

non-wood

news

EDITORIAL

The editorial for this issue of *Non-Wood News* has been written by R. Michael Martin, Director of the Forest Economics, Policy and Products Division.



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**INTERNATIONAL YEAR
OF FORESTS • 2011**

The United Nations General Assembly designated 2011 the International Year of Forests to raise awareness on sustainable management of all types of forests. "Forests for people" is the main theme of the year, highlighting the dynamic relationship between forests and the people who depend upon them.

Forests 2011 provides an unprecedented opportunity to bring attention to the interconnectivity between people and forests. National, regional and local organizations around the world are encouraged to plan Forests 2011 events in line with their own interests and, in particular, to reach out to those in fields not traditionally

considered directly related to forests. In fact, forests are important to nearly all kinds of human activity: providing shelter to people and habitat to biodiversity; as a source of food, medicine and clean water; and they play a vital role in maintaining a stable global climate and environment.

Non-Wood News highlights the many ways people have come to use and depend upon their forests. Increasing urbanization removes many consumers from the source of origin of key products enriching their lives. Take every chance you can to publicize the International Year of Forests and your role in working with forests, their products and services. Of particular interest to readers of *Non-Wood News* may be the Web site on how we celebrate forests every day around the world – each of us in a special way: www.fao.org/forestry/iyf2011/68850/en/

NON-WOOD NEWS

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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 31 August 2011, to:

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FAO, Viale delle Terme di Caracalla
00153 Rome, Italy
E-mail: non-wood-news@fao.org
www.fao.org/forestry/nwfp/nonwood.htm

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INTERNATIONAL YEAR
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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 include 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. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

NWFPS: CULTIVATION – THE KEY TO BETTER AGRICULTURE AND IMPROVED LIVELIHOODS

Thanks to *Non-Wood News* we are all increasingly aware of the utility of many underutilized species and their potential to play an important role in the improvement of the livelihoods of millions of people around the world, especially in the tropics and subtropics. In my last contribution “Domestication of non-wood forest products: the transition from common property resource to crop” (*Non-Wood News* 12), I highlighted the tree domestication programmes that are bringing some of these species into cultivation as new crops integrated into agroforestry systems. I called the products of these new crops Agroforestry Tree Products (AFTPs) to distinguish them from non-timber/wood forest products, which typically are common property resources.

Many wild species, both trees and herbs, can be brought into cultivation to restore lost productive capacity in farm land, especially through soil fertility improvement and the rehabilitation of agro-ecosystem functions. The domestication of these wild species by cultivation, with and without genetic selection, also adds enhanced utility and greater profitability as well as conferring nutritional and health benefits. Going one step further, the marketing of the products can promote local enterprise and value addition, and creates jobs in rural communities. Thus, the expansion of the

on-farm resource through the upscaling of diversified farming can lead to a reduction of poverty, malnutrition, hunger and land degradation, as well as contributing to the reduction of other environmental problems, such as erosion, watershed protection and even climate change. With modern agriculture often failing to meet many of the needs of poor smallholder farming communities, there is an urgent need for work in support of more socially, economically and environmentally sustainable tropical agriculture.

Domestication techniques and strategies

There are many species producing NWFPS with potential for cultivation and domestication. Simple horticultural approaches to cultivar development can be introduced to rural communities to progress towards more diversified and productive farming systems utilizing traditionally and culturally important species. For example, the development of robust vegetative propagation techniques has been used to overcome some of the critical barriers to rapid tree domestication, opening up the opportunities for clonal varieties. Simple, inexpensive and low-technology methods for the rooting of stem cuttings have been developed for use by resource-poor farmers in remote village nurseries. These robust and appropriate techniques, which do not require running water or electricity, are now being widely implemented, most notably within participatory village-level development of cultivars of indigenous fruit/nut tree species (see Table) in West Africa.

The vegetative propagation of selected individuals with desirable traits can result in large improvements in yield and quality as there typically is three to tenfold intraspecific variation in all the traits of importance to enhance marketability. Interestingly, this variation is greatest at the village level, indicating that genetic diversity at the species level can be maintained by village-level domestication. In addition to selection for yield and quality traits, it is possible to develop cultivars that are productive out of season and whose products sell for much higher prices than those obtained in the peak season.

To ensure that the benefits of domestication flow back to the local people, a participatory approach to domestication based on local knowledge can be used. Recent evidence indicates that this empowers local communities, conferring greater food self-sufficiency, livelihood benefits from income generation and nutritional security. However, this approach to diversified agriculture needs to be supported by rights and formal agreements that protect the farmers from unscrupulous commercial exploitation. Currently, formal international legal frameworks for these rights are unavailable, although they have been under discussion for many years. However, in a recent paper, my colleague Cyril Lombard and I have proposed some interim measures involving local registration of cultivars that should provide some level of protection. On the marketing side, experience to date indicates that protection can be achieved by the development of

Some of the tree species being domesticated that have potential as components of agroforestry systems

Species	Use
<i>Adansonia digitata</i>	Fruits and leafy vegetable
<i>Allanblackia</i> spp.	Oils
<i>Barringtonia procera</i>	Nuts
<i>Canarium indicum</i>	Nuts
<i>Dacryodes edulis</i>	Fruits and oils
<i>Gnetum africanum</i>	Leafy vegetable
<i>Inocarpus fagifer</i>	Nuts
<i>Irvingia gabonensis</i> /l. <i>wombulu</i>	Kernels and fruits
<i>Pausinystalia johimbe</i>	Bark for medicinal products
<i>Prunus africana</i>	Bark for medicinal products
<i>Ricinodendron heudelottii</i>	Kernels
<i>Santalum austrocaledonicum</i> / <i>S. lanceolatum</i>	Essential oils
<i>Sclerocarya birrea</i>	Fruits and nuts
<i>Vitellaria paradoxa</i>	Nuts



Inocarpus fagifer



Allanblackia floribunda

partnerships between producers and the local-to-global companies by carefully formulated commercial agreements with leaders in the relevant sector. Forward thinking and farmer-oriented trade associations need to create supply agreements which ensure that the village producers remain in the value chain in the long term. To diversify the rural economy with AFTPs from new crops based on NWFPs and to use this approach to reduce poverty in developing countries effectively will require the incentive to develop local processing and value-adding opportunities in country. In Cameroon, an integrated rural development project – “Food for Progress” – involving the domestication of local tree species has illustrated how this can be achieved.

Food for Progress

The “Food for Progress” programme in the west and northwest regions of Cameroon has placed indigenous tree domestication at the heart of an integrated rural development project, which is simultaneously reducing poverty, malnutrition and hunger and rehabilitating degraded land. Its success, recognized by the award of a United Nations Equator Prize, has been the outcome of wholehearted adoption of participatory tree domestication in a growing number of villages. This impact is attributable to the dissemination of knowledge and skills to neighbouring communities, via Rural Resource Centres (RRCs). The training by these RRCs has been the catalyst for farmer adoption and the socio-economic impacts have come in as little as five years from the sale and cultivation of plants from village nurseries, including *Afrostryax lepidophyllus*, *Allanblackia floribunda*, *Canarium schweinfurthii*, *Cola acuminata*,

C. nitida, *Dacryodes edulis*, *Garcinia kola*, *Gnetum africanum*, *Irvingia gabonensis*, *Prunus africana*, *Ricinodendron heudelottii* and *Voacanga africana*.

This programme has taken an innovative approach to rebuilding both the lives of the communities and the forest resource by providing training in tree domestication and nursery management, the wise use of small loans, community governance, food processing using locally fabricated equipment, and short-term improved fallows for soil fertility improvement. The overall approach has thus involved three steps aimed at promoting sustainable rural development through the implementation of multifunctional agriculture.

- *Step 1* involves the restoration of soil fertility in degraded farmland by growing nitrogen-fixing trees and shrubs at high density for two to three years. This has tripled crop yields.
- *Step 2* involves the creation of village nurseries to produce planting stock of locally important species, especially indigenous fruit and nut trees. Through the selection of superior trees and the development of cultivars, this has built on the common practice of small-scale farmers to protect or plant trees producing traditionally important products (food, medicines, etc.). This tree domestication activity is generating income and improving household diets.
- *Step 3* involves the promotion of local entrepreneurship in value-adding and processing technologies for both staple food crops and the new AFTPs. This is aimed at expanding local and regional trade, increasing the availability of the products throughout the year, and creating off-farm employment opportunities.

The project started with just a few farmers from two villages and has now grown to over 7 500 farmers from more than 450 villages centred around five rural resource centres. The villagers are reporting life-changing positive impacts. These range from income-raising from US\$1–2 per day to up to about US\$15 per day. This income has allowed villagers to send their children to school, and to improve their buildings and other infrastructure such as piped water or new wells. In addition, the households have reported better nutrition and health, more time for women to spend in the home and reduced daily drudgery. However,

interestingly, young men have said that they can now see employment and business opportunities in the community, which means that they can stay in the village rather than migrating to town. Overall, therefore, this programme is delivering a suite of impacts as part of a much bigger package that is improving the social, economic and environmental sustainability of rural life in Cameroon. The challenge now is to scale this project up to meet the needs of hundreds of millions of other rural people in Africa and elsewhere in the tropics. The project illustrates how AFTPs derived from NWFPs can be cultivated and deliver a pathway out of hunger, malnutrition and poverty.

(Contributed by: Roger R.B. Leakey, Agroforestry and Novel Crops Unit, School of Marine and Tropical Biology, James Cook University, Cairns, Australia QLD4870. E-mail: rogerleakey@btinternet.com)

Before retirement, Prof. Roger Leakey was Director of James Cook University's Agroforestry and Novel Crops Unit, former Director of Research at ICRAF (now the World Agroforestry Centre) and Head of Tropical Ecology at the Centre of Ecology and Hydrology, Edinburgh, United Kingdom. He was also a Coordinating Lead Author of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) and is now Vice President of the International Society of Tropical Foresters. ♣



Adansonia digitata

NWFPs IN ASIA

Asian forests

Asian forests cover 549 million ha, accounting for nearly 14 percent of the global forest area. However, their distribution in the region is uneven, with China, Indonesia and India having about half of the area. Asia's forests encompass a wide array of ecosystems, including tropical and temperate forests, mangroves, montane and arid forests. The region also has some 200 million ha of other wooded land, including scrubland and areas with limited tree cover.

At the aggregate level, there has been a positive trend in forest area increase since 2000. The increase over the last two decades is primarily a result of large-scale afforestation in China and Viet Nam. China alone has accounted for 80 percent of the regional expansion of planted forests in the last five years. Elsewhere, particularly in Southeast Asia where the highest levels of biodiversity are found, deforestation rates remain high. At the same time, improper logging and illegal practices contribute to the degradation of natural forest areas. Degradation often precedes deforestation.

Population pressure on Asian forests is heavier than in any other global region; forest area – including both plantations and natural forests – amounts to only 0.15 ha per capita. As plantations replace natural forests, forest capacity to provide all the products and the wide array of ecosystem services of natural forests is reduced.

As tropical hardwood supplies continue to dwindle, expanding improved management practices will be critical to maintaining biodiversity and enhancing local livelihoods in and around existing natural production forests, as well as reducing the region's CO₂ emission levels.

Several countries have opted for partial or total bans on wood production from natural forests, often triggered by natural calamities such as floods and landslides, and pay more attention to the importance of forests with high conservation value. (Source: Yasmi *et al.* (eds). 2010. *Asian Forests: Working for People and Nature*. IUFRO, WFSE, FAO and RECOFTC.)

The role of palm husbandry in the economic revival of rural Bangladesh

An exploratory study was conducted in Feni, a southeastern district of Bangladesh, to explore the role of palm husbandry in the rural economy. A total of

48 households in the study area were interviewed, using a semi-structured questionnaire. Based on their total annual income, the farmers were categorized into three groups as high, medium and low income. Palm trees contribute Tk26 000, Tk22 740 and Tk18 300 respectively for the three income groups annually.

Palm products contribute 46 percent of the total annual income of the low-income group, followed by 19 percent of the medium-income group and 14 percent of the high-income group. Taking into account the income of all the respondents, 24 percent of their income is derived from palm products. Additionally, palms provide a multitude of useful products ranging from fuelwood, construction materials and tools, to handicrafts. However, a poor marketing system results in a decreasing annual return from palm trees.

Palm husbandry could be a promising source of rural incomes in Bangladesh if the farmers' traditional knowledge of management were to be combined with more scientific management practices. (Source: M. Islam, S. Sohel, P. Rana, S. Akhter, M.S. Chowdhury and A. Halim. 2010. The role of palm husbandry in the economic upliftment of rural Bangladesh. Centre of Minor Forest Products for Rural Development and Environmental Conservation. *International J. Forest Usufructs Management*, 11(2). Indirapuram, Dehradun, India.)

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FOR MORE INFORMATION, PLEASE CONTACT:
Department of Forestry and Environment
Science, Shah Jalal University of Science and
Technology, Sylhet-3114, Bangladesh.

China: traditional medicine prices go sky high

Some 84 percent of the nearly 600 Chinese traditional medicines in the market have seen prices spike as high as 700 percent over the past year, according to the China Association of Traditional Chinese Medicine. Industry watchers blame speculation, bad weather and strong market demand for the soaring prices.

Two traditional medicines undergoing astronomical prices include *Pseudostellaria* root, commonly known as prince ginseng, and *Cordyceps sinensis*, colloquially known as caterpillar fungus. Prince ginseng is often used for spleen-related illnesses or to rehydrate the body, while caterpillar fungus is used for ailments ranging from fatigue to cancer.

Prince ginseng prices jumped from 119 yuan (US\$17.90)/kg at the end of 2009 to 905 yuan (US\$136.17) today, a 660 percent increase in less than one year. Top-grade caterpillar fungus has seen a 20 percent increase in just the last month, selling for as much as 200 000 yuan (US\$30 109.20)/kg. The health product market in China was worth about 91 billion yuan (US\$13.69 billion) last year, ranking it behind the United States of America and Japan.

In the first three-quarters of this year, exports of traditional Chinese medicines topped US\$1.35 billion, up 20.5 percent year on year, according to data from the China Association of Traditional Chinese Medicine. (Source: *Global Times*, 18 November 2010.)



Honey production: from cottage industry to global business

Honey production, at best, makes you think of a small cottage industry. Often, it is just one beekeeper who collects honey and delivers it to your doorstep. Jagjit Singh Kapoor, though, has turned it into a global business. He started with five honey bee colonies in the 1980s and today his Kashmir Apiaries has 50 000 of these across the country, "from the Himalayas to Kanyakumari".

The company, based in Doraha, Ludhiana, is the largest exporter of honey from India, accounting, perhaps, for as much as 80 percent of the country's total honey exports. It has a presence in more than 48 countries.

"I started with 10 000 rupees given to me by my father. I took it as a challenge and never looked back. There were many hurdles but I was determined and my family supported me in my journey," says Kapoor. Last year, the company recorded a turnover of 280 rupees crore, with a 35 percent growth in sales. Kapoor set about devising his own methods, including designing driers to reduce the moisture content in honey. "And I travelled throughout the country with my wife to identify flora for feeding the bees to get good-quality honey."

Initially, the orders were small. Today, his company competes with rivals from China and Argentina, the two major honey exporters globally.

The company is also working on a project to make "green" candles. These are candles made from beeswax, a by-product for beekeepers. "These candles do not leave black smoke when lit, like the synthetic wax candles. These are environment friendly." [Source: *The Times of India*, 19 January 2011.]

Kashmiri saffron growers see red

Plagued by dwindling yields, lack of scientific crop management and shrinking cultivation space, saffron production in India's Kashmir region is in a critical state. Worse, even six months after it was announced, the much-hyped 376 rupees crore National Saffron Mission is yet to initiate baby steps to boost production.

On average, Kashmir annually produces 12 500 kg of saffron (*Crocus stavia kashmiriana*), a prized and costly ingredient used in medicine and South Asian cuisine. Saffron is the dried reddish-purple stigma painstakingly collected from billions of flowers grown in autumn on 4 500 ha, spread over 200 villages of the prosperous Pampore belt on the outskirts of Srinagar. Last year, prices fetched up to 175 000 rupees/kg.

But the scenario is changing. Over the years, average production has halved, the cultivable land has shrunk to 3 600 ha and prices are not picking up. This year, saffron is selling for 120 000 rupees/kg in a slow market. "Incessant drought periods in the past two decades, lack of scientific crop methodology and transformation of cultivable land into residential colonies have wreaked havoc on saffron

production," admits Chief Agriculture Officer Nigeen Ahmad Lone. Production was slightly better this autumn because of the weather, he says. Saffron is grown in parts of Budgam in central Kashmir and Kishtawar in Jammu province, but 74 percent of the saffron land is in Pampore and its periphery. Agriculture Minister Ghulam Hassan Mir says that seed corms will be replanted in the entire area over the next three years with three-quarters of the cost being borne by the government.

Experts say the growers use archaic methods of planting seed corms at random without replacement for 15–20 years. "We stress planting corms geometrically, recycling them every four years and introducing sprinkle irrigation methods," says seed specialist Farooq Ahmad Mandoo. The four-year mission plans to establish 128 tube wells and distribute 3 715 sprinkle sets. The government will fully invest in bore wells, but the land has to be provided by farmers.

Contraband is a major problem plaguing the cash crop. Last year, police seized a factory run clandestinely where fake saffron was being manufactured.

The shrinking of saffron land is another threat. "Though construction on saffron land is prohibited under the land revenue Act, the law is violated repeatedly," says lawyer Bashir Ahmad Malik, who owns a part of the saffron land. The growers in Pampore are eagerly waiting for the saffron mission to pick up speed. "It is our last ray of hope," says Ghulam Qadir Bhat, a saffron grower from Pampore's Tulbagh area. [Source: www.dailypioneer.com, 6 December 2010.]

Indigenous communities and NTFPs: towards ownership and governance in India

The idea that the development trajectories of our forests and those of the indigenous people who inhabit these forests cannot be seen apart from each other is one that has gained currency the world over. In India, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (FRA), taking cognizance of this, seeks to remedy the "historical injustice" suffered by indigenous communities by recognizing and vesting in them a range of forest rights that have been traditionally enjoyed by the communities.

The spirit of the legislation is to revitalize traditional systems of community forest governance by strengthening tenure of

individuals and communities over these resources. The rights recognized under the Act include the right to occupy forest land for habitation and agriculture, rights of access to forest land for grazing, fishing, and to traditionally accessed sacred places and burial grounds, rights of ownership, collection and sale of NTFPs and rights to biodiversity and associated traditional knowledge.

While recognizing the larger import of the entitlement, the right of ownership over traditionally collected NTFPs is likely to be of immediate interest to indigenous communities. Across the country, these people have a strong cultural heritage associated with forests. NTFPs are an important seasonal source of household income. However, over a period of time, indigenous collectors have become mere labourers supplying this produce to a chain of market agents. The joint forest management programme of the Government of India, begun over two decades ago, held some promise of tenurial security over forest produce for the indigenous community. Unfortunately, any possibility of comanagement has turned out to be mired in institutional road blocks.

Today, the FRA vests in indigenous communities the rights of collection and trade of NTFPs and further empowers the *gram sabha* – or the village assembly – to initiate and validate claims and evolve mechanisms for conservation of the resource. By mainstreaming forest governance into the larger democratic framework of governance in the country, the legislation has at once strengthened both the livelihoods of indigenous forest-dependent communities as well as the community-based conservation of a fast depleting resource.

However, there is much to be done to realize the potential of the legislation on the ground. There is a distinct possibility that, as in the case of the legislation that provided for local self-governance in the country, the FRA will also be subverted by the lack of adequate capacity building of village-level bodies. For people, who have long been subjected to a colonial world views of forestry and who have been located as the "growing human threat" to forests, it will require a proactive role by the state to draw on their collective knowledge of the resource and posit a long-denied people's forestry. [Contributed by: S. Archana, Keystone Foundation, Groves Hill Road, Kotagiri 643 217, Nilgiris, TN, India. E-mail: archana@keystone-foundation.org]



Saffron

PEOPLE AND ECONOMIES IN ASIA

Asia is widely hailed as an economic success story and a major driver for powering global growth over the last two decades. The speed of economic growth in the region's developing countries has surpassed global growth rates for several years. The World Bank contends that Asia is the most preferred region for Foreign Direct Investments (FDIs).

However, economic growth has widened the gap between the rich and the poor. Asian societies show wide discrepancies in people's empowerment and income, as large groups of the population have been left out of the development process. It is estimated that there are approximately 600 million poor people in the region living on less than US\$1 per day.

The forestry sector provides important employment, basic needs and ecosystem services to both rural and urban populations. The region's urban population has increased fivefold since 1950. The United Nations projects that by 2025 Asia's urban population will have increased by a further 670 million people from today's figure of 1.8 billion; by 2025 urban dwellers in Asia will exceed the numbers of their rural counterparts. Rapid economic growth in urban areas is widening the rural-urban divide. With low incomes from agriculture, poverty reduction will remain a major challenge, especially in rural areas. Even in areas where forestry may not be able to lift people out of the poverty trap, it will be important for providing basic needs, especially for indigenous peoples and forest-dependent communities. (Source: Yasmi *et al.* (eds). 2010. *Asian Forests: Working for People and Nature*. IUFRO, WFSE, FAO and RECOFTC.)

Indonesia: call to revamp trade and export of rattan

The Indonesian Commission for the Supervision of Business Competition (KPPU) has urged the Indonesian Federal Government to revise the regulation on trade and export of rattan. According to KPPU, the supply of rattan has exceeded demand in the domestic market, thus harming the livelihoods of local rattan suppliers.



The Indonesian Rattan Businessmen Association (APRI) added that domestic consumption of rattan stands at about 40 000 tonnes/year, while production has reached 696 000 tonnes/year. Moreover, rattan processing in the country has declined over the past few years, further weakening demand.

The Ministry of Trade Indonesia enforced the regulation on the trade and export of rattan on 11 August 2009. The regulation outlines the export ban of several species of rattan and also limits the export volume of semi-processed rattan to 35 000 tonnes. Furthermore, the regulation also requires that rattan producers and suppliers obtain letters of approval from the local rattan industry declaring that they have met and satisfied the requirements of the local rattan market.

Indonesia exported a total of US\$138 million worth of rattan products in 2010, down 21.5 percent from US\$168 million recorded in 2009.

Indonesia accounts for 82 percent of the world's total rattan production and there are 300 rattan species found across the country. (Source: www.ihb.de, 23 February 2011.)

Edible insect farming in the Lao People's Democratic Republic

FAO/Lao People's Democratic Republic (Lao PDR) is undertaking an innovative and practical project to address the unacceptable levels of malnutrition in the country, working with the National University of Laos to research and develop edible insect farming.

Insects have been eaten for centuries in the country. Traditionally, Lao people would collect insects when required as a result of the abundance of biodiversity in the country. However, factors such as development, commercial farming, changing land use and climate change have necessitated farming to ensure insects are still easily available for consumption.

The edible insect farming demonstration site, at the National University Faculty of Agriculture, will be officially launched in March (see Box). It is a learning centre for multispecies of edible insect farming and is open to farmers or anyone else who would like to learn. This is the first time such an activity has focused on insects in the Lao PDR.

Currently, the university students are doing a test-run of raising three types of insects: house cricket (*Acheata domestica*), mealworm (*Tenebrio molitor*) and palm weevil (*Rhynchophoru ferrugineus*). There is also semi-farming of the weaver ant (*Oecophylla smaragdina*); this is being carried out on trees outside, rather than inside the unit. Students are gathering data on the best and highest economic return diets for the insects. This first generation of insects will be taken into the FAO laboratory and tested for food safety and nutritional content. There are a lot of gaps in scientific, quantifiable knowledge that FAO is attempting to fill.

A seminar on "Edible Insects for Food and Nutrition Security" was held in Vientiane on 29 March 2011 with the aim to provide information on the project's achievements and activities. It was also an occasion to show, for the first time, the insect farming demonstration unit site where three species of insects are being bred and one species is being semi-bred. This activity is taking place in collaboration with the Faculty of Agriculture, National University of Laos. Both theoretical and practical training was held for farmers at the demonstration unit site.

Presentations during the seminar focused on the nationwide edible insect survey carried out by the Institut de la francophonie pour la médecine tropicale, insect consumption in the Lao PDR among children under two years old and breastfeeding women, and the development of edible insect farming in Thailand, among others.

FOR MORE INFORMATION, PLEASE CONTACT:
Sissel Brenna, Public Health and Nutrition Specialist, FAO Representation in Laos, PO Box 1640, 01004 Vientiane, Lao People's Democratic Republic. E-mail: Sissel.Brenna@fao.org

VIDEO: EDIBLE INSECTS BEAT HUNGER IN THE LAO PDR

According to the United Nations, in the Lao PDR some 40 percent of children under the age of five are severely undernourished because of a lack of protein in their diets. But food charities are hoping that a move towards insect farming in the country could help overcome the problem. FAO, which is supporting efforts in the Lao PDR, says insects contain a high protein and vitamin content. (Source: Al Jazeera, 14 September 2010.)

To view video, please visit:
www.youtube.com/watch?v=v4VxJecTOKM

Fragrant future for agarwood exports in Myanmar

Interest is growing in a fragrant new product that could help boost Myanmar's foreign exchange income. Agarwood, primarily derived from the *Aquilaria malaccensis* species, produces an oil that, under certain conditions, emits a pleasant fragrance and is said to have medicinal properties.

Investment in Myanmar agarwood is increasing, a spokesperson for the Forest Products Joint Venture Corporation said last week. "There is little domestic demand for the time being. Middle Eastern countries and America use agar oil mostly for perfume and medicine," said U Aung Min Kyaw Thu, the Corporation's general manager. The Corporation planted 60 agar trees as a test in 2003, and has since expanded to 2 000 trees. "Thailand and Viet Nam export agarwood. They have successful plantations, and can produce the oil themselves," he said.

Agar trees produce the oil naturally only in combination with a fungus. Agarwood, an evergreen, is listed as an endangered species, and is protected by law. A permit is required to cultivate and sell it. Two of the 15 known species can grow in Myanmar. Agarwood can be worth from US\$800 to US\$10 000/kg.

"Most farmers think they cannot afford to grow it, but there are profits to be made," said U Aung Min Kyaw Thu, who said the wood had grown in popularity over the past two years. "Companies are increasingly interested. If we succeed in producing the fragrance, it could bring in lots of foreign income."

Daw Jar Var, who owns an agar field in Myitkyina township, Kachin region, said: "I started growing agarwood early last year. It can grow everywhere in Myanmar, but in a tropical zone it grows in May and June, the rainy months". It costs about K6.5 million an acre (0.4 ha) to plant agar, and the profit for each plant can range from K800 000 to K1.5 million. [Source: Myanmar Times, 1 November 2010.]

Philippines: bamboo production as an alternative watershed protection tool

The Department of Trade and Industry (DTI) showcased several bamboo products as part of its advocacy campaign to promote the propagation of bamboo for furniture making and to encourage local residents to plant bamboo in order to help save and protect the deteriorating condition of the region's watersheds.

DTI Trade and Industry Specialist, Josephine Daluyong, said that this is in line with the government's thrust to promote the material in order to encourage small and medium entrepreneurs using indigenous raw materials and local skills and talents in their production.

The development of the bamboo industry (supported by Executive Order 879 to promote the industry), will work to support three pillars of development: climate change mitigation, poverty alleviation and disaster risk management. The sustainable propagation of bamboo is seen as an effective mitigation measure of climate change in that it will prevent the use of more trees for furniture making and building construction since it could effectively replace wood products. This is also geared towards the attainment of the country's commitment to reforest at least 500 000 ha with bamboo as part of its contribution to the Association of Southeast Asian Nations (ASEAN) commitment of 10 million ha of new forest by 2020 as part of its initiatives to improve the environment. [Source: Manila Bulletin [Philippines], 24 February 2011.]

Paying homage to ginseng in the Republic of Korea

"Look! It's huge!" shouts a muddy but beaming Han Myung-Ja, 52, plunging her hoe into the soil to unearth a giant ginseng root. Han fills a basket with the man-shaped root as she collects seasonal presents for family and friends – one of dozens of people doing the same at the Republic of Korea's biggest ginseng festival.



Ginseng

The plant, known to Koreans as the "root of life" for its purported health-giving properties, grows wild in deep valleys and on shaded hillsides and has also been cultivated on the peninsula for 1 500 years. Devotees say the root increases resistance to stress and fatigue, has an aphrodisiac quality and acts as a stimulant, although it has proved scientifically difficult to prove some of the claimed benefits.

Last year, the Republic of Korea produced 27 460 tonnes of ginseng roots – worth about US\$700 million – including exports valued at more than US\$21 million.

Geumsan county, 130 km south of the capital Seoul, is the hub of the industry. Its ginseng market operates year-round and accounts for 80 percent of all the country's trade. Geumsan also draws almost 1 million visitors every year to its ginseng festival, which precedes the major holiday of Chuseok (thanksgiving) at which the root is a prized gift. The festival earned some US\$76 million last year, including US\$27 million in sales of raw ginseng and US\$13 million spent at an expo of various products based on the herb.

During the expo, more than 150 tonnes of ginseng products are sold daily to both locals and foreigners. The festival also offers visitors a chance to dig for the roots, a free health examination, ginseng facial beauty masks, massages involving a form of ginseng aromatherapy and foot baths in water flavoured by the root.

The festival celebrated its 30th anniversary this year by opening the International Ginseng and Herb Research Institute, a 17 billion won (US\$14 million) project with 11 researchers dedicated to proving the health benefits of ginseng and honing cultivation skills. The county says its goal is to make ginseng production scientific and easier for buyers to trace, in a bid to promote the root more widely overseas.

"Ginseng and Koreans cannot be separated. It is our medicine and our food and we will try to show all its benefits to foreigners through this festival," said county mayor Park Dong-Cheol.

[Source: AFP in The Vancouver Sun [Canada], 10 September 2010.]

SRI LANKA: INTERGENERATIONAL KNOWLEDGE EXCHANGE PROGRAMME ON MEDICINAL PLANTS

A special programme to transmit the medical healing methods and knowledge about medicinal plants to the children of the Aboriginal Community has been launched. Under this programme, the Elders of the Aboriginal Community world are encouraged to impart their knowledge to their young ones. Action will also be taken to record data about medicinal plants and biodiversity.

The Aboriginal Community will also be educated about the medicinal plants of economic value so as to encourage them to cultivate them and earn an income by arranging marketing facilities. (Source: Sri Lanka Daily News, 27 January 2011.)

Bamboo and rattan industry in Viet Nam to develop sustainably

Viet Nam's Ministry of Agriculture and Rural Development identified bamboo as a key export product, helping to reduce poverty and developing the rural economy sustainably in the 2011–2015 period.

At a seminar on the development of the bamboo industry on 22 November, Deputy Minister of Agriculture and Rural Development, Ho Xuan Hung, said that if the bamboo industry grows by 10–15 percent, Viet Nam will require about 100 000 tonnes of rattan and 1 million bamboo trees every year. Currently, Viet Nam imports around 33 000 tonnes of rattan.

Therefore, to develop the industry sustainably, the ministry will protect around 1.6 million ha of rattan and plant an additional 165 000 ha by 2020. The ministry proposed many measures to develop rattan materials and support cultivation and protection of both bamboo and rattan.

In Viet Nam, bamboo and rattan are important forestry products with high

value. Exports of these products increased from US\$48 million in 1999 to US\$224.7 million in 2008 and are expected to reach US\$300 million in 2010. The products are now available in 120 countries and territories.

Around 270 villages with 340 000 workers are involved in the industry. [Source: Voice of Vietnam, 22 November 2010.]



Why cork?

That natural cork in your wine bottle does more than just preserve the quality and character of your wine. It preserves old-growth cork oak forests and a centuries-long way of life through sustainable harvesting of the bark. And it helps preserve the planet by naturally absorbing carbon, the greenhouse gas responsible for climate change.

Artificial plastic stoppers or screw caps on the other hand consume fossil fuels, and use at least five times more energy per tonne to produce, before millions of them end up in our landfills and oceans. So why cork?

Sustainably harvested bark

- Cork harvesting is an environmentally friendly process during which not a single tree is cut down. The bark renews itself ready for the next harvesting.
- Unlike its synthetic counterparts, cork is an inherently sustainable resource, both renewable and biodegradable. The cork oak tree (*Quercus suber*) is unique in that its thick bark can be stripped off every decade to extract the cork without damaging the trees, which can live for 170 to 250 years on average.
- Careful forest management not only provides for the continued extraction of the cork oak but helps to create the conditions for a diverse range of other products that are harvested from the



woodlands. A harmonious balance is maintained, where local people can provide for their needs without damaging the ecosystem or threatening the long-term sustainability of their most important natural resource.

- The cork oak is a slow-growing tree that may live for 200 years, which allows it on average to be stripped 16 times during its lifetime. The first stripping only takes place after 25 years, when the trunk of the tree has a circumference of 70 cm.

Biodiversity hot spot

- Cork oak trees help to conserve soil by providing protection against wind erosion and increasing the rate at which rainwater infiltrates and recharges groundwater.
- Cork oak landscapes cover approximately 2.7 million ha of Portugal, Spain, Algeria, Morocco, Italy, Tunisia and France. As well as providing a vital source of income for more than 100 000 people, these landscapes also support one of the highest levels of biodiversity among forest habitats, including globally endangered species such as the Iberian lynx, the Iberian imperial eagle and the Barbary deer.
- The Mediterranean is one of the 25 global hot spots characterized by a high level of species diversity. It has 13 000 endemic plant species, the second highest number in the world after the tropical Andes. In cork oak landscapes, plant diversity can reach a level of 135 species per m², and many of these species have aromatic, culinary or medicinal uses.

Naturally sequesters carbon

- In comparison with aluminium and plastic closures, the cork stopper is the best alternative in terms of non-renewable energy consumption, emission of greenhouse effect gases, contribution to atmospheric acidification, contribution to the formation of photochemical oxidants, contribution to the eutrophication of surface water and total production of solid waste.
- The capture of carbon by the cork oaks during the photosynthesis process results in plant growth and transforms atmospheric CO₂ into O₂ and, in the

case of organic matter, into cellulose. For this reason the forest is considered to be an important carbon sink.

Preserves local livelihoods

- Without the demand for cork, economic pressures could force farmers to abandon the active management of cork forests, which may lead to a rural exodus as well as unbalance the ecosystems that preserve the biodiversity of these regions.
- The increase in the market share of alternative wine stoppers, specifically plastic stoppers and screw tops, could reduce the economic value of cork lands, therefore leading to conversion to other uses, abandonment, degradation and finally loss of one of the best and most valuable examples of a human-nature balanced system. Because the forests have an economic value to local communities, people care for the forests.
- Cork oak woodlands provide employment and guarantee the survival of local communities. More than 100 000 people in the seven Mediterranean cork-producing countries depend directly and indirectly on cork economies. Cork is a vital source of regional rural employment.
- Over 15 billion cork stoppers are produced every year and sold worldwide to the wine industry. These stoppers are processed from bark harvested from cork oak woodlands that have existed in the western Mediterranean for thousands of years. Cork for bottle stoppers accounts for almost 70 percent of the total value of the cork market. The wine industry thus plays a vital role in maintaining the economic value of cork and the cork oak forests.

(Source: <http://100percentcork.org/cork.php/why-cork>)

Cork and cork oak forests under the spotlight during the FAO Committee on Forestry

The 20th Session of the FAO Committee on Forestry (COFO) hosted by the Organization at its headquarters in Rome, Italy, took place from 4 to 8 October 2010. It was held in conjunction with the second World Forest Week (WFW), which was designed to provide opportunities for discussions and debates around the theme "Forests and sustainable development – you are the



key". A key feature of the week, and an important event for the Mediterranean area, was the photo exhibit illustrating "The Art of Cork Manufacturing in Sardinia", with photos taken by the professional photographer, Roberto Graffi.

The idea of an exhibit was agreed upon by the enlarged Executive Committee of FAO/*Silva Mediterranea* at its meeting in April 2010 in Antalya, Turkey. Prominently displayed in the FAO Atrium, the exhibit was inaugurated at the reception on 5 October hosted by the Assistant Director-General of the FAO Forestry Department, Mr Eduardo Rojas-Briales, who welcomed participants and highlighted the importance of cork oak forests and the contribution of their products, including cork, and services: biodiversity conservation, desertification and fire prevention, climate change adaptation, etc. In introducing Roberto Graffi, Mr Rojas-Briales referred to the video, photos and book which formed the core of the exhibit and which vividly captured the photographer's passion for the cork industry and cork harvesting. The portraits featured in his 40 photographs sensitively reflect the human roots of the industry and the workers' connection to the forests.

The event was a great opportunity for *Silva Mediterranea* as a whole and its working group on cork oak in particular to raise awareness and illustrate the importance of cork oak forest landscapes and their contribution to the sustainable development in the Mediterranean as well as the linkages of the forestry sector with the agriculture sector, for example wine production and industry. Cork is produced in only seven Mediterranean countries, while vineyards are cultivated and wine is produced and consumed all over the world.

The cork exhibit coupled with a wine serving served to showcase how the wine sector – both producers and consumers – can take action in support of the conservation of cork oak forests. By choosing the cork stopper as the closure, wine producers and consumers will continue to support the cork stopper

market (70 percent of the economic value of cork production) as well as the livelihoods of people who depend on cork oak forest management and the cork industry for their living. Such action might be the only viable way to halt the decline in the cork stopper market and the consequent loss of interest on the part of cork oak forest managers and owners to invest in the conservation and sustainable management of cork oak forests, leading ultimately to increased degradation and forest loss. (Source: *Silva Mediterranea Newsletter* No. 5, November 2010; www.fao.org/forestry/silvamed)

FOR MORE INFORMATION, PLEASE CONTACT:
Ms Nora Berrahmouni, Arid Zone Forestry Officer, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: nora.berrahmouni@fao.org / www.youtube.com/watch?v=mlzL-dElv8

CORK OAK FORESTS ARE UNIQUE

Cork oak forests are unique. They occur naturally only in seven Mediterranean countries: Portugal, Spain, Morocco, Algeria, Tunisia, Italy and France.

Cork is an important NWFP in a forest-based economy, whereas the market of cork stoppers represents the backbone of the cork economy. Cork is also used in the building sector for insulation and flooring as well as in several other areas.

Cork oak forests provide pastures for livestock, honey, mushrooms, acorns, berries, and medicinal and aromatic plants. The forests are particularly important for a wide range of environmental services including biodiversity conservation, soil conservation, fire prevention, protection of territories against mega fires, good resilience to climate change and desertification, carbon fixation, water-table recharge and runoff control.

Cork oak forests are increasingly affected by a number of threats: decline in the global cork stopper market as a result of the growing use of substitutes for bottle stoppers, poor governance, lack of investments and management, overexploitation of cork oak forest resources and climate change. (Source: Flyer, COFO 2010 World Forest Week.)

Towards better quality cork?

The future of the quality of cork is a major preoccupation for professionals in the cork stopper industry. For even if cork oak (*Quercus suber*) as it stands can put up with a climatic evolution towards drier conditions, how will cork growth be affected? The phenomenon has been under observation in western Algeria by Rachid Tarik Boubraoua for some 12 years. He has observed that cork coming from a given tree maintained the same porosity regardless of its state of decline, but the cork itself grew less quickly. "A tree in decline loses 30 percent of its growth in thickness ... one can thus observe a close relationship between the health of a stand and its productivity characterized by the cork's speed of growth."

Hence, a decline in the quality of a plot or stand can impact the thickness of its cork. Observations by Enrique Torres, a research scientist and Professor at the University of Huelva (Spain) reach the same conclusion, which will certainly imply modifying the harvesting rotations in the regions involved. "It will perhaps be necessary to lengthen the periods between harvesting from nine to 11 or 12 years." As to porosity, the essential criterion for the quality of future cork stoppers, Torres explains: "The number of cells will not decrease but their diameter may, which is positive for the quality of cork". The season for harvesting will also no doubt be affected: already, in particularly dry summers, the cork will hardly come off from mid-July whereas harvesting usually goes on until a month later. "The harvest will be brought forward, beginning earlier in the year but also finishing earlier, though this will require adapting legislation."

Climate change leads us to the wider question of taking into account environmental issues in the cork market. According to Ramon Santiago, engineer with the Renewable Natural Resources Service of the Spanish Institute IPROCOR, strong signs are already perceptible in the cork and related industries. "The European Cork Confederation is in the process of trying to influence the International Code of Cork-making Practices by asking manufacturers to buy some part of their raw material from areas benefiting from the guarantee of sustainable development such as forests certified by an independent body."

Agostino Pintus, Director of the Department of Research on Cork and Silviculture of AGRIS in Sardinia (Italy) considers forest certification as the best

way for owners to get the most out of their good forest management, not necessarily from the added value such management may bring to the cork as a product but, above all, because it demands a different perspective on the manager's behalf on forests, one that is more multifunctional, more global. "Forest certification induces a different outlook on forests because it implies notably a pre-existing forest management plan," he says. Incidentally, the number of companies with suitable monitoring schemes as well as a certified surface area under cork oak is constantly increasing. [Source: R. Piazzetta. 4 December 2010. Vivexpo 2010: International Symposium on Cork Oak and Climate Change. *Forêt Méditerranéenne*, XXXI: 4.]



Conservation, sustainable management and restoration of cork oak forests in North Africa

A workshop to discuss the conservation, sustainable management and restoration of cork oak forests in North Africa took place on 7 April 2010. It was coorganized by FAO and the General Directorate of Forests (DGF) Tunisia within the framework of the FAO *Silva Mediterranea* Committee activities (Cork Oak Working Group), with the support of France (Ministry of Food, Agriculture and Fisheries) and the Mediterranean Network of Model Forests.

In spite of being so valuable, in the countries of the Near East region (Algeria, Morocco and Tunisia), cork oak forests are affected by degradation and loss as a result of different pressures and factors. Poor governance, poverty and lack of economic opportunities opened the way to illegal harvesting and overuse of forest resources. Where the forests are managed for cork, poor harvesting techniques lead to high mortality of trees. Overgrazing also reduces the regeneration capacity of the forest. Governance problems and unfair conditions, in terms of commercial rights and access to forest products for local

communities, are also to blame for cork oak forest degradation. At present, although local communities benefit from the use of products and services for subsistence in most cases through informal markets (i.e. access to grazing and acorn collection are free and not regulated), most of the monetary benefits from cork oak forests do not reach local communities. Furthermore, lack of management of cork oak forests linked with lack of human capacity and lack of long-term investment are problems of high importance that need to be addressed. The picture does not look better in the countries of the northern Mediterranean (Portugal, Spain, Italy and France), despite the high productivity and increased surface of cork oak (mainly in Portugal and Spain), through plantations on marginal land during the last decade. In contrast to the northern Mediterranean countries, in North Africa the cork sector is suffering from reduced quality and productivity of cork because of lack of management and poor cork harvesting techniques.

Moreover, one of the current and future drivers behind cork oak forest landscape degradation and loss is the forecasted decline in the global cork market as a result of the growing use of substitutes for cork bottle stoppers. This threatens to reduce the market value of cork and with it the incentive to preserve and manage cork oak forests. Despite the variety of cork products, it is wine bottle stoppers that drive the cork industry: they represent almost 70 percent of the cork market value. The dependence of the cork sector only on the cork stopper market is a major risk and a threatening issue in itself. There is need for the cork sector to explore better promotion, development and marketing of the full range of cork products (i.e. cork used for bioconstruction or other technologies). In addition, there is a need to look at the hidden value of the cork oak forests beyond cork. Capturing and valuing all the other products and services provided by these forests is of vital importance for ensuring sustainability of the systems and livelihoods. Another issue highlighted during the workshop was the lack of awareness of the social, economic and environmental values of cork oak forests, leading to both a lack of attention and a lack of long-term investment in their conservation and development.

All these threats and drivers are exacerbated by climate change, affecting the health of cork oak landscapes and increasing their vulnerability to diseases, pests and fires.

Given this complex situation, the workshop participants emphasized the need and urgency to take action based on an integrated and participatory approach to address the many challenges facing the cork oak forests and the people depending upon them. They recognized the suitability and the unique opportunity given by the *Silva Mediterranea* committee, in particular through its Cork Oak Working Group, to build a Mediterranean alliance among all interested groups to ensure the conservation and enhancement of the values of cork oak forests. Participants committed to joining the *Silva Mediterranea* Cork Oak Working Group and recommended and agreed on components to be included in the group's work programme for the next four years.

