



**“Non-Wood Forest Products (NWFP) consist of goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests.”**

**«Les produits forestiers non ligneux sont des biens d'origine biologique autres que le bois, dérivés des forêts, des autres terres boisées, et des arbres hors forêts.»**

**«Productos forestales no madereros son los bienes de origen biológico distintos de la madera derivados de los bosques, de otras tierras boscosas y de los árboles fuera de los bosques.»**

**(FAO's working definition)**

## AMAZON FIBRES

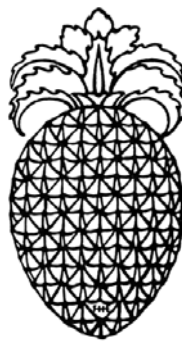
### Vegetable plastic

The fibre extracted from a plant native to Amazonia could replace conventional fibreglass owing to its environmental and economical advantages. This is the conclusion of a study carried out by researchers of the State University of Campinas (UNICAMP), Brazil. The investigation was initiated in 2003 by Karen Fermoselli, a student at the Chemistry Institute.

“The fibre of the curaua (*Ananas erectifolius*) costs less, and is lighter than fibreglass, in addition to its being obtained from renewable resources and being biodegradable,” states the Chemistry Institute's Coordinator, Marco Aurelio De Paoli. Fibreglass requires a very high energy consumption to produce it, is more costly and has a high environmental impact. The study has shown that plastic reinforced with this fibre is much lighter than fibreglass. As a result, cars produced with this material will tend to be lighter, reducing total weight and, consequently, the consumption of petrol. According to De

Paoli, car manufacturers are already using this vegetable fibre.

The curaua is well known in the Amazonia Water Basin in the western region of Pará state, where the first commercial plantations were started. Each plant produces between 20 and 24 leaves, offering approximately 2 kg of fibre. (Source: Agência FAPESP, 4 April 2004 [in *Amazon News*, 8 April 2004].)



### Natural fibres for cars

Brazil could be a pioneer in the intensive use of natural fibres for car production. Assembly-line workers already use an alternative prime material such as the fibres from coconut and from jute, agave and cotton, and they have carried out advance research in the hope of introducing more materials from renewable resources. Throughout the world, industry searches for alternatives to replace those derived from petroleum, used in various car components. With renewable natural resources, areas for planting and a varied species of plants, Brazil has the chance to be a leader in this realm.

Currently, in all Fox models, Volkswagen has seat coverings and the roof and boot covers made of curaua fibre. This plant from Amazonia which is similar to a pineapple will also be used for the CrossFox, a new version which will be introduced to the market at the beginning of 2005.

Volkswagen will also begin to use coconut fibre on the seats of the Parati and the Saveiro, a product which is already utilized by Mercedes-Benz. “In addition to the aspect of recycling, the product is more resistant than common

resin,” affirmed Mercedes-Benz. This product is used in the seats and the panel covers, and thermic comfort is one of the advantages of natural fibres. Ventilation is improved and absorbs the change in body temperature. In addition to this, following 400 km of use in tests, the seats maintain their original configuration without deformation. (Source: *O Estado de S. Paulo*, 24 October 2004 [in *Amazon News*, 28 October 2004].)

### Ecovogt, textile based on Amazonia plants

Caio von Vogt, a designer from Pará, has created a new cloth (which carries his name: ecovogt) from aquatic plants from the Amazonia riverside regions. The weave was developed using native populations' experience, which they inherited from the indigenous peoples for the method of weaving the fibres.

The designer's idea is that the riverain populations will supply prime material. In this way, he believes that it will be helping the region preserve its techniques and native vegetation. Prices could reach \$R 18 per metre, which is close to the price of linen at \$R 15 per metre.

Because it is an ecological material, von Vogt believes that the product has everything necessary to conquer European markets. (Source: *O Estado de S. Paulo*, 2 October 2004 [in *Amazon News*, 7 October 2004].)

## ARE RAMP FESTIVALS SUSTAINABLE?

### Beyond timber: certification of non-timber forest products

For the past four years, Jim Chamberlain, research forest products technologist for the USDA Forest Service Southern Research Station unit in Blacksburg, Virginia, United States, has driven down to the mountains of western North Carolina to dig ramps with the festivals that are a springtime tradition in the southern Appalachians.

Ramps (*Allium tricoccum*) are an acquired taste: the flavour has been described as similar to leeks, scallions or



garlic. People collect both the leaves and the spicy bulb as a spring tonic, a tradition that the early settlers may have learned from the Indians. Most people eat ramps freshly picked, fried with potatoes or eggs – or they cook up a “mess” with freshly caught trout and fatback. Gatherings with cooking and music have naturally formed around the spring collection of ramps. Over the last few decades, these festivals have evolved into a major funding source for rural fire departments, rescue squads and other community organizations.

In 1999, Chamberlain started contacting the major festivals in the southern Appalachian region and began digging for ramps. He keeps track of the total weight and numbers of ramps collected for each festival and has found that the major groups use 500 to 600 pounds (about 230-270 kg) of ramps for an annual festival, with between 40 and 80 bulbs making up a pound.

Chamberlain's data are tied to specific collection areas, enabling him to compare ramp populations in different watersheds, or to determine whether a particular collection method affects the size of the plants or populations available the following year.

Ramps emerge from the moist, shady floors of southern Appalachian forests in late March and early April. The plants send up a circle of smooth, broad leaves that die back in early summer, leaving the plant virtually invisible. Ramps flower in June or July: the few seeds produced take a year or longer to germinate, and three to five years to grow into a large bulb. Fortunately, ramps also reproduce from rhizomes, the rootlike stems that run underground. Bulbs can also split, producing two individual plants. Ramp collectors typically dig clumps out of large patches of plants, leaving individuals in the resulting gaps to form new patches for the following year.

Chamberlain's data show that the major ramp festivals use a total of about 3 200 pounds (1 450 kg) of ramps each spring. This figure does not include the plants collected for roadside stands, restaurants and personal use. In the spring of 2002, the Great Smoky Mountains National Park

banned the collection of ramps after a five-year study indicated a decline in ramp populations in the park. This shifted more demand on to national forest lands.

Most of the ramp festivals collect on National Forest land. “We don't know if the current levels of ramp harvesting are sustainable or not,” said Chamberlain. “We have heard that some of the ramp populations are in decline, but we can't determine if this is true without monitoring populations and harvests over several years. Since most of these groups are collecting from National Forest lands, we need to start looking at how to include traditional collectors in developing guidance on ramps for forest management plans. Many of the groups I dig with are very interested in working with the Forest Service on sustainable management.”

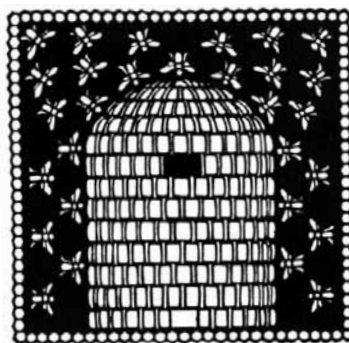
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## BEES



### Forest makes coffee farm richer

Seven percent of a Costa Rican coffee farm's annual income (US\$62 000) comes directly from the pollination “services” of adjacent tropical forest, according to a new study in the *Proceedings of the National Academy of Sciences*. The study is the first to quantify in such detail the

economic value of pollination services from tropical forests.

“This study illustrates that there are compelling economic reasons for conserving native ecosystems,” said Taylor Ricketts, the principal author of the study and director of the World Wide Fund for Nature's Conservation Science Programme. “Because the benefits we derive from ecosystems are difficult to quantify, they are often assumed to be worthless.”

Ricketts' team investigated pollination on coffee plants at three distances from the forest: near (100 m), intermediate (800 m), and far (1 600 m). The areas closest to the forest experienced more pollination by wild bees, which increased coffee yields and decreased the number of deformed beans, compared with the plants farthest from the forest. Hand-pollinated branches served as the control.

The study found that the value of tropical forest is likely to be greater than other land uses for which forests are often destroyed. Cattle pasture, for example, would yield approximately US\$24 000 a year, less than half of that provided by pollination services to the coffee plantation. “The fact that pollination services alone are so valuable to an individual farm demonstrates how conservation is compatible with economic development,” continued Ricketts. “Protecting natural ecosystems can benefit both biodiversity and local people.” (Source: GreenBiz.com, 4 August 2004 [on WBCSD Web site].)

### Taking the sting out of beekeeping in South Africa

“Our people used to smoke out bees, which resulted in the burning of the forests. That's one of the reasons why the African indigenous bee is threatened with extinction. Our task now is to conserve this bee,” Rejoice Mabudafhasi, Deputy Minister of Environmental Affairs and Tourism, told IPS. The African bee is regarded as the most aggressive of bee species. But, “it's also the most hardworking in the world. And its honey has got a sweet natural taste.”



This flavour – and the role bees play in pollinating the crops that supply fruit for South Africa's large fruit industry – has ensured that the insects have economic as well as environmental worth. The bee industry is currently thought to be worth almost US\$466 million, according to various sources.

As part of its efforts to alert South Africans to the value of bees, the Bee Foundation, a private company based in Pretoria that will be working with the government to train new beekeepers, plans to help 100 000 people in rural areas set up their own beekeeping businesses over a three-year period. It will sell specially designed beehives (which come equipped with bee populations) to these people at a reduced rate of about US\$62 each.

When the honey is ready for harvesting, staff from the Bee Foundation will collect it, paying the farmers a fair price for their honey. As each hive is expected to yield at least 20 kg of honey every year, the farmers could look forward to a gross annual income of about US\$2 500. After repaying the loans taken out to buy the hives, the farmers would have a net monthly income of US\$155 – no small amount in a country where most of the population was impoverished by apartheid.

South Africa currently has as many as 10 000 beekeepers, but there is room for an additional 10 000, according to industry analysts. According to the Bee Foundation, "We produce only 2 000 tonnes per year, yet consume 3 000 tonnes per year. To fill the gap we import 1 000 tonnes every year from China and Australia. Yet South Africa has the capacity to produce 100 000 tonnes of honey per year."

Mabudafhasi believes that alerting people to the value of bees will put an end to the destructive practice of smoking them out.

Bee farming has many advantages but this potentially lucrative activity has, until now, been largely ignored in Africa.

"We have millions of hives in the trees. We need to bring the bees from the wild into the boxes – and we have asked for

the support of the forestry officials [to do this]," the foundation says. "People in Africa have always been bee hunters not beekeepers. Our role is to educate them and make them become beekeepers." (Source: *Inter Press Service* [Johannesburg], 4 June 2004.)

#### **Bee Foundation to sign deal**

The Department of Environmental Affairs and Tourism, South Africa, will sign an agreement with the Bee Foundation tomorrow in an effort to intensify partnership between the two. The two partners started working together in June, when Deputy Minister Rejoice Mabudafhasi launched a R 2 billion Indigenous Bee Conservation project in Limpopo to conserve the African bee.

The project is expected to create self-employment especially in rural areas and also encourage people to play an active role in economic development.

Honey production depends largely on areas where bees can get the necessary nectar, water and the labour to protect their hives. For this reason, people are receiving training weeks for bee farming and bee production. (Source: *BuaNews* [Pretoria], 12 August 2004.)



