production of wood and non-wood products
Wood production continues to be an important function of many forests and reported removals of NWFPs are on the rise.
Production of wood and non-wood forest products is the primary function of 34 percent of the world's forests. More than half of all forests are used for the production of wood and NWFPs in combination with other functions such as soil and water protection, biodiversity conservation and recreation.
The value of wood removals is decreasing, while the value of NWFPs is increasing – and underestimated.
The forecasted value of NWFP removals amounted to about US$4.7 billion in 2005. However, information was missing from many countries, and the reported statistics probably cover only a small fraction of the true total value of NWFP removals. Edible plant products and bushmeat are the most significant products in terms of value. Trends at the global and regional levels generally show a slight increase since 1990. The key findings of FRA 2005 can be found at: www.fao.org/forestry/fra2005/.

For more information, please contact: Global Forest Resources Assessment, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. E-mail: fra@fao.org; www.fao.org/forestry *or* www.fao.org/forestry/fra2005

Microfinance and forest-based small-scale enterprises

This publication, funded by Norway, shows how microfinance can help low-income households living in forest areas to start up and run their own small businesses. Such forest dwellers frequently live in remote areas where a lack of financial services is a major obstacle to developing successful business activities. Microfinance is, therefore, crucial to alleviating poverty in forest communities.

Microfinance is a general term referring to the provision of basic financial services such as credit, savings, leasing, equity financing,

PUBLICATIONS OF INTEREST

insurance and remittance mechanisms by banks, NGOs and credit and savings cooperatives in both the formal and informal financial sectors.

The publication includes a number of success stories, including one from the Parbat district of Nepal, where 673 small-scale enterprises were set up under a microfinance enterprise development programme, creating employment in rural areas that depend on the trade of NWFPs such as honey, *allo* (traditional cloth made from nettles) and *lapsi* (a fruit used to make drinks and sweets). Some 669 of the businesses, or 99.4 percent of the programme participants, paid back their loans in full.

This new publication suggests that in addition to their regular services, microfinance institutions should provide business development counselling and support to small enterprises. It notes as well that there is often a need to break social barriers that can discourage rural people from approaching financial institutions for help.

Microfinance and forest-based small-scale enterprises also warns against the imposition of artificial ceilings on interest rates and subsidizing targeted credit programmes, since these can distort the market and make microfinance less sustainable.

For more information, please contact: Sophie Grouwels, Forestry Officer, Community-based Enterprise Development (CBED), Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. E-mail: sophie.grouwels@fao.org; www.fao.org/forestry/site/25491/en

Diccionario Forestal

La Sociedad Española de Ciencias Forestales (SECF) presentó en Madrid el Diccionario Forestal (Mundi-Prensa), con más de 19 000 términos gracias al trabajo de noventa colaboradores.

Las entradas, recogidas en 1 336 páginas, están divididas en siete bloques en los que se agrupan términos de materias relacionadas al tema forestal y cuyas definiciones a veces se extienden en la explicación casi «con carácter enciclopédico». Para don José Alberto Pardos, miembro de la Real Academia de la Ingeniería y colaborador del proyecto, con esta obra «de gran envergadura», en la que los términos figuran traducidos al inglés, se cumple con uno de los objetivos fundacionales de la SECF, es decir «el estímulo de la cooperación entre sus miembros».
Fuente: Revista Forestal Española, N° 38, septiembre 2005

Proceedings of the International Symposium Guadua 2004

The International Symposium Guadua 2004 took place at the Technological University of Pereira, Pereira, Colombia, from 27 September to 2 October 2004, and was attended by 250 participants from more than 20 countries. The symposium covered four main topics: silviculture and environmental services; harvesting and post-harvesting processes; applications and industrial uses; and institutions and socio-economic frame.

For more information, please contact: luzma@utp.edu.co

Women, forests and plantations. The gender dimension

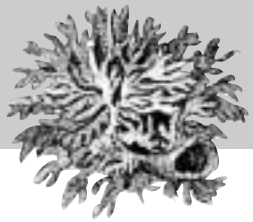
Forests provide the source and means of survival for millions of people, who find their firewood, medicinal plants, food, fibres, housing materials and a full range of other products. Forests are also vital for the healthy state of our global environment. Although the historical contribution of women to forest conservation has often been made "invisible" – as in many other areas – it has been they, the indigenous rural women, with an intimate knowledge of the forest, who have been the principal caretakers and guardians of the forests.