The entire set of presentations, the final report and the list of participants are available on the *Silva Mediterranea* Web site: www.fao.org/forestry/silvamed/ (Source: Workshop Report, Parallel Workshop "Conservation, sustainable management and restoration of cork oak forests in North Africa", 7 April 2010, 19th Session of the Near East Forestry Commission.)

FOR MORE INFORMATION, PLEASE CONTACT:
Ms Nora Berrahmouni, Arid Zone Forestry Officer, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: nora.berrahmouni@fao.org

***Silva Mediterranea* Cork Oak Working Group. A key issue for Mediterranean forests**

The *Silva Mediterranea* Cork Oak Working Group intends to be a common Pan-Mediterranean platform allying countries, institutions, the private and public sector, NGOs and local communities to: (i) build a Mediterranean strategy for the conservation, sustainable management, restoration and promotion of cork oak forests' social, cultural, economic and environmental values and products; and (ii) foster South-North synergies and collaboration on main cork oak issues.

The work plan of the *Silva Mediterranea* Cork Oak Working Group is based on:

- promoting best practices (sustainable management and restoration) through a network of cork oak landscapes and territories;
- promoting and facilitating the development of joint projects and programmes (comanagement,

enterprises of local communities, research, adaptation to climate change, etc.) and relevant fund-raising;

- putting in place a knowledge centre on cork oak forests;
- supporting the establishment of monitoring and evaluation systems on the state of cork oak forests and the impact of management practices;
- supporting the development of long-term and large-scale capacity building programmes on cork oak forests' issues, including cork harvesting at both national and Mediterranean levels;
- implementing a communication and marketing strategy for cork oak forests and derived products and services, using tools such as labelling and certification, payment for environmental services, and targeting wine and bioarchitecture sectors and forest-related and green industries.

In January 2010, the FAO *Silva Mediterranea* Secretariat, together with key partners, developed and submitted to the Spanish Agency for International Development Cooperation (AECID) a project concept with the aim of reducing current trends of degradation of cork oak forests in North African countries, while enhancing sustainable development opportunities for local populations. The objectives of the project are to: (i) develop mechanisms for the sustainable management of cork oak forests and the valorization of relevant products; and (ii) raise the profile of cork oak forests at the Mediterranean level, recognizing the importance for rural development of the services and goods they provide to Mediterranean societies. (Source: Flyer, COFO 2010 World Forest Week.)

Chêne-liège et changement climatique: vers quelle forêt allons-nous?

Le changement climatique est un phénomène mondial, qui se présente de façon inégale selon des parties du globe. Qu'en est-il à cet égard du pourtour méditerranéen? Tel est le thème traité dans son exposé par Bernard Boutte, ingénieur au Département de la santé des forêts d'Avignon. S'appuyant sur les conclusions du Groupe d'experts intergouvernemental sur l'évolution du climat (GIEC), il rapporte qu'il fera plus chaud en été – avec une pluviométrie stable mais concentrée en hiver et au printemps –, ce qui conduira, en particulier dans la région, à une évapotranspiration plus importante et à des déficits et stress hydriques.

En ce qui concerne l'évolution des températures et des précipitations, Enrique Torres, enseignant-chercheur à l'Université de Huelva, précise que le changement climatique peut provoquer une modification non seulement des valeurs moyennes de ces dernières, mais aussi de leur variabilité, à savoir leur écart-type. Pour ce qui est plus spécifiquement du chêne-liège, cela pourrait se traduire par des problèmes de relocalisation de l'espèce, en regard de ses difficultés de dissémination naturelle par les glands: on assisterait alors à un déplacement des aires potentielles de reboisement en chêne-liège vers le nord et vers des altitudes plus élevées.

C'est ce que confirment les travaux de modélisation informatique réalisés à l'Université d'Estrémadure par Angel Maria Felicísimo, et présentés lors de Vivexpo 2010 par Ramon Santiago, ingénieur auprès du Service des ressources naturelles renouvelables de l'Instituto del Corcho, la Madera y el Carbón Vegetal (IPROCOR) espagnol. Selon les modèles utilisés, plusieurs scénarios sont possibles, le pire allant jusqu'à prévoir une quasi disparition des zones favorables au chêne-liège dans le sud-ouest de l'Espagne, où il est pourtant aujourd'hui majoritairement présent, avec en contrepartie une ouverture de nouveaux territoires subéricoles dans le nord du pays. En toute logique donc, si le chêne-liège venait à désertier les régions climatiquement les plus défavorables, il pourrait néanmoins étendre à l'avenir sa zone de répartition vers le nord.

Cela n'est toutefois naturellement pas le cas au Maghreb, d'après les résultats des travaux de modélisations menés par Gazi Gader, expert tunisien intervenu dans le cadre d'un projet de coopération tuniso-allemand sur le changement climatique, lesquels montrent qu'il n'y a pas de possibilité d'évolution et d'extension de la subéraie en Tunisie. En effet, si le changement climatique se poursuit, il y aura une réduction drastique des zones présentant des conditions favorables au chêne-liège dans le pays, accompagnée d'une fragmentation des habitats. Cependant, précise l'intervenant, la réduction des conditions favorables n'implique pas que le chêne-liège est amené à disparaître complètement de ces zones. Ramon Santiago tient ainsi à souligner que ce dernier s'adapte très bien à la chaleur, y compris à des variations considérables de température et à des

épisodes de sécheresse, et que de même il résiste à l'inverse très bien au froid, comme dans la région de Salamanque où il supporte sans problème chaque hiver des températures allant jusqu'à -12°C.

Cette plasticité remarquable nous permet de rester optimistes quant au devenir de la subéraie, qui reste l'un des principaux remparts contre la désertification dans bien des zones du pourtour méditerranéen, ainsi qu'un habitat d'une exceptionnelle diversité sous nos latitudes. (*Source*: R. Piazzetta, Décembre 2010. Vivexpo 2010, colloque international «Chêne-liège et changement climatique». *Forêt méditerranéenne*, XXXI, n°4.)

Portugal's new twist on the cork industry

The axes that can be heard in the summer months throughout the cork oak woodlands, or *montados*, of Portugal's Alentejo region have long fallen silent. The annual harvest is over, and the trees that have yielded their bark are beginning the decade-long process of regenerating their corky cladding. Across the vineyards of southern Europe, the final grapes have been picked for the new vintage. One day the products of these two harvests should come together in a wine bottle.

Or will they? These are uncertain times for cork producers in Portugal and the Mediterranean countries that are home to the cork oak, *Quercus suber*. For centuries, cork from the region's 2.7 million ha of cork forests has been the world's wine bottle stopper of choice. But in recent years, alternative closures such as metal screw caps and synthetic stoppers have boosted their market share. Lower costs helped the upstarts. So too did industry complacency regarding cork's responsibility for "taint", a malodorous malady caused by the contaminant TCA that can result in ruinous wine spoilage rates.

With US\$2 billion in annual revenue at stake, cork producers have scrambled to invest in new equipment, improve quality and develop treatments to eradicate the mouldy smelling menace. They have also mounted a counterattack, using the assertion that cork is greener and more sustainable than other closures. Yet cork's future is far from certain, says wine expert George Taber, author of *To cork or not to cork*: "The screw-cap juggernaut has slowed, but it has not stopped." Cork alternatives make up about one-third of the 18 billion or so closures used worldwide. Australia's industry is now 85 percent screw cap, and close to half of the United States of America's wineries have opted for cork alternatives.

100 PERCENT CORK

The 100 percent cork Web site is dedicated to promoting the use of the more environmentally friendly cork as bottle stoppers, instead of plastic and aluminium screw caps that consume fossil fuels and use at least five times more energy per tonne to produce. www.100percentcork.org/

Natural cork, it is claimed, has a much smaller carbon footprint than its synthetic competitors, while cork forests sequester an estimated 10 million tonnes of CO₂ annually. "Cork fits right in with the wine industry's growing interest in sustainability," says Peter Weber, Executive Director of the Cork Quality Council (CQC), a cork producers' association. A 2006 World Wide Fund for Nature (WWF) report, moreover, highlighted the importance of cork forests and warned that a valuable habitat for endangered species and migratory birds was under threat. Falling prices, adds WWF Forest-Programme Coordinator Luis Silva, could force marginal producers out of business.

If the cork stopper, which accounts for 70 percent of cork output, despite industry efforts to diversify, goes the way of the buggy whip, Portugal's already shaky economy could get even shakier. With more than half of global cork production, Portugal needs the 60 000 jobs and US\$1 billion in annual export earnings that the industry generates.

To protect cork oak woodlands, the Portuguese Government is helping the Portuguese Cork Association and the CQC to finance a campaign dubbed "100 percent cork" that aims to build consumer support for cork and encourage vintners, restaurants and retailers to switch back.

CORKWATCH

In February 2011, 100 percent cork launched Corkwatch, an online directory of more than 1 500 wines that indicates which ones are sealed with natural cork. <http://www.100percentcork.org/cork-watch/>

Underpinning the campaign is a 126-page report on the environmental impact of cork stoppers versus that of aluminium and plastic closures. The peer-reviewed report concludes that screw caps and plastic stoppers release ten to 24 times as much greenhouse gas over their life cycles as cork and require up to five times the non-renewable energy to produce.

The good news for cork is that many wine drinkers, notably in the United States of America, which is set to become the world's largest wine market, still equate cork with quality. "People also like the cork-pulling ritual," says wine expert Taber. It is a ritual that can help save the planet, say cork's proponents. (*Source*: *Time Magazine*, 8 November 2010 in <http://100percentcork.org>)



Make an early resolution to recycle your cork stoppers

If you are not artistically inclined to craft a wine cork wreath or tabletop, what do you do with cork stoppers when they start piling up? Recycle them, of course.

"People do not like to throw them away," says Stephen Yemm, co-owner of Yemm & Hart, a Fredericktown, Missouri (United States of America)-based green building materials company. Yemm & Hart began collecting corks in 2004, with the goal of obtaining enough to make products from the recycled content. Not to mention saving more than 10 000 pounds (4 536 kg) of cork from the landfill thus far, more than 1 million single stoppers. They are now producing floor and wall tiles.

"Our goal is to create a sustainable business that also benefits the small farmers of the western Mediterranean," Yemm says. According to the Cork Forest Conservation Alliance, cork forests in the Mediterranean support the second largest forest biodiversity on Earth. Cork trees, which can live up to 300 years, are not cut down to harvest cork but are stripped by hand every nine to 12 years. Recycling cork helps to promote its use. In turn, it benefits the indigenous communities and prevents desertification in the region. (*Source*: Kansas City Star [United States of America] in <http://100percentcork.org>, 25 December 2010.) ♣

"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)



A FAIR AND SUSTAINABLE TRADE IN WILD PLANTS ON A FIRM FOOTING: FAIRWILD FOUNDATION LAUNCHES A REVISED STANDARD

In October 2008, the International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) was brought under the auspices of the FairWild Foundation. ISSC-MAP, which focused principally on ecological aspects of sustainability, has now been fully merged with the original FairWild Standard 1, focused on social and fairtrade issues. The FairWild Standard version 2.0 thus provides a single, comprehensive system for the sustainable management and trade in wild-collected natural ingredients for food, cosmetics and pharmaceuticals (see Box).

Globally, more than 400 000 tonnes of medicinal and aromatic plants are traded annually, with the majority of these species harvested from the wild. Of the 50 000–70 000 plant species used medicinally worldwide, around 15 000 are thought to be threatened by overexploitation and habitat

loss. Overexploitation of wild plants can threaten people's health, economies and biodiversity on a broad scale, and undermine the livelihoods of collectors who often belong to the poorest social groups in the countries of origin. Application of the revised FairWild Standard will ensure that medicinal plants are sustainably managed and harvested, and that those involved in collecting and trading them receive a fair deal for their knowledge and efforts. It fills a niche not covered by other systems, such as fairtrade certification and organic standards. The latest standard was drawn up following extensive consultations with plant experts and representatives from the global herbal products industry, and incorporates the lessons learned through its practical application in the field.

ISSC-MAP was originally developed by TRAFFIC, the World Wide Fund for Nature (WWF), International Union for Conservation of Nature (IUCN)/SSC Medicinal Plants Specialist Group and BfN (the German Federal Agency for Nature

Conservation). Now that ISSC-MAP has merged with the FairWild Standard, TRAFFIC continues to support the FairWild Foundation through a partnership agreement, including hosting the Foundation's interim secretariat.

The FairWild Foundation is currently developing additional guidance documents for the implementation of the standard in collaboration with a range of partners. A number of opportunities have been identified to support the development and implementation of policy processes, as outlined above, both at international and national level. The Foundation also looks forward to working with existing and new partners, including the private sector, to put the standard into practice. TRAFFIC will be supporting the Foundation in this regard: promoting use of the FairWild standard is at the heart of TRAFFIC's medicinal plants programme worldwide. Finally, now that the revised standard has been launched, the FairWild Foundation and partners are well placed for an expansion of the FairWild certification scheme. Look out for more FairWild-certified goods coming your way in 2011! (Source: Reprinted with permission, from *TRAFFIC Bulletin*, 23(1), December 2010.)

FOR MORE INFORMATION, PLEASE CONTACT:
Bryony Morgan, Global Medicinal Plant Programme Assistant, TRAFFIC, and Secretariat FairWild Foundation;
TRAFFIC International, 219a Huntingdon Road, Cambridge CB3 0DL, United Kingdom. E-mail: secretariat@FairWild.org; www.fairwild.org/

BIOPROSPECTING/ BENEFIT SHARING OR BIOPIRACY

Malaysia: industries see massive profits on the forest floor through bioprospecting

Some 30 minutes' drive from the centre of the Malaysian capital lie 1 800 ha of tropical rain forest, thick with lush vegetation, palm leaves and trees rising up to 100 m. Researchers at Nimura Genetic Solutions, a Japanese biological resources exploration company, search for valuable bacteria on the forest floor. The company, which runs a laboratory within the Research Institute of Malaysia, a governmental organization, was established in 2000. Its president, Satoshi Nimura, began creating around 1994 a database of the traditional knowledge of Malaysian native people of the medicinal effects of plants.

PRINCIPLES OF THE FAIRWILD STANDARD

The FairWild Standard provides guidance on best practice harvesting and trading of wild-harvested plant (and similar) resources in 11 key areas.

1. Maintaining wild plant resources
2. Preventing negative environmental impacts
3. Complying with laws, regulations and agreements
4. Respecting customary rights and benefit sharing
5. Promoting fair contractual relationships between operators and collectors
6. Limiting participation of children in wild-collection activities
7. Ensuring benefits for collectors and their communities
8. Ensuring fair working conditions for all workers of the FairWild collection operations
9. Applying responsible management practices
10. Applying responsible business practices
11. Promoting FairWild buyer commitment

SUSTAINABLE WILD PLANT HARVESTING PROVES A GLOBAL SUCCESS

Worldwide application of a new standard for sustainable harvesting of wild medicinal, aromatic, dye and food plants and trees is charting new ways to protect the species and their habitats and benefit the communities that depend upon them, according to a new report from world wildlife trade monitoring network, TRAFFIC.

In Karnataka, *India*, it is now possible to collect the resin of the white *palle* tree used in traditional Indian medicine and incense without removing the bark and killing the trees that provide it. In *Cambodia*, a new cooperative has boosted returns to medicinal plant harvesting communities through better harvesting, drying and marketing. In *Brazil*, a women's cooperative in Amazonia state and a major natural cosmetics company are aiming to cooperate in the marketing of sustainably harvested products. In *Lesotho* and *South Africa*, a harvesting and management strategy for *kalwerbossie*, whose tubers are used to treat digestive disorders, will ensure sustainable harvest of the plant, thus providing long-term benefits to communities.

The report "Wild for a cure: grounding a standard for sustainable management of wild plants in the field" details projects ranging from South America to southern Africa and Southeast Asia, where new methods

were devised to protect key natural resources from the wild while improving the livelihoods and benefits for local people through application of guidelines on sustainable wild collection. "With around 15 000 of the estimated 50 000–70 000 plant species used for medicine, cosmetics or dietary supplements threatened, the need for developing practical guidelines to ensure supplies are sustainable has never been more urgent," said Anastasiya Timoshyna, TRAFFIC's Global Medicinal Plants Programme Lead and co-author of the report.

The project demonstrated sufficient flexibility in the guidelines to allow them to be adapted to meet local conditions, including a variety of governance and land tenure systems in Bosnia and Herzegovina, Brazil, Cambodia, India, Lesotho, Nepal and South Africa.

The report notes the importance of ensuring all local stakeholders – from collectors to local organizations, resource management authorities, and businesses – are involved in partnership from the outset, and that clear and realistic market openings should be identified for harvested products and with ways devised to give added value to products and a fair share of benefits to the owners of traditional knowledge.

Adequate resources should be allocated for training of local project workers in wild plant resource assessment, for harvest monitoring, collection and processing techniques and,

most important, for protection of workers' traditional knowledge and benefit sharing.

"The BMZ-funded 'Saving Plants that Save Lives and Livelihoods' project has taken an important step in bridging the gap between words and action to manage wild plants for the future of humankind," said Dirk Niebel, Germany's Federal Minister for Economic Cooperation and Development (BMZ).

The International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP), evaluated in this study, has now been combined with an existing FairWild Foundation Standard aimed at ensuring that trade in medicinal and aromatic plants is conducted fairly. The new FairWild Standard version 2.0 for the sustainable management and trade in wild-collected natural ingredients came into effect on 8 September 2010. (Source: TRAFFIC media release, Berlin, Germany, 15 September 2010.)

For more information, please contact: Dr Richard Thomas, Communications Coordinator, TRAFFIC International, 219a Huntingdon Road, Cambridge CB3 0DL, United Kingdom.

Fax: +44 (0) 1223 277237;

e-mail: richard.thomas@traffic.org;

www.traffic.org; "Wild for a cure":

www.traffic.org/species-reports/traffic_species_plants14.pdf;

project highlights: www.traffic.org/bmz-project-highlights/

About the same time, he was contacted by a Japanese pharmaceutical company. The 1992 Convention on Biological Diversity states that when companies utilize the resources gained from living organisms, they must reach a prior agreement with the country that owns the resources and share profits fairly.

Nimura decided to set up a company to act as a bridge between the owners and users of biological resources. In 2002, his company concluded an agreement with the Malaysian Government through the Institute. The agreement allowed the company to search for biological resources in Malaysia and conduct research and development on micro-organisms and bacteria it found.

According to the agreement, Nimura Genetic Solutions will pay Malaysia a portion of any proceeds or research funding received from private enterprises; the company will transfer its technology to Malaysia; and any patent applications will be filed jointly with Malaysia and sent first to the Malaysian Patent Office. The company has already paid a total of 20 million yen (US\$244 000) to Malaysia's central and state governments.

"The discovery of valuable resources can contribute to the preservation of tropical rain forests," Nimura says. "It is important for the countries owning the resources and those using them to put together sustainable rules." (Source: www.asahi.com, 23 October 2010.)

Brazil: biopiracy crackdown results in US\$59 million in fines for companies

The Brazilian Government is stepping up anti-biopiracy measures and imposing substantial fines on companies that make use of rare plants or animals without giving adequate compensation to Brazil or its indigenous communities.

Brazil's unique species have been exploited for centuries by businesses that often make fortunes while overlooking local communities. For instance, the slime from kambo frogs, found in the Amazon state of Acre, has been used by pharmaceutical companies to develop anti-inflammatory drugs without granting Acre residents any of the profits.

Brazil's anti-biopiracy initiative began in 2001, with a ruling creating the current laws that control species use. The Government will expand the programme with a project called "Operation New Direction", which may hike up fines to US\$29 million with a possible loss of patents for companies found to be using species that they have not registered.

One of the largest fines imposed so far has been on the cosmetics company, Natura. The Brazilian company was fined US\$12.4 million for allegedly including unregistered genetic material in its products. Natura denies any wrongdoing and is appealing against the fine.

Critics say that the anti-biopiracy measures often make it impossible to ship samples abroad for medical analysis, which could provide benefits for all. Zoological research can also be hindered, inciting scepticism that the rules are applied too generally. "The current law is very vague on a lot of points; it ends up classifying everybody as illegitimate," Raul Telles do Valle, who works with International Strategic Analysis (ISA), a think tank on social and environmental issues, told Reuters. He believes that the measures should be more concerned with determining how to compensate local populations from collective knowledge passed down over generations.

However, Bruno Barbosa, of the environmental oversight agency IBAMA, maintains that the fight against biopiracy is important to preserving sensitive environments and promoting fair profit distribution. "This is going to enable concrete alternatives that substitute destruction of the ecosystem for new economic mechanisms," he told Reuters. [Source: Reuters in www.mongabay.com, 31 December 2010.]



Biopiracy leaves native groups out in the cold

Millions of cancer patients around the world benefit from a medication called Paclitaxel (Taxol), which may begin to be produced from a new source: fungi found at the summit of the flat-topped mountains in the Bolivarian Republic of Venezuela. But the indigenous communities who have lived in that area since time immemorial will receive no benefits, and were not even consulted on the matter.

"Our countries are highly vulnerable to biopiracy, to what is practically an invasion by global pharmaceutical companies," Julio César Centeno, a forestry specialist at the University of Los Andes in the Republic, told the International Press Service (IPS). "They evade international agreements and take advantage of the weak monitoring of biodiversity in our country."

The Venezuelan environment group VITALIS has documented the case of Taxol, the commercial name under which the New York-based Bristol Myers Squibb registered Paclitaxel, a chemotherapy drug used to treat cancer and AIDS-related Kaposi's sarcoma. It is also potentially useful to treat psoriasis, congenital polycystic kidney disease, multiple sclerosis and Alzheimer's disease. By 2000, Bristol's annual sales of Taxol amounted to nearly US\$1.6 billion, and by 2003 the drug had been used to treat 1 million patients.

Paclitaxel was originally extracted from the bark of the Pacific yew tree (*Taxus brevifolia*), native to the northwest coastal region of the United States of America. But it is a small, scarce, extremely slow-growing tree, and the drug's active ingredient is concentrated in the bark, in small quantities (1 g/14 kg of bark). That means at least three trees must be destroyed to obtain enough Paclitaxel to treat just one patient. For this reason, a furore began two decades ago to obtain Paclitaxel from other sources: first, other trees of the genus *Taxus*, and later from fungi that could be produced more easily and at a lower cost, using biotechnology, said Gary Strobel, a plant biologist at Montana State University (northwest United States of America).

Strobel visited remote areas on four continents, and found Paclitaxel in organisms present in plants in Australia, Nepal and the Bolivarian Republic of Venezuela. In the latter country, he discovered it in *Stegolerium kukenani* and *Seimatoantlerium tepuiense*, fungi that

grow on plants found at the top of the Kukenán and Roraima *tepuis*, table-top mountains or *mesas* in the highlands area straddling the borders of the Bolivarian Republic of Venezuela, Brazil and Guyana. He also found the *Serratia marcescens* bacterium, capable of producing Oocydin A, tested as an anticancer agent. The area where the researchers extracted plant samples, without informing or receiving permission from local communities, is the 30 000 km² Canaima National Park, best known for the ancient flat-topped, steep-sided *tepuis*, which harbour ecosystems composed of unique plant and animal species. The park is home to some 30 000 Pemón indigenous people.

Strobel's research has given rise, in the United States of America, to some 50 patents for Montana State University in association with pharmaceutical giants such as Bristol Myers Squibb and Cytoclonal Pharmaceuticals; some of the patents broadly cover "micro-organisms from any source" that are capable of producing Paclitaxel. [Source: International Press Service (IPS), 9 February 2011.]

CERTIFICATION OF NWFPs: A PROXY FOR MONITORING FOREST BIODIVERSITY?

Monitoring biodiversity to determine how management is complying with guidelines is a complex and costly exercise. Not only do habitats and their species differ in many ways, but it is generally a challenge to define what exactly needs to be measured, and how and when to measure it.

In forest habitats, forest inventories provide a useful framework to support biodiversity monitoring (including non-tree species) by including measurements and observations of selected biodiversity indicator species. However, the longer such a list of species becomes, the more complex and more expensive biodiversity monitoring will be.

The question is: does certifying NWFPs guarantee that biodiversity will be monitored in the habitats where they were collected? In some cases, the answer is yes. The certification of Brazil nuts from Amazon forests in the Plurinational State of Bolivia or in Acre, Brazil, for example, includes monitoring of the pollinator species (bats) and the small rodents that disperse the seeds, because they

contribute to a sustained supply of Brazil nuts and the natural regeneration of the Brazil nut tree.

Several certification schemes address forest management for NWFPs. A good example is provided in the Forest Stewardship Council (FSC) step-by-step guide to certification requirements. Step 3 of the guide describes the procedures to monitor the population levels of the NWFP species being harvested and those of other species in the harvested forest. Certification of an NWFP species requires not only its sustainable use, but also provides a way to assess the abundance of other species with which it is ecologically linked. In this way, certification of NWFPs provides an opportunity to assess at least a part of the biodiversity of the harvested forest, and have some of the associated monitoring costs borne by the consumers of the certified NWFPs.

Although considerable indigenous knowledge often exists for specific NWFPs, formal resource inventory techniques for them are relatively new, especially in tropical countries, and have received little attention to date. The assessment of NWFPs and the resources that support them is a difficult task for several reasons: the number and variety of NWFPs; the multiplicity of interests and disciplines involved in NWFP monitoring; organizational and financial constraints; and the lack of globally or even nationally recognized common terminology and units of measurement.

In response to this situation and to raise awareness of the importance of accurate and precise resource assessments at all levels of forest use for NWFPs, FAO has compiled a technical guidebook that provides information about the design and selection of appropriate methods of resource quantification for a range of situations and products. It also reviews and analyses a wide range of approaches developed to measure NWFPs.

Certification of NWFPs is increasing quickly for both global and national markets in developed and developing countries. In addition, technical manuals are becoming available to assess the status of NWFP-producing species. They include information on how to define sustainable harvesting levels for mushrooms, medicinal plants, berries, wild honey and fruits, as well as best practice guidelines for the certification of NWFPs. It is expected that the growing number of

certified NWFP species and their increasing market share will strengthen conservation of these species, and of the general biodiversity of the forests where they were harvested. [Source: *ETFRN News* 51, September 2010.]

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FOR MORE INFORMATION, PLEASE CONTACT

THE AUTHOR: Paul Vantomme,
Senior Forestry Officer, Forest Economics,
Policy and Products Division, FAO, Viale delle
Terme di Caracalla, 00153 Rome, Italy.
E-mail: paul.vantomme@fao.org



FOOD FROM FORESTS

The most direct way in which forests and trees contribute to food security is through their contribution to diets and nutrition. Plants and animals found in forests provide important nutrient-rich supplements for rural households. They add variety to diets and improve taste and palatability of staples. Forest foods often form a small but critical part of otherwise bland and nutritionally poor diets.

Leaves. Wild leaves, either fresh or dried, are among the most widely consumed forest foods. They are often used as the basis for cooking soups, stews and relishes that accompany carbohydrate staples (such as rice or maize), adding both flavour and nutritional value to diets. Wild leaves can be excellent sources of vitamins A and C, and protein and micronutrients such as calcium and iron, which are commonly deficient in diets of nutritionally vulnerable communities. Common leaf vegetable species eaten across different parts of Africa include *Gnetum africanum*, *Adansonia digitata* (baobab) and *Cassia obtusifolia*. The protein content of baobab leaves is around 14 percent.

Fruits. Thousands of species of wild fruits are consumed worldwide. They are especially good sources of minerals and vitamins and sometimes contribute significant quantities of calories. Fruits are most commonly

consumed raw, as a snack or dietary supplement. Forest fruits are also widely used for making beverages, most notably beer. In India, it has been estimated that up to 50 million households supplement their diets with fruits gathered wild from forests and surrounding bushland.

WHAT IS A FOREST?

A forest is an ecosystem dominated by trees and other woody vegetation. FAO defines a forest as a minimum of 1 ha in size, with at least 10 percent crown cover and with mature trees at least 2 m tall. The definition explicitly includes open woodlands, such as those found in the African Sahel.

Seeds and nuts. Seeds and nuts add calories, oil and protein to diets. In developing countries, edible oil (fat) consumption is often low, and fat or oil commonly constitutes a major household food purchase. Low-fat diets are thought to be detrimental especially for children who need energy-dense foods. In addition to the energy they provide, fats and oils are also important for the absorption of vitamins A, D, E and K. Numerous nutritionally important nuts and seeds are gathered in forests; important examples include Brazil nuts (*Bertholletia excelsa*), pine nuts (*Pinus pinea*, *P. edulis*, *P. koraiensis*), kola nuts (*Cola edulis*) and chestnuts (*Castanea sativa*). Coconuts are of central importance in many cultures; on the world scale, they are the source of 7 percent of the global consumption of fat.

Roots and tubers. A variety of forest plants (frequently climbers) have edible roots and tubers, which provide carbohydrates and some minerals. They are drought and famine foods, not only because they can persist under reduced precipitation, but also because they can be an important source of water during prolonged droughts or in areas of low and erratic rainfall. In addition, roots and tubers are often important ingredients in traditional medicines. In Swaziland, approximately 10 percent of commonly eaten wild species are bulbs or roots.

Mushrooms. Mushrooms, gathered wild from forests and woodlands, are favourites in many cultures, where they are added to sauces and relishes for flavouring. They

sometimes provide a substitute for meat. Fresh mushrooms are often only available for short seasons, but may also be dried, which allows them to be traded or consumed throughout the year. In some cultures, mushroom gathering is a major seasonal activity.

Honey. Trees and other plants growing in forests often have an important role in honey production since they provide year-round fodder for bees because of different flowering times. In some cultures, honey is collected from wild colonies, although most honey is harvested from hives placed around farms or in neighbouring woodlands or forests. Honey is a good source of sugar and is also an important ingredient in many traditional medicines. In Zambia, a country with extensive woodlands and dry forests (called *miombo*), beekeeping and honey production are an important aspect of rural livelihoods, providing up to 25 percent of total annual income for tens of thousands of people and supplementing the diets of at least 250 000 households.

Wild animals, insects and fish. Wild animal species consumed include birds and their eggs, insects, rodents and mammals. Wild animals are often an important part of the diet of people living in close proximity to forests and fallow areas; for some people they are the only source of animal protein. In at least 62 countries worldwide, wildlife and fish constitute a minimum of 20 percent of the animal protein in rural diets. The consumption of game meat is closely linked to the availability and abundance of wild animals, which tend to vary from place to place. As a result, there is great regional variation in wild meat consumption. In West Africa, where the consumption of bushmeat is high, the most consumed game meat species are small animals (such as rodents) because of their natural abundance and few restrictions on their hunting. The economic value of the bushmeat trade in Central Africa is high, with estimates ranging from US\$42 to US\$205 million per year. The total annual harvest of bushmeat in Central Africa amounts to more than 1 million tonnes annually – the equivalent of almost 4 million head of cattle. Hunting provides between 30 and 80 percent of the overall protein intake of rural households in the subregion. Despite the positive contribution that bushmeat provides to food and nutritional security, harvesting often exceeds sustainable levels, mainly as a result of high

urban demands and poor regulation. [Source: FAO, 2011. *Forests for improved nutrition and food security*. Rome.]

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FOR MORE INFORMATION, PLEASE CONTACT:

Eva Muller, Principal Officer, Forest Economics, Policy and Products Division, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome.
E-mail: Eva.Muller@fao.org



 **JOURNALS AND NEWSLETTERS**

Heritage Amruth, India

Heritage Amruth, produced by the Medplan Conservatory Society (MCS), is a bimonthly magazine based on the belief that there is a profound holistic science underlying India's health traditions, and that this heritage should be built upon. MCS is engaged in activities aimed at enhancing public awareness about the rich health care traditions in India, their contemporary relevance and the conservation and sustainable utilization of medicinal plants and other raw material used in these traditions.

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FOR MORE INFORMATION, PLEASE CONTACT:

The Medplan Conservatory Society, No. 74/2, Jarakabande Kaval, Attur PO, via Yelahanka, Bangalore, 560 106, India. Fax: +91 80 28567926; e-mail: heritageamruth@gmail.com; www.heritageamruth.com/

MycoAfrica, newsletter of the African Mycological Association

MycoAfrica is the newsletter of the African Mycological Association (AMA). AMA promotes mycology and contact between members in Africa and other international mycologists, as well as regional and international congresses.

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FOR MORE INFORMATION, PLEASE CONTACT:

Marieka Gryzenhout (Editor), Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria,


South Africa 0002. Fax: +27-12-4203960; e-mail: Marieka.Gryzenhout@fabi.up.ac.za; www.africanmycology.org/

OHCHR Indigenous Peoples and Minorities Section Newsletter

This newsletter is designed to inform interested persons on the activities of the Indigenous Peoples and Minorities Section of the United Nations Office of the High Commissioner for Human Rights (OHCHR). It is available at: ww2.ohchr.org/english/issues/indigenous/docs/Newsletter1_2010.pdf/

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FOR MORE INFORMATION, PLEASE CONTACT:

Sushil Raj, Indigenous Peoples and Minorities Section, Rule of Law, Equality and Non-Discrimination Branch, UN Office of the High Commissioner for Human Rights, 48 Giuseppe Motta, Office 2-20, CH-1211, Geneva 10, Switzerland. Fax: +41-22-928-9066; e-mail: sraj@ohchr.org; www.ohchr.org/

 **LA FORÊT DU BASSIN DU CONGO: UN ÉCOSYSTÈME SOCIALEMENT INCONTOURNABLE ET ÉCONOMIQUEMENT INDISPENSABLE AU NIVEAU INTERNATIONAL**

Les pays du bassin du Congo sont situés de part et d'autre de l'équateur, entre les latitudes 14° Nord (nord du Cameroun) et 13°27' Sud (sud de la République démocratique du Congo). L'ensemble de la région est caractérisé par une topographie monotone, formée de vastes étendues quasi planes. Seuls le Cameroun et la République démocratique du Congo présentent, à certains endroits, des paysages de montagne réellement accidentés. Les sommets les plus élevés de la région comprennent le massif volcanique des Virunga (4 000 m) à l'est de la cuvette congolaise, le mont Cameroun (4 070 m) au sud-ouest, couvert de forêt dense sempervirente, et le massif du Ruwenzori (5 000 m), à la frontière entre la République démocratique du Congo et l'Ouganda.

Ce grand massif forestier mondial est encore le théâtre de problèmes socioéconomiques importants: si plus de 70 pour cent de la population d'Afrique centrale vit en zone rurale, en contact direct avec la forêt, le reste de la population reste elle aussi néanmoins tributaire de la forêt à des degrés divers. De nombreux

habitants comptent donc et continueront encore longtemps à compter sur ces forêts, dont ils tirent une grande quantité de produits essentiels.

Les populations riveraines des forêts du bassin du Congo sont pauvres et une part importante de leurs revenus provient de la vente de produits forestiers non ligneux (PFNL). Par ailleurs, de nombreuses compagnies exploitent ces mêmes forêts pour le bois d'œuvre, employant bien souvent pour cela des méthodes peu respectueuses de l'environnement. Les dégâts provoqués par les activités d'abattage et de débardage se répercutent en premier lieu sur les PFNL, essentiels à la subsistance des populations rurales. C'est l'une des raisons expliquant les conflits de plus en plus nombreux qui opposent les acteurs en présence dans cette région du monde – notamment populations riveraines, Etats et exploitants forestiers –, dont les intérêts, les attentes et les perceptions sont à bien des égards contradictoires.

Ecologie, interactions faune-flore et mesures à prendre

Les végétaux et animaux entretiennent entre eux des interactions déterminantes pour le maintien de l'équilibre et la diversité biologique de l'écosystème de la forêt dense humide. Selon Brosset, à chaque stade de la régénération forestière correspond une faune particulière. Ainsi, dans une optique d'aménagement forestier durable basé sur la régénération naturelle des espèces, les animaux (dont la très grande majorité peuvent être considérés comme des produits forestiers non ligneux – PFNL) vont jouer un rôle important, notamment dans la pollinisation et la dispersion des diaspores, assurant ainsi la dynamique de la forêt. Nombre de PFNL d'origine végétale servent de nourriture aux animaux, lesquels en retour assurent la dispersion et catalysent dans certains cas la régénération naturelle des premiers. Il s'agit d'un milieu naturel écologiquement stable qui doit attirer l'attention de la communauté internationale et des bailleurs de fond, dans le sens du financement d'activités et projets de développement en faveur des communautés riveraines des forêts tropicales d'Afrique. Les mécanismes ou processus de financement d'une telle action devra obéir aux normes mondiales sur le transfert des technologies, passant du niveau international au niveau national puis local. A cet égard, il sera essentiel d'associer dans chaque pays concerné les organisations locales, qui ont une expertise avérée dans ce

domaine et se caractérisent par la fluidité des informations et la qualité des enseignements impartis. On retiendra notamment à ce titre l'exemple de Global Forestry Conclave and Sustainable Development (GFCSD), une organisation d'appui à l'amélioration du cadre de vie des populations défavorisées et à la gestion durable des forêts tropicales. (*Auteur:* Emmanuel Gwomb Bi Hell, Environnementaliste/expert en agroforesterie et étude de projets de développement durable, Président-fondateur de GFCSD. B.P. 33.939, Yaoundé, Cameroun. Courriel: dabereh@yahoo.fr; globalforestryconclave@yahoo.fr)

LA MISE EN ŒUVRE DU DROIT À L'ALIMENTATION DANS LE SECTEUR DES PFNL EN AFRIQUE CENTRALE

La plupart des pays d'Afrique centrale ont ratifié le pacte international relatif aux droits économiques, sociaux et culturels, qui prévoit à l'article 11 le droit à une alimentation adéquate pour tous. Les conditions sont réalisées lorsque chaque homme, chaque femme et chaque enfant, seuls ou en communauté, ont accès à tout instant, physiquement et économiquement, à une alimentation adéquate ou bien aux moyens de se la procurer. La mise en œuvre de ce droit constitue un défi quotidien et contribue à la lutte contre la pauvreté et l'insécurité alimentaire. Une approche intégrée fondée sur les droits de l'homme permet l'amélioration des conditions de vie des populations et leur développement économique, en renforçant les capacités des pays dans le domaine juridique, politique et institutionnel.

Ce droit à l'alimentation, et tout particulièrement sa mise en place, sont encore méconnus dans la sous-région. Aussi le projet GCP/RAF/441/GER «Renforcement de la sécurité alimentaire en Afrique centrale à travers la gestion durable des produits forestiers non ligneux (PFNL)», qui concerne le Gabon, le Congo et la République centrafricaine, a-t-il organisé une formation technique sur son application, dans le contexte des PFNL et de la sécurité alimentaire. Financée par le Gouvernement allemand et en collaboration avec l'Equipe du droit à l'alimentation de la FAO, cette formation s'est tenue du 20 au 22 octobre 2010 à Libreville.

Ces trois journées ont rassemblé des représentants de la Commission en charge des forêts d'Afrique centrale (COMIFAC), de la FAO et des ministères en charge des forêts du Gabon, du Congo et de la République centrafricaine, ainsi que des membres de la société civile. Les participants ont acquis les connaissances nécessaires à la mise en œuvre du droit à l'alimentation dans leurs domaines respectifs et ont identifié les liens existants entre les PFNL, la sécurité alimentaire et ce droit fondamental.

Afin de faciliter, dans le cadre du droit à l'alimentation, l'intégration des principes des droits de l'homme dans les programmes, les politiques et les activités forestières au niveau national dans les pays de la COMIFAC, un modèle régional intitulé «Boîte à outils sur les PFNL, la sécurité alimentaire et le droit à l'alimentation» sera développé puis validé par la COMIFAC et testé dans les trois pays du projet. Dans les mois à venir, le travail de collaboration avec l'Equipe du droit à l'alimentation facilitera le développement de ce modèle régional, notamment grâce à la participation des acteurs gouvernementaux, de la société civile et des organisations internationales.

POUR EN SAVOIR PLUS, CONTACTER:

Juliane Masuch, Cadre associé PFNL et droit à l'alimentation, Coordination régionale du Projet PFNL, FAO. B.P. 281, Yaoundé, Cameroun.
 Courriel: juliane.masuch@fao.org;
www.fao.org/forestry/nwfp/55079/fr/
 (Please see page 64 for more information about this project.)



NEW SPECIES "SITTING IN CUPBOARDS"

Of the estimated 70 000 species of flowering plants yet to be described by scientists, more than half may already have been collected but are lying unknown and unrecognized in collections around the world, a new study suggests.

The lack of resources for collections of plant specimens, known as "herbaria", together with a lack of experts who can identify new species, are leaving a vital reservoir of information about global biodiversity untapped, the study's

authors believe. Their work shows that it currently takes on average 30–40 years from the time a flowering plant specimen is collected to its being recognized and described as a new species. A report of the research appears this week in the Proceedings of the National Academy of Sciences (PNAS).

"Many people think that discovering new species is primarily about expeditions to exotic locations and collecting new specimens, but the truth is that thousands of new plant species are lying unidentified in cupboards, drawers and cabinets around the world," said Dr Robert Scotland of Oxford University's Department of Plant Sciences (United Kingdom), an author of the report.

At the moment our knowledge of flowering plants is greater than our knowledge of almost any other group of organisms of comparable size; it is estimated that we know about four out of five species compared with knowing about only one in ten species of insect, for example. Because flowering plants are found in every terrestrial habitat and every area of the globe, they are a vital tool for monitoring biodiversity.

Herbaria consist of collections of dried plant specimens mounted on card and then filed away in cupboards and cabinets. Oxford University's Department of Plant Sciences has its own herbaria containing around 1 million specimens and for the study worked with colleagues from the Natural History Museum (London); Royal Botanic Gardens, Kew; Royal Botanic Garden Edinburgh; Missouri Botanical Garden; and the Earthwatch Institute.

"Our own research into one particular genus of flowering plants, *Strobilanthes*, described 60 new species from specimens which had been sitting unexamined in herbaria for a long time," said Dr Scotland. "We now know that this pattern of new species going unrecognized is repeated at the world's greatest plant collections, hindering efforts to monitor global biodiversity and measure the impact of human activity on plants and animals." (Source: Science Daily, 10 December 2010.)



NON-PROFIT ORGANIZATIONS AND NGOS

Center for Sustainable Development, United States of America

The Center for Sustainable Development, a non-profit organization, focuses on helping NGOs build community-centred, sustainable development projects. We have traditionally done this by giving workshops and training courses.

..... **FOR MORE INFORMATION, PLEASE CONTACT:**

Tim Magee, Center for Sustainable Development, 724 Via Santo Tomas, Claremont, CA 91711, United States of America. E-mail: Tim.Magee@csd-i.org; www.csd-i.org/

The Non-Timber Forest Products Exchange Programme (NTFP-EP), Asia

The NTFP-EP is a collaborative network of over 50 NGOs and community-based organizations in South and Southeast Asia. They work with forest-based communities to strengthen their capacity in the sustainable management of natural resources.

..... **FOR MORE INFORMATION, PLEASE CONTACT:**

Non-Timber Forest Products Exchange Programme (NTFP-EP), 92-A Masikap Extension, Barangay Central, Diliman, Quezon City 1100, Philippines. Fax: +63 2 426.2757; e-mail: info@ntfp.org; www.ntfp.org/

TREE AID, United Kingdom

TREE AID is a United Kingdom-based development charity established in 1987 by a group of foresters in response to the famine in Africa. They believed that community forestry could ensure that those same communities in rural Africa's drylands would be less vulnerable to drought and famine in the future if they could secure the resources they depended on for survival. Since its inception, TREE AID has ensured that 7.2 million trees have been planted across the Sahel; hundreds of thousands more trees have naturally regenerated and over 450 000 villagers have benefited from improved incomes from tree products. TREE AID is currently working with over 350 communities in Burkina Faso, Ethiopia, Ghana and Mali.

..... **FOR MORE INFORMATION, PLEASE CONTACT:**

TREE AID, Brunswick Court, Brunswick Square, Bristol BS2 8PE, United Kingdom. E-mail: info@treeaid.org.uk; www.treeaid.org.uk/

SOUTH-SOUTH COOPERATION: BENIN, BHUTAN AND COSTA RICA EXCHANGING KNOWLEDGE ON NTFPS

The South-South Cooperation project (PSC) was launched ten years ago. The Netherlands provided the initial impetus and Costa Rica in Central America, Benin in West Africa and Bhutan in South Asia took part. It led to 34 separate programmes in which the countries helped each other in radically different ways.