#### **Zambian honey gets German fair trade certificate**

The North Western Bee Products of Zambia has earned a German fair trade certification for its honey. General manager Bob Malichi said that last year alone the company had exported 144 tonnes of honey to Germany and the United Kingdom. Malichi said there was a tremendous demand for organic honey in the United Kingdom and Germany and added that the company's honey was organic and was traded fairly, hence the

German certification. He explained the certification was one of the highest ratings on the world market for bee products. "Our only threat is China which produces massive quantities of honey."

The company is the second largest employer in the province after the government. It has 6 472 registered beekeepers and has contributed enormously to poverty reduction.

Honey costs £1 200 per tonne, while beeswax costs £2 300 per tonne.

The company is now looking at the plight of women by encouraging their involvement in beekeeping. (Source: *The Post* [Lusaka], 7 June 2004.)

#### **Beekeeping centre opened in Armenia**

A Multi Agro Beekeeping centre has opened in Armenia and is working with 2 567 beekeepers. This year 14 tonnes of honey were produced but half of that amount was used to feed the bees. The centre's director plans to export not only the honey, but also pollen and medicines. (Source: *A1 Plus*, 19 September 2004 [in *INFO CENN*, 30 September 2004].)

#### **Uganda gets ready to export honey**

The government is to invest in a honey processing plant in Kabale. Kabale MP and Minister of Parliamentary Affairs, Ms Hope Mwesigye, said the decision was based on the large supply of honey from the district. She said the plant would process honey for export, provide a market for the honey farmers and create employment.

Mwesigye called on farmers to produce more honey to sustain the processing plant over the years. She said that the market for the processed honey had been identified in the Great Lakes Region and within Uganda. "Use local and modern methods of beekeeping in order to increase honey production so that you can sustain the processing plant. Plant trees and flowers to act as food centres for the bees if they are to make you enough honey," she said. She advised farmers to get loans from the banking institutions to boost their business enterprises. (Source: *The Monitor* [Kampala], 15 November 2004.)



## BIOPROSPECTING OR BIOPIRACY?



### Making bioprospecting a sustainable endeavour

"What's in it for us?" seems to be the question asked by all parties involved in drug discovery in developing countries, and too often the answer is "not enough". The 1992 Earth Summit in Rio de Janeiro resulted in the Convention on Biological Diversity, which intended to make conservation a win-win proposition for governments, commercial companies and scientists. Governments of biologically diverse developing nations, however, remain suspicious of private interests, and companies seemingly do not reap sufficient compensation for the significant wading through local regulations that establishing cooperative programmes involves.

Panama's bioprospecting project – the Panama International Cooperative Biodiversity Group (ICBG) – is featured in the 10 June [2004] issue of *Nature* as one of the few programmes "getting it right". Now in its sixth year, ICBG employs ten senior scientists in six laboratories representing a consortium of international and local research organizations with the aim of discovering novel compounds for controlling cancer, AIDS and other diseases.

The project yields immediate rewards for developing countries: training local microbiologists, creating jobs and promoting conservation. Unlike many projects, in which a share in the royalties for products that make it to the market is the only reward for local researchers and governments, Panama's ICBG was designed to make bioprospecting a

sustainable endeavour. (Source: *Biological Conservation Newsletter*, September 2004.)

### Samoa to profit from indigenous knowledge deal

The Samoan Government and the University of California at Berkeley (United States) have signed an agreement to share equally the profits from a potential anti-HIV drug – prostratin – derived from the bark of Samoa's indigenous mamala tree.

The drug is also being tested in clinical trials by the AIDS Research Alliance, which pledged in 2001 to give 20 percent of any profits back to the country.

Researchers at Berkeley will first need to isolate the genes of the mamala tree that produce prostratin. The gene will then be inserted into bacteria to create "microbial factories" that can churn out much larger quantities of the drug than could be produced naturally.

The researchers are working in collaboration with ethnobotanist Paul Alan Cox, who first learned of prostratin's antiviral properties from local healers. The agreement, which allocates a 50 percent share of commercial profits to the Samoan people, is novel, says Cox, in that "it may be the first time that indigenous people have extended their national sovereignty over a gene sequence."

Indigenous knowledge is increasingly being recognized as a valuable resource for commercial products such as pharmaceuticals. But the absence of a legally binding international treaty governing the intellectual property rights regarding such local knowledge means that it is open to exploitation.

The agreement signed in Samoa seems, on the surface at least, to be a win-win situation. According to one comment, the pact will "set a precedent for biodiversity conservation and genetic research" and for future commercial use of indigenous knowledge.

Not everyone is so positive, however. Rudolph Ryser, chair of the Centre for World Indigenous Studies, believes "the agreement is destined to falter".

According to Ryser, such agreements cannot be fairly made until mutually agreed international protocols are put in place. He adds that, rather than signing agreements to share profits with local people, drug developers should instead aim to provide drugs free of charge. (Source: *SciDev.Net Weekly Update*, 4–10 October 2004.)

### Indigenous knowledge and rights must be protected

Indigenous knowledge of biodiversity is important to the lives of millions, not least through the provision of food and medicine. But, according to Alejandro Argumendo, director of Peru's Quechua-Aymara Association for Sustainable Communities International, intellectual property laws foster the privatization of such knowledge, rather than its protection.

He says that the definitions and uses of traditional knowledge are affecting indigenous rights. International frameworks, he says, are not able to establish or protect the rights of those who are the very source of traditional knowledge.

Argumendo highlights the importance of conserving both biodiversity and the traditional systems of knowledge transfer and exploitation that are central to its sustainable exploitation. (Source: *LA Press* [in *SciDev.Net Weekly Update*, 12–18 July 2004].)

### Katemfe (*Thaumatococcus daniellii*): sweet prospects turn sour

A promising new crop in Ghana, with export potential, could be stillborn because of patent claims on genes and genetic engineering. The potential new crop is katemfe, an indigenous shrub, which is a source of the natural sweetener thaumatin. Non-sugar sweeteners are now a multibillion dollar industry, and demand continues to grow. Ghana had plans to benefit by growing katemfe as an agroforestry crop and building a processing plant to extract thaumatin. However, plans are stalled by patents filed in the United States, where researchers from the University of





California and Lucky Biotech Corporation may have enforceable patents on all transgenic fruits, seeds and vegetables responsible for producing thaumatin. It is also reported that the multinational food giant, Unilever, has successfully inserted thaumatin-producing genes into bacteria, which could provide a very low-cost alternative source of thaumatin.

According to Genetic Resources Action International (GRAIN), thaumatin production based on genetically manipulated bacteria would undermine any conventional production in Ghana. However, the Ghanaians and their German business partners hope that they may be able to develop a niche market for a "naturally" produced sweetener based on their conventionally grown katemfe, and that this will also benefit many thousands of growers in Ghana. (Source: New Agriculturist online [www.new-agri.co.uk/04-2/newsbr.html].)

#### BIOPIRACY WEB SITE

**Amazonlink (Brazil) has launched a new site on biopiracy that contains documentation regarding 12 examples of biopiracy or illegitimate registering of trademarks. They involve well-known and other less famous cases, such as a substance – of the Wapixana People of Roraima, the biribiri (*Octotea radioei*) – registered by a Canadian company. (Source: ComCiencia, 22 March 2004 [in Amazon News, 25 March 2004].)**

#### Malaysian state acts to thwart biopirates

The biodiversity-rich Malaysian state of Sabah, on the island of Borneo, is going to require non-governmental organizations to get approval from the state authorities before conducting any research there. The move was agreed after a discussion held by officials from state ministries in August 2004. It is intended to stop biopiracy – the act of gaining benefit from a country's biological resources without fair compensation.

The decision means that all applications to do research in Sabah will first have to be approved by the State Economic Planning Unit. The Research and Internal Affairs Office of Sabah's chief minister's department will then assess applications for final approval. (Source: Daily Express [Malaysia], 22 October 2004 [in SciDev.Net Weekly Update, 18–24 October 2004].)

#### Biopiracy of indigenous African knowledge

Tanzanian President Benjamin Mkapa criticized multinational corporations for their tendency to engage in biopiracy of indigenous African knowledge in order to reap huge profits.

The president said: "The global intellectual property rights regime must prevent biopiracy that seeks to patent biological materials, especially plants, known throughout our generations for their value and altered in laboratories to claim an invention and win a patent." He added: "... multinationals make huge profits from exploiting African biodiversity. It is imperative, therefore, that the Indigenous Knowledge (IK) within the intellectual property rights regime be reappraised to allow communities and countries to also lay claims to the intrinsic knowledge extracted from IK without recompense."

President Mkapa also said that Africans had in many cases been losing their own property based on IK as a result of ongoing biopiracy. "In many cases, we have lost what has been ours but which has been exploited by others and ultimately even rendered inaccessible to us as original contributors to the value chain of what turned out to be commercially available products."

"Africa has a rich reservoir of transgenerational knowledge and practical experiences that can be exploited to complement our development efforts," he said, adding that IK was an important tool for fighting poverty through locally based innovations. (Source: The Guardian [Dar es Salaam], 21 October 2004 [in BIO-IPR, 11 November 2004].)

#### UK wildlife must not be patented for profit

Patenting the genetic make-up of England's wildlife could lead to companies commercializing genes without any benefit for the British public or the environment and should be resisted by the government, according to Friends of the Earth.

The warning comes as England's official wildlife watchdog, English Nature, is said to be "on the verge of striking a deal to bioprospect some of Britain's most famous nature reserves" despite no legal or ethical framework being in place to ensure that any genetic exploitation benefits the British people. (Source: Press Release, Friends of the Earth, 23 March 2004.)



#### BIRCH BARK EXTRACT – A VALUE ADDED BOREAL PRODUCT

Chemist Pavel Krasutsky calls birch bark nature's "white gold". Betulin, a powdery substance in the outer bark of the birch tree, has been shown to help wounds heal faster and cut inflammation. Many cosmetic companies, touting it as a skin toner and restorer, add birch bark extract to some of their products. And a compound, betulinic acid, is being tested as a treatment for melanoma and other serious diseases.

But birch bark has largely been burned as fuel after the trees have been harvested for lumber. "This is a miracle which nature synthesized for us and we are burning this miracle like cheap fuel," Krasutsky said as he worked in his laboratory at the University of Minnesota-Duluth's Natural Resources Research Institute (NRRI).



That is changing, partly through a partnership formed in 2000 by NRRI, Potlatch Corporation and Synertec, an Allele subsidiary, to build on research being done at the university. The Duluth-based partnership, NaturNorth Technologies LLC, has developed a patented process to isolate pure betulin and other compounds cost-effectively from birch bark in very large quantities. NaturNorth scientists have also patented a way to convert betulin to betulinic acid. The partners, opting to go into business instead of licensing the patents to others, hope that demand for the birch bark compounds will grow enough to give them a lucrative venture.

Potlatch, a wood products and paper producer, can contribute raw material – at least 45 360 kg of birch bark daily. The bark yields about 10 percent of betulin. Once the compounds are isolated, scientists can produce new derivatives to expand the range of potential uses. That's how NaturNorth creates betulinic acid from betulin.

NaturNorth, which has only small test production capabilities, pays a company in Canada to do the large-scale production work and another in the United States to do smaller-scale derivative work, mostly for cosmetics use. Although birch bark extracts are already used in some cosmetics, NaturNorth offers the pure compounds found in the bark. To get to this point, however, NaturNorth was forced to find a way of removing the small amount of betulinic acid that occurs naturally in birch bark before it could offer any compounds to the cosmetics industry. Unilever NV had patented the use of betulinic acid in cosmetics and licensed the exclusive worldwide patent rights to Premier Specialties Inc. of the United States. Premier has been selling birch bark extract to the cosmetics industry since the mid-1990s.

