

non-wood

news

EDITORIAL

The editorial for this issue of Non-Wood News has been written by Dr Maxim Lobovikov, Chief of the Forest Products Service.

The current global financial crisis aggravates food security problems and draws more attention to non-wood forest products (NWFPs), particularly as an alternative source of food. Forests rarely provide the bulk of the human diet, but their role in food security is often critical. Forests and trees are significant sources of food such as fruits, berries, leaves, honey, mushrooms and bushmeat. Rural livestock often depends on fodder from forests. Wildlife in the forest environment provides an essential part of animal protein for the rural poor. A recent study undertaken in three communities in southern Cameroon revealed that, while agriculture provided 80 percent of the carbohydrate intake, rural Cameroonians received 90 percent of their protein from bushmeat. Forest fruits and herbs are excellent sources of vitamins and nutrients for rural dwellers. Millions of Asians depend largely on fish supplies from mangrove forests. According to the 2005 FAO Global Forest Resources Assessment (FRA), the reported value of forest food removals exceeds US\$1.3 billion, of which about US\$820 billion are attributed to Asia.

The role of forestry and NWFPs increases in crisis situations after wars and during natural, economic and social disasters when nutrition, fuel for cooking and heating, and timber for the reconstruction of homes and animal shelters become critical. Forest seasonal and emergency food is often a question of people's survival. In areas of frequent crop failures, food from forests is known as emergency or "famine" food. Trees and forests indirectly support food supply by providing fodder for livestock, which supply milk and meat, or for draught animals in farm production. As an example, trees provide about 50 percent of animal fodder in Nepal and some parts of India. Food insecurity in forest communities is not only a problem in developing countries, but also an issue in developed countries, especially when filling the gaps after closure of local industries and during economic crises and recessions.

Food consumption implies not only physical but also economic access to food through job and income generation. Forests generate a tremendous income for forest communities, allowing them to purchase food rather than produce it. It is estimated that about 80 percent of total employment in forestry is in the developing world, which is a major contribution to job and food security.

NON-WOOD NEWS

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CONTENTS

3 Guest article

- Including non-wood forest products in ecological restoration

5 Special Features

- Boreal forests
 - Supporting the development of non-timber forest products: lessons from the boreal forest of the Russian Federation
 - The Siberian Bikin watershed
 - Ontario to preserve half of its boreal forest
 - The Northern Forest Diversification Centre: an exercise in NTFP-based community development in Canada's boreal forest
 - Boreal forest bounty
 - Lichen from the north of Finland
- Wildlife
 - 2009 Year of the Gorilla
 - Two African nations team up to protect world's rarest ape
 - Orangutans concoct plant-based soothing balm
 - Bushmeat a threat to the United Kingdom
 - Viet Nam illegal wildlife trade eating away at biodiversity
 - Social and cultural values of hunting
 - Responsible hunting in Germany
 - The African grey parrot trade in Cameroon

13 News and Notes

- A Brazilian's shrine to bromeliads may one day save the plants



Access to forest resources is of primary importance for food security. Food security can be threatened if policies restrict indigenous access to the needed food resources. On the other hand, unrestricted access may cause forest degradation and destruction and jeopardize food security in the longer term. Thus, careful planning is needed, followed by strong law enforcement measures. Women traditionally play a critical role in food security issues. Consequently, forest food policies must address gender issues effectively.

Although not very apparent, "forestry" issues are increasingly "food" issues and vice versa. Forests contribute to food security and sustainable livelihoods in numerous ways, both directly and indirectly, through the support of agricultural systems, rural development, environmental integrity and income generation, climate change mitigation, etc. Governments should consider this contribution in their food security goals by integrating forestry in policy and planning mechanisms.



- ❖ A questionable role: NTFP collection in sustainable development
- ❖ Biodiversity Conservation through a Community-based Enterprise Approach
- ❖ Bioprospecting/benefit-sharing or biopiracy?
 - Laws to protect native knowledge "are failing"
 - Bioprospecting plant genetic resources in Qatar
 - Bugs lead drug hunters to medicinal treasure
 - World's first biodiversity law centre in Malaysia
- ❖ Cosmetic giants run into a Himalayan challenge
- ❖ Crops for the Future – a new international organization
- ❖ Ecofriendly preservative: lantana – an obnoxious weed with a useful purpose
- ❖ El manejo de productos forestales no madereros in Amazonía
- ❖ Global Forest Plan could boost fight against poverty and climate change
- ❖ "Green" jewellery
- ❖ How butterflies save forests
- ❖ La medicina occidental «puede convivir con el saber local»
- ❖ Natural relief from osteoarthritis
 - Extracts from NWFPs provide relief from osteoarthritis
 - Devil's claw – a promising remedy for pain
 - Pine bark reduces knee osteoarthritis
- ❖ New agreement to promote sustainable collection of wild plants
- ❖ Non-profit organizations and NGOs
 - American Botanical Council
 - Centre de Recherche pour la Gestion de la Biodiversité et du Terroir (CERGET)
 - El Puente/The Bridge
- ❖ NTFP curriculum
- ❖ Preventing gum disease with camu camu

- ❖ Recreational use of European forests
- ❖ The African Heartland Trust Fund
- ❖ Threatened plants emit "aspirin"
- ❖ Traditional ecological knowledge and certification processes
- ❖ Wild NWFPs of the western Himalayas – new CD-ROM

22 Products and Markets

- ❖ *Amaranthus*, *Argan* (*Argania spinosa*), Bamboo, Baobab, Bee products, Berries, Cinnamon, Cork, Essential oils, Fungi, Ginseng, Lac, Lianas, Nuts, Sacha Inchi (*Plukenetia volubilis* L.), Shea butter, Snakeroot (*Rauvolfia serpentina*), Stevia, Truffles

37 Country Compass

- ❖ Afghanistan, Australia, Bangladesh, Bhutan, Brazil, Cameroon, Canada, China, Colombia, Costa Rica, Democratic Republic of the Congo, Finland, India, Indonesia, México, Namibia, Nepal, New Zealand, Nigeria, Pakistan, Peru, Philippines,

Rwanda, Saudi Arabia, Senegal, Solomon Islands, Sudan, Suriname, Thailand, Togo, Turkey, Uganda, Viet Nam

56 Econook

- ❖ African "wall of trees" gets under way
- ❖ Congo Basin passes 1 million ha milestone in swing to sustainable forestry
- ❖ Ecuador's Constitutional Assembly votes to approve rights of nature in new constitution
- ❖ Forest hot spots pinpointed for climate, animals
- ❖ Forestry takes on the climate change challenge
- ❖ Nature loss "dwarfs bank crisis"
- ❖ Rain forest conversion to oil-palm causes 83 percent of wildlife to disappear

58 International Action

- ❖ FAO, The XIII World Forestry Congress, International Year of Natural Fibres 2009

61 Recent and Forthcoming Events

63 Publications of Interest

66 Web Sites

67 Readers' Response

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





INCLUDING NON-WOOD FOREST PRODUCTS IN ECOLOGICAL RESTORATION

For thousands of years, wet prairie, upland prairie and oak savannah were the dominant ecosystems of the Willamette Valley, a 14 000 km² area in the state of Oregon, United States of America. This mix of habitats produced a wide diversity of NWFPs such as acorns (*Quercus garryana*), hazelnuts (*Corylus cornuta*), cedar bark (*Thuja plicata*), salal (*Gaultheria shallon*), ferns (*Pteridium aquilinum*), wild onions (*Allium cernuum*), camas bulbs (*Camassia quamash*), huckleberries (*Vaccinium ovatum*), juncus (*Juncus effuses*) and tarweed (*Madia sativa*) for the Kalapuya and other regional American Indians. As a result of urban development, large-scale agriculture and hydrologic alteration, less than 1 percent of wet prairie, less than one-tenth of upland prairie and less than 7 percent of oak savannah remain in the Willamette Valley. In the West Eugene Wetlands (WEW), 1 200 ha of these remaining historic Willamette Valley habitat types are being protected and restored by the West Eugene Wetlands Partnership, a unique collaboration of non-governmental organizations (NGOs), government agencies and citizens that began in 1993.

The Partnership is not attempting to bring the ecosystems back to the ecological state that existed prior to the westward United States expansion 170 years ago, which displaced American Indians from their homelands. Instead, it is attempting to “mimic” the historic ecological conditions and processes of the pre-contact period. However, until recently, restoration planning had not considered the anthropogenic influences on the regional ecology prior to this period, which is problematic because the Kalapuya, the indigenous inhabitants of the area, were not simply passive residents. They were active managers of the landscape, engaging regularly in burning fields and forests, pruning, weeding, tilling and in many more activities that made the environment more favourable for their livelihoods. Some researchers, such as Dennis Martinez and Robert Boyd, see the influence of indigenous cultural practices as so significant that they can be credited as the main causes for the perpetuation of the



oak savannah and associated prairie habitats in the valley.

Of all the historical indigenous cultural practices, the large-scale use of fire to burn forests and prairies clearly had one of the greatest impacts on the landscape. The habitat of the Willamette Valley is mixed coniferous and deciduous forest dominated by Douglas fir and big leaf maple, but the spread of these species was stymied by the regular presence of fire. Given the low incidence of lightning in the valley, fires were almost entirely anthropogenic, which meant that the resulting habitat types were also anthropogenic. Burning resulted in an abundance of desirable NWFPs.

In order to understand better the role of indigenous cultural practices in the Willamette Valley it helps to think of the Kalapuya people’s relationship to their local environment as akin to a keystone species. Keystone species are recognized as having a disproportionate influence on their environment relative to their collective biomass. When keystone species are removed from an ecosystem or habitat – like an arch without a keystone – the habitat or ecosystem collapses. The Kalapuya people maintained and perpetuated ecosystems for NWFP

production that otherwise would not have thrived, thus having the effect of a keystone species.

A recent initiative of the West Eugene Wetlands Partnership, the Ethnobotany Resource Area Project, is now entering its third year and is an effort to reincorporate indigenous practices into the ecosystem. This is synergistic with recent efforts of the Kalapuya and other local American Indians who are attempting to rebuild cultural practices and knowledge systems that have been severely impacted over the last 170 years. The local American Indian tribes are an integral part of this project, working with the partnership to plan and implement activities, which include making it financially feasible for the Kalapuya and other local Indians to participate by compensating them for the time and expenses associated with planning and implementing project activities.

To date, there have been a number of accomplishments that are helping to reinforce the positive attitudes, collaboration and momentum of the project. For example, a strategic plan has been written that provides short- and long-term goals for the project. Dozens of activities have taken place, including a workshop on indigenous approaches to oak management; four basketry workshops for the public; an inventory of culturally important species; the development of a curriculum for area students, focusing on local ethnobotany; and the development and implementation of an annual festival featuring stories, traditional songs and drumming, canoe building presentations and the creation of a traditional camas baking oven. These activities will be expanded and refined to



become regular events, some or all of which will be repeated every year. They are creating a greater awareness of indigenous practices and needs for managers and scientists involved with the WEW. Moreover, they bring indigenous people back to the land and they, in turn, are learning more about the needs and constraints of scientists and managers. For example, the wetlands are home to multiple species (e.g. Fender's blue butterfly and Kincaid's Lupine) listed under the United States Endangered Species Act, a law that has to be factored into every planning decision.

As indigenous people become more involved in the management, science and restoration activities of the wetlands, the possibility of a number of mutually beneficial activities can be seen. For example, some burning already occurs in the wetlands to help maintain and produce a habitat for endangered species. Given the growing awareness of the importance of historical anthropogenic influences, it is logical to work with tribes to use fire regimes to promote culturally important NWFP species that are similar in many ways to the traditional Kalapuya approach. Also important is the restoration of camas bulbs, which are an important Kalapuya subsistence food together with acorns and hazelnuts. Camas is already being planted widely throughout the wetlands, but restoration planning has not considered how this activity interfaces with indigenous needs or traditional practices. Oral histories with tribal elders and archaeological evidence have shown that the wetlands were a major camas-producing area and the bulbs had many uses, such as being dried and traded to neighbouring tribes. The people of the area are very interested in seeing camas harvest areas restored and

thus their interests fit in with those of wetland scientists and managers.

Given the contemporary fragmentation of indigenous practices and knowledge systems and the gaps in understanding about historical ecology, we would suggest that two developments should take place as the Ethnobotany Resource Area Project moves forward. One development would be to design and implement experiments on historical indigenous ecological relationships in a collaborative manner, in order to help guide long-term planning and restoration of the wetlands. For example, preliminary assessments indicate a cattle pasture that now lies fallow in the wetlands is within a human habitation zone that had extensive camas production over thousands of years. Here, an opportunity exists to move beyond the model of using community volunteers and private contractors to restore native plants and instead move towards a collaborative approach with the local indigenous people. Indians could walk the land with scientists, help write the long-term site plans and create opportunities for tribal members to visit the site regularly to implement the traditional camas production techniques that have evolved over generations of practitioners. Indian people do not want to be involved in such a project if it means going back to the past. Rather, they want to be involved in going forwards, to establish a place where Indian children can reconnect with their traditional indigenous lands in a way that heals the environment and restores important culture practices for future generations.

A second development would be to promote participatory research approaches to bridge indigenous and scientific methods and knowledge. For example, as required by law, wetland scientists and managers must monitor the ecological health of the wetlands, but they have limited financial resources to do so comprehensively. A participatory research approach would look for opportunities to work with Indian people who are out in the wetlands regularly and making observations about ecological changes.

In conclusion, the West Eugene Wetlands Ethnobotany Resource Area Project serves as an example of how ecological restoration projects can be guided by a critical appreciation of the long-standing and continued presence of indigenous cultures, particularly how cultural practices have contributed to the creation and maintenance of ecosystems over time. It may be that in

cases such as this, populations of threatened species simply cannot be sustained if ecological restoration projects do not take into account historical anthropogenic ecological relationships. As in this example of the WEW, it may be discovered that, by engaging in constructive dialogues and building diverse working relationships, the goals of ecological restoration planners are compatible with the goals and needs of the local indigenous people.

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BOREAL FORESTS

Supporting the development of non-timber forest products: lessons from the boreal forest of the Russian Federation

Over the past eight years, the International Union for the Conservation of Nature (IUCN) Russia and the Centre for Non-Timber Resources at Royal Roads University in Canada have been involved in developing practical approaches for supporting non-timber forest resource development in a number of communities across the boreal forest of the Russian Federation. Through funding from the Canadian International Development Agency, the DOEN Foundation, the Ford Foundation and the Ministry of Agriculture, Nature and Food Quality of the Netherlands, project partners have developed an approach to supporting NTFP development that may hold promise for other areas of the country as well as other parts of the world.

In many regions of the Russian Federation, the authorities are exploring the re-establishment of NTFP industries that last functioned during the Soviet era. In general, this recognition of the potential of the NTFP sector to contribute to local development is to be welcomed. However, the majority of the models being proposed appear to give little consideration to community-based processing and there is a risk that the role of the local population will be limited to harvesting, with the financial returns to community members being relatively low. Our projects have pursued a different approach: the creation of small-scale, community-based businesses focused on the production of high value-added products.

A recently completed project in Khanty-Mansiysk Autonomous Okrug-Ugra (funded through the Canada-Russia Northern Development Partnership Program – NORDEP) in western Siberia illustrates this approach. Among the activities included in this year-long project are the following:

- raising awareness and involvement of local communities in NTFP production through events such as a regional NTFP Festival, stands at local fairs and consultations with new and experienced entrepreneurs;
- assistance in the production and marketing of value-added NTFP products;
- assistance in the development of unique souvenir packaging (i.e. made from birch bark or including the

colours of the region on packaging and labelling) for value-added products that reflect the interest of local consumers in purchasing products from the region;

- marketing research with consumers in Khanty-Mansiysk, tourists and trade organizations to assess the demand for NTFP products, pricing and other requirements of the market; and
- development of business plans and investment proposals for specific NTFPs.



Market research determined that a significant market for NTFPs exists within the region – both among the resident population (1.5 million based on 2007 figures) and visitors (estimated at close to 1 million annually). Surprisingly – considering the local abundant resources – there are almost no locally produced NTFPs (except for souvenirs) on the shelves of stores in Khanty-Mansiysk. Instead there are products from the Komi Republic (frozen mushrooms and berries), Novosibirsk (Siberian pine nuts), the Altai region (honey) and even Tadjikistan (dried wild rose hips). In contrast, there appears to be a strong interest and pride in supporting “made in Ugra” products. Almost 60 percent of the over 200 consumers surveyed said they were attracted by the indication on the packages that the products were locally produced. The NTFPs of most interest included:

- shelled Siberian pine nuts – 27.5 percent;
- natural cosmetics (soap and fir oil in a birch bark box) – 38 percent;
- jam and herbal tea in a birch bark box – 19 percent;
- Siberian pine nuts packaged with cones in a birch bark box – 20 percent (respondents stressed the uniqueness of this product and that it can be considered an authentic souvenir from the north);
- dried mushrooms (in different types of packaging) – 33.5 percent.

The results indicate that “made in Ugra” products have definite potential in the regional market. All respondents asked whether they could buy the products and where they were available. Several respondents (business people) showed an interest in selling the proposed products in their shops, including those located in other regions of the Russian Federation. The Yugratorg company, which owns a chain of supermarkets across the Ugra, has also indicated a strong interest in selling the products.

As the project draws to a close, initial results indicate that NTFP development in the participating communities appears to be viable. A new community enterprise has commenced operations with confirmed orders for the 2009 production season. Obviously, many challenges remain and only time will tell whether these remote communities will participate successfully in the market for NTFPs. What does seem clear is that addressing the long-term interests of communities where the greatest value possible is captured at the local level implies the development of community-based businesses with active involvement of the local population in NTFP harvesting, processing and marketing activities.

(Contributed by: Tim Brigham, Nikolay Shmatkov and Anna Belyakova.)

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The Siberian Bikin watershed

The Siberian Bikin watershed represents a series of well-preserved, native forest ecosystem types and is the habitat of more than 60 endemic, rare and endangered plant and animal species. It is home to the reindeer herding Bikin Udege people.

This indigenous group continues its traditional way of life in a contemporary context, relying upon the region's natural resources for its survival. (Source: GIAHS Web site: www.fao.org/sd/giahs/)

BOREAL FOREST FOODS AND DRINKS

Indigenous Canadian boreal wild foods are plentiful and delicious but in many cases they remain unknown. However, the products that can be made from these foods can rival those made in any other part of the world.

Balsam** (*Abies* spp.)

Balsam needles from balsam fir trees can be simmered and made into jelly. The jelly has a very fresh, distinctive and unique flavour that goes well with freshwater fish and various cheeses. Campers will also remember the taste of balsam on their meat or fish from the spluttering bursts of flame and smell as balsam branches ignite in a campfire.

Barberry** (*Berberis* spp.)

Barberries, the beautiful bright red fruits of the barberry bush, have a sharp original flavour. The berries are traditionally harvested after the first hard frost and fruit clusters can be seen well into midwinter when various winter birds finish them off. The unique thorns on barberry bushes are particularly sharp and painful so that harvesters have to wear gloves to harvest the berries. The berries may be slowly simmered and strained into a jelly. They are widespread in some boreal forests and were often used as a pectin in other fruit preserves. Barberry jelly can be eaten on toast, but is usually served as an accompaniment to game or fowl.

Bearberry* (*Arctostaphylos* spp.)

Easily found on rocky slopes, exposed areas or in dry forests and clearings, the bearberry may be cooked or boiled for tea. More popular uses involve the leaves of the plant, including as a urinary antiseptic, in tinctures and for other medicinal purposes. First Nations in Canada used dried bearberry leaves in smoking mixtures, the roots as pipes and the dried berries as jewellery when strung as a necklace. They also cooked the berry fruits in lard and then mixed them with other foods.

Blueberry* (*Vaccinium* spp.)

The velvet leafed or dwarf blueberry (also known as huckleberry) is a popular boreal berry thanks to its typically sweet flavour and ease of collection. High in vitamins A and C, berries are

commercially used in such diverse products as jams, juices, syrups, baked goods, liqueurs and beer. Blueberries are also useful as a dye, and many indigenous tribes of Canada use the berry to decorate the skin and for household items. These groups also made tea from the stems to treat diarrhoea and prevent pregnancy and from the roots to ease headaches. There is even a patent on the species for use as an oral antibacterial agent in Canada.

Cattail** (*Typha latifolia*)

Cattail plants are abundant across most of North America, and many other parts of the world. Numerous parts of the cattail make delicious foods, from fresh spring greens to flours made from the pollen or the roots. Cattail hearts can be harvested in the late spring when they are still very tender. They are similar to palm hearts but are smaller and a lot tastier and harvesting cattail hearts does not kill the plant. Wild food recipe books recommend them in a curry soup, in a sauce or bundled in a roll of ham and cheese and toasted.

Chokecherry** (*Prunus virginiana*)

Chokecherry jelly was a common condiment on farms generations ago. The berries are tart and flavoursome. While related to black cherries, chokecherries have a taste that is completely unique. Chokecherry bushes are often laden with fruit in August and September, but it takes a lot of chokecherries to make a jelly because the cherry is mainly stone with a thin skin of strong-flavoured cherry flesh. Chokecherry jelly is added to barbecue sauces, used as a glaze on meats or spread on toast.

Cloudberry** (*Rubus chamaemorus*)

The vast bogs of the north from Labrador to the Yukon are covered with cloudberry plants. These berries are highly regarded by the Cree indigenous groups. Cloudberrries are related to the raspberry but the fruit is bigger and tastes like a cross between passionfruit and apricot. Cloudberrries pair well with strong cheeses, mixed in desserts and with chocolate.

Cranberry* (*Viburnum trilobum*)

The high bush cranberry, found in moist boreal woods, has a tart, soft

fruit when ripe. Cranberries are famous as snacks and as additives to a large variety of foods when dried and sweetened. They also contribute flavour and nutrition to juices, chutneys, sauces, wine and cider. Indigenous groups in the boreal forests of Canada used cranberries in various ways, including whipping the fruit into a type of icecream. Some tribes also boiled the bark to relieve menstrual cramps and soothe sore throats. Cranberries can be frozen or dried in the sun for long-term storage.

Hazelnut* (*Corylus cornuta*)

Hazelnuts are extremely popular for use in sweets, baked goods and icecream as well as eaten raw or toasted. The plants are hardy and tolerant and grow easily. Gathered in autumn, tribes in Canada used to bury the nuts for around ten days to allow the husks to rot away. They were then eaten as a trail snack or sometimes ground into flour. The roots and inner bark create a blue dye, and the wood was often shaped into eating utensils because of its mild flavour. The milk of the nut was considered to cure coughs and colds.

Juniper* (*Juniperus communis*)

Juniper fruit is quite often used medicinally and as a flavouring in various foods and drinks, although large doses of the extract can prove fatal. This evergreen shrub is often harvested for decorative purposes such as centrepieces, bird houses and Christmas ornaments. It can season tea and coffee and is used commercially to flavour gin. The oil of the flower and incense made of the juniper wood and needles are found in aromatherapy. Indigenous peoples rarely ate juniper berries but burned the plant for fragrance, to deodorize and to purify the home – often to ward off evil spirits. Tea made from juniper was used for medicinal purposes, for example to treat swollen limbs and ankles.

Labrador tea* (*Ledum glandulosum*)

Found in bogs, swamps and moist boreal woods, this dominant, fragrant shrub is famous as an excellent tea despite the fact that it contains a narcotic toxin called Ledel (or Ledol). The tea, high in vitamin C, can be brewed to varying

strengths for different purposes. In its weak form it is best for drinking, and was used by different indigenous Canadian groups for both stimulation and relaxation. When brewed for long periods, it is useful for medicinal purposes with external application, mainly to treat various skin conditions and as a wash for lice. The Labrador tea plant is also utilized as a food flavouring and as an essential oil in aromatherapy. The leaves can be crushed and then blended with alcohol and glycerine to be used as an effective insect repellent. The leaves can also be used to create a "head" on beer.

Milkweed** (*Asclepias syriaca*)

The milkweed plant has often been cursed by farmers for its ability to colonize pastures where they are ignored by sheep and cattle. However, these amazing plants are essential for the life of our monarch butterflies. Milkweed shoots were an important early vegetable for many Canadian Aboriginal communities. Called little pigs in parts of Quebec, Canada, these fat little vegetables are picked midsummer before they get too big. Milkweed pods may be pickled in cider vinegar and spices. They make a unique and tasty appetizer. They are also used as capers and in risottos.

Mustard** (*Brassica campestris*)

There are a number of mustards growing in boreal forests, several of which were introduced from Europe or Asia, and several that are indigenous to North America. Mustard sauce is a traditional condiment of white wine and grain mustard. It is used on sandwiches, in salad dressings, in barbecue and other meat sauces and as a basting or rub.

Ox-eye daisy capers** (*Chrysanthemum leucanthemum*)

Ox-eye daisy capers are the flower buds of ox-eye daisies, which grow across much of Canada. They have a fresh herb-

like flavour and are not spicy like the European caper berry. The small flower buds are hand picked in late spring. They are used as capers with fish or stuffed in chicken breasts.

Sage* (*Salvia officinalis*)

Also called pasture, sage is an extremely aromatic plant, commonly used by First Nation tribes as a seasoning for rice or in stuffing for fish, game and poultry. It is popular as incense and can be used as an insect repellent and as an addition to fragrance sachets. Indigenous groups even use sage as a moccasin deodorizer and as toilet paper. It can also be used as a dye. Sage is found in sandy or gravelly soil and in dry rocky slopes and grasslands.

Salal berry** (*Gaultheria shallon*)

Salal berries were once one of the most important crops for the Aboriginal inhabitants of coastal British Columbia. Although the leaves are a common sight in florist shops, the berries are largely unknown outside the region. Their rich complex flavour has a wine-like sweetness to it and can be used in meat sauces and gravies.

Saskatoon berry* (*Amelanchier alnifolia*)

Also known as Juneberries, the Saskatoon berries can be found in both moist and dry boreal environments. These wild berries have a unique taste similar to almonds and are used in baking for pies, jellies and jams as well as in wine making. Most native groups in Canada harvest the berries and dry them, then eat them as a snack. Thanks to their natural sweetness they have often been mixed with other less palatable foods. The hard stems have been used as arrows, canes, for pipes, to dig, as rims in baskets and as parts of canoe frames. The plant is useful as fuel because it is considered to burn clean and not taint the flavour of fish, for



example. The berries are also harvested for dyeing baskets and other items.

Syrups**

Many varieties of syrups can be made from boreal products. The intense flavour of birch syrup lends itself best to marinades and dressings. Black locust flower syrup has a delicate aromatic taste. Maple syrup is the ever-popular sweet topping, originally received from the Ojibwe and Six Nations peoples. Wild rose petal syrup is a full rose-flavoured treat that can be used in baked products.

Wild mint* (*Mentha arvensis*)

An aromatic perennial, wild mint is located along stream banks, lake shores, wet meadows and in clearings. Widespread in boreal forests, it is edible and commercially available as a seasoning and as tea, its most common usage. Mint brew is used to cleanse morning breath and as a soothing tonic for upset stomachs and headaches. It is also typically found in fragrance sachets. (Sources: Boreal Centre for Conservation Enterprise* and Forbes Wild Foods**.)

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Ontario to preserve half of its boreal forest

Seattle, Washington. As news spreads of Ontario's commitment to protect over 55 million acres of Canada's boreal forest, leading international scientists and conservationists are expressing their strong support for Premier Dalton

McGuinty's science-based leadership, calling it "a conservation milestone".

Ontario's plan to protect 50 percent of its boreal forest is considered a conservation science first and the size of this commitment is unprecedented in North American history. "This is the kind of bold leadership and large-scale thinking that the world needs as

we confront the challenges of global warming," said Dr Terry Root of Stanford University, who is a lead author for the United Nations International Panel on Climate Change.

The announcement widely cited the recommendations made by 1 500 scientists to the Canadian Government last May to set

aside at least half of Canada's boreal forest in large, interconnected protected areas to guard against climate change and protect internationally significant wildlife populations. These concerned scientists, led in part by Dr Root, include some of the world's most notable ecologists, climatologists and conservation biologists.

Scientists identify the 1.4 billion-acre Canadian boreal forest as one of the world's most significant and largest intact forest and wetland ecosystems.

The boreal forest:

- is the world's single-largest terrestrial carbon storehouse and alone stores 186 billion tonnes of carbon – equivalent to 27 years of the world's carbon dioxide fossil fuel emissions;
- contains the majority of North America's fresh, unfrozen water;
- hosts some of the planet's largest populations of wolves, grizzly bears and woodland caribou;
- provides nesting grounds and nursery for billions of migratory songbirds and waterfowl; half of North America's birds are dependent on the forest for their survival.

Dr David Schindler, winner of the 1991 Stockholm Water Prize, added, "Premier McGuinty has long-term vision, recognizing that storing carbon, protecting biodiversity and traditional lifestyles, and maintaining freshwater supplies are more important than immediate profits. Now the rest of Canada must set aside equivalent areas".

Scientists worldwide recommend that a target of 50 percent protection of an ecosystem is necessary to sustain it over the long term. Overall, only 10 percent of Canada's boreal forest is currently protected.

For the past decade, the Pew Environment Group, through its Canadian Boreal Initiative Project, has been working with First Nations, industry, government and conservationists to preserve Canada's boreal forest, an internationally significant ecosystem for the world's climate and biodiversity. (*Source:* Patricia S. De Angelis, United States Fish and Wildlife Service, United States of America, July 2008.)

The Northern Forest Diversification Centre: an exercise in NTFP-based community development in Canada's boreal forest

Over the past ten to 15 years, recognition of the potential role of the NTFP sector in creating economic opportunities for rural communities has continued to grow in Canada. One of the best known



interventions, especially in Canada's boreal forest region, has been the work of the Northern Forest Diversification Centre (NFDC) located in The Pas, Manitoba, operating as an arm of The University College of the North. Beginning in the year 2000, NFDC developed as a training, research, marketing and service centre for the development of the NTFP sector in northern Manitoba. Over the next six years, the programme reached out to dozens of communities and hundreds of harvesters, creating an industry from overlooked resources where little or nothing (in terms of NTFP sales) existed before.

From a Manitoba perspective, those interested in and benefiting from the NTFP industry tend to be those people who are standing on the sidelines of society for a range of reasons – usually because of a lack of formal education or the lack of employment opportunities in their communities. For these people, even the opportunity to earn relatively small amounts of additional cash income (in the few hundreds to few thousands of dollars) can mean the difference in terms of being able to pay their bills or purchase goods that many in other areas of Canada take for granted.

Over the course of its existence, NFDC has trained harvesters across northern Manitoba in good harvesting practices, bush safety, post-harvest handling, basic value-added opportunities and a range of other topics. Although training was only delivered to approximately 100 harvesters in eight communities, the centre ended up purchasing products from over 400 harvesters in 25 communities, an indication of the reach and attraction of the programme and the opportunities it provided. At the height of the programme, NFDC was marketing over 100 products, including wild tea blends, skin salves, sweet

grass (largely for the Aboriginal and non-Aboriginal ceremonial market), sweet flag root and bearberry leaf (for the medicinal herb market), twig and balsam wreaths, diamond willow products and antler jewellery. It also handled bulk shipments of medicinal botanicals such as dried senega root, black poplar buds, and high-bush cranberry bark for sale to brokers in the United State of America. In addition to providing marketing services, NFDC assisted emerging community-based entrepreneurs in the development of new products and with packaging, labelling and pricing. Over the six years NFDC was active in the marketplace, hundreds of thousands of dollars from NTFP sales were distributed to communities across the north. For some products, such as sweet grass and senega root that had pre-existing markets, the entry of NFDC as a broker helped put upward pressure on prices, directly benefiting the dozens of harvesters who depended on these products for part of their income.

As with any new venture, NFDC faced its share of challenges, among them the struggle to provide support services to far-flung entrepreneurs in remote communities, maintaining the support of decision-makers who did not necessarily understand the sector or the function of a natural resource-based social enterprise, and creating new markets or penetrating existing ones to maintain sales and retain harvester interest. NFDC ceased operations after funding for the programme ended in late 2006. To its credit, NFDC spawned a number of small, community-based businesses that continue to develop even without the ongoing support of the centre. However, the significant downturn in NTFP-related activity since formal operations ceased suggests that NFDC played an essential role in developing opportunities for NTFP harvesters and entrepreneurs in communities where few other economic opportunities exist. Interest has been expressed in resurrecting some of the services provided by NFDC, and a private sector partner has taken on part of the role of developing the market for northern NTFPs. The hope remains that this groundbreaking programme that saw many successes will re-emerge in a new form once again to create much needed opportunities for the residents of Manitoba's boreal forest.

(*Contributed by:* Dave Buck [retired Manager, Northern Forest Diversification Centre, Manitoba] and Tim Brigham [Royal Roads University, Victoria].)

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Boreal forest bounty

Boreal forest bounty (ISBN 1-4251-1426-1) is a compendium of market information on selected species of botanicals that grow in the boreal forest region of British Columbia and across Canada. It is a resource guide for enabling development of conservation-based enterprise in the northern/rural agricultural, First Nation and resource communities with particular emphasis on the emerging agroforestry and non-timber forest products sector.

The guide features profiles on 30 plant species known to have market potential through value-added processing in various parts of Canada. Each profile includes botanical descriptions, information on commercial applications, First Nations uses, accessibility for harvest, environmental sensitivity, market locations, harvesting specifications, customer requirements, prices, cultivation potential, processing technology, government regulations and transportation costs. Additional resources in the guide include an overview on the boreal forest, and various resources for developing conservation-based enterprise.