At present, the encroachment of global commerce and "development" projects into the forests – such as plantations, oil exploitation, logging, mining, shrimp farming, dams and others – has not only destroyed nature but also distorted the ancestral relationships of forest peoples among themselves and with the forest. Such forest change or loss has not been gender neutral and has had a double and differentiated impact on women, depriving them of their traditional rights to and link with the forests while reinforcing a patriarchal society model.

With this book we aim at generating awareness on the issue, as a way of contributing positively to the struggles women undergo to defend the forest and to highlight their positive role in forest conservation.

For more information, please contact: World Rainforest Movement, Maldonado 1858, 11200 Montevideo, Uruguay. Fax: 598 2 410 0985; e-mail: wrm@wrm.org.uy ●

WEB SITES



African Wildlife Foundation
www.awf.org

America's national forests
Video available online. A new documentary film about the many wonders of national forests and the threats they face is now available online. This nine-minute DVD is an excellent introduction to national forests and is a resource for educators and citizens interested in the environment and the clean water, wildlife and recreation our forests provide.
Real Player Broadband:
http://real.newmediamill.speedera.net/ramgen/real.newmediamill/ufdc/forestsbb.rm

Answers
A new search engine.
www.answers.com

ASKFAO

AskFAO is a service driven by user information needs, providing answers to queries related to the Organization's areas of expertise. Working with FAO offices around the world as well as with our partner organizations, it provides a mechanism to communicate directly with technical experts in a particular field of interest.
www.fao.org/askfao/home.do?lang=en

Biodiversity hotspots
An informative Web site hosted by Conservation International.
www.biodiversityhotspots.org/xp/Hotspots/

Career.edu
Job board for the academic and research community.
www.career.edu/index.php

CERPA (Centre for Research, Planning and Action)
Information on medicinal plants and herbs.
www.herbalcerpa.org

Chestnut links
Contains many links to various aspects of chestnuts.
www.utc.edu/Faculty/Hill-Craddock/chestnutlinks.html

Cost E30
An interesting Web site that includes information on NTFPs in Europe.
www.joensuu.fi/coste30/ASLG_2005.htm

CP Wild – Commercial Products from the Wild
Research on indigenous plant domestication and commercialization in southern Africa.

This Web site aims at providing an information service to people and organizations involved in natural product domestication and commercialization.
www.cpwild.co.za/Index.html

Databases

COMFORPTS
COMFORPTS has recorded 4 100 species in its database. The database provides detailed information on 70 parameters, such as morphology, phenology, cultivation details, harvesting, post-harvest processing, silviculture requirements and characteristics, types of forest import-export statistics, policy and legal issues and pests and diseases. With the help of this database, users can retrieve exhaustive information on any NTFP-related species based on these parameters.
www.angelfire.com/ma/MinorForestProducts

PLANTS database
The PLANTS database is maintained by the United States Department of Agriculture National Resources Conservation Service and provides information and generates reports in specialized areas. It provides standardized information about the vascular plants, mosses, liverworts, hornworts and lichens of the United States and its territories. It includes names, plant symbols, checklists, distributional data, species abstracts, characteristics, images, plant links, references, crop information and automated tools.
http://plants.usda.gov/index.html

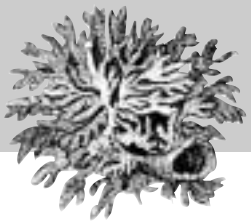
Eco earth
The environmental sustainability source.
www.ecoearth.info/

EEA multilingual environmental glossary
http://glossary.eea.eu.int/EEAGlossary/

FAO facts and figures
A new site from FAO's Forestry Department. Do you know ... Which countries have the highest forest cover? Which countries are the major consumers and producers of forest products? How many people depend on drugs derived from forest plants? How much deforestation contributes to global greenhouse gas emissions? How many countries have less than 10 percent forest cover? The annual deforestation rate in the world? How many people are employed in the formal forestry sector worldwide? The total number of mountain people worldwide? What percentage of bioenergy accounts for the energy consumed worldwide? Find out the answers to these questions and many others at:
www.fao.org/forestry/site/28679/en