One project in particular involved exchanging expertise, experience and knowledge on NTFPs among the three countries. The project, which kicked off in 2008 with the intention of terminating in 2010, aimed to enhance institutional capacities to offer new products and services to society, as part of an overall effort to use and conserve biological resources sustainably. With this in mind, the National Mushroom Centre in Bhutan, the National Biodiversity Institute in Costa Rica (INBio) and the Département d'Aménagement et Gestion de l'Environnement et de la Faculté des Sciences Agronomiques de l'Université de Abomey-Calavi, Benin, all working closely together, set out to exchange experience and knowledge on research, gathering, cultivation and domestication of NTFPs, such as mushrooms and insects.

To date, 154 people have been trained in edible and medicinal mushroom collection and production in Bhutan and Costa Rica. Four communities in Costa Rica used Bhutanese technology to produce shiitake mushrooms (*Lentinula edodes*). Additionally, infrastructure development at Costa Rica's INBio and Bhutan's National Mushroom Centre has taken place for mushroom cultivation, research and processing.

Beninese experts, meanwhile, taught Costa Rican and Bhutanese technicians to raise edible insects with potential market value. This involved an entomology exchange that took place in Benin in January 2009 with participants from Bhutan and Costa Rica. In return, six technicians from Bhutan were trained as parataxonomists in Costa Rica.

"In Benin we identified that they eat insects," said Marianella Feoli, Head of the Programme for South-South Cooperation, representing Costa Rica. "In Costa Rica we do not eat insects ... but it turns out that

Costa Rica has a strong capacity in turning traditional knowledge into scientific knowledge.” And so the Costa Ricans adapted Benin’s insect snack into a cattle-feed supplement, reducing feed costs for livestock farmers.

With the support of another South-South Cooperation project, a Costa Rican NGO trained the Benin Ecotourism Concern (Eco-Benin) to use ecotourism as an effective source of development and habitat conservation of tropical forests in the country. Through field visits and workshops, the Beninese were provided with recommendations and plans for sustainable tourism development (including business plants), promotion, environmental education and alternative income generators such as arts and crafts.

“The advantage of South-South Cooperation over North-South Cooperation is that it applies the Paris Declaration Principles. Beneficiary states identify their own priorities and execute them with financial support from the North,” says Mathias Pofagi, the PSC representative in Benin.

In all, the three countries involved in the PSC programme have jointly engaged in projects covering not only agricultural and environmental issues, but also subjects such as technology transfer, female empowerment and improved hygiene. Hundreds of jobs have been created and peoples’ earnings have increased as a result of the projects. [Source: www.south-southcooperation.org/eng/ongoingprojects_detail.php?id=16]

**TREEBORNE OILSEEDS:
AN ALTERNATIVE
ENERGY SOURCE**

Globally, the population explosion and the higher rate of economic growth and industrialization lead to a higher level of energy demand. The incessant exploitation and reliance on fossil fuels have fatally degraded the environment, causing irreparable damage such as the depletion of the ozone layer and global warming. Consequently, there is renewed interest in finding an alternative source of non-conventional energy. The need for an alternative energy source is a prerequisite to address these threatening environmental concerns.

Among the renewable energy sources, oil-based biodiesel has the potential to



transform the oil status, offer a great potential to supplement supply of fossil fuel and at the same time minimize carbon emissions, since biodiesel has a reduced greenhouse-gas emission compared with fossil fuels. In particular, biodiesel from treeborne oilseeds (TBOs) such as *karanj* (*Pongamia pinnata*), *mahua* (*Madhuca* spp.), *undi* (*Calophyllum inophyllum*) and *jatropha* (*Jatropha curcas*) will find a place as an alternate energy source.

More than 300 TBOs have been identified as suitable for biodiesel. In India, more than 100 plant species occurring in the wild or in cultivated conditions have been identified as bearing seeds with oils in commercially extractable proportions. India’s western Ghats is one of the world’s ten “biodiversity hot spots” and has over 5 000 species of flowering plants, which may include varied elite species of biodiesel plants. The potential of these TBOs may be tapped for energy.

The scenario of rising volatile prices in the world oil market and respective foreign exchange costs are the main risk factors for the economy and social development prospects of many countries. The development of biofuels will provide an opportunity to find substitutes for fossil fuels, bringing both economic and environmental benefits. **(Contributed by:** C. Harisudan, C. Sivaraj, M. Velmurugan and S. Arumugachamy, Rice Research Station, Tamil Nadu Agricultural University, Ambasamudram – 627 401, Tamil Nadu, India. E-mail: dr.harisudan@gmail.com)

**TREKEAST: EXPLORING
AND CONSERVING
NORTH AMERICA’S
WILDLIFE CORRIDORS**

Starting on 3 February, a group of wilderness enthusiasts are embarking on an epic adventure across the eastern seaboard of North America. The scope of the adventure may even blow away the

revered Appalachian Trail. The conservation non-profit group “Wildlands Network” is launching writer and explorer John Davis on a 4 500-mile (7 242 km) journey from the southern tip of Florida to the Gaspé Peninsula in Canada.

First, the mission of the wilderness journey is to explore the remaining wild areas along the visioned Eastern Wildway. Second, it is to encourage the creation of a network of people and organizations sharing the common goal of conservation. At every stop along the way, there will be gatherings of these wilderness visionaries in support of the mission.

The journey will take a zigzagging path through 13 states and two Canadian provinces. Almost all of the route will be muscle powered, including hiking, biking, walking, running, kayaking, canoeing and skiing.

The main focus of the trek is the issue of North America’s wildlife corridors. The problem is that they are all fragmented by highways, agriculture or suburban developments. The habitat connectivity, which is necessary for wildlife to thrive, simply does not exist. The preservation of wildlife is important so that natural ecosystems can perform their services and so future generations can enjoy them.

The journey, known as TrekEast, will be led by John Davis, founder of the “Wildlands Network”, past editor of *Wild Earth* magazine, writer and naturalist. [Source: Environmental News Network, 24 January 2011.]

.....
FOR MORE INFORMATION, PLEASE VISIT:
www.wildlandsnetwork.org/trekeast/blog ♣



Dislodging a green nut from its shell is almost impossible, but let it dry and the lightest tap will do it.

Sri Ramakrishna

AGARWOOD

Research breakthrough in India

In what may be termed as a path-breaking find, a team of researchers from the Rain Forest Research Institute (RFRI) in India, led by Rajib Kumar Borah, claimed to have pinpointed the fungus that causes the formation of agarwood (*Aquilaria* sp.) and, ultimately, agar oil, used widely in the multimillion dollar global perfume industry.

The Director of the Institute, N.K. Vasu, said that the find would lead to a more scientific and accurate method of tapping the oil and saving millions of agarwood trees from being felled unnecessarily. "It is very difficult to understand which tree has the oil and which has not, and therefore trees are being indiscriminately cut with only a sparse growth now surviving in the wilds of Assam," Vasu said.

R.K. Borah, Head of the Forest Protection Division of the Institute, said he had applied for a patent and did not want to disclose the name of the fungus before the patent was allotted, "as there is competition, and researchers of other institutes, too, have claimed discovery of the fungus".

The agarwood tree, popularly known as the *sasi* tree in Assam, is indigenous to Southeast Asia and some other parts of the world and its products have the biggest market in oil-rich West Asia. One litre of agar fetches as much as US\$10 000 to US\$14 000.

In Assam, the trade in agarwood oil is said to be the largest informal industry. Almost every household in rural Upper Assam is engaged in extracting the oil, which is then sold to intermediaries and taken to Mumbai for onward transmission to the Gulf. "The oil extracted from the trees of Assam is especially in great demand as it lends a rich and strong fragrance to the *aatar* (perfume)," Borah said. "Nowadays, tea estates have also taken up agar plantations on fallow land and as shade trees," he added.

The wood gains commercial value after it is infected by a fungus, which is carried by the larvae of *Zeuzera conferta* Walker, a stem borer. "The stem borer larvae make vertical tunnels which are the initial sites of infection. From these, the infection gradually spreads up and oleoresins are accumulated in the infected areas. The infection process takes time and the highest concentration of agar (2.5–5 kg) is

usually found in trees around 50 years of age. Such agar fetches anything between 50 000 and 70 000 rupees/kg in the wholesale market," Borah said.

Borah further pointed out that commercial cultivation of agarwood suffers from a paradox in that only those plants infected by the particular fungus produce the highly valued agarwood. "So even if agar trees are planted on a massive scale there is no guarantee that a commercial quantity of agarwood can be harvested. This kind of ignorance, or even greed, often results in indiscriminate felling of trees. This problem can be overcome by artificial inoculation of the fungus," the scientist said. (Source: The Telegraph [India], 13 January 2011.)

Brunei Darussalam: cultivating *gaharu* (agarwood) trees to prevent their extinction

Importing and cultivating *gaharu* trees (*Aquilaria* sp.) will prevent them from extinction. The demand for agarwood products has resulted in the depletion of wild *gaharu* trees and they are now considered to be endangered, said Acting Director of Malaysia's Oud Agarwood Enterprise, Mohd Ruslan Osman. Developing cultivated species of *gaharu* – which is protected in Brunei – will prevent wild trees from being harmed.

Mohd Ruslan was speaking at the Mukim Tanjong Maya Local Products Festival on Monday, which saw the launch of the *Aquilaria subintegra* species imported from Malaysia. The imported species promises more yield of resin in a shorter time to help increase productivity of the *gaharu* industry in Mukim Tanjong Maya. He explained that resin is what makes the *gaharu* tree valuable because the valuable oil is extracted from the resin. Sometimes people illegally chop down wild trees and find out there is no resin, Mohd Ruslan said. "This is wasteful and it is a loss because wild trees can take decades to grow."

Mohd Ruslan explained that cultivated trees are guaranteed to contain resin because they are injected with a vaccine that stimulates resin production. Therefore, with cultivated trees, there will be no unnecessary wasteful cutting of trees. Furthermore, the harvesting of resin from cultivated trees happens in phases, slowing down the depletion of trees.

Although the cultivated trees will eventually die off as more parts are chopped off to extract resin, the trees will be replaced. Cultivated trees take less time to mature, from about five to seven years, unlike wild trees.



The Government's Forestry Department is aiming to strengthen the non-wood-based industries of the Sultanate this year. In an interview with *The Brunei Times*, Director of Forestry Hj Saidin Salleh said that his department would continue to promote and encourage local entrepreneurs to venture into sustainable activities such as nature tourism, ecotourism and biotechnology, including production of agarwood (*Aquilaria* sp.), or *gaharu*.

The official noted that towards late 2010 the community began to see the potential and the economic importance of forest trees such as the *gaharu* tree. Huge profits are possible from *gaharu*'s fragrant oil extract. For example, *gaharu* extract, which can be made into various products such as lotions, perfume oil and soap, is an industry generating US\$1.2 billion in Singapore. Its leaves can also be made into green tea.

Because of their economic significance, the trees are often chopped down and stolen for their valuable resin. The official said his department was "eager in leading the way to promote *gaharu*", adding that emphasis would not only be given to the economic activities for this year but would also focus on enforcement activities, which at the moment was only at 11 percent capability.

Mohd Ruslan said that Oud Agarwood Enterprise is working together with the Mukim Tanjong Maya Consultative Council to educate Tanjong Maya residents interested in the *gaharu* business on proper methods of cultivating the plants through workshops and consultation. (Source: *The Brunei Times*, 29 December 2010 and 3 January 2011.)

 BAMBOO

Bamboo charcoal

Bamboo is one of the most important sources of energy for cooking and heating in many tropical and subtropical regions. The culms by themselves, however, are not good combustible material: they do not store well, they burn fast and tend to produce dense smoke while burning. Bamboo charcoal offers an alternative to bamboo culms for stored energy. For over 1 000 years, charcoal has been produced and utilized, primarily in China, and exported either in its basic form or as various manufactured products. International organizations should promote the production and use of bamboo charcoal and its by-products. In a recent article, the authors present methods of preparation as well as describing properties and use of bamboo charcoal and its important by-products, including bamboo vinegar, bamboo gas and bamboo ash. [Source: W. Liese and S. Silbermann. 2010. Bamboo charcoal: properties and utilization. *Magazine of the American Bamboo Society*, 31(6).]

Bamboo bike factory set to put Africa into motion

The first large-scale production facility of its kind in the world will soon begin producing bikes made from bamboo for the African market. Initially, Ghana-based Bamboo Bikes Limited (BBL) will produce 750 bikes for a test run at its facility in Kumasi, with larger-scale production runs to follow.

Bamboo is grown locally in many regions of Africa and the manufacturing of bicycle frames does not require costly infrastructure or electricity. Bamboo-framed bicycles are lighter and stronger than steel-framed bikes, adaptable to difficult road conditions and can be easily modified for different needs, such as carrying farm loads, passengers, food, water and medicine.

The production of the bamboo bikes at BBL is a direct result of Columbia University's Bamboo Bike Project (BBP) in New York, United States of America, which was established at the university's Earth Institute to enhance access to safe, reliable and multipurpose transportation in rural communities of sub-Saharan Africa.

The effort was supported by the Earth Institute's Millennium Cities Initiative (MCI), which helps under-resourced sub-Saharan African cities to create employment and foster economic growth. MCI was instrumental in establishing the bamboo bike investment in Ghana, attracting donors, as

well as facilitating many of the operational aspects of the project.

In Ghana, BBL will be responsible for managing the production facility and supplying the labour, bamboo and bike parts for the production test run and subsequent scale-up. It will be responsible for all operational matters, as well as marketing and outreach efforts in Ghana.

Included within the many groups that could benefit from bamboo bikes are health care workers, students and farmers. [Source: www.theengineer.co.uk, 27 January 2011.]



 BAOBAB

Madagascar: les baobabs, grands corps fragiles

Madagascar abrite la plus grande variété au monde de ces arbres mythiques, menacés par la déforestation. Une expédition franco-malgache est allée étudier de près le devenir de ces phénomènes du règne végétal.

Selon la croyance malgache, c'est dans un baobab qu'Imbelo, le premier homme, a sculpté sa compagne. Pour toucher et photographier ces créatures mythiques, leurs admirateurs sont prêts à franchir des océans. Au détour de la célèbre «allée des baobabs» de Morondava, dans l'ouest de Madagascar, il n'est pas rare d'apercevoir un Japonais ou un Américain en pleine extase, le visage posé sur l'arbre magique, les bras tendus, comme s'il cherchait à l'enlacer. Comme si c'était possible... La circonférence de ces splendeurs peut dépasser 20 mètres. On murmure même que, quelque part dans le pays, celle de l'un d'eux dépasserait 35 mètres.

Ce ne sont pourtant pas les mensurations de ces géants du règne végétal qui excitent les chercheurs, ce sont leurs singularités biologiques. Voilà deux siècles et demi que les botanistes étudient le genre *Adansonia*, du nom de l'explorateur français Michel Adanson, qui

fit la connaissance de son premier baobab un jour d'août 1749, au Sénégal. Mais c'est seulement il y a une quinzaine d'années – autrement dit hier pour les scientifiques – que le taxinomiste américain David Baum – enfin mis (provisoirement?) tout le monde d'accord sur le nombre d'espèces de baobabs: il y en a huit, dont six n'existent qu'à Madagascar.

La région du fleuve Mangoky, dans l'ouest de l'île – loin des baobabs à touristes, loin de tout – figure parmi les moins bien connues des spécialistes, qui sillonnent pourtant le pays à longueur d'année. En mai dernier, six chercheurs malgaches et français du Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) ont décidé de s'y aventurer, s'orientant grâce à la carte réalisée par le biogéographe du groupe, Cyrille Cornu. A partir des images satellitaires à haute résolution que Google Earth propose sur Internet, le scientifique a identifié des zones à forte densité de baobabs: ces arbres sont en effet si imposants que, vus du ciel, ils se distinguent des autres.

Progressant en pirogue, l'équipe de spécialistes observe les baobabs grandidiéri, les plus élancés de tous, en pleine floraison à cette époque de l'année. Protégé par son large chapeau et son foulard rouge pare-soleil, armé de ses jumelles, Pascal Danthu, patron de la mission, est aux aguets. A plusieurs reprises, il arrête le cortège: «Il faut absolument que l'on aille prélever un peu d'écorce de ces baobabs-là.» Aussitôt, les piroguiers tâchent de gagner le banc de sable le plus proche. Puis tout le monde descend et des groupes se forment.

Lorsqu'un arbre est particulièrement difficile d'accès, c'est Wilfried Ramahafaly qui s'y colle, sourire aux lèvres, son inséparable hache en équilibre sur l'épaule. Ce phénoménal marcheur des bois parcourt chaque année 4 000 km à pied dans la campagne. A la nuit tombée, sa consœur, l'entomologiste Tantelinirina Rakotoarimihaja, pose ses pièges – drap blanc et projecteur – à proximité des baobabs. Un sphinx (papillon de nuit), pollinisateur éventuel, l'intéresse? Elle l'attrape dans son filet, le pique à l'ammoniac puis le classe dans ses petites boîtes pour identification ultérieure.

Les rares villageois installés sur les rives fabriquent de la corde avec l'écorce des baobabs. Ils vouent aussi une vénération absolue à certains spécimens

remarquables, placés sous la garde vigilante d'un sage. Ils savent aussi que la culture sur brûlis qu'ils pratiquent a des effets redoutables. Au moins 10 000 ha de forêts partiraient chaque année en fumée. Déjà, les jeunes plants se font rares, et certaines espèces seraient menacées. «Il est grand temps de mettre en place sur l'île un plan de préservation acceptable sociologiquement», souligne Pascal Danthu. «Il faut accompagner les villageois pour qu'ils profitent davantage des ressources forestières et prennent conscience de leur valeur.»

Les chercheurs du CIRAD associés à leurs homologues de l'université d'Antananarivo ont constaté que certaines espèces malgaches présentaient un étonnant mode d'évolution. Pour s'adapter à un nouvel environnement, elles n'attendent pas que la sélection naturelle «classique» suive son cours, génération

après génération. Elles «volent» du matériel génétique à d'autres espèces de baobabs bien établies, un phénomène appelé «introgression». Leur stratagème est au point: elles titillent le pollinisateur de leur cible, un sphinx par exemple (le papillon) et lui soutirent un fécond baiser. Un peu comme si, souhaitant quitter l'hémisphère Sud pour le Nord, des manchots venaient frayer avec des pingouins afin de favoriser leur descendance! Efficace. Mais aussi très déstabilisant pour Jean-Michel Leong Pock Tsy, le généticien du groupe, qui tombe parfois sur d'improbables hybrides. De quoi compliquer encore la carte de répartition des espèces sur l'île, qu'il peaufine depuis des années.

Aujourd'hui de retour à Antananarivo, l'équipe a commencé le travail d'analyse. Dans les années qui viennent, les spécimens de baobabs aux profils ADN les plus étranges auront droit à une nouvelle visite. Les chercheurs, qui ont noté les coordonnées GPS de tous les arbres observés, tenteront alors de saisir ce qui, dans l'environnement, pourrait expliquer ces anomalies. «Il reste encore tant de choses à comprendre sur la génétique, l'histoire biologique et les liens que les hommes entretiennent avec ces arbres fabuleux», s'enthousiasme Pascal Danthu. (Source: *L'Express*, 18 août 2010. France.)

L'ARBRE AUX MERVEILLES

Il vit longtemps: Les plus vieux pourraient dépasser 1 000 ans. Une aubaine: grâce aux tissus d'anciens spécimens, les chercheurs du CIRAD et leurs partenaires comptent retracer l'histoire climatique de Madagascar. *Ses fruits sont à tomber:* La pulpe du pain de singe, le fruit du baobab, est dix fois plus riche en vitamine C que l'orange. En la mélangeant avec de l'eau, on obtient un délicieux breuvage acidulé. Depuis deux ans, la commercialisation du fruit et de son jus est autorisée dans l'Union européenne. *Il se remet de tout:* Coupez un arbre: à l'intérieur, le bois est mort. Coupez un baobab: le cœur est vivant. Un atout qui lui permet de cicatriser des pires blessures en quelques mois. Quitte à repousser parfois bizarrement, sous la forme d'une théière, par exemple. *Il intéresse l'industrie cosmétique:* Sur les rives du Mangoky, l'équipe du CIRAD a prélevé des échantillons pour les laboratoires de la marque Yves Rocher, qui a participé aux frais de la mission. L'entreprise n'est pas la seule à s'intéresser aux fruits, aux feuilles et aux graines du géant des forêts, qui pourrait bien devenir une vedette des rayons beauté.

BUSHMEAT

Bushmeat hunting alters forest structure in Africa

According to the first study of its kind in Africa, bushmeat hunting impacts African rain forests by wiping out large mammals and birds, such as forest elephants, primates and hornbills, which are critical for dispersing certain tree species. The study, published in *Biotropica*, found that heavy bushmeat hunting in the Central African Republic changes the structure of forest species by favouring small-seeded trees over large-seeded ones, leading to lower tree diversity of trees that have large seeds.

"When hunters remove big animals, they remove at the same time the ecological functions of the animals," lead author Hadrien Vanthomme, from the Muséum national d'histoire naturelle in France, explained to mongabay.com. "To keep it simple, animals can have two opposite impacts on forest regeneration: they can favour it (mostly by carrying seeds away

from the parent plants, a phenomenon called dispersal), or they can oppose regeneration (by destroying seeds or young seedlings). So basically, we expect that if a guild of animals implied in seed dispersal of a plant is removed, the regeneration of this plant species will be compromised."

Because of a dearth in data, Vanthomme and his colleagues did not know which animals spread which plants, but instead had to hypothesize likely ecological interactions.

According to co-author, Pierre-Michel Forget, given the diversity of such, it is almost impossible "to know all the actors involved – we are simply not enough and an army of scientists would be needed for that, just as to describe the diversity on Earth – and what are the ecological services these animals offer to plants".

However, by analysing two plots in the Ngotto Forest, one with little hunting and the other with high hunting, they were able to paint a broad picture of the impact of bushmeat hunting on forests in the region, a "net effect" as Vanthomme puts it.

The study found that a number of key trees – the African star apple *Chrysophyllum africanum*, a species of kola nut tree *Cola acuminata*, and the *Carapa procera*, a species of mahogany – were all depleted in the high hunting site, most likely because of the lack of necessary seed dispersers. Each of these trees produces large seeds that probably require big mammals and birds to disperse successfully.

Dr Forget said that the study's findings are buoyed by similar studies in South America, showing that trees which hold similar ecological niches also vanish when hunting is high. However, since the study broke new ground, more research is needed to confirm the results and build a more complete picture of how hunting is changing forests, according to the authors. Yet if these findings stand the test of time, it means that forest structure is being changed in ways hardly imagined a few decades ago.

While seed dispersal studies have become almost common in South America and Southeast Asia, Vanthomme and Forget say that studies in Africa have taken time to get off the ground in part because of a lack of field stations and infrastructure in tropical Africa for researchers.

In addition, if researchers are to move forward in their understanding of the complex interactions between animals and plants in rain forests – knowledge that



could prevent species and ecosystems from vanishing – Forget says that local education must be paramount. “[We] need more researchers from tropical countries to describe the diversity and the essential relationships that exist, linking plants to animals. And for that, we need both to educate a young generation of scientists and offer them the most favourable conditions for adequate learning and training to study rain forest ecology. That is the next challenge for educators, politicians and stakeholders if they don’t want the rain forest to disappear.” (Source: www.mongabay.com, 4 November 2010.)

Chimpanzee meat found on sale in the United Kingdom

Chimpanzee meat is for sale in restaurants and market stalls in the United Kingdom in a lucrative black market, authorities said. Officials uncovered the illegal bushmeat from the endangered species while testing samples seized from vendors in the Midlands, the *Daily Mail* reported on Monday.

Bushmeat, which can sell for more than US\$15/pound (0.45 kg), is part of a lucrative black market trade that experts say is “rife” in Europe. At least five tonnes of bushmeat arrive in Europe every week to be distributed across the continent, said Marcus Rowcliffe, a research fellow at the Zoological Society of London. “I am not at all surprised that bushmeat is on sale in the Midlands because we know the trade is going on in the United Kingdom and that there is a regular flow of smuggled meat into the country,” he said. (Source: United Press International, 28 February 2011.)

Bushmeat in Ecuador: market in the rain forest thrives

At an open-air market on the bank of the Napo River in eastern Ecuador, a group of men bid for smoked wild animal parts offered for sale by four native Huaorani

women. The women have just arrived here in the village of Pompeya by motorized canoe from their territory across the Napo. Within a day or two, the meat from their rain forest home will be served in restaurants across Ecuador’s Amazonia region.

The Pompeya market is the only regular bushmeat bazaar in Ecuador, and business is brisk. A recent report estimated that about 12 tonnes is sold here every year. Quito-based biologist Esteban Suárez says that nearly 50 species are traded at the market, including the agouti – a large local rodent – wild pigs, birds, reptiles and fish. Suárez says the numbers are growing, and the hunting is starting to take its toll.

He is worried about the impact on animal local populations, but is more concerned about the overall health of the forest. Large mammals such as the *agouti* perform critical jobs in a rain forest, dispersing seeds and controlling seed-eating rodents. A forest without its large mammals could be an ecosystem in trouble.

The problem is especially acute because of where the Huaorani live. Their forest territory is in what is now the Yasuni National Park, which harbours among the greatest variety of animal and plant life on Earth. The Huaorani have hunted in this forest for centuries but until recently only to feed themselves.

What is happening now is different. “It is totally illegal,” says Ecuadorean wildlife official Javier Vargas. Vargas says the Huaorani have the right to hunt, but only for subsistence. Commercial hunting is not permitted, which may be why it is difficult to find any Huaorani willing to talk about the bushmeat trade.

The Huaorani have been selling bushmeat to outsiders since the 1960s, when Ecuador began to open its Amazonian lowlands to oil drilling. It was a new road, however, built by an oil company in the 1990s, which turned the new commercial hunting from a small problem into a big one. However, it seems no-one foresaw that the road would become a bushmeat superhighway. It created an easy route out of the forest for Huaorani hunters, including free transportation. Biologist Suárez says this means that hunters can bring out a lot more meat.

Vargas says the government has tried seizing all the animals in similar markets elsewhere, and that does not work. Instead, he says the Environment Ministry plans to join forces with other institutions to help

fight the issue in a more strategic way. Among other things, they are trying to develop ecotourism and other sources of income for the Huaorani,

Wildlife scientist Esteban Suárez is cautiously optimistic about such plans. But he says the Ecuadorean Government will need to work creatively to protect the forest and its wildlife while also respecting the rights of the people who live there. (Source: The World, 15 March 2011.)



Medical benefits of uña de gato, or cat's claw

The Amazon rain forest has been targeted by pharmaceutical companies for over a century as a land of exploration for source materials of new drugs. It is also a treasure trove of botanicals for the herbal supplement industry. Among the many Amazon botanicals that have come to light in recent years, *uña de gato* (*Uncaria tomentosa*), which means “cat’s claw” in Spanish, is one of the most promising of all. A woody vine, the plant earns its name because of its preponderance of sharp, claw-like thorns. Dispersed throughout Central and South America, *uña de gato* has been used for centuries by numerous native tribes.

Uña de gato is described by Dr James Duke in his *Amazonian Ethnobotanical Dictionary* as a plant widely used in Peru for anti-inflammatory, contraceptive and cytostatic purposes. In popular literature, it is additionally touted as an immune stimulant, and a large number of studies do in fact show that it offers significant anti-inflammatory and immune-enhancing benefits, and that constituents in the vine may help to inhibit tumour cell formation.

The vine has been known for a long time through the Victorian era explorers. But the plant gained the attention of the European scientific community in the early 1970s when Austrian Klaus Keplinger heard of a remarkable cancer cure attributed to use of the plant. Keplinger spent time in the Peruvian Chanchamayo region of the Amazon, and familiarized himself so well with the plant to become one of the most important scientific authors on its uses. Since that time, researchers have plumbed *uña de gato*’s chemical secrets in search of what might account for its purported healing benefits. Analysis shows that it contains at least five alkaloids, and two other important groups of compounds – quinovic acid

glycosides and triterpenoid saponins. In addition, the plant contains antioxidant polyphenols.

Well-conducted scientific studies appear to validate several of the traditional uses of *uña de gato*. It appears to be safe and non-toxic, and is useful in cases of inflammation, compromised immunity and viral infection. It is a significant aid to relief in cases of both osteo- and rheumatoid arthritis. With further research, the plant may eventually play a broader role in a complementary approach to the prevention and treatment of certain types of cancer. [Source: Fox News Latino, 13 January 2011.]

EDIBLE INSECTS

Rebranding edible insects

Edible insect advocate and anthropologist Daniella Martin first tasted insects in Oaxaca, Mexico, when she purchased a small bag of *chapulines*, a tasty treat typical of the region that combines dry-roasted grasshoppers with lime and chilli.

In America, however, "insects need rebranding!" she says. Martin is hoping to do just that by becoming "an edible insect advocate". One of her projects is "Girl meets bug," a Web site where she offers cooking tips on the proper way to prepare larva tacos. She is also part of a loose-knit cricket-eating collective of women who are trying to show that bug eating is not exclusive to eight-year-old boys daring each other in the playground.

Designer Rosanna Yau is another woman who has plans on getting Americans – especially American women – to eat more bugs and did a thesis on whether elements such as branding or packaging would make the concept more palatable. Yau is studying ways that design might help influence Americans to be more open to eating insects such as mealworms.

"The biggest challenge is identifying a cultural identity with a product," she said. "Do people identify with insects? How do the people likely to eat insects see themselves? As foodies? As adventurous?"

Yau has theorized about creating brands for foods, such as Opoda, which is an offshoot of the word "arthropod", the word for creatures with crunchy exoskeletons, and experimenting with transparent packaging that would let people see the product, but admits that we may be a few decades from converting the populace into insectivores.

"The question is now, how do you sell something that people are not sure they want?"

Dianne Guilfoyle may have the answer: by having it provide a solution for problems presented by other products on the market. Guilfoyle is working on Bug Muscle, a nutritional supplement for bodybuilders made from the phylum of various bugs. "The exact amount of bugs can differ, but it is 80 percent crickets and grasshoppers," she said. The product's patent is still pending, but Guilfoyle is confident that Bug Muscle will make its way on to the market by the end of the year, mainly because her target market – bodybuilders and cage fighters – is looking for something different from what is on the market.

She adds: "Look at the impact farms have on ecosystems. Insects have much less. As the population increases, we will have to rely on insects for our diet". [Source: America Online News, 22 February 2011.]



Los insectos se convierten en una alternativa real contra el hambre

Para muchas personas, los insectos son animales que hay que exterminar, para otras son alimento diario y exquisito. Se evalúa que en el año 2050 la población mundial llegará a superar los 9 000 millones de personas, un número que colapsará las fuentes de alimentos.

Ante esa situación, de la que ya infinidad de científicos vienen alertando desde hace tiempo, expertos de la FAO han decidido promocionar estos animales, tan denostados por algunas civilizaciones y tan requeridos desde hace siglos por otras, como fundamento de nutrición.

Los responsables del Programa de Insectos Comestibles del Departamento de Bosques de la FAO, en Roma, insisten en que no se puede ignorar la eficiencia de los insectos como productores de proteínas, en detrimento de otros animales que se incluyen en la dieta tradicional, pero de los que no todos pueden participar y que,

además, provocan graves problemas medioambientales.

Desde hace siglos muchas culturas han mantenido a los insectos como base de su alimentación. En la actualidad, 36 países de África, 29 de Asia y 23 en América consumen alrededor de 527 tipos de insectos diferentes. Entre los más comunes se engloban estos cuatro grupos: escarabajos; hormigas, abejas y avispas; saltamontes y grillos; y por último, polillas y mariposas.

Julietta Ramos Elorduy Blázquez, profesora e investigadora del Instituto de Biología de la Universidad de México, ha dedicado más de tres décadas al estudio de los insectos y sus virtudes alimenticias. Para ello, ha convivido con distintas tribus de México y asimilado los conocimientos de estos pueblos para los cuales los insectos son una tradición gastronómica legendaria.

México es uno de los países con mayor consumo de insectos en su dieta común. Desde hace 500 años se conoce su uso culinario. Los primeros españoles que se establecieron allí enviaban a los reyes de España ilustraciones de esos pequeños animales que eran consumidos, entre los que se encontraban chapulines (saltamontes), abejas, avispas y escarabajos, todos ellos con el nombre en la lengua que cada pueblo hablaba.

Julietta Ramos nos explica que "en la actualidad, se sigue consumiendo en todo el país, en particular en áreas rurales. Incluso, hay algunos insectos que han alcanzado precios muy elevados, como es el caso del gusano blanco del maguey, que cuesta \$USD 500/kg, que corresponden a 1.666 gusanos, aunque es una cantidad difícil de obtener dada su escasez".

El valor nutritivo de los insectos es mayor que el del resto de las proteínas animales, sostiene la bióloga, "porque los insectos tienen ciclos de vida mucho más cortos que los que tiene una res". Su contenido en proteínas es comparable al de la carne y su cantidad de fibra es aún mayor. Son ricos en ácidos grasos poliinsaturados de cadena corta, hierro, calcio, vitaminas del grupo B y minerales, por lo que su desarrollo de forma industrial podría ser una importante fuente de alimentación para aquellos países cuyos habitantes sufren de desnutrición.

Para Ramos "es una alimentación que sirve para cualquier país porque los insectos se reproducen geométricamente, es decir que siempre habrá más generaciones de insectos que de vacas, aunque el tamaño sea diferente. Pero a la vaca se le tiene que dar de comer ocho gramos de comida para

ganar uno de peso, y los grillos, por ejemplo, necesitan menos de dos gramos para un engorde similar.

Además, las reses apisonan las tierras y no las dejan ser productivas, y el vaho de su respiración genera gran cantidad de CO₂ lo que provoca un cambio de la atmósfera, porque nunca ha habido pastos tan grandes como los que hay ahora para obtener carne”.

A pesar de la idea generalizada que se tiene de los insectos en algunos países desarrollados, donde están asociados a la suciedad, en Estados Unidos hay empresas dedicadas exclusivamente a su comercialización; en Montreal, Canadá se realizan cada año festivales de degustación y en otros países europeos, como España, han abierto sus puertas restaurantes en los que los insectos son los únicos protagonistas de sus platos. Aunque su comercialización masiva parece todavía lejana, llegado el momento esta será, sin duda, será mucho más amplia.

- 925 millones de personas sufren de hambre en el mundo, según cifras actuales de la FAO;
- 578 millones de personas en Asia y el Pacífico padecen hambre; es la región que más presenta este fenómeno.

(Fuente: El Tiempo [Colombia], 17 de noviembre de 2010.)

Edible insects produce smaller quantities of greenhouse gases than cattle and pigs

Insects produce much smaller quantities of greenhouse gases per kg of meat than cattle and pigs. This is the conclusion of scientists at Wageningen University in the Netherlands, who have joined forces with government and industry to investigate whether the rearing of insects could contribute to more sustainable protein production. Insect meat could therefore form an alternative to more conventional types of meat.

Cattle farming worldwide is a major producer of greenhouse gases. For the assessment of the sustainability of insect meat, the researchers at Wageningen University quantified the production of greenhouse gases of several edible insect species.

The results of the study were published in the online journal PLoS ONE on 29 December 2010. The research team has for the first time quantified the greenhouse gases produced per kg of insect product. The gases concerned were methane (CH₄) and nitrous oxide (N₂O). The results demonstrate that insects produce much smaller quantities of greenhouse gases than conventional livestock such as cattle and pigs. For example, a pig produces between ten and 100 times as much greenhouse gas per kg compared with mealworms. Emissions of ammonia (which causes the acidification and eutrophication of groundwater) also appear to be significantly lower. A pig produces between eight and 12 times as much ammonia per kg of growth compared with crickets, and up to 50 times more than locusts. An additional advantage of insects over mammals is that they convert their food into meat more quickly.

The study indicates that proteins originating from insects in principle form an environmentally friendly alternative to proteins from meat originating from conventional livestock. Further research is required to ascertain whether the production of 1 kg of insect protein is also more environmentally friendly than conventional animal protein when the entire production chain is taken into account. (Source: Science Daily, 9 January 2011.)



Fodder and browse for livestock

Many species of trees found on farms, as well as forest trees and associated understory shrubs and grasses, are used for animal feed, either as browse or collected and fed to livestock in stalls. It has been estimated that 75 percent of the tree species (7 000 to 10 000) of tropical Africa are used as browse. Fodder trees contribute in several ways to the overall food and nutritional security of households. First, they make a significant contribution to domestic livestock production, which in turn influences milk and meat supply. Second, fodder contributes to maintaining draught animals and producing manure and organic fertilizer, thereby boosting agricultural production. Tree fodder and browse may consist of leaves, small branches, seeds, pods and fruits, all of which supplement other feeds and which can be a crucial component of livestock diets during the dry season, providing proteins, minerals and vitamins. (Source: FAO, 2011. *Forests for improved nutrition and food security*. Rome.)



Livestock feed – a forest provisioning service in the lower Himalayas

India is primarily an agrarian country, with the largest livestock population in the world. In rural India, livestock rearing mechanisms and food production systems are closely integrated in the forest ecosystem in general and the hilly regions in particular. Most of the households in the hilly regions rear livestock of varying numbers and composition, depending on the availability of resources. Uttarakhand represents 1.8 percent of the country’s geographic area with a total population of 8.48 million recorded in 2001. The rural population is 74.4 percent and the urban population is 25.6 percent; population density is 159 persons/km². Uttarakhand has 1.18 percent of cattle, 1.25 percent of buffaloes, 0.48 percent of sheep, 0.93 percent of goats and 0.24 percent of the pig population in the country.

Policy development vis-à-vis fodder in India is crucial to curtail the deficit of livestock feed and to conserve the country’s forests. To address the issue, data were collected from rural households selected at random from the Nainital district of Uttarakhand. Based on the data collected from 67 selected households, it was clear that the quality of life of the people in the region is poor. The extraction of livestock feed from forests totalled 4 362 kg for 326.45 adult cattle with the per capita consumption of an adult animal at 13.38 kg/day. The fodder extraction from the forest by each household is 65 kg/day on average. This amount of feed from the forest is extracted for the livestock of the region as a forest provisioning service by households. In total, 4 550 919.99 kg/day are required for the livestock of the region. This is a testament to the contribution of forests to the livestock sector, as well as to family welfare. It is important for policy-makers to consider sustainably managing forests, which are under huge pressure

from the livestock sector, as well as opportunities for provisioning proper livestock feed to fulfil the requirements of the poor. Moreover, the palatability of the forest feed in combination and on an individual species basis should be explored locally, keeping in mind the poor quality of livestock in the region.

FODDER COLLECTION, AVAILABILITY AND PREFERENCES

Fodder collection is carried out by women and in some cases children accompany them. In general, fodder and fuelwood collection are practised together. The collection of fodder involves assembling small bundles called *phula*; the total collection comprises seven to eight *phula/day/person*. Fodder collection depends on the size of the herds being reared and available labour; however, the maximum collection of fodder for livestock is nearly 65 kg/day from the forest. Nevertheless, a few households, with only one or two animals and scarce labour, prefer to collect fodder from their own resources. During the summer and rainy season, the villagers collect grass and tree fodder twice a day, while during the winter season only once a day because fodder is scarce.

The most common fodder species collected is oak (*Quercus* spp.) e.g. *Quercus leucotrichophora* and *Q. semicarpifolia*, which are abundantly distributed in the surveyed area and used extensively for fodder. Other tree species preferred include *banj*, *putli*, *kaphal*, *rianj*, *buransh* and *bhimal*. In the hills, bedding materials (crop residues, leaf litter, leftover forage and feed) are spread in the animal shed and are mixed with dung and urine. The use of raw materials for bedding varies from place to place, depending on forest species, forest condition and socio-economic circumstances. Compost, moreover, is used in crop production at the moderate to well decomposed stage; it is common in the hilly regions.

(Source: A. Mishra and R. Pandet. 2010. Livestock feed – a forest provisioning

service in the lower Himalayas. Centre of Minor Forest Products for Rural Development and Environmental Conservation. *International J. Forest Usufructs Management*, 11[2]. Indirapuram, Dehradun, India.)

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FOR MORE INFORMATION, PLEASE CONTACT:
Jagdish Kishwan, Division Director, EIA
Division, Indian Council of Forestry Research
and Education, Dehradun, India.
E-mail: jkishwan@icfre.org or jkishwan@nic.in



FORAGING

Urban foraging – a look at the deep connections between people and ecosystems

Do you forage for wild fennel? Pluck juicy berries from nearby shrubs? Gather fallen figs, apples, plums, walnuts and chestnuts? Harvest stinging nettles, dandelions, chickweed, watercress or other edible greens? Use Oregon grape or woodland fungi to dye textile fibres? If so, then you just might be an "urban forager".

Foraging is a deeply interactive nature practice that links urban residents to the intricate web of urban ecology while improving overall health and well-being. Urban ecosystems yield a bounty of edible, medicinal and useful plants and organisms important to the diverse communities. Forested woodlands, parks, alleys, parking strips, vacant lots and other areas outside the garden provide habitat for well over 250 native and introduced species of plants and mushrooms in Seattle, Washington (United States of America), some of which are foraged throughout the year. Gathering vegetative material serves many purposes, including: providing food, medicine and raw materials; strengthening social ties; and maintaining cultural identity.

The Institute for Culture and Ecology (a non-profit applied research organization) is currently taking an in-depth look at the diversity of plants and fungi important to people in Seattle. As part of the Green Cities Research Alliance, we are examining the social, economic and cultural importance of foraging and gathering in urban ecosystems and the extent to which foraging practices foster stewardship of plants and habitats. The Seattle Urban Foraging Project has the potential to link planners, land managers and gatherers in ways that build new bridges for urban green-space management that not only

supports a diversity of environmental stewardship activities, but also supports broader initiatives of environmental justice.

If you are a forager or interested in participating in this project, please consider getting in touch with the project leader, Dr Melissa Poe (mpoe@ifcae.org). (Contributed by: Eric T. Jones, Ph.D., Environmental Anthropologist, Institute for Culture and Ecology, PO Box 6688, Portland, Oregon 97228-6688, United States of America. E-mail: etjones@ifcae.org; www.ifcae.org)



FOOD FORAGERS FIND FUN AND CASH IN THE UNITED STATES OF AMERICA

Hunting may get more attention as a primal human endeavour but, for Connie Green, there is something even deeper and older: gathering. "I think it triggers something in people's brains that we are hard-wired for," she says. It "involves the joy of finding food, and it is really quite beyond our control in some way".

Green is a professional forager. She makes her living gathering wild foods in the woods and selling them to chefs, stores and the occasional very lucky person. Her tramps through northern California yield delicacies such as mushrooms, ferns, elderflowers, salad greens, juniper berries and rosehips. Some of these, especially the mushrooms, can go for hundreds of dollars a pound (0.45 kg).

To share the thrill of that hunt, and a taste of the thrill, Green and chef Sarah Scott have written *The wild table: seasonal foraged food and recipes*. (Source: USA Today, 12 January 2011.)

United Kingdom: top foods to forage

Thanks to modern agricultural methods, foraging – once a part of the majority’s daily life – has faded away, replaced by regular trips to the supermarket instead. Recently, however, there has been a revival of interest in raiding nature’s larder, thanks to increased awareness of the health benefits of wild food.

But for the beginner, foraging should come with a health warning as it is easy to mistake a deadly fungus for an innocent field mushroom. While wild food is generally good for you, taking precautions and getting some tips and advice from experienced foragers are essential.

In addition to mushrooms, berries, nuts, garlic and other wild foods, the following are among the most common foods foraged.