Although NaturNorth expects to benefit from supplying pure birch bark compounds other than betulinic acid for use in cosmetics, it is the ability to isolate and derive from the pure compounds – especially changing the betulin molecule

to create betulinic acid in large quantities – that has Krasutsky thinking of white gold.

Betulinic acid has been explored as a potential treatment for skin cancer for more than a decade, and that is one area NaturNorth is interested in. Betulin and its derivatives and other birch bark compounds are also being tested for effectiveness in treating HIV and respiratory syncytial virus. The bark compounds and derivatives are also being tested for effectiveness in crop disease management and preventing fungus growth on golf course turf. In addition to their other patents, Carlson, Krasutsky and colleagues have patented the use of betulin to treat herpes cosmetically and have other patent applications pending. Carlson said that NaturNorth hopes to supply betulinic acid and its derivatives to other scientists doing clinical tests on their use in treating disease and, ultimately – if the tests are successful – to become the supplier when the products are commercialized. No human testing has been conducted yet on betulinic acid as a treatment for melanoma, HIV or RSV, he said, but those tests are planned once researchers get regulatory approval.

A Russian company, Birch World Ltd of Moscow, has also developed a method of isolating betulin from birch bark and has been producing commercial quantities. Birch World sells cosmetics and food supplements containing betulin in Europe and Japan, but has no North American customers. (Source: "Using technology to tap birch bark's potential", Associated Press, in [taiga-ntfp@taigaescape.org](mailto:taiga-ntfp@taigaescape.org))



## BUGGING SANDALWOOD TREES

The state of Kerala (India) is resorting to drastic measures to defend its dwindling forests of rare sandalwood trees from illegal logging: its Forest Department is planning to use satellite tracking to protect the trees. Under the plan, microchips will be embedded inside the trees. Forestry officials will then be able to use a satellite to monitor the trees. Not only will any attempt to cut them down be detected but the Forest Department will be able to trace the movements of any smugglers who try to take timber out of the area.

The trade in contraband sandalwood is one of the most lucrative in India.

Amid the money and greed, India's precious reserves are in increasing danger. Just three years ago, there were 62 000 sandalwood trees in Kerala's Marayur Forest. This year, there are 55 000. The last sizeable sandalwood forests in the world are in southern India, spread across Kerala, Karnataka and Tamil Nadu.

A properly managed and sustainable trade in sandalwood is vital to the region's economy. The sandalwood tree has been prized for its natural scent for centuries and its oil is used in the manufacture of perfumes worldwide. Sandalwood is also used in incense – an esoteric buy in the West, but a staple in much of Asia. And the soft, scented wood is prized for carving and it is used in some Indian medicines.

All this puts sandalwood in great demand – but there are relatively few sources. Sources elsewhere have been overexploited: in Australia, most of the little that is left is protected and Indonesia's stocks are almost exhausted.

With its huge reserves, India has done more than any other country to set up a sustainable trade in sandalwood, with strict laws on when trees can be felled and planting to replenish the forests. But the implementation of the laws is poor: local politicians are often



paid by smugglers and the huge forests are too big to patrol.

Satellite tracking will enable officials to monitor the forests and, hopefully, with publicity, shame the politicians into action. (Source: *The Independent* [Delhi], 12 November 2004.)

**Three seizures of the CITES Appendix II-listed Red Sandalwood, an aromatic wood found only in India, have been made by Singaporean authorities in 2004. The shipments, totalling 56 tonnes, were all intercepted by customs officers after arriving from India. (Extracted from: TRAFFIC Press Briefing, 15 November 2004.)**

## BUTTERFLY FARMING



A group of some 300 farmers in the East Usambara mountains of the United Republic of Tanzania have abandoned subsistence farming and meagrely paid work on tea estates to become small-scale cash crop entrepreneurs. Their new venture? Butterfly farming. The farmers collect unhatched butterflies and send them on to Europe and the United States where there is considerable demand for butterfly exhibits.

This initiative is being undertaken within the framework of the Amani Butterfly Project which seeks to promote conservation by providing communities in the East Usambara Mountains with a sustainable income that is directly dependent on healthy forests. An estimated 61 percent of earnings go directly to the butterfly farmers, 7 percent to community development, 25 percent for project running costs, and 7 percent to the Tanzania Wildlife Division. (For more information, please visit:

<http://news.bbc.co.uk/2/hi/business/3569164.stm>) (Source: *Peak to Peak*, The Mountain Partnership Newsletter, September 2004.)

## CERTIFICATION: COMMUNITY MANAGEMENT FOR MULTIPLE USES

The members of the Association of Rubberworkers of the Extractivist Reserve São Luiz do Remanso, in Acre state, are the first in Brazil to obtain Forest Stewardship Council (FSC) certification for community management for multiple uses.

Four certified community forests exist in Acre today, totalling 14 000 ha. The Porto Dias community management, also in Acre state, which had already received its certification for timber, in April obtained the certification for its first primary product: copaiba oil.

What is new with the São Luiz do Remanso's certifications is that various products have been certified, including jarina, also known as vegetable ivory, and tree barks. This settlement project has an area of 7 205 ha. The products to be extracted with the FSC green seal are timber in log form, tree barks, the copaiba oil and the jarina seed.

Jarina is a seed from an incredibly beautiful palm tree, used to make artesian jewellery. It is a rare species and sparked the interest of the pharmaceutical and cosmetics industry owing to its antiscarring, anti-inflammatory and diuretic properties. The certification will benefit 47 families. (Source: *Altino Machado*, 26 November 2004 [in *Amazon News*, 2 December 2004].)

## CERTIFICATION PROBLEMS AND GUIDELINES FOR BOTANICAL AND FAUNA NON-WOOD FOREST PRODUCTS

In view of the current increasingly more globalized economy and trade, we urgently need tools to promote, ship and sell NWFP products.

Our non-governmental organization, Instituto de Investigación de la Biología de las Cordilleras Orientales (INIBICO), is specialized in neotropical faunal management and our first pilot projects in Peru cover the production of poison dart frogs for the pet trade. However, we also work with commercial insects and medicinal plants which are all based on totally sustainable production and management methods with a new biotechnology transferred to the poorest local forest inhabitants or native communities in Peru and, later, also to neighbouring countries.

The principal goal of our institution is to generate income from the standing rain forest; this is the only way to save it for the future. Poison dart frogs are CITES Appendix II species (some should be on CITES I). CITES tries to control the trade of the poison frogs, but with very doubtful results. Moreover, CITES does not solve the primary reason that poison frogs are endangered: the constant and unavoidable original habitat loss all over their distribution range in South and Central America.

Making our first medium-sized project with the World Bank's subunit, International Finance Corporation applying for a Global Environment Facility grant, we spent a lot of effort in our market study and presented a certification proposal for really sustainably produced frogs, using methods that create no impact on the natural ecosystems, the local fauna or the genetic primary resources of the countries of origin (the adult reproducers must stay in the original habitat). The methods were specifically designed to work in protected parks also or nature reserves and their buffer zones. The goods to be exported are live juvenile poison dart frogs obtained with our new production methods. For better access to future markets and to distinguish our totally sustainably produced frogs from the smuggled ones or captive bred ones in Europe, the United States or Japan, we need a certification similar to that of the Forest Stewardship Council for tropical timber. We proposed this to IUCN-World



Conservation Union and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), but they are not interested yet in resolving this urgent need. Therefore we discussed this matter with Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC), South America Office, who are interested in elaborating together with us certification guidelines, the certification procedure, the logotype and all other aspects of this process.

From the last four numbers of *Non-Wood News*, we see that there are a lot of problems with such certifications. Some of them we consider simply fake or even dangerous in the biological sense, such as the one for “ecologically produced coffee” in Peru and other countries. After legal and illegal timber, coffee is the worst crop worldwide, exterminating unique biodiversity in premontane and montane rain forest ranges in every country where coffee is produced. So one should think twice before drinking a cup of this biodiversity-killing product and any certification process treating with the “ecological” certification of coffee plantations must be extremely rigorous. Today, many people and certification institutions confuse agropesticide or toxin-free coffee certification with “ecological coffee certification”: such misuses of this term should be banned worldwide.

Moreover, one cannot certify as a “green” or “ecological” product any NWFP resource obtained by simple collecting procedures if there is no management involved which perfectly warrants the survival of the resource to be certified. The current problems Brazil (and Peru) has with the totally unsustainable simple collecting of the Brazil nut without warranting the natural regeneration of the nut-trees (*Bertholletia excelsa*) is a good example that such a product cannot be certified as “ecologically produced” and therefore is not qualified to receive a place in the international “green products” trade. Only forest ranges where a sufficiently high amount of young *Bertholletia* nut-trees are grown under the measured control of

“natural regeneration” or an improved nut-tree management with a controlled reforestation phase with young nut-tree saplings by local nut harvesting communities may receive a real “Green Product” certification. The problems Brazil has at the moment owing to high cancer-inducing fungal infection residues, such as aflatoxin in the nuts, is a clear indicator of incorrect post-harvest nut management. This may be improved with simple methods which prevent the fungus attacking the harvested fruits if stored and handled under very humid conditions. In a forest with abundant *Bertholletia* trees under management, it is even possible to harvest some of the trees if we ensure that enough young ones are growing up (nut-trees usually provide excellent wood for furniture).

In Brazil, many places with *Bertholletia* stands can also be used to produce high-priced poison frogs with our fully sustainable production methods, which considerably improve the cash output of such forest plots by linking in a faunal management (Manaus, Acre). We have observed that Brazil overprotects its natural resources at the moment without taking advantage of managing these resources for export. In addition, instead of producing those frogs, for example, with totally sustainable methods, market needs are met by illegally caught poison frogs smuggled with aquarium fish shipments from Manaus. Individuals and government authorities who are interested should contact us to help them improve rain forest management in order to keep it standing. This is also similar to World Bank strategies which state that “it is economically better to protect the still standing rain forests than reforesting them”. But this method is only successful if we give a monetary value to the surviving forest and learn to create incomes from it, thus also improving the life of poor farmers or native communities; this helps CITES to maintain intact the original habitat network of CITES II frogs and cut down illegal smuggling. Once the forest has been rescued, other resources such as birds, monkeys, medicinal plants, flowers,

commercial insects or aquarium fishes can survive together with the frogs and can be managed with similar methods.

Another problem we have is with the harvesting, production and certification of medicinal plants. At the moment, Peru is entering a control process for the use and production of medicinal plants which are important primary resources for a fast growing market of “natural medicine” products. More than 3 000 identified medicinal plants in Peru (and some 3 000 more not yet discovered) are a solid foundation for the future welfare of the country and its inhabitants if properly managed. We are working, for example, with *Dracontium* (Araceae), which has several new species in Peru. *Dracontium* (also called jergon-sacha) is particularly effective in curing gastritis and stomach ulcers and has antirheumatic properties and may improve Alzheimer’s disease. It grows in the humid parts of our local rain forests and is therefore a fine addition to forest-based frog and insect production. We produced a management manual for our farmers that explains a totally sustainable production process, which may be easily certified as “ecological”, but which also requires some post-harvest improvements to ensure the final quality of the product and avoid contamination.