FAO's "historic archives" – 60 years of history
Sixtieth Anniversary of the Food and Agriculture Organization of the United Nations.
In "historic archives" you will find rarely heard statements and interviews of former FAO Directors-General, Heads of State and Government, Nobel Prize winners and other eminent world personalities who have marked the history of the Organization, since its founding in 1945 (Quebec City, Canada), from Franklin D. Roosevelt to Pope John Paul II.
www.fao.org/audiocatalogue/index.jsp?category=5&lang=EN

WEB SITES



FAO's participation Web site
This Web site is a place for studying and discussing participation in development. It is available in Arabic, English, French and Spanish.
www.fao.org/participation/default.htm

Flora Celtica
http://193.62.154.38/celtica/flash/FCBOOK.htm

ForCons Co.
Ecotourism in Hungary.
www.forcons.hu

Herbs from nature
www.herbsfromnature.com

Honey health
This newly launched Web site extols the various health benefits of natural honey, detailing its nutritive values and exploring its role as a primary food in traditional diets.
www.honey-health.com/

Indian herbs and insect images
Over 10 000 photographs of herbs and insects taken during ethnobotanical surveys in different parts of the Indian state Chhattisgarh are online at:
http://ecoport.org/ep?SearchType=pdb&Author=pankaj&Thumbnails=Only

International Alliance Against Hunger
www.iaahp.net/

London wildweb
http://wildweb.london.gov.uk/LW2/Welcome.do

Madagascar – fantastic forests
www.wbur.org/special/madagascar/

Mekong world
All the latest information on tropical forest resources and environmental management in the Mekong region (Myanmar, China [Yunnan], Cambodia, the Lao People's Democratic Republic, Thailand and Viet Nam).
www.mekongworld.com/

Non-timber forest products in Scotland
www.forestharvest.org.uk/

Northern Nut Growers Association (NNGA)
http://icserv.com/nnga/

Participatory Natural Resource Management (PNRM)
www.prgaprogram.org.

Photographs

FAO forestry photos database
The FAO forestry photos database contains more than 1 000 forestry-related images searchable by such fields as country, region, keyword, caption, human and forestry content and photographer. A simple free text search is also available, which searches all text in the record. A useful thumbnail feature enables users to browse the contents rapidly. Photos can be easily downloaded in high resolution for print and in lower resolution for use on the Web.
www.fao.org/mediabase/forestry

Forestry images Web site
A source for forest health, natural resources and silviculture images. A joint project of the University of Georgia and the USDA Forest Service. Image categories include: forest pests (insects, diseases, other damage agents); trees, plants and stand types (trees, understorey and rangeland plants); silvicultural practices; wildlife; and people, places and scenes.
www.forestryimages.org

Photographs of medicinal plants in Chhattisgarh, India
Over 500 photographs based on the work of Pankaj Oudhia in Chhattisgarh and its herbal wealth.
http://ecoport.org/ep?SearchType=pdb&Author=Pankaj%20Oudhia&AuthorWild=MA

Rain forests of the world
http://rainforestinfo.org.au/background/rainfwld.htm

Rain forest portal
The portal provides rain forest action, news, search and analysis capabilities.
www.rainforestportal.org/

SIAMAZONIA *– Sistema de información de la diversidad biológica y ambiental de la Amazonía Peruana*
Se trata de una red que ofrece amplios recursos informativos científicos y divulgativos, así como medios de comunicación para las personas y organizaciones interesadas en el conocimiento, la conservación y el uso sostenible de la biodiversidad amazónica del Perú. Permite consultar y registrar en línea conferencias, publicaciones, así como datos de profesionales, instituciones y proyectos relacionados a la Amazonía andina. También ofrece herramientas de información para compartirlas con otros sitios web.
Sitio web: www.siamazonia.org.pe/

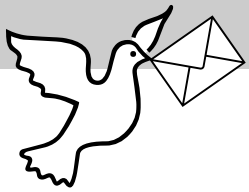
The human footprint dataset
www.ciesin.columbia.edu/wild_areas/

The "man of the trees"
This site is dedicated to the work of Richard St. Barbe Baker (1889–1982).
www.manofthetrees.org

Venerable trees of the earth
http://arbresvenerables.new.fr/

Wild resources
Much information available on NWFPs – from Wales to Uganda.
www.wildresources.co.uk/projects_malawi.shtml ●

READERS' RESPONSE



Non-wood or non-timber?