- **Elder.** Also called elderberry, elder is a genus of between five and 30 species of shrubs or small trees constituting the genus *Sambucus* of the moschatel family, *Adoxaceae*. There are more uses for elderflowers than for any other type of blossom. The aromatic blooms can be eaten raw, cooked, dried or powdered, and added to cordials, wine, salads, fritters, ice-cream, cakes, biscuits, jellies, jams, sweets, tea and meat dishes, as well as to beauty products such as skin lotion and eye cream. Elder bushes are usually covered in sweet-smelling flowers by the end of June, followed by berries between August and October. Elderberries can be put to many of the same uses as the flowers but the leaves and stems are poisonous. Elder is widespread and abundant in hedgerows, woods and at roadsides.
- **Dandelion** or *Taraxacum* is a large genus of flowering plants in the family *Asteraceae*. They are native to Eurasia and North America, and two species, *T. officinale* and *T. erythrospermum*, are found as weeds worldwide. Both species are edible in their entirety. They might have a reputation for being obstinate garden weeds, but dandelions are versatile, healthy and are freely available throughout the country for most of the year. The whole plant can be eaten: leaves in salads, sandwiches or pies, while flowers (in bloom between February and November) can be used in anything from a risotto to omelettes. The roots can also be thrown into stir-fries or added to vegetable dishes.
- **Nettles** also known as common nettle or *Urtica dioica*, is a herbaceous perennial flowering plant, native to Europe, Asia,

northern Africa, and North America, and is the best-known member of the nettle genus *Urtica*. Another plant pariah, nettles tend to be avoided thanks to their well-known propensity for leaving painful welts on the hands of the picker. Among other things, they can be used to make tea, soup, beer and even haggis. Boiling will get rid of the sting. Packed with vitamins and minerals, nettles contain more vitamin C than oranges. Nettles should be harvested before the flowers appear in early spring and only the youngest leaves should be chosen; mature leaves can damage the kidneys. Find them in gardens, woodlands, pastures and orchards.

- **Hawthorn.** *Crataegus monogyna*, known as common hawthorn, is a species of hawthorn native to Europe, northwest Africa and western Asia. Hawthorn used to be referred to as “bread and cheese”, as the leaves sandwiched between slices of bread were once a staple food in the

spring. The leaves can also be added to salads, made into a tea or munched straight off the branch, while the roasted seeds make a good coffee substitute. Hawthorn berries, bountiful in autumn, make a tasty jam or fruit bread. Hawthorn also has medicinal benefits and can help treat heart and circulation disorders. Powerful bioflavonoids present in the fruit stimulate blood flow to the heart and regulate the heartbeat.

- **Mallow** refers to any of several flowering plants in the hibiscus, or mallow, family (*Malvaceae*), especially those of the genera *Hibiscus* and *Malva*. Mallow leaves have a mild flavour and a distinctive gummy, glutinous texture, making them good for bulking up salads. By the same virtue, they can be used to treat constipation and diarrhoea, soothing the digestive tract, as well as helping a dry throat or chesty cough. The mauve flowers have a similar flavour and texture to the leaves and are also a good addition to the salad bowl. Mallow is widespread from spring to midsummer in open and sunny habitats such as at roadsides and on pastures.

(Source: The Ecologist, 18 March 2011; Wikipedia.)

MUSHROOM FORAGING IS DAMAGING UNITED KINGDOM FORESTS, WARN NATURE GROUPS

The fashion for collecting wild mushrooms began with celebrity chefs and has been encouraged by those with a revived interest in local food. This year’s wet summer and mild autumn has produced bumper crops of colourful wax caps, common ceps and luscious chanterelles.

But this new generation of foodies and foragers are beginning to trample the forests and fields that feed them, as well as many animals and insects, warn those who look after the United Kingdom’s woodlands and nature reserves. Concern is particularly high at some of the country’s best-known beauty spots, including the New Forest, Epping Forest and around the North Downs and the Chilterns. So serious is the problem in some areas that some big collectors, found with bagfuls of mushrooms from one trip, are being prosecuted. In just one weekend earlier this month, forest managers reportedly confiscated 45 kg of fungi at a site near London. (Source: www.guardian.co.uk, 24 October 2010.)



Hibiscus

FRUITS

Monkey cola/kola: underutilized fruits of Nigeria

The west and central subregions of sub-Saharan Africa have been known to hold a great array of kola species, among which are the commercial varieties of kola nuts (*Cola acuminata* and *C. nitida*). Monkey kola is a common name given to certain wild *Cola* spp. relatives in the subregions. They include *C. pachycarpa* K. Schum (white monkey kola), *C. lateritia* K. Schum

(red monkey kola) and *C. lepidota* K. Schum (yellow monkey kola). All these yield edible fruits of varying characteristics and sweetness. The species are known in southern Nigeria, where they are common sights in local markets during the peak fruiting season from June to November.

All of the species are identified by various local names in southeastern Nigeria: *achicha* or *ochiricha* in Igbo and *ndiyah* in Efik as well as Ibibio. As underutilized indigenous fruit trees, there is scanty research and information on the monkey kola species. However, the nutritional value of the fruits has been evaluated and quantified by the authors.

Monkey kola fruits have long been among the primary NTFPs of the humid forest belt of southeastern Nigeria. The produce is consumed by men, women and children alike because of the natural tasty pulp, especially that of the species *C. lepidota* and *C. pachycarpa*. The value of these underutilized indigenous fruit trees in meeting the micronutrient needs of local people, in alleviating food insecurity and as a source of income for resource-poor farmers cannot be overstressed. The World Agroforestry Centre states that African indigenous fruit trees constitute one of the best tools readily available for preventing diseases caused by a lack or insufficient supply of vitamins in the diet.

Domestication efforts focusing on finding the most productive species/varieties of these indigenous fruit trees with high nutritive value and good market potential should be further researched. [Source: Platform for Agrobiodiversity Research Newsletter, 16 March 2011.]



Cola acuminata

WILD FRUITS OF AFRICA

Most of Africa's edible native fruits are wild. One compilation lists over 1 000 different species from 85 botanical families and even that assessment is probably incomplete. Among all these fruit-bearing plants, few have been selected to bring out their best qualities, let alone deliberately cultivated or maintained through generations.

For all the lack of research and attention in development activities, wild fruits still play a crucial role in Africa's rural areas, especially for young children who are malnutrition's greatest victims. This is because, unlike most grains and vegetables, fruits generally do not need cooking, they require no adult intervention and they are tasty to boot. In this sense, wild fruits are Africa's most nutritionally important resource. Even a few small fruits that are nutritionally dense can deliver large benefits when the rest of the diet is deficient in vitamins and minerals, which is especially the case when it is overly dependent on starchy staples.

A surprising number of wild fruits contribute to countryside nutrition, and also to commerce, as seen in local markets. In Cameroon, for example, surveys identified over 300 trees whose fruits or seeds were eaten, including 200 forest species. In Uganda, 105 wild fruits are recorded as still being used. Similar inventories are documented in enough places to make this a fair reflection of the norm.

Today, however, these wild resources are becoming harder to find. Nearly all activities in African agriculture emphasize the top international crops. Technical interest and professional support for wild fruits are crucial, especially because times are rapidly changing. Fruits contribute most to the quality of eating and their nutrients act catalytically in tiny amounts to help the body employ bulky staple foods most efficiently and effectively. Underexploited fruits can contribute much more to Africa than they do today. (Source: Development, Security and Cooperation, 2008. *Lost crops of Africa*. Vol. III. *Fruits*.)

African plum (*Dacryodes edulis*) and its use

The contribution of African plum to improving food security and health as well as alleviating poverty in the local population in the Democratic Republic of the Congo (DRC) is unquestionable. Considering the vastness of the production area in Central Africa, the African plum offers interesting prospects for mobilizing and building capacities for small- and medium-sized enterprises involved in the NWFP value chains.

The African plum can be found growing naturally in forests; it is also artificially planted and managed by humans. It can be planted in orchards or through mixed farming, as in cocoa agroforests. The fruits are either harvested by climbing the trees or mechanically using a hook-like object. Natural harvesting occurs when the fruits drop as they mature. The natural method is especially used for very tall trees and for personal consumption.

Generally speaking, 58 percent of the African plum produced is for commercial purposes, 28 percent for personal consumption, 10 percent for gifts and 4 percent represent losses.

Even though the African plum exists in other provinces of the DRC, the greatest production is in the Bas Congo province; 42.2 percent of the stems in the surveyed area in the DRC are found in domestic gardens, 22.4 percent in secondary forests, and 35.4 percent in fallow land and farms. During the 2007/2008 season, 116 persons interviewed by the Center for International Forestry Research (CIFOR) in 23 villages valued their production at 197 500 kg. Some villages such as Luanza, Konde Divungu and Boko Kinfulama distinguished themselves with production highs estimated at 9 975 kg, 5 750 kg and 3 717 kg, respectively. Kibangu and Boko Disu, the villages with the lowest production, averaged 217 kg and 344 kg, respectively. In the capital Kinshasa, the African plum accounts for more than half the income generated from the sale of NWFPs in households. Among those interviewed, 92 percent generate significant income from the fruit.

The income derived from the fruit in the areas surveyed by CIFOR around Bas Congo and Kinshasa accounts for 31.4 percent of all NWFPs, followed by mushrooms (18.2 percent), caterpillars (13 percent) and *fumbwa* (11.4 percent).

The African plum is principally used for food (95.53 percent) and health (4.47 percent). Used as food, the fruit is consumed after it has been cooked in

warm water, in a frying pan or roasted. It is also consumed separately as a dessert or as an accompaniment to other foodstuffs. The fruits of *Dacryodes edulis*, moreover, have a high nutritive value, with each fruit containing an average of 50 percent lipids, 10 percent protein, 27 percent fibre and 10 percent of sugar on dry matter. Some varieties can have as much as 70 percent in oil content. For health reasons, the leaves, bark and roots of the African plum tree are used to treat toothache, diarrhoea, burns, chronic weight loss, shingles, hiccups, dysentery and the regulation of excess milk in breastfeeding women. Moreover, the African plum is potentially useful in the production of cosmetic and pharmaceutical goods.

The development of the African plum value chain has many opportunities, the most important of which seems to be the existence of big markets that include even people in places far away from the place of production. Handling may be another important strategy to complement the supply. [Source: S. Grouwels and O. Ndoye. Policy Brief No. 6, April 2010. *Mobilization and capacity-building for small and medium-sized enterprises involved in the non-wood forest products value chains in Central Africa*. Rome, FAO and CIFOR.] [This study took place within the framework of FAO project GCP/RAF/408/EC. Please see page 64 for more information.]

HONEY AND HONEY BEES

Honey is behind new technique to help ulcers heal

A new type of medical bandage using chemicals derived from honey is on trial in Staffordshire, United Kingdom. Early results show that the dressing produces better and quicker effects on long-term wounds than traditional methods.

Julie Stanton, a tissue specialist with the South Staffordshire Primary Care Trust (PCT), said its use could be "life-changing". She said it had had success with seven out of ten patients.

The bandage was developed by Professor Paul Davis, the man who invented the pregnancy test. Speaking to BBC Television, he explained that the honey derivative put both iodine and oxygen into a wound, using two layers of gel that slowly interact. The iodine kills the bacteria in the wound, as does the oxygen, since it empowers white blood cells to kill the bacteria.



Speaking to BBC Radio Stoke, Stanton said she was pleased that the PCT was experimenting with the bandage. She explained that the chemical produced by bees, which is used in the dressing, was integral to the success of the treatment. She said that it was mainly being used in Staffordshire on leg ulcers and surgical wounds that are not healing. "For people with these long-term wounds, life can be appalling and painful. To use something that has this positive effect can be life-changing."

Asked if she was concerned that this treatment costs twice as much as the usual methods, she pointed out that the National Health Service spends 4 percent of its budget treating people with wounds that will not heal. She said the results will be analysed later in the year by the PCT, which would then reassess its use for cost effectiveness.

Honey has been much touted for its medicinal qualities. Scientists hope that its ingredients may also be used to combat MRSA, the "superbug" present in hospitals in the United Kingdom. [Source: BBC News, 7 January 2011.]

Study produces sweet result for medicine

Honey from an Australian native myrtle (from the genus *Lagerstroemia*) has been found to contain the most powerful antibacterial properties of any medicinal honey in the world.

Medicinal honeys contain an antibacterial agent that can be used to treat wounds and viruses. A team including researchers from the University of Queensland (Australia) and the state government found native myrtle honey has very high levels of the ingredient known as MGO (methylglyoxal).

The chief executive of a company involved in the research, Carolyn MacGill, says the honey could prove useful in treating infections resistant to antibiotics. It will also be beneficial in wound care. "It will have a huge impact, particularly in the wound-care

market as these patients become more resilient to the penicillin products," she said. "They need to look for alternatives and fortunately this is a natural alternative that has been available for some time, but unknown." [Source: www.abc.net.au [Australia], 1 March 2011.]

United Nations alarmed at huge decline in bee numbers

The UN on Thursday expressed alarm at a huge decline in bee colonies under a multiple onslaught of pests and pollution, urging an international effort to save the pollinators that are vital for food crops.

Much of the decline, ranging up to 85 percent in some areas, is taking place in the industrialized northern hemisphere, resulting from more than a dozen factors, according to a report by the United Nations Environment Programme (UNEP). These include pesticides, air pollution, a lethal pinhead-sized parasite that only affects bee species in the northern hemisphere, mismanagement of the countryside, the loss of flowering plants and a decline in beekeepers in Europe.

"The way humanity manages or mismanages its nature-based assets, including pollinators, will in part define our collective future in the twenty-first century," said UNEP Executive Director Achim Steiner. "The fact is that of the 100 crop species that provide 90 percent of the world's food, over 70 species are pollinated by bees," he added. Wild bees and especially honey bee colonies from hives are regarded as the most prolific pollinators of large fields or crops.

Overall, pollinators are estimated to contribute US\$212 billion worldwide or 9.5 percent of the total value of food production, especially fruit and vegetables, according to the report.

Honey bee colony declines in recent years have reached 10 to 30 percent in Europe, 30 percent in the United States of America, and up to 85 percent in the Middle East, said scientist Peter Neumann, one of the authors of the first-ever UN report on the issue. But in South America, Africa and Australia there have been no reports of high losses.

Some of the mechanisms behind the four-decades-old trend, which appears to have intensified in the late 1990s, are not understood. UNEP warned that the broad issue of countryside management and conservation was involved.

Citing research in the United Kingdom, the report estimated that pollination by managed honey bees is worth €22.8 billion to €57 billion in terms of crop yields, and

that some fruit, seed and nut crops would decrease by more than 90 percent without them. [Source: AFP in *The Independent* [United Kingdom], 10 March 2011.]

MEDICINAL PLANTS AND HERBS

Artemisia annua: largest clinical trial confirms new drug for worldwide malaria treatment

The largest clinical trial ever conducted has concluded that the drug artesunate should now be the preferred treatment for malaria in both children and adults everywhere in the world. Professor Nick White of the Wellcome Trust-Mahidol University-Oxford Tropical Medicine Research Programme in Bangkok, Thailand, and his colleagues conducted the trial called African Quinine versus Artesunate Malaria Trial (AQUAMAT). Artesunate is derived from a Chinese herb called *qinghao* (*Artemisia annua*).

AQUAMAT found that treatment with artesunate reduced the number of deaths from severe malaria by 22.5 percent compared with quinine. With artesunate treatment, 8.5 percent of the patients died, compared with 10.9 percent with quinine. Children treated with artesunate were also less likely to slip into a deeper coma or have seizures after the treatment was started. Severe hypoglycaemia – dangerously low blood sugar – was also less common in children treated with artesunate. In addition, the drug was easy to administer, well tolerated, and proved very safe.

Thanks to the development of the artemisinin compounds, we now have a safer and much more effective treatment. "We recommend that artesunate should now replace quinine for the treatment of severe malaria in both children and adults everywhere in the world," the *Lancet* journal quoted White as saying. "For those of us who treat malaria in Africa, this trial is a turning point. Finally, we have a better treatment to offer to our malaria patients," agreed Dr Olugbenga Mokuolu from the University of Ilorin in Nigeria. [Source: www.thaindian.com, 7 November 2010.]

Passiflora incarnata named Medicinal Plant of the Year

The passionflower (*Passiflora incarnata*) has been named Medicinal Plant of the Year 2011 by a University of Wuerzburg study group on the historical development of medicinal plants.



Passiflora incarnata

The German-based group noted that extracts from the plant helped to relieve nervous restlessness, mild insomnia and gastrointestinal complaints related to nervousness, adding that trials had also shown it to be effective in easing anxiety. Unlike many psychotropic drugs, passionflower has no muscle-relaxing effects, which makes it a good general sedative that can be taken during the day. The group said that the most potent extracts from the plant were from its leaves. Although scientists are not sure what substances are responsible, the main effect is thought to come from chains of molecules called flavonoids that calm and lower anxiety by inhibiting certain neurotransmitters.

Passionflower is native to the tropical rain forests of Central and South America. More than 400 species are known, many of which have edible fruits. However, only the *maracuya* of the *P. edulis* has commercial significance, the study group said.

Every year since 1999, the group has selected a Medicinal Plant of the Year on the basis of an "interesting cultural and medical history" and scientifically demonstrated medicinal effects. [Source: Manila Bulletin [Philippines], 24 December 2010.]

MUSHROOMS

Mushrooms in forests and woodlands

Many mushrooms, or the "fruits of fungi", are extremely valuable, wild-gathered products that are utilized for both their medicinal properties and as food. In many of the world's tropical and temperate forests, they are the primary source of income for the people who live there.

These forests range from temperate woodlands and small forests to high altitude forests in the Himalaya and tropical *miombo* woodlands in South-Central Africa. In southwest China, over

200 species of wild fungi in 64 genera are commercially traded, while in Europe and North America, woodlands and small forests are the source of many highly prized mushrooms and an essential resource for small enterprises and collectors. Yet the increased demand for timber has resulted in the rapid expansion of forestry, which in turn has destroyed the natural habitat of many fungi, unbalancing both forest economics and ecology.

Despite the economic, social and cultural values of fungi, there is a general lack of understanding of their importance to local livelihoods and forest ecology. A recent book aims to fill this gap and demonstrates the crucial roles that fungi play in maintaining forest ecosystems and the livelihoods of rural people throughout the world, while providing good practice guidelines for the sustainable management of this resource and an assessment of economic value. The book brings together the perspectives of biologists, anthropologists and forest and woodland managers to provide a unique interdisciplinary and international overview of the key issues. [Source: A.B. Cunningham and X. Yang (eds). 2010. *Mushrooms in Forests and Woodlands: Resource Management, Values and Local Livelihoods*. United Kingdom, Earthscan.]

Enoki, the winter mushroom

Enoki (*Flammulina velutipes*), also known as winter mushroom, *enokitake*, velvet stem or velvet foot, is a dark orangey-brown gilled mushroom with an elongated velvety stem, and a cap that can grow up to two inches (5 cm) wide. Like oyster mushrooms, *enoki* grows on dead wood and has a long season, even showing up throughout the winter.

In its wild form, *enoki* looks nothing like the ghostly white supermarket version – those long, thin crunchy fungi that are cultivated in the dark. From above, *Flammulina velutipes* are dark amber-brown to tawny coloured, and slimy-tacky to the touch. But underneath, their caps are light, whitish-gold, and clustered very close together.

Prized in Chinese, Japanese and Korean cuisine, where it is used in soups and stir-fries, *enoki* has been cultivated for hundreds of years.

Wild *enoki* can easily be mistaken for poisonous mushrooms such as the deadly *galerina* (*Galerina autumnalis* or autumn *galerina*), a very common little brown

mushroom that grows throughout North America. It also has tacky, brown caps and grows on wood. Unlike *enoki*, which has a white spore print, *G. autumnalis* has a ringed stalk and a telltale brown spore print. [Source: *New York Times*, 13 November 2010.]

Collection of the caterpillar mushroom *Ophiocordyceps sinensis* in southwest China

The caterpillar mushroom *Ophiocordyceps sinensis* (syn. *Cordyceps sinensis*) is among the most valuable mushrooms in the world and plays a major role for local economies in its distribution area on the Tibetan plateau and adjacent regions. The mushroom is a valuable income source for the rural poor. Large proportions of its habitat fall into protected areas, and best practices of sustainable harvest are being reviewed to ensure availability for future generations.

A recent study analysed the *O. sinensis* collection in a nature reserve in southwest China. The authors found that harvesting is unevenly distributed among households and villages, with households that have access to the resource but lack adequate alternatives for income generation (such as rewarding wage labour, fertile agricultural fields or harvest of other high-value products) being most involved. Although collection is de jure forbidden, authorities of the nature reserve apply adaptive management strategies for sustainable resource use. This includes the allocation of collection areas to communities, based on their traditional land-use strategies and the control of harvesters from outside, triggering self-policing of the resource by the local people. The strategies applied also provide a promising model for other protected areas where the caterpillar mushroom is collected. [Source: C.S. Weckerle, Y. Yang, F.K. Huber and Q. Li. 2010. People, money, and protected areas: the collection of the caterpillar mushroom *Ophiocordyceps sinensis* in the Baima Xueshan Nature Reserve, Southwest China. *Biodiversity and Conservation*, 19(9).]



Cordyceps sinensis

NATURAL DYES

Bloodroot (*Sanguinaria canadensis*)

Few of the wildflowers that appear in Missouri (United States of America) have a stronger connection with past and present human routines than this early spring bloomer. In presettlement North America, bloodroot was immensely popular with many American Indian tribes because of the red sap extracted from its roots, which was used as a clothing dye and for face paint. Bloodroot was also used for a variety of medicinal purposes by American Indians and the early pioneers.

Bloodroot is a perennial, herbaceous, flowering plant native not only to Missouri, but to eastern and North America, from Nova Scotia in Canada to Florida in the United States of America. Bloodroot is also known as bloodwort, red puccoon root, and sometimes pauson and tetterwort (although that name is used in the United Kingdom to refer to greater celandine). The plant is found in rich soils in open broad-leaved woodland and on shaded slopes. Following its flowering period, it produces pods that eventually wither and release seeds on to the ground. Besides its most noticeable characteristic – a white flower with a yellow centre – bloodroot can also be distinguished by its single, lighter-green leaf, which has three to nine lobes. Bloodroot’s large, fleshy roots emit the red sappy juice that gives the plant its name.

As mentioned, this juice was used as a face/body paint and as a dye by Native Americans. Warriors painted their faces with it and young girls their bodies. The root juice has been used as a dye for fabrics, producing a yellow-orange colour. Nonetheless, applying the root or juice to the skin is a questionable activity as the plant is known to be an escharotic, a substance that kills tissue.

Native Americans, early settlers and herbal practitioners have prescribed bloodroot for a myriad of medical conditions from skin cancers to sore throats. Its most persistent and possibly valid use takes advantage of the flesh-destroying properties of the root juice or powdered root for treating conditions of the skin such as ringworm, warts, polyps, fungal growths and the like. Today, the plant has an even wider – and much less known – use: it is a key ingredient in many brands of toothpaste and mouthwash because several alkaloids found in the plant (notably sanguinarine) are highly effective at inhibiting the growth of oral bacteria and the build-up of plaque. [Sources: various, including Missouri Department of Conservation.]

NATURAL COLORANTS AND DYESTUFFS

Natural colorants and dyestuffs are an important group of NWFPs that find use in industries producing confectionery, other food products, textiles, cosmetics, medicines, leather, fur, paper, paint, ink, etc. One of the publications in FAO’s NWFP series (No. 4) reviews the production, markets and development potential of these products and provides information that will help resource managers appraise the future opportunities and constraints for their development.

If you would like to receive a complimentary copy of this publication, please contact *Non-Wood News*. An electronic version is available from FAO’s NWFP home page: www.fao.org/forestry/site/6367/en

Caesalpinia echinata

Caesalpinia echinata, also known as *pau brasil* or brazil wood, is a tree species native to Brazil. It is found in littoral forest and woodland, generally on sandy or sand-clay soils that are well drained, preferring less dense forest, frequently in dry high areas.

The species is famous for the dye extracted from the heartwood. *Pau brasil* was in fact an important source of fiery red colorant during the Middle Ages. Enormous quantities of dye wood were exported between 1501 and 1850, causing the loss of large areas of forest and enslavement of Indians. Exports of brazil wood, including the heartwood of a number of related species from Central and South America to the United States of America and western Europe, declined after the 1950s, in part resulting from the manufacture of synthetic dyes. The extent of the current trade is not known and it is unlikely that brazil wood will be exploited as a source of dye other than on a small scale.

The remaining stands of the species exist in a few areas on coastal plains, where deforestation rates are rampant. Illegal extraction of *C. echinata* by farmers and foresters is still thought to occur. The species was included on the official list of threatened species in Brazil in 1992.

Two protected areas in Bahia and Pernambuco were set up specifically to

protect populations of *C. echinata*. The species is also recorded in other public and private reserves. It is in cultivation in Bahia, Pernambuco, Alagos and Rio de Janeiro and there is also a reintroduction programme at Linares Reserve. Various federal and state laws exist, restricting the export and cutting of *C. echinata* or its habitat type. However, there appear to be considerable loopholes and a lack of specific measures to protect the species.

In addition to its use as a dye, the heavy timber has considerable value for use in construction work, carpentry and handicrafts, but its most commercial application is in the manufacture of bows for musical instruments. The bark is of local importance for its medicinal properties. (Source: Tree Conservation Information Service, UNEP Web site.)

NUTS

Shea nuts appear safe in allergy study

Shea butter is in everything from nappy cream to tissue paper, but the US Food and Drug Administration considers shea nuts – from which the butter derives – to be tree nuts and therefore potential allergens. A new study suggests, however, that shea butter poses little, if any, allergy risk to people who use products containing the substance.

The allergy triggers in other tree nuts and in peanuts are proteins. For nearly 2 million Americans, the immune system recognizes these proteins as harmful and launches an attack to rid the body of the molecules. If the assault is severe enough, the result can be an anaphylactic reaction marked by potentially deadly failure of the airways, although the number of deaths in the United States of America linked to nut allergies is small – about a dozen annually.

Dr Kanwaljit K. Chawla, a paediatrician in training at the Mount Sinai School of Medicine in New York City, said she became curious about the potential for shea butter to trigger nut allergies, while researching the safety of baby products.

Shea nuts are mostly fat, but Chawla and her colleagues decided to see if they could extract any proteins from the nuts and whether these shea proteins would provoke an immune response. Even trace amounts of nut proteins can still pose problems for people susceptible to the substances, so Chawla's group tested the ability of shea protein to trigger an immune reaction. Using blood taken from several volunteers with

known allergies to nuts, the researchers found that the principal immune molecule that would usually invoke an allergic response, immunoglobulin E, barely bound to the shea protein. In other words, Chawla said, although shea nuts in theory could be an allergy trigger, the evidence from her study suggests they are not. At least the immune system does not appear to recognize them as a nut protein. What is more, since Americans typically do not eat shea butter – it can be an ingredient in European chocolates – the risk is likely to be even smaller, Chawla added.

The researchers reported their findings as a letter to the editor in the latest issue of the *Journal of Allergy and Clinical Immunology*. (Source: Reuters [UK], 22 December 2010.)



Dika nut: the taming of the dika, West Africa's most eligible wild tree

When forests are cleared in West Africa for firewood or for farmland, the *dika* trees (*Irvingia barteri*) are, more often than not, left untouched. Farmers have too much to gain from harvesting the tree's fruits and seeds to burn or discard a tree found in the wild.

Indigenous to West Africa, the *dika* tree can grow to be as tall as 40 m and produces a small green and yellow fruit that looks, at first glance, like a small mango.

Its fruit ranges in taste from sweet to bitter and can be enjoyed, especially the sweeter varieties, fresh off the tree, or made into jelly, jam or "African mango juice".

But while the fruit is a delicious treat, the seeds are where the real value is to be found. Resembling smooth walnuts, *dika* seeds are cracked open by harvesters to collect the edible kernel contained inside. These kernels can be eaten raw or roasted, but most are processed and pounded into butter, compacted into bars or pressed to produce a cooking oil.

The seeds also produce a unique flavour when crushed and are combined with

spices to make "ogbono soup", a common dish. The wide popularity of ogbono soup has created a large market for *dika* seeds and harvesters can trade the kernels on both the local and regional scale. Out of season, the seeds bring in an especially high price – it has been estimated that a farmer can make up to US\$300 from the seeds produced by just one tree.

Each year, thousands of tonnes of *dika* nuts are harvested throughout western Africa and the popularity of this wild tree has led to many attempts at commercial cultivation. It is a slow maturing plant – it takes ten to 15 years for a tree to begin bearing fruit. Breeders, motivated by the value of its fruit, are working on developing faster growing varieties as well as varieties with shells that are easier to crack open. But whether or not the *dika* is successfully tamed by breeders and made more commercially viable as a domestic crop, the tree in the wild is already providing a critical income for millions of farmers and harvesters throughout West Africa. (Source: World Watch Institute, 18 October 2010.)

OLEORESIN

Copaifera trees

Developing sustainable extractive industries in otherwise intact tropical forest regions requires a sound understanding of the production potential of key resource populations. The oleoresin extracted from *Copaifera* trees is an economically important NTFP harvested throughout the lowland Amazon basin.

The authors of a recent paper studied oleoresin extraction from four species of *Copaifera* trees with known harvest histories within two contiguous extractive reserves in western Brazilian Amazonia. They conducted a large-scale experimental harvest of 179 previously unharvested *Copaifera* trees, in both seasonally flooded (*várzea*) and adjacent unflooded (*terra firme*) forests.

The likelihood of trees yielding any oleoresin was principally determined by their species identity: *Copaifera multijuga* was the only species regularly to yield oleoresin (70 percent of trees). Yield volumes varied both among species and forest types: *C. multijuga* (restricted to *terra firme* forest) had the highest mean yield of 505 ml, while *C. guyanensis* produced higher volumes of oleoresin in *várzea* (139 ml) than *terra firme* (15 ml) forest. Intraspecific differences were driven mainly by tree size. To assess

extraction sustainability, the authors reharvested a sample of *C. multijuga* trees and compared the oleoresin production of 24 conspecific trees that had been initially harvested one year previously, with that of 17 trees initially harvested three years previously. Reharvested trees produced just 35 percent of the oleoresin volume compared with that when originally drilled, but this response was not affected by the time interval between consecutive harvests. The research demonstrated that, within a population of *Copaifera*, both morphological and environmental factors restrict total productivity; consideration of these factors should inform sustainable management practices. [Source: P. Newton, A.R. Watkinson and C.A. Peres. 2011. Determinants of yield in a non-timber forest product: *Copaifera* oleoresin in Amazonian extractive reserves. *Forest Ecology and Management*, 2: 255–264.]



 PALMS

La palma *Brahea dulcis* (Kunth) Mart. en México

Hoy en día las especies proveedoras de productos no maderables, constituyen una parte importante en la economía de muchos países, debido a que proporcionan ingresos directos a muchas familias que habitan en zonas rurales. Tal es el caso de la palma *Brahea dulcis* (Kunth) Mart. en México, conocida comúnmente como palma soyate, la cual es un producto forestal no maderable (PFNM) que actualmente se cosecha en forma silvestre en algunas partes de México, y se distribuye hasta Guatemala. Estas plantas alcanzan una altura de 9 metros, puede crecer de dos maneras, como una palma de tronco único o en grupos arbustivos que alcanzan hasta 10 metros de diámetro y cada planta producen en promedio 12 ± 2.5 hojas al año.

Esta palma tiene gran importancia para las poblaciones indígenas y mestizas del

país, debido a que durante mucho tiempo les ha provisto de alimento, vestido y vivienda, además de servirles para fines artesanales y mágico-religiosos.

En la zona central de México las hojas nuevas de *B. dulcis* son extraídas de ecosistemas naturales, principalmente selvas bajas y encinares. En Hidalgo, la planta ha sido ampliamente utilizada por la comunidad otomí para procesarlas y transformarlas en diversos artículos, presentando, al menos en esta zona, 26 usos.

Sin embargo, a pesar de que estudios en esta zona han demostrado que potencialmente este recurso puede aprovecharse de manera sostenible existen normas que limitan su aprovechamiento, principalmente por la ausencia de información básica (biológica, ecológica y cultural) y por el mal diseño de los reglamentos de aprovechamiento de ésta. La reglamentación actual señala que debe tenerse un permiso de aprovechamiento para cortar hojas de esta palma dentro del área de la Reserva, y ante la imposibilidad operativa de obtenerlo hay desconformidad por parte de los pobladores locales quienes han realizado esta actividad durante décadas.

La gran facilidad que esta especie tiene de adaptarse a zonas perturbadas y con poca precipitación, la variedad de usos y la omnipresencia de productos hechos con esta palma en muchos mercados en México, la convierte en una de las especies de palmas más útiles de ambientes semiáridos de México. (**Aportación hecha por:** Mayte Coronel Ortega y María Teresa Pulido Silva, Universidad Autónoma del Estado de Hidalgo, Mexico.)

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PARA MÁS INFORMACIÓN DIRIGIRSE A:
María Teresa Pulido Silva, Centro de Investigaciones Biológicas. Universidad Autónoma del Estado de Hidalgo. Carretera Pachuca Tulancingo S/N. C.P. 42184. Pachuca, Hidalgo, México. Correo electrónico: mtpulido@yahoo.com; http://uaeh.academia.edu/mariateresapulido/papers/

Aprovechamiento del mbokaja (*Acrocomia aculeata*) (Jacq.)

El mbokaja (*Acrocomia aculeata*) (Jacq.) es una palmera perteneciente a la familia Arecaceae, nativa de la vegetación de Paraguay y Brasil, es una planta de amplia distribución. Posee un estípote que puede oscilar entre 10 a 15 m de altura y 20 a 30 cm de diámetro, región donde presenta una cobertura de espinas cerca de 10 cm de largo de color oscuro. Las hojas verdes, ordenadas

en diferentes planos dando un aspecto plumoso a la copa, son pinadas con una longitud de 4 a 5 metros, presentando aproximadamente 130 foliolos de cada lado y espinas en la región central. La inflorescencia es un espádice, con 50 a 80 cm de longitud, protegidas por una espata de color castaño. Las flores son amarillas y unisexuales, el fruto es una drupa globosa que en época de maduración se torna de color amarilla a naranja.

La fructificación ocurre todo el año, y los frutos maduran en los meses de septiembre a junio. Los principales polinizadores son Coleópteros, como la familia Curculionidae, Nitidulidae y Escarabaeidae.

El fruto es una drupa globosa de diámetro variado entre 2,5 a 5 cm, constituida por un pericarpio quebradizo cuando maduro; mesocarpio fibroso, mucilaginoso, azucarado y rico en glicéridos de coloración amarillo-naranja; el endocarpio está fuertemente adherida el mesocarpio, posee una estructura ósea de coloración oscura y un espesor de aproximadamente 3 mm, dentro de la cual está contenida la almendra oleaginosa comestible, cada fruto generalmente contiene una almendra, pero rara vez presenta bipartición.

La planta prefiere suelos arenosos, profundos y bien drenados, derivados de areniscas, aunque también puede crecer en suelos derivados de basaltos. La topografía donde crece tiende a ser plana o levemente ondulada. No crece en suelos bajos y de naturaleza hidromórfica que sean pesados y mal drenados. El rango de pH óptimo para el buen desarrollo del mbokaja está entre 5,5 a 6,5, y un contenido de arena de 60 a 75%.

La producción de aceite, de genotipos naturales de mbokaja, puede llegar a 4 toneladas por hectárea año, esto es, sin ningún manejo y sin ninguna planificación. Dando mayor observancia a su capacidad de adaptación en condiciones donde otros cultivos tendrían problemas para su establecimiento, como ser, entre otros, acidez elevada y bajo nivel de fertilidad, el mbokaja se desenvuelve y prospera. Esto le da un valor significativo como una opción, tanto para la diversificación del cultivo, aprovechamiento de superficies degradadas como alternativa para forestación.

(**Aportación hecha por:** Maura Diaz (maisdile@gmail.com), Ariel Antonio González Duarte (noeledoid@hotmail.com) y Prof. Dra. Maura Isabel Díaz Lezcano (maisdile@yahoo.es), Facultad de Ciencias Agrarias, Universidad Nacional de Asunción, Campus de la UNA, San Lorenzo, Paraguay.)



PINES

Chilgoza trees dwindling fast in Himachal, India

The *chilgoza* pine trees (*Pinus gerardiana*) – a source of livelihoods for many people in the tribal areas of Himachal and an integral part of the local economy – are dwindling fast because of the reckless overextraction of pine seed, said Rinki Sarkar, an economist and livelihood expert in New Delhi, India.

Based upon extensive research involving ethnographic and household surveys from 2009 to 2010 in the *chilgoza* belt in Himachal (including 13 villages of Kinnaur, Bharmour and Pangi), Sarkar submitted a report to the Forest Department on the tree's status. Sarkar said: "I stumbled upon the *chilgoza* tree in 2009 on a visit to Kinnaur while doing research on common property resources and was fascinated by the well-organized mechanism of collection of the pine seeds and cones, and the equitable sharing of the profits from the seeds by the natives".

The seeds, collected tediously, were once largely used solely for self-consumption, but with the rising commercial value, people started auctioning the extraction process to contractors, who in turn engaged inexperienced migrant workers or labourers to extract the seeds from the cones. Excessive extraction and careless chopping of branches and twigs have led to a reduction in the forest stock and prevented the natural regeneration of the trees, which take almost ten years to grow 1 foot (30.5 cm). Besides uncontrolled cutting, the extensive grazing on land was also causing a reduction in the regeneration of the pines.

Seeking intervention of the community as well as the State Forest Department in the regeneration of the species, Sarkar said innovative plantation strategies were needed to conserve the species and generate awareness at the grassroots level of sustainable practices where the community could be involved to protect the species from dwindling.

Development activities have seriously affected the species in the areas of Kinnaur and Bharmour, in addition to adverse climatic conditions. Pangi, which is still relatively untouched by developmental activities, still has a larger portion of *chilgoza* trees compared with Kinnaur and Bharmour. [Source: *The Times of India*, 25 January 2011.]

White-bark pine in the United States of America and the grizzlies

Doug Peacock has been a tireless defender of the Yellowstone grizzly for decades, but he believes the bear may now be facing its toughest threat yet.

A close encounter with a grizzly many years ago led to what was to become Peacock's life's work: documenting the grizzly on film and in books (including *Grizzly Years* and *The Essential Grizzly*) and fiercely advocating its protection. Now Peacock is warning against what he sees as the greatest threat yet to the grizzly's future: the loss of white-bark pine (*Pinus albicaulis*), a major food source for the bear. Warming temperatures in the Rocky Mountains have led to a proliferation of the pine beetle, an insect that destroys the trees, wiping out vast swaths of white-bark pine. In an interview with *Yale Environment 360*, Peacock talks about why the demise of white-bark pine will lead to more contacts between grizzlies and people, and why the grizzly needs to be protected under the Endangered Species Act.

"In the last five years, steady warming temperatures have allowed the mountain pine beetle to move up a life zone to where the white-bark pines live. The mountain pine beetle has been around a long time. Until now, it has mainly affected lodgepole pine up here, and lodgepole pine has evolved some defence to it. That same genetic material is present in white-bark pine, but it has not evolved a defence. And that is because it had not been invaded before [by the pine beetle], because we had winter temperatures that dropped to -30 to -35 for four or five days in a row up in that high country and the larvae of the pine beetle cannot winter over. But, since 2002, those

temperatures have warmed to the point where the pine beetle can winter over. The last studies concluded that in the greater Yellowstone ecosystem, which is a much bigger area than the national park, 82–83 percent of the white-bark pine trees were either dead or dying. And a lot have died since," says Peacock.

"So what we are talking about is probably the total loss of white-bark pine in this ecosystem. We do not know if we are going to have any trees left in three or four years. And as far as the grizzly bear is concerned, that means the nut of the white-bark pine cone is lost forever as a food source," he added.

While some wildlife management officials are saying that the grizzlies will adapt and find other food sources to eat to replace the pine nuts, Peacock says it is a very contentious area. "White-bark pine is incredibly nutritious. With the loss of the white-bark pine as a food source, the carrying capacity – which is how rich the habitat is for bears – is going to be greatly diminished. And for bears to survive, basically they are going to need a much larger area to forage in," explains Peacock. [Source: *Yale Environment 360*, 19 January 2011.]

RATTAN

World Wide Fund for Nature (WWF) showcases sustainable rattan use amid design revival

Natural rattan belongs to the design classics and it is making a comeback in design circles. Unfortunately, conventional forestry practices may damage tropical forests when the rattan is harvested. To avoid this forest destruction, WWF has set up a European Union (EU)-funded programme for the sustainable production and processing of rattan in the Mekong region. An innovative collection of rattan home accessories is being showcased this week at the international design fair *Ambiente* in Frankfurt/Main.

WWF is working with Swedish designers, graduates from Lund University, in cooperation with local companies, to develop rattan products that are suitable for the international market. These products range from doormats made of rattan waste to foldable baskets, and a unique rattan lounge chair.

In addition, WWF has analysed the worldwide trade flows of rattan. The key

points of a scientific study launched today include the following: between 2006 and 2008, global trade declined by 26 percent as a result of dwindling rattan resources and forest loss. Indonesia is the most important exporting country in the world, with a market share of 80 percent.

The major buyers are the EU and China. Viet Nam plays an essential role for the EU market, exporting mainly to Germany and France. Viet Nam is also a major importing country – suppliers are the Lao People’s Democratic Republic, India, Cambodia and the Philippines.

Rattan species are members of the palm family and grow climbing and winding themselves around other vegetation; some varieties can grow to lengths of more than 100 m.

“Forests with such a wide variety of flora and fauna, which have disappeared in other regions of the world, still exist in the Mekong region,” said Thibault Ledecq, WWF Sustainable Rattan Regional Programme Manager. “More than 1 000 new animal and plant species have been discovered in the Mekong region in the last ten years alone.” But many of these rattan resources are being overexploited, leading to a decline of many rattan species, prompting WWF to create the Sustainable Rattan Programme in Cambodia, Lao People’s Democratic Republic and Viet Nam five years ago.

The objectives of the programme are to manage the tropical forests containing rattan in accordance with the Principles and Criteria of the FSC (Forest Stewardship Council), and to promote and implement the United Nations’ principles of “Cleaner Production”. These include the optimization of material and energy flows, minimizing waste and water contamination, and reducing emissions. “Sustainable rattan only has a chance if there is a market for it and if the forests where the rattan grows are still standing,” explained Ledecq. He is convinced that “with credible forest management, responsible trade and consumer awareness we can ensure that this fascinating natural raw material has a future”.

The WWF Sustainable Rattan Programme receives 80 percent of the programme’s total budget of €2.4 million from the EU SWITCH-Asia Programme of EuropeAid Development and Cooperation. SWITCH-Asia aims at scaling up environmentally friendly production and consumption practices. The Sustainable Rattan Programme is successfully serving this purpose by reaching out to all actors

“SUSTAINABLE RATTAN IN THE GREATER MEKONG REGION”: BRIEF PROJECT PROGRESS REPORT

During the last six months, the WWF team and its partners, with support from the three governments, have made a significant impact on forest inventory and management in the region (Lao People’s Democratic Republic, Cambodia and Viet Nam), with today more than 31 992 ha of forest inventories and management and 120 ha of rattan plantation and enrichment forest planting.

The first 1 200 ha of forest has been granted by the Department of Forestry (DOF) of the Lao PDR under the FSC Group certificate. The DOF would like to promote and scale up a sustainable rattan management approach in the country.

One hundred villages from the three countries have set up groups and half of them have received training on rattan resource management, business and market links as well as cleaner production management. More than 50 rattan processing and trading companies from the Lao PDR, Cambodia and Viet Nam are engaged in the project to adapt cleaner production techniques, as well as sourcing from more sustainable rattan management areas. The project and partner (Vietnam Cleaner Production Centre [VNCPC]) are now developing new cleaner rattan production techniques that are expected to be used by rattan companies from the region but also from other countries such as Indonesia. Regional market and business links between Vietnamese and Laotian companies have been established, but are not as secure yet as with Cambodia.

In terms of policy, a gap analysis has been carried out in the three countries with the stakeholders and with the support of governments.

During this period, the project has assisted the Government of Viet Nam to set up the Bamboo and Rattan Master Plan. The project will also pilot the rattan supply chain amendment in 2011. **(Contributed by: Mr Thibault Ledecq, WWF Sustainable Rattan Regional Programme Manager, WWF Lao Country Office, BP 7871 Vientiane, Lao PDR. E-mail: thibault.ledecq@wwfgreatermekong.org)**

along the rattan value chain and encouraging certification. IKEA cofinances the Programme. [Source: WWF, 12 February 2011. http://wwf.panda.org/wwf_news/?199309/WWF-Showcases-Sustainable-Rattan-Use-Amid-Design-Revival]



What is forcing the prices to rocket in spice world?