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Lichen from the north of Finland

The lichen-covered heath on Hailuoto island in the northern part of the Gulf of Bothnia is a friendly place. Pines of moderate height stand here and there, letting the sun's rays reach the ground, which is covered with grey star-tipped reindeer lichen, or just star reindeer lichen (*Cladonia stellaris*).

Pickers are employed by the lichen-exporting company Polar-Moos. They deftly gather the best balls of lichen, taking care not to pick everything. Lichen grows to a suitable size for picking in five to eight years, which is the time the pickers have to wait before returning to the same area.

Fascinating in appearance, star reindeer lichen resembles a mushroom covered with lace, and it is actually classified as a mushroom. However, to be exact, lichen consists of two species, a fungus and an alga, which grow in a symbiosis that benefits both.

Polar-Moos is the largest supplier of decorative lichen and other lichen products in Europe, with an annual turnover of €1.5 million. It has a regular staff of nine, but each year from May to October the company also employs some 20 seasonal workers. With no rain the dry lichen easily breaks into small pieces, so the forest needs to be watered. After a quarter of an hour of watering, it is possible to start picking the lichen. Some of the pickers collect lichen and different kinds of mosses, while the rest make arrangements of the lichen picked.

The largest clients are florists' supplies wholesalers. Florists transform the grey balls into decorations. It is during autumn and winter that lichen makes a very popular

decorating material in graveyards, because it keeps its light colour even when wet, and thus stands out from the dark gravestones. In addition to this, it withstands frost. This is why the best season for lichen is around the Western Christian All Saints' Day (1 November) in the autumn. The main area for the company's exports is German-speaking Central Europe.

Lichen is gathered not only in Hailuoto, but also elsewhere in northern Finnish Ostrobothnia. Suitable places for lichen to grow are the sandy heaths and eskers formed by the continental ice moving north at the end of the Ice Age.

Collecting lichen is not everybody's right, and compensation must be paid to landowners for each package of lichen. Among the landowners, the most important partner of Polar-Moos is the forest industry company UPM.

A quarter of the lichen sold by Polar-Moos comes from the Russian Federation.

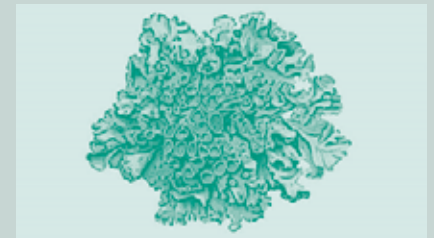
Gaining a livelihood from lichen is, however, becoming increasingly difficult, because Swedish producers sell it at 40 percent lower prices. The Finnish producers suspect that the Swedes may not be taking care of all required employment expenses, which is why the association of lichen exporters in Finland has appealed to the EU Commissioner responsible for fair competition.

"But this is a dying tradition," says Executive Director and owner of Polar-Moos, Markku Sipola, with regret. The top year of lichen exports was 1972, when half a million cartons were exported – with 3.5 kg lichen in each. Now the amount is some 100 000 boxes. [Source: Forest.fi Web site, www.forest.fi]

LICHEN IS ALSO DYED AND SEWN

The tiny trees and shrubs beside the tracks of miniature railways are made of star reindeer lichen as are the parks in the scale models constructed by architects to illustrate their plans for housing estates.

The best lichen goes to export as it is, but the lower grades are dyed green, red or yellow. This is why Polar-Moos also has a dyeing shop in Hailuoto. In the shop the lichen is first immersed in the liquid dye, after which it is salted in



order to keep it supple and make it fire-resistant. The work is difficult, because it is not easy to dye the lichen evenly.

The dyeing shop also houses a machine for sewing lichen, which is used to make ornamental ribbons of lichen.

WILDLIFE

2009 Year of the Gorilla

Renowned primatologist Jane Goodall, Ph.D., will serve as the official patron of the 2009 Year of the Gorilla (YoG), a 12-month campaign aimed at improving conservation of humankind's closest relatives and their habitats by bettering the livelihoods and incomes of local people. His Serene Highness Prince Albert II of Monaco launched the YoG initiative on 1 December 2008 at the opening of a United Nations wildlife conference in Rome, Italy.

The YoG campaign seeks to improve the management of national and cross-border primate populations, as well as those living in national parks, by strengthening cooperation between range states and providing improved support for rangers and other key personnel.

YoG is a joint initiative of the United Nations Environment Programme's Convention on Migratory Species (UNEP-CMS); the UNEP-United Nations Educational, Scientific and Cultural Organization (UNESCO) Great Ape Survival Partnership (GRASP); and the World Association of Zoos and Aquariums (WAZA).

"People living in and around the last forested areas are struggling to survive," said Dr Goodall. "If we can't help these people find ways of living that do not involve continual destruction of the forest, we shall fail in our efforts to protect these wonderful great apes – our closest living relatives."

Dr Goodall also underlined the importance of community-centred conservation efforts such as those detailed in the YoG action plan and those currently managed by the Jane Goodall Institute (JGI) in the United Republic of Tanzania and the Democratic Republic of the Congo. JGI's Lake Tanganyika Catchment Reforestation and Education (TACARE) programme, which is active in 24 Tanzanian villages around Gombe National Park, involves health care projects, forestry protection, training in sustainable farming methods, forest regeneration, water and sanitation projects, women's initiatives, microcredit programmes and education. As a result of the programme, local people have partnered with JGI to put aside land for forest restoration and to protect the remaining forest, which is home to many species, including endangered chimpanzees.

"These initiatives benefit more than the great apes," said Dr Goodall. "They help prevent the spread of contagious disease. They reduce poverty and protect forests. And they help slow global climate change. Finally,

in areas where there is competition for diminishing natural resources with potential for violence, programmes of this kind add to the security of the region." (Source: Press@PMDFEXT, 5 December 2008.)



Two African nations team up to protect world's rarest ape

Just 300 Cross River gorillas remain in the wild, making them the world's most endangered apes, if not the world's most endangered primates.

The Governments of Nigeria and Cameroon have now agreed to work together to help save the Cross River gorilla, which only exists within their borders. At a meeting held last week, the two nations agreed to "improve transboundary cooperation to protect the critically endangered species, as well as other endangered wildlife", according to a report from the Environment News Service.

Participating in the agreement were representatives of state parks from each country, who will now work to "reduce the bushmeat trade and illegal logging, strengthen field monitoring, increase community involvement and conservation education, and improve law enforcement within the parks".

The meeting to hammer out this agreement was made possible through the financial support of the World Wide Fund for Nature (WWF), the Wildlife Conservation Society and the United States Fish and Wildlife Service Great Apes Conservation Fund.

The critically endangered Cross River gorilla (*Gorilla gorilla diehli*) is a subspecies of the western gorilla (*Gorilla gorilla*). The Cross River gorilla's population is extremely fragmented, with eight to 11 groups separated by extensive local farmlands. (Source: *Plenty Magazine*, New York [United States of America], 9 September 2008.)

Orangutans concoct plant-based soothing balm

Indonesian wild orangutans have demonstrated a certain degree of medicinal savvy by deploying naturally occurring anti-inflammatory drugs to "treat aches and pains", as the *New Scientist* puts it.

Four of the Bornean orangutans (*Pongo pygmaeus*) were spotted by Cambridge University primatologist Helen Morrogh-Bernard in the Sabangau Peat Swamp Forest in central Kalimantan, preparing a "soothing balm".

Back in 2005, Morrogh-Bernard watched as an adult female picked a handful of leaves from a plant, chewed them and used saliva to produce a green-white lather. She then "scooped up some of the lather with her right hand and applied it up and down the back of her left arm, from the base of the shoulder to the wrist, just as a person would apply sunscreen". Morrogh-Bernard noted: "She was concentrating on her arm only and was methodical in the way she was applying the soapy foam. I knew this must be some form of self-medication."

The orangutan finally ditched the leaves, which allowed Morrogh-Bernard to identify them as belonging to the genus *Commelina*. Significantly, orangutans do not eat these plants as part of their normal diet, and local indigenous people are also aware of their anti-inflammatory properties.

Morrogh-Bernard has since clocked three other orangutans using their home-brew balm, saying it "links apes and humans directly". While she said the former "may not have learned how to apply the anti-inflammatory ointment from local people", the opposite may be true. (Morrogh-Bernard's findings are published in the *International Journal of Primatology*.) (Source: Register [United Kingdom], 28 July 2008.)

Bushmeat a threat to the United Kingdom

The illegal trafficking of West African bushmeat is posing a serious threat to the United Kingdom, claims a Conservative (Tory) Member of Parliament. Jim Paice, Tory spokesman for agriculture and rural affairs, says that the recent cutting back of Customs officials, who patrol the United Kingdom borders, is to blame for the high volumes of illegal meat being smuggled into the country. "Bushmeat from West Africa has the huge potential for tropical diseases, such as the Ebola virus, to come

BUSHMEAT: THE OTHER FOOD CRISIS

Conservationists have long argued that the hunting of terrestrial wildlife for food – including mammals, birds, reptiles and amphibians – poses a threat to the survival of many tropical forest species and ecosystems. A new study suggests we should be equally concerned that the so-called “bushmeat crisis” is also a food security crisis for many forest-dependent people.

“*Conservation and use of wildlife-based resources: the bushmeat crisis*”, a technical paper published by the Secretariat of the Convention on Biological Diversity and the Center for International Forestry Research (CIFOR), summarizes the state of knowledge on this controversial topic. According to Nasi *et al.*, the bushmeat trade constitutes a significant, if largely hidden, component of the economies of tropical forest countries, with estimates ranging from US\$42–205 million per year for countries in West and Central Africa. However, “voluminous and varied” empirical evidence suggests that current rates of bushmeat extraction are unsustainable, and are leading to wildlife depletion in many areas. Large mammal species are particularly vulnerable and many are already locally extinct.

The “empty forest syndrome” is not just of interest to conservationists.

Bushmeat is an important source of protein and fats in rural diets – up to 80 percent in Central Africa – as well as an important seasonal safety net. And in many countries there is no clear substitute available if wild meat sources were to be depleted or off-take reduced to sustainable levels.

Bushmeat’s importance to rural livelihoods is not restricted to its direct consumption. Research suggests that the poorest households are more dependent than the rich on bushmeat sales to local and urban markets. Thus, the conventional wisdom that commercial trade can be banned without harming the subsistence needs of the poor is misguided.

The report suggests that sustainable management of bushmeat resources requires different approaches for different species and circumstances. For example, species with low intrinsic population growth rates and high dependence on undisturbed habitat – such as gorillas – are particularly vulnerable to overhunting. By contrast, fast reproducing generalist species that thrive in agricultural mosaics – such as duikers or rodents – may be very resilient to hunting pressure. Blanket bans on hunting and trade that do not discriminate between these extremes are bound to fail.

The authors argue that the solution to the bushmeat crisis is a more secure rights

regime: if local people are guaranteed the benefits of sustainable land use and hunting practices, they will be willing to invest in sound management and negotiate selective hunting regimes. Sustainable management of bushmeat resources requires bringing the sector out into the open, removing the stigma of illegality and including wild meat consumption in national statistics and planning.

Reframing the bushmeat problem from one of international animal welfare to one of sustainable livelihoods – and part of the global food crisis – might be a good place to start.

The study is available in both English and French. (Source: CIFOR POLEX, 17 July 2008.)

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www.cbd.int/doc/publications/cbd-ts-33-fr.pdf (French).

in, which could pose a serious public health issue,” said Paice.

New figures in a government report have shown that there have been no prosecutions for illegal meat smuggling this year. However, between 2006 and 2007, when there were increased patrols to tackle the threat of bird flu, more than 35 000 seizures were made. The Conservative Party is now proposing plans for tackling illegal meat imports, which would include an X-ray system to scan all bags coming into the United Kingdom. Over the past 12 months, both the Department for Environment, Food and Rural Affairs (Defra) and the Customs have been running awareness-raising campaigns. Last week Defra launched a short film, “Don’t Bring Me Back”, to spread the message about the serious effects that importing meat illegally could bring. (Source: *The Voice*, [United Kingdom], 18 August 2008.)



Viet Nam illegal wildlife trade eating away at biodiversity

Hanoi. Viet Nam’s appetite for illegal wildlife meat and demand for traditional medicine are devastating animal and plant species within and beyond its borders, experts warn in two new reports. Viet Nam is one of Southeast Asia’s most biodiverse countries, but some species may be lost even before they become known to science as a result of an illegal global trade believed to be trailing off drugs and gun running.

Two new reports reveal that despite Viet Nam’s international commitments to combat the trade, the smuggling of tigers, monkeys, snakes, pangolins and other animals to and through the country are booming.

One study estimated that up to 4 000 tonnes of live animals or meat, skins, ground bones and other illegal products are trafficked into and out of Viet Nam per year, generating more than US\$67 million in revenues.

Species are mostly sourced from Viet Nam’s national parks and the neighbouring Lao People’s Democratic Republic and Cambodia, as well as Malaysia, to be consumed in Viet Nam, China, the Republic of Korea, Taiwan Province of China and Japan, according to the study based on hundreds of interviews.

The largest volume of illegal wildlife goods is smuggled across the Viet Nam-China

border, with an estimated 2 500–3 500 kg flowing daily through the two major border gates.

There have been high-profile crackdowns. In a recent case, Vietnamese police seized over 2 tonnes of live snakes and 770 kg of tortoises from the Lao People's Democratic Republic en route to China.

But one report estimated that the total value of confiscated wildlife accounts for only 3 percent of the illegal trade and that the authorities are at a disadvantage as individual forest rangers police an average of 1 400 ha of forest at a monthly wage of about US\$50.

Hanoi is Viet Nam's largest market for illegal wildlife meat, with revenues of over US\$12 000/day, the report said. The most popular species served in Hanoi were snakes, palm civets, monitor lizards, porcupines, leopards, pangolins, monkeys, forest pigs, hard-shell turtles, soft-shell turtles, civets, boas and birds.

The other market fuelling the trade is traditional Vietnamese and Chinese medicine, said a report by the wildlife monitoring network TRAFFIC.

The shop owners who offered the illicit goods, the TRAFFIC report found, were "well organized, each claiming that they were shielded from investigations through protection by enforcement personnel". (Source: AFP [Hanoi], 3 August 2008.)

Social and cultural values of hunting

Wildlife and hunting are intimately linked to many cultures throughout the world's tropical forests, even if in some cases the meat is only of minor nutritional importance. Important social and cultural values are linked to foods and medicines derived from wild resources. Therefore, while hunting provides meat and income it also remains an important social and cultural tradition for many peoples (both in developed and in developing countries).

Acquisition of animal parts as cultural artefacts, for personal adornment or for hunting trophies, is still a widespread practice throughout tropical forest regions and the rest of the world. In many cultures, to be a hunter is essential in gaining respect, achieving manhood or winning a bride. Hence peoples hunt even when they have alternative sources of nutrition or income. These links between hunting, wildlife, religion, mythology and sociology of forest-dwelling peoples have to be considered in conjunction with sound conservation and management plans. (Source: extracted from: R. Nasi *et al.* 2008. *Conservation and use of*

wildlife-based resources: the bushmeat crisis. Technical Series 33. Montreal, Secretariat of the Convention on Biological Diversity and Bogor, Center for International Forestry Research [CIFOR].)

Responsible hunting in Germany

Hunters in Germany bear the responsibility of protecting and sustaining over 100 species under the Federal Hunting Act and many of the 348 347 licensed hunters in the country voluntarily perform conservation and landscape administration work. Activities range from assisting in the mapping of habitat corridors to managing protected areas. Hunters also commonly support specific species. For example, between 2004 and 2006, the hunting community supplied €400 000 for otter and hare population protection, as well as €272 000 towards habitat maintenance for the black grouse.

In 2000, the German Hunting Association (Deutscher Jagdschutzverband, or DJV), which is made up of various Lander association members and accounts for nearly 85 percent of all licensed hunters in the country, launched a national wildlife information system (WILD). WILD is a long-term project to provide consistent data on population densities, trends and impacts of environmental factors such as weather and predation to monitor selected wildlife species. The information (available online at www.jagdnetz.de) also helps in the development of protection and sustainable use strategies. (Source: BfN, 2008. *Nature Data 2008*. Bonn, Germany, Federal Agency for Nature Conservation (BfN), pp. 81–83. ISBN 978-3-7843-3859-0.)

The African grey parrot trade in Cameroon

The African grey parrot (*Psittacus erithacus erithacus*) is the most hunted bird in Cameroon. Thousands of grey parrots are captured each year for local consumption and export.

Cameroon accounted for 50 percent of the total specimens exported from all countries in 1995 and is still one of the highest exporters of African grey parrots today. Prior to 1993, when restrictions on export quotas were decided by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at 12 000 birds, a yearly average of 14 000 parrots were exported from Cameroon. Official figures do not account for parrots that are smuggled across borders into neighbouring countries, those that are consumed and those that die in the process of trapping, transportation and domestication.



Cameroon started to export African grey parrots to South Africa in 1993, with a reported 2 095 birds. Most of the African grey parrots from Cameroon are exported to the United States of America and the European Union countries, with France as transit point.

Poaching of African grey parrots is rampant in Cameroon because the Government has done very little to enforce antipoaching laws. People who succeed in having official capture permits have many ways of forging and multiplying them for their close associates, who also become permit owners. Worse still, quotas for live capture are never adhered to. Government officials are accused of conniving with trappers and licencees to exceed official quotas. Law enforcement officers at border posts are bribed by smugglers to allow parrots across borders to neighbouring countries.

However, severe law enforcement may not suffice to curb unsustainable exploitation because poachers are poor and the income from such activities is very important for many impoverished families. Therefore, the best approach to stop poaching is to educate local people, provide alternative sources of income and show the local people how to take care of the resources themselves.

(Source: Case study on African grey parrots in Cameroon. In *Trade measures – tools to promote the sustainable use of NWFP? FAO Non-Wood Forest Products Working Document 6*; www.fao.org/docrep/010/k0457e/k0457e25.htm#TopOfPage) ♣

**Until the lions have their historians,
tales of the hunt shall always glorify
the hunter.**

African proverb

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

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

«Productos forestales no madereros son los bienes de origen biológico distintos de la madera derivados de los bosques, de otras tierras boscosas y de los árboles fuera de los bosques.»
(FAO's working definition)

species of bromeliad. In the Atlantic Forest, a diverse stretch of Brazil's wooded coastline that forms a natural habitat for many bromeliads, the devastation is acute – only 7 percent of the original forest survives. [Source: *Amazon News*, 14 August 2008.]



A QUESTIONABLE ROLE: NTFP COLLECTION IN SUSTAINABLE DEVELOPMENT

Collection of NTFPs has been promoted in India as a strategy to aid wildlife conservation while simultaneously alleviating poverty and recent legislation now gives communities living within protected areas the legal right to collect NTFPs. However, research on the financial rewards from NTFP collection and its contribution to sustainable development is equivocal.

In a case study in the Periyar Tiger Reserve, India, the question of whether NTFP collection can solve livelihood problems by analysing revenues obtained from various NTFP species was examined. The economic returns to collectors from various social backgrounds were estimated and the attitudes of collectors towards their profession were explored.

It was found that black damar resin from the tree *Canarium strictum* (61.3 percent) and mace from *Myristica* spp. (35.5 percent) were the most commonly collected NTFPs. The most valuable NTFPs were honey from *Apis cerana indica* (US\$4.12/kg), *Cardamom elettaria cardamomum* (US\$3.67/kg) and *Myristica* spp. (US\$2.77/kg). Mean daily revenue from NTFP collection was US\$3.15 ± 4.19/day. The lowest daily revenues were earned by part-time collectors with low socio-economic status, such as migrants, forest dwellers or those without access to agricultural land.

Most collectors (82 percent) did not wish to continue harvesting NTFPs if alternative livelihoods from agriculture could be provided and none wanted their children to be NTFP collectors.

The findings suggest that, with respect to social justice, poverty alleviation and environmental sustainability, the role of NTFP collection in sustainable development is questionable. [Source: abstract from S. Gubbi and D.C. MacMillan. 2008. Can non-timber forest

products solve livelihood problems? A case study from Periyar Tiger Reserve, India. In *Oryx*, 42: 222–228. Cambridge, United Kingdom, Cambridge University Press.]

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BIODIVERSITY CONSERVATION THROUGH A COMMUNITY- BASED ENTERPRISE APPROACH

Plans to control access to the Amazon
ANSAB (Asia Network for Sustainable Agriculture and Bioresources) has been chosen, with two other finalists, for the Most Innovative Development Project (MIDP) award through a global competition organized by the Global Development Network (GDN) in 2008. After a rigorous evaluation, ANSAB's "Biodiversity Conservation through a Community-based Enterprise Approach" surpassed proposals from around the world.

This new enterprise approach aims to improve the resource management skills of local communities, integrate villagers' subsistence and commercial needs with biodiversity conservation, assess policy reforms, pilot forest management certification and implement economic interventions through value chain analysis in rural areas of Nepal. [Source: ANSAB press release: www.ansab.org/press_release.php?id=46]



A BRAZILIAN'S SHRINE TO BROMELIADS MAY ONE DAY SAVE THE PLANTS

Teresópolis, Brazil. Elton Leme's garden is a living shrine to bromeliads. There are plants in the soil, plants peeping from between rocks, plants hanging from the roof of Mr Leme's home-built greenhouse. There are even plants planted on plants.

Leme has discovered more than 300 species of bromeliad, the largest family of flowering plants endemic to the western hemisphere – including pineapple. He has even identified new species in books, erroneously labelled as existing ones. No man alive has discovered as many.

With flora disappearing at an increasing rate, Leme is rushing to find and catalogue as many new species as possible in order to share them with botanists all over the world as an insurance policy against future destruction.

From the 2 000-odd plants he has gathered during his 35-year career, Leme has already given duplicate flowers to research institutes and botanical gardens and he aims to grow more so his legacy will outlive him. "Today we don't just talk about extinction of species but of ecosystems," he says. "It's a race against time to discover species before they are lost forever."

That hunger to find new species is becoming increasingly important, given the environmental destruction in Brazil, a continent-sized nation that is home to an estimated 2 000 of the world's 3 000 known



BIOPROSPECTING/ BENEFIT-SHARING OR BIOPIRACY?

Laws to protect native knowledge "are failing"

Global moves to improve the rights of indigenous communities over their local knowledge have largely failed, say experts. This has resulted in intellectual property rights (IPRs) claims by indigenous people dropping to "barely a trickle", according to the Montreal-based International Expert Group on Biotechnology in their report launched on 13 November.

In Brazil, for example, only seven phytotherapeutic items have been developed with local resources compared with 700 patents on similar items filed almost entirely by foreigners worldwide.

The authors say attempts to ensure benefit-sharing with numerous indigenous communities have been hindered by an overemphasis on the ownership of IPRs, which has proved to be a roadblock to progress.

They highlight Brazil's case, where legislation was passed in 2001 with the aim of protecting indigenous rights. "Use of traditional knowledge and local, natural products depends on the consent of several indigenous groups that – theoretically or actually – 'own' them, and these groups do not always agree on these questions," says Edson Beas Rodrigues, coauthor of the report and a researcher at the Institute of Law on International Trade and Development, Brazil. "Research institutes and industries cannot access the knowledge and indigenous groups do not benefit from any research that could have been done."

"We try to protect indigenous rights so hard that our laws are in fact preventing the use of traditional knowledge," said Rodrigues. "We have to find a balance between assuring intellectual property and promoting access to traditional knowledge."

The report also considers case studies from Kenya and northern Canada.

"Most striking is that no matter where we looked, the lack of trust played a vital role in blocking negotiations that could have benefited both sides, as well as the larger public," says Richard Gold, chair of the group from McGill University, Canada. (Source: SciDev.Net, 29 November 2008.)

Bioprospecting plant genetic resources in Qatar

A study – *Bioprospecting plant genetic resources in Qatar* – will "bioprospect" Qatar's indigenous plant and fungal biodiversity to explore the potential of its plant genetic resources (PGRs) to address two contemporary issues facing Qatar, namely:

- the increase in incidence of "diseases of affluence" and
- the desertification of Qatar's arid lands.

This research will assemble the results of the latest studies in disparate fields, such as pharmacognosy, epidemiology, microbiology, ethnology and restoration ecology, to yield a document that identifies and evaluates top PGR candidates that could contribute to the improvement of Qatar's public and ecosystem health. In addition, a presentation and extension education booklet will be produced to apprise relevant stakeholders of PGR-related opportunities.

Plant species involved include: *Aizoon* spp., *Anastatica hierochuntica*, *Terfezia claveryi*, *Tirmania nivalis* and *Ziziphus* spp. (Source: update of the month from the Global Facilitation Unit [GFU], July 2008.)

Bugs lead drug hunters to medicinal treasure

If you are looking for medicinal plants in the jungle, let the insects guide you. A study has shown for the first time that brightly coloured bugs like to sit on medicinally active plants.

Todd Capson, an entomologist at the Smithsonian Tropical Research Institute in Panama, hopes the findings will accelerate drug discovery efforts and improve measures to safeguard rain forests.

A popular way of finding new drugs based on natural compounds is to study the plants used in traditional medicines. Capson and his colleagues thought that there might be a way of accelerating the search, by also looking for plants that seem to be valued by non-human species.

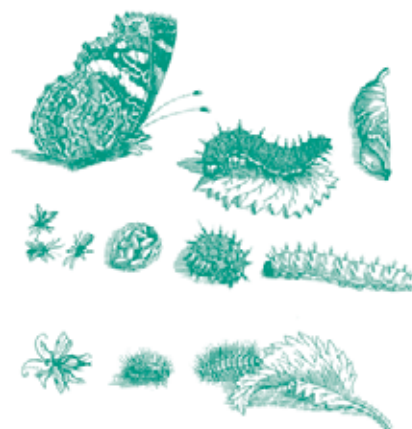
Many tropical insects carry toxins to protect themselves from predators. In fact, in the early days of drug discovery, researchers tried collecting insects in order to extract their active compounds. "Good luck collecting 100 kg of insects," says Capson. However, the insects often do not synthesize toxins themselves. Instead, many eat toxic plants and concentrate the poisons. As a result, the search for new drugs inspired by natural compounds now focuses on plants rather than insects.

Bioprospectors searching for medicinally active plants in a rain forest face a problem of needle in the haystack proportions. Plants do not advertise the fact that they contain potential medicines. The insects that feed on them, on the other hand, do. Insects ingest bioactive chemicals from the plants and advertise the fact that this makes them poisonous to predators with flashy colours.

Capson's team decided to test their theory in the forests of Panama. They chose ten plants that they knew contained medicinal compounds, and ten non-medicinal plants that looked very similar to them. In four national parks, they searched for the plants in their natural environment and recorded the number of bright insects on their leaves.

The team regularly found brightly coloured bugs on nine of the ten active plants, but on just four of the ten inactive plants. On average, each poisonous plant had 1.9 bright bugs on its leaves, while innocuous plants had just 0.5.

Using brightly coloured insects as flags does not mean that every plant collected by scientists contain a new medicine. Once a potentially medicinal plant has been identified, it can take years to extract the active compound and turn it into a useful drug. Nevertheless, it could focus pharmaceutical searches.



"One could go into the field and scan wild insect populations," says team member Julie Helson of the University of Toronto Scarborough, Ontario, Canada. "This would still be labour-intensive, but would hopefully increase your hit rate in comparison to randomly collecting plants."

For Capson, there is another advantage to the method – that of saving the insect sentinels from extinction.

Capson himself is not planning on testing his method further by collecting unknown plants that have bright bugs on them and testing their toxicity. That, he says, is what he hopes his colleagues who are searching for new drugs will do. The baton is ready to be passed. [Journal reference: *Frontiers in Ecology and the Environment*, DOI: 10.1890/070189.] [Source: *New Scientist* [United Kingdom], 12 August 2008.]

World's first biodiversity law centre in Malaysia

Malaysia on Wednesday opened the world's first centre for legal advice on biodiversity development and marketing, for both government and international institutions.

Increasing the country's capacity on the legal aspects of biosecurity and biotechnology are among the main objectives of the Centre of Excellence for Biodiversity Law (CEBLAW), based at the University of Malaya.

Natural Resources and Environment Minister Douglas Uggah Embas said the centre will also give the Government legal advice on issues included in international environmental agreements and the World Trade Organization, among others.

CEBLAW emerged from a joint initiative by the Natural Resources and Environment Ministry and the University of Malaya to support the Executive in legal affairs benefiting exchange, traditional thinking and copyrighting, the official explained. [Source: *Prensa Latina* [Cuba], 24 September 2008.]

COSMETIC GIANTS RUN INTO A HIMALAYAN CHALLENGE

Ahmedabad. A dozen women are busy plucking sea buckthorn berries in Leh-Ladakh and Kargil to supply them to their local Nundum Cooperative Society (NCS). The society will further their produce to the All-India Aromatic Plants Growers Association (AIAPGA).

By supplying such special fruits with medicinal values, these women will earn

Rs85–90/kg, more than 50 percent higher than before, according to Mohammed Zaffar, President of NCS, which has 40 members. In addition, the hill people of India are coming together to take on foreign Fast Moving Consumer Goods (FMCG) big companies, such as Amway, K-Link, DXN and Tenzxi – that have been dominating the Indian cosmetics market – by launching a large number of herbal cosmetic products.

The 6 000-member-strong AIAPGA will launch herbal products under its common brand across the country by next week through self-marketing. And it is confident of outdoing the foreign competition. "Our prices are quite nominal than these biggies and our products are high in quality," says the AIAPGA President and Kangra Herb Society Director Randhir Singh Guleria.



A large number of growers come from regions such as Leh, Kargil, Himachal Pradesh, Uttarakhand and areas covered under the Himalayan range. They are expected to obtain more than 40 percent margins on their produce once the mechanism falls into place. AIAPGA has received patent approval for launching 35 products initially, and a few more will join after approval. What is more, the Rs300 crore industry is confident of touching the Rs1 000 crore mark in the next five years with their inhouse business model.

From planting to packaging, branding and marketing of the final product, AIAPGA has strategically built an inhouse model for its members that, it claims, will be more cost effective than the one followed by the large foreign companies. Interestingly, the growers will get returns as per their subscription period with AIAPGA. That means the longer the period, the higher the margins. "Our 40 ha land was a complete wastage as we didn't know how to utilize it. Now, we have decided to supply medicinal plants for two years," says Dharamshala-based grower Manish Mahajan. [Source: *Economic Times* [India], 1 August 2008.]

CROPS FOR THE FUTURE – A NEW INTERNATIONAL ORGANIZATION

A new international organization dedicated to neglected and underutilized crops was to be announced on Sunday, 30 November 2008, at the Annual General Meeting of the Consultative Group on International Agricultural Research in Maputo, Mozambique.

"Crops for the Future" has evolved from a union of the International Centre for Underutilised Crops (ICUC) and the Global Facilitation Unit (GFU) for Underutilized Species. It will be hosted in Malaysia by Bioversity International in a joint venture with the University of Nottingham, Malaysia Campus.

Over half of humanity's food comes from only three crops – rice, wheat and maize. Thousands of others are also important, but overlooked, as sources of nutrition, food, animal feed, medicines and other resources. Hannah Jaenicke, Interim Global Coordinator of Crops for the Future, said: "In times of changing climates, and economic and social upheavals, it is essential that we promote diversity. These underutilized or orphan crops are vital to support poor peoples' coping strategies and to encourage sustainability."

Crops for the Future will support, collect, synthesize and promote knowledge on neglected and underutilized species for the benefit of the poor and the environment. It will do so by complementing and strengthening the efforts of other players active in international agricultural research and development.

The new organization is expected to start operating early in 2009. [Source: *Innovations Report*, 1 December 2008.]

ECOFRIENDLY PRESERVATIVE: LANTANA – AN OBNOXIOUS WEED WITH A USEFUL PURPOSE

Lantana camara Linn. A member of the Verbinacea family, lantana is found in abundance in India, in Deccan, Nilgiris, Uttar Pradesh, the Shivalik range, the Western Ghats, Bihar, Chhotanagpur and the northeastern regions. It seems to have overrun some areas such as most of the state capital of Uttranchal, Dehra Dun.

Introduced in India as a hedge by the British in 1941, today the plant has taken



Lantana camara

over almost 1 lakh ha of land. Considered to be among the ten "worst" weeds in the world, once it is established it becomes almost impossible to eradicate, even with the help of machines. Lantana may be manually removed but regenerates again very easily. It survives in all weather conditions. The toxic effects of the plant also prevent the growth of other plants through the process of allelopathy.

Efforts are now under way to utilize this weed for various purposes because of its abundance and accessibility. Recent studies reveal that it can be used for wood protection of non-durable timbers. The Forest Research Institute in Dehra Dun reported that the whole plant of *Lantana camara*, when extracted in ethanol, exhibited highly protective properties for non-durable timber even at very low levels of concentration (i.e. 0.01 percent). No protection could be achieved when water was used to extract the plant material; rather, a promotory effect on the growth of fungus was observed. The properties achieved by ethanol extract are attributed to the presence of phenolics, alkaloids and appreciable amounts of terpenoids.

This use of the invasive weed may be tapped for the development of ecofriendly preservatives for wood and non-wood products such as bamboo. (Contributed by: Dr Sadhna Tripathi, Scientist, Wood Preservation, Forest Products Division, Forest Research Institute, Dehra Dun, India. E-mail: tripathis@icfre.org or tripathiak04@yahoo.co.in)



EL MANEJO DE PRODUCTOS FORESTALES NO MADEREROS EN AMAZONÍA

Considerando su importancia y la presión sufrida, la Amazonía necesita modelos de desarrollo con actividades económicas que no comporten la deforestación exagerada. En ese contexto, el manejo de productos forestales no madereros (PFNM) merece especial atención, ya que si es conducido de manera sostenible puede, al mismo tiempo, convertir en rentables los bosques y mantener su estructura y biodiversidad prácticamente inalteradas.