I have the deep feeling that there is a profound misunderstanding over the term WOOD or NON-WOOD.

In my opinion you are dealing with NON-TIMBER instead of NON-WOOD.

I have met FAO people in Rome in order to underline in which field we are working. In fact we are working over two-thirds of the total wood production in the world but not on TIMBER PRODUCTS.

We are working on the most valuable part of the trees: THE BRANCHES perceived as having no value and assessed by you as being a non-wood product.

Please have a look at my article prepared for the World Bank.

(Professeur Gilles Lemieux, Groupe de Coordination sur les Bois Raméaux, Département des Sciences du Bois et de la Forêt, Université Laval, Québec G1K 7P4, Canada. Fax: +1 418 656 5262; E-mail: gilles.lemieux@sbf.ulaval.ca)

(Please see Prof. Lemieux's article on p. 26.)

Reply from Dr Wulf Killmann, Director, Forest Products and Economics Division, FAO

Agreeably the borderline is sometimes difficult to draw. However, here are some definitional items.

Timber: wood prepared for use in building and carpentry (Concise Oxford English Dictionary, 1999).

Non-timber forest products include all products from the forest except timber. That is, they also include wood for wood fuels (ending up in fuelwood and charcoal).

Non-wood forest products: the term excludes all products made of wood from the forest, i.e. for carpentry, house and ship building, and wood fuels.

About 50 percent of all trees felled worldwide are burnt as wood fuels. Any statistics on non-timber forest products would have to include *per definitionem* wood fuels, which would totally distort the values of traditional NWFPs such as berries, mushrooms, medicinal plants, fibres, nuts, fruits, gums, latex, leaves, roots and tubers, rattan and bamboo, only to name a few.

Therefore, FAO in its description of the subject-matter decided purposefully for the term non-wood forest products, and against non-timber forest products.

Wood fuels are dealt with separately by FAO.

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Request for contribution of articles for special issues

COMFORPTS plans to publish two special issues of the *International Journal of Forest Usufructs Management* (half-yearly) during 2006 and of *MFP News* (quarterly newsletter) during 2006 and 2007 on the following themes.

For the *International Journal of Forest Usufructs Management* (JFUM).

- Non-timber forest products-based enterprises (June–December 2006).

For *MFP News*.

- Gums and resins for trade (July–September 2006).
- Pollution-retarding NTFPs (October– December 2006).
- Edible and non–edible fatty oils, to avoid their imports (January–March 2007).
- NTFPs for improvement of soil and ecology (April–June 2007).
- Fodder and forage, fibres and flosses (July–September 2007).
- Policies and legal issues on rights and privileges for the collection and production of NTFPs from forests (October–December 2007).

For more information, please contact:

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Comments from our readers

"Thanks for your excellent work which helps us constantly to look for new ideas and their application in Peru." (Rainer Schulte, Peru)

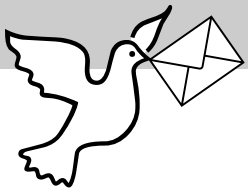
"The bulletin is always very informative, full of interesting news, contacts, etc. – really a great initiative." (Vera De Cauwer, Namibia)

"Recently I received your excellent information bulletin *Non-Wood News* Vol. 12 March 2005. Thank you very much for providing this worldwide view on NTFPs to a local practitioner." (Marc G.A.C. Smits, Nicaragua)

"The publication is excellent and I am certain that this good work delivers many benefits to poor people and cultures across the world. Keep up the good work." (Binai Lama, Bhutan)

"*Non-Wood News* serves as useful material to our library clients." (Remedios E. Abing, Philippines)

READERS' RESPONSE



A selection of comments received through the evaluation exercise (see pp. 69–70)

▲ More should be written on non-wood fibre esp. crops like Kenaf which is environmentally friendly. However a lot has been written on other crops which would be useful to other scientists. Good job!