After a series of natural calamities and poor harvests, the prices of spices from ginger to nutmeg have rocketed in one of the hidden stories of global food inflation. Traders and brokers reported that prices of some spice staples have increased more than tenfold over the past five years and in turn hit food manufacturers and consumers. Speculators have joined the fray, encouraged by high prices and poor returns on the financial markets, leading to hoarding and pushing up prices.

Several years of hurricanes and devastation in major spice-growing areas have led to a perfect storm of circumstances that have contributed to the price rises. Cyclones that hit Madagascar destroyed vanilla crops, hurricanes in the West Indies affected nutmeg and unpredictable monsoons in India cut chilli harvests.

In the United Kingdom, prices have followed the upward trend in the £250 million a year herb and spice market where demand is fuelled by a growth in ethnic cooking and health concerns. Reducing the salt level in diets has resulted in an increased use of spices, said Anthony Palmer, General Manager of Schwartz (a United Kingdom spice supplier).

The spice trade represents a small subsection of the food supply chain where prices have been volatile recently because of extreme weather. The last food price crisis, in 2008, quickly dissipated as the world entered recession, demand fell and farmers shifted into production of higher-priced crops.



Cardamom

Cardamom. Highly popular in the Middle East, cardamom was originally grown in southern India but is now grown elsewhere, including Sri Lanka and Guatemala. Yields in Sri Lanka were down sharply this year because of heavy rains that caused flooding and landslides. However, demand for the crop has remained buoyant in the Middle East. It is used heavily in sweets and the early Ramadan holiday meant that supplies were snapped up. The crop was also disrupted in Guatemala.

Coriander. Although the price for coriander (one of the first spices ever used by primitive cooks), has been largely flat over the year, there has been a sharp spike in recent weeks. The relatively stable price, compared with some of the other most popular spices, has been attributed to its diversity of supply. It is grown in eastern and southern Europe and in North Africa and the variety of growing conditions and locations has levelled out short-term spikes in price and production. The price has spiked in India over the last couple of weeks in part owing to the late monsoons that affected growing conditions and cut production.

Paprika. While the price has been driven up by increasing producer prices in Peru, brokers in Europe blame the rise in domestic prices on stricter pesticide and toxin rules that have restricted supply. Originally grown in Central America, the supply of paprika to European consumers is dominated by a small group of family businesses in Murcia, Spain, who buy up a large proportion of the world's crop for processing. Brokers say rules have tightened over the last five years, preventing much of the crop being sold in Europe and hence driving up the price.

Cinnamon. An earthquake in 2009 in Indonesia damaged a number of plantations, causing major disruption to the cinnamon crop, which contributed to supply problems

and drove up prices. The damage to the trees has a long-term significance: the spice is obtained from the inner bark of trees that take some 15 years to mature. Analysts also reported that competing crops, such as coffee and cocoa, were being planted instead, to increase returns for farmers.

Cumin. Cumin has been relatively expensive for the last couple of years, with too little of the crop grown to satisfy demand, particularly in India, where it is a staple of Indian cooking. Spice brokers say the trade in cumin has been highly influenced by speculation, notably in India, the source of a majority of the world's spices and the centre of their trade. The nature of farming, with thousands of backyard growers each supplying a few sacks to cooperatives, has also contributed to the volatility of supply and pricing.

Ginger. The price of ginger has been hit by both strong demand in China and a smaller than expected crop in India. While it is native to these two countries, and they are two of the key producers of the crop, it is now also produced elsewhere in Asia, West Africa and the Caribbean. As a root spice, it is susceptible to damage from flooding. In November last year, China's Commerce Ministry blamed hoarding and speculation for driving up prices. The food industry said that Nigeria was only slowly releasing supplies to achieve top prices.

Turmeric. Turmeric, another root spice, had a smaller annual crop last year. It is an integral part of Indian cuisine, used in most meals, with few alternatives to its use (when used to colour foods, it is much cheaper than one alternative, saffron). As well as being used for colouring, it is used in India as an aid to digestion, for skin conditions and for other medicinal purposes. Much of the smaller supply is taken for domestic use in India, thus driving up the prices for export.

Nutmeg/mace. Historically both highly prized and expensive, the prices of nutmeg and mace, from the same tree, have increased sharply. Supply is dominated by Indonesia and Grenada. After nearly 50 years without suffering from a hurricane, Grenada was hit by two in 2004 and 2005. Trees were destroyed and the long growing period until they can be harvested has meant that its nutmeg industry, the world's second largest, has not yet fully recovered. Indonesia, the world's largest producer, has been unable to pick up the slack. [Source: *The Independent* (United Kingdom), 18 February 2011.]

NUTMEG

Nutmeg is a spice from the nutmeg tree, of the genus *Myristica*. The most important commercial species is *M. fragrans*. Nutmeg is native to several Indonesian islands, particularly the Banda islands in the Moluccas, also known as the Spice Islands. *M. fragrans* is also grown on the island of Penang in Malaysia, in Grenada (the Caribbean) and in Kerala, a state in southern India.

The nutmeg tree bears a fruit from which two spices are derived: nutmeg and mace. Nutmeg is the "seed" of the tree, measuring some 20 to 30 mm long and 15 to 18 mm wide; it can weigh anything from 5 to 10 g when dried. Mace is the surrounding lacy aril or reddish covering of the seed. This is the only tropical fruit that is the source of two different spices.

The first harvest of nutmeg trees takes place some seven to nine years after planting; the trees reach full production after roughly 20 years. Nutmeg is generally consumed in powdered form, even though several other commercial products are derived from the tree, including essential oils, extracted oleoresins and nutmeg butter.

Nutmeg also boasts several health benefits. It contains the antioxidant eugenol, as well as vitamin A and potassium; it has been used since ancient Roman times to enhance memory function. It relieves stress and stimulates concentration. Used to relieve stomach pain and arthritis in Chinese medicine, nutmeg oil increases circulation, relieves pain and stimulates the liver. The spice is also known to boost kidney function, as well as for its antibacterial and anti-inflammatory properties. (Sources: various.)

Spice up your health, cancer researcher advises

Bharat Aggarwal, a professor of experimental therapeutics at the University of Texas MD Anderson Cancer Center (United States of America), began studying the cancer-fighting properties of curcumin – the active ingredient in turmeric – in the 1990s. Back then, he says, it was hard to get his colleagues to take him seriously; he recalls

one oncologist politely shooing him out of his office when he tried to share his findings.

These days, however, his is an expanding field of research. The scientific community is discovering the medicinal powers of not just turmeric, but all kinds of spices.

In his new book, *Healing Spices. How to Use 50 Everyday and Exotic Spices to Boost Health and Beat Disease*, Dr Aggarwal draws upon scores of studies to show how various spices can help prevent or treat specific ailments. Researchers from the Harvard School of Public Health, for example, discovered that people living in India had a 51 percent lower risk of heart disease if they cooked with mustard seed oil compared with those who cooked with sunflower seed oil. Japanese researchers found that mint extracts can prevent the release of histamine, the chemical that causes allergic symptoms such as watery eyes and stuffy noses. Scientists in Denmark found that eugenol, or oil of clove, is more effective as a blood thinner than aspirin. Cinnamon has also been shown to improve one's memory and ability to focus.

"When there is any kind of disease, people think drugs are the only solution. Spices are the last thing they ever think about because, especially in the Western world, it is not a part of their lifestyle," says Dr Aggarwal. "But spices have been used quite extensively in history. Now, we are actually providing scientific evidence that their medicinal value is indeed real and they can be used for a wide variety of diseases." [Source: The Globe and Mail [Canada], 23 January 2011.]

VEGETABLE IVORY

Assisting small farmers in Ecuador

Tagua nuts (harvested from a tree species called *Hyphaene phytelphas*) come from the ivory palm tree (often called vegetable ivory for its similar properties), which grows only in the Amazon rain forests. Once it reaches maturity, a tree will bear fruit for up to a century.

The 20–50 cm fruit from the ivory palm is called a *mococha*. It is collected from the forest floor after it falls from the tree and animals take care of removing the tough outer husk. The individual nuts are then removed from the fruit and dried in the sun for six to eight weeks before they can be worked. They can then be sliced, cut and dyed as required.

Individual nuts are removed from the fruit by hand. Before the invention of plastics, *tagua* nut was used for buttons, dice, chess pieces, etc. Now it makes great fashion jewellery, handmade by fairtrade cooperatives such as Camari in Ecuador (www.camari.org/).

Camari is a Quechua word meaning "please" or "gift". Camari was formed in 1981 to assist small farmers and the urban poor to market their agricultural and craft products. Working with Camari benefits approximately 15 000 families around the country; they are particularly focused on the development of products that have no negative impacts on the environment. In addition to product marketing, they also provide credit and technical assistance and training to individual artisans and farmers. [Source: Oxfam Ireland, 23 September 2010.]



New business creates products from rain forest *tagua* trees

Ken and Mako Friedenberg have been in the Naples area of Florida (United States of America) for only a few months, but already the husband and wife team have found a following. Their company is called La Tagua (www.latagua.com) and it comes to southwest Florida by way of the Amazon rain forest. While many products from the Amazon previously have come under fire for being destructive, La Tagua has the opposite effect, they say.

"Our product falls off the *tagua* trees (in the Amazon) naturally, so there is no damage to the natural resources in harvesting the nuts of the seeds, which are the size of hen eggs," said Ken Friedenberg. "The raw materials we use are from the rain forest and we wanted to be closer to our natural resources, which made southwest Florida a desirable place for us to live."

A full-grown *tagua* tree can grow to 65 feet (19.8 m) and yield enormous, knobby wooden fruits. When cracked open, the

fruit reveals several hen-egg sized *tagua* nuts, which are seeds of the tree. *Tagua* seeds can grow into seedlings or be carved into vegetable ivory products. In the small South American communities where it grows, *tagua* provides a valuable economic and cultural service for indigenous people, allowing them to exist in their traditional lifestyles.

La Tagua products closely resemble ivory, but are far less expensive than ivory and do not affect the environment negatively. [Source: www.naplesnews.com [United States of America], 6 January 2011.]

WILDLIFE

World Bank President announces Wildlife Premium Market Initiative

World Bank President Robert Zoellick announced a Wildlife Premium Market Initiative, which will provide additional incentives to protect endangered animals as part of financing for REDD+.

Speaking at an event entitled "New Pathways and Partnerships to Advance REDD+" sponsored by "Avoided Deforestation Partners" during the Cancun (Mexico) Climate Change Conference, Zoellick explained that the Wildlife Premium Market Initiative will focus on species such as tigers, lemur, elephants, great apes and others that require large forest areas. The Initiative aims to complement REDD+ programmes by giving value to forest wildlife and make payments to local communities for wildlife protection.

Other speakers at the event, including UN Secretary-General Ban Ki-moon, Conservation International CEO Peter Seligmann and UNEP Executive Director, Achim Steiner, stressed the need to act now to protect the world's forests. Zoellick also stressed that a formal decision on REDD+ in Cancun would help scale up efforts in forest conservation and wildlife protection, but that interested parties should proceed with actions in any event. [Source: International Institute for Sustainable Development [IISD], 8 December 2010.]

DVD – *The Wild Meat Trail*

Wild meat hunting and consumption are an integral part of the life of communities in northeast India. Wild meat markets exist in different towns and cities across the states. A hoopoe bird for 400 rupees (US\$8), a giant

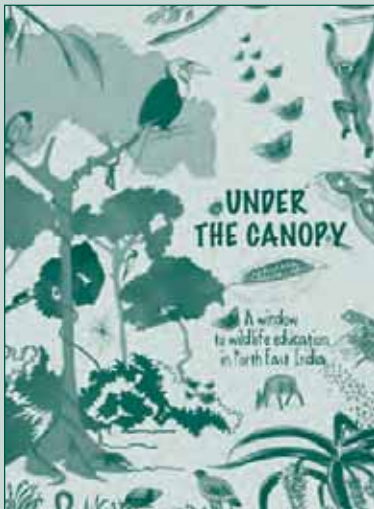
squirrel for 500 rupees (US\$11), a barking deer for 6 000 rupees (\$135) ... while the forest seems devoid of wildlife, what you see in the markets is an indicator of what still remains. Whereas cash is a driving force in the wild meat trail, there are clearly other aspects to the use of animal parts in local rituals and culture that is deeply ingrained in the psyche of the people here.

Filmed over seven years, *The Wild Meat Trail* is a quest to get some insight into the extent of hunting practices and their place in the current cultural context. It is a journey through northeast India – travelling from small towns to remote villages, trekking through wild terrains, participating in village rituals, talking to sellers and consumers – in an attempt to develop some understanding of the state of the wildlife in the region. The film also looks at attempts made by some village communities to ban hunting and conserve their natural wealth.

Directed by Rita Banerji and Shilpi Sharma and produced by Dusty Foot Productions of New Delhi, the DVD is in English and has a duration of 28 minutes.

UNDER THE CANOPY

“Under the canopy” is the education component of the film *The Wild Meat Trail*. This education programme was developed as a step to influence positively people’s knowledge, attitudes, emotions and behaviour regarding wildlife.



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FOR MORE INFORMATION, PLEASE CONTACT:
Mathew John, Keystone Foundation, Post Box 35, Kotagiri – 643 217, Nilgiris, Tamil Nadu, India. Fax: + 91-4266-272277; e-mail: kf@keystone-foundation.org; www.keystone-foundation.org or www.lastforest.in/



Gorillas on the line

Each and every time your mobile phone rings, a mineral ore called coltan enables the call to be made. Coltan, which coats the tiny capacitor inside most mobile phones, is mined in Central Africa with devastating flow-on effects: the deforestation of primate habitat and butchering of animals to the point of endangering species.

Eighty percent of the world’s reserves of coltan are found in the Republic of the Congo. This same region is home to the mountain gorilla (*Gorilla beringei beringei*) and Grauer’s gorilla (*G. beringei graueri*, formerly known as the eastern lowland gorilla). As mining operations expand to meet escalating global demand for coltan, clearing the country’s lush forest, the habitat of these gorillas and at least ten other primate species is being destroyed, and with it their food sources. In addition to these threats to their survival, the increased human population in mining areas has led to these primates being hunted for bushmeat.

The United Nations Environment Programme (UNEP) reported a 90 percent decline in the number of Grauer’s gorillas in eight national parks in the Democratic Republic of the Congo (DRC) between 1996 and 2001. The International Union for Conservation of Nature (IUCN) classifies mountain and Grauer’s gorillas as endangered and estimates their respective populations as being 680 and 16 900 individuals, respectively.

And it is not only the animals that are suffering; communities are being plundered. United Nations Security Council reports have implicated illegal mining and smuggling of coltan in funding the military occupation of

the DRC. Much of the ore is being smuggled over the eastern borders of the country by militias to Rwanda, Uganda and Burundi, fuelling conflict in the DRC, while prisoners-of-war and children are often forced to work in the illegal mines. The Democratic Republic of the Congo Permanent Mission to the United Nations (DRCPMUN) reported that the Rwandan army had made an estimated US\$250 million over a period of 18 months from the sale of coltan, even though no coltan is mined in Rwanda.

Recycling coltan is a proven way to reduce demand for the ore and reduce the destructive consequences of illegal mining. Melbourne Zoo, in conjunction with the Jane Goodall Institute, has launched the “They’re Calling You” campaign, encouraging Australians to donate their old phones. So far, the campaign has raised US\$50 000, with 50 percent going to the Jane Goodall Institute and the Dian Fossey Gorilla Fund.

Mobile phones, however, are only one of many electronic devices containing coltan. According to the Australian Mobile Telecommunications Association (AMTA), tantalum capacitors are critical components in computer motherboards, computer disc drives, video camcorders and engine control units and are used right across the electronics, chemical and defence industries. [Source: G Magazine [Australia], 10 January 2011.] ♣



**Isihlahla saziwa ngezithelo zaso.
 A tree is known by its fruit.**

Zulu proverb

ARMENIA

Wild fruit and nuts project on sustainable forest use launched

A pilot project aiming to capitalize on the sustainable non-timber use of forests in a region of Armenia has been developed following a WWF Armenia analysis, carried out within the framework of the ENPI-FLEG Programme (European Neighbourhood and Partnership Initiative-Improving Forest Law Enforcement and Governance). Non-timber use of forests, for example the collecting of wild fruits, berries and nuts, is a significant component of sustainable forest management and an important factor in the efficient use of forest resources.

The project, which will be launched in Koghb village in the Tavush region, aims to create new alternative income opportunities and reduce the pressure on natural resources. The WWF Armenia analysis revealed that the collecting and processing of forest fruit and berries were the most profitable alternative use of forest in Koghb, and that the community has the potential to develop a viable ecotourism and cultural tourism sector.

The pilot project aims to establish a fruit and berry collection point, in addition to tourism infrastructure such as a visitor information centre, observation points and pavilions, signs and route maps. The idea is that the planned fruit and berry collection point will allow harvesters to deal directly with buyers in order to negotiate prices and organize delivery, ensuring better supply chain efficiency and reducing the possible spoilage of crops. The village will also have a new source of income through being able to provide tourists with services such as horses for hire, accommodation and selling locally grown and prepared food.

The €6 million ENPI-FLEG Programme supports governments, civil society and the private sector in the development of sound and sustainable forest management practices, including the prevention of illegal forestry activities. [Source: ENPI info centre (<http://enpi-info.eu/>), 15 November 2010.]

AUSTRALIA

Patent fight erupts over Kakadu plum

The Australian Government will soon rule on a controversial patent application by an American cosmetics giant to extract ingredients from the Kakadu plum (*Terminalia ferdinandiana*).

The company, Mary Kay of Texas, United States of America, applied for the patent four years ago but, amid opposition from indigenous groups and Australian experts, the application was only recently submitted for examination to Intellectual Property Australia (IP), the office that oversees patents.

IP Australia said it would publish a preliminary report in the next few weeks. The native Kakadu plum acts as an antioxidant when applied to the skin. According to Mary Kay, "the combination of Kakadu plum extract and açai berry extract produces synergistic effects that are beneficial to skin".

Indigenous groups worry that the patent could prevent them from using the plum as traditional medicine. The Mirarr people say they have never been consulted about the patent application, which they strongly oppose. The Gundjeihmi Aboriginal Corporation, which represents the Mirarr, said people in the area had used the plum longer than anyone could remember. "The Kakadu plum has been an important source of food and medicine for the Mirarr," it said. "It also features in oral histories and 'dreaming' stories."

Dr Daniel Robinson of the University of New South Wales said that Mary Kay may have exploited a loophole in access and benefit sharing (ABS) laws. "Australia has a very well developed ABS system," he said, "but it appears the company has taken [plum samples] out of the country commercially, and so they have actually got around the ABS regime".

Mary Kay's Director of Communications, Crayton Webb, defended the company's use of the plum, insisting it followed "the process that is in place" in obtaining plum extracts. "We are using a local supplier, who has sourced and harvested the Kakadu plum with a licence, under government regulations," he said, declining to name the supplier.

The plum extract is already an ingredient in some of Mary Kay's Timewise line of products. "No-one has ever used this fruit in a cosmetic formulation before," said Mr Webb, "so it makes sense to patent it to protect our idea".

Dr Robinson has filed a formal challenge to the patent with IP Australia, but pointed out that Mary Kay had not contravened any legislation.

The Kakadu plum tussle erupted just weeks after an international row at a United Nations summit in Japan over access to

genetic resources. After intense negotiations, the COP10 summit in Nagoya drew up the world's first internationally binding agreement to prevent biopiracy. The new regulations mean that companies searching abroad for new genetic resources for drugs or cosmetics will have to enter into written agreements to share the benefits of any discoveries with indigenous people who may have rights over these resources. Because the United States of America is one of only three countries in the world not to have signed up to the Convention on Biodiversity, American companies such as Mary Kay can avoid this kind of scrutiny.

Indigenous groups have sent letters to IP Australia and to Mary Kay directly to express their concern about the patent on the Kakadu plum. [Source: www.smh.com.au, 4 December 2010.]



BANGLADESH

Potential for rural employment in bamboo-based industries in the northeast

Bamboo-based cottage industries are potentially important sources of employment as well as rural development in Bangladesh. The average population of a household of artisans is six and an average of 3.7 people in each household are engaged in the bamboo industry. Of these, about 62 percent are female and mostly illiterate. *Melocanna baccifera* and *Bambusa polymorpha* are widely used as raw materials for seven different types of bamboo product. About 60 percent of the raw materials are supplied from government forests and 40 percent from village homesteads. Women typically make bamboo products and collect raw materials, while the marketing is carried out by men. The investment in this sector is not significant. An annual per capita income of artisans is 16 303 taka, which is slightly above the standard daily labour wage. There is enough scope, however, to increase their income and living standards by providing financial and technical assistance.

Products and raw materials of the industry

All cottage industries are developed within the artisans' households, in which they produce bamboo-based mixed products. Most of the various products are made throughout the year, such as *kula, ora, chata, dol* and *khacha*. *Kula* are essential for rural people and used for winnowing cereal crops and pulses. *Ora* are used for carrying earth mud and waste. *Chata* are important for rural farmers, who use them to protect themselves from the direct heat of sunlight and from rainfall while working in the field. *Dol* are used for storing cereal crops and pulses. *Khacha* are used widely for carrying betel leaves to the market by Khasia tribes. *Dori* and *paron* are seasonal products usually used in the rainy season for fish trapping purposes.

Green bamboo is used for making various products. As mentioned, the raw materials used in the industry are procured from both village homesteads and government forests, but sometimes artisans use their own household bamboo. The villagers of the forests surrounding Gazipur and Muraichara beats (the lowermost unit of the forest administration) procure government forest bamboo, mostly illegally, to sell to artisans in the local market. It should be noted that villagers of forest surroundings have the right to collect dead forest resources. However, as these resources are scanty, they fell living tree and bamboo resources, which is one of the principal reasons for deforestation in Bangladesh. [Source: N. Saha, M.S. Rana, M. Rahman and M. Islam. 2010. Potential rural employment in bamboo based industry in the northeast region of Bangladesh. Centre of Minor Forest Products for Rural Development and Environmental Conservation. *International J. Forest Usufructs Management*, 11[2]. Indirapuram, Dehradun, India.]

FOR MORE INFORMATION, PLEASE CONTACT THE AUTHORS:

Department of Forestry and Environment Science, Shah Jalal University of Science and



Technology, Sylhet-3114, Bangladesh.

Fax: +880 821 716312; e-mail: fes@sust.edu or for@sust.edu; www.sust.edu/~fes/



Moringa to empower farmers in Benin

In the fields of Benin, a green revolution has placed local farmers at the forefront of the battle against malnutrition. With the establishment of the Association Béninoise du Moringa (ABM), Beninese farmers have expanded the production and promotion of *moringa* to nourish the ailing West African nation.

Widely acclaimed as a "miracle tree", *Moringa oleifera* is fast-growing and possesses multiple benefits, from nutritional leaves, flowers and seeds, to drought-resistant roots and bark. *Moringa* leaves are usually consumed fresh in green salads, or sautéed. In health programmes, leaves are dried and ground into powder, then sprinkled on any dish for an instant nutritional boost.

Moringa has been traditionally used in South and Central Asia, India and the Middle East as livestock feed, biofuel, medicine, water purifying agent and soil fertilizer, among many other uses.

In the mid-1990s, the US Peace Corps initiated *moringa* promotion in the country, in keeping with nutritional campaigns all over West Africa. Despite such assistance, however, Benin has long lagged behind in the region, as compared with the Niger, which has been producing *moringa* as a cash crop, and Senegal, which integrated *moringa* into HIV and AIDS treatment in the late 1990s.

In 2008, a pilot project in the town of Goumori drew closer attention to *moringa*. The first batch of *moringa* powder produced was sold out in one week, encouraging farmers to share their knowledge so that others could grow the plant. As communities increasingly grasped the nutritional and economic benefits of *moringa*, volunteers and farmers saw the need for a mechanism to manage its future in Benin. Thus, ABM was born.

"We envisioned an organization that would promote *moringa* on a national scale and facilitate a market for *moringa*, thereby taking the responsibility of promoting *moringa* and creating a market off the farmers themselves," former US Peace Corps volunteer Christoph Herby told MediaGlobal.

Last August, the vision came to fruition at the widely participated launch of ABM.

The *moringa* industry in Benin has flourished notably as ABM facilitates more farmers growing *moringa* alongside other crops as an additional source of income, and as an affordable supplement for malnutrition.

Through ABM, efforts of farmers, which were usually confined to their own fields and villages, are stretched out to markets and other *moringa* producers across the country. "Ultimately the goal is to create nationwide demand for *moringa* powder, satisfied by a network of well-supervised *moringa* plantations," said Herby. [Source: MediaGlobal, 10 February 2011.]



With sugar short, country looks to honey and stevia

Sugar is short in the Plurinational State of Bolivia, so President Evo Morales is urging the country to look elsewhere for its sweets. Morales says the government is encouraging production of honey and stevia (*Stevia rebaudiana*), and says officials will handle selling and exporting it.

Morales says the government will build a sugar mill to help overcome the shortage, which is allegedly one of the factors feeding inflation in the South American country. [Source: The Associated Press in Bloomberg News, 22 December 2010.]

Strengthening the organizational capabilities of indigenous communities in natural resources management and conservation

The Wildlife Conservation Society-Bolivia (WCS-Bolivia) and the Tacana Indigenous Council (CIPTA-Consejo Indígena del Pueblo Tacana) joined forces in carrying out a project to strengthen the organizational capabilities of CIPTA and its communities to advance the sustainable conservation of natural resources, promote equity between men and women, and foster an appreciation of the Tacana culture.

Several community initiatives were carried out as part of this project, including: weaving with cotton, jipijapa palm (*Carludovica palmata*), and *miti mora* root, carried out by the Buena Vista Organization of Female Crafts People; establishing *criollo cacao* nurseries in Tumupasa by the Cacao Grower's

Association in the Tumupasa community; and developing ethno-ecotourism in the Macahua community.

Regulations within and outside the community for the use of natural resources, internal zoning and the practical experiences in the design and implementation of sustainable management projects were key factors in designing a natural resource management strategy that promoted production alternatives compatible with sustainable management in the Tacana territory. This strategy permitted the consolidation of the eastern border of Madidi National Park and the Madidi Managed Natural Area, with a proposal for the rational use of the territory's land, biodiversity and natural resources.

So far, the project has successfully: (i) designed a methodology to develop regulations for natural resource use at the community level and training on how to design resource management projects for communities and resource users; (ii) developed a methodology to facilitate the creation of communal regulations and project design for groups of natural resource users; (iii) trained five people in the application of the methodology, which has ensured that CIPTA will have trained staff to continue these types of activities after the project has ended; (iv) published two educational brochures to reinforce the training workshops in the communities, and visited 20 communities of the Tacana ancestral community lands to provide training in the formulation of community regulations and projects; and (v) supplied radio equipment to three Tacana communities. [Source: Eco-Index: Monthly Update, 4 January 2011.]



BOSNIA AND
HERZEGOVINA

New rules for use of NWFPs

New rules governing the use of NWFPs in Bosnia and Herzegovina have been announced, in line with the principles and criteria of FairWild's Standard for sustainable and fair use of wild-collected species. NWFPs include materials such as medicinal and aromatic plants, mushrooms, berries, ornamental plants and lichens.

The Ministry of Agriculture, Forestry and Water Management of the Republic of Srpska recently published a new edition of



Arnica montana

the *Rulebook of Conditions for Utilization and the Methods of Collection of Other Forest Products*, which lies at the heart of regulations governing the collection and sustainable use of NWFP species, based on the *Law of Forests* (2008). TRAFFIC participated with the ministry in a review of the new legislation.

The Rulebook identifies responsible entities for the management of wild NWFPs, defines procedures for establishing harvesting quotas, the selection of harvesting techniques, the process of devising management plans for species use and population monitoring. Other measures concern the establishment of new licensing procedures and controls over commercial collection, the introduction of a list of plants approved and forbidden for commercial collectors (the first list of its kind), and introduction of obligatory annual plans for NWFP use, based on ecological sustainability.

Species of particular conservation concern, which are on the list of species forbidden for commercial collection, include medicinal plants such as *Arnica* (*Arnica montana*), bear berry (*Arctostaphylos uva-ursi*) and yellow gentian (*Gentiana lutea*).

"The adoption of the Rulebook is a positive example of a policy mechanism to support the establishment of a sustainable system for the wild collection and use of NWFPs," said Anastasiya Timoshyna, TRAFFIC's Global Medicinal Plant Programme Lead. TRAFFIC hopes similar supporting policy mechanisms will be widely established in other countries of Southeast Europe – an important region for the collection of wild NWFPs. [Source: Reprinted with permission, from *TRAFFIC Bulletin*, 23(1), December 2010.]

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FOR MORE INFORMATION, PLEASE CONTACT:
 Anastasiya Timoshyna, Global Medicinal Plants
 Programme Lead, TRAFFIC, c/o WWF Hungary,
 Álmos vezér útja 69/A, 1141 Budapest, Hungary.
 Fax: +36 1 212 93 53; e-mail:
 anastasiya.timoshyna@wwf.hu;
 www.traffic.org/
 (Please see page 14 for more information on
 FairWild.)



BURKINA FASO

NWFPs and SMFEs – strengthening policies and institutions in Burkina Faso

Between 1995 and 2005, various government and NGO projects in Burkina Faso targeted NWFP development. Some impact was achieved, but the sum of these initiatives was insufficient to highlight the real potential of the NWFP sector as vital to food security and rural incomes. The lack of recognition was probably the result of poor analysis of demand, and limited data on the economic value of NWFPs and SMFEs (small and medium forest enterprises). There was also poor coordination between organizations. Moreover, the 1997 Code Forestier contained no specific clauses relating to NWFP development, although it upheld the rights of indigenous communities to manage and use their traditional resources, including NWFPs.

After a workshop in 2004 hosted by the NGO TREE AID, Burkina Faso's Ministry of Environment (MECV) accepted an invitation by FAO and TREE AID to work in partnership to pilot the FAO Market Analysis and Development (MA&D) approach through a project entitled "Promoting micro and small community-based enterprises of non-wood forest products [2005–2006]". As a result, in 2007 the Government asked FAO to support the elaboration of a national strategy on the promotion and valorization of NWFPs.

Using local solutions, policies were amended to suit conditions in the area, build capacity and develop other support mechanisms. In this case study, the most significant demonstration of national importance for the sector was the creation by the Government, in 2008, of the Agence de promotion des produits forestiers non ligneux (APFNL). APFNL is now a national institution under the Ministry of Environment, concerned with the support, coordination and monitoring of operations and marketing of NWFPs. It pilots, implements and monitors policies and

strategies to promote NWFPs in collaboration with all other actors in the field, and links the actors in the NWFP distribution chain. APFNL has attracted the interest of various international donors and NWFP development has become a priority for government to diversify rural livelihoods and generate economic growth. The recently approved "Projet d'amélioration de la gestion et de l'exploitation durable des PFNL" (funded by the Government of Luxembourg through FAO and implemented by APFNL) includes support for techniques to improve production and add value, and for the establishment of NWFP-specific producer organizations. (Source: *State of the World's Forests 2011*.) (Please see page 20 for more information on TREE AID.)

CAMEROON

National Gathering of the Beekeepers of Cameroon

Cameroonian beekeeping faces numerous challenges to the growth of the sector in the country (e.g. production, provision, marketing, technique, quality, security, traceability and financing), despite the many efforts made by various partners such as the Government of Cameroon, FAO, the SNV Netherlands Development Organization, African Intellectual Property Organization (OAPI), United Nations Development Programme (UNDP) and many others.

The first National Gathering of the Beekeepers of Cameroon (NAGBEC) was organized in Ngaoundal, Djerem subdivision, in the Adamaoua region of Cameroon from 5 to 7 August 2010, in response to these problems. It aimed to resolve the challenges met by Cameroonian beekeepers on a regular basis by designing a road map for the development of apiculture in the country.



The challenges facing various regions in the country were voiced by numerous representatives at the gathering.

In the coastal region, for example, Mr Soppo Sylvestre, a distributor of honey, explained that production is nearly non-existent and that the honey sold originates primarily from Adamaoua and Ngaounda, in central Cameroon. The challenges facing beekeepers in his region include excessive transportation costs and poor infrastructure. He also sought to raise awareness on the potential customer base in Nigeria.

Representing the southwest region, Mr Dimitri explained that occasionally stock runs out because supply does not meet demand. In response to the question of how to recognize good honey, he proposed the method that consists of putting a drop of honey on a piece of white paper and observing the reverse side. If it is wet, the honey is of bad quality and contains a lot of water.

In the western region of Cameroon, the problem is the quality of the honey. The beekeepers in the west admire the work undertaken in the regions of the northwest and Adamaoua.

In the south and central regions, the quality is good, the sector well structured and beekeepers are trained in production techniques. To solve the problems of organization and financing, they have grouped together in Commodity Interest Groups.

In the northwest region, white honey represents 30 tonnes or 25 percent of the yearly production, while the remaining 75 percent of production is made up of other-coloured honey. The sector is organized and technicians train the beekeepers.

In the east region, beekeeping activities are rudimentary. The producers are organized in poles and estimated to number 160 in total.

In the Adamaoua region (northern Cameroon) there are innumerable producers, collectors and sellers of bee products. Apiculture is an ancestral activity. Honey was first extracted from the trunks of trees and consumed locally. Supply was lower than demand and gradually more people became involved in the sector. The local population now consumes little honey because beekeepers prefer to sell their honey on the market. The Adamaoua region boasts a large number of organizations but they lack collaboration and organization.

Beekeepers exchanged experiences on harvesting techniques and the production of

improved hives originating from Adamaoua and the northwest, in particular, Oku.

NAGBEC resulted in several positive outcomes, including: (i) the validation of an active framework capable of developing a structured Cameroonian beekeeping sector, modelled on other sectors, through the establishment of the Network of Beekeepers of Cameroon; and (ii) the development of an action plan towards the adoption of a system of financing of the network by the beekeepers themselves. (Source: *General Report of the National Gathering of Beekeepers of Cameroon (NAGBEC)*. 2010.)

FOR MORE INFORMATION, PLEASE CONTACT:
Michael Tchana, Guiding Hope, BP 15753
Yaoundé, Cameroon.
E-mail: guidinghope@yahoo.fr

African cherry (*Prunus africana* or *Pygeum*)

Living up to 100 years and patchily distributed, the African cherry tree (*Prunus africana*) is one of 13 critical species in the rainy, high altitude, mixed forest ecosystems in Cameroon. Since the 1970s, Cameroon has been one of the largest exporters of *Prunus* worldwide. Its bark is exported dried, chipped or powdered to the United States of America and Europe (the latter being Cameroon's largest importing market prior to the recent export ban in November 2007). Once exported, it is converted into an extract used to treat benign prostrate hyperplasia. A major benefit of this natural medicinal product is that the cure comes with no side-effects. The extract is also a raw material for the burgeoning health, bioproduct and dietary supplement industry.

One of the intervention areas of an EU-funded project is to support the sustainable management of trees within a favourable legal and institutional setting. In 1995, the growing demand for *Prunus africana*, coupled with unsustainable harvesting methods, led to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) placing restrictions on the marketing of this species on the international market. In 2008, the Cameroonian Minister of Forestry and Wildlife asked the EU project to develop a management plan for the tree, which specifically focused on Cameroon. That detailed, 150-page plan has been developed by the Center for International Forestry Research (CIFOR) researchers, FAO, the SNV Netherlands Development Organization



Prunus africana

and the World Agroforestry Centre. "It balances conservation needs with local livelihoods and international health needs, and it addresses all of CITES' concerns and recommendations. It also shows that the vulnerability of this species is not as acute as CITES originally believed," says Verina Ingram, a CIFOR scientist based in Yaoundé. (Source: S. Grouwels and O. Ndoye. Policy Brief No. 6, April 2010. *Mobilization and capacity-building for small and medium-sized enterprises involved in the non-wood forest products value chains in Central Africa*. Rome, FAO and CIFOR.) (This study took place within the framework of FAO project GCP/RAF/408/EC. Please see page 64 for more information.)

Une machine métallique pour fendre les amandes de la mangue sauvage

La mangue sauvage (*Irvingia spp.*) est un produit forestier non ligneux (PFNL) que l'on trouve en Afrique tropicale en général, et en particulier un peu partout dans la zone forestière du Cameroun. Ce produit est recherché pour ses amandes, largement consommées par les populations de la région forestière et des pays voisins du Cameroun (Nigéria, Gabon, Guinée équatoriale).

La production d'amandes de mangue sauvage rencontre des difficultés diverses, dont les plus importantes sont l'insécurité, la lenteur lors de l'opération de fente et la non maîtrise des techniques de fente et des normes de qualité de la part des producteurs.

Une solution apportée par la SNV

La SNV Cameroun, Organisation néerlandaise de développement, est partenaire de la mise en œuvre du projet GCP/RAF/408/EC, «Mobilisation et renforcement des capacités des petites et moyennes entreprises impliquées dans les filières des produits forestiers non ligneux

en Afrique centrale», avec la FAO, le Centre pour la recherche forestière internationale (CIFOR) et le Centre mondial d'agroforesterie (ICRAF). Le projet est financé par l'Union européenne.

Pour améliorer la productivité de la mangue sauvage, la SNV a facilité la conception, la production, la vulgarisation et l'utilisation d'une machine métallique pour la fente des amandes de la mangue sauvage, à travers un processus participatif impliquant de multiples acteurs. Un film sur ce processus est disponible à l'adresse suivante: www.youtube.com/watch?v=visNK_-6bes

Les avantages de la machine

Cette machine est idéale pour les producteurs qui cherchent la rapidité, l'efficacité, la sécurité et l'hygiène au cours du travail, ainsi que la qualité du produit final. En outre, elle est facile à transporter, même loin dans la forêt, elle ne s'use pas facilement, peut résister à toutes les intempéries climatiques en forêt, et n'a pas besoin de carburant ni d'électricité pour fonctionner.

Une approche de renforcement des PME de la filière

L'approche adoptée par la SNV a suscité une forte implication des petites et moyennes entreprises (PME) de la filière de la mangue sauvage:

- Trois groupes d'artisans (menuisiers métalliques) ont contribué à la production des machines.
- Cinq radios communautaires ont assuré la vulgarisation à travers des émissions radiophoniques.
- Les Organisations non gouvernementales (ONG) locales et les groupes de producteurs et commerçants de PFNL ont assuré la sensibilisation des producteurs quant à l'utilisation et à la vente de ces machines.

Un système de commercialisation de la machine ancré au sein de deux ONG

Pour assurer la durabilité de cette action, la SNV a mis en place un système de commercialisation combinant diverses actions qui mettent en jeu un établissement de microfinance spécialisé dans le transfert d'argent au Cameroun et deux ONG locales. En effet, toute personne désireuse de se procurer la machine doit simplement effectuer un transfert d'argent (18 000 FCFA, soit 27,5 euros) dans un compte ouvert auprès d'une institution de microfinance présente dans presque tous les bassins de production. Ce compte est

géré conjointement par les deux ONG d'accompagnement, CEREP et FONJAK (CEREP-FONJAK n° E080039553), qui en retour expédieront la machine au bénéficiaire.

Une forte synergie avec les autres partenaires (FAO, CTB, WWF [Fonds mondial pour la nature], CTFC) a permis d'améliorer la productivité de plus de 500 producteurs de mangue sauvage. (Auteur: Raoul Bruno Nguoko, Conseiller principal chaîne de valeur des PFNL, SNV Cameroun, B.P. 1239, Yaoundé, Cameroun. Courriel: rngueko@snvworld.org ou rngueko@yahoo.com; www.snvworld.org) (This study took place within the framework of FAO project GCP/RAF/408/EC. Please see page 64 for more information.)



Canada lacks biodiversity data

Canada's declining ability to keep track of its biodiversity leaves the country vulnerable to invasive species, extinctions and poor environmental policy, a new report says. The gaps in data about the country's plants, animal, fungi and microbe species may also limit the country's ability to respond and adapt to global changes such as a warmer climate, says the report, released on Thursday by the Council of Canadian Academies.

"Canada may lose the long-term information ... essential to understanding changes in biodiversity and our ability to make informed policy and management decisions," said David Green, Director of the Redpath Museum at McGill University in Montreal and a co-author of the report.

Already, such decisions are "often made with limited information", because of knowledge gaps across the country and among different groups of species, said Luc Brouillet, a professor and curator at the University of Montreal's Marie-Victorin Herbarium, another of the 14 co-authors.

The report was commissioned by the federal Heritage Ministry on behalf of the Museum of Nature from the Council of Canadian Academies.

The study also found that biodiversity data collected in Canada are housed mainly in museum cabinets. They are mostly inaccessible on the Internet, where troves of other countries' biodiversity data can be found. In addition, 80 percent of Canadian online biodiversity data are held outside the country. The number of expert

taxonomists in Canada who can manage biodiversity collections and interpret data, moreover, is dwindling, and jobs for them have nearly vanished. In some cases, collections of specimens are being rendered unusable because of a lack of staff, infrastructure and national standards.

The report's authors recommended dedicating more money to training taxonomists while expertise is still available in the country, and making digital records of its collections of plant, animal and fungi collections. Brouillet estimated the digitization effort would cost at least US\$150 million, but is urgently needed by decision-makers. [Source: CBC News, 17 November 2010.]

MÉTIS COMPLETE TRADITIONAL PLANT USE STUDY FOR SOUTHERN ONTARIO

On 15 September, the Métis Nation of Ontario (MNO) released the findings from a first-of-its-kind traditional knowledge study on Métis plant and vegetation use in southern Ontario. The study, entitled *Southern Ontario Métis Traditional Plant Use Study*, highlights some of the unique traditional and medicinal practices of the Métis in relation to plants and vegetation in southern Ontario. The study also documents notable changes to the environment in southern Ontario over the past few decades and the impacts these changes have had on Métis plant and vegetation use, as identified by Métis Elders and traditional resource users.

MNO President Gary Lipinski commented: "Through studies like this, Ontario Métis are finally being able to tell our story in the province and share our traditional knowledge in order to protect Métis rights, interests and way of life for generations to come. I know this study will be an important resource for our people today and generations to come".

The study was supported by Ontario Power Generation (OPG). [Source: Métis Nation of Ontario release in *Traditional Knowledge Bulletin*, 22 September 2010.]

CHINA

China's pandas need old forests to thrive: study

China's giant pandas need not only bamboo, but also ancient forests to thrive in the wild, a study in western China has found. The Chinese researchers hunted for panda grounds in forests in Sichuan province and marked out 1 116 habitats after finding the animals' faeces and foraging sites. They analysed common traits in these habitats and found that they were mostly located in forests that were at least 100 years old.

"Previously, we thought slope was a very important factor but, from this study, forest age emerged as the most important reason, as important as the presence of bamboo," said Fuwen Wei, Deputy Director of the Institute of Zoology at the Chinese Academy of Sciences in Beijing.

Wei and colleagues, who published their findings in the Royal Society journal *Biology* on Wednesday, believe pandas use large trees as "maternity dens". "Old forests offer many maternity dens which are necessary for panda reproduction. Where big trees are felled, there are no more maternity dens," Wei said.

A 2004 census by the World Wide Fund for Nature (WWF) revealed that there were 1 600 pandas in the wild. Considered a national treasure, the panda is seen as having come back from the brink of extinction while remaining under threat from logging, agriculture and China's increasing human population. [Source: Reuters, 12 January 2011.]

COSTA RICA

Titi Conservation Project

The Titi Conservation Alliance (TCA) was created more than eight years ago to save endangered *titi* or squirrel monkeys (*Saimiri oerstedii*) and their habitat on Costa Rica's central Pacific coast. Since then, its conservation approach and responsibility have been expanded; today, TCA leads projects for responsible tourism, reforestation and environmental education, with sustainable development and biodiversity conservation as key goals for the lowlands of the Río Naranjo Basin in the Central Pacific region of Costa Rica. Administratively, TCA's actions involve the cantons of Tarrazú and Aguirre, specifically in the neighbourhoods of Esquímulas and the communities of Londres, Villa Nueva,

Naranjito, La Inmaculada, Manuel Antonio, Paqueta and Quepos in Aguirre canton.