The main problem of the Peruvian enterprises which are currently marketing final products of medicinal plant extracts is that they have no certification showing how and where they get the primary resources: by simple extraction (which may eliminate the resource in a few months or years) or by real management with well-organized producer groups.

Failures in those primary steps of production, harvesting and processing the raw material may have fatal outcomes such as the breakdown of the *Bertholletia* nut production and export observed in Brazil. Once a country obtains a bad “contamination” report from one or more NWFP products, it is very difficult to “clean” this negative image later, even if the problems can be resolved.

To access international markets with new or known NWFP products we need at least a four-step certification process:





1. Ecological production certification (may be combined with the Certificate of Origin), which ensures that the resource is managed at this locality or forest plot and will not become extinct (e.g. the Brazil nut) and the primary genetic resource or lineage will be maintained. (In commercial insect production, the short life span of butterflies makes it impossible to preserve the reproducers over longer times – but we may maintain the genetic lineage of a butterfly species in a project, so that it will not become extinct.)
2. Chemical certification, which checks that the product is free from contaminants (earth, sand, dangerous bacteria), dangerous pesticides or fungus-based aflatoxins.
3. Fair trade certification, which ensures that in commercializing this primary product the usually poor producers will receive a fair share of the incomes generated by trade in the product.
4. Rainforest Supermarket logo, an idea proposed first by the World Wide Fund for Nature (WWF)-Netherlands. Customers who purchase this product know that they help to preserve tropical rain forests and provide a better income to the poorest farmers and native communities. It will certify that this product is a totally sustainably produced one without any impact on the original genetic resources of the country of origin. This logo might be combined with a registered bar code, which identifies the producer group, production area, country and commercializing enterprise. Thus any problem with this product might be traced instantly to the primary producer and the distributors (important, for example, if dangerous aflatoxins are detected, indicating a wrong post-harvest management in a certain location).

There are a few simple but very important guidelines to make a functioning ecological certification process for any NWFP, whether flora or fauna. Today, for example, we know most of the technology and methods to produce frogs, reptiles, snakes (with snake toxins), parrots, commercial

insects, aquarium fishes, medicinal plants, orchids, bromeliads and many others, in a totally sustainable way – the only way to generate income with a standing forest to save it for the future.

Those basics are:

1. The resource or product must be managed in a totally sustainable way, without impacting on the primary genetic resource. In the case of living forest animals to be traded, the original reproducers must stay in the country of origin and, if possible, in the original site, and only juveniles produced from an artificially generated surplus should be traded. In the case of plants such as CITES I Orchids, those can be managed by cloning or from seeds via an *in vitro* laboratory.
2. The management process should not endanger other forest resources or impact in such places: cutting a road or a wide trail into the forest to collect seeds, palm fruits or nuts with a truck might be such an impact or cutting down an aguaje palm (*Mauritia flexuosa*) to obtain the palm fruits for export is another bad example. In forest animals, the “direct contingent catches” are harvesting methods that are so unsustainable that valuable original reproducers are lost, as is observed today in Suriname and neighbouring countries.
3. The natural regeneration of the resource must be secured at all costs. For tree and palm products or medicinal plants, the long-term survival and renewal of such tree stands and plant growths must be warranted. In managed frogs, for example, we must



produce a certain excess percentage of juveniles to be returned to the forest after having passed a programme to renew the original reproducer stock. Aguaje palms or fibre palms require a certain percentage of male plants in between female plant stands to ensure the fertilization of the flowers. If we do not observe this we risk getting no fruit from the female palms.

4. For any given rain forest plot, we can evaluate and draw a product web, which is like a food web, but treats the relations of the present lumber and NWFP products coming from this particular lot and shows their interconnections and values. It can happen that producing poison frogs in a forest plot provides more income than cutting the lumber out of this plot. If we cut a tree, for example, we will lose a unique ecosystem which has been growing a hundred years or more. To re-establish the same ecosystem in the same site where we felled this 25 m giant tree will require thousands of years if we do not secure and take care of young trees of the same species in the site. Usually, the first trees which are felled are the giant seed-producing trees. Therefore, correct lumber management in tropical rain forests is a very difficult task and to design harvesting methods with the lowest impact is not easy. If we know the product web, its interactions and values, we can estimate the damage we cause by harvesting a tree and can adapt methods to replace the lost habitat or keep a sufficient number of similar trees near by so that the species can migrate and survive – or we just avoid working with the lumber and go straight to NWFP management.
5. The NWFP to be exported should have an added value in any case. In our frog business, the frogs are raised after metamorphosis in glass cages or in special screened corrals, where we provide additional food, sunlight, water, home plants and, before exporting, a preventive medication against the fatal chytrid fungus. In this way we add a value to the frogs.



6. Rain forest plots can be improved artificially to attract species – this is especially of interest if we run ecotourist projects which always require a lot of fauna around such sites. An artificially created pond, for example, is a good magnet for attracting many different animals. Artificial tree cavities might provide shelter for forest birds, lizards, monkeys and so on. Frogs and fishes produced in those artificial sites may be managed and exported, giving an extra income to those projects. For example, in the lodges in Manu and Tambopata in Peru, artificial hollow palm stems are used for nesting sites by the Ara parrots which live totally free, feeding in the forest, but sleeping at the lodge and entertaining the tourists, thus considerably increasing visitor numbers. With rescued and raised *Sanguinus* monkeys, forest pigs and capybara there are similar models. This shows that often the NWFP produced can be more useful and cash providing in the same site without even exporting it.
7. A problem concerning NWFPs falling under CITES I and II rules is the marking of the products. With parrots and some bigger animals we can now use implanted codified microchips. In small animals such as our poison frogs, their individual pattern is registered by digital photography and stored on a CD which accompanies the shipment. In medicinal plants or orchids obtained from seeds or cloning we can use the batch record from the *in vitro* laboratory.
8. Biopiracy is a major threat when exporting NWFPs from developing countries. Therefore, some countries, such as Brazil, are closing their frontiers to external enterprises that want to make bioprospecting on native plants in the Amazon. Brazil is making great efforts to train national scientists and to construct advanced biochemical laboratories at Manaus and elsewhere. The boom Brazil is enjoying at the moment in the “rain forest resource cosmetics industry” [see *Country Compass for more information*] is one of the results of trained local scientists exploring and testing those resources.

But many poor countries with good resources lack such infrastructure or scientists. In these cases, the only solution is to make joint ventures with external universities first, and then, after finding a promising product, fair trade contracts can be made with commercial enterprises. It is also recommended that the external university construct investigation and bioprospecting laboratories in the country of origin and establish an exchange of scientists. This quickly provides trained specialists in the country of origin, closing the “knowledge gap” between developed and developing countries. Locally trained scientists are able to prescreen the NWFP products *in situ* and experiment with their management and production on site with local communities as producer groups, before a deeper screening is started at the external university. There are many small, but highly specialized, external universities which need to be linked to the origins of such medicinal plants or promising NWFPs. Funds for such strategies are available internationally and locally. The problem is always to find honest business partners. Germany, for example, issues “fair trade” certificates nowadays for many products coming from developing countries. This must also be introduced for “fair science” in order to make bioprospecting a really shared mission, where all partners win and no country of origin will be the loser. We must make new international rules and laws in this sense, which protect the property rights of medicinal plants and other NWFPs for the countries of origin – or we must delete worldwide any property rights or patents on such resources and allow any interested individual, enterprise or university to work freely with those substances (unlikely in the current rush for the best patent and highest profit). Therefore, such plants, resources or patents must first be registered in the country of origin and patents or property rights established in the United States or Europe for plants from developing countries should be invalidated. Our

organization also recommends the creation of an international commission to supervise fair trade, fair science, biopatenting and perhaps also provide the certifications.

We must resolve these problems soon as we have thousands of new NWFP products and medicinal plants waiting for exploration and commercialization worldwide which can improve the lives of everyone. We can also begin to break down the gap between developing and developed country economies if we take care of a fair bioprospecting, patenting and commercialization of NWFPs.

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### CONGO BASIN FOREST PARTNERSHIP

The Congo Basin Forest Partnership – a free association of public and private partners – is working to reduce poverty and improve the lives of the Congo Basin's people through new and existing regional institutions and programmes by protecting the region's biodiversity and promoting good governance and the sustainable use and management of its forests and wildlife. (For more information, please visit their Web site: [www.cbfp.org/en/about.aspx](http://www.cbfp.org/en/about.aspx))

### CUPUAÇU CHOCOLATE

Scientists from the University of São Paulo, Brazil have patented a technology to fabricate chocolate made from cupuaçu, replacing cacao. Six products have been developed: three types of chocolate and three chocolate powdered drinks.

According to Suzana Lannes, the researcher responsible for the project, it is a refining of cupulate, the cupuaçu chocolate patented almost ten years ago by the Brazilian Company of Agribusiness



Research (EMBRAPA) but never commercialized. "Cupulate is an old product that required modifications to be marketed," she explained. "It melts very easily; it does not resist the heat." The new technology alters the properties of the fats fusion part of the cupuaçu, giving it more consistency.

The recipe is the same as for chocolate, except that cupuaçu is used instead of cacao. The flavour and the smell are almost identical, but as an Amazonian fruit it offers the advantage of being a native Brazilian product, with a decreased production cost.

Cupuaçu, which is related to the Amazonian cacao, has become a symbol in the struggle against biopiracy following its registration by Asahi Foods in Japan. This patent, as well as that for cupulate, was removed by the Japanese Government, but the company maintains its patents for these products in Europe. (Source: Agência Estado, 13 April 2004 [in Amazon News, 15 April 2004].)

### DOMESTICATION OF NON-WOOD FOREST PRODUCTS: THE TRANSITION FROM COMMON PROPERTY RESOURCE TO CROP

The place of non-wood forest products in society is changing. As the common property resources of hunter-gatherers and subsistence farmers, these products are of course central to the lives of many people for domestic use. Subsequently, as forest resources become scarce and as people move to urban centres for employment in other activities, markets develop for these products (see Figure). The agricultural revolution, especially in the last 50 years, has, however, sidelined these forest products, labelling them of "minor" importance. Nevertheless, in many places around the world, rural people know the value of the species that provide for many of their daily needs for medicines, nutrition, fibres, gums and for other everyday products not provided by staple food crops. Consequently, as the

forest receded, subsistence farmers initiated their own silent revolution and started cultivating and domesticating these useful plants, many of which are trees.

Today, the forests are gone, but trees are increasingly found in farmland and, counterintuitively, especially in areas of high human population density. A back-of-an-envelope calculation, which is difficult to substantiate, suggests that perhaps 1.52 billion people (24 percent of the world's population) use non-wood forest products. Possibly non-wood forest products are not so minor after all. Furthermore, because many of these are now cultivated on-farm (e.g. marula, *Sclerocarya birrea*; damar, *Shorea javanica*; shea nut, *Vitellaria paradoxa*; African plum, *Dacryodes edulis*), they need to be recognized as farm produce in production statistics. Consequently, they have recently been renamed agroforestry tree products (AFTPs).