Los PFNM son productos provenientes de los bosques que no son madera, como por ejemplo hojas, frutos, flores, semillas, nueces, palmitos, raíces y bulbos, ramas, cáscaras, fibras, aceites esenciales, aceites fijos, resinas, lianas, hierbas, bambú, plantas ornamentales, hongos y productos de origen animal. Pensando en la importancia de esos productos, se observa que son cruciales para la subsistencia de muchas personas en el mundo, especialmente para las que viven en los bosques o en sus cercanías. Los PFNM se utilizan para la alimentación, producción de medicamentos, usos cosméticos, construcción de viviendas, tecnologías tradicionales, producción de utensilios y otros usos. De acuerdo a estimaciones de la FAO aproximadamente el 80 por ciento de la población de los países en desarrollo utilizan los PFNM para suplir algunas de sus necesidades de vida.

A pesar del gran potencial de la foresta Amazónica para el manejo de PFNM, son aún escasas las informaciones que suministran bases para la conducción de trabajos sostenibles junto a las comunidades. Generalmente, se considera que las comunidades que participan en iniciativas de manejo de los PFNM suelen tener más conocimientos sobre los recursos que los técnicos que acompañan los trabajos. Se evalúa que todavía no existe un camino o conjunto de actividades que indiquen cómo realizar de manera adecuada el manejo comunitario de los PFNM.

Un reciente trabajo (*Manejo comunitario de productos forestales no maderables: un manual con sugerencias para el manejo participativo en comunidades de Amazonía*) trata la cuestión a partir de una óptica holística, y propone la división del trabajo en distintas etapas. Se sugieren para ello

tres etapas: la previa a la recolección, la recolección y la posterior a la recolección.

En la fase previa a la recolección se evalúa como adecuado el establecimiento de un orden de actividades que deben pasar por: i) inserción de la comunidad en el trabajo, incluyendo discusiones sobre el interés comunitario, cuestiones de propiedad de la tierra, diagnósticos del mercado consumidor y definición de grupos de trabajo; ii) ordenamiento y planificación de actividades a partir de un cronograma de trabajo comunitario; iii) conformación de un conjunto de instituciones colaboradoras; iv) realización de capacitaciones; v) formulación de un sistema de gestión del manejo en la comunidad; vi) estudio del potencial productivo forestal, a partir de informaciones tradicionales y de levantamientos técnicos; vii) mapeo del área de colecta y de los individuos productivos y viii) legalización de la actividad de acuerdo a los marcos legales estatales y nacionales.

La siguiente fase, la recolección, debe también ser dividida en distintos momentos y actividades, siendo: i) establecimiento de principios de conservación de los recursos naturales aprovechados; ii) definición de los procedimientos de colecta, involucrando la seguridad de las personas, la selección adecuada de material colectado y la adopción de prácticas de máxima productividad sostenible; iii) definición de equipamientos y materiales de colecta; iv) evaluación de la producción anual; v) establecimiento de ciclos/períodos de extracción; vi) definición de procedimientos de control de la colecta y vii) adopción de medidas mitigadoras de impactos.

La última fase, la posterior a la recolección debe considerar aspectos relacionados con: i) beneficios de la producción; ii) métodos de transporte; iii) maneras de almacenaje; iv) prácticas de



monitoreo participativo del manejo, uso de herramientas para el monitoreo ambiental, sociocultural y económico y v) definición de estrategias de comercialización, con la elección de los productos para ser comercializados, cálculo de los costos de producción, precio de venta y definiciones de las formas de inserción del producto comunitario en el mercado y la organización de los procedimientos de comercialización.

Por último, un trabajo que considere las etapas expuestas tiene mayores posibilidades de alcanzar resultados positivos en el manejo de los PFNM, aunque no trate cuestiones o procedimientos definitivos, siendo el manejo una ciencia para ser descubierta y redescubierta a partir de la interacción armónica entre conocimientos tradicionales, la biología y la ecología de las especies, y la investigación científica de casos particulares.

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GLOBAL FOREST PLAN COULD BOOST FIGHT AGAINST POVERTY AND CLIMATE CHANGE

An emerging initiative could pave the way for fundamental change in forest management, boosting efforts to fight both poverty and climate change, says new research by the International Institute for Environment and Development (IIED). The World Bank-nurtured idea is a global forest partnership linking local and global processes and promoting decision-making on the international stage to reflect the view and needs of local stakeholders, including forest dwellers. The study's authors warn that the World Bank will have to heed the advice of the hundreds of experts they consulted if it is to make a real breakthrough in tackling the weaknesses of past international forest programmes.

IIED consulted widely on the Bank's idea. More than 600 forest experts responded to IIED's survey or participated in focus groups in Brazil, China, Ghana, Guyana, India, the Russian Federation and Mozambique, as well as at international meetings.

A majority agreed a new partnership was needed to protect forests and forest-based livelihoods, but pointed out ways it should diverge from the Bank's initial idea if it really is to serve local needs on an equitable basis within the rapidly changing global forestry agenda. IIED also reviewed more than 50 existing initiatives to identify the proposed alliance's potential partners and the gaps it could fill.

Key features to make a global partnership truly progressive for international forestry include a focus on empowering primary "stakeholders" such as forest dwellers so that their rights, knowledge and needs are centre-stage. The partnership should improve flows of finance to activities that support local needs alongside global public goods such as carbon storage. It should interact effectively with other sectors such as water and agriculture, where the underlying causes of forest problems – and the seeds of sustainable solutions – are often lodged.

"Without these building blocks, the ambitious partnership idea is unlikely to succeed," says IIED's Steve Bass. "This is a new opportunity to develop an empowering, stakeholder-focused partnership that can attract real investment to manage forests sustainably. It has potential to harness an enormous groundswell of energy to manage forests. Right now, Western governments are planning large climate and forest funds – the partnership could identify the best ways to invest those funds for long-term good."

The report urges the formation of a "development group" of forest, environment and development leaders mainly from the south alongside governments, civil society and the private sector, to develop the initiative cooperatively with support from progressive international institutions.

Welcoming the report, the World Bank's Forest Advisor, Gerhard Dieterle said: "We have listened to the advice of the hundreds of people consulted and will be following IIED's recommendation that the World Bank support an independent process of a global partnership growing from the 'bottom up'. We are convinced that this is a lasting way to have forests contribute to economic growth, to the livelihoods of forest-dependent people and poverty reduction as a whole, as well as preserving the global services forests deliver." (Source: IIED press release, 9 July 2008.)



"GREEN" JEWELLERY

Ecofriendly jewellery made from tagua nuts and pumpkin seeds have proved to be a successful artistic venture for Lina O'Connor, a Colombian woman living in California, United States of America. Tagua is also known as natural ivory, vegetable ivory or ivory nut but, whatever the title, it is an ecofriendly, renewable resource.

The palm trees producing these nuts grow in the rain forests of Colombia, Peru, Ecuador, Panama and the Bolivarian Republic of Venezuela. The nut is hard and durable, its colour resists fading and it is not allergenic. O'Connor said that the nut clusters, which can be as big as 25 pounds (11.3 kg) each, fall off and natives harvest them. She notes that "the trees don't need them anymore".

Tagua has been used to make buttons and chess pieces for years, but its use in jewellery (and even in bagpipes) is a more recent development. The seeds are dyed after they are polished, so they are colour-ready when O'Connor starts designing. After the designing process, most pieces take three to four hours to create. O'Connor believes the market for this kind of green jewellery is growing. (Source: *Eagle & Times*, 28 November 2008.)



HOW BUTTERFLIES SAVE FORESTS

The Bombay Natural History Society (BNHS) has a prized collection of butterflies collected over 125 years. Some of the species even help in conservation. In addition, some can fetch between Rs23 169 and 27 803 each.

Issac Kehimkar of BNHS tells about a path-breaking project involving such butterflies that has preserved the forests of Kenya.

"There is a huge demand for butterflies in the United States of America, the United

Kingdom, Singapore, Thailand and Taiwan Province of China. These countries have huge butterfly parks which attract lots of tourists. Because the life of a butterfly is about a couple of weeks, the supply has to be replenished continuously. Farmers in Kenya breed and export them for Rs46–278 each to these countries. Butterflies always lay eggs on forest plants and thus the conservation of forest automatically becomes mandatory. Today the forest has become the livelihood of these farmers.”

When asked why such an arrangement does not exist in India, he said that the export of biodiversity-related items is illegal. Therefore poor farmers find ways of earning money by helping poachers. If such projects are encouraged, poaching will be eradicated. [Source: *Daily News & Analysis* (India), 18 September 2008.]

LA MEDICINA OCCIDENTAL «PUEDE CONVIVIR CON EL SABER LOCAL»

Buenos Aires. Un estudio realizado sobre los hábitos de un grupo indígena en la Amazonía boliviana demuestra que es posible la convivencia entre la medicina científica y las prácticas ancestrales.

El estudio, realizado por científicas de la Universidad Autónoma de Barcelona (España) y de la Universidad de Georgia (Estados Unidos) y publicado en el *Journal of Ethnobiology and Ethnomedicine* el 18 de agosto pasado, evaluó el modo en que los Tsimane, en la selva boliviana, actúan ante la enfermedad.

Detectó que en primer término los indígenas acuden a los tradicionales curanderos locales y sólo en segundo término, o ante casos de particular gravedad, recurren a la medicina occidental, sobre todo si se trata de afecciones gastrointestinales.

Según distintas encuestas y entrevistas realizadas por las investigadoras, existe entre los pobladores locales, que suman unos 8 000, la voluntad de sumar lo mejor de ambas formas de curar la enfermedad y llegar a una especie de «sinergia» entre ambas. Según lograron determinar los médicos y los curanderos locales están de acuerdo en que la tuberculosis debe ser tratada con medicinas occidentales, mientras que otros males, como la diarrea, pueden ser resueltos con remedios basados en la vegetación local.

Para las autoras del estudio, esto es posible pese a ciertas particularidades del acervo cultural local que hace que no existan nombres de las enfermedades sino meramente síntomas, que la creencia en la brujería como factor causal de males está muy extendida y que se piense en ambos tipos de «medicinas» como sistemas independientes de conocimiento.

La investigación, según el cardiólogo argentino Daniel Flichtentrei, jefe de contenidos médicos de IntraMed, afirmó a SciDev.Net: «esto pone en evidencia que las personas encargadas de paliar los sufrimientos no tienen prejuicios académicos ni culturales a la hora de reunir esfuerzos en esa dirección».

Y agregó que «los pueblos originarios no emplean remedios diferentes para tratar las mismas enfermedades que los médicos occidentales sino que la distancia es mucho más compleja: entre ambas culturas las categorías de salud y enfermedad suelen ser completamente distintas».

Por lo tanto, abogó en ese sentido por un tipo de «medicina sincrética en la que enseñen y aprendan mutuamente los ‘médicos’ de una y otra cultura». [Fuente: SciDev.Net Weekly Update (1-7 de septiembre 2008).]

NATURAL RELIEF FROM OSTEOARTHRITIS

Extracts from NWFPs provide relief from osteoarthritis

Osteoarthritis is the condition characterized by degeneration of the protective cartilage that prevents bone from rubbing on bone. Frustratingly, the latest research shows that most over the counter medications are all but ineffective. Yet extracts of various NWFPs are showing remarkable results.

One of these is a South African herb known as devil's claw (*Harpagophytum procumbens*), which contains the anti-inflammatory compound harpagoside that in a few controlled trials has allowed subjects to reduce other pain medications (see following article). Cat's claw (*Uncaria tomentosa*), a vine growing in the Peruvian jungle, also has anti-inflammatory properties. There is further evidence of the helpful properties of extracts of the *Boswellia serrata* plant, commonly known as frankincense.



Harpagophytum procumbens

These, among other NWFPs, offer much hope for sufferers of osteoarthritis. However, more research, investment and human trials of the extracts of the products, which appear to be safe, are required. Most important, rain forests must be preserved for further research, so that these plants will not disappear before their potential is discovered. [Source: extracted from: J. Schwarcz, 2008. *The right chemistry – beware of the blood therapy*. Montreal [Canada], Canada Gazette.]

Devil's claw – a promising remedy for pain

Devil's claw (*Harpagophytum procumbens*) is a ground-trailing plant that gets its name from its strange-looking fruit. After the flowers die, they leave a woody fruit with long, barbed spines.

The plant is native to many parts of southern Africa, where it is also called the grapple plant or wood spider. The part used medicinally, however, is underground. The roots grow tubers that look like sweet potatoes and have been used traditionally to relieve inflammation, pain and stomach problems.

The herbal remedy was studied extensively in Germany at the beginning of the twentieth century. Recent interest has focused on its potential to relieve pain and inflammation associated with osteoarthritis. While many dietary supplements and herbal remedies are now being marketed for osteoarthritis, few have been tested rigorously or extensively.

Devil's claw is a herbal remedy that shows promise in this area. While very few clinical trials have been conducted, it has been shown to be as effective as some other

conventional medications used for osteoarthritis.

However, since the symptoms of osteoarthritis vary a great deal, it will be important to test devil's claw in larger and longer-lasting studies and to continue investigating any adverse effects. [Source: *Irish Times* (Ireland), 2 December 2008.]

Pine bark reduces knee osteoarthritis

Bratislava. A third clinical trial in Slovakia confirms evidence that the antioxidant pycnogenol lowers joint pain, researchers said.

A study, published in the August *Journal of Phytotherapy Research*, said pycnogenol – a bark extract from the French maritime pine tree – reduced overall knee osteoarthritis symptoms by 20.9 percent and lowered pain by 40.3 percent. [Source: United Press International [United States of America], 4 September 2008.]



NEW AGREEMENT TO PROMOTE SUSTAINABLE COLLECTION OF WILD PLANTS

Barcelona. An important agreement was signed today between the four founding institutions of the International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) to endorse global implementation of the standard through the FairWild Foundation.

ISSC-MAP is a standard that promotes appropriate management of wild plant populations used in medicines and cosmetics to ensure they are not overexploited. Under the new agreement, the FairWild Foundation will help develop an industry labelling system so products harvested using the sustainable ISSC-MAP criteria can be readily recognized and certified. Use of the standard will be promoted throughout the herbal products industry.

ISSC-MAP was developed by a partnership including the German Federal Agency for Nature Conservation (BfN), the IUCN SSC Medicinal Plant Specialist Group (MPSG), WWF-Germany and TRAFFIC, plus industry associations, companies, certifiers and community-based NGOs. The announcement was made at the World Conservation Congress in October 2008.

"This new agreement marks a significant step forward in the sustainable use of wild plants important to human health and well-

being. Industry adoption of the standard will ensure sustainable use and equitable sharing of the world's wild plant resources, reinforcing the healthy environments, healthy people theme running throughout the World Conservation Congress," said IUCN Director-General Julia Marton-Lefèvre, signing the agreement on behalf of IUCN.

"A successful wild plant collection standard is essential to ensure sustainable use of medicinal plants not only for purposes of nature conservation but also in a social and economic context. Germany, as one of the major medicinal plant importers worldwide, has a special responsibility of acting upon such principles," said Professor Beate Jessel, President of BfN.

More than 400 000 tonnes of medicinal and aromatic plants are traded annually, with around 80 percent of the species harvested from the wild. Almost 3 000 species are traded, many of them overexploited and in danger of extinction through overcollection and habitat loss. Implementation of the standard will stop more plants being overexploited and becoming threatened with extinction under IUCN's Red List criteria.

"Worldwide, people depend on medicinal plants and profit from the unique therapeutic effects of medicine from nature's pharmacy," said Guillermo Castilleja, Executive Director of Conservation, WWF. "This new agreement is a significant step forward in ensuring the long-term sustainability and supply of these invaluable natural products."

"Overharvesting of wild plants is a serious, yet often neglected issue. This timely agreement is a milestone on the road to seeing sustainability become the norm throughout the herbal products industry," said Steven Broad, Executive Director of TRAFFIC.



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American Botanical Council

Established in 1988, the American Botanical Council (ABC) is the leading non-profit, member-based international organization working to educate consumers, health care professionals, researchers, educators, industry and the media on the safe and effective use of herbs and medicinal plant products.

ABC is located in Austin, Texas (United States of America), where it publishes *HerbalGram*, a peer-reviewed quarterly journal, *HerbClip*, a twice-monthly scientific literature review service; and *HerbalEGram*, a monthly electronic newsletter.

ABC is also the publisher of *The ABC clinical guide to herbs*, a continuing education and reference book, which contains extensive monographs on the safety and efficacy of 29 popular herbs, and the recent *The identification of medicinal plants: a handbook of morphology of botanicals in commerce*, a guide to the macroscopic identification of botanical materials for industry quality control laboratories that ABC has published in cooperation with the Missouri Botanical Garden.

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Centre de Recherche pour la Gestion de la Biodiversité et du Terroir (CERGET)

Le Centre de Recherche pour la Gestion de la Biodiversité et du Terroir s'occupe de la conservation et de la gestion durable des ressources naturelles. A savoir:

- Gestion et conservation durable des ressources naturelles
- Inventaire de la faune mammalienne, entomologie de la faune et des forêts
- Protection durable des plantes
- Bonnes pratiques agricoles et phytosanitaires

- Conservation durable du singe à ventre roux «Zin Kaka», espèce menacée
- Valorisation des écosystèmes naturels par le tourisme et l'écotourisme
- Accueil de stagiaires dans différents domaines.

Le Centre recherche des partenaires pour une collaboration durable et d'échanges.

POUR PLUS D'INFORMATIONS, CONTACTER:

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El Puente/The Bridge

El Puente/The Bridge is a non-profit, human services organization based in the Costa Rican rain forest, working with the indigenous Bribri. It provides educational assistance, food assistance and microloans mainly to indigenous people in the southeastern part of Costa Rica. Its goal is to help people help themselves to self-sufficiency.

Along the way, the Bridge has run into a local *curandero* with a passion for applying his knowledge of medicinal plants and for preservation of his culture. We are already in the planning stages of a workshop, in which the *curandero* will work with doctors and other medical personnel to share this vital knowledge from the rain forest.

We have also learned about Guadua bamboo, which is more efficient than "normal plants" at carbon sequestration and oxygen production, can create revenue for the indigenous people by selling it as food, furniture and, ultimately, as construction material – and collect revenue from the international community as "carbon credits".

FOR MORE INFORMATION, PLEASE CONTACT:

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 **NTPF CURRICULUM**

At long last the Nontimber Forest Product Curriculum Workbook written by Dr Kathryn Lynch is available through the Institute for Culture and Ecology Web site.

Despite enthusiastic interest from two publishers, the book got halted in their marketing departments because it is so big and expensive to produce that they were concerned they might lose money. We decided to offer it directly through our Web site as an electronic download and let people make a donation after deciding what it is worth to them. This approach also has the advantage of letting us view the curriculum as a work in progress and update and expand it into the future.

The workbook was funded by the National Commission on Science for Sustainable Forestry and has been extensively peer-reviewed. We welcome feedback from users.

Last, NTFPs are such a big and diverse concept that this curriculum still just scratches the surface, even for the United States of America, our geographic focus. Is there a need and a path forward to create an international repository for curriculum materials? It seems there would need to be a Web site where lesson plans, syllabuses and handouts could be shared. Royal Roads has the online bibliographic database but would that work? Could it accommodate any language? Who would edit and maintain it?

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 **PREVENTING GUM DISEASE WITH CAMU CAMU**

Camu camu (*Myrciaria dubia*) is one of the best super foods for preventing gum disease, as well as providing our bodies with endless benefits: it has the highest amount of vitamin C in the world and also contains bioflavonoids.

Studies show that a low immune system is one of the main reasons for unhealthy gums ... and camu camu boosts the immune system like no other food. [Source: Natural News.com [United States of America], 1 December 2008.] [Please see page 50 for information on camu camu in Peru.]

 **RECREATIONAL USE OF EUROPEAN FORESTS**

According to nationwide recreation demand surveys, 40–96 percent of the populations in different European countries visit forest areas for recreation purposes annually. For example, each year some 40 percent of all Italians walk or hike in forests and 56 percent of all Danes study and enjoy forest nature. In areas with high population densities and low forest cover, forests represent one of the main accessible land uses for recreational purposes. [Source: *Making European forests work for people and nature*. EFI Policy Brief 1, 2007.]



 **THE AFRICAN HEARTLAND TRUST FUND**

The upcoming African Heartland Trust Fund (AHTF), administered by the Africa Region of the World Bank with a US\$5.5 million trust fund programme for supporting forest sector reforms in Congo Basin countries, will involve work under three pillars.

1. *Strategic outreach* to civil society and decision-makers so that they are better informed, committed and actively engaged as agents of change in implementing forest sector reforms. Rural communities, technical ministries, civil society, parliamentarians and decision-makers in developing and industrialized countries will take part in coordinated activities.



2. *Making reforms work for the poor*, providing local communities with the tools and third-party support they need to secure the benefits stemming from new forest policies. Structured partnerships between local communities and qualified NGOs will help review the status of implementation of social responsibility contracts signed with the private sector and other frameworks expected to yield benefits to local communities.

3. *Increased finance for non-consumptive use of forests* by engaging a debate with corporations on environmental services and non-consumptive use of forests. (Source: E-mail announcement, International Institute for Sustainable Development, New York, United States of America.)

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THREATENED PLANTS EMIT "ASPIRIN"

Forest plants subjected to stresses, such as drought, emit an aspirin-like chemical that can be detected in the air above them, American scientists have discovered.

Thomas Karl, the lead researcher at the United States National Centre for Atmospheric Research, believes that the chemical, methyl salicylate, may be a sort of immune system response. "Plants can produce their own mix of aspirin-like chemicals, triggering the formation of proteins that boost their biochemical defences and reduce injury," he says in the journal *Biogeosciences*.

The chemical can be sensed by other plants and may be a means of communication. Previous studies have shown that plants being eaten by animals produce chemicals that are sensed by other plants nearby. (Source: Times Online [United Kingdom], 19 September 2008.)

TRADITIONAL ECOLOGICAL KNOWLEDGE AND CERTIFICATION PROCESSES

Evaluations of initial attempts at NTFP certification reveal substantial ecological, socio-economic and administrative obstacles for forest product collectors. However, the problem of lack of sufficient scientific understanding of the ecology of NTFP species can sometimes be addressed by recognition and documentation of traditional ecological knowledge (TEK). Increasing local input regarding NTFP resource inventories, production/yield, development of criteria and indicators, and monitoring sustainable management can offer valuable contributions to the certification process.

Besides benefiting efforts at certification, such attention can foster needed appreciation and local documentation of TEK. Cases from Namibia, the Philippines and Brazil are used to demonstrate how local initiatives in sustainable resource management strengthened communities' understanding of their resource base. The process of sharing ecological knowledge locally can catalyse broader objectives of community empowerment and sustainable management – with or without a seal. (Source: P. Shanley and M. Stockdale. 2008. Traditional knowledge, forest management and certification: a reality check. In M. Philip (ed). *Forests, Trees and Livelihoods*, 18(1). United Kingdom, AB Academic Publishers. ISSN 1472-8028.)

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WILD NWFPs OF THE WESTERN HIMALAYAS – NEW CD-ROM

A new CD-ROM, entitled "Some wild growing fruits, nuts and edible plants of the western Himalayas", provides information on 30 wild growing fruits, 11 wild growing nuts and ten wild growing edible plants in this unique region.

Complete with detailed information and over 150 photographs, the new CD-ROM is a follow-up to and continuation of the book *Wild fruits of the sub-Himalayan region*, published in 1982. The information on the CD-ROM is available in both PDF and PowerPoint® format.

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FOR MORE INFORMATION, PLEASE CONTACT:
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www.fruitipedia.com ♣



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AMARANTHUS



Amaranthus spp.

The many uses of *Amaranthus* spp.

High in protein and calcium, *Amaranthus* is used as a food crop by the Aztec Indians of Mexico, as a spinach substitute in Australia and as a vegetable in China. The seeds can be boiled into a hot cereal. The young shoots make a very tasty pot herb or in salads. Other uses include the ash of the whole plant used as snuff, sometimes alone and sometimes with tobacco (in Swaziland). A red dye made from the plant – whose name comes from the Greek “amarantos”, which means “unfading”, a reference to the persisting colour of certain amaranth flowers – is used to colour food and medicine. A green and yellow dye can be made from the whole plant.

Found in abundance across parts of the Americas, Africa, the Pacific Islands and Asia, *Amaranthus* spp. has anti-inflammatory, astringent, blood purifying, laxative and diuretic qualities. *Amaranthus* is also known to improve digestion and promote appetite. However, it is most famous as a herb that stops bleeding. (Source: D.B. Leonard. 2008. *Special report: Amaranth*)

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ARGAN (ARGANIA SPINOSA)

La gestion et le développement de l'arganier au Maroc

L'arganier est une essence spécifiquement marocaine, à affinités tropicales, unique espèce dans son genre. L'arganier se contente d'une tranche pluviométrique qui peut baisser jusqu'à 120 mm par an, et supporte des températures élevées pouvant atteindre 50 °C. L'isotherme 3°8 limite son extension en altitude. Cette espèce couvre actuellement plus de 700.000 ha et représente environ 17 pour cent de la superficie forestière nationale. L'espace à arganier s'étale essentiellement sur le territoire des provinces d'Essaouira.

L'arganeraie constitue un véritable pôle d'attraction, la population de la région est passée de près d'un million d'habitants en 1960 à plus de 2,5 millions d'habitants en 2004 dont 55 pour cent en milieu rural, soit un taux d'accroissement de 2,2 pour cent. L'initiation de vastes programmes de régénération de l'arganier pourrait être un important moyen de stabilisation de la population et de lutte contre l'exode rural.

L'importance de l'arganier aux niveaux national et international

L'arganier constitue la troisième ressource forestière marocaine, après l'alfa et le chêne vert, sensiblement à égalité avec le thuya. L'arganier est, en effet «un arbre à multi-usages», chaque partie ou produit de l'arbre est utilisable et représente une source de revenus et de nourriture. Cet arbre a des propriétés écologiques et physiologiques; il est très rustique et résistant à l'aridité, mais il est également doté d'une grande variabilité génétique telle qu'il est pratiquement le seul adapté aux régions arides et semi-arides où il pousse. Dans ces zones, l'arganier est pratiquement irremplaçable dans la conservation des sols et des pâturages et pour la lutte contre l'érosion et la désertification. L'arganier joue un important rôle dans la fertilisation des sols et fournit l'essentiel de l'agriculture d'exportation marocaine dans sa zone.

En quelques années, on a assisté à une mutation complète de la filière production-commercialisation de l'huile d'argan. Ce produit traditionnel, naguère peu connu en dehors du Maroc, est aujourd'hui reconnu en Amérique du Nord, en Europe et jusqu'au Japon où il est considéré comme une huile de luxe. Alors que cette huile ne faisait pas partie de la nomenclature des douanes (ni marocaines ni étrangères) n'étant pas

répertoriée au Codex alimentarius, il existe aujourd'hui une norme marocaine sur l'huile d'argan et ce produit a fait l'objet en 2002 d'une note de l'Agence française de sécurité sanitaire des aliments (AFSSA) validant son utilisation comme huile alimentaire. Des travaux sont en cours au Maroc pour mettre en place un label de qualité de type Appellation d'Origine Contrôlée (AOC).

La production de l'huile et de ses dérivés

L'huile extraite de l'amande (fruit de l'arganier) est non seulement comestible et d'un goût agréable, mais elle possède des propriétés diététiques très intéressantes étant constituée à 80 pour cent d'acides gras insaturés (dont une bonne proportion d'acide linoléique).

Ces qualités diététiques en font une huile très recherchée, vendue nettement plus chère que l'huile d'olive, en raison notamment de sa rareté et des nombreuses heures de travail nécessaires à sa production. En effet, celle-ci est entièrement manuelle depuis le concassage des fruits, le grillage et le broyage des amandes, jusqu'au malaxage de la pâte pour en extraire l'huile.

La production fruitière (noix d'argan) varie en fonction de l'âge et de la densité (20 à 100 kg par arbre) avec une moyenne de 40 kg/arbre/an.

Sur la base de la densité moyenne des peuplements d'arganier, qui est de l'ordre de 50 arbres par hectare et du rendement en huile d'argan (3 litres pour 100 kg de noix sèches), la production potentielle est estimée à 32 000 tonnes d'huile d'argan par an. (Source: *La gestion participative et le développement des produits forestiers non ligneux comme moyen de réduction de la pauvreté féminine en zones rurales: cas du Maghreb et du Sahel* par Mme Hawa War, Volontaire, FAO, Le Caire.)

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L'arganier et l'olivier au cœur du Sahara

La wilaya de Tindouf, en Algérie, a connu, au cours des quatre dernières années, la concrétisation de plusieurs projets inscrits au titre de la politique nationale forestière qui vise le développement des zones sahariennes a indiqué à l'Aide publique au

développement (APS) le Conservateur des forêts de cette collectivité locale. Des projets de développement, programmés pour l'année 2008 ou à brève échéance, permettront d'améliorer le couvert végétal et le patrimoine sylvicole, et de développer les zones pastorales qui ont subi un lourd préjudice en raison de la sécheresse.

Parmi les projets à concrétiser, l'extension de la ceinture verte de la wilaya de Tindouf qui s'étend sur une superficie de 30 ha, dont 20 ha plantés d'oliviers et 10 autres de variétés d'arbres sylvicoles à l'image de l'arganier (*Argania spinosa*). Ce projet, qui vise à augmenter la superficie de la ceinture verte de 20 ha, vise également à développer les capacités de production de la pépinière sylvicole de l'oued Djezz, qui avait produit, au cours de l'exercice 2007-2008, près de 400 000 plants. Les résultats encourageants réalisés dans la culture de l'arganier, à titre expérimental, ont poussé les services concernés à envisager la poursuite d'expériences de mise en terre de plants de cette variété d'arbre dans la région de l'oued El-Ma.

L'arganier est en effet un arbre qui résiste aux rudes conditions climatiques et à la sécheresse. Si la culture de ce dernier s'avère possible, toute la région en tirera le plus gros bénéfice surtout lorsque l'on sait que c'est de l'arganier qu'est extraite l'huile d'argan, produit qui fait fureur aujourd'hui sur les marchés européen et américain. Tous les produits cosmétiques sont faits à base d'huile d'argan. Notre voisin de l'ouest, le Maroc, en est parmi les plus grands producteurs dans le monde. L'huile d'argan est utilisée depuis des siècles par les femmes berbères du sud du Maroc tant pour la cuisine que pour les produits de beauté. [Source: *Le Maghreb*, Alger, 11 Septembre 2008.]



BAMBOO

Bamboo is the latest natural material to be used in ecofriendly building

A London architect has completed a bamboo townhouse in the middle of an urban area in Asia that is being hailed as an innovation in terms of sustainable house building in the region.

Bamboo reduces the need for air conditioning as it allows the property to be ventilated naturally while remaining secure and private. Company ROEWU's architecture believes designs like this could help reduce the cost of air conditioning in parts of the world where bamboo is the main source of energy consumption.

The house in Yi-Lan, Taiwan Province of China, built as a holiday home, was a challenge as the site is narrow with blank party walls on both sides. By introducing several double- and triple-height void spaces, the whole house is naturally ventilated despite the fact that the sides are enclosed.

The bamboo screen wrapped around the house shields the house's occupants from the view of passers-by on the street, while allowing sunlight and air to filter into the building through the bamboo poles.

The interior is intended to be like an organic forest. Sunlight and air filter in through the bamboo poles, changing the character and use of the space over the course of the day and the different seasons.

ROEWU describes its bamboo screen concept as "a radical updating of the conventional Taiwanese window screen". The approach also provides a new use for highly sustainable, fast-growing, locally sourced bamboo, which has fallen out of use in local construction. [Source: *Property Wire* [United Kingdom], 1 August 2008.]

Building on bamboo

The decline in timber availability and the emergence of new technologies have spurred interest in bamboo and coir-based composites as wood substitutes for the building industry, particularly as demand swells in Asia and the Pacific. Bamboo-based panels and boards are hard, durable and may successfully substitute hard wood products.

In a paper presented at the India seminar on the National Building Code of India, Mr M. R. Anil Kumar, Managing Director, Kerala State Bamboo Corporation, said that bamboo is quickly transforming its image from a "poor man's tree" to a high-technology industrial raw material. Bamboo, now a globally recognized substitute for wood, can

be processed into products that successfully compete with conventional wood products in price and performance. Engineered bamboo may even replace wood, steel and concrete in many uses.

Now a demonstrated and commercialized technology, bamboo-based ply is competitive in pricing. Removal of bottlenecks on the supply side should create further downward pressure on prices. There has also been a demand for commercialization of bamboo as an enterprise at the farmer level.

Bamboo should be promoted on the industrial scene through appropriate tie-up arrangements with bamboo-based industries such as paper, handicrafts and the new emerging areas of ecofriendly products such as housing tiles, flooring and bamboo shoots. [Source: *Business Line* [India], 13 July 2008.]

Bamboo fibres fortify plant-based car materials

Mitsubishi Motors Corporation has developed resin composite materials that are reinforced by bamboo fibres and can be used in car interiors.

This is the first time that bamboo fibres have been used in this way. Mitsubishi Motors aims to reduce CO₂ emissions by using the plant-based materials. It has been considering mass-producing the materials and "intends to reduce the cost to a level 1.5 times higher than existing materials", according to the company.

The material is intended for use as door trim base material, seatback board and ceiling board. [Source: *Tech-On English* [Japan], 1 December 2008.]