The Titi Conservation Project has several objectives: (i) to promote the development of a responsible tourism destination with varied local and regional stakeholders; (ii) to educate members of the community, especially children, about the importance of protecting biodiversity and the environment; (iii) to make the Río Naranjo Biological Corridor (RNBC) official and expand it until it is connected with other forested areas of the central and south Pacific region; (iv) to promote responsible tourism to local and regional businesses; and (v) to stabilize the habitat for endangered squirrel monkeys in Costa Rica.

To date, TCA is recognized locally and regionally as one of the most effective alliances for sustainable development, whose members include local businesses that are renowned in the tourism, industry and real estate sectors. RNBC, created by the TCA, stretches from Manuel Antonio National Park to the Nara hills, thereby connecting the two areas of spider monkey habitat that have been disconnected by development and land-clearing for agriculture. RNBC is now being legally recognized. To date, TCA has planted more than 38 000 trees along this corridor. [Source: Eco-Index: Monthly Update, 2 November 2010.]



CZECH REPUBLIC

Honey production up 8 percent in 2010

Honey production in the Czech Republic rose by 8 percent to 7 455 tonnes last year, Miroslav Peroutka of the Czech Beekeepers' Association told the Czech News Agency (CTK).

This growth was the result of a higher number of bee colonies and favourable weather. The number of beekeepers increased as well, compared with 2009. Last year in autumn, beekeepers prepared

528 000 bee colonies for winter, 31 000 more than a year earlier. The number of the bee colonies has thus moderately exceeded the level before the varroasis epidemic, which hit domestic beekeepers hard in 2008. In the past, domestic beekeepers had even 800 000 bee colonies.

The price of honey has not changed a great deal. Light honey is selling for 110 to 120 koruna/kg and dark honey for some 150 koruna/kg. Most of the honey produced in the Czech Republic is sold by beekeepers directly to clients. Traders bought 1 620 tonnes of honey from beekeepers last year and most of the honey was exported.

Honey consumption in the Czech Republic has been around 0.5 kg/capita/year in the long term. Demand has grown moderately. The number of beekeepers rose by some 500 to 47 887. "This is a breakthrough; for almost 20 years the number of beekeepers was always falling," Peroutka noted. [Source: CTK in the Prague Monitor, 17 January 2011.]

DEMOCRATIC REPUBLIC OF THE CONGO

Analyse de la chaîne de valeur de *Gnetum africanum* auprès des vendeurs des marchés Gambela et Pascal à Kinshasa

Identifier les vendeurs de *Gnetum africanum* opérant sur les marchés Gambela et Pascal à Kinshasa et les répartir en fonction de leur profil social (sexe, niveau d'étude, statut matrimonial, composition du ménage, profession, ancienneté dans la pratique de vente, etc.), telle est l'investigation menée par Apollinaire Biloso Moyene, John Mafolo, Ann Degrande et Zac Tchoundjeu. L'objectif de cette enquête est de connaître les profils majoritaires sur ces deux marchés, déterminer les contraintes liées à cette activité commerciale, mettre au point quelques stratégies opérationnelles visant à pérenniser l'activité – comme la vulgarisation des techniques de transformation post-récolte –, et estimer la rentabilité commerciale de la vente et l'affectation socioéconomique du revenu de la part des vendeurs.

Dans sept cas sur 10, le commerce de *G. africanum* est pratiqué par des femmes ayant franchi les études secondaires, d'un âge variant entre 20 et 50 ans, mariées pour la plupart. L'éloignement de lieux de production et le manque d'infrastructures de vente et de stockage constituent les principales

VALEUR NUTRITIONNELLE ET MÉDICINALE DE *GNETUM SPP.*

La littérature indique que la feuille est principalement utilisée comme aliment. *Gnetum spp.* a cependant aussi des utilisations médicinales diverses, et sert de traitement en cas d'agrandissement de la rate ou de gorge endolorie, pour soulager des douleurs de l'accouchement, et comme antidote à certaines formes de poison et de morsure de serpent. Les graines sont particulièrement employées comme fongicide pour panser les blessures fraîches et septiques. Elles sont mâchées par les enfants diabétiques pour combattre l'urination excessive. Le contenu en éléments minéraux, la teneur en acides aminés et la composition proche des feuilles a été relevée.

contraintes. La commercialisation de *G. africanum* est l'unique source de revenu (9 vendeurs sur 10) pour satisfaire les besoins de base. Selon les estimations, la rentabilité commerciale de la vente de *G. africanum* est de 74 pour cent chez les grossistes et de 86 pour cent chez les détaillants sur le marché de Pascal, tandis qu'elle est respectivement de 94 pour cent et 159 pour cent sur le marché de Gambela. L'alimentation, la santé, l'éducation des enfants et le loyer sont les principaux postes d'affectation des revenus générés par la vente de *G. africanum*.

Le marché de *G. africanum* est un marché à concurrence parfaite, rentable et satisfaisant, exerçant un impact socioéconomique positif. Cette activité est une source de revenu non négligeable qui permet d'assurer la survie et de lutter contre la faim, des producteurs jusqu'aux distributeurs, et sa cueillette s'étend sur toute l'année. Toutefois, les commerçants font face à diverses contraintes liées au manque de bonnes infrastructures de vente, de stockage et de transport, l'avion demeurant le moyen le plus utilisé. La consommation actuelle de *G. africanum* en République démocratique du Congo est tellement élevée qu'elle menace l'existence des espèces spontanées. Il y a même des provinces où les plantes ont complètement disparu (comme dans le cas du Bas-Congo). Cela constitue un important coût d'opportunité pour les usagers.

VALEUR SOCIOÉCONOMIQUE ET CULTURELLE

L'importance de *Gnetum africanum* est remarquable au niveau des économies locales et régionales. Il est très recherché et commercialisé dans tout les pays d'Afrique centrale. Les échanges commerciaux concernant ce produit se sont développés au cours des dernières années. Non seulement les marchés locaux sont fournis, mais il est aussi exporté vers l'Europe et l'Amérique pour servir la diaspora africaine. La valeur marchande de *G. africanum* est très élevée, et il est surtout prisé pour sa valeur nutritive. La République centrafricaine lui accorde un grand intérêt. Ainsi, une entreprise de paysans centrafricains a commencé dès les années 1976-1979 à exporter ses feuilles vers l'Europe. Par ailleurs, les populations africaines manifestent leur identité culturelle à travers la consommation de plats de *Gnetum*, qui assument une valeur symbolique. Le *Gnetum* est utilisé par toutes les couches sociales. Certaines espèces américaines et asiatiques produisent d'autres éléments utilisables, notamment des écorces, dont la fibre est utilisée pour la confection de lignes de pêche ou de pâte à papier. Les tiges souples et solides sont utilisées pour tendre des pièges, fabriquer des collets et procurer des lianes pour le potage.

Les actions à promouvoir en matière de *G. africanum* sont notamment les suivantes: vulgariser les bonnes techniques de cueillette et assurer l'encadrement des acteurs; développer la recherche agronomique sur le choix du substrat et du sous-bois qui permettent le mieux d'intégrer les plants bouturés de *G. africanum* provenant de pépinières agroforestières; et assurer un bon service d'information sur le marché, afin de réduire les risques et les incertitudes inhérents aux marchés et pour que le système fonctionne de façon économique et précise.

Une mise en place d'instruments appropriés pour assurer une gestion durable et efficace des forêts est en outre indispensable. Il faut de plus créer des emplois visant à résorber la main d'œuvre

en passe de déséquilibrer les écosystèmes naturels pour cause de pauvreté. Ces principes respectés et dans le contexte de la sécurité alimentaire, le *G. africanum* pourra subsister encore plusieurs années comme pilier alimentaire pour les kinois. (Auteur: Professeur Apollinaire Biloso Moyene, Coordonnateur national, Centre mondial d'agroforesterie, 13, Avenue des cliniques, Kinshasa Gombe, B.P. 2037, Kinshasa 1, République démocratique du Congo. Courriel: apollo_biloso@yahoo.fr; a.biloso@cgiar.org)

Honey production

In the Democratic Republic of the Congo (DRC), men are the main practitioners of bee farming (59 to 82 percent). Women play an important role in securing income, planning post-harvest activities (38 percent) and in transporting beehives (70 percent). The Bas Congo province and the Batéké plateau are the main bee farming areas of the DRC. However, the organizational level of this value chain is still low. This is because 56 percent of the farmers interviewed in the surveyed area are still operating as individuals. Moreover, apiculture in the area under review is still practised at a subsistence level, because some bee farmers still use wild honey from natural beehives. In 2007, the annual production of honey by 54 individual producers in the village under survey was estimated at 5 135 L, whereas 42 producers working as an association produced a total of 8 273 L.

The honey produced is used as a food source (35 percent) or in pharmacopoeia (65 percent). Drawing from the 263 consumers interviewed in the capital, Kinshasa, monthly honey consumption stands at 0.4 L/person. The most common illnesses treated using honey are coughs, burns, eye disorders and gastric ulcers. Honey is good for diabetics, or even as an antivenom. Although the annual output is low when compared with other African countries, 78 percent of the honey is produced from artificial hives – an indication of the dynamism of local farmers, making this a promising product for further development.

Although the present level of income from honey is still low, it contributes in one way or another to the well-being of the people. Furthermore, owing to the opportunities offered by the domestication of bees and the planting of melliferous trees, the production of honey meets

environmental protection and biodiversity conservation requirements. Bee farming can be considered as an important pillar in the face of the population explosion in Kinshasa, by offering possibilities for the development of an industry to produce apicultural material, apicultural products, and by promoting initiatives to plant melliferous trees. [Source: O. Ndoye and U.K. Marcel. Policy Brief No. 5, April 2010. *Mobilization and capacity-building for small and medium-sized enterprises involved in the non-wood forest products value chains in Central Africa*. Rome, FAO and CIFOR.]

(This study took place within the framework of FAO project GCP/RAF/408/EC. Please see page 64 for more information.)



ERITREA

Better honey production obtained in the Adi-Keih subzone

Farmers engaged in bee farming in the Adi-Keih subzone have obtained better honey production this year. They explained that previously honey production was low through lack of sufficient rainfall, and that the good rainy season this year has enabled them to obtain satisfactory production. Each farmer possesses ten to 20 modern beehives, which in turn are making a due contribution in improving their living standards, they added.

Mr Tesfai Gebrekidan, an expert in animal resources in the subzone, said that Demhina, Mesgolo-Zula, Eglä and Sibiraso are some of the villages in the subzone that are renowned for honey production. Over 200 modern beehives and over 1 000 traditional beehives exist in the area. Mr Tesfai Gebrekidan further indicated that more than 1 300 kg and 5 600 kg of honey was obtained this year from modern beehives and traditional ones, respectively. [Source: allafrica.com, 14 December 2010.]



GHANA

Calls for body to test quality of shea butter

The absence of a regulatory body to test the quality of shea butter (extracted from the nut of the *Vitellaria paradoxa* tree) meant for export in Ghana, has often led to the exploitation of shea butter producers by exporters of the commodity. In order to curb this exploitation, the Natural Resources Officer of the Widows and

Orphans Movement (WOM), Ms Fati Abdulai, has proposed setting up a body to be responsible for the testing of the quality of shea butter for export.

Ms Abdulai, who was speaking at a workshop on the effective management of the shea tree, organized with support from Oxfam, at Kongo in the Talensi-Nabdam district, indicated that unlike cocoa, shea butter had not seen any serious support from governments. She was therefore calling on the government, as a matter of urgency, to put in place measures to ensure that shea butter receives maximum attention, just like cocoa, so that the product can gain strong international attention.

Highlighting the benefits of shea, Ms Abdulai said the whole of the tree can be used for several purposes, including medicines, food and for foreign exchange. She stated that the fruits from the tree are eaten, contributing to food security in areas where it is grown. She added that the fruits normally mature during the lean season and, therefore, supplement the meals of the rural people especially when they are on their farms. Regarding export, Ms Abdulai said the price of shea was higher than cocoa on the international market and called on the government to consider giving the industry a boost in order to reap the benefits of the tree.

According to WOM, shea butter has been used since time immemorial in cooking, and also as a pomade for babies and adults.

As part of measures to ensure that shea trees in the Kongo traditional area are protected, the participants, led by their Chief and Elders, set out rules and sanctions to punish people who destroy them. Some of the sanctions include replanting trees to replace the destroyed ones, as well as payment of fines, as specified by the traditional authorities. [Source: Ghanaian Chronicle, 18 February 2011.]





INDIA

Bamboo is a grass, not a tree

It is now official: bamboo is a grass. Union Environment Minister Jairam Ramesh said on Monday that the Prime Minister and senior Ministers had reached the conclusion, putting an end to a long-standing debate.

Positioning bamboo, the Government feels, will mark a crucial step in tackling underdeveloped areas in India, home to many tribal communities. A Home Secretary-led committee concluded that tribal communities needed to be given better rights, control and revenue from the forests they lived in or depended upon and that the role of the forest departments should be reformed; they should not act as a police force keeping tribals out of the forests.

The officials deliberated on how to increase the incomes of those dependent on forests for their earnings.

"Minor forest produce" played a key role in local economics. The Planning Commission, in turn, concluded there was nothing minor about it. It was a booming unregulated trade worth 50 000 rupees crore annually, roughly twice the total rural health budget of the country. It also discovered the small tricks the Government had played over decades to keep the tribals out of this lucrative trade.

Defining bamboo as a "tree" was one of them. Forget what taxonomists and biologists all over the world believe conclusively: bamboo is a type of grass.

The Government listed bamboo as a tree under the Indian Forest Act. This ensured that cutting bamboo, selling it or trading in it became the monopoly of the Government and gave the forest bureaucracy control over what some estimates suggest is a 10 000 rupees crore trade. Bamboo is grown over roughly 9 million ha of forest area in India. The major demand for it comes from the pulp and paper industry and the housing and construction sector.

Long leases of over 30 years are given to contractors and industry for bamboo forests. The leases give the state some revenue. The Government controls the trade, the industry gets cheap raw material and the people living in the forests get nothing.

In various states, the people living in or dependent upon these bamboo forests get a few bamboo shafts on a subsidized rate for their housing needs; the Government continues to believe it is extending a concession, which it is able to do because it calls bamboo timber a "nationalized" forest product over which it holds sole rights.



Delisting bamboo from the "timber list" is the first step the Government should take towards altering this regime in favour of people. Nevertheless, it is not a huge step, considering that the Forest Rights Act legislated by the United Progressive Alliance (UPA) in 2006 already defines bamboo as an NTFP. So the Government is merely acknowledging that it will adhere to the laws.

It would now need to ensure that communities claim their traditional legal rights over these bamboo forests under the Forest Rights Act. [Source: *The Times of India*, 21 January 2011.]

Shorea tumbergaia Roxb. An endemic, endangered and medicinal tree taxon under threat

Shorea tumbergaia is a globally endangered, semi-evergreen tree species whose habitat is the Tirupati-Cudapah-Nallamalai hot spot region of the eastern Ghats in India, which is red-listed by the International Union for Conservation of Nature (IUCN).

The plant is distributed at low elevations of hilly tracks at an altitude of 300 m. The species belongs to the family Dipterocarpaceae and is vernacularly known as *Thamba jalari* in Telugu and green dammar in English. The tree can grow to a height of 12–15 m, with full vegetation during the rainy season, and shedding its leaves in late winter and early summer and especially between February and March. New foliage starts to appear from March onwards. Mass flowering occurs in a short period between April and May. Self- and cross-pollinated flowers wither in two to three days. The plants flower irregularly, depending on the availability of moisture. The phenology also helps to initiate flowering. Although the plants have mass flowering because of the existence of post-zygotic incompatibility, only cross-pollinated flowers develop into fruits. Fruits produce long red hypocotyls before they are shed by the plant. The seeds begin to germinate immediately upon falling to the ground, without any seed dormancy. The primary root and shoot arise from the tip of the hypocotyl of the seed.

The plant has economic medicinal and religious importance. Tree trunks are used

as flagpoles for Hindu religious temples. The plant produces timber and the stem is a source of resin, which is used as incense and as a substitute in marine yards for pitch. The gum is also used in indigenous medicine as an external stimulant, for duodenal ulcers and as a substitute for arbutus. The extract of the plant bark is used to cure earache and the leaf juice is used as ear drops. The trunk has rough, hard and furrowed bark at the base and slightly narrow, less rough top regions; this variation in the bark is well suited for the growth of different species of epiphytic lichens.

The amplification of this species has been decreasing enormously because of environmental and anthropogenic disturbances. At present, the taxon is restricted in some localities. Another reason for the fragmentation of this species is overexploitation because of its multiple uses. Conservation measures should be taken to sustain the species in these potential areas for its therapeutic uses. The local tribal groups and villagers should be included as partners in conservation strategies. (Contributed by: Prof. (Mrs) N. Savithamma, Department of Botany, Sri Venkateswara University, Tirupati – 517 502, Andhra Pradesh, India. E-mail: prof.savithri@yahoo.in)

Status of multipurpose trees (MPTs) and medicinal herbs in the Vidarbha region of Maharashtra with special reference to Wardha

Wardha is a well-known district in the Vidarbha region of eastern Maharashtra, comprising eight administrative blocks out of which the target Arvi block is mainly of hilly terrain and typical dry deciduous forests. The area under forest is around 966 km² or, in other words, the district has 15.4 percent of its geographic area under forest cover. Geographically, Vidarbha lies on the northern part of the Deccan plateau and there are no major hill tracts. There are some watersheds in the region. Wainganga is the largest of all the Vidarbha rivers. In the Wardha district, the main rivers are Wardha and Dham.

The soil in the Arvi block, especially in the forest fringe villages and forests, is mainly black, which is suitable for cotton cultivation. But brown-black and red soils are also found. The soil for the most part is of medium depth with a clay texture.

The condition of the forests can be summarized as follows.

- Forests are typical tropical dry deciduous, with plenty of natural and planted teak (*Tectona grandis*). Good-

quality *sagwan* trees are found in the forests of the Arvi block.

- Tree species in the area include *dhawada* (*Anogeissus latifolia*), *salai* (*Boswellia serrata*), *tendu* (*Dyospyros melanoxylon*) and *mawai* (*Lannea coromandelica*). Others are *palas* (*Butea monosperma*), *moha* (*Madhuca indica*) and *behada* (*Terminalia bellerica*).
- The forest area is highly degraded. The canopy cover is very sparsely distributed in patches because of the ruthless destruction of trees and, subsequently, during the time of replenishment, only economically beneficial tree species were planted without considering ecological needs.
- Although there is an appreciable range of diversity of potential multipurpose tree species (MPTs), the number of individuals is much less in forest areas.
- The denuded area is open to sun, causing speedy evapotranspiration from the soil during spring and the long summer.
- The soil has become prone to erosion.
- For shelter, water and food, wild animals – including blue deer, wild boars, deer and monkeys – intrude upon the fringe farm land and cause heavy damage to crops. The farmers are disturbed about their crop damage and economic loss and sometimes take ruthless measures.
- Landless people opt to work, as they do not have enough forest resources.
- A lack of knowledge about the available forest resources, and the need for their conservation among the locals, has aggravated the situation.

The species in Table 1 are generally found in forests.

The MPTs in Table 2 are found outside the forest area, and within and around the agricultural fields and near the villages.

There are several important medicinal herbs also found in the Vidarbha area. Of these, the following are in high economic demand: *Andrographis paniculata* (*kalmegh*), *Asparagus racemosus* (*satavari*), *Withania somnifera* (*ashwagandha*), *Tinospora cordifolia* (*gurvel, giloy*), *Convolvulus prostratus* (*shankhpushpi*), *Mucuna pruriens* (*kabaj beej*), *Solanum nigrum* (*makoil*), *Gloriosa superba* (*kalalavi*) and *Cassia senna* (*sonamukhi*).

The State Horticulture Mission has already selected 52 plants with potential for large-scale cultivation and trade.

A holistic and integrated development plan – on the basis of existing natural resources – is urgently required; at the same time all the

TABLE 1

Common/local name	Botanical name	Usage
Palas	<i>Butea monosperma</i>	Leaves used for platter making; flowers a source of natural dye
Saguan	<i>Tectona grandis</i>	Highly valued timber
Timburni/tendupatta	<i>Dyospyros melanoxylon</i>	Used for <i>bidi</i> manufacture
Anjan	<i>Hardwickia binata</i>	Timber, poles, pulp and paper, source of fodder, fuel
Khair	<i>Acacia catechu</i>	Class II gums
Dhawada	<i>Anogeissus latifolia</i>	Class II gums
Baheda	<i>Terminalia bellerica</i>	Tanning, medicinal
Salai	<i>Boswellia serrata</i>	Class II gums
Ain	<i>Terminalia alata</i>	Tanning
Bharati	<i>Maytenus emarginata</i>	Fuelwood, used for house construction, medicinal, yields sesquiterpenes
Bael	<i>Aegle marmelos</i>	Fruit edible, medicinal; leaves medicinal; religious application
Lendi	<i>Lagestroemia parviflora</i>	Multipurpose wood, leaves and bark produce tannin
Neem	<i>Azadirachta indica</i>	Fruit, leaves are used as biopesticides
Ber	<i>Zizyphus mauritiana</i>	Edible, medicinal
Mahua/moha	<i>Madhuca</i> spp.	Edible oil, liquor, wood
Aruni	<i>Clerodendrum phlomidis</i>	Medicinal
Charoli	<i>Buchanania lanzan</i>	Kernel used for sweetmeats; oil medicinal
Chilati	<i>Mimosa hamata</i>	MPTs
Maharuk	<i>Ailanthus excelsa</i>	Medicinal
Amaltas	<i>Cassia fistula</i>	Ornamental
Bibba	<i>Semecarpus anacardium</i>	Fruit cup edible, bark gum, fruit pulp, oil medicinal
Kusumb	<i>Schleichera oleosa</i>	Hard strong wood; plant medicinal

TABLE 2

Common/local name	Botanical name	Usage
Babul	<i>Acacia nilotica</i>	Firewood, medicinal
Bamboo	<i>Bambusa</i> spp.	Timber for the poor, also used in crafts and furniture
Baheda	<i>Terminalia bellerica</i>	Component of famous Tiphala Ayurvedic preparation. Good source of tannin
Karanj	<i>Pongamia pinnata</i>	Medicinal
Mahua/moha	<i>Madhuca indica</i>	Seed source of edible oil. Good for local liquor industry
Neem	<i>Azadirachta indica</i>	Biopesticides and edible
Palas	<i>Butea monosperma</i>	Leaves used for platter making and for natural dye
Setaphal	<i>Annona reticulata</i>	Edible fruit, leaf source of biopesticides
Shirish	<i>Albizia lebbek</i>	Wood and medicinal
Sindhuri	<i>Phoenix sylvestris</i>	Edible juice, jaggary
Shisham	<i>Dalbergia sissoo</i>	Highly valued timber

government departments and non-government agencies, as well as the community, should prepare the plan in a participatory way and implement it accordingly. **(Contributed by:** Dr Visvarup

Chakravarti, President, Participatory Research Association for Sustainable Development (PRASuD), Flat 40, 201 Satin Sen Sarani, Kolkata 700 054, India. E-mail: visvarupchakravarti@yahoo.co.in)



The unexploited herbal pharmacy

Kenya and other African states are sitting on a fortune in the form of unexploited natural cures and pharmacies. These natural remedies could help the country cope with its malaria burden and also cure many of the world's diseases, and in the process earn billions of dollars.

In the first-ever hard evidence of the extent of the country's potential in herbal medicine, researchers have publicly given a scientific backing in support of Kenyan herbalists. Researchers from the Kenya Medical Research Institute and the World Agroforestry Centre have published a list of 22 tree and shrub species with high potential for further development in treating malaria and acting as possible cash crops for smallholder farmers.

Launching the publication – *Common Antimalarial Trees and Shrubs of East Africa* – last week at the National Museums of Kenya, lead author Dr Najma Dharani said the knowledge was gathered from practitioners and fellow scientists and the plants' chemical content had been thoroughly analysed and found effective. "We hope that the information provided in this guide will be useful for scientists in determining to what species to direct their research activities," says the researcher.

It is this kind of research that has turned the growing of a previously little known weed from China, the Sweet Annie, also known as the Chinese wormwood (*Artemisia annual*), into a huge global success, turning around the fortunes of peasant farmers and making billions for the pharmaceutical industry while saving many lives. The plant now provides the world with the main ingredient for making a most effective first-line malaria medicine. Several trees in Kenya and other parts of East Africa were found to have the capacity to rival this moneymaker. The pepper-bark tree (*Warburgia ugandensis*), for example, has similar chemical compounds to those found in the Chinese plant. Some Kenyan communities including the Luo, Maasai and Kipsigis have always used the pepper-bark tree for the treatment of malaria, stomach aches and toothaches as well as the common cold. A compound in the plant was found to be active against malaria parasites, even those resistant to chloroquine. The Kenya Forestry Research Institute has shown that the propagation of the tree is possible

through modern tissue culture techniques. While some farmers are already growing the tree, the researchers advise that before doing so, it is important to get expert guidance because some traits of the plant produce different medicinal qualities at different sites.

Another tree species with chemical compounds found to act against multidrug-resistant malaria is the long pod cassia (*Cassia abbreviata*) or *mbara* in Kiswahili, which has traditionally been used to treat malaria, pneumonia and other chest complications. Unlike most other locally occurring trees, cassia is a fast-growing shrub and requires only a few months in the nursery; it also can do with little water.

One of the most enduring treatments for complicated malaria across the world and in Kenya in particular is quinine, which is classified in the chemical group of alkaloids. Several shrubs and trees in the region such as the bitter *albizia* (*Albizia amara*) – widely distributed along many river beds, particularly in the Sudan, Ethiopia, Zimbabwe, Botswana and South Africa – were found to contain alkaloids. A decoction made from the bitter *albizia*, taken three times a day, is used in treating malaria traditionally.

And, of course, not to forget the famous neem tree, locally known as *mwarubaini*, for its 40 magical cures. The researchers confirm that apart from other cures, this tree – which is easy to grow and even easier to maintain – has very good antimalarial activity.

Common Antimalarial Trees and Shrubs of East Africa is funded by the World Bank and the European Union. [Source: www.allafrica.com, 27 January 2011.]



The Lao Non-Timber Forest Products wiki

This wiki has been created to allow all NTFP lovers an opportunity to learn more and contribute to the growing body of knowledge about NTFPs in the Lao People's Democratic Republic.

Lao people of all ethnicities have been using, managing and protecting NTFPs for hundreds of years. NTFPs are a key component to all aspects of life in the Lao PDR and most Lao people can name hundreds of different types of NTFPs and their uses. NTFPs provide an important

source of nutrition and food security for the vast majority of rural people. They are also an important source for medicines and products for everyday use, as well as being a key part of the country's rich biological diversity.

The NTFPs at this wiki are organized into seven categories – food, medicine, fibre, extracts, ornamentals, charcoal and firewood and animal products – with many different NTFPs described within each category.

The *wiki* can be found at:

www.tabi.la/lao-ntfpwiki/?Itemid=39

(Contributed by: Mr Thibault Ledecq, WWF Sustainable Rattan Regional Programme Manager, WWF Lao Country Office, BP 7871 Vientiane, Lao PDR. E-mail: thibault.ledecq@wwfgreatermekong.org)



NWFPs in the Liberian high forest area

A Community-Based Enterprise Development (CBED) project recently kicked off in Liberia aiming to inform locals who inhabit Government-Protected Areas in the country about their rights and Liberia's forestry laws. Under the project, staff will identify potential NTFPs, teach locals about their value, and together develop business plans for these products. A variety of NTFPs will be covered, including bamboo/reeds, palm wine, cane rat, honey, kola nut and bush pepper, as well as ecotourism activities such as boating.

Ten communities throughout Lake Piso (which is located in Grand Cap) and Bomi and Wonegizi (located in Lofa counties) have been selected to benefit from the activities.

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FOR MORE INFORMATION, PLEASE CONTACT:
Mr Advertus Koyee, Liberia Agency for Community Empowerment (LACE), Horton Avenue, Capital Bye Pass Monrovia, Republic of Liberia. E-mail: akoyee@yahoo.com

MEXICO

Native craftswomen harness their skills

It took María de los Ángeles Carrillo, a native craftswoman from Mexico, eight months to weave a decorative *junco* reed basket, for which she won a US\$8 000 prize from the Mexican Government. The 32-year-old Carrillo, a member of the Kumeyaay Native American people, belongs to the Grupo de Artesanos Nativos de Baja California (Group of Native Craftspeople of Baja California), which was founded in 2004 and has more than 140 members from the Kumeyaay, Paipai, Kiliwa and Cucapá communities in that northwestern Mexican state.

"Before, the craftspeople had to wait for someone to visit their community to buy their products," said Kumeyaay Indian Javier Ceceña, Director of the non-profit Native Cultures Institute of Baja California, which provides backing for the group of craftspeople. "They would wait for a long time until someone would finally show up and buy their products at a really low price. So we got organized," he told the Inter Press Service (IPS).

The Grupo de Artesanos Nativos de Baja California is one illustration of how Amerindian groups in Mexico are using their craftmaking skills and traditions to defend their cultures and earn incomes to improve their living conditions.

In the town of El Tajín in the southeastern state of Veracruz, Totonaca Indians joined together in 2006 to perfect their work and improve the marketing and sales of their products, and thus boost their family incomes.

Both the Grupo de Artesanos Nativos de Baja California and the Cerámica de El Tajín are keeping alive artistic traditions passed down from generation to generation, and use raw materials available in their communities. From the ancestral knowledge and the hands of the Baja California artisans emerge baskets, pottery, bows and arrows, belts, sashes, bags, purses, necklaces, frames and decorative ornaments, while the Totonaca ceramicists make serving dishes, pots, candlesticks, planters, jars, pitchers and many other products.

The craftspeople exhibit and sell their products at regional fairs. Last year, the Totonaca artisans sold more than 800 pieces, earning some US\$48 000.

The Ministry of Social Development will send Congress a bill aimed at

strengthening the promotion of crafts and defending the handicrafts industry from piracy. The draft law was drawn up with contributions from craftspeople's associations. [Source: IPS in *Traditional Knowledge Bulletin*, 21 January 2011.]



MYANMAR

Transportation costs put pressure on honey makers

Migration costs – required to shift hives closer to flowerbeds – are threatening the honey export business this year, bee experts say. Myanmar Apiculture Association cosecretary, U Kyi Lwin Oo, said the cost of moving beehives to different fields is threatening to overwhelm the profits from selling the honey. At the same time, the demand for Myanmar's honey from abroad is strong, with the amount exported on track to better last year by 50 percent. However, a weak dollar means the earnings are not likely to be significantly higher, U Kyi Lwin Oo said.

By early November, companies had exported about 800 tonnes of honey, worth about US\$740 000, since the start of the 2010/11 financial year in April. For the whole of the previous fiscal year only 1 000 tonnes, earning slightly more than US\$900 000, were exported.

The current domestic price of 1 viss (1.6 kg) of honey is between K1 200 and K1 400.

At this time of year, as many as 90 percent of beekeepers keep their hives in Kani township, in the Sagaing region. But soon some will migrate to the southern Shan state or Meiktila in Mandalay region to bring their bees within reach of the sesame crops.

In January and February, they will move on again to Katha, Kale, Monywa, Htgaing or Madaya. These relocations make up a large percentage of the costs of production, U Kyi Lwin Oo said. "Seventy

percent of the total costs of producing honey comes from moving the bees to new fields. This year our exports are worth less and the transport charges have risen. I am worried that if this situation continues, then we will see a dip in production," added the General Manager of Welcome General Trading. Part of the problem is that beehives cannot be driven by bus or truck to many of the fields that the bees feed on, leaving the keepers no choice but to hire ox-driven carts. Bees also have a limited flying range of only about 3.2 km and need to be moved to a fresh field every week.

Production also relies on the weather: heavy rainfall can reduce the amount of pollen the flowers produce and in turn curtail the amount of honey.

Companies typically export as much as 90 percent of all the honey produced here, selling it to Thailand, Japan, China, Singapore and Malaysia. This year, Thailand is buying most of it.

Myanmar's honey has too much moisture in it to compete in many international markets. This year's exports have about 20 percent moisture content, courtesy of the heavy rains, whereas the international standard is below 20 percent. Honey is exported in drums that weigh between 250 and 290 kg each.

U Kyi Lwin Oo said that if producers here were able to minimize their transport costs, boost production and lower the moisture content of the honey, they would find ready markets nearby, pointing out that Japan consumes at least 20 000 tonnes of honey a year. [Source: Myanmar Times, 15 November 2010.]

NAMIBIA

Namibia's new policy to monitor the use of devil's claw products

Devil's claw, *Harpagophytum procumbens*, has been a very important resource for the livelihood of many Namibians for over 50 years. In view of this, the Millennium Challenge Account (MCA-N) hosted a one-day training workshop on the revised National Policy on the utilization of devil's claw products, which was approved by Cabinet in July 2010, this week.

The aim of the policy is to assist the Ministry of Environment and Tourism (MET) to manage devil's claw resources, processes and products to ensure its sustainable management as well as the

effective promotion of biodiversity conservation and human development. The policy will also allow MET to control the utilization of the plant to ensure sustainable harvesting methods are used, collect information to facilitate trade in devil's claw products and promote value addition in Namibia as the biggest devil's claw exporter in Africa.

The Under Secretary at MET, Simeon Negumbo, said that the policy was drafted about ten years ago and has been used by staff members as an internal guiding document for permitting and regulating the utilization of devil's claw in the country. "With the assistance of MCA-N, MET has finalized the devil's claw policy this year. The newly approved policy will therefore improve the existing framework to address sustainable management of devil's claw as well as effective promotion of both biodiversity conservation and human development," he said.

The aim of the workshop was to train MET officials and devil's claw traders on the implementation of the newly approved policy. "This policy is very important where Namibians are considered 'price takers' rather than 'price makers' and therefore a more organized and coordinated supply chain is expected to result in a better price for the product in its different forms: raw, semi-processed or processed," said Eline van der Linden, Deputy Chief Executive Officer (CEO) of Programme Implementation at MCA-N.

Devil's claw products have been harvested in Namibia for more than 50 years. In 1977, devil's claw was declared a "protected plant" because of concerns over possible overutilization. Devil's claw is found in Namibia, Botswana, Angola, Zambia, Zimbabwe, Mozambique and some northern parts of South Africa. (Source: Economist [Namibia], 19 November 2010.)

NIGERIA

Government to create 1 million jobs from moringa plant

The Federal Government has unveiled plans to generate over N500 billion as revenue from the *moringa* plant – *Moringa oleifera* – and create over 1 million jobs. *Moringa* is popular in the northern and eastern parts of the country, and is used for food and medicines. The plant is believed to prevent over 300 diseases and could readily

provide the substitute for the chemical used for water treatment, which the Federal Government spends about N354.5 million annually to import.

Peter Onwualu, Director-General/Chief Executive Officer of Raw Materials Research and Development Council (RMRDC), disclosed this at the First national summit on *moringa* development. He said that the socio-economic benefits of developing the entire value chain of *moringa* could not be quantified and could compete with earnings from crude oil. He maintained that more grants would be awarded to researchers and private industries towards *moringa* development in 2011. (Source: www.vanguardngr.com, 9 December 2010.)

OMAN

Sniffing out the Frankincense Coast

On a scraggly mountainside on the desolate coast of this small country in the southern Arabian Peninsula, a man in a white *dishdasha* and colourful scarf scrapes at the side of a tree and waits for the milky white sap to bleed droplets from the nicked bark. In ten days, he will return to the tree and collect the hardened rocks of aromatic resin – or tears, as they are called – take them to a cave and spread them on a ledge above a shaded dirt floor. After four months of curing, he will bundle the pieces, put them in bags on a camel and send them to the sea to follow ancient trade routes to Africa and India.

Frankincense and myrrh (also a resin, derived primarily from the *Commiphora myrrha* tree) are used in perfumes, burned as incense and made into medicinal ointments. They are deeply entrenched in Omani culture.

The Dhofar region of southern Oman is one of only three places in the world where a certain species of *Boswellia* tree produces the majority of the world's frankincense. The other two are Somalia and Yemen. For generations, frankincense has been harvested from these trees in Oman.

Salalah, the second-largest city in Oman after Muscat, the capital, is the ancient commercial centre of the south. The waterfront is called the Frankincense Coast, and its roots in the ancient spice trade are well documented. One frankincense port, Khor Rori, or Sumhuram, dates back to 300 BC.

The Museum of the Frankincense Land opened in 2007 in Salalah with two halls of exhibits that define the various grades of frankincense (silver and white are the most expensive, brown the least) and display ancient incense burners unearthed in archaeological digs. Local guides in the region take tourists to the coastal belt and valleys, where the frankincense trees stand in sloppy formation at heights of 16 feet (4.9 m), soaking up the moist sea breezes and monsoon rains of the summer months.

Women sort the dried resin by hand in the markets and offer it for sale. A clay burner, a handful of frankincense tears, a stick of charcoal, and a small bottle of lotion with frankincense extract, cost about US\$3 in total.

Although it takes eight to ten years for a frankincense tree to produce quality resin, land is sufficiently covered to "rotate" the crop, says Mohammed Mahaad Saheel Bin Baafee, a local resin tapper. (Source: Chicago Tribune, 12 December 2010.)



PAKISTAN

NTFPs in the mountains of northern parts of Pakistan

Pakistan's forest resource base is mostly found in the mountains of the Northwest Frontier Province (NWFP), supporting the livelihoods of the rural poor and providing different ecological services. The present study was, therefore, initiated with the aim of evaluating different constraints and opportunities for sustainable livelihoods and cash income generation from NTFPs in the mountainous area of the NWFP during 2008. Information was collected through questionnaires and interviews during field trips.

A total of 117 NTFP species have been recorded, which are being used locally for various purposes such as fuelwood, fodder, medicinal plants, vegetables, mushrooms, agricultural tool-making, furniture, thatching, shade, fencing/poles, ornamental purposes and animal products.

The majority of plants are multifunctional, such as *Pinus wallichiana*, which provides timber, fuelwood and torchwood; the leaves/small branches are used as thatch for roofing; the split logs are used for fencing; and the decomposed needles are collected as humus for agricultural fields. These products are widely used by the indigenous community, supporting their livelihoods.

The study proposes protection and sustainable management of these valuable resources for rural livelihoods, which might be useful for developing regional strategies of sustainable management of forest resources. [Source: S. Hassan, K. Jehangir, K. Kiramat, S. Hazrat and E. Muhammad. 2010. Constraints and opportunities for sustainable livelihoods and cash income generation from NTFPs in the mountains of northern parts of Pakistan. *Acta Botanica Yunnanica*, 32(2): 167–176.]



RUSSIAN FEDERATION

NTFPs from Russian Far East: conservation of Korean pine forests, local livelihoods, tiger habitat preservation

In the Russian Far East – an important habitat for the Amur tiger (*Panthera tigris altaica*) – the World Wide Fund for Nature (WWF) Russia's Amur branch, together with WWF Germany, through cooperation and joint work with the indigenous Udege and other communities, protects valuable Korean pine forests, ensuring survival of ecosystems and the traditional lifestyle of communities. The wilderness around the middle and upper Bikin River in the Russian Far East covers an area of 1.3 million ha. It is the habitat for 40–45 Amur tigers – around one-tenth of the Russian Federation's tiger population. These habitats are under the risk of illegal timber logging, because of the high demand for precious Korean pine, oak, ash and other valuable species.

The WWF project in the Bikin River area aims to demonstrate that harvesting and utilization of wild NTFPs, providing the major source of income for local people, is a viable alternative to timber logging (often illegal and unsustainable). These efforts lead to the conservation of Korean pine forests and Amur tiger habitats.

Parts of Korean pine forests – Nut Harvesting Zones (NHZs) – are under concession ownership rights by a number of partners. Four NHZs are under lease for 49

years at the moment. They work together with the Amur branch of WWF on forest protection and conservation, as well as the development of a system for income generation of communities that are traditionally involved in harvesting of wild NTFPs.

Among the NTFPs used, Korean pine nuts (*Pinus koraiensis*) have the biggest potential for an economically sustainable future for community development in the Bikin River area because of the high market prices for nuts, and potential harvesting amounts (average total estimated harvested from four leased NHZs is over 2 000 tonnes of shelled nuts). Project partners expect to generate additional revenue from NTFP trade for nature conservation, prevention of fire and illegal logging, and sustainable development activities in the region. Achievements of the project to date include the proven legality of the product harvested under the long-term concession rights, the generated social effects, the link to Amur

tiger conservation, and work towards the long-term environmental sustainability of resources and ecosystems.

Besides Korean pine nuts, a number of NTFPs are wild-harvested and traded from the Russian Far East, based on harvest quantities approved in forest management plans. The NTFPs include a range of berries (*Schisandra* berries [*Schisandra chinensis*], bilberry [*Vaccinium myrtillus*], viburnum berries [*Viburnum sargentii*], hawthorn berries [*Crataegus spathulata*], rosehip berries [*Rosa rugosa*], barberries [*Berberis amurensis*], *actinidia* [*Actinidia kolomikta*] and cowberry [*Vaccinium vitis-idaea*]); mushrooms (e.g. *chaga* mushrooms [*Inonotus obliquus*]); ferns (bracken fern [*Pteridium aquilinum*], *osmunda*/cinnamon fern [*Osmunda regalis*]); medicinal plants (Siberian ginseng [*Eleutherococcus senticosus*] and Manchurian aralia [*Aralia elata*]); roots; Amur cork tree (*Phellodendron amurense*); and honey.

KOREAN PINE: PROTECTION IN THE RUSSIAN FEDERATION

A ban on the logging of Korean pine (*Pinus koraiensis*) has been announced by the Government of the Russian Federation in a move to preserve key habitats of the Amur tiger (*Panthera tigris altaica*). Korean pine occurs in temperate forests in the Russian Far East and has been subject to rising global demand for its timber. Fewer than 500 Amur tigers remain in the Korean pine forests of the Russian Federation and northeast China.

The ban was declared just prior to the opening of the International Tiger Conservation Forum held in St Petersburg from 21 to 24 November 2010. According to Igor Chestin, CEO of WWF Russia, “a ban on Korean pine logging is the best gift for the Amur tiger in the Year of the Tiger. Korean pine is of crucial importance for tiger conservation: its cones are fodder for wild boars, and wild boars are the tiger's prey”. Furthermore, the ban will benefit the legal pine nut trade in the region, which WWF and TRAFFIC have been promoting as a means of providing legal and sustainable income.

“TRAFFIC and WWF Russia warmly welcome the ban, which is good news for

the local people whose livelihoods depend on the trade in Korean pine nuts and for Amur tigers which live where these trees grow,” said Alexey Vaisman, Senior Programme Officer with TRAFFIC Europe-Russia. “The ban will need to be backed up with appropriate enforcement action,” added Vaisman.

Measures to protect the Korean pine were already introduced by the Russian Government in July 2010 when the species was placed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix III in an attempt to regulate the trade, much of it carried out illegally. Such a listing meant that all cross-border shipments had to be authorized by the issuance of a document certifying the origin of the products covered by the listing.

At the International Tiger Conservation Forum, the 13 countries with surviving tiger populations agreed on a historic Declaration on Tiger Conservation, committing these countries to double the number of remaining wild tigers, whose total population is estimated at 3 200, by 2022. (Source: Reprinted with permission, from *TRAFFIC Bulletin*, 23(1), December 2010.)

For the majority of NTFPs, shifting primary processing to a community level would generate higher earnings, and this is ongoing in selected project sites.

WWF supports legal, environmentally and socially sustainable harvesting of wild NTFPs in the Russian Far East through long-term community engagement in resource management. Certification frameworks, including "tiger-friendly", organic and sustainable FairWild labels, are under consideration to verify the sustainability of wild NTFP harvesting and trade.

What partnerships are we looking for?

Business partners – to develop viable business opportunities for communities in the Russian Far East through sustainable and legal trade in NTFPs, providing a constant and secure supply of NTFPs, supporting both the livelihoods of people and the conservation of Korean pine forests and Amur tiger habitats.