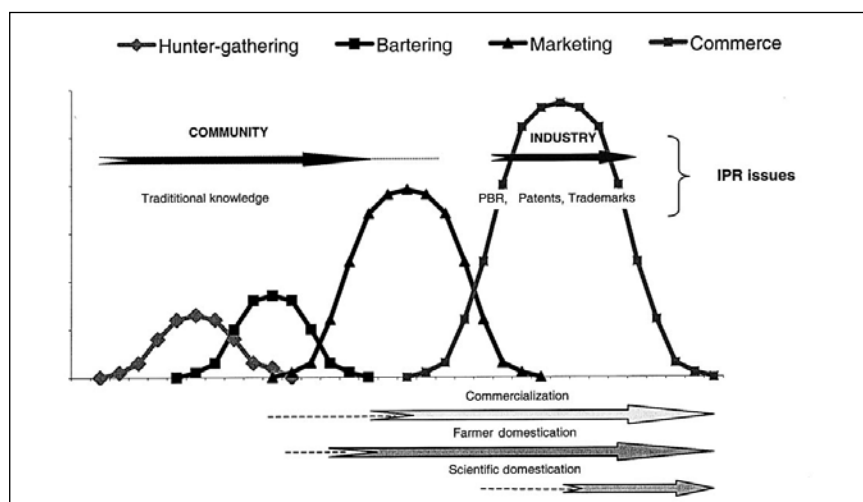
Recognizing the importance of non-wood tree products, agroforesters at the International Center for Research in Agroforestry initiated a Domestication Programme for Agroforestry Trees in 1995, building on principles and practices developed in the 1980s and elaborated at an international conference in 1992. This programme has made considerable progress in several ecoregions of the tropics, developing a participatory approach, which is a politically and socially acceptable approach to biodiscovery that

empowers local communities to use and benefit from their traditional knowledge.

The process is based on the characterization of tree-to-tree morphological variation, physicochemical and organoleptic properties of the tree products, with the objective of identifying product "ideotypes", which are targeted at specific market opportunities.

This global initiative to domesticate indigenous trees producing AFTPs that provide food and nutritional security and medicinal products also offers opportunities for subsistence farmers to generate income for food, medicines, children's school fees, agricultural inputs such as fertilizers, and other daily needs. In this way it is seen as a means of promoting agroforestry and achieving the UN Millennium Development Goals. However, for this to become a reality, it is essential that domestication proceeds in parallel with market development (see Figure). Ideally, this involves partnership in the domestication process with commercial companies. Interestingly, some multinational companies are now entering partnerships of this sort and recognizing agroforestry as a more appropriate production system than monocultural plantations. However, increasing commercialization raises a new problem, which is how to commercialize without undermining traditional and cultural values, and without exploiting the traditional knowledge of local communities.

#### THE DOMESTICATION AND THE COMMERCIALIZATION CONTINUUM





The participatory domestication process puts communities in a position to protect their intellectual property rights by, for example, the registration of Plant Breeders' Rights, but in most countries the legal process is expensive, bureaucratic and inappropriate for farmers and rural communities. Resolving this issue is recognized as an urgent priority, but progress is slow. Another constraint to achieving the scale of AFTP domestication and commercialization needed to achieve the Millennium Development Goals by 2015 is the lack of people with tree domestication skills in rural communities, especially for techniques such as vegetative propagation. Together, these opportunities and constraints indicate the need for greater recognition of the value and potential of non-wood forest products as new agricultural commodities (AFTPs). To this end, some policy guidelines have been published (Wynberg *et al.*, 2003; Tchoundjeu *et al.*, 2004; Ndoye *et al.*, 2004 [see *Publications of Interest*]).

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## FORESTS AND HEALTH

### Traditional medicines have "real benefits"

Scientists have shown that traditional medicines used in parts of Africa and Asia could help treat major diseases such as cancer and diabetes. They say their findings could lead to the identification of new compounds for use in drug manufacture.

Researchers at King's College London showed that extracts from India's curry leaf tree can regulate the release of glucose into the bloodstream, which could help diabetics who lack sufficient insulin to cope with excessive blood sugar. An extract of the climbing dayflower – used by traditional healers in Ghana – turned out to be both antibacterial and antifungal; an aquatic weed from Thailand and the Chinese star anise both inhibited the growth of cancer cells.

Any compounds identified from these plants will need to be investigated further with full clinical trials to confirm these initial results, say complementary medicine experts. (Source: BBC Online [in SciDev.Net Weekly Update, 27 September–3 October 2004].)

### Jungle medicine has already cured 800 diseases

Two scientific investigations carried out recently in Pará and São Paulo states (Brazil) show how 800 health problems are treated in Amazonia, using almost 1 800 animals and plants. The research was carried out by the Museum of Emilio Goeldi Ethnology Department and the São Paulo School of Medicine.

The researchers went to 18 localities in eight Pará state municipalities, where they identified 200 diseases treated with so-called "popular recipes". They interviewed 65 *curandeiros* and identified 23 mammals, ten birds, eight types of reptile, fish and 15 invertebrates, in addition to 500 plants used in the remedies. Of the 1 800 investigated, 30 are of indigenous origin, 25 percent came from Africa and the rest were of varied origin.

A reason why cures with traditional medicines continue to be marginalized is also because international laboratories want to continue earning billions of dollars through biopiracy, practised in tropical forests worldwide. By robbing herbs and plants and the knowledge of traditional populations, these laboratories earn millions of dollars when their new products are introduced into the market. (Source: *Página 20*, 10 September 2004 [in *Amazon News*, 16 September 2004].)



### Sustaining the supply of traditional medicines (DFID Forestry Research Programme R8305)

*This document is an output from a project funded by the United Kingdom Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.*

In Africa, livelihoods, health and natural resources are intimately entwined, most obviously through the collection, trade and use of medicinal plants. Traditional medicine which relies on native therapeutic plants is reportedly used by up to 80 percent of people in sub-Saharan Africa and is often the only source of health care for the poorest and the most isolated rural people. The advent of HIV/AIDS has increased demand for medicinal plants to alleviate the symptoms of AIDS. Demand for medicinal plants from urban populations has resulted in high levels of commercial harvesting which is often concentrated in forest reserves which are increasingly the only remaining habitat for significant populations of indigenous plants. Unsustainable harvesting of these plants threatens the species themselves, the income security of collectors and could compromise the health security of urban and rural poor people. Nevertheless, the sustainability of locally used medicinal species has been largely disregarded by natural resource managers, trade is an invisible part of the grey economy and exploitation is often illegal. This means that the impending medicinal plant crisis has been largely overlooked by the international research and aid communities.

The R8305 project is intended to help redress this imbalance within the Southern African Development Community region with South Africa, Malawi and Zambia as project partner countries. The project focuses on the development of scientific and collaborative tools to prepare sustained yield management plans for medicinal tree bark which forms up to 40 percent of the plant products traded wholesale in





South Africa. The project is a successor to the South African Innovation Fund "Commercial products from the wild" project which has also worked on bark and it seeks to extend the findings of this project to other species, ecosystems and countries in southern Africa.

Over the past five years, the Forestry Research Programme has supported the development of management systems for non-timber forest products (NTFPs). Part of this support was the identification of a need for better focused research on biometric sampling to determine the stocking and growth of NTFPs (ZF0192 and ZF0077). Several case studies of NTFP inventory methods were undertaken by the European Union-funded FAO GCP/RAF/354/EC project "Sustainable forest management in African ACP countries" [see *Non-Wood News* No. 9] and the present project builds on this experience and the relationships established between South African, Malawian and Zambian researchers. Technical backstopping for the project comes from United Kingdom and German universities.

The preliminary findings of R8305 are that tree species respond in different ways to the stresses of bark removal and not all can replace lost bark or even survive such wounding. This means that it is necessary to customize management plans for each species of tree being managed for bark. The project is developing the protocols by which this can be done in a form suitable for use by Forestry Department field staff working together with local bark collectors – as a bark management "toolkit". The management plans that will be facilitated by the trained Forestry Department staff should lead to a sustainable supply of bark which in turn should provide a sound and secure basis for collectors' and traders' incomes as well as contributing to health security.

The intention is that the toolkit will be adopted for use within the context of the recently introduced collaborative forest management principles in each country. This process is supported by bilateral projects in those countries, which means

implementation can be supported. This will be supported by training materials and courses to be delivered by forestry colleges in each country. Academic papers will relay the findings of the project to the international forestry research community and by peer review increase their credibility. Capacity building within the research, education and forestry organizations involved in the project and the development of an international network of NTFP researchers are also important outputs of this project.

A project workshop will take place in Johannesburg, South Africa, in October 2005.

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#### **Forests, safety nets for HIV/AIDS-affected households**

Forests provide emergency income, food and medicine for rural households affected by HIV/AIDS.

Households affected by HIV/AIDS rely on forest resources such as fuelwood, medicinal plants and wild foods for income and food, according to a recent study commissioned by FAO in five communities in Malawi and Mozambique.

Households experiencing the loss of an HIV/AIDS-affected working-age adult

are five times more likely to have increased fuelwood collection, the study reports. Because fuelwood can be collected with minimal and unspecialized capital input, robust markets for fuelwood provide affected households with a year-round opportunity to generate cash.

Sixty percent of affected households also relied on the use of medicinal plants as a primary response to illness. Herbal remedies have been observed to be effective in managing HIV/AIDS-related infections such as oral thrush, herpes and shingles, and in relieving appetite loss, nausea, fever, diarrhoea and cough.

Nearly a quarter of the households suffering the recent death of a working-age adult stated that the sale and consumption of medicinal plants, wild foods and other products such as reed mats and baskets, had become a more important source of income and food following the loss, with some households entering such activities for the first time. They were also twice as likely to have had a major forest products collection trip in the previous month.

Where forests provide a safety net for rural households coping with the short- and long-term impacts of HIV/AIDS, inadequate forest management is threatening the viability of these coping strategies.

Indicators of forest quality in two affected communities with similar access to forest resources revealed that in the community with a high level of HIV prevalence, forest resources were being depleted at a faster rate.

This is not to say that there is a causal relationship between HIV prevalence and deforestation, but this research does indicate that, for households in those rural communities most affected by HIV/AIDS, their ability to cope with the epidemic is undermined if forest resources are depleted.

The availability of medicinal plants used in the treatment of HIV/AIDS-related illnesses also decreased in affected communities. According to local herbalists, at least 13 species used in treating one or more of these illnesses have decreased in availability over the last five years.



FAO studies in Malawi and Mozambique indicate that the sustainable management of forest resources is a mitigation strategy in itself. The loss of forest resources not only undermines rural coping strategies, but aggravates the labour burdens of households constrained by sickness and care-giving. In addition to the health consequences at the household level, scarcity of forest resources for subsistence can create situations of vulnerability that perpetuate the epidemic in rural areas.

The lines between health and the environment are not distinct. It is necessary that responses to the HIV/AIDS crisis comprehensively address the realities of the affected rural communities.

FAO recognizes that empowering local institutions is key to building and maintaining local resilience in HIV/AIDS prevention, care and impact mitigation. It is facilitating national forestry departments to integrate HIV/AIDS-coping strategies into their programming.

FAO recommends policy and field programme implementation that ensures affordability, quality, sustainable management, domestication and use of medicinal plants; improved accessibility and availability of fuelwood; subsistence collection and domestication of nutritionally valuable foods for dietary diversification with an emphasis on micronutrient intake; and developing low-capital, income-generating activities from forests. (An online discussion-forum on the topic may be found at: [www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=3561&sitetreeId=21328&langId=1&geold=0](http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=3561&sitetreeId=21328&langId=1&geold=0))

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#### **Traditional medicines “must be registered and studied”**

A World Health Organization official has urged traditional medicine practitioners in Africa to register their products to gain more benefits – including international trade – from their use. Speaking on

16 August at the first scientific meeting of the Western Africa Network of Natural Products Research Scientists, which focused on malaria and HIV/AIDS, Charles Wambebe said that only 22 of 46 African countries have policies or laws covering traditional medicine.