▲ The section "special features" and "the publications of interest" are of interest to me. However, there is a lack of quality reference material, say a research paper on a current topic of global interest.

▲ Absolutely brilliant publication with information that is hardly anywhere obtainable. Useful both for practical application and as a reference source for educational and campaign purposes. Thanks!

▲ There is insufficient highlight on the impact of NWPFs on livelihoods and on communities.

▲ An annual copy is too long a gap; some information might lose relevance.

▲ Little information about NWFP processing technologies, little information about NWFPs of boreal forests.

▲ La périodicité est très large et accentue l'information sur la recherche médicinale.

▲ Very concise and extremely informative. This publication is quite suitable for general community use as well as an educational source.

▲ Comprehensive information, global research findings presented in a concise form; sometimes too generalized and lacks focus.

▲ It is broad based and seems to strive to present "on the edge" uses vs. traditional uses.

▲ I really like some case studies. But I think it will be very valuable to always include information on funding opportunities, trainings, scholarships, internships and so on.

▲ It focuses on a very important field, which has been under-estimated for decades; it tries to get feedback from the readers and others in the world. Its weakness is that it remains +or- passive.

▲ If the Publications of interest part could be thematic, it would be of more interest for me.

▲ Produce información valiosa pero es información muy resumida.

▲ More emphasis should be laid on actual field projects.

▲ We would love to see more information on sub-Saharan countries in Africa.

▲ It has lots of good articles from reputable authors/organizations. The column layout is a little bit difficult to read and some articles have no English translation.

▲ Broad up-to-date compilation, short informative articles. It can be difficult to use for topic-focused search.

▲ It covers almost all NWFPs around the globe which is remarkable.

▲ The briefness of the contributions is a strength and a weakness (one would not read longer ones, information often not detailed enough for citation, but contact to authors resolves this problem).

▲ I think the news is extremely useful in the form it is presented and I don't see any weakness with it but only information that could be utilized for the benefit of rural farmers.

▲ A large amount of information on many different NWFPs, how they can be used and marketed and country information. Probably the great difficulty lies in extending this information.

▲ The articles are good, but some are not complete publications. If complete publications could be published then it will be excellent.

▲ Keeps us informed on what is happening on NWFPs. On the other hand, because of the limitation of space, much information is superficial.

▲ It gives very few addresses of donor organizations, something highly needed by the poor subsistence peasant farmers.

▲ Country compass is useful ... the layout is strong, I have no criticisms other than I wish it would come more than once a year (though I recognize the costs and time involved).

▲ Too much emphasis on NWFPs in forest ecosystems with little attention to those on arid and semi-arid lands.

▲ More information needed on medicinal plants in forests and their sustainable extraction models, the conservation of understorey plants in forests is not receiving enough attention.

▲ Forces: valorisation et diffusion du savoir sur les plantes. Faiblesses: informations scientifiques sue les plantes présentées.

▲ Lack of information on economic aspect of NWFPs and the importance of NWFPs to national/international development.

▲ Tener la información ordenada por temas: plantas medicinales, utilizadas en cestería, en alimentación, especies vegetales subutilizadas, bioinsecticidas. Orden por continentes y países.

▲ It carries information not readily available elsewhere but is silent on issues of practical benefits of research outputs. Action research is meaningless if it cannot change the lives of the deprived.

▲ It gives a good overview of all FAO activities related to NWFPs. However, when looking for a specific product, no alphabetic order of product or country is provided.

▲ I really enjoy reading *Non-Wood News*. It is so informative and readable and gives useful information. I find it very valuable. ●

If many little people, in many little places, do many little things, they can change the face of the earth!

African proverb

Traditional knowledge of Non-Wood Forest Products

Traditional knowledge of the multiplicity of uses and benefits deriving from NWFPs is passed on from one generation to another. Forest-dependent communities have always recognized the importance of NWFPs in their lives – whether as food, shelter or medicine.

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