(Contributed by: Anastasiya Timoshyna, Global Medicinal Plants Programme Lead, TRAFFIC, c/o WWF Hungary, Álmos vezér útja 69/A, 1141 Budapest, Hungary. Fax: +36 1 212 93 53; e-mail: anastasiya.timoshyna@wwf.hu; www.traffic.org)



Moringa

SIERRA LEONE

Moringa, the "miracle tree", is launched in Sierra Leone

For centuries, the people of northern India and many parts of Africa have known of the varying benefits of *Moringa oleifera*. Its uses are as unique as the names by which it is known: califer, horseradish and drumstick, for instance and, in East and West Africa, "Mother's best friend".

Native only to the foothills of the Himalayas, *moringa* is now widely cultivated in Africa, Central America, South America,

Sri Lanka, India, Malaysia and the Philippines. This tree is nutritional dynamite. Virtually every part of it can be used, and there are hundreds of uses for it.

The United Methodist Committee on Relief (UMCOR) has played a pioneering role in the promotion of *moringa* as a food supplement source in Africa. Its Sustainable Agriculture and Development unit (UMCOR SA&D) supports widespread cultivation and production of the plant in Ghana and Liberia.

UMCOR SA&D officially introduced *moringa* into Sierra Leone in 2001. UMCOR SA&D provided formal training in *moringa* cultivation for 150 farmers, who then taught other farmers about the plant and its uses. Afterwards, the Council of Churches in Sierra Leone coordinated the efforts in the country to promote the use of *moringa* in Africa. These efforts culminated in the decision for a nationwide launch of *moringa* in Sierra Leone. Last October, a national conference was held in Freetown, which brought together interested and high-level participants from church and government.

Moringa leaves contain all of the amino acids that are essential to the human body, including two that are especially important for children. They are also the richest single natural source of vitamins and minerals on Earth. A family that has *moringa* can virtually "grow multivitamins at their doorstep". This is because *moringa* contains vitamins A, B₁, B₂, B₃, C, calcium, chromium, copper, iron, magnesium, manganese, phosphorus, potassium, proteins and zinc. *Moringa* contains some 46 antioxidants, which promote heart health and control the ageing process. *Moringa* leaves and fruit are loaded with phytonutrients, which flush toxins from the body, purify the liver, bolster the immune system, help rebuild red blood cells, and rejuvenate the body at the cellular level. (Source: ReliefWeb, 15 February 2011.)

SLOVAKIA

On the bear trail: ecotourism in Slovakia

Slovakia's Tatras Mountains are home to some of Europe's last brown bears as well as the critically endangered Tatra chamois (mountain goat). Tourism has not always been kind to the furry inhabitants of destinations, but that is changing, with holiday companies realizing that their businesses depend on the well-being of

their destination's animal attractions. Now, Hands Up Holidays are taking this trend a step further, and offering green travellers the chance to combine a family holiday with helping researchers to preserve these magnificent mammals.

The company takes its guests deep into the woods surrounding the Tatras Mountains in search of bears, wolves and chamois. While hiking through the stunning mountain ranges, tourists contribute to the essential monitoring work needed to keep tabs on local bear and chamois populations. Most trips also include a visit to the Tatras Foundation, an NGO established to raise awareness of environmental issues in the local area. (Source: *The Ecologist*, 10 March 2011.)

SLOVENIA

Slovenia and its biodiversity

Slovenia ranks among the countries with the highest biodiversity in the European Union. Some scientists have even labelled it as one of the "hot spots" of the continent. A relatively small space interlinks the Alps, the Dinarides, the Mediterranean and the Pannonian Basin. All of this is reflected in the rugged surface, diverse geological structure, rapidly varying climate and, of course, the richness of flora and fauna.

Around 22 000 plant and animal species have been recorded in Slovenia, but it is estimated that at least 50 000 to 120 000 actually exist. There are 850 endemic species, of which more than 300 live in the underworld of Slovenia's many caves.

Slovenia is also home to a large number of animal and plant species that are endangered in Europe or on the verge of becoming so. The Natura 2000 areas (a centrepiece of the EU's biodiversity strategy) are set deliberately for their protection; 36 percent of Slovenia's surface is protected in this way – the highest proportion in Europe.

Slovenia's biodiversity is particularly threatened by the changing of the natural habitat and the impact of non-native invasive species. Direct threats – such as the collecting, harvesting, fishing, hunting and trading of endangered species – are less important causes of endangerment. This is also the result of the growing awareness of the importance of biodiversity among Slovenians. (Source: Slovenia Times in Balkan Business News Correspondent, 20 September 2010.)

SOMALIA

Somalia fosters trade in frankincense and myrrh

In the mist forests of the Golis Mountains in northern Somalia, stumpy trees grow as if anchored to the mountainside by some unknown force. From the hand-slashed bark of these stubborn, spiky trees leak droplets of a gum that hardens into a chewy resin. These aromatic gums are the biblical frankincense and myrrh. Harvested and dried, they have been highly valued trade items for thousands of years. The gums are simply processed and exported. They look like dirty little stones, and they find their way out of Somalia's wild north and into European perfumes, Christian churches, Arabian households and Chinese medicines.

Myrrh is extracted from the *Commiphora myrrha* tree that grows on the lower slopes. Frankincense comes from the *Boswellia carteri* tree that grows at higher altitudes. Both are used in herbal medicines, essential oils and perfume, not to mention religious ceremonies.

Lesser known in the Western world is *maidī*, a type of frankincense that is extracted from the *Boswellia frereana* tree and is popular in the Arab world as a naturally scented chewing gum. This high-quality gum, which is pure white in colour, is much sought after and sells for US\$12/kg, six times the price of the best inedible frankincense.

Somaliland is the northern territory of Somalia that functions largely independently from the war-torn south, although it is not officially recognized as an autonomous country. The production and trade in the aromatic gums of frankincense and myrrh are important economic activities for the area.

Guelleh Osman Guelleh, General Manager of Beyomol Natural Gums in Hargeisa, told GlobalPost that he exports 330 000 pounds (149 685 kg) of frankincense and myrrh every year. Much of his product is distilled abroad for use in perfumes. "The main market for us is in southern France, in Grasse; 90 percent of what we sell goes there to be used in perfumes," said Guelleh, who studied in the United Kingdom before returning to Somaliland in 1999 to set up his gum-exporting business.

The only processing done in Somaliland itself is sorting and grading the gums

according to size and colour, but Guelleh hopes that will change one day. "It is a technical issue because it is not a simple process to distil for the perfumery industry. You need to show reliability of quality and consistency of supply; you need to be able to process the same way the French do," he said.

Nevertheless, exporting the unrefined gums alone is a profitable enterprise, earning Guelleh up to US\$60 000 a year. Other regions where frankincense and myrrh are produced include parts of Ethiopia, Kenya and the Arab peninsula. (Source: www.globalpost.com, 25 December 2010.)



Boswellia carteri

SPAIN

Saffron harvest brings a new gold rush

José Martínez, a 24-year-old plumber, never imagined himself crouching in the dirt on a blustery field, delicately plucking purple flowers. But he has been out of work for two years, so even the brief saffron harvest, which ended this week in the Spanish region of La Mancha, is a welcome opportunity to earn some money. "I will work at anything," he said, while gingerly wrapping his fingers around the stems to avoid damaging the crocus petals and their valuable red stigmas. "I do not know what they will pay me yet – I do not expect more than €7 an hour – but it is better than nothing."

The worldwide recession has burst Spain's housing bubble, devastating the job market and pushing the unemployment rate to a painful 20 percent, but it has been accidentally kind to a fragile, once-forgotten crop: saffron. These spindly aromatic filaments that give paella its characteristic golden glow are a centuries-old tradition in the torrid plains

of La Mancha. Until recently, this cottage industry – which sprouts for about two weeks of planting in spring and two weeks of harvesting in late autumn – seemed to be withering as quickly as a plucked saffron crocus. But now, amid the bleak economic landscape, it is blossoming once again.

José Martínez, who picked a basketful of purple buds outside the town of Madridejos on Monday, is among the newcomers to the backbreaking harvest season, initiated into the somewhat secretive, family-dominated field by a veteran grower's son. But many former saffron producers, who abandoned their fields years ago for promising jobs in the now ailing construction industry, are also seeking refuge in these precious purple flowers. Other growers, inspired by historically high wholesale prices of €3 000/kg (more than double in stores), have expanded their plots.

"Rural people are returning to their roots," said Antonio García, President of the province-wide Regulatory Commission for the Denomination of Origin of La Mancha. Until the 1990s, about 60 percent of La Mancha families grew the treasured spice. The income from the wispy filaments was not enough to live on, but they allowed an olive farmer or grape-grower to afford a few luxuries. Many people squirrelled away the dry red stigmas in closets or secret places as though they were gold nuggets, to be sold during hard times. But then, in the heat of Spain's housing boom, relatively high-paying construction jobs beckoned. "Imagine, it almost disappeared," Mr García said. Prices plummeted because some saffron sellers mixed the Spanish variety, highly valued by spice connoisseurs, with cheap imports from [the Islamic Republic of] Iran, he added.

But production started picking up again after the La Mancha region instituted a saffron certifying process, with detailed criteria for everything from colour and purity to the stigma arrangement (they must look like a three-pronged pitchfork in miniature). Every farmer was even given a number that appears on the saffron label. The move cut down on the swindles by rogue distributors.

Today, 440 state-certified saffron growers, most of them families, churn out 1 500 kg/year. At €3 000/kg, the delicacy is double the price paid four years ago. At the gourmet counter at Spain's El Corte Inglés

supermarket, a 10 g gift pack fetches €102.

After so many years, again in La Mancha, people are talking about "red gold". Gregoria Carrasco Sanchez, whose six children and nine grandchildren harvest 7 or 8 kg of saffron each year, said: "Here in Madridejos, the majority of the homes were built with saffron".

The children of veteran growers used to groan at the annual date with hand cramps and yellow-stained fingers. After all, stooping in the dirt and peeling flowers with mum is not everyone's favourite way to spend a two-week holiday. But with the poor economy, even the younger saffron generation is performing its familial duties with renewed vigour. [Source: *The Independent* [United Kingdom], 13 November 2010.]

TANZANIA, UNITED REPUBLIC OF

Bushmeat hunting "threat to wildlife"

Experts have warned on several occasions that conservation activities in the United Republic of Tanzania are seriously impaired by shortage of funding, which consequently exposes the country's forests and wildlife, especially rare species, to imminent threats of extinction. The funding shortfall is undermining protection of the nation's ecology and biodiversity, which are threatened by and left vulnerable to illegal human activities, such as poaching, logging and farming.

But a recent report shows that in some areas, conservation efforts are derailed by widespread hunting for bushmeat, in addition to other human encroachment activities. To address the situation, the experts want to see more investment in conservation, to help the government recruit and train more personnel and partner with local communities in the management of natural resources.

The report, released early this month and prepared by Tanzanian and international scientists and conservation organizations, warns that "the populations of several animal species in southern Tanzanian forests are suffering alarming declines due to bushmeat hunting and habitat degradation". It describes the results of three separate research projects focusing on the threats to biodiversity in the Uzungwa Scarp Forest Reserve in southern Tanzania since 2004. It shows that the Tanzanian wildlife has been hugely

impacted by human activities and recommends that action be taken urgently to protect it. Also affected is the biodiversity critical to the health of the ecosystems which many Tanzanians rely on for water, soil fertility and other services.

"Tanzania has an amazing conservation record, but the increase in human population, and other external pressures such as the increased demand for ivory and other animal products from China, means it will get harder and harder for the country to conserve the incredible natural riches it still has," says Mr Trevor Jones of the Uzungwa Elephant Project and a biologist in the team that compiled the report.

Another member of the team, Sokoine University lecturer Amani Kitegile, says bushmeat hunting is also becoming a serious threat to wildlife in the United Republic of Tanzania. He told *The Citizen* that, apart from fire, hunting is an immediate threat to wildlife populations and a major conservation problem for the Uzungwa Scarp Forest Reserve.

Fires and bushmeat hunting aside, other human activities such as pole cutting and illegal logging have also exacerbated the problem, as they lead to further deforestation and soil degradation. According to Mr Kitegile, the government needs to revisit its policies and approaches towards conservation issues to tackle the problem holistically. "Increased law enforcement will have some immediate effect at decreasing human pressure on the forest. But the costs will be high if other options are not considered; and these include providing alternative sources of protein (meat) and income and some level of assurance that the preservation measures will benefit local people in the long term," he noted. [Source: *The Citizen* [United Republic of Tanzania], 19 February 2011.]



TURKEY

Bees on strike, honey harvest plummets by 50 percent

The harvest of natural Kaçkar honey, which is produced in Rize's Kaçkar Mountains in Turkey, has plummeted by nearly 50 percent this year, despite an increase of 40 percent in the number of beehives, said Remzi Özbay, the General Manager of Topuy Kaçkar, an organic natural honey supplier.

In a written statement on Sunday, Özbay said the drop in the quantity was dramatic, despite proper climate conditions and the abundance of flowers in the region, and blamed the deterioration of the natural balance ensued by the overexploitation of pesticides in agricultural production. "The bees are on a veritable strike, so to say," he noted. He warned that some producers in the region have already started offering on the market fake "Kaçkar" honey, which is produced with dextrose, with price tags from TL50 to TL150, opening doors to extremely high "undeserved revenues".

The top manager of Topuy Kaçkar, which has been producing organic honey in the region for a decade, said the company had been getting six tonnes of honey from a thousand combs in a year on average, but that this amount has fallen to three tonnes. "I am receiving daily reports from beekeepers. Bees are strong, flowers are plentiful and the weather conditions are fit. We were expecting to see a very good season. When we opened the combs when the harvesting time arrived, we were stunned to see that the amount of honey was much less than it should have been. It had gone down even though it should have increased. We started growing curious about why the bees were sulking. Then we realized that all apiarists were witnessing sharp drops in their harvests," said Özbay.

A similar dire situation occurred three years ago when sizeable honey bee populations in many parts of the world disappeared in a strange and unprecedented way, all of a sudden and without a trace. Scientists received this incident as a heads-up, and conducted studies as to the possible causes of this extraordinary and mysterious situation, which they termed "colony collapse disorder". [Source: www.todayszaman.com, 25 October 2010.]



UNITED ARAB EMIRATES

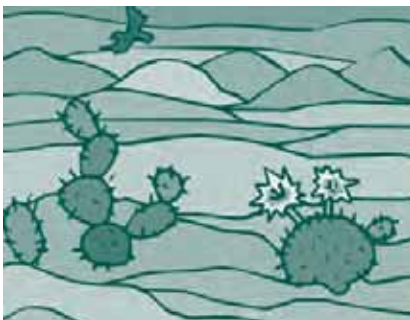
Herbal formula to undergo clinical tests

A herbal-based formula extracted from endangered plants across the United Arab Emirates is set to undergo clinical tests for its efficacy to help combat serious diseases such as diabetes, a health expert said during a symposium on protection of medicinal plants in the country.

A designated farm to help preserve the medicinal plants at the Zayed Complex for Herbal Research and Traditional Medicine in Abu Dhabi has been recently recognized by the World Health Organization as a regional centre for herbal research.

"Through evidence-based research, we plan to introduce our own herbal-based formula, and will continue into clinical trials by offering patients herbal solutions for different chronic diseases such as allergies, asthma, kidney stones, hypertension and diabetes. A single herb can have 1 000 active ingredients, which can be useful to help combat all these diseases put together," Dr Mazen Ali Najji, Manager at the Zayed Complex told *Gulf News* on the sidelines of Wednesday's meeting.

In line with Shaikh Zayed Bin Sultan Al Nahyan's vision to preserve medicinal plants, the Ministry of Environment and Water (MOEW) partnered with the Health Authority Abu Dhabi in a project to help preserve 30 different kinds of plants in the Emirates, known for their useful medical components. "There are 640 different types of plants in rural areas and deserts across the United Arab Emirates, 30 percent of which are herbal. Most of these herbal plants are prone to habitat destruction due to changing weather conditions and animal feed, which is why we are supporting projects which help preserve these endangered plants," said Eng Ahmad Al Matri, Director of the Desertification Combat Department at MOEW. (Source: www.gulfnews.com, 25 November 2010.)



UNITED STATES OF AMERICA

Wild ginseng disappearing from parks

Although not officially endangered, ginseng populations are decreasing at an alarming rate in parks located in the southeastern United States of America. Rangers at Mammoth Cave National Park (Kentucky) and Great Smoky Mountains National Park (Tennessee, North Carolina) are now battling poachers.

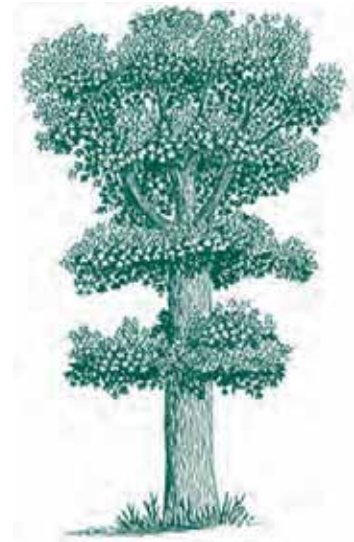
In national forests and private property, people may dig up the plant legally if they have the landowners' permission. But recently, poachers continue to hunt the plant in the summer. Rangers have been patrolling the backcountry to look for diggers and some have been caught. In October 2010, a major bust occurred, saving 805 roots which were then replanted.

The latest advance in stopping poachers has been a coded chip that is being placed on the roots of the plant to identify its location. Should it move, then rangers know it has been uprooted and it can be hunted using ultraviolet light or trained dogs. (Source: www.about.com, 10 January 2011.)

Trade in NWFPs

Trade in plants, lichens and fungi from forests in the United States of America has been important for generations. Native Americans had well-established trade routes throughout the land for thousands of years. As other groups came to North America, trade in these products expanded to Asia and Europe. Internationally, these forest botanical products are referred to as non-wood or non-timber forest products. The US Department of Agriculture, Forest Service (FS) refers to these products as special forest products (SFPs).

Increasing concern about the impact of commercial harvest of these wild resources on their sustainability and on wildlife, questions of tribal and treaty rights, concerns raised by amateur science groups, as well as concerns over access and property rights have resulted in efforts by state and federal governments to exert more control over harvests and harvesters. A significant federal regulatory response to these concerns is Public Law 106-113, legislation passed by Congress in the 2000 Appropriations Act entitled "Pilot Program



of Charges and Fees for Harvest of Forest Botanical Products" for the National Forest System, commonly referred to as "section 339". This law provided the impetus for the development of a cost appraisal system for SFPs sold from FS lands.

For the most part, commerce in wild-harvested medicinals, florals and foods has operated at unknown scales, as trade in these products is not generally tracked separately from agriculturally produced items. In addition, businesses in NTFP industries have generally been small, with many small businesses operating at the margin of the formal and informal economies. When both commercial harvest and personal use are considered, the contribution of forest botanicals to some local and regional economies is significant. Please see box on page 59 for information on three wild-harvested products included in this report. (Source: J. Smith, L.K. Crone and S.J. Alexander. 2010. *A US Forest Service special forest products appraisal system: background, methods, and assessment*. Gen. Tech. Rep. PNW-GTR-822. Portland, Oregon, US Department of Agriculture, Forest Service, Pacific Northwest Research Station. 22 p.)

FOR MORE INFORMATION, PLEASE CONTACT:

Susan J. Alexander, Ph.D., Regional Economist, Alaska Region Secure Rural Schools Coordinator, Alaska Region, USDA Forest Service, PO Box 21628, Juneau AK 99802, United States of America. Fax: +1-907-586-7852; e-mail: salexander@fs.fed.us

WILD HUCKLEBERRIES, WILD EDIBLE FUNGI AND FLORAL PRODUCTS: SIGNIFICANT INDUSTRIES IN THE PAST CENTURY

In the western United States of America, three wild-harvested products stand out as significant commercial industries in the past century. These three products illustrate how wild-harvested products are subject to the same economic and social forces as any agricultural product and, in some cases, create unique issues owing to their special characteristics.

Wild huckleberries

Wild huckleberries (primarily *Vaccinium membranaceum*), also harvested and sold in the east, have experienced boom-and-bust cycles since the 1920s. Variations in the harvest of wild huckleberries illustrate the impacts of upswings and downturns in the national economy on open access forest resources. During downturns in regional or national economies, harvest of these products can increase significantly.

Western huckleberries have been sold commercially at least since the beginning of the twentieth century. With the development of preservation technologies, construction of roads creating access, and the stock market crash of 1928, huckleberries became a major crop in western forests. The commercialization of huckleberries changed the sociocultural interaction of Whites and Native Americans in the west. Although both groups sold berries commercially, the invasion of non-Native pickers created unprecedented competition for berries, while also raising concerns that Native Americans' relationship to huckleberries was not being respected. After the Second World War, huckleberry pickers were relegated to marginal participants in the formal economy. But the industry saw yet

another upswing in the 1980s, which persisted, as huckleberry products were marketed in the west as local cultural symbols and tourist souvenirs. Although the market is relatively small, continued pressure on resources has raised concerns from tribes with rights to forest resources, from people concerned about wildlife (such as bears) and from concerns about resource sustainability.

Wild edible fungi

Commercial harvest of wild edible fungi, particularly American matsutake (*Tricholoma magnivelare*), saw a huge upswing in the late 1980s and early 1990s, followed by a decline after the mid-1990s caused by the Japanese economic recession and increased competition from other countries. There are essentially two separate international markets for wild edible fungi: the European and the Japanese market.

Markets and commodity chains for wild edible fungi harvested in the United States of America are primarily international, although there is a growing domestic market for wild fungi. Much of the total volume harvested comes from public lands in the west. Many successful small businesses supply both domestic and international markets with fresh or lightly processed (dried or frozen) products, serving as peripheral nodes where the formal and informal economies meet. Large-scale commercial harvesting of wild mushrooms surged in western North America in the 1980s; European demand for wild edible fungi, primarily morels (*Morchella* spp.) and chanterelles (*Cantharellus* spp.) declined, particularly after contamination concerns following the 1986 Chernobyl nuclear accident and power plant pollution. An economic boom in Japan created sharp increases, and sometimes wild daily fluctuations, in prices and demand for American

matsutake, a substitute for true matsutake from Asia (*T. matsutake*). The recession in Japan and the entry of suppliers from East European and Asian countries into various markets have caused prices to decline and stabilize somewhat.

Floral products

The floral products (primarily *salal* [*Gaultheria shallon* Pursh] and evergreen [or California] huckleberry [*Vaccinium ovatum* Pursh]) industry has evolved from many small businesses to a concentration of large businesses that rely on wild-harvested products and cheap labour. This concentration has led these businesses to yield some control over harvest levels and some influence over attempts at regulation, even though the products themselves are open access resources.

Floral greens markets, like those for wild edible fungi, are strongly international.

Floral greens are sometimes harvested for personal use, but impacts from harvesting result primarily from commercial demand. During the 1930s Depression, many people in the west depended on NTFPs for income, including floral greens. In the post-Second World War era, as jobs in the formal economy became more available, NTFP harvest became a background issue for land managers. It emerged as a public policy issue in the late 1980s and early 1990s, owing to a variety of factors, including regional declines in timber employment, increases in favourable habitat for floral greens because of silvicultural conditions, immigration that led to large pools of labourers with limited work opportunities, and increasing demand for wild-harvested products worldwide. Concern about resource sustainability has led to studies examining the impacts of harvesting on floral greens.

UZBEKISTAN

Beekeepers produce 3 000 tonnes of honey in 2010

Uzbekistan has invested great efforts in developing beekeeping in the nation. According to the General Department of

Forestry, nearly 6 000 farms manage some 213 487 hives.

In 2010, over 28 000 hives, 258 000 frames and other necessary materials were supplied to foster the development of beekeeping in the country. Banks also extended credit worth a total of 351.8 million soums. Additionally, more land was

allocated to give incentives to expand production and enrich forage reserves for beekeepers: 54 new farms received 440.3 ha of land last year. As a result, Uzbek beekeepers produced over 3 000 tonnes of honey in 2010. (*Source: Kazakhstan News.Net, 6 January 2011.*) ♣



BIODIVERSITY: BOUNDLESS, PRICELESS – AND THREATENED

Continental Europe is home to more than 125 000 known species of terrestrial and freshwater animals, and each year another 700 newly described species join the list. That sounds like good news to mark the end of 2010, the International Year of Biodiversity. It may not be. The planet buzzes with life, most of it unidentified and an alarming proportion of it now vulnerable to extinction.

EVERY SPECIES TO GET ITS OWN DNA BARCODE

The International Barcode of Life project (iBOL – <http://ibol.org/>), which says it is the world's first reference library of DNA barcodes and the world's largest biodiversity genomics project, is being built by scientists using fragments of DNA to create a database of all life forms.

"What we are trying to do is to create this global library of DNA barcodes – snippets, little chunks of DNA – that permit us to identify species," said Alex Smith, Assistant Professor of Molecular Ecology at the University of Guelph's Biodiversity Institute of Ontario (Canada). To get the barcodes, scientists use a short section of DNA extracted from a standardized region of tissue. Once the barcode is created, it is filed in the iBOL library. Within a week, the barcode can be viewed publicly, online, by signing up for a free account at www.boldsystems.org/, the site for Barcode of Life Datasystems (BOLD). Smith describes it as being like a label on a filing cabinet.

The library has more than 87 000 formally described species with barcodes filed and more than 1 million total barcoded specimens.

Smith said humans live among at least 1.9 million named species, with total diversity within all these species adding up to millions more. Scientists estimate iBOL will have barcodes for all 10 million species of multicellular life within the next 20 years.

While the library is based in Canada, which led the early stages of DNA barcoding, 25 other countries are also involved. [Source: Reuters [Canada], 1 November 2010.]

That is why the United Nations has declared 2011 to be both the International Year of Forests and the launch of an International Decade of Biodiversity, with a new intergovernmental panel of expertise.

French researchers pointed out in November that the inventory of European fauna is incomplete and that they cannot begin to guess what the total might be. Yet Europe is where taxonomy and ecology began: from Beijing to Bradford, from Windhoek to Wisconsin, creatures have formal Latin names because Latin was the scholarly language of the first systematic catalogue of the living world little more than 250 years ago.

Biodiversity is all we have. Living things provide food, fabric, fibre and pharmaceuticals for humans; they fertilize and pollinate crops, generate oxygen and recycle water. The wealth of nations is built upon biodiversity: even the oil, coal, peat, chalk and flints dug from the ground were once living tissue. So the case for the conservation of life's variety ought to be obvious. But biodiversity is a problem in four parts. We do not know, cannot identify, and cannot even begin to count most of the creatures upon whom we depend, nor do we know how these unidentified species interact with and depend upon each other, yet we are extinguishing this richness at a rate perhaps unparalleled in the 3.5 billion-year history of life on Earth and we have as yet no master plan with which to address any of these challenges.

Right now, one-fifth of the planet's known vertebrates and one-fifth of its named flowering plants are vulnerable, threatened or heading for extinction, but these represent only a small fraction of all that there is to conserve. If biodiversity is still unfinished business in the continent in which research began, and which is still home to most of the world's expertise, then things look ominous for those places so much richer in wildlife and so much poorer not just in money but in scientific investment: those countries with the coral reefs, mangrove swamps, rain forests, savannas and dry uplands that are home to the greatest diversity.

There are of course vital projects – the Census of Marine Diversity, the Barcode of Life, IUCN red lists and so on. But they do not add up to global determination, and so far these initiatives do not address one taxonomic riddle: confusion about how many species have been "discovered" and named more than once.

Meanwhile, the most conservative estimates suggest that creatures fashioned

by millions of years of evolution are being extinguished at a rate a thousand times faster than, for example, at the end of the Ice Age, and that as the human population grows in the next 90 years, this extinction rate is predicted to increase a further tenfold. Such problems cannot be solved in a year, or a decade. But perhaps, with serious political investment, a concerted global effort can at last begin. [Source: *The Guardian* [United Kingdom], 1 January 2011.]



NEW GOOGLE EARTH TECHNOLOGY ALLOWS TRACKING OF ENVIRONMENTAL CHANGES

Google has unveiled an online technology that allows scientists and researchers to track and measure changes to the environment using 25 years worth of satellite data. Google Earth Engine, introduced during climate talks in Cancun, Mexico, utilizes "trillions of scientific measurements" collected by NASA's LANDSAT satellite, the company said.

Google is already working on applications for tracking deforestation and mapping land-use trends, including the creation of the most comprehensive scale map of Mexico's forest and water resources ever made. That project alone would have taken three years to process using a single computer, Google officials say, but took just one day using Google Earth Engine. "No one has ever been able to analyse that entire data set for Mexico, or even come close," said Rebecca Moore, the project's engineering manager.

Google says it will offer 20 million central processing unit (CPU) hours free to developing nations and scientific organizations to utilize the platform, which could emerge as a critical tool in the enforcement of such land management initiatives as the UN's REDD programme in which wealthier nations pay developing nations to preserve rain forests. [Source: *Yale Environment 360*, 3 December 2010.]

GOOGLE EARTH NOW FEATURES 3-D TREES

Google has populated several major cities with more than 80 million virtual trees based on an automated process that identifies trees in satellite images. The realistic 3-D representations are based on actual tree species found in urban areas. But Google has also extended realistic tree coverage to sites in some of the world's most biologically diverse forests. Working with environmental organizations involved in its Google Earth Outreach program, Google has modelled trees in East Africa, the Brazilian Amazon and coastal Mexico. Google hopes the initiative will help highlight the group's efforts to protect endangered forests and generate sustainable livelihoods for communities.

In Brazil, Google worked with the Surui tribe and the Amazon Conservation Team to model some of the most "culturally significant" trees in the Surui's tract of Amazon rain forest. These include the *açai* palm, known for its protein- and antioxidant-rich fruit; the *moriche* palm, an important source of food; the cacao tree, used to produce chocolate; the cashew tree; and the Brazil nut, among others. Meanwhile, in Kenya, Google



Earth populated five sites run by the Green Belt Movement with the native tree species that communities are using to reforest degraded landscapes. In Mexico, Google Earth worked with CONABIO, Mexico's National Commission for the Knowledge and Use of Biodiversity, to model mangrove forests, which serve as nurseries for marine life and protect coastal regions from erosion.

The latest version of Google Earth includes two other major new features: an integrated "street view", which enables users to zoom from space directly to an on-the-ground view of a place, and improved access to historical imagery, which allows viewers to see how locations have changed over time. Historical imagery can be particularly useful in the context of deforestation. For example, a Google Earth user viewing the area surrounding the Surui territory can see forests disappear over time as loggers and ranchers move into the region. Today, the Surui forest is an island in a largely deforested landscape. (Source: www.mongabay.com, 29 November 2010.)

RECOGNIZING THE ECONOMIC BENEFITS OF NATURE IN 2011

The world is waking up to the fact that it can no longer sit back while the planet's natural resources, and the species that depend upon them, are systematically destroyed. The economic and human costs of inaction are simply too great. Much of the groundwork has been laid which, for the first time in history, has begun to quantify just how expensive the degradation of nature really is.

A recent United Nations study entitled *The Economics of Ecosystems and Biodiversity* (TEEB) put the damage done to the natural world by human activity in 2008 at between US\$2 trillion (£1.3 trillion) and US\$4.5 trillion at the lower end, roughly equivalent to the entire annual economic output of the United Kingdom.

And in October last year in Nagoya, Japan, almost 200 countries negotiated 20 specific targets with the express aim of "taking effective and urgent action to halt the loss of biodiversity". Among these were included massively increasing areas of protected oceans, halving the rate of loss of natural habitats and preventing the extinction of threatened species.

Binding commitments are not due to be signed until February next year, but over the next 12 months the momentum will really begin to build upon many of the targets set out in Nagoya.

This year will also see real momentum gathering for the value of nature to be reflected in national accounts. With trillions of dollars being lost to the global economy each year through the destruction of the Earth's natural resources, the World Bank and individual national accounting bodies are working to find the best way in which this money can be accounted for. Only then will the true value of the services that nature provides, such as vital pollination for crops by bees and storm protection from mangrove swamps, be identified. Only then can proper mechanisms be put in place to protect these so-called ecosystem services.

India has already announced its intention to incorporate natural capital into its national accounts by 2015, and "others will hopefully agree by the end of the year to a framework [to follow suit]", says Mr Pavan Sukhdev, leader of the TEEB study.

TEEB has so far completed two case studies focusing on the impact of deforestation on the Chinese construction industry and of the drying up of the Aral Sea on the local cotton

NEW UN PLATFORM FOR BIODIVERSITY

The UN General Assembly has approved the creation of an Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES), aimed at harnessing scientific knowledge in fighting the destruction of the ecosystem.

The new body is modelled on the Intergovernmental Panel on Climate Change (IPCC) set up in 1988 by the World Meteorological Organization and the United Nations Environment Programme (UNEP). The United Nations Educational, Scientific and Cultural Organization (UNESCO) is one of the organizations involved in creating IPBES. In a statement on 21 December, the UN agency said: "The main objective of IPBES is to promote awareness among political decision-makers and the general public of the disastrous consequences of biodiversity loss. The aim is to ensure that

scientific knowledge about the very rapid disappearance of a great number of vegetable and animal species and the erosion of ecosystems leads to concrete measures. IPBES is intended to facilitate this process."

The UN General Assembly resolution to create a platform that would place the issue of biodiversity at the top of the international political agenda came five years after a global conference at UNESCO on biodiversity and governance laid the groundwork for negotiations culminating in the formation of IPBES.

As a way forward, following the landmark decision, environment ministers will attend a governing council of UNEP and the Global Ministerial Forum in Kenya next month where decisions concerning the first IPBES plenary meeting as well as the location of the new body's secretariat will be taken. (Source: www.universityworldnews.com, 9 January 2011.)

NAGOYA BIODIVERSITY SUMMIT

Some 18 000 participants representing the 193 Parties to the Convention on Biological Diversity (CBD) and their partners closed the Nagoya Biodiversity Summit by adopting historic decisions that will permit the community of nations to meet the unprecedented challenges of the continued loss of biodiversity, which is being compounded by climate change. Governments agreed on a package of measures that will ensure that the ecosystems of the planet will continue to sustain human well-being into the future.

The meeting achieved its three interlinked goals: (i) adoption of a new ten-year Strategic Plan to guide international and national efforts to save biodiversity through enhanced action to meet the objectives of the CBD; (ii) a resource mobilization strategy that provides the way forward to a substantial increase to current levels of official development assistance in support of biodiversity; and (iii) a new international protocol on access to and sharing of the benefits from the use of the genetic resources of the planet.

The Strategic Plan of the CBD or the "Aichi Target", adopted by the meeting, includes 20 headline targets, organized under five strategic goals that address the underlying causes of biodiversity loss;

reduce the pressures on biodiversity; safeguard biodiversity at all levels; enhance the benefits provided by biodiversity; and provide for capacity building.

The "Aichi Target" will be the overarching framework on biodiversity not only for the biodiversity-related conventions, but for the entire United Nations system. Parties agreed to translate this overarching international framework into national biodiversity strategy and action plans within two years.

Parties also adopted the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. The historic agreement creates a framework that balances access to genetic resources on the basis of prior informed consent and mutually agreed terms with the fair and equitable sharing of benefits, while taking into account the important role of traditional knowledge. The Protocol also proposes the creation of a global multilateral mechanism that will operate in transboundary areas or situations where prior informed consent cannot be obtained. The Protocol is expected to enter into force by 2012, with aid from the Global Environment Facility of US\$1 million to support early entry into force. (Source: CBD press release [Nagoya, Japan], 29 October 2010.)

Some scientists caution that agreeing on precise categories to divvy up habitats would be a monumental task. But many already agree on some ecosystems that are threatened or endangered, including many coral reefs, salt marshes, mountain habitats threatened by rising global temperatures, grasslands in the southern Russian Federation and Brazil's Atlantic forest. Logging poses a serious threat to the lowland forests on Indonesia's Borneo Island, which are home to endangered orangutans. In the Andes, expanding farmland has fragmented the cloud forests where spectacled bears live.

"You usually get ecosystem decline occurring first, and then species decline later on," said Jon Paul Rodriguez, a conservation biologist at the Venezuelan Institute of Scientific Research who is leading the IUCN working group. He and 20 other experts laid out their proposals in an article published online by the journal *Conservation Biology* in November.

The list of habitats devastated by people has been growing. North American tall grass prairies have largely vanished, along with the game animals that once thrived in them. Some rivers, such as the Rio Grande, have been strangled by heavy pumping and now barely reach the sea.

Today, some efforts to save threatened species appear to be working. One study released in October by a large international team of researchers found that efforts to save endangered animals are making a difference for dozens of species. The report concluded that the overall march towards extinction would have been about 20 percent faster if no conservation steps had been taken.

"Species Red Lists have already been a huge policy success, so there is reason to think that ecosystem Red Lists could be too, and could complement them," said Kathryn Rodriguez-Clark, an ecology and conservation specialist at the Venezuelan Institute of Scientific Research, who is part of the IUCN effort. (Source: The Associated Press in the *Washington Post*, 5 December 2010.) ♣

industry. Mr Sukhdev says between 500 and 1 000 such case studies are needed before natural capital can begin to be widely incorporated into national accounts.

This year is the one in which the foundations for much of the research will be laid, research that will help to hammer home just what a vital role nature plays in the global economy. (Source: BBC News, 9 January 2010.)

SCIENTISTS AIM TO MAP AND SAVE ENDANGERED HABITATS

From mangrove swamps in the Bolivarian Republic of Venezuela to lowland forests in Indonesia, entire communities of plants and animals are under threat. Now scientists are figuring out how to catalogue and map the world's most threatened ecosystems, just like

their familiar list of endangered species.

Some experts say that drawing up a global "Red List" of vanishing ecosystems would help them spot looming crises caused by everything from climate change to the cutting of forests, and would sharpen their focus on areas to conserve.

An international working group of biologists and conservation experts has been developing a system for classifying threats to ecosystems. "If we can get a good, rigorous scientific system in place that is relatively easy to monitor worldwide ... you can follow these changes and describe them and ring the alarm bell where things might go wrong," said Dutch conservation expert Piet Wit. He chairs the Commission of Ecosystem Management of the International Union for Conservation of Nature (IUCN), which maintains the Red List of thousands of threatened plants and animals worldwide.

An individual has not started living until he can rise above the narrow confines of his individualistic concerns to the broader concerns of all humanity.

Martin Luther King, Jr



FORESTRY DEPARTMENT



Forests and FAO

The following has been extracted from an interview in UN Special 702 with Eduardo Rojas-Briales, Assistant Director-General, Forestry Department, FAO and Chair of the Collaborative Partnership on Forests.

The main findings of the *FAO Global Forest Resources Assessment 2010* show a significant reduction (37 percent) in net deforestation: from 8.3 million ha/year in the previous decade (1990–2000) to 5.2 million ha/year in the past one (2000–2010). Deforestation is mainly restricted to two regions – South America and Africa; the other three, Asia, Europe and North and Central America, have shown a net increase in forest area. The difference between net and total deforestation (13 million ha/year) is caused by reforestation and natural forest expansion (7.8 million ha/year). Three countries account for 90 percent of the reduction of net deforestation: Indonesia, China and the Sudan. In all regions, there are excellent examples of sound forest policies and management that should be expanded upon. At the country level, Viet Nam and Costa Rica have undergone significant forest reforms, including changes in the legal and institutional framework, forest tenure reform and implementation of payment of environmental services. Despite the improvement to deforestation rates, forest biomass is still reducing annually by an amount that is equivalent to 1.8 billion

tonnes of CO₂; that is the equivalent of 3.7 percent of global CO₂ emissions. However, data on carbon sequestered in soils are not yet sufficiently available. Thirteen percent of forests are located in protected areas with an increase of 94 million ha since 1990. The annual value of wood used was nearly US\$100 billion and NWFPs nearly US\$19 billion. Direct forest employment (excluding industrial employment) is estimated at 10 million people. Three-quarters of the countries are reported to have a national forest programme.

The challenges are very different in every region of the world, given the varying socio-economic and natural conditions, population density and threats to forests. The most intensive changes are observed in emerging countries because of urbanization and industrialization, which are reducing pressure on land and forests, allowing recovery, especially if adequate policy strengthens the process. In developed countries, forest area and stock are growing and problems resulting from underuse of forests are accumulating (overpopulation of certain wildlife species, the increasing risk of strong winds destroying forests, greater instances of forest fires, etc.). Land-use planning is a key instrument in countries that place high pressure on land, particularly where previously deforested land is ineffectively used but suitable for afforestation or energy crops. In emerging countries, supportive policies can help advance opportunities for forest landscape restoration, as seen in countries such as China. In less developed countries, agricultural intensification and improvement in living conditions will help to reduce pressure on forests. In developed countries, the challenge is finding ways to make forestry a major asset in the development of green economies, for example by adjusting the timber harvest level to match the growth of forest resources.

The priorities of FAO for forests and forestry are determined by our statutory bodies, the Regional Forest Commissions (like the European Forest Commissions) and the Committee on Forestry (COFO). The management challenge is to take advantage of all opportunities to match countries' requests with our limited work resources. Fortunately, the amount of quality activities and projects from FAO in forests and forestry is quite high, as a

result of our exceptional staff. Responding to countries' needs should be balanced between normative (statistics, publications, best practices, etc.) and project work. The engagement of FAO as Chair of the Collaborative Partnership on Forests in global forest-related issues is a key part in achieving this balance. Moreover, a stronger focus on dryland forests and options for forest and landscape restoration in these countries has been identified as a departmental priority, as well as strengthening the linkages with the forest research and education community.

The International Year of Forests in 2011 (Forests 2011) is an important occasion to highlight the value and role of forests for society in all countries. Through the focal agency for Forests 2011, the UN Forum on Forests, and the Collaborative Partnership on Forests, FAO is preparing a supportive toolkit to guide member countries. We will also take advantage of all opportunities during the year to place forests at the centre of attention and focus on the needs of people, which is in accordance with the Forests 2011 slogan: "Forests for people". Only if people, especially those living near the forests, are aware of the wealth of services and products from the forests, can forests have a long-lasting future. (Source: UN Special 702, January 2011. Geneva, United Nations. www.unspecial.org/UNS702/t21.html)

FAO FORESTRY PUBLICATIONS

FAO has launched an improved Forestry publications site. The home page features the most recent publications from a number of series produced by the Forestry Department, both at headquarters and regional offices. Besides the Department's flagship publications, such as the *State of the World's Forests* and *Unasylva*, FAO Forestry papers, working paper series, recent books, copublications and other non-series titles are displayed. The home page also has slots for recent publications from each region. www.fao.org/forestry/publications/en/

FAO IN THE FIELD

GCP/RAF/408/EC Project "Mobilizing and building the capacities of small and medium-sized enterprises involved in the non-wood forest product value chains in Central Africa"

Funded by the European Union and carried out by FAO in collaboration with partners including the Center for International Forestry Research (CIFOR), the World Agroforestry Centre and the SNV Netherlands Development Organization, this project aims to increase the income of small and medium-sized enterprises involved in NWFP value chains and to manage forest resources in a sustainable manner for present and future generations. It plans to do so by building entrepreneurial capacities and ensuring sustainable resource management within enabling institutional settings.

This project kicked off across four sites in Cameroon and three areas in the Democratic Republic of the Congo (DRC), with the aim of: (i) ensuring increased revenue for local producers/groups based on key NWFP production and commercialization; (ii) improving entrepreneurial and marketing skills; (iii) ensuring sustainable resource production and harvesting techniques; (iv) improving processing for local value addition; (v) improving access to market information

and credit; and (vi) providing an enabling policy and institutional environment. The project is expected to be completed in June 2011.

On the whole, the project was responsible for creating nine producer organizations on NWFPs, with incomes of the populations involved rising by some 35 percent. It is worthy of mention that at least 40 percent of these organizations are managed by women.

A number of publications, reports and policy briefs produced by the project are available from the project's Web site: www.fao.org/forestry/enterprises/nwfp-centralafrica-eu/en/

FOR MORE INFORMATION, PLEASE CONTACT:
Sophie Grouwels, Forestry Officer, Community-based Enterprise Development (CBED), Forest Policy and Economics Team, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome. E-mail: Sophie.Grouwels@fao.org
(Please see pages 31, 44, 45 and 48 for extracts from reports produced by the project.)