Wambebe said that traditional medicine was the most accessible form of treatment for most Africans, and underlined the need for more complementary use of traditional and modern medicine practices to meet the health needs of the majority. He also stressed the importance of research and conservation of medicinal plants to ensure their sustainable use.

The network’s executive secretary was concerned that local pharmacists prefer to import foreign drugs rather than prepare traditional treatments, commenting that medicinal plants would be used more effectively and rationally and would have greater value if more were known about their scientific basis. (Source: GhanaWeb.Com [in SciDev.Net Weekly Update, 16–22 August 2004].)

#### **Support for traditional medicine from African states**

A number of African leaders last week used the second African Traditional Medicine Day (31 August) to confirm their commitment to national efforts aimed at ensuring the safety, efficacy and quality of traditional medicines. The African Union Commission called on its member states to ensure that research on traditional medicine is integrated with HIV/AIDS control programmes, as well as with all aspects of development policy.

Similarly, the newly established ministerial committee on traditional medicine of the Southern African Development Community stressed the importance of traditional medicine in addressing health challenges.

Since 2001, when the Summit of the Organization of African Unity declared 2001–2010 as the Decade for African Traditional Medicine, African countries have been developing both research programmes on traditional remedies and legislation regulating their use.

South Africa, for example, has set up a Traditional Medicines Database containing medical and botanical information on plants with healing properties, intended as a step towards setting safety standards. Earlier this year, the country’s Medical Research Council started investigating seven traditional remedies to determine whether anecdotal claims of cures for several diseases – including HIV/AIDS – can be supported scientifically.

African countries, such as the United Republic of Tanzania, already have legislation regulating the use of traditional medicine.

The South African Parliament is expected to follow suit with the adoption of a bill setting up a Traditional Health Practitioners Council, as well as a regulatory framework for traditional health practitioners and services. This proposal has run into criticism from organizations such as Doctors For Life, who oppose the use of medicines that, they claim, have not been scientifically validated.

In Kenya, however, a similar bill has been given a cautious welcome by the medical community, even though physicians continue to express reservations about the ethical basis on which some traditional medicines are administered. [See next story.]

Ghana has launched a code of ethics for traditional medicine practitioners, developed by the Ghana Federation of Traditional Medicine Practitioners Associations.

In Senegal, it was announced that the fourth International Conference on Traditional Medicine will have a particular focus on HIV/AIDS. (Source: SciDev.Net, 3 September 2004.)



*Hypericum perforatum*



### Traditional medicine action plan in Kenya

Kenya is to develop a national strategy for both promoting and regulating the use of traditional medicine, and providing alternative forms of treatment to the country's poor. The new arrangement will boost research into the use of both traditional knowledge and modern medicines to curb major diseases such as HIV/AIDS and malaria. It will also encourage the conservation of biological resources from which traditional medicines are drawn.

Kenya's Environment Minister suggested that increased research into developing traditional medicines for the poor could be used to encourage communities to conserve biological diversity. For example, he emphasized the need to preserve one of the most endangered tree species, *Prunus africana*, whose bark contains medicinal compounds. Kenya has already banned the tree's export in order to protect it. (Source: SciDev.Net Weekly Update, 28 June–4 July 2004.)

### Centre of forestry health

To preserve the knowledge of traditional communities that utilize forest resources to combat their diseases in an ecological and sustainable manner is the objective of the New Life Health Project in Rio Branco-AC (Brazil). The idea is to form nuclei together with the state's traditional communities in a distinct manner to guarantee the preservation of people's health from the resources that are available in the forest.

"We all know that diseases such as malaria are treated with a tea of ten herbs that produces a cure as good as or better than the remedies from the pharmacy. We also have cures for parasites, rheumatism, stomach aches, skin problems and many more. All of these medications are at our reach in the forest in the areas surrounding where we live, we need to know how to use them in an appropriate way," affirms the director of the New Life Health Project.

In the health centres, the patients will not only receive conventional medications but also teas and other products elaborated with herbs and traditional

techniques. "In Croa we have 30 students who are dedicated to recuperating this culture that circulates within the community. We have more than 60 different types of traditional medicine ready to be tested and studied in the hope of being able to produce health as well as resources for the people of the forest."

The Centre of Forestry Medicine will function as a great formation centre for professionals who will then join their communities in the middle of the forest. Among them are health promoters of forestry medicine and environmental education. (Source: *Página 20*, 26 March 2004 [in *Amazon News*, 1 April 2004].)



### INSECT ATTACKS EUCALYPTUS

The now popular hybrid eucalyptus tree faces destruction in Kenya by the blue gum chalcid, an insect in the bee-wasp family that invaded the country from Uganda. Scientists estimate that about 40 percent of Kenya's forests could be destroyed. Eucalyptus trees form the single biggest family of plantation species in Kenya's forestry.

Kenya has yet to come up with a solution to counter the destructive insect. However, trials are under way to introduce a biological control.

There are more than 800 species of *Eucalyptus* worldwide, with Kenya hosting some 600 of them. Where scientific evaluations are done in an exercise called species-site matching, the tree can be used to support local biodiversity. The sunbirds and many insects, for example, find eucalyptus forests a very conducive home owing to plenty of food in the form of flower nectar.

The tea and tobacco industries find it ten times cheaper to cure their leaves using eucalyptus fuelwood in their furnaces compared with fuel oil.

Eucalyptus is also widely used in the pharmaceutical industry, especially in making nose-unblocking sticks and skin-rubbing ointments. Sweets, toothpastes and confectioneries are also blended with eucalyptus oil for flavour.

Honey made by bees feeding on eucalyptus flowers is also recognized as one of the best in the world. As a result, Australia is a leading honey producer. (Source: *The Nation* [Nairobi], 18 November 2004.)

### MANGROVE ACTION PROJECT

Naturally resilient, mangrove forests have withstood severe storms and changing tides for many millennia, but they are now being devastated by modern encroachments. Today, mangrove forests are among the most threatened habitats in the world – disappearing at an accelerating rate, yet with little public notice.

Today, less than half the world's original mangrove forest cover remains. There are many reasons for this decline, but in general the blame lies with unregulated and unsustainable developments, lack of clear understanding and recognition of the importance of mangrove wetlands, and a clear lack of law enforcement and monitoring to protect these fragile ecosystems from illegal encroachment. Nearly one million hectares of coastal areas, including valuable mangrove forests, have been cleared to make way for the shrimp aquaculture industry. Other unsustainable developments, such as timber and oil extraction, the charcoal and tourism industries, and unchecked urban expansion along the tropical and sub-tropical coasts, are also contributing to extensive tidal wetland losses worldwide.

To address these critical issues effectively, the Mangrove Action Project has taken a dynamically unique five-pronged approach to long-term mangrove conservation: education/awareness



raising; collaboration; restoration; conservation; and advocacy.

The Mangrove Action Project (MAP), in partnership with several Caribbean non-governmental organizations, is currently working towards a programme to restore degraded mangrove forests in the Caribbean region. This programme can serve as a demonstration project for other restoration efforts worldwide. MAP will train a group of restoration experts to

investigate several sites throughout the Caribbean and select suitable locations for the restoration programme.

MAP has successfully led small-scale, international volunteer teams on work/ ecostudy tours in Ecuador, Thailand, Malaysia and Sri Lanka. These tours have raised public awareness locally as well as internationally on the importance of mangrove forests for both marine life and local communities.

### MANGROVE FORESTS

**Mangroves are rain forests by the sea. The majority of the subtropical and tropical coastline is dominated by mangroves, estimated to cover an area of 22 million hectares. However, over the past several decades, the global area in mangroves has increasingly diminished as a result of a variety of human activities.**

Mangrove forests comprise taxonomically diverse, salt-tolerant tree and other plant species which thrive in intertidal zones of sheltered tropical shores, "overwash" islands and estuaries. Mangrove trees have specially adapted aerial and salt-filtering roots and salt-excreting leaves that enable them to occupy the saline wetlands where other plant life cannot survive.

Mangrove ecosystems have traditionally been sustainably managed by local populations for the production of food, medicines, tannins, fuelwood and construction materials. For millions of indigenous coastal residents, mangrove forests offer dependable, basic livelihoods and sustain their traditional cultures.

The protective mangrove buffer zone helps minimize damage of

**property and losses of life from hurricanes and storms. In regions where these coastal fringe forests have been cleared, tremendous problems of erosion and siltation have arisen, and sometimes terrible losses to human life and property have occurred owing to destructive storms. Mangroves have also been useful in treating effluent, as the plants absorb excess nitrates and phosphates, thereby preventing the contamination of nearshore waters.**

The shallow intertidal reaches that characterize the mangrove wetlands offer refuge and nursery grounds for juvenile fish, crabs, shrimps and molluscs. Mangroves are also prime nesting and migratory sites for hundreds of bird species. In Belize, for instance, there are more than 500 species of birds recorded in mangrove areas. Additionally, manatees, crab-eating monkeys, fishing cats, monitor lizards, sea turtles, the Royal Bengal tigers and mud-skipper fish utilize the mangrove wetlands. Many endangered species are native to mangroves.

Mangrove forests literally live in two worlds at once, acting as the interface between land and sea.

### MINILIVESTOCK



#### Minilivestock use implications

Although there are more than 15 million species of plants, animals and microbes on earth, more than 90 percent of the world's food supply comes from just 15 crop species and eight livestock species.

One way to augment the human food supply is to increase the diversity of plant and animal species used as food. A recent book provides stimulating and timely suggestions about expanding the world food supply to include a variety of minilivestock. It suggests a wide variety of small animals as nutritious food. These animals include insects, earthworms, snails, frogs and various rodents.

The major advantage of minilivestock is that they do not have to be fed on grains, thus saving many crop species for human consumption. The book suggests technologies for harvesting these small livestock. (Source: Paoletti, Maurizio G., ed. 2004. *Ecological implications of the use of minilivestock (insects, rodents, frogs and snails)*. Science Publishers, Inc., USA.)

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**Insects are essential sources of proteins, fats and important vitamins in many parts of the world. For example, 100 grams of termites can provide more than 500 calories of food energy, while bee larvae contain ten times as much vitamin A as egg yolk does. (Source: Elevitch, Craig R., ed. 2004. *The Overstory Book: cultivating connections with trees*. Permanent Agriculture Resources, Holualoa, Hawaii, USA.)**

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[Please also see *Mangroves and the tsunami*, on page 69.]





**Contribution des insectes de la forêt à la sécurité alimentaire. L'exemple des chenilles d'Afrique centrale** (Contribution of forest insects to food security. The example of caterpillars in Central Africa) is a new working document from FAO's Non-Wood Forest Products Programme. The document is in French, but the synthesis is also in English.

Hard copies are available free of charge from: Non-Wood Forest Products Programme, Forest Products and Economics Division, Forestry Department, FAO.  
 Fax: +39 0657055137;  
 e-mail: non-wood-news@fao.org;  
 online version: [www.fao.org/docrep/007/j3463f/j3463f00.htm](http://www.fao.org/docrep/007/j3463f/j3463f00.htm)

**Gecko breeding expansion in Viet Nam**  
 The Non-timber Forest Products Subsector Support Project in Viet Nam is going to support target villagers in the project area of Van Don district, Quang Ninh province to establish and test two different gecko breeding models, and disseminate lessons learned throughout the country to improve household income generation and forest protection.