Bamboo laptop debut

Asustek Computer plans to debut a nature-friendly laptop PC with a casing made of bamboo on Saturday at Taiwan Province of China's IT Month exhibition. The laptop, first announced last year, is part of Asustek's efforts to use renewable materials in products.

The company will launch the bamboo laptops in the United States of America and Europe at a later date, but has not decided exactly when, an Asustek representative said. [Source: *PC World* [United States of America], 26 November 2008.]

Bamboo can play a major role in saving the globe

Chennai. "Everybody is talking about the problem of global warming, but I have a solution for it," says N. Barathi and

displays a bamboo sapling wrapped like a bouquet. "Bamboo acts as a carbon sink: it absorbs excess CO₂ in the air with three to four times more efficiency than any other tree, which means the more bamboos we plant, the more CO₂ is absorbed and thus we can stop contributing to global warming."

According to Mr Barathi, an agricultural scientist, bamboo can effectively clean water pollution from septic tanks and factory effluents as it has a natural affinity for nitrogen, phosphorus and heavy metals.

Barathi has developed a variety of bamboo called "beema bamboo", which is sterile, therefore does not produce seeds and can live up to 200 years, provided it gets regular water, sunlight and nutrients from the soil. Planting this in gardens will benefit generations to come, he says.

He has even calculated that Chennai needs around 13 million bamboo plants to become carbon neutral, i.e. to absorb the excess CO₂ in the air generated by the city's population. (Source: *The Hindu* [India], 4 August 2008.)



BAOBAB

New exotic fruit to hit United Kingdom shops

An unusual fruit from a native African tree, the baobab, is to be available in the United Kingdom after it has been approved by the European Union (EU). The fruit, contained in a hard nut, has six times more vitamin C than oranges and twice as much calcium as milk. Africans have eaten the fruit for thousands of years, but Europeans will consume its pulp as an ingredient in smoothies and cereal bars. Since 1997, foods not commonly consumed in the EU have had to be formally approved before going on sale.

The baobab tree grows throughout certain parts of Africa and has many different uses. The leaves can be eaten as relish and the fruit dissolved in milk or



water and used as a drink. The seeds also yield an edible oil and can be eaten raw or roasted. The fruit, bark and leaves of the tree are used to treat medical problems, including fevers and kidney disease.

However, EU customers will not be able to try out the many traditional uses of the tree and its fruit, which is 15–20 cm long. The fruit will be removed from its nut and the pulp, which is white, powdery and has a cheese-like texture, will be used as an ingredient in products such as cereal bars.

The non-profit trade association that has been lobbying for EU approval, PhytoTrade Africa, hopes the demand for the fruit will mean employment for millions of African people.

Gus Le Breton, the association's chief executive, said: "The EU decision is a crucial step to developing the global market which could be worth up to £500 m a year. Dozens of companies have shown interest in baobab since we submitted the application and many have already conducted initial research. Now that approval has been given, they can progress to full-scale product development."

The baobab tree can live for hundreds of years. Its trunk can grow up to 15 m in circumference and reach a height of 30 m. Some baobab trees, which are 80 percent water, are hollow and have been used as bars in shops and even prisons. (Source: BBC News, 15 July 2008.)



BEE PRODUCTS

Honey hunting

Honey hunting in Asia

In Asia, large volumes of honey are still obtained by plundering wild colonies of honeybees. This is because some of the Asian honeybee species exist only in the wild, and cannot be kept inside hives made by humans. Honey hunting of *Apis laboriosa*, a honeybee species that nests at high altitudes, is practised in the Hindu Kush Himalaya region. Honey hunting of *Apis dorsata* is practised throughout its distribution range, from Pakistan in the west to the Philippines in the east. Honey hunting of cavity-nesting *A. cerana*, *A. koschevnikovii*, *A. nuluensis* and *A. nigrocincta*, and the "little" honeybee species *A. florea* and *A. andreniformis* is practised wherever the bees occur.

The large Asian honeybee species, *A. laboriosa* and *A. dorsata* often nest high on cliffs or in high trees. However, the combs are very large and yields of honey are

worthwhile. Honey hunting is therefore a dangerous, although worthwhile, activity in many regions of Asia. Local customs and traditions have become associated with honey hunting, and have been studied by anthropologists and social scientists: this means that traditional honey hunting and cultural associations have been well documented in some areas. Indeed, in Nepal and Malaysia, tourism based on viewing traditional honey hunting has now taken off.



THE AFRICAN HONEY GUIDE

Honey guides are African woodland birds belonging to the genus *Indicator*. They are remarkable for apparently leading honey hunters (as well as honey badgers and other bee predators) towards bee nests. There are several different species of honey guide, the most common being the greater honey guide *Indicator indicator*, and the lesser honey guide *Indicator minor*.

Honey hunters whistle to locate the honey guides. The birds then chatter continuously and flutter conspicuously, gradually leading the honey hunters towards the vicinity of a bees' nest, when they become quiet. When the honey hunters plunder the nest, the honey guides are rewarded with feeding from the bees' nest: brood, pollen and honey. Another unusual feature of these birds is their apparent ability to digest beeswax.

Honey hunting outside Asia

Honey hunting of indigenous *Apis mellifera* colonies is commonly practised in Africa, and of feral *A. mellifera* colonies in Central and South America, wherever colonies are abundant – most often in forested areas. [Source: *Bees and their role in forest livelihoods*, FAO Non-Wood Forest Products series 19 [in press].]

Prevention and treatment of MRSA with manuka honey

If gone untreated, methicillin-resistant staphylococcus aureus (MRSA), a mutated form of bacteria that has developed a resistance to antibiotics, can be fatal. Amid much hysteria, scientists are beginning to recognize that a particular type of honey known as manuka is actually effective against this notoriously resilient superbug. Researchers have determined that MRSA cannot survive in the healing environment created by manuka honey. MRSA is a bacterium that divides into two similar cells every half hour. Studies have shown that manuka honey interferes with the cell cycle of MRSA by affecting the separation of new cells, so that those unable to complete division become disabled.

All types of honey contain hydrogen peroxide, a known antiseptic and disinfectant. Yet an additional antibacterial component in manuka honey, known as UMF, is unaffected by enzymes that dilute the effectiveness of regular honey. UMF remains active when used as a wound dressing and diffuses more deeply into skin tissues.

In addition to its unparalleled antibacterial properties, manuka honey is also considered to be antimicrobial and, therefore, capable of treating both bacterial and fungal infections. Manuka honey also has anti-inflammatory properties, which reduce pain in damaged tissue.

Manuka honey is made by bees from the nectar of the flower of the manuka bush, which is indigenous to New Zealand. Manuka honey-based MRSA treatments are becoming available to hospitals and individuals worldwide as word of its effectiveness becomes mainstreamed. With reports of manuka honey acting as a natural cure for MRSA, antibiotics will certainly be used less, especially since MRSA drugs usually prove to be useless. [Sources: PR-Inside.com (Pressemitteilung) [Austria], 30 June and 5 September 2008.]

Distinctive flavours inhabit honey

Tupelo, lavender, sourwood, linden tree, sage, buckwheat, eucalyptus and Bradford pear are mere sweet drops in the honey pot. More than 300 distinctive types of honey are produced in the United States of America.

“Each region of America grows different plants and therefore has different honey,” explains Mark Brady, President of the American Honey Producers Association. “Texas, for example, produces honey from white brush, cat claw and mesquite plants; Nebraska is famed for its clover and alfalfa honey; South Carolina and Florida for tupelo.”

“You can even get honey from cactus,” explain Erika Wain and Klaus Koepfli, of California’s Klausesbees honey company, who sell a thick cactus honey from the Mojave Desert of California.

Despite this wide range of choices, most Americans have only tasted honey blends. “Companies that supply supermarkets mix honey from many different beekeepers,” explains Troy Fore, Executive Director of the American Beekeeping Federation. “Supermarket honey is just as good and nutritious as any honey. However, unique and unusual flavours may be lost in the intermingling of many flavours.”

Bruce Wolk, Director of Marketing for the National Honey Board, recommends logging on to the board’s Web site, www.honeylocator.com, to discover honey’s varied flavours. The site lists hundreds of types of unique honeys as well as where to buy them.

Pure Mountain Honey (www.MtnHoney.com), is just one of the artisanal producers featured on the National Honey Board’s site. Owners Carl and Virginia Webb, who humorously say they employ 7 million workers, make sourwood honey from sourwood trees indigenous to Georgia. Their honey won top

prize for the “Best honey in the world” at the 2005 World Honey Show in Dublin, Ireland, which included 400 entries representing 21 different countries. [Source: Fairbanks Daily News-Miner [United States of America], 16 July 2008.]

Beeswax in cosmetics, soap and ointments

Top-quality, pure beeswax can be used to make fine soap, shampoos, skin ointments and cosmetics. If used this way, it is possible for beeswax from just one bee colony to generate more income than from all the honey harvested from the same hive. Scrupulous cleanliness, careful working and attractive packaging are essential for success with these value-added products. [Source: *Bees and their role in forest livelihoods*, FAO Non-Wood Forest Products series 19 [in press].]

Bee checklist buzzes online

Biologists have recently completed an online effort to compile a world checklist of bees. They have identified nearly 19 500 bee species worldwide, about 2 000 more than previously estimated. There is a current crisis known as “colony collapse disorder”, an unexplained phenomenon that is wiping out colonies of honeybees throughout the United States of America. This crisis has highlighted the need for more information about bee species and their interactions with the plants they pollinate.

The bee checklist includes currently accepted scientific names, synonyms and common names. A current, complete and authoritative taxonomic checklist is key to linking all information about species.

Compiling the checklist has taken more than five years and the efforts of leading bee taxonomists on six continents. The checklist, coordinated by the staff of the Integrated Taxonomic Information System, a public-private partnership hosted at the National Museum of Natural History, is available at www.itis.gov. [Source: BCN 284, August 2008.]



The amazing benefits of the açai berry

The many health benefits of the açai fruit, which is rapidly growing in popularity worldwide, have been long known by indigenous Central and South Americans where the fruit grows on the açai palm in swamplands.



The berry is a small fruit, the size of a grape. It is dark purple in colour with a large seed. The *açaí* palm bears fruit twice a year. When consumed, the berry leaves a slight hint of bitter aftertaste, which resembles that of chocolate. It can be prepared in many ways. Mostly, the berry is prepared as a drink.

When consumed on a regular basis, the *açaí* berry offers many health benefits. The fruit is good for the body mainly because of its antioxidant properties: it is able to rid the body rapidly of harmful toxins. As a result, shortly after consumption of *açaí* berries, an individual may feel a boost in energy levels. *Açaí* improves mental clarity and promotes sound sleep. It even helps with digestive functions.

Perhaps the greatest benefit that has been given the most attention is that the *açaí* berry helps in the weight loss process. Blood circulation is improved when toxins are removed. Improved blood circulation eventually leads to slowing down of the ageing process. Skin will look healthier and cholesterol levels will be regulated. The heart also strengthens. If the body is currently suffering from any physical injuries, the improved blood circulation and the strong heart will help speed up the healing process. [Source: *American Chronicle* [United States of America], 25 November 2008.]



Mulberries hailed as new superfruit

The mulberry, which resembles a raspberry, boasts an impressive nutritional CV, outperforming cranberries, blueberries, blackberries and raspberries. The mulberry's levels of antioxidants are 79 percent higher than blueberries and 24 percent more than those found in cranberries. It is packed full of vitamins and fibre and contains high levels of resveratrol, the antioxidant superhero, which helps combat heart disease and cancer and helps lower cholesterol and

other diseases associated with chronic inflammation.

Amazingly, this antioxidant appears to fool cancer cells into believing the DNA has already been damaged and so possibly help prevent the spreading of the disease. It is early days but scientists at Harvard University are excited about another insight into how cancer may be tackled.

And mulberries can help to keep you fighting fit throughout the winter too – a recent report in the *Journal of Infectious Diseases* states that resveratrol decreased the reproduction of the influenza virus; in other words, it may be useful in preventing or treating flu. [Source: Easier (press release) [United Kingdom], 25 September 2008.]

Heatwave spells Swedish berry shortage

The recent dry spell has led to an acute shortage of berries in Swedish woodlands. Mainly affected are the woodlands south of upper Norrland in northern Sweden. According to Marogan Tjernberg, spokesman for the Swedish Forestberry Association, the situation is really dire in southern areas. Summer's popular blueberries and cloudberries have simply shrivelled up in the dry heat and disappeared. Southern counties such as Värmland are worst affected, but it remains to be seen if other areas recover, as it is still early in the season.

As well as mushroom picking, berry picking is a popular Swedish pastime. It is also a source of economic income. In 2000, according to the Swedish Forestberry Association, 14 000 tonnes of berries were collected for retail purposes, of which 70 percent were blueberries. Commercial berry pickers are almost always non-Swedes. [Source: *The Local* [Sweden], 3 August 2008.]

Goji berry poses risk to the United Kingdom's tomato and potato crops

Goji berries might look innocuous, but the current craze for this "superfood" – fuelled by the endorsement of celebrities – could devastate the United Kingdom's multimillion-pound tomato and potato crops.

The Government has alerted farmers to the threat after it revealed last week that nearly 90 000 goji berry plants, which can carry diseases that are lethal to other crops, have been illegally imported from East Asia in the past year. Some of the plants have been destroyed but it is feared that most are already in the gardens of goji-berry enthusiasts.

The Department for Environment, Food and Rural Affairs (Defra) has issued a warning to commercial growers, garden centres and gardeners, while the National Farmers' Union has warned that disease carried by the bright red berries could be "devastating".

The goji berry, also known as *Lycium barbarum*, contains up to 500 times more vitamin C than an orange, and is native to the Tibetan Himalayas. It has been used for medicinal purposes in China for centuries.

The Plant Health and Seeds Inspectorate warned there is a "substantial trade" in prohibited goji plants in the United Kingdom. Seeds and berries can be imported from anywhere in the world, but only plants grown within the European Union are permitted to be imported to the United Kingdom, because they are certified to be free of disease. [Source: *The Independent* [United Kingdom], 20 July 2008.]

Synsepalum dulcificum: miracle fruit turns sour into sweet

Fort Lauderdale, Florida. A Florida grower said demand is rising for a red berry nicknamed "miracle fruit" that can make sour things taste sweet. Curtis Mozie said the berries, which are native to West Africa, change taste for more than two hours, making sour things such as limes taste like candy, the *South Florida Sun-Sentinel* reported on Monday.

Scientists said the berry, *Synsepalum dulcificum*, contains a glycoprotein called miraculin that changes taste.

Mozie, who has more than a thousand "miracle fruit" trees in his orchard, charges US\$3 a berry and ships 3 000 berries a week. Cancer treatment centres have contacted him to see if the fruit will boost the appetite of chemotherapy patients, the newspaper said. [Source: *The Money Times* [India], 1 July 2008.]



Cinnamon, not just a culinary spice

Cinnamon (*Cinnamomum verum*) has played an important role in medicinal healing and as a culinary spice.

Cinnamon was used in Egypt as an embalming agent, a product that was considered more precious than gold. Its warming qualities made cinnamon essential to traditional Chinese medicine and its energy-based medical systems.

As its popularity grew, mediaeval Europe heavily relied on cinnamon. It was a product in great demand and became one of the first commodities traded regularly between the Near East and Europe.

Studies are currently under way by the United States Agricultural Research Service to demonstrate that less than half a teaspoon per day of cinnamon reduces blood-sugar levels in persons with Type 2 diabetes. Some question the toxicity of the regular use of cinnamon. However, results of a study published in the December 2003 issue of *Diabetes Research and Clinical Practice* reported that cinnamon enhanced muscle cells for better insulin utility.

CINNAMON: THE CEYLON, CHINA CONNECTION

The fragrant, sweet, warm taste of cinnamon that people have come to love so much comes from the brown bark of the cinnamon tree. It is produced in a dried, tubular form known as quill (cinnamon sticks) or is readily available as ground powder.

The main varieties are Ceylon and Chinese; Ceylon is slightly sweeter, more refined and difficult to find in local markets. Ceylon cinnamon is produced in Sri Lanka, Madagascar, Brazil and the Caribbean. The Chinese variety, more popular in North America, is known as cassia and is less expensive than the Ceylon variety. The Chinese variety is produced mainly in China, Viet Nam and Indonesia.

It is the essential oils of the bark of the cinnamon tree that give cinnamon its unique healing abilities. The oils contain active compounds such as cinnamaldehyde, cinnamyl acetate and cinnamyl alcohol, among other volatile substances.

These oils qualify the spice as an antimicrobial food. Research has shown that it has the ability to stop the growth of bacteria and fungi, including the problematic yeast, candida. The *International Journal of Food Microbiology* (August 2003) reported that the antimicrobial properties of cinnamon are so effective that it has been used as an alternative to traditional food preservatives.

Cinnamon is also known for aiding clotting of blood platelets through cinnamaldehyde. This product helps to prevent unwanted clumping of blood platelets, important in emergency injuries when bleeding should stop. Cinnamaldehyde works by inhibiting the release of an anti-inflammatory fatty acid called arachidonic acid from platelet membranes. This process is also anti-inflammatory, which renders cinnamon an anti-inflammatory food.

Cinnamon is a powerful, natural antioxidant when compared with other antioxidant spices such as anise, ginger, liquorice, mint, nutmeg and vanilla. When compared with chemical food preservatives (BHA, BHT and propyl gallate), cinnamon was found to prevent oxidation more effectively than other spices, except mint and chemical antioxidants.

There is much to say about the odour of this spice in boosting brain activity. Research has shown that chewing cinnamon-flavoured gum or just smelling cinnamon-enhanced products improved brain functioning, attention span, visual-motor speed and memory.

Iron, calcium and the trace mineral manganese are also found in cinnamon. Moreover, it is a good source of dietary fibre. When calcium and fibre combine, they bind bile salts and remove them from the body. Bile salts, if not removed from the body, can damage colon cells, increasing the risk of colon cancer. Fibre in cinnamon may provide relief from constipation or diarrhoea experienced by sufferers of irritable bowel syndrome.

As a culinary treat, cinnamon can provide a quick, healthy twist to snacks such as cinnamon toast or honey and cinnamon on wholewheat toast. A deliciously warming beverage is cinnamon sticks simmered in soy milk. Adding cinnamon to dishes such as lamb for a Middle Eastern-inspired meal is a memorable departure from regular recipes. Adding cinnamon to curries gives them a further kick.

Cinnamon is an excellent spice with great healing properties, widely used in Eastern and Western herbalism. It is equally important in culinary creations across most cultures. Cinnamon is a spice that should be truly treasured! [Source: Heather Little-White, *Jamaica Gleaner* [Jamaica], 6 September 2008.]

Expanding Sri Lanka's cinnamon trade
The Agriculture and Agrarian Services Ministry of Sri Lanka has devised a long-

term economic strategy to capture lucrative export markets for indigenous subsidiary food crops. Under the "Api Wawamu-Rata Nagamu" concept, the Ministry expects to increase cinnamon exports up to 3 000 tonnes by 2010. The Ministry has allocated Rs7 million for the Export Agriculture Department to expand cinnamon cultivation, which could potentially attract more export markets.

Ministry Advisor A.H.L. Somathilaka told *The Island* financial review that Sri Lankan cinnamon had been rated as the best-quality cinnamon in the world market as the country had been able to supply 90 percent of cinnamon requirements. In the world market, the supply of quality cinnamon was about 15 percent and the supply of cassia cinnamon, a lower-quality substitute, was around 85 percent.

He said that Sri Lanka had been supplying quality cinnamon to the world market while China, Indonesia and Viet Nam had been exporting cassia cinnamon. The Ministry was positive that Sri Lanka would be able to increase cinnamon exports by 5 percent in 2010.

Somathilaka explained that cinnamon had been cultivated on 25 413 ha, with each hectare yielding around 500 kg of cinnamon annually. Of this amount, around 5 350 tonnes were being exported and Sri Lanka had been earning Rs2 229.2 million from cinnamon exports annually. Future plans for cinnamon cultivation would include exports of 3 000 tonnes by 2010, quality enhancement and increases in revenue, production and profits. [Source: *The Island* (subscription) [Sri Lanka], 22 September 2008.]



Portugal fighting screw-cap trend to save cork forests

It has recently emerged that falling demand for authentic cork stoppers is gradually forcing farmers to replace cork trees with alternative crops, such as eucalyptus trees.

At present, according to the World Wild Fund for Nature (WWF) Web site, Portugal is the world's largest cork producer, followed by Spain, Algeria, Morocco, Italy, Tunisia and France.

The majority of cork harvested in the Iberian Peninsula is used to produce bottle stoppers, which represents an estimated 70 percent of the income from harvest.

However, traditional cork stoppers are being replaced with synthetic closures or screw caps, which now account for around 20 percent of the market.

It is said that problems with bottles of wine becoming "corked" (in layperson terms, where the wine develops a musty smell and becomes undrinkable because of contamination with a chemical known as trichloroanisol), have led many wine connoisseurs to opt for bottles with synthetic cork or screw tops instead.

In a nutshell, this shift in traditional bottle stopping to using modern-day products is threatening to wipe out cork forests, along with the species that reside therein.

Cork oak forests in Portugal cover an estimated 33 percent of land mass and are home to a number of rare and endangered species, particularly in southern Portugal. These include black storks and booted eagles, which are already disappearing in some areas, and the Iberian lynx, which over the past few years has been the subject of extensive reporting and campaigning.

A study by WWF, which was recently reported in *The Telegraph* newspaper, estimated that up to three-quarters of the Mediterranean's cork forests could be lost within ten years. Over the past ten years in the Algarve, cork forests have declined by 28 percent.

In an attempt to boost productivity, Portuguese cork producers have introduced new sterilization and purification methods to ensure corks are not contaminated with trichloroanisol.

Over the years, Portugal's cork industry has not been without turmoil. In August 2008, environment protection agency Quercus considered the felling of 1 200 cork trees in Vale da Rosa a "glaring disregard" of the law. The trees were felled to make space for a mega residential development. Legal action was instigated by Quercus to stop the felling, alleging that the trees are of a species protected by Portuguese law.

Back in 2001, there were political moves to defend Portugal's cork oaks when delegates from the Socialist Party-run Council of Montijo met with officials representing the then President Jorge Sampaio, with the initiation of a national petition to be presented to Parliament.

Motivated by the perceived weakening of legal protection for cork and holm oak trees, environmental groups such as Quercus voiced their concern over the proposed changes to the law since it was first drafted in the year 2000.

The felling of 66 ha of cork forest for the controversial Alqueva dam project, in northern Alentejo, also highlighted threats posed by development projects to existing oak woodland. [Source: *Portugal News*, Algarve [Portugal], 6 December 2008.]



Cork comes unscrewed

Is the corkscrew destined to join the garter, snuff box and cassette tape in that dusty drawer of obsolete accessories? Given that about 90 percent of New Zealand wines are now under screw cap and even the French are starting to convert, it certainly looks likely that in the future far fewer corks will be pulled.

Cork has been used as a stopper since the 1600s, when it was adopted by Dom Perignon to replace the cloth-wrapped wooden plugs that kept popping out of his champagne containers.

However, as a natural product, cork has an inherent variability, with some corks providing the tight seal required, while others allow some oxygen to sneak past. Even more of a concern has been a nasty mould called trichloroanisol (TCA) that imparts musty aromas and flavours. But cork's monopoly created complacency and producers were seen to be doing little to sort out this issue.

That was until new closures, such as synthetic corks and screw caps, came on to the scene and were embraced by winemakers, frustrated that up to 10 percent of their products could be spoiled by their packaging. Of these it is the screw cap that has really taken off. The practicality of the cap and reassurance that the wine will be taint-free, has meant that drinkers are now sending back wines if they are not under screw caps!

Caps have not been without their critics, some blaming their near-hermetic seal for the creation of eggy-smelling hydrogen sulphides in wine. This was a problem in

the early days, but appears to have been largely rectified through more appropriate winemaking. [Source: *New Zealand Herald* [New Zealand], 7 September 2008.]

ESSENTIAL OILS

The role of essential oils in combating mosquito-borne diseases

Despite rapid advances in medical science during the past decades, mosquito-borne diseases such as dengue, Japanese encephalitis (JE), filiarisis, malaria and chikungunya continue to torment human beings. This is because mosquito vectors as well as causative agents such as bacteria and fungi have developed resistance against pesticides and antimicrobial drugs.

According to Dr Nor Azah Mohamad Ali, senior researcher at the Forest Research Institute of Malaysia (FRIM), the best move to curb the breeding of the mosquito is to destroy its larva or through the use of insect repellents. "At the moment, the control of the mosquito vectors depends on the chemical-based and synthetic repellents like dimethyl phthalate, malathion and dimethyl-m-toluamide (DEET). Even though the chemicals are effective, some could be hazardous in addition to being ozone-depleting, and continuous use could make the mosquito vectors resistant to insecticides."

Dr Nor Azah suggested the possibility of using herbs and spices, whose essential oils are able to repel insects, as insecticides. The presence of monoterpenoids such as limonene, citronellol, geraniol and citronellal have been reported as having insect-repellent properties. "As aromas play an important role in controlling the insects' behaviour, essential oils can be used as insect repellents," she said.

From FRIM's research, a number of essential oils such as *Cymbopogon nardus*, *Litsea eliptica*, *Melaleuca cajuputi* and *Cinnamomum* spp. demonstrate repellent properties against the *Aedes aegyptii* mosquito. She said essential oils from other plants reported to be able to repel insects are those from geranium (*Pelargonium citrosium*), sandalwood (*Aquilaria malaccensis*) and sweet basil (*Ocimum* spp.).

FRIM's research also showed that the essential oil product "Deesrept" is able to repel the mosquito to the extent of killing it, said Dr Nor Azah.

The discovery of "Deesrept", which contains one or a blend of essential oils from the citrus family, is among the successes chalked up by FRIM from its research on essential oils. "This essential oil can be included in creams and lotions," Dr Nor Azah said. Products could also be used as body sprays or air fresheners, she said, adding that a Bumiputera firm is working on commercializing the product.

In studies held at FRIM, it was found that aroma-producing plants such as citrus, *selasih* (*Ocimum*), *serai* (*Cymbopogon*) and *medang* (*Cinnamomum*) exhibited potential in repelling mosquito when tested on *Aedes aegyptii* via the American Society Testing and Materials (ASTM) standard E951-85. Dr Nor Azah said the most effective essential oils discovered so far are those from citrus plants.

Further research is needed to ensure non-toxicity and optimum efficiency of the essential oils. Moreover, public awareness on alternative products for repelling mosquito is high, but there are only a few of such products on the market because of limited resources of raw materials. The use of natural herbs as raw products has pushed up the processing costs.

FRIM has begun the cultivation of medicinal herbs such as *serai wangi* for research and commercial purposes. It is also taking proactive measures in maintaining natural resources. "Our jungles contain numerous herbal treasures that have potential, but if we acquire any species for research, then we will plant it back." [Source: Bernama [Malaysia], 24 September 2008.]

Himalayan oregano effective against MRSA

A team comprising researchers from a United Kingdom university, members of local businesses and an NGO in India has discovered that the essential oil of Himalayan oregano has strong antibacterial properties and even kills the hospital superbug methicillin-resistant staphylococcus aureus (MRSA). They hope these findings will lead to the development of hand soaps and surface disinfectants in hospitals and other health care settings.

The United Kingdom researchers are from the University of the West of England (UWE), Bristol, who teamed up with, among others, India-based Biolaya Organics, a company that develops projects aimed at conserving endangered medicinal herbs, for example by cultivating them using sustainable methods and providing alternatives such as more common species.

The team is working on a project to give rural communities the means to generate income from sustainable collection of NTFPs in the Kullu district of Himachal Pradesh. Earlier this year, the United Nations Environment Programme (UNEP) gave the project the SEED award. SEED is an international programme with UN backing that supports entrepreneurial partnerships that develop creative, locally led solutions to the global challenges of sustainable development.

The creative and innovative part of the



Origanum vulgare

project is that it potentially gives a sustainable source of income to the people of the Himalayas while at the same time providing United Kingdom hospitals with an environmentally friendly way of preventing the spread of MRSA. The Himalayan Oregano Project was one of five SEED 2008 winners that were selected this year from over 400 entries worldwide.

Himalayan oregano is just common *Origanum vulgare* that grows in the Himalayas. In fact, the local people in Kullu do not regard it as having any culinary or medicinal value and treat it as a weed: they call it "bekaar gahaas" or "useless grass" because even cows and goats will not eat it.

Ben Heron from Biolaya Organics said they started working with oregano because it is a plant that can be gathered year after year without depleting the population in the wild. He said the project aims to pay local herb collectors the same amount they would receive if they collected endangered herbs, so they become less dependent on the latter.

Scientists already knew that Mediterranean oregano oil was a powerful antimicrobial, because of an essential compound called carvacol. But nobody had tested the Himalayan oregano oil before, said Heron, so they teamed up with SGS who run a laboratory in Delhi and found it contained as much carvacol as Mediterranean oregano.

At SGS they ran further tests and found that Himalayan oregano oil was more effective at killing MRSA than 18 antibiotics. The microbiologists at UWE are now carrying out further tests, and hope to publish the results in a scientific journal. [Source: *Medical News Today* [United Kingdom], 24 November 2008.]



A rain forest fungus may be the future of biofuel

A recent discovery in the Patagonian rain forest has revealed a most extraordinary fungus that produces gas nearly identical to diesel fuel. *Gliocladium roseum*, living inside the ulmo tree in the rain forest, not only produces diesel-like fumes but also feeds off cellulose; hence its potential as a fuel supplier is magnified by the fact that it would not be disruptive to food chains. More research is soon to follow. [Source: Mongabay.com, 4 November 2008.]

Antibiotic-producing mushroom discovered

The Philippines. A group of government scientists recently discovered an antibiotic-producing micro-organism from a type of mushroom that has been found to be effective in treating diseases of livestock, particularly swine, the Department of Science and Technology (DOST) reported yesterday.

The scientists from DOST's National Research Council of the Philippines, led by Dr Asuncion Raymundo, a plant pathologist, found that the mushroom species *Clitopilus passeckerianus* produces the antibiotic called pleuromutilin.

Data from DOST's Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) showed that the Philippines was among the leading hog raisers in the Asia-Pacific Region in 2001. However, the report also stated that Luzon's production rate, compared with that of Mindanao and Visayas, has plummeted in 2001 compared with earlier years, attributing this to the

high mortality rate among swine on account of disease. "The NRCP antibiotic derived from the mushroom has the clear potential to solve this problem," DOST said.

For thousands of years, humans have recognized the varied uses of mushrooms. In addition to being an effective fermenting agent, they are also considered an efficient waste disposer and major manufacturer of organic fertilizer, DOST said. Mushrooms can grow anywhere from farm animal manure, from spoiled food in the kitchen, to the dead barks and leaves in the deepest reaches of foliage. [Source: FreshPlaza [Netherlands], 18 July 2008.]

Nature's "medicine chest" discovered

Over 25 percent of all contemporary medications originate from moulds, mushrooms and other fungi, including penicillin and cyclosporine, an immunosuppressant that improves the acceptance rate following an organ transplant operation.

A ridge in the highest cloud forest of Belize, at an altitude of over 3 500 feet (1 067 m), has been found to be a "mushroom heaven". In 2007, fungus scientist Timothy J. Baroni from the State University of New York at Cortland and others discovered over 40 new species on the ridge in under two weeks. "We have a medicine cabinet at our disposal, and the medicines don't have labels yet," says Baroni, who is funded by the National Geographic Society's Committee for Research and Exploration.

The great potential of new fungus remains to be explored. [Source: *National Geographic*, 26 November 2008.]



GINSENG (*PANAX* spp.)

Ginseng found highly effective for weight loss and diabetes control

Ginseng has long been one of the foundations of healing in Chinese medicine, and is probably one of the world's best known herbs. The botanical name *Panax* means "all curing" in Greek. This 5 000-year-old healer has traditionally been used as a restorative tonic to increase energy, stamina and well-being. Western scientists have confirmed the efficacy of ginseng for many of the traditional uses. Now researchers are adding to the traditional list, documenting ginseng as highly effective in weight loss and diabetes control.

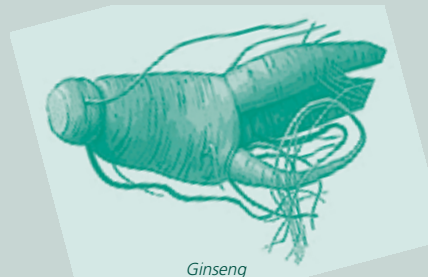
New research documents ginseng's effectiveness against obesity and diabetes.

CHARACTERISTICS OF GINSENG

Ginseng is one of the adaptogens, a group of non-toxic, non-habit forming substances that normalize body chemistry and functioning. Adaptogens increase the body's ability to cope with physical, emotional and environmental stress. They work in a synergistic manner, increasing the body's own ability to fight off disease. The greater the body's need for an adaptogen, the increasingly active the substance becomes.

Ginseng is a plant with many different components. It is used in its entirety in the preparation of teas and the root is used in powders and capsules. The term ginseng is used to refer to *Panax ginseng* and *P. quinquefolius*, first cousins in the Araliaceae family. Each contains a different balance of the ginsenosides, giving it a unique character.

Ginseng was first found in Manchuria and was referred to by the ancient Chinese as "Ren Shen", meaning "Man root". They believed that regular consumption of ginseng led to a long and happy life. Ginseng became so valuable that it was prized beyond gold. It was so popular that the supply of ginseng from the Chinese mainland could not meet the demand, and imports were brought from Korea.



Ginseng

When the wild stock was exhausted, commercial cultivation began. Wild ginseng is believed to have a greater medicinal value than the cultivated variety.