Projet GCP/RAF/441/GER «Renforcement de la sécurité alimentaire en Afrique» centrale à travers la gestion durable des produits forestiers non ligneux (PFNL)»

Voyage d'étude du Cameroun au Gabon: les réalités du secteur des PFNL sur le terrain

Comment sensibiliser les décideurs politiques en Afrique centrale sur l'importance des PFNL pour les populations locales, leur alimentation et leurs revenus? Comment montrer aux décideurs l'influence primordiale du cadre légal et institutionnel sur le développement des filières de PFNL?

Afin de répondre à ces questions, le projet GCP/RAF/441/GER, financé par le Gouvernement allemand pour une durée de trois ans (octobre 2009-septembre 2012) et mis en œuvre au Congo, au Gabon et en République centrafricaine, a organisé un voyage d'étude et d'échanges sur le développement du secteur des PFNL au niveau sous-régional, national et local dans les pays de l'Afrique centrale.

Ce voyage a permis aux représentants des ministères en charge des forêts et des équipes de projet au Gabon, au Congo, au Cameroun et en République centrafricaine, d'échanger avec les commerçants, les producteurs, les structures de recherche et de domestication et les industries de transformation des PFNL, au Cameroun et au Gabon, sur les opportunités et les contraintes du secteur.

Les participants ont notamment constaté le grand pouvoir d'achat des commerçants nigériens dans le sud du Cameroun et leur forte influence sur le prix de la mangue sauvage (*Irvingia* spp.). Afin de réduire leur

IMPACTS OF THE PROJECT

Below are some of the goals FAO and its partners have achieved to date.

1. Developed skills of local producers and groups
 - improved entrepreneurial and organizational capacities of small and medium-sized NWFP enterprises, including 223 persons representing 3 515 villagers throughout the DRC and Cameroon;
 - sharpened business skills of 229 villagers, the marketing skills of 93 people (who in turn passed on their skills to an additional 406 locals, including four associations that indirectly benefited an additional 3 500 people);
 - developed capacities of 71 persons in production techniques of the African plum (*Dacryodes edulis*); and

2. Developed NWFP value chains
 - nine studies on the key NWFPs in the region were carried out, outlining problems in NWFP value chains, overexploitation of specific NWFPs and plans of action for the sustainable production and management of key species in the region.
3. Developed sustainable resource production and harvesting techniques
 - trained 319 people in the domestication and commercialization of key NWFPs and in developing NWFP "business plans";
 - supplied 65 nurseries with resources, mobilizing 436 men and 155 women in the domestication of selected agroforestry species;

4. Provided an enabling policy and institutional environment for the development of small and medium-sized NWFP enterprises
 - sensitized 364 persons on new planting techniques of specific *Acacia* species; and
 - provided and disseminated 350 machines for splitting bush mangoes.
4. Provided an enabling policy and institutional environment for the development of small and medium-sized NWFP enterprises
 - sensitized 36 persons on the importance of public-private relations in the sustainable development of small and medium-sized NWFP enterprises;
 - produced an amendment containing 12 articles to upgrade and ameliorate existing forestry legislation and aspects related to NWFPs in the DRC; and
 - set in place a national consultative committee on NWFPs in Cameroon.

dépendance à l'égard des fonds étrangers pour l'achat du produit, les commerçants camerounais devraient s'organiser dans les bassins d'approvisionnement et mettre en place des fonds de roulement.

Le caractère transfrontalier du voyage a permis d'observer que le Cameroun exporte des PFNL comme la mangue sauvage, le *Gnetum* spp. et les feuilles de Marantacées au Nigéria, en Guinée équatoriale et au Gabon. Il a en outre mené à constater le manque d'un système harmonisé en matière de taxation, contrôle phytosanitaire et permis d'exploitation dans la sous-région. Par ailleurs, les visites dans les villages gabonais ont montré l'importance des PFNL comme filet de sécurité lors des phases de soudure agricole, ainsi que la nécessité de mieux intégrer les producteurs dans les filières. De plus, l'accès des populations locales aux PFNL n'est pas toujours garanti et l'exercice de leur droit à l'alimentation entre souvent en conflit avec les activités développées par d'autres acteurs, notamment dans le cadre des concessions forestières. Une approche intégrée dans l'élaboration et la mise en place des politiques et des cadres juridiques est fortement recommandée afin de garantir les droits des populations et la durabilité de l'exploitation économique des ressources forestières.

Nous vous invitons à visiter le site Internet du projet:

www.fao.org/forestry/nwfp/55079/fr/

Inscrivez-vous sur le site et recevez automatiquement par courriel les mises à jour sur le projet, les activités en cours et les publications!

POUR EN SAVOIR PLUS, CONTACTER:

Juliane Masuch, Cadre associé PFNL et droit à l'alimentation, Coordination régionale du Projet PFNL, FAO. B.P. 281, Yaoundé, Cameroun.

Courriel: juliane.masuch@fao.org;

www.fao.org/forestry/nwfp/55079/fr/

(Please see page 19 for more information about this project.)

INTERNATIONAL YEAR OF FORESTS



UN International Year of Forests

Jan McAlpine, Director of the United Nations Division on Forests and head of the United Nations Forum on Forests (UNFF) Secretariat, highlights the role the International Year of Forests will play in bringing critical attention to the world's forests.

The United Nations General Assembly designated 2011 as the International Year of Forests (Forests 2011) to raise awareness on sustainable management, conservation and sustainable development of all types of forests.

Throughout Forests 2011, events will be organized around the world at the national, regional and local level. All events will capture the message of Forests 2011 – a celebration of the many wonders of forests and their special relationship to the people who depend upon them. There are great success stories the world over of people sustainably managing their forests for shelter, food, income, medicine and clean water – for income, trade, sustenance and a way of life. These stories exist and are plentiful.

A central event of Forests 2011 is the International Film Festival, launched in conjunction with the Jackson Hole Wildlife Film Festival in Wyoming, United States of America. We received more than 170 film submissions from more than 25 countries across six categories. Each film had a unique story to tell, stories that can help inspire and encourage action.

One film, "The man who stopped the desert", followed the story of Yacouba Sawadogo, an illiterate peasant farmer from Burkina Faso, who transformed the lives of thousands across the Sahel region of Africa.

Through an ancient agricultural planting technique that he pioneered on his own, Sawadogo brought trees to a barren land, helped them grow and flourish and improved the lives of all in the region.

The UNFF Secretariat will also be running a "Forest Heroes" campaign, to help highlight the stories of those whose dedication to forests and forest issues deserve special recognition. Throughout Forests 2011, nominations will be accepted and winners announced, having their stories shared with the world through the Forests 2011 Web site.

FORESTS 2011 WEB SITE

This site is a global platform to celebrate people's action to manage sustainably the world's forests. It contains information regarding events being organized throughout the year as well as interactive Web tools and resources to promote dialogue on forests.

www.un.org/en/events/iyof2011/ or www.fao.org/forestry/iyf2011/en/

Part of the power of the International Year of Forests is that it is a global event, with events organized by many different governments and groups. While UNFF has been designated as the focal point for implementation of Forests 2011, the central idea is "we provide the platform, you provide the action", and we have received many pledges to action.

Forests 2011 will be an unprecedented opportunity to bring attention to forests throughout the world. The spotlight on forests and climate change, and particularly the growth of REDD+ with crucial support from the UN-REDD Programme, has provided extensive political commitment and financial resources for forests. At the same time, Forests 2011 provides the opportunity for increased visibility of forests and their importance among the wider public, both in developed and developing countries. Through this linkage, Forests 2011 and REDD+ are helping us work in synergy to ensure that forests are sustainably managed in the near future so that present and future generations can continue to enjoy the wonders of the world's forests. [Source: UN-REDD Newsletter, 15 January 2011.]



SPECIAL ISSUE OF UNASYLVA


**International Year of Forests 2011.
Celebrate forests every day**

The year 2011 is a special one for forests and for all who care about them. To inaugurate it, FAO has created a special issue of *Unasylva*.

More than 100 international days are celebrated throughout the year, in recognition of a vast range of issues, occupations, activities and cultural values important to humanity. What better way to demonstrate the myriad functions of forests than to show that forests have a link to almost all of them? The *Unasylva* Editor, Andrea Perlis, has compiled a collection of images that illustrate these

links. With only photos and the briefest of stories, the issue expresses the theme of the international year – “Forests for people” – by showing how forests are important to nearly all kinds of human activity. So when you celebrate Peace Day in 2011 – or International Women’s Day, or Human Rights Day, or World Health Day or even International Civil Aviation Day – you can celebrate forests.

While the international days are the thread that holds this collection of photos together, the organization is thematic, rather than chronological, the better to catalogue forests’ place in many sectors. We admit that a few have been left out – World Tobacco-Free Day and World Television Day, for instance – but perhaps you can think of forest linkages even to these.

Some of the photos highlight FAO activities and those of our partners; many come from less usual partners, UN agencies that are not often associated directly with forestry – such as the International Organization for Migration, the United Nations Capital Development Fund, the United Nations Industrial Development Organization, the International Fund for Agricultural Development and the United Nations Educational, Scientific and Cultural Organization.

We have not managed to be completely comprehensive in the selection since it has not been possible to obtain photos from every country, and you will surely think of great examples that we have left out. We welcome you to send us your own photos and captions (to unasylva@fao.org), and time and space permitting, we may highlight them on a calendar that we will run on the FAO Forestry Web site throughout the year.

You may notice that one day is missing from the collection. There is no universally celebrated day for forests. We hope that the International Year of Forests will change this, and give impetus to consider creating an international day for forests, as recommended by the FAO Committee on Forestry at its most recent meeting in October 2010.

I hope you will enjoy this special all-photo issue, and celebrate forests throughout the year. Celebrate forests for people – and people for forests, and forests for life. (Source: Editorial of Eduardo Rojas-Briales, Assistant Director-General, FAO Forestry Department, *Unasylva*, 62: 237.)

(Photos from this special edition of *Unasylva* have been used to illustrate the back cover of this issue of *Non-Wood News*.)


El Año Internacional de los Bosques

El 20 de diciembre de 2006, la Asamblea General de las Naciones Unidas aprobó la resolución por la que se declaraba el 2011 como el Año Internacional de los Bosques. Esta celebración resultará útil para tomar mayor conciencia sobre los bosques, los cuales son parte integrante del desarrollo

sostenible del planeta debido a los beneficios económicos, socioculturales y ambientales que proporcionan. Con este fin, se promoverá la acción internacional en pos de la ordenación sostenible, la conservación y el desarrollo de todo tipo de bosques, incluidos los árboles fuera de ellos.

Entre las actividades conmemorativas del Año Internacional de los Bosques figura el intercambio de conocimientos sobre estrategias prácticas que favorezcan la ordenación forestal sostenible y el retroceso de la deforestación y la degradación de los bosques.

Con el objeto de facilitar la organización de estas actividades, se alienta a los gobiernos a que establezcan comités nacionales y centros de coordinación en sus países respectivos, así como a que aúnen sus esfuerzos con los de las organizaciones regionales e internacionales y las organizaciones de la sociedad civil. La

Secretaría del Foro de las Naciones Unidas sobre los Bosques (FNUB) será el centro de coordinación designado para la puesta en práctica del Año Internacional de los Bosques.

Es la segunda vez que se asigna a los bosques su propio «año internacional». La primera fue en 1985, cuando el Consejo de la FAO pidió a todos los Estados Miembros que concedieran un reconocimiento especial a los bosques en el curso del año a fin de centrar la atención mundial en la necesidad de conservar y proteger los bosques; despertar la conciencia política y pública en lo relativo a los recursos forestales; identificar y poner de relieve los factores que amenazan a estos recursos forestales; y movilizar a la población, y en especial a los jóvenes, para que participasen en actividades orientadas hacia la protección de los bosques. (Fuente: www.eluniversal.com, 10 de enero de 2011.)

CITES Secretary General emphasizes CITES' contribution to IYF goals

John Scanlon, Secretary General of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), recalling that 2011 is both the start of the UN Decade on Biodiversity and the International Year of Forests (IYF), has announced that CITES is responding to the UN General Assembly call for governments, relevant regional and international organizations, and major groups to support activities related to IYF.

Scanlon highlighted the CITES framework for tracing international trade in the approximately 34 000 species it protects (which include around 200 tree species) and ensuring that their derivative products are from legal and sustainable sources. He indicated that the number of tree species protected by the Convention has risen in recent years, partly through the increase in exploitation and partly because the Convention is increasingly seen as an effective tool for ensuring sustainable use of commercial tree species, and described, *inter alia*, increasing calls for inclusion of commercially important native trees in Appendix III (species subject to domestic regulation by a party requesting the cooperation of other parties to control international trade in that species).

Scanlon urged active cooperation to achieve the conservation and sustainable use of the world's forests, referring to CITES' existing collaboration with key international organizations in the field such as the International Tropical Timber Organization (ITTO) as well as efforts that are expected to come to fruition in 2011, including cooperation with FAO's Forestry Department; the United Nations Environment Programme (UNEP); the Global Environment Facility (GEF); the Convention on Biological Diversity (CBD); and the International Consortium on Combating Wildlife Crime.

He emphasized that the CITES Secretariat will pay particular attention to the goals of IYF, and will be doing its best to promote further the important role of the Convention in achieving better forest management for the benefit of forest species and of the people who depend upon them. (Source: International Institute for Sustainable Development (IISD) news, 31 January 2011.)

GLOBAL SHEA ALLIANCE



An international alliance to promote the shea industry around the world

On 11 October 2010, more than 50 shea industry stakeholders established the first international shea alliance. The Global Shea Alliance was formed to promote shea worldwide, establish industry standards for quality and sustainable sourcing and facilitate information exchange. Stakeholders included the world's largest buyers of shea nuts and shea butter, traders, processors, service providers and NGOs from across West Africa and around the world. Twenty-eight companies signed a declaration to form the international alliance.

Guidelines, structure and functions

Stakeholders elected an interim executive committee to develop the new alliance's guidelines, structure and functions. Global Shea – the internationally recognized brand developed by stakeholders in 2009 – will be used to represent the alliance on an interim basis. In addition, stakeholders elected to house the alliance's secretariat at the USAID West Africa Trade Hub, also on an interim basis.

The new alliance will pursue strategic objectives to improve the shea industry for all stakeholders.

Formal launch

The alliance will be formally launched at *Shea 2011: Sustainable Solutions*, the international shea industry conference taking place in April in Ghana (see Box). The conference is being organized by the USAID West Africa Trade Hub with sponsorship support from stakeholders across the industry.

FOR MORE INFORMATION, PLEASE CONTACT:

Mr Aaron Adu, USAID West Africa Trade Hub, Jubilee House, PMB Osu, Accra, Ghana.

Fax: +233 21 782 231; e-mail:

aadu@watradehub.com; www.globalshea.com or www.watradehub.com/

INTERNATIONAL SHEA CONFERENCE TO BE HELD IN GHANA

International shea industry stakeholders will come to Accra, Ghana, on 6 and 7 April 2011 for the sector's fifth annual conference. The Global Shea Alliance announced that the conference – "*Shea 2011: Sustainable Solutions*" – will feature the launch of the world's first international private sector shea alliance and expert information on virtually every aspect of the business.

"The conference facilitates connections, information exchange and business among stakeholders from across West Africa and around the world," said Peter Lovett, shea sector advisor at the USAID West Africa Trade Hub, which organizes the event with sponsorship from across the industry.

Shea nuts come from millions of trees growing in the Sahel, an arid region stretching from Senegal to Uganda. As many as 4 million women sustain their livelihoods by collecting the nuts, which then become shea stearin or olein, an ingredient *par excellence* for speciality fats used in confectionery and natural cosmetics. From the women's groups that collect shea nuts to the world's major buyers of nuts and butter, the conference is the only event of its kind for the industry. Researchers, civil society, public sector officials, service providers, financial institutions and transport companies will also participate.

"This event is the most significant of its kind to date, for the global shea industry," said Peter Stedman, senior buyer at The Body Shop International. Operators will formally launch the Global Shea Alliance at the conference, which they formed in October.

"An international alliance will allow stakeholders to work together to promote shea in international markets," said Kadijatou Lah of Mali's National Shea Federation and CEO of Lawal International, a shea exporter. Source: www.next.com, 17 January 2011.) (Please see page 68 for more information.) ♣

QUINZIÈMES JOURNÉES SCIENTIFIQUES DE L'INRGREF SUR LES PFNL

HAMMAMET, TUNISIE
12-14 OCTOBRE 2010

L'Institut national de recherches en génie rural, eaux et forêts (INRGREF) a consacré ses Quinzièmes Journées scientifiques au thème de la valorisation et de la gestion durable des produits forestiers non ligneux (PFNL). Celles-ci avaient pour objectif de dresser l'état des lieux des PFNL dans les forêts méditerranéennes, montrer les acquis de la recherche dans le domaine des PFNL, et présenter et discuter les approches impliquant la population forestière dans la gestion durable des PFNL.

Divers thèmes ont été abordés, notamment: graines et fruits sauvages; plantes aromatiques et médicinales; champignons; faune sauvage (escargots, cynégétique...); formes d'artisanat liées aux PFNL; rôle de l'écotourisme dans la valorisation des PFNL; et aspects socioéconomiques.

POUR PLUS D'INFORMATIONS, CONTACTER:
Abdelhamid Khaldi, Institution de la recherche et de l'enseignement supérieur agricoles, 30, Rue Alain Savary, 1002 Tunis Belvédère, Tunisie.
Télécopie: (00 216) 71 796 170; courriel: bo.iresa@iresa.agrinet.tn;
www.iresa.agrinet.tn/index.jsp?pg=14&rub=01/

ECO PRODUCTOS FORESTALES NO MADEREROS 2010

CHUBUT, ARGENTINA
1-3 DE DICIEMBRE DE 2010

Esta reunión tuvo lugar en Chubut, Argentina desde el 1 al 3 de diciembre de 2010. En base a disertaciones de expertos argentinos y extranjeros, se han debatido temas relacionados con la utilización de productos forestales no madereros (PFNM), servicios ambientales y desarrollo del turismo en los bosques.

La reunión ha sido organizada por las siguientes Instituciones: CIEFAP, Secretaría de Ciencia, Técnica e Innovación Productiva del Chubut, Ministerio de Industria, Agricultura y Ganadería del Chubut, Consejo Federal de Inversiones, Secretaría de Ambiente y Desarrollo Sustentable de la Nación, Universidad Nacional de la Patagonia "San Juan Bosco", Municipalidad de Esquel,

Fundación Bosques de la Patagonia, Administración de Parques Nacionales y la Universidad Austral y el Instituto Forestal- INFOR, ambos de Chile.

Se comenzó con conferencias a cargo de los expertos invitados, luego de las cuales se presentaron los trabajos voluntarios que habían sido seleccionados: Simposio I: Productos forestales no madereros; Simposio II: Turismo en el bosque; y Simposio III: Servicios ambientales.

PARA MÁS INFORMACIÓN DIRIGIRSE A:
correo electrónico:
economadereros@ciefap.org.ar;
www.ciefap.org/novedades/economadereros/

NTFP ECO-CERTIFICATION WORKSHOP

KEYSTONE FOUNDATION,
KOTAGIRI, INDIA
31 JANUARY-1 FEBRUARY 2011

A workshop was organized to discuss the issue of sustainable collection of NTFPs and review their current state of certification. Twenty-three participants representing various research/academic/civil society organizations attended the workshop.

The key objectives for the workshop were to: (i) share experience about the diversity of approaches being used to guide sustainable collection from the wild; (ii) share experience on how sustainable collection leads to better engagement with primary collectors and improved livelihoods; (iii) share experience on certification/guarantee measures for sustainable extraction that could have the potential of improving market access; and (iv) develop a vision for the future and strengthen the diversity of efforts of sustainable collection and certification/guarantee/monitoring mechanisms.

Recommendations and the way forward

It was decided that participants could provide input, be part of discussion groups and engage with systems such as FairWild. It would be useful to provide community perspectives and practical workable solutions for them, and work on aligning standards to suit Indian conditions. However, this is a voluntary certification and depends on the clients who are interested in taking it up.

FOR MORE INFORMATION, PLEASE CONTACT:
Ms Snehlata Nath, c/o Keystone Foundation,

Groves Hill Road, PB 35, Kotagiri 643217, Tamil Nadu, India. E-mail: sneh@keystone-foundation.org; www.nilgiriswaterportal.in or www.keystone-foundation.org/

WESTERN HUCKLEBERRY FORUM

CRANBROOK, BRITISH COLUMBIA,
CANADA
22-23 FEBRUARY 2011

Huckleberries are a key component of local ecosystems, cultures and economies in communities throughout western North America. With fire suppression and changes in the logging industry, huckleberry pickers and natural resource managers have noted declines in the abundance and productivity of the huckleberry throughout its range.

From 22 to 23 February, a diverse group of resource managers and researchers will share their knowledge on habitat restoration, forestry and huckleberries, huckleberries and wildlife, historical ecology, fire ecology and ethno-ecology.

FOR MORE INFORMATION, PLEASE CONTACT:
Andra Forney, c/o Environmental Studies, University of Victoria, PO Box 3060 STN CSC, Victoria BC V8W 3R4, Canada.
E-mail: aforney@uvic.ca;
www.ser.org/serbc/default.asp
(Please see page 59 for more information on huckleberries.)



SHEA 2011: SUSTAINABLE SOLUTIONS

ACCRA, GHANA
6-7 APRIL 2011

This conference brings together hundreds of industry stakeholders to discuss major issues affecting shea. Producers, traders, processors and international brands will be present. It connects stakeholders and service providers, including financial institutions and transport companies.

Shea 2011: Sustainable Solutions will feature the launch of the world's first international private sector shea alliance: the Global Shea Alliance.

FOR MORE INFORMATION, PLEASE CONTACT:
Joe Lamport, Communications Manager,
USAID West Africa Trade Hub, Jubilee House,
4th Street, Kuku Hill, Osu, Accra, Ghana.
E-mail: jlamport@watradehub.com;
www.watradehub.com or www.globalshea.com/
(Please see page 67 for more information.)

 **5TO CONGRESO FORESTAL DE CUBA**

LA HABANA, CUBA
 25-29 DE ABRIL 2011

El Comité Organizador del 5to Congreso Forestal de Cuba, VI Simposio Internacional sobre Sistemas Agroforestales, V Encuentro Internacional de Jóvenes Investigadores, en el marco del Año Internacional de los Bosques, se complace en invitarle a participar a nuestro 5to Congreso Forestal.

Se debatirán las siguientes temáticas: Silvicultura sostenible, Bienes y servicios de los bosques, Tecnología de la madera y Productos naturales, Agrosilvicultura, Cambio climático, Protección al bosque y la fauna, Forestería análoga, Café y Cacao y Seguridad alimentaria.

PARA MÁS INFORMACIÓN DIRIGIRSE A:
Lic. Marta González Izquierdo, secretaria comité organizador, Instituto de Investigaciones Forestales, Calle 174 # 1723 entre 17B y 17C, Siboney, Playa, Ciudad de la Habana, Cuba. Fax: +537 208 34 44; correo electrónico: congreso5@forestales.co.cu; www.cpalco.com/

 **FOREST-EUROPE MINISTERIAL CONFERENCE ON THE PROTECTION OF FORESTS IN EUROPE**

OSLO, NORWAY
 14-16 JUNE 2011

The Forest-Europe Ministerial Conference on the Protection of Forests in Europe represents a major European contribution to the International Year of Forests. At this conference, European countries will take decisions aimed at the preservation of forests and the safeguarding of their environmental, societal and economic



benefits for present and future generations. Ministers are expected to adopt a vision, goals and targets for Europe's forests and address ways to strengthen cooperation on sustainable forest management in Europe. In this context, they will consider opening negotiations on a legally binding agreement on forests and their management in Europe.

FOR MORE INFORMATION, PLEASE CONTACT:
Kristin Dawes, Communications and Public Affairs, Forest-Europe, Liaison Unit Oslo, Ministerial Conference on the Protection of Forests in Europe, PO Box 115, NO-1431 Aas, Norway. Fax: +47 64 94 89 39; e-mail: liaison.unit.oslo@foresteurope.org; www.foresteurope.org/

 **CIFOR POLICY CONFERENCE**

THE ROYAL SOCIETY, LONDON,
 UNITED KINGDOM
 15 JUNE 2011

CIFOR and its partners will host a global forum on the role of environmental income and forests in rural livelihoods and poverty alleviation. Results from the PEN (Poverty Environment Network) global study and other large-scale comparative research projects will be presented. The aim is to strengthen the case for institutionalizing data collection of previously "hidden" environmental income.

FOR MORE INFORMATION AND TO REGISTER, PLEASE VISIT:
www.cifor.cgiar.org/pen/london-conference or
e-mail: cifor-pen@cgiar.org

 **2011 INBAR BAMBOO TOUR TO CHINA**

CHINA
 19-30 JUNE 2011

The objective of INBAR's annual bamboo study tours is to share the experience of Chinese bamboo development and to promote bamboo development in other countries. The 2011 INBAR Bamboo Tour will include visits to Zhejiang and Sichuan province, with the

possibility of attending the 2011 Xi'an International Horticultural Exposition.

The tour will include visits to some leading bamboo flooring manufacturers, such as DASSO (which produced the bamboo fireproof ceiling in Madrid's international airport); Yafeng (strand-woven bamboo lumber and floor); Yongyu (bamboo floor); Shengbang (bamboo concrete form and fibreboard); Xieqiang (bamboo curtain and mat); Kangxing bamboo-shoot processing company; Shenshi Bio-product company (bamboo extracts such as flavonoids, bamboo beer); Wenzhao, the biggest bamboo charcoal company (charcoal and vinegar); the only Bamboo Charcoal Museum in the world; some primitive processing workshops (bamboo strips) at the community level; Huachun bamboo furniture company; Jitai bamboo-processing machine company; and the Anji bamboo product market (hundreds of bamboo products, including bamboo clothes).

The tour also includes visits to the biggest bamboo botanic garden in the world, Anji Bamboo Garden, which has more than 300 bamboo species, plus two giant pandas; the Chinese Bamboo Museum; high-yielding bamboo plantations; a bamboo film production base; ecotourism sites; an ornamental bamboo nursery; Baisha ecotourism village; and, finally, companies and communities producing NTFPs such as ginkgo, hickory and traditional dry bamboo shoots.

The cost of attending the tour in China is US\$2 100/person including accommodation, food, transportation, domestic flights and entrance tickets.

Reports from the 2005, 2007, 2008 and 2009 bamboo tours are available online.

FOR MORE INFORMATION, PLEASE CONTACT:
Dr Fu Jinhe, INBAR, No. 8, Fu Tong Dong Da Jie, Wang Jing Area, Chaoyang District, Beijing 100102, China. Fax: +86-10-6470 2166/ 3166; E-mail: jfu@inbar.int; www.inbar.int/Board.asp?Boardid=89/



 **INBAR COURSE
ON INTEGRATED
SUSTAINABLE
DEVELOPMENT IN
MOUNTAIN AREAS
AND NTFP INDUSTRIAL
AND COMMERCIAL
DEVELOPMENT**

ZHEJIANG PROVINCE, CHINA
6-26 SEPTEMBER 2011

This workshop will be held in Lin'an and Anji; these locations are commonly recognized in both China and the international community as successful examples of integrated sustainable development in mountain areas. The well-developed NTFP industries and ecotourism, the affluent and modern mountain villages and the beautiful forest environments are all signs of success.

This workshop will provide a platform for people from various levels and fields of work who are concerned with mountain development, rural development, environmental protection and natural resource management and so on, to share and explore the best practices in sustainable and integrated development in mountain regions, especially the technologies and products of NTFPs.

The training workshop is designed to provide a platform for participating countries to share and exchange the best practices and experiences in mountain sustainable development, as well as experiences in NTFP industrialization and commercialization.

FOR MORE INFORMATION, PLEASE CONTACT:

Ms Jin Wei, Public Awareness Coordinator, Development and Communications Unit, No. 8 Futong Dong Da Jie, Wang Jing Area, Chaoyang District, PO Box 100102-86, Beijing 100102, China. Fax: +86-10-64702166; e-mail: wjin@inbar.int; www.inbar.int/

 **INTERNATIONAL
CONFERENCE ON THE
ART AND JOY OF WOOD**

BANGALORE, INDIA
19-22 OCTOBER 2011

In collaboration with the Government of India, FAO will be holding an international conference on wood products and sustainable development. The overall aim of the conference will be to examine how the production and use of wood products can contribute to sustainable development and how greater demands for sustainability might present new opportunities for development of the wood products sector.

Within this general direction, three themes for the conference are proposed: (i) emerging trends in economies and lifestyles: what are the main trends affecting wood use and how can these be utilized to strengthen the forest products sector?; (ii) stories portraying the winds of change: case studies showing how some wood producers and users have already developed strategies or innovations to build successful enterprises based on changing consumer demands and needs; (iii) wooden paths to a sustainable future: how can the linkages between wood use and sustainable development be strengthened and used to promote more and higher-value wood use?

This conference will focus in particular on the social, aesthetic, cultural and traditional aspects of wood use and how the strong linkages between wood and society might be used to support the future development of the sector as a whole.

FOR MORE INFORMATION, PLEASE CONTACT:

Adrian Whiteman or Illias Annimon, Forest Products and Industries Division, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome. E-mail: registration@artjoywood.org or adrian.whiteman@fao.org or Illias.Annimon@fao.org; www.artjoywood.org or www.fao.org/forestry/en/

physically to unite bamboo enthusiasts and professionals. The aim of the WBC is to bring together people from around the world to meet, discuss, network, collaborate and exchange with the intention of improving understanding and stimulating potential. Ever since its inception in Puerto Rico in 1984, each WBC has been uniquely informative, educational, and culturally and intellectually challenging.

The 9th WBC will be a two-part event taking place between Belgium and France. The congress will focus on the future use of bamboo in Europe and innovations in bamboo development. Apart from a series of meetings and conferences, the schedule will also include field visits, a trade fair for bamboo products and allied wares (machinery, tools, etc.), and complimentary exhibit booths for "not-for-profit, non-profit or non-government" organizations (i.e. the United Nations Industrial Development Organization (UNIDO), national bamboo societies, etc.).

FOR MORE INFORMATION, PLEASE CONTACT:

Mr Kamesh Salam, President, World Bamboo Organization, c/o Cane and Bamboo Technology Centre, Mother Teresa Marg, Guwahati, Assam, India. E-mail: kamesh@worldbamboo.net; http://worldbamboo.net/category/world-bamboo-congress/



 **9TH WORLD BAMBOO
CONGRESS**

10-13 APRIL 2012
(ANTWERP, BELGIUM)
17-21 SEPTEMBER 2012
(TOULOUSE, FRANCE)

Every three to four years the World Bamboo Organization (WBO) organizes a World Bamboo Congress (WBC) which is the culmination of the organization's efforts

The important work of moving the world forward does not wait to be done by perfect men.

George Eliot





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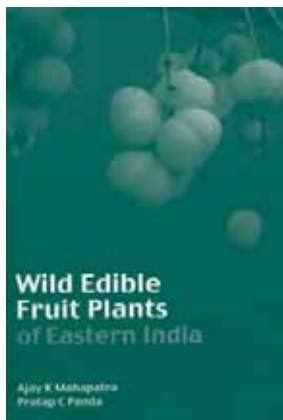
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This book includes an inventory and ethnobotanical use of 150 wild edible fruit plants found in eastern India.

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FOR MORE INFORMATION, PLEASE CONTACT:
Regional Plant Resource Centre, Nayapalli, Bhubaneswar 752 015, Orissa, India. E-mail: rprcbbsr@gmail.com; www.rprcbbsr.com/

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NEW PUBLICATIONS FROM FAO'S NON-WOOD FOREST PRODUCTS PROGRAMME

LE RÔLE DES ABEILLES DANS LE DÉVELOPPEMENT RURAL: MANUEL SUR LA RÉCOLTE, LA TRANSFORMATION ET LA COMMERCIALISATION DES PRODUITS ET SERVICES DÉRIVÉS DES ABEILLES



Ce document – le numéro 19 de la série Produits forestiers non ligneux – présente une information de base sur la gestion des abeilles sauvages et l'utilisation des produits qui en dérivent. Il identifie et décrit les principales espèces d'abeilles et leur importance pour la conservation de la nature et la création de moyens d'existence durables pour les populations rurales. Les produits provenant des abeilles sont considérés à la fois en termes de subsistance et en termes commerciaux,

et une attention particulière est accordée au potentiel d'expansion future de la gestion des abeilles sauvages dans les pays en développement. Le rôle des abeilles dans la pollinisation des cultures et l'impact de la gestion des abeilles sur les forêts et les cultures sont aussi traités dans cette étude. Les techniques de conservation des abeilles sauvages et les questions relatives à la production et à la vente de miel ainsi qu'au commerce international des produits dérivés des abeilles sont présentées et étayées de nombreuses références et sources d'informations additionnelles. Le lecteur pourra ainsi mieux comprendre à la fois la complexité de l'apiculture et les opportunités de développement qu'elle représente pour générer des moyens d'existence dans le monde rural.

Pour se procurer cette publication, contacter: Groupe des ventes et de la commercialisation, Bureau de l'échange des connaissances, de la recherche et de la vulgarisation, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italie. Télécopie: (+39) 06 57053360; courriel: publications-sales@fao.org La publication est aussi disponible sur le site des PFNL de la FAO ou à l'adresse suivante: www.fao.org/docrep/013/i0842f/i0842f00.pdf

and the Center for People and Forests (RECOFTC) have released a publication entitled *Asian Forests: Working for People and Nature*.

The report highlights key concerns and presents recommendations on how to optimize the opportunities of forests in the region. It outlines various opportunities and incentives that can contribute to realizing the potential of Asian forests, including: reducing emissions from deforestation and forest degradation in developing countries (REDD); payments for environmental services; increasing demand for recreation and ecotourism; integration of national and global supply chains; and forest law enforcement and governance and sustainable forest management as requisites for international market access. The authors advocate improving the enabling environment by improving land-use planning and through tenure and public sector reform. They also call for better management of human and natural resources by, *inter alia*, investing in science, technology and human resources. (Source: IISD, 23 November 2010.)

(Please see page 5 and 7 for extracts from this publication.)

MAJOR CONSERVATION BIOLOGY TEXTBOOK NOW FREE ONLINE

A highly regarded conservation textbook is now available online for free. *Conservation Biology for All*, a book edited by Navjot S. Sodhi of the National University of Singapore and Paul R. Ehrlich of Stanford University (United States of America), has been posted on mongabay.com, an environmental science and conservation news site, as a free download.

The authors, together with the publisher, Oxford University Press, expect open access to greatly increase the reach of the book, which was published last year.

Conservation Biology for All includes chapters on a range of topics including deforestation, extinction, ecosystem services, fragmentation, invasive species, climate change, overexploitation, biodiversity, fire and conservation. More than two dozen authors contributed to the book. (Source: www.mongabay.com, in Amazon News, 20 January 2011.) ♣

OTHER RECENT PUBLICATIONS

State of the World's Forests

Produced by FAO, the *State of the World's Forests* reports on the status of forests, recent major policy and institutional developments and key issues concerning the forest sector. It makes current, reliable and policy-relevant information widely available to facilitate informed discussion and decision-making with regard to the world's forests.

The ninth biennial issue of *State of the World's Forests*, published at the outset of 2011, the International Year of Forests, considers the theme "Changing pathways, changing lives: forests as multiple pathways to sustainable development". It takes a holistic view of the multiple ways in which

forests support livelihoods. The chapters assembled for this year's *State of the World's Forests* highlight four key areas that warrant greater attention: regional trends on forest resources; the development of sustainable forest industries; climate change mitigation and adaptation; and the local value of forests. Considered together, these themes provide insights on the true contribution of forests to the creation of sustainable livelihoods and alleviation of poverty. www.fao.org/forestry/sofo/en/ (Please see page 43 for an extract from this publication.)

Asian Forests: Working for People and Nature

The World Forests, Society and Environment Special Project of the International Union of Forest Research Organizations (IUFRO), FAO

FAO'S NWFP HOME PAGE

Please help us make our Web site a rich resource by continuing to send us (non-wood-news@fao.org) your NWFP Web sites and citations of any publications that we are missing, as well as any research that you would like to share.
www.fao.org/forestry/site/6367/en

Adopt a truffle tree

Truffle Tree offers individuals the opportunity to have their own truffle-producing oak tree in a French truffle plantation. Adopters may choose between the evergreen holm oak, *Quercus ilex*, and the white, deciduous downy oak, *Q. pubescens*.
www.truffle-tree.com/

CITES trade data dashboards

This Web site was launched on occasion of the 35th anniversary of the entry into force of the Convention. It is a new, interactive and dynamic way of viewing trade data submitted by CITES.
<http://cites-dashboards.unep-wcmc.org/>

Earth Child Institute

2.2 billion: the power of one child + one tree = a sustainable future for all.
www.earthchildinstitute.org/1-child-1-tree

Girl meets bug

This Web site is full of information about edible insects.
www.girlmeetsbug.com/

Natural solutions

This site shows how nature provides innovative designs, materials and processes that have had a revolutionary impact on human well-being.
www.jncc.gov.uk/page-5187/

New FAO policy support Web site

This site is aimed especially at anyone involved in policy-making processes: policy analysts and advisors, government ministries, practitioners, academics and students. All our material is freely available for download.
www.fao.org/tc/policy-support/policy-support-home/en/

100 percent cork

www.100percentcork.org/

Newsletters/e-zines

◆ A Community List for Small Island Developing States (SIDS)

www.iisd.ca/email/subscribe.htm/

◆ Centre for Livelihoods and Ecology Chronicle: CLE Chronicle

www.royalroads.ca/cle/

◆ Earth wire

This environment news service provides a daily overview of the environment as reported in the media.
www.earthwire.org/africa/about.aspx/

◆ BIODIVERSITY-L

BIODIVERSITY-L is a free community announcement list for policy-makers and practitioners involved in international biodiversity policy.
www.iisd.ca/email/biodiversity-L.htm/

◆ Peak to Peak Newsletter

This newsletter is prepared by the Mountain Partnership Secretariat.
www.mountainpartnership.org/

◆ The Message Stick

The Message Stick is a newsletter highlighting the activities undertaken by the United Nations Permanent Forum on Indigenous Issues (UNPFII) and is prepared by its Secretariat. A message stick is a traditional Australian Aboriginal method of correspondence whereby runners would deliver messages carved in symbols on a piece of wood to inform other indigenous peoples of upcoming events. Traditionally, message sticks were passed on between different clans and language groups to establish information and transmit messages.
www.un.org/esa/socdev/unpfii/en/newsletter.html/

◆ NTFP information exchange

Hosted by the Institute for Culture and Ecology (IFCAE), this site provides information and tools to help advance commercial development of NTFPs on non-industrial private lands in the United States of America.
www.ifcae.org/ntfp/

◆ Plants for the Planet

www.plantsfortheplanet.com/

◆ Rain forest information for children

Mongabay's rain forest site for kids is now

available in 33 languages – each of which has been translated by native speakers. An expanded version for adults is available in English, Spanish, Brazilian Portuguese, simplified Chinese, French, German and Japanese.

<http://world.mongabay.com/vietnamese/>

◆ Save forests. Save ourselves: BirdLife Community

www.birdlife.org/community/2011/01/save-forests-save-ourselves/

◆ Sustainable trips

This is the online database of sustainable tourism businesses in Latin America and the Caribbean, launched by Rainforest Alliance. The goal is to provide travellers, tour operators and travel agencies with a comprehensive and trustworthy database of tourism companies that are not only located in beautiful areas, but are also making an effort to benefit local communities and the surrounding flora and fauna. Available in English, Spanish and French.

www.SustainableTrip.org/
www.VoyageResponsible.org/
www.ViajeSostenible.org/

◆ Think to sustain

www.thinktosustain.com/

NWFP-DIGEST-L

The Digest is a free monthly e-bulletin produced by FAO's NWFP Programme and covers all aspects of non-wood forest products. Past issues can be found on FAO's NWFP home page at www.fao.org/forestry/site/12980/en/

You can take part in contributing to the continued success of this newsletter by sharing with the NWFP community any news that you may have regarding research, events, publications and projects. Kindly send such information to [NWFP-Digest-L@mailserv.fao.org/](mailto:NWFP-Digest-L@mailserv.fao.org)

To subscribe: send an e-mail to: mailserv@mailserv.fao.org, with the message: subscribe NWFP-Digest-L; or through the NWFP Programme's home page at www.fao.org/forestry/site/12980/en/ ♣

A new season for FAO's 1billionhungry campaign



The new season of the 1billionhungry project sees the original project, which focused on collecting signatures, take a more hands-on approach to ending hunger. "Since the first season, people have been saying, 'the petition is nice, but what can we actually do?'" said Project Manager Scott Grove. "This second season is about giving everyone an opportunity to get involved and help end hunger themselves."

A new sister Web site to www.1billionhungry.org – www.EndingHunger.org – will offer concrete ideas about what people can do, gathering together short films, animations, podcasts, recommended books, contests and news from like-minded groups around the world.

"In this second season we are aiming specifically at high school and college students and people just out of university, narrowing the target to the people with the greatest potential to actually change the world."

The 1billionhungry project in its present form was launched in May 2010, with the aim of collecting 1 million signatures by November. It triggered a storm of public antihunger events, drew thousands of fans to its Facebook page, which counts over 75 000 readers, and by the November deadline had attracted over 3 million signatures. The petition has been physically signed by farmers in Guatemala, boy scouts in Algeria,



baseball players in Italy, agricultural workers in Nepal, and hundreds of thousands of individuals online.

The petition will be presented to government leaders for a second time this coming autumn. (Please visit www.1billionhungry.org and www.EndingHunger.org/)

Request for information: Oregon grape/barberry (*Mahonia* spp.)

The Institute for Culture and Ecology (United States of America) is conducting a market analysis on the medicinal plant, Oregon grape or barberry (e.g. *Mahonia aquifolium*, *M. nervosa*).

Our research team is looking for any international import/export data and contacts to brokers and wholesalers anywhere in the world. If you have any suggestions or information please e-mail Eric Jones: etj@ifcae.org

Comments received

Reader from Canada

I would like to say that I am very happy to see FAO has a NWFP section to promote research in this area. This is very heartening, considering the recent cuts in the Canadian federal and provincial government research budgets for all non-timber related research. Keep up the good work. (Andra Forney)

Reader from Nigeria

I am a young research scientist in Nigeria. I have just seen a recent publication of your magazine, which was very interesting and educative and a must read for every forester, so I would like to subscribe to it. (Arabomen Kewwe)

Reader from Germany

Near the end of the year, I want to express my thanks to you for editing the NWFP-Digest-L. It is full of interesting and important information – even for me in my advanced age – and I always enjoy the impressive content. The issue passes around my colleagues, who also benefit. (Prof. Walter Liese)

Reader from the Lao People's Democratic Republic

Again thank you for the fantastic work you are doing with *Non-Wood News*, such good and useful documents and info sharing. (Thibault Ledecq, WWF Sustainable Rattan Regional Programme Manager)

Reader from South Africa

Many thanks for your assistance and for the pleasurable times reading your excellent publication over the last years. (Prof D.C.J. Wessels) Retiring.

Reader from Australia

Thanks for keeping me on your list for receiving *Non-Wood News*. I find the information in each issue very interesting and it really does highlight how important forests are to people in so many different ways with the vast array of products that most of us would never think of or know about. (David Cameron) ♣



CONTRIBUTIONS TO NON-WOOD NEWS

A strong characteristic of *Non-Wood News* is that it is open to contributions from readers. Should you have any interesting material on any aspect of NWFPs that could be of benefit to all our readers, please do not hesitate to submit it. Articles are welcomed in English, French and Spanish and should be between 200–500 words.

The deadline for contributions for *Non-Wood News* 23 is 31 August 2011.

For more information, please contact:
Tina Etherington at the address on the front page or by e-mail to:
non-wood-news@fao.org

International Year of Forests 2011



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The United Nations General Assembly declared 2011 as the International Year of Forests to raise awareness on sustainable management, conservation and sustainable development of all types of forests. The year also provides an excellent opportunity to highlight non-wood forest products, their uses and users.

From left to right: selling the leaves of *Gnetum* sp. to be consumed as a leaf vegetable in the Democratic Republic of the Congo; making fire using sticks from the buriti palm (*Mauritia flexuosa*) in Brazil; weaving a bamboo basket in Bangladesh; using the nut or seed of *Garcinia kola* (bitter kola) for medicinal purposes in Central Africa; and picking blueberries in Finland.