Geckos belong to the reptile family of Gekkonidae, and are known to occur throughout Viet Nam. In their natural habitat geckos live typically in forests at

elevations of less than 900 m. Geckos are commonly used as a remedy in traditional Chinese medicine; consequently, there is a huge demand for the species which continuously threatens wild populations. In addition, the current method of collection and harvesting of geckos is destructive because the geckos' habitat (old trees) is usually destroyed through chopping the trees and collecting the animals.

In theory, gecko breeding is not very labour intensive, which could be beneficial to several households of the most disadvantaged groups of the local community and, to some extent, of the whole country. Gecko breeding models were successfully introduced by an FAO project in Hoanh Bo district. However, for some reason the models have not been promoted outside the area. By testing the models in Van Don, a different geographic area, the NTFP project hopes to: meet the interest of local farmers in gecko breeding, thus decreasing the level of uncontrolled exploitation of wild populations in natural forests; and gather useful experience to expand the practice beyond the project field sites.

The project will subsidize 80 to 90 percent of the total costs for cages and breeding stock. According to project estimates, the two models will yield profits of up to D 350 000 after ten months of implementation and, since production costs for the second cycle are lower, net profits will increase by around D 200 000 in the subsequent production cycles.

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**Bureau for Exchange and Distribution of Information on Mini-Livestock**

The Bureau for Exchange and Distribution of Information on Mini-Livestock (BEDIM) has been active worldwide for many years in the controlled development of minilivestock, i.e. African and South American grasscutters, guinea pigs, frogs, giant snails, termites, butterflies, capybaras and other rodents.

BEDIM produces and publishes a *Semestral Information Bulletin on Mini-Livestock* with the financial support of the FAO Animal Production and Health Division.

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[www.fao.org/ag/AGA/AGAP/FRG/FEEDback/War/W6437t/w6437t10.htm](http://www.fao.org/ag/AGA/AGAP/FRG/FEEDback/War/W6437t/w6437t10.htm)



The frog population in Russia is dangerously reduced because the Chinese food market is overconsuming them. (Source: Taiga Rescue Network.)



## ORGANICALLY CERTIFIED NWFPs – HARVESTING WILD AND SEMI-DOMESTICATED SPECIES

As an outgrowth of the expanding market for organic food products, mechanisms are being developed to certify organically produced NWFPs.

Organic certification of NWFPs is still embryonic compared with the cultivated products that are the main focus of existing organic production systems. However, many organic standards provide specific sections on NWFPs, such as the International Federation of Organic Agriculture Movements (IFOAM) *Basic standards for organic production and processing*.

Organic certification promotes economically viable and environmentally friendly use of natural resources. The certification mechanisms that already exist for monitoring and evaluating production or commercialization of agriculture and timber products can be expanded and adapted for certifying organic NWFPs.

Four main certification schemes are relevant to NWFPs:

- *Organic certification* focuses on criteria such as the renunciation of synthetic fertilizers and pesticides. Under these criteria, wild and semi-domesticated NWFPs such as pinenuts, mushrooms and herbs could be considered organic.
- *Forest management certification* assesses the ecological aspects of resource management, both at the

forest and species or product level, and ensures the sustainable production of forest resources.

- *Social certification*, such as fair and ethical trade, assures that labour conditions are acceptable and benefits are shared equally among those involved in production and trade.
- *Product quality certification* covers production standards that focus on the product as well as on the way it is processed and manufactured.

Organic systems are based on precise standards of production that work towards supporting optimal agro-ecosystems. In order to be recognized as organic products, wild harvested or semi-domesticated products should meet explicit criteria. (Source: Fact sheet, FAO Inter-Departmental Working Group on Organic Agriculture, [www.fao.org/organicag/](http://www.fao.org/organicag/))

## ORGANIC PRODUCERS AND ASSOCIATION OF ZAMBIA

Honey production from the North-Western Province of Zambia has increased with an estimated export crop of 400 tonnes involving 3 000 bark hive producers in the 2003/04 season. According to the Organic Producers and Association of Zambia (OPPAZ), the last few years have seen numerous successes in the organic field with some of the honey producers being certified by the Soil Association of Zambia under the umbrella of the North-Western Beekeepers Association. Organic certification is carried out by Ecocert, a French certification body.

OPPAZ says that commercial agriculture has been producing certified organic vegetables for export and is now beginning to export essential oils using the outgrower schemes.

There is a growing interest in organically wild products such as manjeti (mongongo) nut oil, baobab oil and fruit, marula oil and mpundu (*Parinarium curatellifolia*) nut oil.

Organically certified wild harvest mushrooms have been exported from Mpongwe for a number of years, according to OPPAZ. (Source: *The Times of Zambia* [Ndola], 10 March 2004.)



## OUTLOOK STUDIES

Less natural forest cover, but more protected areas and forest plantations, and an increased share of international trade in forest products are expected by 2020 in Latin America and the Caribbean. This is the conclusion of an outlook study to be published at the end of the year by FAO. The forecasts were presented for discussion to country representatives at the Latin American and Caribbean Forestry Commission this week [October 2004] in San José, Costa Rica.

Country representatives at the meeting recognized the need for coordinated follow-up actions and programmes in response to the outlook forecasts. "The future of forests in the region in the coming decades depends on how countries react to, and what kinds of actions they take in view of these expected changes," said Mr Merilio Morell, an FAO forestry expert, at the meeting.

Natural forest cover is expected to continue decreasing between now and 2020, according to the study. It is expected to shrink from 964 million hectares in 2002 to 887 million hectares in 2020, or 47 percent of the total land area of the region. Planted forests are forecast to increase from 12 million to more than 16 million hectares. Protected areas are also likely to expand. Between 1950 and 2003, protected areas had already increased from 17.5 million to 397 million hectares, reaching 19 percent of the region's total area and 23 percent of the world's protected areas. Between



The Overstory/C. A. Sobel and M.-A. Cotter



now and 2020, new protected areas are expected to be created in the region, including mega-parks and biological corridors.

With appropriate means, it is possible to reverse the trend of deforestation.

Costa Rica reported how forest cover in the country increased from less than 30 percent to 47 percent in little more than a decade thanks to its National Fund for Forest Financing. The fund spends 3.5 percent in tax charged for the use of fossil fuels to support landowners and local communities in maintaining protected areas, planting trees and managing their natural resources.

Uruguay and Cuba also described how their policies helped slow down and reverse the deforestation rate.

"To guarantee protection and sustainable use of forests, the multiple benefits and services provided by forests have to be valued in monetary terms by those who benefit," Morell said. "Forests not only offer timber and non-wood forest products such as fruits and natural medicines, but also contribute to ecotourism, the conservation of watersheds and biodiversity, and to the mitigation of climate change. All this should be valued to raise funds needed to pay for the conservation of forests." (Source: FAO Newsroom, 20 October 2004.) [See page 71 for more information on outlook studies.]

## PLANT AND CLAY DYES

The plants used by weavers and potters in West Bengal, India, for extracting natural dye include *Acacia catechu* (heartwood), *Albizia lebbek* (fruit), *Butea monosperma* (flowers), *Camellia sinensis* (leaves), *Ceriops decandra* (bark), *Ceriops tagal* (bark), *Citrus aurantifolia* (juice mixed with palash), *Daucus carota* (roots), *Mimusops elengi* (bark), *Punica granatum* (fruit rind), *Rhizophora apiculata* (bark), *Rhizophora mucronata* (bark), *Rhizophora stylosa* (bark), *Swietenia mahagoni* (fruit), *Tagetes erecta* (flower), *Ziziphus jujuba* (ash of twig) and *Ziziphus oenoplia* (ash of twig).

*Diospyros peregrina* fruit extract is smeared on thread to increase its longevity and the bark extract of *Mimusops elengi* is used in textiles to increase the lustre. (Source: Ghosh, A. 2004. Plant and clay dyes used by weavers and potters in West Bengal. *Natural Product Radiance*, 3[2]: 91.)



## PLANT MORE TREES

FAO advised countries in the Near East and North Africa to plant more trees to improve the quality of water and increase food production.

In a statement coinciding with the start of a five-day meeting of experts in the Lebanese capital, Beirut, Hosny al-Lakany, FAO Assistant Director-General for Forestry, said that "planted trees not only help the region to have better quality water, but trees serve as windbreaks and shelterbelts against desertification."

Forest cover in the region amounts to around 110 million hectares, equivalent to 5.9 percent of the total land area. But the Sudan accounts for more than half the total forested area and in other countries forests on average cover less than 3 percent of the land.

The overall forest cover in the region declined by nearly 1 million hectares a year in the last decade and six countries recorded a drop in forest cover.

FAO estimates that about 8.3 million hectares, around 5.5 percent of the total forested area in the Near East, consist of trees which have been planted, and that almost half of them are in Iran or Turkey.

The statement noted that forests are important as a source of fuel and livestock fodder. Forests in the region also provide about 2 million cubic metres of wood products and more than US\$100 million

worth of exported non-wood forest products, such as gum arabic, cork, pistachios and honey. (Source: *The Daily Star* [Lebanon], 25 May 2004.)

## PONGAMIA PINNATA OIL

*Pongamia pinnata* produces seeds containing 30 to 40 percent of oil. This natural pongamia oil is being substituted for petroleum diesel oil in local power generators in Powerguda village, Adilabad district, Andhra Pradesh, India, thereby reducing carbon dioxide emissions.

The carbon dioxide emission reduction comes from the substitution of about 51 tonnes of diesel oil by biofuel produced from *Pongamia pinnata*, a native tree species found in the local forest. The people of Powerguda planted 4 500 pongamia trees in 2002 on the edges of their agricultural land. Oil from the pongamia seeds is extracted in the village's oil mill which was installed by a local government agency.

The World Bank's ESSD Forest Team has recently purchased the equivalent of 147 tonnes of carbon dioxide in verified emission reductions from Powerguda village. The emission reductions over ten years come from the production of this natural pongamia oil which is substituting petroleum diesel for use in power generators and other engines. A Certificate of Recognition of Global Environmental Leadership has been given to the World Bank to confirm their purchase.

For more information, please see:  
[www.profor.info/pdf/PowergudaCertificate.pdf](http://www.profor.info/pdf/PowergudaCertificate.pdf); and  
[www.profor.info/docs/PressReleasePowerguda.doc](http://www.profor.info/docs/PressReleasePowerguda.doc)







## PROBONA

The Programa Regional de Bosques Nativos Andinos (PROBONA) works with non-wood forest products: food products, such as the Andean honey bee, cheese, fishery, organic coffee and Andean fruits, as well as with non-food products, such as leaves (*Blechnum* sp.), natural fibre (cabuya), duda (*Aulonemia queko*) and Latin bamboo (caña guadua). Their objective is to raise awareness and increase knowledge concerning these products and those who produce them, and to create markets for them.

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## PROJET D'APPUI TECHNIQUE À LA FILIÈRE KARITÉ (PROKARITÉ)

An initiative of the World Agroforestry Centre (ICRAF-Sahel) with support from the Common Fund for Commodities, FAO and the Government of the Netherlands, the Projet d'appui technique à la filière Karité (ProKarité) is a concerted regional, technical and commercial programme for the development of the shea resource to serve all the stakeholders of the shea sector, from rural producer communities to urban and international end users, including both industry and consumers.