Ginseng is used fresh or dried. Sometimes plant leaves are added with the root, but the root is the highly prized part of the plant. Cultivated ginseng is available as red ginseng and white ginseng. The difference lies in the way the root is processed. The different geographic names before the word "ginseng" indicate where the plant was grown. Subtle variations exist between the varieties.

Ginseng contains a number of compounds that are unique. Many of these elements have an effect on the adrenal glands, increasing the amount of hormone secretion to ward off both physical and emotional stress. Scientists believe that it is this effect that is responsible for the stress-fighting power of ginseng.

The *Phytotherapy Research Journal* reports that ginsenoside Rg3, a red ginseng constituent, can effectively inhibit cells in the fat storage process. New research in the *Journal of the American College of Nutrition* reveals the efficacy and safety in the use of ginseng for diabetes, with mounting evidence to support the claim that American ginseng is useful in improving diabetes control, reducing associated risk factors such as hyperlipidaemia and hypertension, and ameliorating insulin resistance. The *Journal of Ethnopharmacology* reports a study acknowledging ginseng's long history as a herbal remedy for diabetes. As reported in the *Journal of Evidence Based Complementary and Alternative Medicine*, initiating studies have shown that American ginseng increases insulin

production and reduces cell death in pancreatic beta-cells. Studies have also revealed American ginseng's ability to decrease blood glucose in Type 2 diabetes patients as well as in diabetes induced animals.

Ginseng lives up to its name as a cure-all. Russian research showed that ginseng stimulated physical and mental activities in tired and weak individuals and increased energy and physical endurance. Asian researchers have documented ginseng's ability to reduce fatigue and increase stamina and found that ginseng aids in the formation of red blood cells, helping to eliminate anaemia. Ginseng strengthens the gastrointestinal system, facilitates liver regeneration, and helps detoxify poisons. In addition, ginseng is one of the few herbs showing promise in the treatment of

chronic fatigue syndrome. [Source: Natural News.com [United States of America], 1 December 2008.]

Wet weather forcing early ginseng harvest in Canada

Wet weather this summer has forced many ginseng farmers into an early harvest. Growers are racing to salvage what they can now that root rot and berry blight have become a problem. Shade and straw on third- and fourth-year fields have been removed on some farms in preparation for an early harvest. Under normal conditions, the mature root is dug in October and then only in its fourth year.

Phytophthora root rot is the major threat because the fungus spreads rapidly in saturated soil. Ginseng root should have the consistency and colour of fresh parsnips when it comes out of the ground. Root rot moves quickly once it is established and turns ginseng root to mush. Red berries at the top of the ginseng plant develop purple discolourations in the presence of botrytis head blight. The berries, which are harvested for seed, develop a grey, fuzzy appearance as the fungus matures. Sean Westerveld, a ginseng and medicinal herb specialist with the Ontario Ministry of Agriculture, says it is difficult to fight root rot when the soil is continuously saturated.

Under ideal conditions, ginseng will receive light rain or dew over night and dry, warm conditions by day with low humidity.

Most of the Ontario ginseng crop is sold in Asia, where it is used in tea and food and as a traditional folk medicine. [Source: *Tillsonburg News*, Ontario [Canada], 15 August 2008.]



Lac technology to increase the shelf-life of fruits

Ranchi, Scientists in the state have discovered an ecofriendly and economic preservative – lac wax coating – to use for commercial purposes. “We were aware of the fact that lac wax coating on fruits could help preserve them for long, but now we are planning to use the technology for commercial purpose,” said K.K. Sharma, principal scientist at the Indian Institute of Natural Resins and Gums.

Annual lac production in India is around 25 000 tonnes, of which the state’s share is about 40 percent, Sharma added. Until

now, the produce of the state was being used mainly to manufacture electrical insulators and dye fixtures.

Lac is a natural polymer derived from insects and it has great adhesive strength.

It has high electrical insulation, is waterproof and resistant to moisture and corrosion. It is also highly plastic.



The institute has been conducting research on lac since 1930 and has earned a worldwide reputation on the subject. “We have found that the shelf-life of certain fruits and vegetables could be increased by three months using a thin coating of lac wax,” said Sharma.

Research on fruits such as apples and oranges, and vegetables such as pointed gourd and capsicum, have given encouraging results. “The lac wax coating allows the oxygen to pass but prevents water and moisture permeability to keep the fruits fresh,” said Sharma, adding that a thick coating of lac wax could result in fermentation.

To develop a flawless technology of wax coating, the institute has recently tied up with the Central Institute of Post-Harvest Engineering and Technology, Ludhiana. [Source: *Calcutta Telegraph* [India], 25 September 2008.]



Lianas in Guyana

Liana is the common name for woody vines that depend upon the old-growth tree canopies in rain forests. Liana is useful for furniture production, as shown by the successful business venture at the Liana Cane sustainable furniture factory in Guyana.

Kufu (*Clusia* spp.), a material similar to rattan and bamboo, is one such liana that grows from the canopy down to the forest floor. Kufu is used to make furniture frames and cladding. Nibbi (*Heteropsis flexouosa*), a small vine that winds its way

from the forest floor up trunks is perfectly suited for binding joints, as well as for wicker-like weaving. The fibre of the ite palm, tibusiri (*Mauritia flexuosa*), makes a cord-like material that is woven into fabric for seats and chair backs.

The use of NTFPs presents an option for indigenous people to create sustainable economic alternatives to plundering the timber of their lands. As liana can only grow in the forest, finding a use for these vines gives purpose to maintaining the health of that forest. [Source: *extracted from: W. Gordon. 2008. One factory, one forest: design, ecology and microeconomic development in Guyana*. New York, United States of America, Core 77.]

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Una Liana de los bosques tropicales de América, es al presente vulnerable a causa del comercio

La Liana robusta es un producto forestal no maderero (PFNM) de importancia económica y se encuentra en los bosques tropicales de América. Pertenece a la familia Bignoniaceae (*Arrabidaea chica* [Humb. y Bonpl] Verl.), supera los 20 m de longitud y apoya su estructura en el dosel superior de las copas de los árboles en los bosques tropicales de América.

Su mayor empleo y uso tradicional es la utilización de sus hojas como colorante natural para dar tonalidades marrones a utensilios artesanales.

Recibe diversos nombres comunes: en Costa Rica bejuco de fierro, carajirú en



Arrabidaea chica

Brasil, puca panga en Perú, chica en Colombia, witts en Nicaragua, nea curi en Ecuador.

En forma complementaria el tallo se ha empleado para la obtención de fibras que se utilizan para la confección de cestos. Para ello la planta es cosechada en poblaciones silvestres.

Se distribuye en bosques desde el sur de México hasta el norte de Argentina, se encuentra en altitudes de 0 a 1000 m sobre el nivel del mar. Sobre todo en las partes húmedas de bosques tropicales y muy húmedos.

Propiedades: En Perú, Duke y Vásquez (1994) hacen referencia a que este colorante es también usado para el tratamiento de afecciones de la piel y herpes; y sus hojas son usadas como antiinflamatorio. En Costa Rica, Ocampo y Valverde (1987) hacen referencia a que los aborígenes Guaymi, emplean las hojas hervidas para los dolores menstruales y también como colorante para teñir fibras.

Comercio: El comercio es regional en Amazonas, Brasil. La situación del comercio de las hojas se ha ampliado al mercado internacional para su empleo en la industria de cosméticos.

Procedencia de la materia prima: La materia prima son las hojas, que se cosechan en poblaciones silvestres.

Exigencias ambientales: *A. chica* presenta, a priori, condiciones para su domesticación por medio del manejo agroecológico. Esta especie, considerada una heliófita, se presenta en bosques primarios con porte de liana de gran tamaño, con su follaje en el dosel superior, en cambio en bosques de regeneración y bosques secundarios, es de menor tamaño, debido a la mayor luminosidad.

Acciones de domesticación: El Jardín Agroecológico Bougainvillea, ubicado en el Caribe de Costa Rica inició en el año 1998 un proyecto con financiación de la OEA/AICD, implementando acciones dirigidas a la domesticación y conservación *in situ* de este importante producto forestal no maderero.

A continuación se detallan las actividades.

Propagación sexual: La propagación sexual de *A. chica* ha sido poco estudiada ya que por tener el hábito de liana y fructificaciones escasas, no se ha logrado evaluar la germinación de las semillas.

Propagación asexual: En el ensayo de reproducción asexual realizado por Groome (1998), los resultados indicaron que a mayor

diámetro mayor número de raíces, sin influir la presencia de hojas y el tipo de sustrato (arena y suelo); siendo entonces los factores más relevantes el número de nudos por estaca y la madurez fisiológica del tallo.

En los ensayos realizados en el Jardín Bougainvillea, se determinó que de la utilización de estacas leñosas de entre 1 y 2 cm de diámetro, se logra obtener entre un 85 y un 92 por ciento de éxito en el enraizamiento de estacas.

Manejo agroecológico: Sistema agroecológico, es el manejo de *A. chica*, sobre soportes vivos, que se basa en criterios agroecológicos de manejo de luminosidad (sistema de barbacoa), su manejo es favorecido al tener un comportamiento de especie heliófita, la capacidad de adaptación silvestre a suelos con bajo pH (3,5-5), y a la capacidad de responder a prácticas silviculturales (poda).

En 2002, Medrano determinó que entre tres coberturas de vegetación, el bosque secundario bajo presenta una mayor producción de peso seco de hojas.

Por lo tanto, el adecuado manejo de la iluminación y de los soportes son los principales elementos a considerar para obtener los mejores rendimientos de hojas al implementar acciones de cultivo agroecológico.

Manejo diversificado del bosque: Dentro de la iniciativa del manejo diversificado del bosque, el hecho de que la especie responda a claros y/o aperturas del dosel, a sucesiones secundarias tempranas, donde existe disponibilidad de luz, hace que la misma sea ideal para el manejo en áreas de producción con especies arbóreas.

Cosecha y recolección: La primera cosecha se realiza cuando el individuo ha alcanzado un diámetro ($d_{0.5}$) de 1,5 cm (diámetro mínimo de cosecha), ya que son plantas productivas que pueden ser manejadas en forma sostenible.

La hoja deshidratada presenta una coloración marrón.

Conclusión: El Jardín Agroecológico Bougainvillea ha dado importantes aportes para su conservación *in situ*, en los bosques tropicales y en acciones de manejo agroecológico para la cosecha de hojas para la industria de extractos naturales y para disminuir la cosecha de poblaciones silvestres. (Aportación hecha por Rafael A. Ocampo S., Jardín agroecológico de plantas medicinales, Bougainvillea S.A., Apartado Aéreo. 764-3100, Santo Domingo, Heredia, Costa Rica. Correo electrónico: quassia@racsa.co.cr; www.bioextractos.com)



Brazil nuts in Peru: a lot of nuts, a lot of noise

The Brazil nut (*Bertholletia excelsa*), despite its name, is not exclusive to that country and, contrary to common sense, the main producer is Bolivia. The nut grows naturally in the humid forests of Bolivia, Brazil and Peru and comes from one of the highest trees in the tropical Amazon region. Curiously, the locally named Brazil nut is known in this country under the name of "castaña de para" while in Bolivia is identified as "castaña del beni".

The Brazil nut has a very dynamic demand globally, which has risen with the increased consumption of healthy products. Also, considering that this product is an excellent source of selenium, magnesium and thiamine and is full of proteins and carbohydrates, it constitutes an ideal diuretic food and a medicinal option for ear infections.

Taking advantage of this trend, Peruvian exports of Brazil nuts are expanding to new markets, such as Hong Kong and Viet Nam, in addition to the traditional list of countries such as the United States of America, the United Kingdom and Canada, which together account for almost 92 percent of Peru's current exports.

Between January and September 2007, the volume of exported Brazil nuts grew by 4.7 percent, overcoming the barrier of US\$10 million. Even though the United States of America is already the main market for this product, it is important to notice that because of the preferences of the Peru Trade Promotion Agreement (PTPA) that will enter into force in January 2009, Peru faces the opportunity of increasing its sales to this market, using the preferential access.

On the other hand, given the fact that Peru exports Brazil nuts in a primary state, The country also faces the challenge of selling these products with greater transformation. So, Peru could sell nuts without shells and



Bertholletia excelsa

toasted, packed for snacks or to be used in chocolates, sweets and bakery products in general. Additionally, it is possible to explore the hidden potential of this product for the cosmetic industry as an input for oils, make-up and beauty products.

It is evident, therefore, that not only does Peru have a wide potential to expand its sales to this market, but it also has the opportunity to increase the value of exported products and obtain greater profits that may give an extra impulse to the generation of more and better jobs for Peruvians. [Source: Living in Peru [Peru], 15 July 2008.]

Europe's chestnut *Castanea sativa* forests

In past centuries, for people living in Europe's forested areas, which then included much of the Mediterranean's shoreline, forests of the chestnut *Castanea sativa* were very important. These sweet chestnut forests extended from the mountainous uplands of Portugal and Spain, through France and into northern Germany, the west coast of Italy, and throughout central Europe as far as Turkey, and provided an important source of livelihood. In previous times, chestnuts were harvested and dried, milled into flour, or used whole with other foods, providing an excellent source of protein and carbohydrate-rich nutrition. When chestnut trees flowered between June and July, they provided abundant nectar and pollen forage for bees, from which a valuable chestnut honey is harvested with a dark colour, a fruity scent like over-ripe apples and a strong, slightly tannic flavour.

The chestnut forests provided a labour-intensive, slow-maturing harvest – the trees take 20 years to bear chestnuts, but then remain productive for a hundred years or more. Quick-growing staples such as potatoes, maize and beans eventually replaced the chestnut crop. This left the forests, where chestnuts remained untended and vulnerable, no longer valued as providers of food and income. Equally at risk were the additional crops the forest supported, including the honey produced by the forest's indigenous *Apis mellifera* honeybees, as well as valuable fungi such as chanterelles and truffles.

In recent years, new harvesters have arrived in some of these forests, often escapees from urban life, who are commercially educated and aware of the need for the forests to create a livelihood. New industries have developed, using local labour and expertise to harvest the chestnuts and market them with modern methods of

processing and packaging. Invisible earnings include a sustainable industry to assist the survival of smallholding communities in danger of losing their livelihoods, in addition to fine harvests of forest fungi, and the top value chestnut honey. [Source: *Bees and their role in forest livelihoods*, FAO Non-Wood Forest Products series 19 [in press].]



Castanea sativa

Maya nut

Maya nut (*Brosimum alicastrum*) or Ramon, Ojoche, Masica, Ujuxte, Ojushte, Ojite, Ash, Ox, Capomo, Mojo, and Breadnut is a delicious, nutritious, abundant nut from neotropical rain forest trees that provided a staple food for pre-Columbian hunter gatherers. Maya nuts are exceptionally nutritious, providing high-quality protein, calcium, iron, folate, fibre and vitamins A, E, C and B.

Unfortunately, knowledge about Maya nuts has decreased as globalization, export crops and deforestation negatively impact indigenous cultures and the forests that sustain them. As a result of this loss of indigenous knowledge, people cut Maya nut trees for firewood and burn forests to plant maize, beans and other crops. The Maya nut tree is in danger of extinction throughout its range, a situation that threatens the food security of both human and animal populations.

The Equilibrium Fund's Maya Nut Program is working to rescue lost traditional knowledge about the tree for food, fodder, and ecosystem services. Since its inception in 2001, more than 8 000 women have been trained from 450 communities in Honduras, Nicaragua, Guatemala, El Salvador and Mexico. The programme has resulted in the conservation of more than 400 000 ha of Maya nut forests and the planting of more than 800 000 new seedlings. The programme

focuses on women as the caretakers of the family and the environment, and addresses key factors for sustainable livelihoods – sociocultural, environmental and economic – by creating leadership, educational and economic opportunities for women and girls.

Our newest programme, "Healthy kids, healthy forests" (Bosques sanos, niños sanos) aims to provide Maya nut-based school lunches to rural children. Starting in Guatemala in 2008, we are feeding 8 124 children from 46 communities in the Petén region of Guatemala. These communities are planting more than 300 000 new Maya nut trees as "food forests" to sustain the programme in the future. [Source: Rainforest Alliance. 2008. *Project profile: Maya nut (Brosimum alicastrum): an ancient food for a healthy future*. New York, United States of America.

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index.org/search/results.cfm? projectID=1181
(Please see page 35 of Non-Wood News 16 for
more information.)



Sacha Inchi: the largest vegetable source of Omega and antioxidants in the Peruvian Amazon

Sacha Inchi (*Plukenetia volubilis* L.), commonly known as peanut mount, Sacha peanut or peanut of the Inca, is a native plant of the Peruvian Amazon. Utilized by indigenous peoples for centuries, Sacha Inchi was also cultivated on the Peruvian coast in pre-Hispanic times. A shrub climber that prefers warm climates and adapts to clay and acidic soils, Sacha Inchi is originally from Central America but is also currently found in the departments of San Martin, Ucayali, Huanuco, Amazonas, Loreto and Madre de Dios in Peru. In the wild, Sacha Inchi grows at the edge of secondary forests, in sugar-cane fields and on fences and is even found in platanales and perennial crops.

In rural areas of San Martin, Peru, residents appreciate the nutritional value of Sacha Inchi seeds. Boiled or roasted, these seeds are used in the preparation of various traditional dishes including *inchicapi*,

pepper *sacha inchi*, *cutacho*, butter *sacha inchi*, *inchi cucho*, *tamales* and nougats. Indigenous women from the Mayorunas, Chayuhuitas, Campas, Huitotos Shipibos, Boras and Yaguas ethnic groups mix flour with the oil of the Sacha Inchi to create a revitalizing and rejuvenating skin cream. Native Secoyas, Handosas, Amueshas, Cashibos, Dapanahuas and Boras eat toasted Sacha Inchi to regain strength during labour-intensive work. Rubbing the oil on to their bodies also helps to relieve their rheumatic and muscle pain.



Many believe that Sacha Inchi oil is superior to olive, sunflower, soybean, corn, palm and groundnut oils for domestic, industrial, cosmetic and medicinal uses. Sacha Inchi, a major source of Omega, a fatty acid essential for human life, contains Omega 3 (48 percent), Omega 6 (36 percent), Omega 9 (9 percent), protein (33 percent) and antioxidants (50 percent). Sacha Inchi is believed to boost energy, clear the bloodstream and help to transport nutrients to cells.

Production begins after 6.5 months of transplantation, with first-year yields averaging from 0.7 to 2.0 tonnes/ha. Sacha Inchi can be cultivated with cover crops, reaching ages of up to ten years. For example, Puerto Inca had an increase in production from 1 200kg/ha/year to 5 000kg/ha/year with a value of US\$10 062.50 ha/year.

Sacha Inchi oil has won the Seed Oils of the World contest held in Paris in both 2004 and 2006 along with two other awards for technological innovation in its extraction. It also shows great potential for the production of biodiesel.

Sacha Inchi oil is used widely in the countries to which it has been exported, and is becoming better known and appreciated in Peru. Now it is found in major supermarket chains and other shops in Lima in addition to clinics and homeopathic stores.

Given the importance of this crop, it is vital to conduct further research in agricultural management, genetic improvement, integrated pest management, disease and

agroindustry, so that improved varieties may be obtained to compete better in both the domestic and international oil industry markets. (Contributed by: Joe Sixto Saldaña Rojas, Cooperación para el Desarrollo de la Amazonía (CODEA), Calle César Calvo de Araujo 2035, Iquitos, Peru. E-mail: codea-iquitos@hotmail.com or forest_boy23@yahoo.es)

SHEA BUTTER

Le karité, l'or des femmes

Beurre aux nombreuses vertus, surnommé «l'or des femmes», le karité est un secret de beauté que les femmes africaines se transmettent depuis des millénaires. Aujourd'hui, avec le développement du commerce équitable et du bio, il est devenu la nouvelle coqueluche de l'industrie cosmétique.

Grand héritage de l'Afrique, l'arbre à karité pousse à l'état sauvage essentiellement dans les régions boisées d'Afrique de l'Ouest et Centrale. Sa longévité qui peut atteindre 300 ans et sa taille de plus de 15 mètres en font un arbre majestueusement prolifique.

La fabrication artisanale du beurre de karité est une affaire de femmes avant tout; elles se regroupent pour les récoltes de la mi-juin à la mi-septembre. Il faut savoir que pour obtenir 20 kg de beurre de karité 100 kg d'amandes sont nécessaires. De cette récolte naît un échange commercial entre les femmes des groupements et certaines marques de cosmétiques.

Chaque opération est réalisée avec soin en respectant la qualité et la nature du produit; de ce fait, chaque principe actif reste intact. On prend l'amande qui se trouve à l'intérieur de la noix que l'on fait sécher, concasser, torrifier et enfin moulin. La poudre est ensuite pilée et l'on obtient alors une pâte que l'on mélange à de l'eau bouillante. Il en ressort à la surface toute l'huile et les impuretés sont déposées au fond de la cuve. On retire cette huile que l'on fait cuire. Une fois solidifiée, elle deviendra le fameux beurre de karité que l'on vénère tant.

Adulé pour ses vertus protectrices et adoucissantes, le beurre de karité est le remède à toute peau en mal d'hydratation et de luminosité. Les cosmétologues l'ont bien compris en le déclinant à la perfection en crème pour le corps, shampoing, baume pour les lèvres, etc.

Bien qu'il soit utilisé pour la peau, les cheveux ou dans l'alimentation en tant que substitut du beurre de cacao, le karité n'en

reste pas moins un produit 100 pour cent végétal, naturel et bio. Avec l'engouement du commerce équitable, il est en passe de devenir le produit de soin incontournable à avoir dans sa salle de bain. Utilisé à tout âge, il demeure le meilleur allié des peaux sèches pour ses vertus hautement hydratantes et régénérantes. Adieu, les sensations de tiraillement pendant les frimas car il procure confort et bien-être et laisse une peau douce et satinée.

Fort de ses vitamines A (anti-âge et anti-inflammatoire), D (calmante), E (antioxydante et nutritive) et F (hydratante), le karité renferme de nombreuses propriétés qui apportent souplesse et élasticité à la peau: adoucissantes et protectrices notamment pour les cheveux, antideséchantes et hydratantes en prévention de la sécheresse cutanée, réparatrices et cicatrisantes et, enfin apaisantes en cas d'allergies telles que les rhumes de foin. Le karité favorise également le renouvellement cellulaire. (Source: *Sud Quotidien*, Sénégal, 16 juillet 2008.)

Ghana's local shea butter industry to be enhanced

The United Nations Development Programme (UNDP) in collaboration with Africa 2000 Network held a stakeholders' workshop to empower rural women in northern Ghana to boost the local shea butter industry. The project beneficiaries would be trained under the Local Level Integrated Information System (LIIS), a component of the Sustainable Rural Livelihoods Project (SRLP) of UNDP.

Mr Shigeki Komatsubara, UNDP Deputy Resident Representative in Ghana, said the LIIS model provides critical information services to local shea butter producers through the development of an exchange platform, using the Development Information Portal. "The portal is expected to provide a one-stop shop for obtaining development

SHEA 2009: OPTIMIZING THE GLOBAL VALUE CHAIN

An international meeting on shea butter *Shea 2009: Optimizing the Global Value Chain* will take place in Ouagadougou, Burkina Faso from 25 to 27 March 2009. (Please see page 62 for more information.)

information packaged to enhance rural development implementation of Community Action Plans (CAPs)", said Mr Komatsubara.

Mrs Christy Ahenkora-Banya, head of the SRLP unit of UNDP, Ghana, said the project would identify the marketable quality of shea butter and set up the ideal production environment for local women's producer groups. It would explore new markets for shea butter sales promotion, provide business management skills for local women's producer groups and transmit production skills among local women processors.

The ultimate goal is to empower women in northern Ghana and alleviate their acute poverty through enhancing the viability of the local shea butter industry as sustainable business.

The Africa 2000 Network, the implementing partner, would be responsible for the transmission of skills and knowledge in shea butter production among local processors when the project is implemented. [Source: *Modern Ghana* [Ghana], 16 August 2008.]

 SNAKEROOT (*RAUVOLFIA SERPENTINA*)

Snakeroot endangered across Asia

Like other wild plant species, snakeroot or *Rauvolfia serpentina*, is an important medicinal tool for many people in the Asia region. In India, *R. serpentina* has been used for centuries to treat anxiety, psychosis, schizophrenia, insomnia and epilepsy. In Nepal, *R. serpentina* is valued for its curative powers against hypertension, depression, memory loss and other mental and physical disorders. *R. serpentina* is also used as a traditional medicine in China, Bangladesh, Myanmar and Thailand.

Various publications and reports contradict one another regarding the harvesting quantities and market sizes of *R. serpentina*, yet its use in pharmaceuticals, largely in the Chinese medicine sector, has considerably increased since the 1950s. *R. serpentina* is now recognized as endangered in several countries across the region such as India, Bangladesh and Viet Nam. Yet little information is available regarding its status in range countries, most crucially those believed to be involved in the international trade of the species, including Thailand and Myanmar where *R. serpentina* is considered "vulnerable". Furthermore, CITES authorities in Myanmar believe that a significant amount

of illegal trading is occurring, especially as a result of the long borders the country shares with China and India.

Despite apparent efforts to cultivate *R. serpentina* commercially in India and Nepal, little evidence proves that this cultivation is satisfying a significant portion of internal and international demand for the species. As the status of *R. serpentina* remains in question, urgent action is required to clarify the source and quantity of traded specimens at all levels and to develop and enforce measures to ensure that wild harvests and trade are maintained within sustainable levels. [Source: T. Mulliken & P. Crofton. 2008. *Review of the status, harvest, trade and management of seven Asian CITES-listed medicinal and aromatic plant species*. Bonn, Germany, Bundesamt für Naturschutz.]



Rauvolfia serpentina

 STEVIA

FDA may approve stevia-based sweeteners

Chicago. The United States Food and Drug Administration (FDA) may approve zero-calorie sweeteners derived from a shrub called stevia (*Stevia rebaudiana*), analysts say.

Major beverage companies – PepsiCo Inc. and Coca-Cola Co. – want to market stevia-sweetened products once the sweetener gets approval, the *Chicago Tribune* said. Agribusiness giant Cargill Inc. already has a stevia-based sweetener in grocery stores and Chicago-based Merisant Co., maker of the popular sweetener Equal, will soon do the same, the newspaper said.

But some public watchdogs, including the Center for Science in the Public Interest, are raising concerns about potential cancer-causing properties of stevia. The centre is urging the FDA to do more testing before granting approval, the *Chicago Tribune* stated.

Native to South America and already used as a sweetener there, Japan developed stevia-based sweeteners several decades ago and Australia has recently

approved it. Stevia sweeteners are still banned in much of Europe.

As a sweetener, stevia developed an unpleasant liquorice taste that researchers have had trouble erasing, the *Chicago Tribune* said. [Source: United Press International [United States of America], 30 November 2008.]

Finlays Kenya in stevia venture

Outgrowers are set to benefit from a move by private agricultural firm Finlays Kenya to grow 5 000 ha of stevia whose sap is used for medicinal and food flavouring.

Finlays is embarking on the project in partnership with PureCircle – a Malaysian sweeteners production firm – which will inject KSh1.2 billion (US\$20 million) into the joint venture. Finlays will also be refining the extract derived from stevia and has plans to put up an extraction plant. The project provides a diversification opportunity for Kenyan farmers reeling from declining yields and earnings under monoculture cash crop systems and rising costs of inputs such as fertilizers.

The company intends to grow stevia within its own estates first and then roll it out to the smallholder sector, once it has the technical expertise. Finlays expects the project to "create several hundred high-end jobs".

The joint venture with PureCircle – which has most of its production activities in China and Malaysia but incorporated in Bermuda – goes by the name JVCo. It will be majority-owned by PureCircle but the local firm has the option to hold the majority of 51 percent in the coming years.

PureCircle's main concern is stevia, a non-caloric herb native to Paraguay that has been used as a sweetener and flavour enhancer for centuries. Demand for the commodity is rising because of its natural sweetener qualities as opposed to its synthetic rivals. An extract from the stevia leaf, using a patent-protected process, is over 100 times sweeter than sugar.

Of the US\$20 million that PureCircle is putting in Kenya, an estimated US\$15 million has been allocated to the crude stevia extraction plant, and the balance to the plantations and associated working capital. The joint venture will own both the stevia plantations and the extraction plant. PureCircle will have exclusive rights to acquire all stevia extracts and, or, dry stevia leaves produced by JVCo for a period of seven years with renewable options thereafter. [Source: *Business Daily Africa* [Kenya], 23 July 2008.]

TRUFFLES

Endangered truffles set to be reared in test tubes

French scientists will try to create black truffles in test tubes in an attempt to revive an increasingly endangered industry. The French region of Corrèze is to sign an accord with key organizations in the industry to unlock the secrets of the Périgourd truffle.

Known to connoisseurs as “black diamonds”, truffles, which are usually found growing on the roots of trees, can sell for up to £860/kg. France produced 1 000 tonnes of Périgourd truffles a year at the start of the last century, but production has fallen to 40–50 tonnes a year.

In the three-year project, scientists will culture cloned truffles with baby trees in test tubes. Once established, tree and truffle will be planted and allowed to mature naturally. The researchers hope to establish which aspects of the environment are linked to truffle growth. [Source: The Times Online, [United Kingdom], 4 December 2008.]

Australian truffle industry set for rapid growth

Australian truffle production could grow to ten times its current level by 2013, but market development and further research will be needed to ensure the industry has a long-term future. These are some of the conclusions of a stocktake of the industry presented by the Rural Industries Research and Development Corporation (RIRDC) at a meeting of the Australian Truffle Growers Association in Victoria.

Research established that production is likely to grow from 800 kg in 2007 (currently worth A\$1.6 million) to between five and ten tonnes in 2013 from existing truffières alone.

The size of mature truffière land is expected to increase from 250 to 600 ha in the same time frame at an average growth rate of over 20 percent/year. [Source: Australian Food, Melbourne [Australia], 28 July 2008.]

Soggy summer yields bumper British truffle harvest

Our long lamented soggy summer is cause for celebration in some circles. Those in the truffle business cannot believe their luck. This year's wet weather has produced a bumper crop.

Truffle harvests have doubled year by year since 2005 thanks to our rainy summers and experts believe this year's harvest will be even bigger. Nigel Hadden-Paton, who runs Truffle UK Ltd, Britain's first commercial truffle-growing company, said: “The wet weather has been a godsend for us, and it's

very nearly time to harvest our native British summer truffle. The ones we have seen so far this year bubbling to the surface are looking bigger and they are in greater number. We harvested 77–88 lbs in 2005, 176 lbs in 2006 and an amazing 396 lbs in 2007 but we expect to exceed that this year.”

Truffles can command prices of up to £2 500/kg for the most highly prized specimens. [Source: Daily Mail [United Kingdom], 10 September 2008.]

Italian truffle fetches US\$200 000 at Macau auction

Rome. Defying the economic downturn, an Italian white truffle weighing just over 1 kg sold at an international auction on Saturday for US\$200 000. The prized tuber went for the second year running to Hong Kong-born casino mogul Stanley Ho after an auction held simultaneously in Rome, London, Abu Dhabi and Macau. Last December, Ho bought a 1.5-kg specimen – one of the biggest truffles unearthed in half a century – for a record US\$330 000.

The 1.08-kg truffle – the biggest found in Italy this year – was picked in November in the central Molise region.

Output of white truffles – which are not cultivated and only grow naturally in forests – has fallen in Italy over the past few years, largely because climate change has brought a damaging mix of drought and torrential rains. Scarce supply has pushed prices for normal-sized truffles above €4 000/kg. [Source: Reuters [United States of America], 29 November 2008.]

The Libyan truffle, fruit of the desert

In some Arab countries, the truffle is known as the earth tree or the earth egg. It is also known as the thunder daughter. Truffle fungus grows in lime land near some desert plants forming a symbiotic association, i.e. a mutually beneficial relationship between them. It grows by itself with no interference, whenever the conditions are suitable for its growth. These conditions consist of a sufficient humidity and a union between the air and lightning; these elements fall down with raindrops and penetrate the soil to make truffles grow.

Truffles grow in spring when the soil is saturated with water. There are several types of truffles, e.g. the desert truffle and the European truffle. However, the desert truffle has a highly nutritional value and grows only in arid regions; it differs from the type that grows in European forests. There are many varieties of desert truffles, including Zobeidi, Khalasi, Jobi and Hober.

Truffles have a highly nutritional value thanks to their minerals, notably iron, proteins, and amino acids, minerals that the body needs and cannot generate. In addition to this, truffles are easily digested.

The Libyan truffle, found in deserts, is one of the best known worldwide. The Al-Hamada Al-Hamra region is considered to be one of the largest regions producing this truffle.

Truffles have been known in the Libyan Arab Jamahiriya since the Roman era, as they were the favourite food of the upper class. Unlike most city people, desert inhabitants know all about truffles and how to extract them from the soil.

Truffles have a lot of benefits: according to medical researchers they are used in treating trachoma, a disease infecting the eye, and can also increase fecundity in both men and women. Because of these benefits, the best varieties of truffle are expensive. The price of some varieties may reach €2 500/kg or more on the market.

The customary variety of this fungus is sold in domestic markets, whereas the average and excellent varieties are exported to the Gulf and to European countries.

Some attempts to cultivate the desert truffle, which grows abundantly in North Africa, have been made recently in Finland by the Libyan doctor and specialist, Salem El Shamkh. He succeeded in producing high-quality truffles in a short period of time.

The experiment concludes that establishing truffle farms in North Africa is possible provided that there is a correct scientific basis. Accordingly, a good and abundant production can be obtained with a production of approximately 200 tonnes/ha/year. The strange fungus might have a high economic value in the near future and could, one day, become a source of revenue. [Source: Alarab online [United Kingdom], 31 July 2008.] ♣



Enthusiasm is the greatest asset in the world. It beats money, power and influence.

Henry Chester

AFGHANISTAN

Traditional Afghan silk: an alternative use of NWFPs to eradicate the opium cultivation trend in Afghanistan

Using the ancient and once famous Silk Route, early traders passed through present-day Afghanistan on their way to the major trading markets in Damascus to ship their goods across the Mediterranean Sea. The traders brought with them not only goods but also new skills and crafts that have been disseminated in Afghanistan over time. These include the art of sericulture - the commercial breeding of silkworms for the production of silk in particular. In the past, Afghan silk became the symbol of pride and prestige in this region.

But the art of traditional Afghan silk has been mostly destroyed as a result of the nearly two and a half decades of unrest, and the security situation of the country. Most of the craftsmen have left their traditional business, their living places and the small industries. At the same time, the agriculture sector has gradually been taken over by illicit opium cultivation since the majority of Afghan farmers have fallen into poverty and there is a lack of viable alternative incomes because of the unrest.

According to a 2008 estimation, a total of 157 000 ha of land has been cultivated under opium, which is the total cultivated area reduced from previous years. The present farmgate price of 1 kg of dry opium is US\$95 and an opium yield of 48.8 kg can be expected from 1 ha of land. But following recent drives by the Government and international security forces, as well as international development organizations involvement in an opium eradication programme, the trend in opium cultivation is gradually declining. Agriculture farmers and traders of this illicit practice are searching and diverting into alternative sources of income.

In Afghanistan, the delicate work of producing silk is still done manually because there is no money to bring in modern machines. It takes between 45 and 50 days for an average family of five people to raise 40 kg of cocoons. Boxes are imported from China containing the leaves of the mulberry tree to feed the eggs that will gradually develop into the cocoons. In unravelling the cocoon, care has to be taken to avoid breaking the fine thread, which can be between 300 and 1 500 m. Generally, a small-scale enterprise with a dozen employees can produce 40 kg of rough silk that can be sold for US\$40/kg. This thread



then has to be treated, refined and further processed to make by-products. At present, artificial dyed silk from a neighbouring country costs US\$20/0.25 kg, but for Afghan silk, only 4 kg of undyed silk costs US\$160. The silk is processed into hats, *chapans* (the traditional male overcoats of Afghanistan) and other embroidery products. Silk shawls (a plain garment of 3-4 m² used by both men and women) are prized in the region. The price of one shawl varies from US\$40 to US\$100, or more depending on the quality. People can make one such shawl in a day using the traditional looming machines and thread.

Since traditional agricultural practices have a poor cash return and yield compared with opium, several alternative sources might be suggested: agriculture, horticulture and livestock sector-based small - and medium-scale enterprise development with high production and prices could replace the country's opium trend. In addition, silk production could be an effective way to involve small farmers, landless workers and vulnerable groups, including women, into an alternative and sustainable source of income and livelihood.

Very few people are still engaged in silk production, but there is hope to explore and rejuvenate the sector in the future. Initiatives should be taken immediately by the Government of Afghanistan and development organizations to engage and direct the opium farmers into alternative sources of income, especially silk production. Patronizing the silk production sector would restore this ancient art and provide a viable income for the present opium growers in Afghanistan. (Contributed by: Mohammad Mukhtar Hossain, Sector Specialist (Forestry), Agriculture Development Programme, BRAC Afghanistan, House 45, Lane 4, Baharistan, Kabul, Afghanistan. Fax: 00 93 798 125 100; e-mail: mukhtar21@yahoo.com; www.bracafg.org)

AUSTRALIA

Himalayan tree offers fuel crop hope

A tree from the foothills of the Himalayas has emerged as a potential biodiesel crop for Western Australia (WA). Trial plantings of the tree in the Gascoyne have shown promising initial results.

The tree, *Moringa oleifera*, is capable of producing up to 2 000 litres of oil per hectare, about four times the amount available from annual crops such as canola, which can be used for food or biodiesel.

State Agriculture Minister Kim Chance, who is taking to Cabinet a proposal for 5 percent of all transport fuel used in WA to be sourced from biofuels by 2011, believes the crop could become a major biodiesel source for the region.

While the criticism of biofuels as a major cause of world food price inflation because food crops were diverted to fuels had been dramatically exaggerated, it was undeniable that having another buyer in the market would increase prices, he said. "We know that we can grow (moringa) in areas which are not currently used for food production," he said. "When we get access to seed that is more suited to more temperate environments it could be that it becomes a significant crop in those environments, in which case it will be competing with food."

Department of Agriculture and Food project manager Henry Brockman said trials of the tree were in place from Kununurra to Albany, but the best results were coming from an irrigated site near Carnarvon.

Pods are harvested from the tree and seeds, the size of a small coin, are taken out and crushed for oil, leaving the tree to grow for an estimated 15 years. The residue left after the oil is extracted can be used as stock feed.

In Carnarvon, one-year-old plantings were yielding 350 litres of oil per hectare but output was expected to increase dramatically in coming years as the trees reached their peak production capacity.

The seed pods are now picked by hand but researchers are working on a mechanical harvester.

Dr Brockman said the tree's ability to grow on marginal and salt-affected country meant it could be used in parts of the wheat belt.

The department is expected to enter an agreement with an Indian university next week to breed new varieties with higher oil yield and the ability to grow in different regions in WA. [Source: *The West Australian* [Australia], 7 July 2008.]

Wattle seeds and bush tomatoes are hot stuff

Aborigines have been called upon to impart knowledge that will boost and provide direction to Australia's blooming bush tucker industry.

As demand locally and globally continues to grow, the industry - estimated to be worth up to A\$16 million a year - needs to assess where it is going and how it is going to get there, says Jenny Cleary, leader of Desert Knowledge CRC's Bush Products programme.

The industry, which includes such foods as wattle seeds and bush tomatoes, is based on traditional Aboriginal knowledge about the collection, preparation and uses of desert plants and other food.

Ms Cleary says the aim is to get greater Aboriginal participation in the industry, with culturally appropriate considerations. There are challenges that the industry needs to resolve to achieve its potential. These include the fragmentary nature of the industry, the small scale of many producers, the lack of capital and highly variable wild harvesting. Also many fruits - such as the bush tomato - have numerous varieties while the markets demand consistency of size, colour and volume.

Because of these factors, Ms Cleary says the industry will develop two supply streams: commercial harvesting in areas where water is reliable and low-volume wild harvesting. "Wild-harvested supply could be branded in such a way to go into the high-value, lower-volume product at the premium end of the market," she says.

"So far there are not many Aboriginal commercial ventures operating successfully in the area. Our research aims to find out how to help them participate."

In a historic development known as Hands Across the Desert, Aboriginal gatherers of the Kakadu plum in Broome in Western Australia hosted bush tomato gatherers from Alice Springs. With the aim of making their product more saleable, they discussed issues such as fruit handling, storage, pest management, quality control and traceability.

This was an acknowledgement that global demand was rising for bush and desert foods. "The outlook for the industry is pretty good," Ms Cleary says. [Source: *Courier Mail* [Australia], 16 November 2008.]

TFS reports higher profit on increased sales of sandalwood

Perth-based Indian sandalwood grower TFS Corporation has announced a 44

percent increase in net profits to A\$27.6 million, which the firm attributed to a substantial increase in sales of its managed investment schemes (MIS). TFS, which recorded a net profit of A\$19.2 million in 2006-2007, said the increased sales had driven revenue up 52 percent to A\$68.4 million and earnings before interest, tax, depreciation and amortization by 46 percent to A\$42.1 million.

Company chairman Frank Wilson said the firm's higher MIS sales had bucked the wider trend away from the schemes, thanks to higher demand for sandalwood, a broader distribution base and the tax deductibility of forestry schemes. "In addition, we have continued to build the necessary infrastructure at our plantation operations in the Kununurra region of West Africa and have strengthened our land bank," he said.

"Plantings during the year doubled to approximately 600 hectares, and we are well placed to service a further significant increase to accommodate the level of MIS sales achieved in the 2008 financial year and those anticipated in future periods."

TFS announced last month that it would acquire Albany-based essential oils business Mount Romance Australia for A\$28.6 million, in a move Mr Wilson said would represent an accelerated realization of the firm's vertical integration aspirations.

The company will pursue agreements with international fragrance companies in 2008-2009, such as the oil supply arrangement signed with United Kingdom-based Lush Cosmetics, as well as increasing its focus on research and development. [Source: *The West Australian* [Australia], 14 August 2008.]



BANGLADESH

Utilization of medicinal and aromatic plants

In developing countries, remedies prepared by a traditional healer from plants of the local flora are available for the majority of the people. There are millions of people in all walks of life in these countries who have faith only in the traditional system of medicine and this trend is growing. They think that it is a safe and dependable system because it has evolved and been developed and perfected in their own communities and areas, and has been tried over a period of a thousand years with uniform results, under their own climatic and living conditions. This trend also results from the toxic and adverse reactions of synthetic and chemical medicines being observed around the globe. Experts feel that there are data available regarding the therapeutic efficacy of modern drugs that are not applicable to local conditions, especially to the South Asian-Pacific regions.

In Bangladesh, there are several thousand traditional healers, many of whom practise in rural areas, dispensing mostly herbal remedies. Well over 60 percent of the country's population attend their clinics.

A correct approach to the investigation of such plants would therefore be for trained physicians and pharmacologists to cooperate with healers.

The following are some of the problems regarding the development of medicinal plants in Bangladesh.

- Despite the fact that a large proportion of the country's population (mostly in rural and remote areas) depends upon the curative properties of medicinal herbs, little or no attention has been given to the development of this resource in the past.
- Medicinal plants of indigenous origin, as well as imported species, are now increasingly being used in both raw and semi-processed forms as medicines in the Greco-Arab (Unani) system. Herbal wings of multinational and national pharmaceuticals are also contributing at large in the utilization of indigenous herbal wealth.
- Although there are different areas of vegetation in Bangladesh with their distinctive agricultural products (rice, sugar cane, jute, leguminous plants, etc.) and commercially valuable trees,



there is no proper methodology adopted as yet regarding dissemination of existing knowledge on the state of the natural occurrence of medicinal plants. There is no organized body to disseminate ethnobotanical and scientific information in the country.

- The scope of cultivation of medicinal plants has not been clearly defined to the farmers. Therefore they lack awareness of the economic benefits.
- No attention has so far been paid to the propagation and harvesting of medicinal plants in the management plans prepared by forest departments of the different zones. No proper emphasis has been given to cultivation of medicinal plants in areas that are vulnerable to droughts or to heavy floods. This has led to the fear of extinction regarding several species.

[Source: The New Nation [Bangladesh], 14 September 2008.]

Spotted deer census in a mangrove forest established by workers

A spotted deer census report conducted in 2006 in an artificial mangrove forest of the Nijhum Diwp National Park Islands at the Bay of Bengal, Bangladesh, reveals a deer population of about 14 400 and highlights the importance of these forest mangroves in the country.

Understanding the abundance, distribution and movement patterns of animals is a very important aspect of wildlife management. The deer population in the Nijhum Diwp has become a crucial issue in recent years. Areas such as these appear to be extremely overpopulated as compared with their estimated carrying capacity. The purpose of this census was to observe how well the Forest Department at Noakhali could manage these large deer

populations given the limitations that exist. [Source: extracted from: M. Atiqul Azam. 2006. *Spotted deer census – 2006 at the Nijhum Diwp National Park: a man-made mangrove forest of Bangladesh*. Forest Department, Government of Bangladesh.]

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BHUTAN

Generating *Cordyceps sinensis* in the laboratory

Highlanders in Bhutan need not set out on wild cordyceps expeditions if the research on domesticating *Cordyceps sinensis*, locally known as Yartsa Goenbub, proves successful, say researchers.

At the Renewable Natural Resources Research Centre (RNR-RC) in Bumthang researchers are trying to see whether cordyceps can be cultivated in laboratories. The principal research officer, Dorji Wangchuk, said that he was expecting a promising output as mycelium in two of the 38 test tubes on trial in the laboratory had already started showing positive results. "I'm waiting for the other 36 cultures to come up," he said. "The mycelium could be mass propagated for domesticating cordyceps using potential host insects."

In the wild, cordyceps are found in different locations in Haa, Lingshi, Laya, Lunana, Bumdeling and Bumthang. An average dried cordyceps weighs 0.19 g and 0.47 g when fresh.

According to a veteran collector in Bumthang, about 1 350 collectors were out for a month collecting cordyceps from Chhokhor geog alone during the harvest season. They collect the expensive fungus from Diruphu, Ganchu, Sejeypu, Chachen, Namtatheng, Kingkhorpu, Djegarpu and Yangdrok. Cordyceps grow at altitudes of 3 900-5 004 m above sea level at Kerab and Phugonma in Chhokhor.

Dubbed the world's most expensive mushroom, *Cordyceps sinensis* was sold for between US\$6 126 and 10 450/kg in 2007 from Dodena, Thimphu. After its collection was legalized in 2004, the highest production was recorded at 423.88 kg in 2006 and the lowest was 128.16 kg in 2007. [Source: Kuensel online, 18 July 2008.]

BRAZIL

Brazil becomes world's fifth largest honey exporter

Honey exports from Brazil totalled US\$18.2 million in the first half of 2008, representing a growth of 70 percent over the same period last year, and placing Brazil in fifth position in the world exports ranking. The figures were disclosed by the Sectoral Chamber for the Honey Production Chain.

According to the organization's President, José Gomercindo da Cunha, the main reason for the expansion of sales was the resumption of exports to the European Union. In the last two years, Brazil exported only to the United States of America. Now the aim of the Sectoral Chamber is to maintain its sales to Europe and, at the same time, seek new markets such as Japan and the Arab countries.

Brazil is the world's 11th honey producer, with an annual output of 36 100 tonnes.

Domestic honey consumption is expected to rise in Brazil in 2009. "To that extent, we are working with the Brazilian Micro and Small Business Support Service (Sebrae), and 25 states are already willing to contribute to nationwide promotional work", stated Gomercindo da Cunha. "The proposal is to raise per capita consumption from 100 to 120 g."

Another goal of the sector is to reduce non-conformities with the regulation for industrial inspection of the product, so as to conquer a larger share of the foreign market. Production of honey and its derivatives, such as propolis, wax and jelly, is a source of family income in several regions of Brazil, including the semi-arid area.

Currently, 350 000 beekeepers in Brazil answer to 16 000 direct jobs in the industrial sector, as well as 450 000 direct jobs on farms. [Source: *Brazzil Magazine*, Los Angeles [United States of America], 15 September 2008.]

Brazil launches rain forest fund

Brazilian President Luis Inacio Lula da Silva has launched an international fund to protect the Amazon rain forest and help combat climate change. The fund will promote alternatives to forest-clearing for people living in the Amazon, and support conservation and sustainable development.

Officials will seek donations abroad and aim to raise US\$21 billion by 2021.

Speaking at the launch in Rio de Janeiro, President Lula said Brazil was aware of how much the Amazon meant to the wider

world. "It's better for the country's image to do things right, so we can walk in international forums with our heads high," he added, while insisting that the Amazon's preservation was Brazil's responsibility and that Brazil will not accept foreign interference in its Amazon policy. Roberto Mangabeira Unger, Minister for Atrategic Affairs, clarified, "The fund is a vehicle by which foreign governments can help support our initiatives without exerting any influence over our national policy. We are not going to trade sovereignty for money."

Sergio Leitao, Director of Public Policies for environmental group Greenpeace Brazil, noted: "For a long time, Brazil was violently opposed to this, insisting fossil fuel was to blame. That's true, historically speaking, but today forests play an important role."

Brazilian Environment Minister Carlos Minc called for a radical change in environmental attitudes: "We are committed to reducing the destruction of the rain forest, to eliminating illegal burning and to guaranteeing a better quality of life for all. Our war is not won by simply reducing illegal burning in one month, it will be won once this environmental model that is destroying our communities and biodiversity is history." [Source: BBC News [United Kingdom], 1 August 2008.]

Norway joins fight to save Amazon

Norway has pledged US\$1 billion to a new international fund to help Brazil protect the Amazon rain forest. The money will be released over seven years to promote alternatives to forest-clearing for people living in the Amazon, and support conservation and sustainable development.

Norwegian Prime Minister Jens Stoltenberg said: "Efforts against deforestation may give us the largest, quickest and cheapest reductions in greenhouse gas emissions." "Brazilian efforts against deforestation are therefore of vital importance if we shall succeed in our campaign against global warming," he added.

Brazilian President Luis Inacio Lula da Silva welcomed Norway's pledge: "The day that every developed country has the same attitude as Norway, we'll certainly begin to trust that global warming can be diminished."

Japan, Sweden, Germany, the Republic of Korea and Switzerland are said to be considering donating to the fund. [Source: BBC News [United Kingdom], 17 September 2008.]



Brazil's Amazontech debates Amazon's self-sustainability

Technological innovation, science and entrepreneurial initiatives in the Amazon region were to be highlighted at Amazontech 2008, in São Luís, Maranhão state in November.

The sixth edition of this event opened space for the generation of sustainable business, exchange of scientific and technical knowledge and diffusion of information that may guarantee self-sustainability of the region.

Around 100 Amazonian companies offered herbal medication, handicrafts, textiles, honey and honey products and wooden products from sustainably managed areas. Eight companies interested in the purchase of these products arrived from Venezuela, Colombia, Mexico, Argentina, Uruguay and Spain.

The project round tables included institutions to finance social or entrepreneurial projects capable of creating work positions and generating income for the community in the Amazon. The expectation was that up to 50 projects will be financed.

Business project round tables included six institutions to finance social or entrepreneurial projects capable of creating work positions and generating income for the community in the Amazon. Bank participation was vital, enabling the business sector to invest in the preservation without leaving trade aside. As before, the expectation was that up to 50 projects will be financed.

Amazontech presented sustainable solutions particularly for communities in forest and non-wood management, which expand opportunities in sectors such as pharmaceuticals, cosmetics and food. "Standing, a tree is more profitable than lying down. With a tree standing, we can add

value to the product," said the superintendent of Sebrae in Rondônia state, Pedro Teixeira.

Amazontech has also stimulated universities in the Amazon region to broaden their course options to include those working with local potential, in such fields as forestry engineering, biotechnology, geology, veterinary medicine and biology. [Source: *Brazzil Magazine* [United States of America], 25 November 2008.]



CAMEROON

Bee farmers trained in profitable honey farming

Some bee farmers in the Southwest Province were recently trained on how to make their venture profitable by processing both honey and its by-products. The two-day training took place at the Women Empowerment Centre, Kumba. The participants received fresh knowledge on honey quality; good harvesting and smoking; pollen, propolis and royal jelly production; bee venom extraction and queen rearing; honey wine and mead; beekeeping equipment; honey marketing; and access to finances.

According to the Southwest technical advisor of FAO, Irene Manyi Ako, the training is part of mobilization and capacity building for small- and medium-size enterprises involved in the value chains of non-wood forest products in Central Africa. [Source: *The Post* [Buea], 6 October 2008.]

New village tree planting project

Can we start from our own small communities to plant trees so as to have global benefit? This is the question behind a new project in Cameroon: tree planting in 13 village communities of Ngoketunjia division, as a means to fight climate change in Cameroon and the world at large. The objective of the project is to plant 65 000 trees on 26 ha of land within the 13 village communities in Ngoketunjia division, which is one of the seven divisions that make up the Northwest Province of Cameroon. In the division are lowland plains linking most of the villages, and there is a population of about 2 000. Seventy percent of the total land surface is in the plains and the main activity is farming, with swamp rice, maize and groundnuts being the main crops cultivated. Other activities include fishing, hunting for wildlife, woodwork in craft industries, etc.

There are problem areas: an increased population that depends on agriculture for survival and the limited farmlands, which have led farmers to destroy patches of forest for farmlands; unsustainable exploitation of tree barks, roots and leaves for traditional medicines by traditional doctors; high demand for timber for construction of houses and furniture, which has led to continued cutting down of trees without replacement; wood is the main raw material for the craft industries and the many industries use a lot of wood; the construction of the Bamenjim dam has led to the destruction of many hectares of lowland forest; and there is a high demand for fuelwood for domestic and industry use.

Project activities will start in January 2009 in the village communities with sensitization workshops on the importance of tree planting and management. Each village community will plant 2 ha each, which will be managed by the village after the project. Expected outputs of the project include: village communities will increase their knowledge on the importance of tree planting; 26 ha of land will have been planted with different species of trees; vegetation cover will be increased; and global warming reduced. The pilot phase of this project will last 12 months and has a budget of \$30 800. (Source: Natural Resource Monitoring Items of Interest [NRFMI], 26 October 2008.)

FOR MORE INFORMATION OR TO PROVIDE ASSISTANCE, PLEASE CONTACT:

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Making money from more than trees

Money may not grow on trees but burls do and those misshapen growths may be just what a wood carver needs to make a beautiful bowl. How about shitake mushrooms growing on a water-soaked log? A city chef may be willing to pay for a local supply.

In the wake of mill shutdowns, woodlot owners across Atlantic Canada are looking at all ways of making money from their woods, from providing hiking and skiing trails to harvesting colourful berries and

unusual mosses to sell to Christmas crafters and decorators. But connecting with people who desire these activities and products has been an obstacle for woodlot owners.

To help, more than a dozen forestry and agriculture organizations in the region and in Maine have come together to create "From Our Atlantic Woods", a printed colour catalogue and Web site that will list NTFPs grown or produced in New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador, and Maine.

INFOR is heading up the "From Our Atlantic Woods" project. There is no charge to producers to list in the directory. (Source: Atlantic Farm Focus [Canada], 31 July 2008.)

FOR MORE INFORMATION OR TO SIGN UP, PLEASE VISIT: www.ntfp.infor.ca



Food products foraged from British Columbia's forests need to be showcased

Foraging in the forests of British Columbia is suddenly something to be reckoned with. It has graduated to the post-secondary level.

One of the projects undertaken by the Centre for Non-Timber Resources at Royal Roads University in Victoria is "Buy BC Wild", which has sponsorship from the Ministry of Agriculture and Lands, Thrifty Foods, VanCity and Service Canada.

"We realized there were a lot of wild products coming out of our forests and there was a need for wildcrafters and businesses to have a collective voice to showcase their wonderful products and services," says Holly Caine, coordinator of Buy BC Wild. A Web site directory listing 150 purveyors of wild food, herbs and craft material from BC's forests showcases the non-logging side of our forests (see www.buybcwild.com).

"What we're trying to promote are the people who access the resources in our communities and provide local products," says Caine. While Vancouver Island's

timberlands are mainly private, in the rest of the province, about 70 percent is Crown land, she says.

Currently, the best source of information on where and how to forage is district forest offices. "You need to contact them to let them know of your intentions. People also have to be aware of First Nations cultural use of medicinal plants. A harvesting area might have been used for centuries and they have cultural and heritage rights to that area."

On Vancouver Island, she says, "everybody knows how wonderful and nutritional our native plants are. Our blueberries are amazingly nutritious with phytonutrients." Caine has a weak spot for wild berry jams. "Thimbleberry jam. Rose petal jam. I buy them already prepared. And on the weekend before Thanksgiving, you can find high bush cranberries at higher altitudes. They make the most amazing jelly." (Source: Vancouver Sun [Canada], 15 August 2008.)



Asian Development Bank helps China improve Baiyangdian ecosystem

To help counter the environmental damage to Baiyangdian Lake in north China, the Asian Development Bank is providing a loan of US\$100 million for the US\$273 million Integrated Ecosystem and Water Resources Management in the Baiyangdian Basin Project, which will focus on the critical actions to conserve Baiyangdian Lake - one of the most important and vulnerable ecosystems in China.

Through a range of interventions, the project will help alleviate ecosystem constraints in the basin by improving water quality and quantity. Additionally, the project will include training for ecosystem management and ecotourism. Development of NTFPs will also be encouraged. (Source: China CSR [China], 25 July 2008.)



Colombia's Cofan still fighting for survival

Bogota. Although he is only 21, Camilo Yoge has seen his indigenous tribe lose its culture, territory and traditions. Yoge, a member of the Cofan tribe, has seen farmers, ranchers and oilmen invade his ancestral lands to plant illegal coca crops,

raise cattle and search for oil. "We're losing our traditional dress, our environment," lamented Yoge, who is studying to become a *taita*, or shaman. "We are no longer free in our own territory."

To help the Cofan – who number only about 2 600 people between Colombia and Ecuador – preserve their traditions, the Colombian Government last month created the Orito Ingi-Ande Medicinal Plants Sanctuary to protect the plants that the Cofan depend on for medicinal and spiritual purposes. Officials in Colombia say the reserve is the only national park in the world created for that reason. "Sustainable use will permit us to preserve the natural resources," said National Parks Director Julia Miranda Londoño.

The idea for the reserve came after Cofan leaders met in 2003 with the national organization of indigenous shaman to search for an unpopulated region they could use to preserve their medicinal plants. They took the proposal to national park authorities, who spent several years mapping out a 25 000-acre (10 117 ha) reserve.

The Orito Ingi-Ande Medicinal Plants Sanctuary, whose name means "our territory" in the Cofan language, ranges in elevation from 2 300 to nearly 10 000 feet (701–3 048 m) above sea level in the southwestern departments of Nariño and Putumayo – about a two-hour drive from Cofan territory, where much of the vegetation has been destroyed by farmers, ranchers and oilmen.

With few options available for earning money, park officials say that many Cofan have resorted to harvesting coca leaf, the base ingredient for cocaine, further eroding their traditions. Even traditional palm fronds, which are now hard to find, have been replaced by tin when building roofs for their homes.

"We live from nature, that's where our energy comes from," said Louis Octavio Criollo, 39, a Cofan who is also training to become a *taita*. "But when (the forest) is cut down, all of that is lost."

Aside from spiritual value, the new park's elevation range has abundant biodiversity, parks officials say, including about 400 bird varieties, numerous reptiles and such rare species as chameleons, jaguars and Andean spectacled bears. Cofan elders have also identified nearly 100 plant species used for medicinal and religious purposes.

Two of the most important plants are yoco (*Paullinia yoco*), a vine used against fatigue, as a laxative and to prevent malaria, and yagé, a mildly hallucinogenic vine used in

traditional rites, which has become popular with outsiders who often harvest the plant for sale. Other plants are used to treat inflammations, kidney ailments and rheumatism.

Indigenous Colombians, who belong to dozens of different ethnic groups, make up about 2 percent of the nation's population of 45 million. Like the Cofan, many have suffered the impact of disease, deforestation and violence from the nation's more than four-decades-old civil war.

Lilliana Madrigal, Vice President of programmes for the Amazon Conservation Team, based in Virginia, which helped plan the new park, predicts that the reserve will inspire the creation of protected areas in other nations. In fact, Colombian park officials say they are already planning to convert a 2.9 million-acre (1.2 million ha) indigenous reserve into a national park to protect areas important to the several indigenous groups living there. Luciano Mutumbajoy, a member of the nearby Inga indigenous people and a leader of Colombia's traditional medical practitioners, helped create the yet-to-be named park. "If our medicine is finished, the life and existence of the indigenous people will end," he said. (*Source: Traditional Knowledge Bulletin*, 22 July 2008.)



Científicos «domesticar» hongos silvestres en Costa Rica

Científicos costarricenses trabajan en la «domesticación» de varias especies de hongos silvestres comestibles para que puedan ser producidos comercialmente y se aproveche su potencial alimenticio y medicinal.

El proyecto está a cargo de un grupo de biólogos del Instituto Nacional de Biodiversidad (INBio), una entidad privada sin fines de lucro que se dedica al estudio de las especies vegetales y animales de Costa Rica y que promueve su uso sostenible.

Los investigadores han estudiado parte de las 125 especies de hongos silvestres clasificadas en el país y hasta el momento

han identificado cuatro con un importante potencial de domesticación.

Milagro Mata, directora de la Unidad de Hongos del INBio, explicó que se trata de variedades conocidas científicamente como «*Pycnoporus sanguineus*», «*Ganoderma australe*», «*Lectinum monticola*» y «*Lentinula aciculospora*».

Dos de las especies son setas y otras dos "orejas de palo", como se conocen popularmente, las cuales reúnen particulares beneficios alimenticios, como un alto porcentaje de proteína, fibra y aminoácidos entre sus componentes.

Tras la identificación de estas especies, el INBio concentrará ahora sus esfuerzos en la construcción de un laboratorio para la reproducción experimental de los hongos, a fin de establecer los métodos más apropiados para su producción comercial, dijo Mata.

La investigación forma parte de un proyecto financiado por la entidad internacional Fundecooperación, en el cual participan también Bután (Asia) y Benin (Africa), el cual está dotado con un presupuesto de un millón de dólares.

Según Mata, el consumo de hongos ha crecido aceleradamente en el mundo en los últimos años y Costa Rica podría sacar provecho económico de su potencial.

También explicó que el INBio espera poder capacitar y eventualmente financiar el inicio de operaciones a agricultores que quieran explotar comercialmente este producto.

(Fuente: Univisión, EE.UU., 5 de agosto 2008.)



The valorization of NTFPs from Batéké Plateau in the periphery of Kinshasa

The main objective of this study was to make an ethnoecological analysis of the management systems of NTFPs in the periphery of Kinshasa. It considers an operating mode that guarantees their conservation and sustainable use and to bring elements that are indispensable to improving their valorization.

The study aims to understand the explanatory factors of the exploitation and valorization of NTFPs; to examine the effects of their intensification in the survey zone; and to undertake some actions in the short, medium and long term to deepen knowledge on the endogenous associative networks, ethnoecological expertise and power

relations concerning access to NTFPs, and the implementation of the policies that drive a participative management of the natural resources in the periphery of Kinshasa.

Field surveys took place in the eight villages of the Batéké Plateau and for the station of Bombo-Lumene, "a protected area". The five most exploited non-ligneous forest products of the survey area were chosen in order to analyse the determining factors in NTFP exploitation. The survey of 280 households was complemented by 22 focus group interviews, direct field observations, socio-economic surveys and ethnoecological surveys on the exploitation strategies of NTFPs. The NTFP chain at Batéké Plateau and its impact were studied between June 2005 and November 2006.

The analysis of NTFP use in the periphery of Kinshasa reveals 169 species of NTFPs belonging to 65 families:

- 66 species of herbaceous plants (39 percent);
- 46 species of ligneous plants, including the coins bushes (27 percent);
- 27 species of bushes (16 percent);
- 22 lianas species (13 percent); and
- 8 species of coins bushes, which are poorly exploited (5 percent).

These NTFPs are essentially used for food (68 species, 40 percent); herbal medicine (59 species, 5 percent), and handicraft domestic and cultural uses (41 species, 25 percent).

The households surveyed have extensive environmental endogenous knowledge of the ecological factors. They know 12 plant species used as an additive for fermentation to local wines. They respect the téké custom of dedicating one day of the week to their forebears. The shepherds do not cut down the trees along riverbanks. They succeed in popularizing the cooking techniques of *Pteridium* sp. (fern) and *Talinum triangulare* (waterleaf), eliminating toxic substances such as ptaquilosides and oxalates from these NTFPs.

The NTFPs exploited in forests, gallery forests and savannahs are sold in the markets and selling points at Batéké plateau. The average price that villagers sell 1 kg of these NTFPs is estimated to be:

- US\$0.08 for *Pteridium* sp., with an average daily profit of almost US\$2;
- US\$0.05 for indigenous wine, with an average daily profit of US\$9;
- US\$0.05 for *Dioscorea praehensilis* (bitter thread), with an average daily profit of US\$1;
- US\$0.05 for *Talinum triangulare* with an average daily profit of US\$0.26; and



Dioscorea praehensilis

- US\$0.20 for rattan, with an average daily profit of close to US\$4.

Apart from the socio-economic value of harvesting NTFPs, there are also some negative effects to the ecosystem, which are mainly caused by unsustainable methods used for harvesting, such as the systematic and regular harvest of fruits, roots and leaves; the systematic felling or extraction of plants; the removal of the complete bark; cutting off of the terminal bud; and repeated fires. All have caused an enormous toll on the natural environment.

Finally, this study shows that there are biocultural interactions that apply to both the natural environment (ecosystems) and to the strategies of NTFP utilization by farming families. The definition of a reasonable valorization policy of NTFPs integrated in an interdisciplinary approach of sustainable development remains unavoidable for the area under study. (Contributed by: Apollinaire Biloso Moyene, Faculté des Sciences Agronomiques, Université de Kinshasa, Plateau des Professeurs, Résidence THELEM, App. 18 Campus, BP 117 Kin 11, Kinshasa, Democratic Republic of the Congo. E-mail: apollo_biloso@yahoo.fr)



Finnish mushroom pickers love the forest

"About 5 percent of Finns like to spend all their available time in forests," Mr Kimmo af Ursin estimates on the basis of his 13 years as a mushroom entrepreneur. In fact, the majority of people who pick mushrooms for sale are really out to get some for

themselves but, if the catch is big enough, they end up selling some of it.

af Ursin is known in Finland for his cooperation with the Italian entrepreneur Lorenzo Dalla Valle, who exports ceps (*Boletus edulis*) from Finland to Italy. It is af Ursin's job to get the pickers out as soon as the first ceps are sighted each autumn.

One person can pick enough mushrooms for the needs of a single restaurant, but when the main crop of ceps emerges in the Finnish forests, a veritable army of pickers is needed. The method of alerting the pickers varies in different parts of the country and includes placing advertisements in newspapers and sending text messages.

af Ursin has toured all of Finland, speaking to about 7 000 people about mushrooms and how to organize the picking. He has the contact information of some 1 500 mushroom pickers. After hearing about the first sighting of ceps, af Ursin forwards the information to Dalla Valle. Dalla Valle organizes trucks that run on set routes according to a set timetable to buy the mushrooms, and af Ursin informs the pickers about the routes and timetables by SMS.