The product certification system established under ProKarité will enhance the "traceability" of the regional supply chain, thus serving all sector stakeholders.

ProKarité will reinforce the value of the living tree, for the primary benefit of the producers who manage the shea stands across the African continent, their households and future generations.

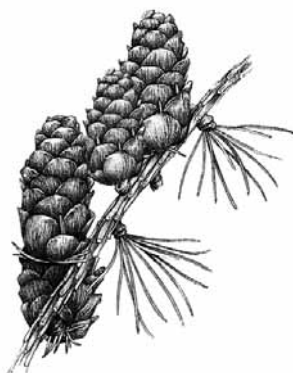
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## SUDAN SILVA

*Sudan Silva* is a specialized journal published biannually by the Sudanese Forestry Society and the Forests National Corporation. It publishes original research and critical reviews in all areas of forestry and related fields.

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## TAIGA NON-TIMBER FOREST PRODUCTS

An NTFP workshop, held during the Taiga Rescue Network 7th Biennial Meeting, took place on 21 September 2004 in Vladivostok, Russian Federation. The major outcomes of the session were:

- Nature tourism will reduce logging and save NTFPs.
- Growing medicinal plants for sale will protect wild plants.
- Need to protect NTFPs from overharvesting for profit.
- Wild plants are needed for medicinal and spiritual practices.

- Map critical areas of NTFPs for government land-use planning and protection from logging.

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## TRADE

### ASEAN committed to controlling wildlife trade

The ten members of the Association of Southeast Asian Nations (ASEAN) [meeting in Bangkok, Thailand] today announced a bold initiative to work together to address the region's wildlife trade crisis.

WWF and TRAFFIC called upon the global CITES community to support action in Southeast Asia, a region which has long played a role as supplier and trade entrepôt for a significant portion of the global trade in wildlife. The region's own rich biodiversity makes it a target for traders interested in a variety of animals and plants ranging from tigers and elephants to rare orchids.

The ASEAN Statement on CITES focuses on six key areas of cooperation. These include the need for increased law enforcement cooperation, comprehensive legal frameworks and more scientific information to be made available to guide wildlife trade management by CITES authorities. Beyond the ASEAN Statement itself, the ten countries have agreed to develop an Action Plan for 2005–2010.

As economic growth has increased, demand has risen in Southeast Asia for products such as birds and reptiles for the pet trade, luxury items made from ivory and hawksbill turtle shell products, and high-value traditional medicines such as musk and ginseng. (Source: WWF-TRAFFIC Press Release, 11 October 2004.)

### Biotrade

Environmentally sustainable "biotrade" is gaining ground among the longstanding





commercial products that the Andean region puts on the international market.

The extraordinary biological wealth of South America's Andean countries is beginning to pay off for those who take advantage of it. Despite the ecological and economic importance of preserving biodiversity, the notion of leaving nature untouched is falling by the wayside.

Colombia, Ecuador, Peru and Venezuela are four of the 12 countries in the world with the greatest biodiversity. They are Andean countries, but they also hold portions of the vast Amazon Basin. According to the development agency of the Andean Community of Nations (CAF), "We are facing a new wave, marked by the possibility of a boom in the intelligent use of biodiversity, taking advantage of it in a sustainable way."

Taking advantage of autochthonous resources for biotrade entails identifying niche markets and even developing new forms of organization. A success story is Bambú de Colombia, in business for more than 30 years, and employing hundreds of families in planting and prevention of deforestation.

The Andean countries are trying to promote production for biotrade, "and in each one we face difficulties in obtaining financing, the lack of research, the lack of development of new products and a failure to consolidate what we have to offer," said a consultant to the "green markets" group in the Colombian Environment Ministry.

CAF has already earmarked US\$900 000 for programmes to fortify institutional, business and community development geared towards biotrade.

Trade and organizing rural and indigenous communities to make the most of their natural resources are part of the first phase in the "new wave", before full sustainable exploitation of biodiversity, which requires financing and research, and the region is far from obtaining those, said CAF.

Biotrade could be a boon to the Andean countries, which also hold part of the Amazon, as a platform to pursue development in biodiversity and gain access to hungry markets, according to

studies that CAF entrusted to United States technology research centres.

As for the field of applied sciences in health and industry, in 2003 there were 370 biotechnology pharmaceuticals in development to treat more than 200 diseases.

The Andean countries should step up value-added activities by taking advantage of their biodiversity, and intensify efforts to regulate and jointly negotiate their potential in integration and free trade agreements that are under way.

One of the key aspects of the free trade agreement that the United States is negotiating with Colombia, Ecuador and Peru refers to access to the biological wealth of the three South American countries. (Source: [BIO-IPR] Resource pointer, 16 August 2004, bio-ipr@grain.org citing Tierramérica.)



#### Trade controls on hoodia and Asian yew trees

A United Nations conference approved on Friday a proposal by African countries to control trade in a rare plant sought by drug companies for its appetite-suppressing properties. The hoodia cactus in question has been used for thousands of years by southern Africa's San Bushmen to dampen their appetites during long treks through the harsh Kalahari desert and holds the key to potentially lucrative anti-obesity drugs.

The Convention on International Trade in Endangered Species (CITES) listed the hoodia plant in its Appendix II – which will regulate global trade in the species – at the behest of South Africa, Namibia and Botswana.

It also adopted a Chinese and United States proposal to put Asian yew trees,

which provide the compound for one of the world's top-selling chemotherapy drugs, in the same appendix.

That will give added protection to plants which could save untold human lives while earning billions of dollars for big drug companies.

*Hoodia.* South Africa's Council for Scientific and Industrial Research (CSIR) has patented the chemical entity extracted from hoodia and licensed British drugs-from-plants firm Phytopharm Plc to develop the plant's commercial potential. Phytopharm said in July it welcomed moves to protect hoodia from illegal cultivation. "We would like pharmaceutical companies to produce finished products in the three countries," said the South African delegate, adding that there were structures in place to ensure that the San Bushmen derived benefits from the product.

*Valuable but fragile yew.* For years Chinese herbalists have used trees of *Taxus* species, also known as yew trees, to treat common ailments. In the late 1960s, scientists in North Carolina found that the extract of yew bark fought tumours. In the early 1990s, the United States Government approved the use of paclitaxel, also known as taxol, by drug company Bristol-Myers Squibb for chemotherapy. Taxol, whose patent expired in the United States in 2001, is one of the best-selling drugs for treating a variety of cancers. In 2003, drug firms sold more than US\$4 billion worth of products with taxol and other drugs derived from yew trees known as taxanes. But conservationists say the various *Taxus* species are under threat from illegal harvesting and habitat destruction in China. "This is a win for conservation as well as for trade," said the head of the United States delegation. "It ensures the products come from legal and sustainable resources. And it's important to preserve the species because it has a great impact on the lives of many people." (Source: Reuters, cited in *Sustainable Africa Newsletter*, 9 October 2004.)



**Global trade in agarwood**

Governments today voted by an overwhelming majority to regulate the global trade in agarwood, a little known but high-demand product that is possibly the most valuable non-timber forest product worldwide. The efforts of Indonesia and other range states in Asia to request additional management controls under CITES should help ensure that the centuries-old trade continues at more sustainable levels, says TRAFFIC, the wildlife trade monitoring network.

"After more than a decade highlighting the dangerous trends of overharvesting to supply this trade, TRAFFIC is very pleased to see some collective action on this issue," said James Compton, Director of TRAFFIC Southeast Asia. "TRAFFIC's work with range states from India eastwards to Papua New Guinea has shown that this unique group of agarwood-producing tree species is clearly threatened by trade and that, unless this is better regulated, long-term supplies remain in jeopardy."

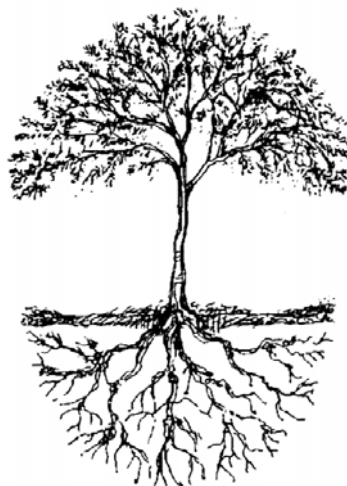
The trade in agarwood, resinous deposits of which are found in tree species of the genera *Aquilaria* and *Gyrinops*, dates back two thousand years and meets the cultural, medicinal and religious needs of societies from the Near East right across Asia to China (including Hong Kong Special Administrative Region and Taiwan Province) and Japan. It is also used in the production of high-grade incense and perfumes. In addition to the Appendix II listing endorsed today, CITES Parties have called for an important dialogue between producers and consumers to be held prior to the next meeting of the Conference of the Parties to CITES.

"It is important to remember that CITES Appendix II is not a trade ban, but a management intervention that will help ensure legality, promote sustainability and enable more accurate monitoring of the agarwood trade," Compton continued.

Increasing scarcity of supply has driven agarwood prices progressively higher, to the extent that mid-level grades are sold for US\$1 000 per kilogram in markets such as Bangkok and Singapore, and can fetch more than US\$10 000 per kilogram in the

end-consumer markets of the Near East and East Asia. Although harvest and trade is controlled by permit systems in major exporters such as Indonesia and Malaysia, the monetary incentives to extract agarwood illegally from the lowland forests of Asia far outweigh compliance with the law. Organized groups of illegal harvesters have been documented encroaching national parks in countries including Cambodia, Indonesia, Malaysia and Thailand.

A single agarwood-producing species, *Aquilaria malaccensis*, has been listed on CITES Appendix II since 1995. But having only one species out of more than 20 listed on CITES has caused implementation and law enforcement difficulties, particularly as agarwood is traded in the form of wood, wood chips and oil, which makes it almost impossible to distinguish between species. The harmonizing of trade controls for all *Aquilaria* and *Gyrinops* species under CITES, therefore, should streamline management of the trade. (Source: TRAFFIC Press Release, 13 October 2004.)



The Overstory/C. A. Sobel and M.-A. Collier

**TREE AID**

Tree Aid works in Africa's drylands to reverse poverty and environmental degradation through skills transfer and community forestry projects that include income generation. Income from non-wood forest products is a focus of their new "Community Forestry and

Sustainable Livelihoods" Programme in West Africa.

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**WHO CONSERVES THE WORLD'S FORESTS?**

Indigenous people and other communities who live in and around the world's tropical forests are often as effective as their national governments at conserving forests, and are outspending foreign donors by as much as two to one, according to a new study by Forest Trends, an IUCN member organization based in Washington, DC.

Some 240 million indigenous and local community people own and manage about one fifth of the world's tropical forests, and invest US\$1.2 billion to \$2.6 billion a year in forest management and conservation, according to the study *Who conserves the world's forests? Community-driven strategies to protect forests and respect rights*, by Augusta Molnar, Sara J. Scherr and Arvind Khare (online at: [www.forest-trends.org/resources/pdf/Who%20Conserve%2007-23.pdf](http://www.forest-trends.org/resources/pdf/Who%20Conserve%2007-23.pdf)). (Source: IUCN, 26 July 2004 [in CENN, *Daily Digest*, 27 July 2004].) ●