Buying ceps is a whirlwind business and, because of the efficiency of the pickers, daily amounts can reach 5 tonnes. A cep of the best quality is hard and firm, the gills are white and the mushroom is clean and whole. The main part of the cep crop is exported. "In 2003, for example, some 1 100 tonnes of ceps were picked in Finland. The domestic use was about 40 tonnes," says af Ursin.

In Finland, 22 mushroom species can be sold as foodstuffs. In practice, only seven are picked for sale: cep, false morel (*Gyromitra esculenta*), funnel chanterelle (*Chantarellus tubaeformis*), chanterelle (*Chantarellus cibarius*), black chanterelle (*Craterellus cornucopioides*), northern milk-cap (*Lactarius trivialis*) and rufus candy milk-cap (*Lactarius rufus*). "Ceps make up about 70 percent of both the volume and value of the catch," af Ursin estimates.

But how does one know if a good mushroom crop can be expected? There is no sure way of predicting it, af Ursin says. "There are too many variables in the environment, every moment is unique. The only source of information about the crop are people who regularly move about in Finnish forests." [Source: Forest-fi, 1 December 2008.]



INDIA

Improved cooperation key to saving biodiverse forests in northeastern India

While the tropical forests of northeastern India have the lowest population density in the country, a population growth rate of 3 percent per year has put pressure on community-owned forest reserves for food, timber and NTFPs. However, this dependence - combined with improved relations between the Forest Department and the Nishi, a local tribe - may help facilitate more effective conservation action in and around the Pakke Wildlife Sanctuary, say researchers Aparajita Datta and G.S. Rawat in a recent report.

Past conflicts between the subsistence agriculture-dependent Nishi and the Forest Department have eased since 2002, when the department and national conservation organizations began to address the challenges confronting local communities. Now, "hunting of wildlife such as hornbills, primates and ungulates in the park appears to have declined due to better protection by park authorities and greater awareness and enforcement of hunting bans by the Nishi community", note the authors.

Datta and Rawat conclude that efforts to protect forest resources and biodiversity will be in the best interest of local communities.

[Citation: Aparajita Datta and G.S. 2008. Rawat. Dispersal modes and spatial patterns of tree species in a tropical forest in Arunachal Pradesh, northeast India. *Tropical Conservation Science*, 1(3): 163-185, September.]
[Source: mongabay.com, 15 September 2008.]

Sikkim Himalayan screw-pine, *Pandanus nepalensis*: a much neglected and underexplored NTFP

The Indian state of Sikkim, in the northeast Himalayas, is known to have over 4 500 plants within a geographic area of 7 096 km², making the region part of one of the world's richest biodiversity hot spots. A substantial part of the state is covered by forests (about 36 percent of total land area), a majority of which are of the temperate semi-deciduous forest type. This article concerns one screw-pine of the region, *Pandanus nepalensis* H. St John (= *Pandanus furcatus*), of the Pandanaceae family (in Hindi, the plant is called Ambemohor pat, Rampe and named Tarika



in Nepali), which is considered to be a much neglected local floral element and whose potentiality as non-timber forest resource has so far never been realized.

On a global scale, the genus *Pandanus* is made up of about 700 species. In general, these screw-pines are tree-like and grow up to 20 m, but small shrub-like specimens of about 1 m high are also common and distinguished for having broad canopies and a moderate growth pattern. The long linear leaves originating at the stem appear screw-like and the edible fruits, to a great extent, resemble pine cones, hence the name "screw-pine". The leaves, which have stout curving spines at the edges, are often traditionally used for their fibre content and are known for their distinct aroma. The species of *Pandanus* are widely used for many purposes: preparation of jam, housing materials, in textiles, food, medication (antiviral, anti-allergen), making mats, etc.

Pandanus nepalensis is a medium-sized dioeciously branched tree up to 5-6 m in height, typically having a broad canopy and stout trunk, ringed with many leaf scars. Spines are also found on the individual fruits (obconical, 5-6 angled), which are borne as a composite fleshy pseudo-drupe (15-25 cm long, globose) on a common fruiting axis. These are evenly covered by a shining cuticle, each bearing yellow outwardly curving forked stout spines. These spines provide a natural protection from damage by wildlife until the fruit is ripe. (This should be considered as a strategy by the species in seed dissemination.) The fully mature composite fruit turns bright red.

The use of *P. nepalensis* as medicine is inadequately documented, although it has important properties. In the Dzongu valley in the northern district of Sikkim the indigenous Lepcha tribe use *Pandanus* in several ways. According to the Maon-Doak (the Lepcha medicine man), the leaves are

used against snake bites: the young and tender *P. nepalensis* leaves are tied or warped at the location of the snake bite and help to reduce pain, also acting as an antidote to snake venom. The leaves of the plant act as a mouth freshener when chewed and the fresh leaves are used as a cockroach repellent. Reports also indicate that the leaves act as an aphrodisiac and a cure against headache and general weakness, and that the juice of the crushed plant taken with milk will induce abortion. The fruits that ripen during the winters are eaten by human beings, monkeys and rats.

In Sikkim Himalaya, although growing within a limited vertical limit (300-1 200 m), the species has a wide horizontal distribution within the Tista river basin (the biggest in Sikkim). Considering the abundance and accessibility of the screw-pine all over the region, it is intriguing that very little is known about it and still less literature is found on it.

In the past the screw-pine was used for making various items, such as hand-woven mats, carry bags, fish snares, thatching materials, etc. but these uses are now dying out. Reviewing the literature on the region's NTFPs, it is noteworthy that little resource prospecting has been done on these fibre-yielding plants. Although the region has well-documented information on wild edibles and herbals, it is poorly documented on fibre-yielding plants. This aspect, the reasons behind it and its effect, need closer examination in relation to the sociocultural-economic fabric of the tribal people of Sikkim.

In view of the various attributes of *Pandanus*, there are great possibilities for using this NTFP species (in addition to making jam, jelly, juice, textile, etc.) as an aid to the socio-economic development of native communities through innovative entrepreneurs, both by using wild resources sustainably as well as planting the species in wastelands and other underutilized lands through the development of propagation and mass multiplication protocols. From the habitat conservation and management point of view, the species could also offer a great boost to wildlife and thus a rich biodiversity, in addition to conserving the soil. As the Sikkim Himalayan region is of recent origin with a high rainfall and sloping terrain the *P. nepalensis* populations provide a much-needed support towards maintaining the fragile ecosystem balance in the region.

[Contributed by: Dr Hemant K. Badola, Mr B.K. Pradhan, Ms Sanjyoti Subba, Mr L.K. Rai and Dr Y.K. Rai, G.B. Pant Institute of Himalayan Environment and Development, Sikkim Unit, Gangtok-Sikkim, India.]

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How medicinal plants promote agribusiness

The National Medicinal Plants Board (NMPB), established in 2000, is responsible for supporting initiatives for the conservation and cultivation of medicinal plants, both *in situ* and *ex situ* in India. In the latest 11th Plan, the outlay of Rs990 crores to the NMPB represents a sevenfold increase in financing from the previous plan.

A study of demand and supply of medicinal plants in India carried out by the Board during 2007-2008 highlighted alarming shortages of some of the plants used by the Ayurvedic industry.

Of particular interest were tree species such as Sita Ashok (*Saraca asoca*), the main ingredient of Ashokarishta, a key Ayurvedic formulation for gynaecological disorders; Guggal (*Commiphora wightii*), a thorny bush that yields gum resin used in more than 100 Ayurvedic preparations; and the Dashmools, used in the popular Ayurvedic preparation, Dashmoolarishta. The estimated demand of Sita Ashoka bark is in excess of 2 000 tonnes, but availability in the wild is extremely rare. Likewise, although more than 1 000 tonnes of the gum resin from Guggal is used by the Ayurvedic industry, over 90 percent of this is imported.

The Board has sanctioned the conservation and plantation of some of the rare and endangered species in high demand on thousands of hectares across multiple states.

Special Board initiatives include the conservation and propagation of high altitude plants such as Atees, Kuth and Kutki, led by the Task Force on High Altitude Medicinal Plants. The School and Home Herbal Gardens programme in over 1 000 schools across the country has driven awareness about the healthy role of India's biodiversity.

A new Government-approved initiative, the National Mission on Medicinal Plants, seeks

to promote market-driven cultivation with a focus on the development of selected clusters with potential for inclusive growth in agribusiness through medicinal plants. The goal is to improve market access of farmers to better prices for their produce and better quality of raw material for the Ayurvedic, Siddha and Unani industries. [Source: Commodity Online, Kerala [India], 15 September 2008.]

Low prices strain Mahua flower-dependent villagers in Orissa

Villagers across Orissa are under strain as the Panchayat Samiti has fixed what most consider to be a low rate for the Mahua flowers they depend upon for their livelihood. Mahua, the raw material used for making country spirit, is a major source of revenue for the state government.

The subcollector of Bargarh district said that this year the rate for the sale of Mahua flowers is fixed at Rs1 500 per quintal, and Panchayat Samitees have been entrusted to ensure that villagers get minimum support prices for their produce.

"For the last two years, the Mahua yield has not been sufficient. We collect Mahua flowers every day with the hope that we will earn something, but unfortunately we have to sell the flowers at a throwaway price," said Kanak Pradhan, a villager.

"This is a season of Mahua flowers and the government of Orissa has made adequate provisions for the sale of these flowers by the villagers wherever Mahua is produced. It comes under non-timber forest products. The rate for such products, including Mahua flowers, is fixed by the Panchayat Samitee concerned. The Gram Panchayats are given the responsibility to see ... that the poor people get a minimum fixed support price by the Panchayat Samitee," said Bishnu Prasad Mishra, subcollector, Bargarh district.

Almost all villagers, especially women, gather Mahua flowers from early morning until sunset. The flowers are then dried and sold to entrepreneurs, leaving most villagers largely unaware of the fixed prices. Most tribals along the forested area of Orissa depend on such NWFPs for sustaining themselves for around six to seven months in a year. [Source: DailyIndia.com, Florida [United States of America], 7 June 2008.]

Voices from the Forest, India - new film

All across India, NTFPs are a critical source of income for indigenous people and forest-dwelling communities, who are among the poorest of the poor. Not only do the NTFPs

play a crucial role in the livelihood of these people, but form a key incentive to conserving the forests of India. Moreover, NTFPs are woven in with the social and cultural fabric of the communities living in India.

Women from a self-help group in India sort through dried amla fruit. Traditionally, amla is made into chutneys and pickles. Here it is processed into sweets and a breath freshener.

Through the assistance of the Keystone Foundation, productivity has increased threefold with the adoption of new technology for processing. This story, and many others, are featured in a new 30-minute film - Voices from the Forest, India - made by the Non-Timber Forest Products Exchange Programme, through Gekko Studio/Telapak and Dusty Food Productions.



FOR MORE INFORMATION OR TO REQUEST A COPY OF THIS FILM, PLEASE CONTACT:

Non-Timber Forest Products Exchange Programme, 92 Masikap Extension, Barangay Central, Diliman, Quezon City 1100, Philippines. Fax: +63 2 4262757, 9293665; e-mail: info@ntfp.org or publications@ntfp.org (Manila); www.ntfp.org/

East India leather is now an exclusive geoproduct

East India (EI) Leather, a vegetable tanned leather that has been a specialty of tanneries in Trichy and Dindigul for the last 160 years, has now been approved and registered as an exclusive geographic product by the Geographic Indications Registry of the Union Ministry of Commerce.

Registration under the geographic indications of goods (Registrations and Protection Act, 1999) will give the product an exclusive brand image similar to Darjeeling tea, Kanchipuram silk saris or Coorg coffee. The characteristic quality and reputation unique to the geographic location are indicative behind the logo and EI technology is a British legacy in the country.

Evidence is available that the exclusive tannery process utilizes cassia species, pungum oil and wattle bark extract as utilized in 1805 at a tannery near Chennai. It was in 1856 that a tannery unit was established using the so-called EI technique.

EI leather is very popular in Italy, France and other Western countries since it is the best sort of leather to manufacture garments, fancy handbags and suede leather shoes. The uniqueness of EI leather includes its special feel, the gloss and polish it accrues with use, its distinctive smell and the noise it makes when tapped. [Source: *Business Standard* [India], 23 July 2008.]

(Please see page 20 of Non-Wood News 17 for more information.)



INDONESIA

Fighting to keep islands above water

For more than a decade, Defitri Akbar has spearheaded a drive to involve local people in mangrove conservation in Riau Province. He and some colleagues have founded an NGO, Bahtera Melayu, which drew up two basic targets: (i) guided participation of coastal communities in a programme to save mangrove ecosystems; and (ii) the development of alternative incomes to reduce pressure on natural resources and surrounding environments.

The NGO has been successful in getting community groups to take the lead in managing 230 ha of local mangrove and to develop a honey production industry. It has also started a green generation education programme involving local youth. [Source: *The Jakarta Post* [Indonesia], 2 September 2008 in Community Forestry E-News, September 2008.]

Rinjani community push for forestry regulations

A community forestry programme in Lombok that allows farmers to take part in developing forest areas and in harvesting

NTFPs does not have farmer-friendly regulations. Farmers are now hoping to legalize their engagement in forest management.

"A permit for forest management would allow us to become wholeheartedly involved in developing forest areas and prevent us from violating the law. It would also clarify farmers' rights and responsibilities," said Artim, a member of a local farmers' cooperative unit.

The only legal standpoint farmers have for their involvement in the programme is the 1999 Forestry Law. The problem remains, however, that regulations related to this law tend to be counterproductive, if not contradictory. The farmer group has therefore requested the local Forestry and Plantation Office, legislative council members and NGOs to get together to produce a regulation on community forestry for the benefit of forest farmers. [Source: *The Jakarta Post* [Indonesia], 16 September 2008 in Community Forestry E-News, September 2008.]



MÉXICO

Mujeres mayas y orégano mexicano: del monte a la cocina

El orégano, esa planta olorosa, que utilizamos en muchas de nuestras recetas de cocina, está representado generalmente por dos especies de plantas distintas. La primera se conoce como orégano europeo (*Origanum vulgare*) y pertenece a la familia botánica Labiatae. Esta especie crece en zonas mediterráneas del sur de Europa, Grecia y Turquía. La otra especie es el orégano mexicano (*Lippia graveolens*), perteneciente a la familia Verbenaceae, es una especie resistente a la sequía que se encuentra distribuida en los climas semiáridos de México y de América Central.

Lippia graveolens es una especie arbustiva perenne de entre 1 y 3,5 m de altura, con un crecimiento relativamente rápido y un ciclo de vida corto (5-10 años).

Tiene tallos ramificados con gran cantidad de hojas, que constituyen su parte aprovechable. Éstas, son de forma ovalada con bordes dentados y una textura rugosa con muchas vellosidades, el tamaño es muy variable, desde 5 hasta 10 cm de largo dependiendo de la disponibilidad de agua. Sus flores son pequeñas, de color blanco; los frutos son cápsulas y en ellas se encuentran almacenadas las semillas, éstas son de color café, no mayores de 25 mm. Las plantas de orégano presentan flores y frutos todo el año, no obstante, en Yucatán, la mayor abundancia de flores y frutos se da entre noviembre y abril.

El aceite esencial de orégano mexicano, con el agradable olor de sus hojas, se encuentra en glándulas localizadas en las vellosidades o tricomas foliares. Este aceite tiene diversas propiedades antioxidantes, antibacterianas, antifúngicas e insecticidas, por lo cual además de ser muy atractivo como saborizante, también presenta importantes usos para la industria farmacéutica, alimenticia y cosmética.

En lengua maya el orégano se conoce con el nombre de *akil ché*, y es considerado un recurso natural con historia ancestral. En el pasado, el orégano mexicano se utilizó principalmente con fines medicinales para el alivio de enfermedades relacionadas con las vías respiratorias y padecimientos estomacales.

Debido a la abundancia de esta especie en el noroeste de Yucatán, y a la importancia de esta planta en la economía de las familias rurales, se realizó una investigación con el propósito de conocer las implicaciones ecológicas y socioeconómicas que conlleva la cosecha, comercialización y uso de este recurso forestal no maderero. La investigación fue financiada por el Centro de Investigación Científica de Yucatán (CICY) y la Comisión Nacional Forestal (CONAFOR).

En las comunidades estudiadas, la cosecha de orégano de monte es realizada principalmente por las mujeres mayas y sus hijos. La temporada inicia en la época de lluvias y dura aproximadamente de julio a octubre. Para que la cosecha inicie es necesario que el comprador llame y avise que está interesado en adquirir el producto. La confirmación del comprador resulta ser el detonador para que las mujeres de la comunidad salgan al campo e inicien la cosecha.

El proceso de cosecha es sencillo y no requiere herramientas. Se elige la planta,

después se toma una de sus ramas y las hojas de ésta se tiran del centro de la planta hacia fuera, a esta actividad se le conoce con el nombre de "raspar o bajar el orégano". Una vez que las hojas han sido desprendidas se prosigue a guardarlas en un costal. Sucesivamente, se sigue raspando rama por rama hasta que se logra retirar entre el 75 y el 100 por ciento de las hojas. La técnica de cosecha no siempre es la misma, sino que varía de acuerdo a las costumbres de las mujeres. Algunas de las variaciones son por ejemplo no cosechar plantas con flor, no dejar hojas en la planta, cortar o quebrar las ramas, especialmente en individuos muy altos, encimar las ramas cortadas a un lado del camino y después retirar las hojas.

La jornada de trabajo en temporada de cosecha dura entre 4 y 12 horas aunque depende de la lejanía del sitio y del medio de transporte del que se disponga (a pie, bicicleta, triciclo o camión fletado). Dado que la mayoría de las personas van a pie, en cuanto llenan un costal emprenden el camino de regreso, pues el peso de éste no debe sobrepasar la cantidad que una mujer o un niño pueden transportar cargando en la espalda.

En un viaje de cosecha el peso promedio de hojas frescas es de aproximadamente 9,6 kg, dependiendo de la edad, sexo y habilidades de la cosechadora o cosechador. Si se cuenta con un triciclo y caminos para transportar la carga es posible que cada recolectora lleve más de un costal de hojas.

En el monte, el orégano crece en lugares pedregosos, pero no se desarrolla en suelos inundados. Se encuentra también en solares y en terrenos de cultivo asociados a huertos de cítricos y de pitahaya. En estos lugares no se siembra, más bien se tolera y cuida ya que crece de manera natural.

Una vez cosechado el orégano, el único proceso poscosecha es el secado al sol. Para realizar esto las hojas del orégano se extienden sobre un plástico, sobre los mismos costales, o directamente, ya sea en el solar o techo de las casas, incluso en aceras o calles. Cada media hora, aproximadamente, el orégano es removido con un rastrillo o una vara, con el objetivo de conseguir un secado parejo. Si el día es soleado, al cabo de 3 ó 4 horas el orégano está listo. Por el contrario si el día resulta nublado, el orégano puede tardar en secar hasta dos días. En estos casos es necesario recogerlo antes de que llueva o caiga el

sereno de la noche, y al día siguiente de nuevo se extiende exponiéndolo al sol. Una vez seco se coloca de nuevo en costales y se coloca dentro de las casas o en algún lugar bajo techo, para evitar que absorba humedad.

La cosecha finaliza cuando se cubre la demanda del comprador (tres o cuatro meses después) y avisa que no irá más a la comunidad esa temporada, es entonces que las cosechadoras quedan a la espera de su llamada para el próximo año.

El manejo del orégano en las comunidades visitadas, tiene un importante impacto en la economía de las cosechadoras, ya que representa un porcentaje considerable del ingreso monetario mensual que obtienen las familias. No obstante, este ingreso es temporal, solamente se obtiene durante la temporada de cosecha de la especie. Una familia, durante la temporada, puede cosechar y vender hasta una tonelada de orégano seco. En términos económicos, el orégano de monte es un producto que se puede incorporar a la cadena de mercado con un mínimo de inversión de capital. Además, la producción, cosecha y procesado no requiere de muchas habilidades o de tecnologías sofisticadas.

A partir de la información generada en el proyecto se observa que el aprovechamiento del orégano en las comunidades estudiadas, y en general en el estado de Yucatán, tiene un gran potencial.

(Aportación hecha por: Dra. Luz María Calvo Irbién, Centro de Investigación Científica de Yucatán, Calle 43 #130 Chuburná de Hidalgo, Mérida, 97200 Yucatán, México. Fax: 999 981 3900; Correo electrónico: lumali@cicy.mx)

Community forestry development in Mexico

The Tepehuano Forestry Development project is based on a participatory model that aims to increase the livelihoods of the Tepehuano community by strengthening human development and promoting the sustainable management of forest resources. The Tepehuano community of Santa María de Ocotán covers an area of 400 000 ha and has one of the highest levels of poverty in the country.

The project's mission is to promote community forestry development in the Nayar region by providing capacity building for the community to enhance entrepreneurial skills based on a sustainable forest model to supply timber and non-timber products for the whole



region. The project also strives towards the conservation and restoration of degraded areas.

The project is being implemented by Reforestamos México A.C. (a local Mexican NGO based in Mexico City), with financing by the private sector.

Reforestamos México, in collaboration with regional NGOs, has been able to coordinate social and corporate support to the region since 2005. This model has successfully been replicated in the neighbouring communities of Huichol and Tarahumara. The model's success is based on its ability to foster community participation in the creation of Community Forest Enterprises (CFEs), which in turn have empowered the community and led to the sustainable management of forest resources.

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San devil's claw is an international hit

San communities from the Nyae Nyae and Na-Jaqa conservancies generated more than RN\$400 000 during 2007 from the harvesting and sale of plant products. Similar or even better results are expected for 2008, as more than 1 000 harvesters are registered in both conservancies, researcher Dave Cole said recently. In a paper entitled *Botanical resources increasingly contributing to income generation for conservancies and their members* issued last month, Cole indicated that, to date, conservancies had collected

an income of RN\$288 561, with several more months of harvesting to go.

The Nyae Nyae Conservancy was formed in 1998, and the Na-Jaqna Conservancy in 2003.

The medicinal value of devil's claw (*Harpagophytum*) for the treatment of rheumatism, arthritis and other ailments of this type has been recognized by "Western medicine" only in the last 50 years. The first major exports from Namibia started in the early 1960s, and today the country is the largest exporter in the world, accounting for about 95 percent of the trade. Namibia currently exports on average about 400 tonnes of dried devil's claw per year, which represents a significant income for the country.

According to Cole, up until recently, devil's claw was harvested and traded but was characterized by unsustainable harvesting practices, exploitive prices paid to harvesters and inferior quality. However, in the last two years, funding from the Integrated Community-Based Ecosystem Management Project and the United States Agency for International Development, as well as the Life for Relief and Development programmes, have enabled the Working Group on Indigenous Minorities in Southern Africa and the Nyae Nyae Development Foundation Namibia to implement a sustainable harvesting programme, benefiting both the conservancies and individual harvesters. Harvesters are now organized into groups and receive training on sustainable harvesting and processing.

Organic certification allows for the product to be traced back to the area in which it was harvested, and by whom. Provision for the costs of covering the expenses related to organic certification have also been made, and the conservancies will be able to cover these costs themselves in the future.

Added Cole: "Not only do harvesters benefit from cash income, but the



Harpagophytum

organized harvesting and sale of devil's claw in these conservancies also contribute to empowering people to develop a sense of ownership and to take responsibility for the management of their resources. Clearly, however, given the extent of poverty in rural areas, the challenge is to identify additional products that can also contribute to income generation in these conservancies." (Source: *The Namibian* [Windhoek], 10 September 2008.)

Devil's claw fruit for forest community livelihoods

Four community forests in the Caprivi have earned more than RN\$200 000 from devil's claw (*Harpagophytum*) sales. Devil's claw, a plant that grows mainly in the Kalahari sands of Namibia, Botswana, South Africa and Angola and, to a lesser extent, in Zambia, Zimbabwe and Mozambique, has medicinal properties for the treatment of rheumatism, arthritis and other ailments, and was recognized by "western medicine" only in the last 50 years.

Devil's claw needs to be harvested with special techniques to conserve the plant for future use. These techniques were taught in workshops organized by the community forestry committees, which also organized the Ministry of Environment and Tourism permit necessary for harvesting.

Only community members who participated in the training were registered for harvesting and were given the necessary permit to ensure that the harvesting takes place under controlled conditions. In addition, the four community forestry committees carried out an effective law enforcement exercise to stop illegal harvesting and sales to illegal buyers. As with the harvesters, the buyers also need to be registered with the Ministry. (Source: All Africa.com [Namibia], 30 October 2008.)

NEPAL

Lokta paper

Lokta, also known as *Daphne bhoola* or *D. papyracea*, is an indigenous plant of Nepal. Found at altitudes of 6 500 to 9 500 feet (1 981-2 896 m), its bark is traditionally used in the production of paper. Lokta plants are harvested by cutting the stem at ground level, while leaving the main root intact. Lokta regenerates naturally in two to three years. Using it as a source of raw material for paper has no adverse effects on the forest ecology of Nepal.



Growing in popularity in the international market as beautiful natural stationery, the paper has a long history of use. In Nepal, all legal and legislative documents were printed on the paper thanks to its durability. It can be preserved for a long period of time, is non-perishable in water, is free from germs and is highly resistant to insects such as silverfish and paper crawlers. Lokta paper is also excellent for wrapping precious stones since its soft fibres do not scratch stone surfaces.

The paper has a beautiful natural tan shade but can easily be dyed in water with other colours. It is ideal for production without machines and scraps of the paper can also be recycled simply. (Source: extracted from: *About lokta paper*. Kathmandu, Nepal. Available at: www.nepalpaper.com/1000883.html)

NEW ZEALAND

Indigenous tribes transform historic grievances into a bright future

A landmark agreement has been signed into legislation in the New Zealand House of Parliament as of September 2008. The arrangement transfers around 10 percent of the country's intensively managed planted forest to a collective of indigenous Maori people. This largest-ever settlement of grievances, which is valued at around NZ\$450 million and includes licence rentals accumulated since 1989, arose from nineteenth-century seizures of land and forests during European settlement of the country. The Maori have been engaged in grievance claims since the 1970s. As they are among the nation's poorest citizens, the economic benefits for those within the collective will be significant.

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NIGERIA

Study unveils medicinal plants for skin problems

Medicinal plants in Nigeria were considered by several researchers to form an important component of the natural wealth of the country, considering that the Nigerian tropical rain forest is a reservoir of chemical substances that can be used for therapeutic purposes.

Some of their ancient indigenous uses were discovered by "trial and error", which could not be proved by scientific theories although the results have been beneficial and efficient compared with conventional modern medicines. However, these ancient indigenous uses of the plants vary from one community to another. To improve communication, therefore, such plants need to be identified and documented according to the ailments cured, the preparations and administration of the herbs, as well as local and common names.

One such effort was carried out by researchers from the University of Benin who studied the medicinal plants used in treating skin diseases by healers in the Ovia northeast local government area of Edo state. The study, entitled: "Ethnomedicinal uses of plants in the treatment of various skin diseases in Ovia northeast, Edo state, Nigeria" was carried out by Dr R.K.A. Egharevba of the Department of Crop Science and Dr M.I. Ikhatua in the Department of Forestry and Wildlife. It was published in the latest edition of the *Research Journal of Agriculture and Biological Sciences*.

The investigation included names and plant parts used, ailments cured, preparations and administrations of these herbs through the use of questionnaires and interviews of old and experienced rural people as well as herbalists.

In the survey, 41 plant species from 29 families were identified. These plants include some wild and uncultivated ones: *Xylopiya aethiopica* (Guinea pepper), *Plukenetia conophorum* (African walnut), *Monodora myristica* (African nutmeg), *Aframomium melequenta* (alligator pepper) and some semi-wild plants such as *Dacryodis edulis*. They also include ornamental plants such as *Lawsonia inermis* (Dye) and herbs.

A total of 57 commonly used prescriptions for skin diseases were noted. Mixtures of plants were used in some

cases. Several medicinal plant parts were used in herbal preparations, such as leaves, stem and bark, fruits, seeds and roots; of all these, leaves were found to be used in 70-75 percent of the cases.

[Source: *Nigerian Tribune* (Nigeria), 25 September 2008.]

PAKISTAN

Mushrooms and medicinal plants in Chitral *Mushroom collection in the dry temperate forest of Kalash Valley, Chitral*

The Kalash Valley is located in the remote southern part of Chitral, an area of unique cultural and biological diversity. Natural forests in the area mainly consist of *Pinus wallichiana*, *P. gerardiana*, *Cedrus deodara* and broadleaf species such as *Quercus incana*. Medicinal plants, honey, pine nuts, wild vegetables and morel mushrooms are the most important NTFPs found in the valley and used by the local community to support their livelihood. A study was recently carried out to investigate the collection status of mushrooms in this location.



A variety of mushrooms grow in the dry temperate forest of the valley, including *Morchella esculenta*, *M. vulgaris*, *M. deliciosa* and others such as oyster mushrooms. Their local names are Quchi, Brangalu and Shunthi. Often keeping their harvesting locations a secret, local people rely upon traditional knowledge to locate the mushrooms. For example, it is believed that mushrooms often appear under specific trees, including *Juglans regia* and *Pinus wallichiana*. Morels are collected primarily for sale but are also occasionally used in traditional medicine. Harvested throughout spring and early summer (from March to July) the mushrooms are sold in the local market, often to intermediaries. *Morchella* fetch particularly high prices and thus play an important role in the economy of the community. The morel collectors are mostly poor villagers who practise mushroom harvesting on a part-time basis in addition to livestock keeping, firewood

collection and farming. Forty percent of the collectors are children, 27 percent women and 33 percent men. Morel collection is a labour-intensive activity requiring a great deal of devotion. Sometimes the collectors have to spend days in the forest.

Medicinal plants of Chitral to be conserved under an in situ approach

The dry temperate zones of Chitral offer a wide range of valuable medicinal and aromatic plants and the local communities living in the surrounding forests depend on the area resources for their rural health care as well as for their livelihood. As a result of deforestation, overgrazing and unsustainable harvesting, medicinal plants in the area are declining.

In order to conserve the medicinal plants in their natural environment, the Directorate of Non-Timber Forest Products (NWFP Forest Department, Peshawar, Pakistan) will introduce *in situ* conservation approaches in different parts of Chitral. Mr Iftikhar Ahmed, Assistant Director NTFP Office, Peshawar, has clarified that the main objective of this approach is to conserve the available medicinal plant resources and communicate the idea of sustainability in their use. Mr Ajaz Ahmed of the NTFP Office, Chitral stated that this intervention in the conservation of medicinal plants will be the first of its kind and will improve nature conservation and help to reduce poverty. The Directorate of NTFP is working in NWFP Pakistan for the promotion of NTFPs for community development and poverty reduction.

The study suggested future guidelines for proper planning and management of the dry, temperate forest of the valley for livelihood support of the poor local community. The Directorate of Non-Timber Forest Produce is facilitating the local community in the sustainable utilization of these resources.

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PERU

The camu camu value chain in the Peruvian Amazon

Camu camu, found growing along the riverbanks and lake shores of the Amazon Basin, contains the highest concentration of natural vitamin C in the world. A recent study (*Promoting forestry-product value chains in the Peruvian Amazon: the case of camu camu*) examined how the link between the various actors in the value chain, including collectors, processors, traders and buyers, remains weak. The camu camu chain is currently in the initial stages of development and a general lack of trust exists in the area among many of the actors.

The study revealed that local and regional government must become active as promoters and stimulators to improve relationships between those involved. Policies in the camu camu producing and processing regions must be created to improve knowledge and functions within the value chain. Finally, barriers to entry into the markets are in great need of attention, with a simplification of paperwork and a reduction in transaction costs highly recommended.

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Environmental services of the *aguajales* and the opportunities for a global business for the Loreto region, Peru

Angel Salazar of the Peruvian Amazon Research Institute (Iquitos) has written an article on *aguajales*, palm tree forests that occupy 5.3 million ha in the Peruvian Amazon and sequester large amounts of carbon. They play a role in the local economy by providing employment opportunities for local communities and by satisfying the high consumer demand for their fruit. Salazar's article describes the potential benefits offered by harvesting

aguajales and calls for increased efforts for their improved management, as well as for linking these ecosystems to environmental services payment schemes.

The fruits from the *aguajales*, the *aguaje*, are in great demand by the inhabitants of Iquitos. Fruits are consumed directly, or processed as refreshments, the *aguajina*, or as icecreams and popsicles. The demand generated by that way of consumption is satisfied by approximately 20 tonnes of fruits per day.

The marketing of the fruits generates a value chain that creates employment in both rural and urban areas. In Iquitos alone, close to 5 000 jobs are generated by the selling of *aguaje* fruits. Most of those employed are women, who generate their own employment.

The benefits that can be obtained by harvesting *aguajales* are much more diverse than those traditionally obtained. These are the so-called strategic products - those obtained by providing added value to the *aguaje* pulp - that include antioxidants, solar protectors and high-quality oils for the cosmetics industry. An additional benefit that could be obtained is the added value of the ecosystem through the possibility of obtaining payments for the environmental services that *aguajales* provide. (Source: Ecosystem Marketplace, August 2008.)



PHILIPPINES

Aguilar leads moringa drive

Las Piñas City is embarking on a massive planting of malunggay trees to boost the source of nutritional food and medicine for residents while protecting the environment. Mayor Vergel Aguilar said that, as more people experience hunger and poverty because of the high cost of food and health care, the local government must provide economic relief. Mobilized in the city-wide campaign are officials down to the 20 barangays and various urban poor groups that serve as partners in the local ecological programme.

Moringa (*Moringa oleifera*) or malunggay (kalamungan in the Visayans, kalamunge to Pampangueños, marunggay to Ilocanos and kalunggay to Bicolanos), is considered one of the world's most nutritious plants with versatile uses in agriculture, medicine and industry.

Food analysis shows that malunggay leaves contain 26 percent crude protein and are rich in vitamins A and C, iron and potassium. They also have medicinal value to treat arthritis, rheumatism, gout, cramp, boils and sexually transmitted diseases.

Mature seeds also produce high-value oil, called oleic acid, widely used in the food industry. The edible oil can lower cholesterol levels in the blood, improve lipid profiles and modify harmful inflammation. It also serves as a lubricant for fine machinery and its antioxidant properties are useful in the manufacture of perfumes, personal care and therapeutic products and cosmetics.

Aguilar urged residents to plant malunggay to tap its nutritional potential, especially for children, encouraging them to nurture trees amid the threat of global warming. (Source: Manila Standard Today [Philippines], 2 September 2008.)

NegOcc farmers urged to go into cocoon production

While sugar-cane workers in Negros Occidental (NegOcc) may dread the start of the off-milling season, another sector is actually in need of more workers. Thelma Watanabe, training coordinator of the Organization for Industrial, Spiritual and Cultural Advancement (Oisca) - Bago Training Centre (OBTC), said that more farmers must be encouraged to go into cocoon production to meet the increasing local and international demand for silk. "The fact that Negros silk is of very high quality makes this industry a very promising one for farmers in ... the entire archipelago," she added.

Since the start of the Oisca sericulture project in 1989, the Oisca Negros silk industry has come far. "From a handful of 50 farmers cultivating an area of about 20 ha of mulberry plantation, the number has increased to about 260 farmers now actively engaged in quality cocoon production in an area of not less than 170 ha fully planted to mulberry trees," she said.

Approval from the Cocoon Testing Centre in Japan paved the way for the establishment of a silk reeling plant at the Oisca Compound in Bago City, which has

the capacity to process 100 tonnes of fresh cocoons per year. Yet, "Oisca's actual production now of three tonnes silk yarn from approximately 30 tonnes of fresh cocoons per year is not even enough to supply the local market", said Watanabe.

"Silk has always enjoyed excellent market value. Today, people hear of Philippine silk and the prospect of job generation it can bring to the Filipinos: from the cocoon-producing farmers to the silk reeling workers, the weavers, dyers, embroiderers, handicraft makers and garment manufacturers," she stressed.

"Oisca International has always been concerned with how to help marginal farmers in rural areas ... Thus, the idea of starting an Oisca silkworm rearing project for silk yarn production in Negros Occidental was conceptualized," said Watanabe. The project has been supported by government and non-government agencies. [Source: Sun. Star [Philippines], 25 July 2008.]

Challenges and opportunities for the Philippine bamboo and rattan industries

Bamboo and rattan (B&R) are the most important NWFPs in the Philippines and other Asian countries. Many upland communities are dependent on the gathering of these products in both the natural forests and private bamboo farms for their livelihood. Similarly, employment in B&R factories and home-based industries is a major source of income for numerous rural and urban workers in the country. While the domestic market for these products in the Philippines is believed to be quite large, the export market has for many years been a significant and dependable source of foreign exchange.

However, several problems have caused B&R exports from the Philippines to decline, both in absolute and relative terms, during the last decade. These problems primarily relate to the scarcity of locally sourced raw materials, rising labour costs and stiff competition in the global market. Rattan exports, mostly furniture, have dropped from a year-high of US\$129 million during the period 1995-2000 to a year-low of US\$66 million during 2001-2006. During 1978-1985, when the Philippines dominated the rattan furniture export market, export revenues rose at an annual rate of 38 percent. By contrast, exports contracted at 5 percent annually from 1995 to 2006. Relative to other types

of furniture export, the share of rattan furniture export diminished from 33 percent in 2001 to 23 percent in 2006, with the latter period dominated by wood furniture. Basket and wickerwork have likewise steadily decreased from US\$78 million in 2001 to US\$52 million in 2006. Nevertheless, export destinations have remained focused on the medium- and high-end segments of the market.

As a result of the above unfavourable development in the Philippine B&R industries, the country faces the challenge of ensuring that these industries continue to provide an important source of income and livelihood for the dependent sectors. These include the upland and forest communities that provide the raw materials and the rural and urban workers engaged in the production and marketing of NWFPs in small home-based and medium- to large-scale factories. Towards this end, these industries must take advantage of the available opportunities and face the challenges on both the domestic and global fronts and the supply and demand sides. On the demand side, the opportunities relate to the still growing B&R global market estimated at US\$11 billion. Demand for high-quality products in developed countries is expected to remain strong. The Philippines is in a good position to supply this market thanks to its competitive edge in craftsmanship for providing premium quality products for the medium- and high-end market segments. Trade liberalization provides opportunities for gaining greater market access not only in the country's traditional export markets but in the new markets of the Middle East and Eastern Europe. Because the major supply constraint is the shortage of basic raw materials, the Philippines needs to pursue concerted efforts in plantation development and in managing the remaining supplies in the natural forests, particularly for rattan. Current supply management efforts for B&R must be integrated into the existing and future community-based forest management programmes.

Support for research and development in production, processing and utilization must continue in key public research institutions. This must be complemented by private sector research to enhance production efficiency, product development and adaptation strategies in the sourcing and use of alternative raw materials. There should be continuing government support

in financing and marketing for small- and medium-scale enterprises, B&R.

Overall, a comprehensive and strategic course of action in order to remain competitive requires the following: effective raw material supply management; continuing R&D for product, process and market development; and favourable support systems (policy, institutions and infrastructure) in the entire value chain from government and private sectors.

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Ornamental rattans

In the Philippines, during garden shows and market days in the rural and urban areas, ornamental rattans, specifically *Calamus discolor* are usually displayed for sale. Along the national roads in the provinces of Laguna and Quezon, as well as in Nueva Viscaya, Ifugao and other communities in the Cordillera Provinces, ornamental rattans are included in their collections of orchids, ferns and other native ornamentals sold to tourists, motorists and other plant enthusiasts.

Some village people from these upland communities gather the rattan fruits of this species, extract the seeds, germinate them, grow them in small poly-bags and then sell. Others just collect the wildlings from the forests, pot them and sell.

Other rattan species that have potential as ornamentals include species belonging to the genus *Korthalsia* because of their beautiful fishtail-like leaves.

Income from ornamental rattans is not much, but can add to the livelihood of the community. [Source: A.M. Palijon and A.B.

Lapis. 2008. *Production of rattan fruits and their products as community enterprise*. A paper presented during INBAR's Global Rattan Forum, Haikou, Hainan Island, China. 8-11 January 2008.). Rattan Newsletter, ITTO, Philippines; ASEAN Rattan Project 4, 6 June 2008.)



KIE to research bamboo as an alternative energy source

Kigali. The Kigali Institute of Education (KIE) will be jointly involved with the University of Antwerp in Belgium in research on bamboo as an alternative energy source. The researchers will try to ascertain whether bamboo could be a dependable alternative source of energy to fossil fuel in order to reduce pollution.

Dr Geert Potters, a bioscience engineer and lecturer at the Belgian University, said that preliminary findings from research started two years ago proved that bamboo is a potential alternative energy. "Bamboo is chipped, then fermented and it produces biogas. It also reduces soil pollution," he added.

James Vuningoma, KIE Vice Rector said that currently in Rwanda bamboo is used to manufacture baskets and furniture, but research could lead to another commercial benefit to the country. (Source: *The New Times* [Rwanda], 28 November 2008.)



Kingdom to develop biodiversity strategy

Jeddah. The Council of Ministers yesterday decided to develop a national strategy for preserving biological diversity, involving the protection of all kinds of species, natural locations, hereditary resources and training human resources for its development. The existing National Committee for Biodiversity should develop the strategy, Culture and Information Minister Iyad Madani said in a statement to the Saudi Press Agency.

Custodian of the two holy mosques King Abdullah, who chaired the council meeting, said that the national committee should also prepare a database on the kingdom's biodiversity and classify all known types of environments, their geographic locations, their history and the changes that they have undergone or that may take place.

The Council of Ministers ordered the National Commission for Wildlife

Conservation and Development to set up a National Committee for the Programme of Man and the Biosphere, to undertake the preservation of biodiversity, including identifying locations for establishing biosphere reserves. (Source: *Arab News* [Saudi Arabia], 19 August 2008.)



Protecting livelihoods through mangroves

Mangroves, one of the world's richest ecosystems, are declining in Casamance, southern Senegal, and thinning forests spurred the Senegal-based non-profit Oceanium to plant 6 million mangrove trees in a bid to reverse deforestation, thereby boosting fish stocks and reviving livelihoods. Up to 15 000 youth from 130 villages helped with the two-month replanting effort, just completed, which was the first of its kind in Africa, according to Binetou Diagne, Oceanium's spokesperson. (Source: Ziguinchor, 14 October 2008 (IRIN).)



Honey production encouraged

Honey production has the potential to help the economy and rural farmers engaged in small and medium business activities. According to officials from the Ministry of Agriculture and Livestock, honey production in the country is currently very low because not many farmers are involved in the industry. They said more farmers must engage in honey production because the honey of the Solomon Islands is one of the best and there are also many honeybees.

"There is no need to import honey for sale in the shops if more farmers are engaged in the production of honey within their communities and homes," one officer said. "By producing and selling honey, people can earn their living." (Source: *Solomon Star* [Solomon Islands], 15 July 2008.)



Export marketing of Sudanese gum arabic

This policy note is a product of the Multi-Donor Trust Fund – National. This is one of the two trust funds established under the authority of the Comprehensive Peace Agreement (CPA), which was signed in January 2005. The trust funds that assist the Government of National Unity and the Government of Southern Sudan are both administered by the World Bank.

The Sudan is the world's largest producer of gum arabic, the dried exudate produced from the trunk and branches of the *Acacia senegal* tree, known as hashab or hard gum, and the *A. seyal* tree, known as talha or flaky gum. Gum arabic is one of the four important agricultural export commodities from the Sudan, along with livestock, cotton and sesame.

All the gum arabic produced in the Sudan, mostly hashab, is exported. However, considerable year-to-year variations and overall declining gum exports from the country – the consequences of two severe Sahelian droughts (in the mid-1970s and mid-1980s), political unrest and inadequate marketing arrangements – have resulted in the emergence of new gum-producing countries, chiefly Chad and Nigeria, which produce mostly talha.

Gum arabic is a pale white to orange brown solid that breaks with a glassy fracture. If stored properly, it stays unaltered for decades.

Over the last 20 years, gum arabic export values amounted on average to US\$40 million annually. Yet, over the last 15 years, the Sudan's share in the world markets has declined sharply and is now below 50 percent. World exports of talha are almost on a par with exports of hashab. While there has been government intervention in the marketing of all agricultural exports in the past, gum arabic is the only one for which government controls remain.

Importance of gum Arabic production to Sudanese rural people

The livelihoods of up to six million Sudanese people, who live in traditional

rained farming areas, where rural poverty is in the range of 65 to 90 percent, depend on gum arabic. Primarily produced by small-scale farmers (who give priority to food crop production, usually sorghum or millet, to secure family nutritional needs), gum arabic represents a crop diversification strategy to mitigate crop failure. In addition, the acacia tree's long lateral root system reduces soil and wind erosion. The tree has a regenerating impact on the land. However, gum arabic production does compete with food and cash crops for labour resources and land allocation.

Agricultural operations, including gum arabic harvesting, are primarily financed by village traders using the *sheil* system. The traders typically provide cash, seeds, tools and basic commodities (water, sugar, tea) for the households to get by during the "hunger gap". Farmers pay back in kind at prices determined early in the season and usually integrating significant credit charges.

Gum arabic is a complex polysaccharide that has food, pharmaceutical and technical applications; its known uses go back about 5 000 years. It is used for its properties as an emulsifier, thickener, binder, stabilizer and adhesive. It is believed that soft drinks and confectionery represent 70 percent of the demand for gum arabic.

National policies and structures

The current gum arabic marketing policy has not been beneficial to the majority of rural poor producers. This has led to reduced production and consequently exports, declining for the past 40 years at an average rate of 2.2 percent per annum.

One of the key commitments made recently by the Government of National Unity under the Joint Assessment Mission (JAM) framework was to "abolish the export monopoly" over raw gum arabic. This commitment has not been implemented.

However, the development of the processing industry over the last four years has resulted in increased domestic competition for raw gum and, in turn,

better prices paid to farmers as well as more value-added captured in the Sudan. This positive development comes at a propitious time as increased consumption of soft drinks and confectionery products, and the rapid development in health and dietetic products are boosting world demand for gum arabic.

The future of the Sudanese gum arabic industry

Decontrol of the gum arabic export market could increase export revenues for the Sudan and raise significantly the income of small-scale farmers. In addition to existing inadequate marketing arrangements, two issues that will have to be addressed by future policies and reform actions are the limited participation of gum producers in the development of the sector and a non-conducive business environment that does not favour private sector expansion. Recent developments in the domestic gum sector indicate the way forward: government support to producer associations has reaped good results and could be scaled up throughout the gum belt; the expansion of domestic processing, which resulted in better prices paid to farmers, also offers good prospects for reviving the sector.

The implementation of appropriate policies and investments to support improved gum processing and marketing will generate additional income for small-scale producers, thus contributing significantly to the Millennium Development Goal that calls for halving the share of populations suffering from extreme poverty and hunger. Such measures would also help increase the level of domestic value added, which would have a positive effect on the country's overall economic growth.

In addition to the necessary policy and institutional changes, the future of gum arabic is also tied to better management of natural resources. Innovations in carbon finance offer an exciting opportunity to use forestry as a means to promote rural and national development. But seizing this opportunity will require the political will to move forward with reforms that improve the governance of natural resources.

Ultimately, success in reforming the gum arabic sector will depend on concerted action with the international development community. It is necessary to level the domestic and international trade fields, provide improved public goods,

empower small-scale producers and address climate change. At stake are the livelihoods of millions of rural poor. (Source: Sudan Multi-Donor Trust Fund, MDTF-National Sector Policy Note, 31 December 2007.)

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An innovative conservation group working with indigenous tribes

Deep in the Suriname rain forest, an innovative conservation group is working with indigenous tribes to protect their forest home and culture using traditional knowledge combined with cutting-edge technology.

The Amazon Conservation Team (ACT) is partnering with the Trio, an Amerindian group that lives in the remote Suriname-Brazil border area of South America, to develop programmes to protect their forest home from illegal gold miners and encroachment; improve village health; and strengthen cultural ties between indigenous youth and elders at a time when such cultures are disappearing even faster than rain forests.

THE TRIO INDIGENOUS GROUP

The Trio (or Tiriyo) are a Carib-speaking indigenous group that lives in the forests of southern Suriname and bordering areas of Brazil, primarily in small- to medium-sized villages headed by a grandman or chief.

The Trio rely on small-scale slash-and-burn cassava (manioc) cultivation as their principal source of food. This starchy staple is supplemented with fish and game taken from surrounding rivers and forests. The forest provides them with other important resources, notably medicinal plants, building materials, and dyes and resins.



ACT is providing the Trio with equipment and training so that "indigenous park guards" can map – and thereby someday gain title – to their lands. The Trio use Global Positioning System (GPS) units to document geographic features as well as the location of hunting grounds, places of spiritual significance and sites rich with medicinal plants and other important resources. Key to the process is bridging the generation gap between indigenous elders and youths: the shaman provide the younger rangers with the historical and cultural information needed to add critical details to the maps. In addition to mapping, the indigenous park guards patrol forest areas for illegal activities, including mining and collection of wildlife for the pet trade.

ACT is also promoting the transfer of ethnobotanical knowledge to Trio children through the "Shaman's Apprentice Programme" where schoolchildren learn the traditional uses of medicinal plants. The programme is combined with an indigenous health clinic that operates next to a conventional health clinic. Both offer free services to villagers.

A critical part of these programmes are the village shaman, medicine men and women who serve as custodians of the immense biological knowledge of a people who have survived in the Amazon rain forest for generations. No-one understands the secrets of these plants better than these indigenous shaman but, like the forests themselves, this floral genius is fast disappearing as a result of deforestation and profound cultural transformation among younger generations. The combined loss of this knowledge and these forests irretrievably impoverishes the world of cultural and biological diversity. [Source: Mongabay.com [United States of America], 28 July 2008.]

THAILAND

AFM scents fragrant success

Asia Forestry Management Co. (AFM), Thailand's largest agarwood producer, plans to build up its brand overseas, aiming for growth at the same blistering pace as Red Bull. AFM founder Chokechai Lavichant aims to follow in the Red Bull founder footsteps by developing a presence in the export rather than domestic market. However, his company's production will be based in Thailand along with its agarwood plantations.

Overseas demand for agar oil extract is already on the rise, especially in the Middle East, where clients will pay almost any price for the oil, considered one of the best for making perfumes and fragrances in cosmetics. Beyond the Middle East, South Asia and Japan are also prominent markets, said Mr Chokechai, who adds that agarwood extract is a luxury product because of its limited availability.

Agarwood products are widely known as oud, the term used in the Middle East, where agarwood has been highly prized for centuries. The oil is also a base for fragrance production in Europe and is used in Japan's pharmaceutical industry. Agarwood residue is the main raw material for scented joss sticks.

In the global market, premium agar oil extract is priced between 5 000 and 8 000 baht per tora (12 cc) or 400 000–700 000 baht per litre.

AFM started to build its agarwood plantation four years ago after gathering financial support from private investors. It has just refined the first production of oil from the first crop of its agarwood plantation early this year. Mr Chokechai said AFM has its factory on a 500-rai (80 ha) agarwood plantation in Trat, which it plans to expand to double capacity to 1 000 tora a month.

Commercial production of agar was prohibited in Thailand for centuries. The trees that produce the valuable oil remained on a list of protected plants until seven years ago, when the country recognized the product's economic potential.

Since then, agarwood has become an industry. However, plantations require huge capital. "We managed to raise funds from investors last year by offering two options – a return of 21.4 percent for two years' investment and 168 percent for four years' investment," said Mr Chokechai. As

a result, the company gained its first capital of 20 million baht, which helped it to start manufacturing last year. Next year, it plans to raise an additional 50 million baht for the subsequent stage.

Mr Chokechai said that in natural conditions, agarwood takes from ten to 40 years to be productive, and that less than 5 percent of plants produce oil, depending on soil quality and humidity. But, with artificial cultivation, oil can be extracted within three years, making the business commercially viable.

The company has an agar oil export licence from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which guarantees its production will not cause deforestation.

Exim Bank's research division reported that the agarwood industry rose to an export value of 20 billion baht for Thailand during 2006–07. [Source: Bangkok Post [Thailand], 16 September 2008.]

TOGO

Promotion des plantes aromatiques et médicinales

L'OPPAM est un organisme de promotion des plantes aromatiques et médicinales du Togo créé pour aider les communautés de base à tirer profit de leur environnement par une meilleure utilisation de la biodiversité végétale.

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 TURKEY

Turkish valley to be developed as ecotourism area

The 40 000-ha Cehennem Dere Valley (Hell Stream Valley), which is home to rich flora and fauna, has been found highly suitable for a variety of ecotourism activities, such as trekking, terrain bicycling, flora discoveries and observation of natural life, according to the study by experts from the Eastern Mediterranean Forestry Research Institute and Istanbul University.

As part of Turkey's first ecotourism project, a group of experts has examined a forest of cedars and spruces in the Çamlıyayla district of the southern province of Mersin to determine its fitness as an ecological site.

Dr Ersin Yılmaz, Director of the Institute, said that the valley has been scientifically proved to be appropriate for seven types of ecotourism activities: observation of birds, flora discovery trekking, nature trekking, discovery trekking for NWFPs, discovery walking, bicycle tours and observation of wildlife. Of these, he said that observation of bird species has priority.

Pinus brutia (Turkish pine), *Pinus thunbergii* (black pine), the Taurus cedar and the Taurus spruce are major examples of foliage that make the valley an attractive spot for ecotourism, he added.

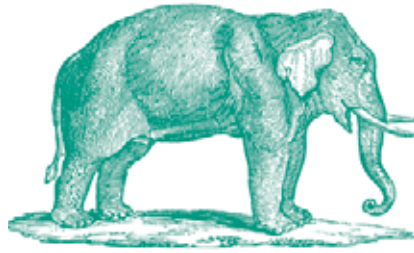
The valley is also home to various caves, cascades and geological forms. The project is expected to serve as a model for further projects in the field of ecological tourism in Turkey. [Source: Turkish Daily News (subscription) [Turkey], 25 July 2008.]

 UGANDA

Wildlife body in ecotourism venture

The Uganda Wildlife Authority (UWA) has signed an agreement worth US\$3 million (about US\$4 billion) with a German investor to manage wildlife that is not in gazetted parks.

Lillian Nsubuga, UWA publicist, said in a statement that the investor, Christian Weth, would invest in ecotourism and game farming in Luweero and Nakaseke districts, which have animals such as warthogs, leopards, bushbucks, hyenas and Uganda kobs. "There is huge potential for tourism, sport hunting and game farming in this area. We will bring tourists to see the animals," Weth said. He owns



the Uganda Wildlife Safaris, a tour and travel agency, which would work closely with district officials.

UWA Executive Director, Moses Mapesa, said UWA's task would be to attract people who are interested in vermin animals to hunt the animals. UWA is planning to extend the programme to other parts of Uganda, the statement added. [Source: New Vision [Kampala], 8 September 2008.]

 VIET NAM

Bamboo reserve promotes conservation, relaxation

The Phu An Ecological Bamboo Museum and Botanical Reserve, also known as the Phu An Bamboo Village, is a multipurpose centre promoting scientific research and ecosystem conservation while educating the local community about environmental protection and the value of ecotourism, said project head Dr Diep Thi My Hanh, a lecturer at the Ho Chi Minh City (HCMC) University of Natural Sciences.

In addition to providing a research centre and laboratory for students and academics, the reserve is also an ecotourism site, located in Binh Duong Province's Ben Cat Commune, some 30 km from HCMC.

The vast ecological reserve with its 130 bamboo species, including many rare varieties collected from every corner of the nation, is open for tourists. Its botanical garden is known for its gorgeous landscaping, brought to life with lush bamboo clusters and brilliantly coloured flowers.

The reserve also features a museum, which displays tools, musical instruments and art made out of bamboo, as well as an endangered species room where rare plants and insects are kept. There is also a small theatre where visitors can watch documentaries about bamboo. The site features a bamboo maze made of rare species.

The VND11 billion (US\$665 100) reserve, 12 km from the provincial capital of Thu Dau Mot, opened to the public last April and covers nearly 10 ha.

The project is a collaboration between the HCMC University of Natural Sciences, the Binh Duong Province administration and authorities from France's Rhone Alpes region and the Pilat Natural Reserve. [Source: Thanh Nien Daily [Viet Nam], 1 September 2008.] ♣



Enthusiasm is the best protection in any situation. Wholeheartedness is contagious. Give yourself, if you wish to get others.

David Seabury

AFRICAN "WALL OF TREES" GETS UNDER WAY

Three years after it was first proposed, preparations for an African "wall of trees" to slow down the southwards spread of the Sahara desert are finally getting under way. The "Great Green Wall" will involve several stretches of trees from Mauritania in the west to Djibouti in the east, to protect the semi-arid savannah region of the Sahel – and its agricultural land – from desertification.

A plan for the proposed US\$3 million, two-year initial phase of the project – involving a belt of trees 7 000 km long and 15 km wide – was formally adopted at the Community of Sahel-Saharan States (CEN-SAD) Summit on Rural Development and Food Security in Cotonou, Benin, last month (17–18 June).

North African nations have been promoting the idea of a green belt since 2005. The project has been scaled down to reinforce and then expand on existing efforts, and will not be a continent-wide wall of trees, despite the name of the project.

The Great Green Wall will involve two planting projects on the east and west sides of Africa. The Permanent Interstate Committee for Drought Control in the Sahel (CILSS) is working with scientific consultants and representatives from the arid nations of Burkina Faso, Mali, Mauritania, the Niger, Nigeria and Senegal to launch pilot planting projects planned for September 2008. Another planting programme, including Chad, Djibouti, Eritrea, Ethiopia and the Sudan, should be finalized within two months under the auspices of six states in the Horn of Africa, linked through the Intergovernmental Authority on Development (IGAD).

Mariam Aladji Boni Diallo, the Benin-based president of the CEN-SAD summit organizing committee, says she hopes the Great Green Wall will consist of more than just trees. Diallo told SciDev.Net that "reforestation, restoration of natural resources and the eventual development of fishing and livestock breeding" were priorities for the project. However, she said that funding for the project was still tentative.

The United Nations Educational, Scientific and Cultural Organization (UNESCO)-linked non-profit Observatory of the Sahara and the Sahel has prepared a report on the project, saying the labour-intensive project should be used to create employment but advising that payments be partly withheld for two years until the trees are established, and that payment be based on plant growth.

The project will be monitored from Tripoli by CEN-SAD, and Senegal will provide "close technical cooperation" because of its success in fighting desertification. (*Source: SciDev.Net Weekly Update, 7–13 July 2008.*)

CONGO BASIN PASSES 1 MILLION HA MILESTONE IN SWING TO SUSTAINABLE FORESTRY

Yaoundé, Cameroon. Over one million ha of Congo Basin forests have now achieved certification under the world's leading sustainable forestry scheme.

The world's second largest block of rain forests, the Congo Basin, is a haven for indigenous peoples and endangered species. It is also important in sequestering carbon and safeguarding water supply and quality Forest Stewardship Council (FSC)

certification has been granted for forestry operations on 1.2 million ha, a significant step towards the World Wide Fund for Nature's (WWF's) Green Heart of Africa network initiative goal of certifying 50 percent of production forest in the Congo Basin. The certification involves logging companies SEFAC, Transformation Reef Cameroon (TRC) and WIJMA in Cameroon and CIB in the Republic of the Congo. To promote responsible forest management and trade in the Congo Basin, WWF-Central Africa Regional Programme Office (CARPO) has set up the Central Africa Forest and Trade Network (CAFTN), a part of WWF's Global Forest and Trade Network (GFTN), which provides support and guidance to logging companies to help them understand better how good logging practices can contribute to the conservation of biodiversity, improve local livelihoods and lead to a market advantage.

By 2012, WWF expects that 7 million ha of forest in the Congo Basin will be under certification while another 5 million ha will be progressing towards credible certification. (*Source: ENN News, 4 August 2008.*)

ECUADOR'S CONSTITUTIONAL ASSEMBLY VOTES TO APPROVE RIGHTS OF NATURE IN NEW CONSTITUTION

On 7 July 2008, the Ecuador Constitutional Assembly voted to approve articles for the new constitution recognizing rights for nature and ecosystems. "If adopted in the final

constitution by the people, Ecuador would become the first country in the world to codify a new system of environmental protection based on rights," stated Thomas Linzey, Executive Director of the Community Environmental Legal Defense Fund.

"Ecuador is now leading the way for countries around the world to make this necessary and fundamental change in how we protect nature," added Mari Margil, Associate Director of the Legal Defense Fund.

Over the past year, the Legal Defense Fund has been invited to assist delegates to the Ecuador Constitutional Assembly to rewrite the country's constitution. Delegates requested that the Legal Defense Fund draft proposed Rights of Nature language for the constitution, based on ordinances developed and adopted by municipalities in the United States of America.

These local laws recognize that natural communities and ecosystems possess an inalienable and fundamental right to exist and flourish, and that residents of these communities possess the legal authority to enforce their rights on behalf of these ecosystems. In addition, these laws require local governments to remedy violations of such ecosystem rights.

In essence, these laws represent changes to the status of property law, eliminating the authority of a property owner to interfere with the functioning of ecosystems and natural communities that exist and depend upon that property for their existence and for flourishing. The local laws allow certain types of development that do not interfere with the rights of ecosystems to exist and flourish. (*Source: The Community Environmental Legal Defense Fund via the Community Forestry Resource Center (CFRC) Weekly Summary, 17 July 2008.*)

FOREST HOT SPOTS PINPOINTED FOR CLIMATE, ANIMALS

Poznań. A UN atlas pinpointed on Friday parts of forests from the Amazon to Madagascar where better protection could give the twin benefits of slowing global warming and preserving rare wildlife.

The atlas, issued at the 1-12 December UN climate talks in Poznań, Poland, identified hot spots with a high diversity of animals and plants in forests that were also big stores of carbon dioxide – the main greenhouse gas – in trees and soils. (*Source: Reuters in ENN Daily Newsletter, 5 December 2008.*)

FORESTRY TAKES ON THE CLIMATE CHANGE CHALLENGE

Poznań. To ensure that sustainably managed forests play a key role in mitigating the negative effects of climate change, a new strategic framework is being launched by 14 international organizations known as the Collaborative Partnership on Forests.

Aimed at policy-makers and those involved in the global forest sector, the strategic framework will assist countries to take up climate change mitigation and adaptation measures. These measures include the conservation of genetic variation, reduced impact logging and policies that ensure effective management responses to ecological change. The new framework supports the United Nations Framework Convention on Climate Change (UNFCCC).

Forests cover nearly one-third of the earth's land surface and account for almost half of its terrestrial carbon pool. Total carbon in forests was estimated at 633 giga tonnes in 2005 – equivalent to 160 tonnes of carbon per hectare, according to the FAO Global Forest Resources Assessment.

Deforestation (primarily caused by agricultural expansion and urban and infrastructure development), forest degradation and other changes in forests contribute 17.4 percent to global greenhouse gas emissions, mainly in tropical developing countries.

"Sustainable forest management has a significant strategic role in achieving long-term climate change mitigation and it provides a robust framework for effective adaptation. This goes far beyond traditional management and includes conservation of biodiversity, support to livelihoods, provision of a range of forest goods and services, and issues related to governance and financing," says Jan Heino, Chairperson of the Collaborative Partnership on Forests and FAO Assistant Director-General for Forestry.

The strategic framework of the Collaborative Partnership on Forests lays the groundwork for a coordinated forest sector response to the global climate change agenda and offers guidelines to all forest-related policy-makers and practitioners. Its strength comes from its cooperative formation by the world's major forest organizations. (Source: FAO Newsroom, 5 December 2008.)

NATURE LOSS "DWARFS BANK CRISIS"

Barcelona. The global economy is losing more money from the disappearance of forests than through the current banking crisis, according to an EU-commissioned study.

It puts the annual cost of forest loss at between US\$2 trillion and US\$5 trillion. The figure comes from adding the value of the various services that forests perform, such as providing clean water and absorbing carbon dioxide.

The study, headed by a Deutsche Bank economist, parallels the Stern Review into the economics of climate change. It has been discussed during many sessions here at the World Conservation Congress.

Some conservationists see it as a new way of persuading policy-makers to fund nature protection rather than allowing the decline in ecosystems and species, highlighted in the release on Monday of the Red List of Threatened Species, to continue.

Speaking to BBC News, study leader Pavan Sukhdev emphasized that the cost of natural decline dwarfs losses on the financial markets. "It's not only greater but it's also continuous, it's been happening every year, year after year," he said. "So whereas Wall Street by various calculations has to date lost, within the financial sector, US\$1-1.5 trillion, the reality is that at today's rate we are losing natural capital at least between US\$2-5 trillion every year."

The review that Mr Sukhdev leads, *The Economics of Ecosystems and Biodiversity (Teeb)*, was initiated by Germany under its recent EU presidency, with the European Commission providing funding.

The first phase concluded in May when the team released its finding that forest decline could be costing about 7 percent of global GDP. The second phase will expand the scope to other natural systems.

Key to understanding his conclusions is that, as forests decline, nature stops providing services that it used to provide essentially for free. So the human economy either has to provide them instead, perhaps through building reservoirs, building facilities to sequester carbon dioxide, or farming foods that were once naturally available. Or we have to do without them; either way, there is a financial cost.

The Teeb calculations show that the cost falls disproportionately on the poor, because a greater part of their livelihood depends directly on the forest, especially in tropical regions.

The greatest cost to Western nations would initially come through losing a natural absorber of the most important greenhouse gas. (Source: BBC News, 10 October 2008.)

RAIN FOREST CONVERSION TO OIL-PALM CAUSES 83 PERCENT OF WILDLIFE TO DISAPPEAR

Conversion of primary rain forest to oil-palm plantations results in a loss of over 80 percent of species, reports a new review of the impacts of oil-palm production.

"By compiling scientific studies of birds, bats, ants and other species, we were able to show that on average, fewer than one-sixth of the species recorded in primary forest were found in oil-palm," said lead author Emily Fitzherbert from the Zoological Society of London and University of East Anglia in the United Kingdom. "Degraded forest, and even alternative crops such as rubber and cocoa, supported higher numbers of species than oil-palm plantations."

The results confirm that oil-palm plantations are a poor substitute for natural forests when it comes to conservation of biological diversity.

Despite the availability of large tracts of degraded and abandoned land, Fitzherbert notes that problems of "political inertia, competing priorities and lack of capacity and understanding, not to mention high levels of demand for timber and oil-palm from wealthy consumers" make forest clearance cheaper and easier. "Unless these conditions change quickly, the impacts of oil-palm expansion on biodiversity will be substantial," the authors conclude.

(Citation: Emily B. Fitzherbert, Matthew J. Struebig, Alexandra More, Finn Danielsen, Carsten A. Brühl, Paul F. Donald and Ben Phalan. How will oil-palm expansion affect biodiversity? *Trends in Ecology and Evolution*, 23(10): 538-545. October 2008.) (Source: mongabay.com, 15 September 2008.) ♣



Who is so deaf or so blind as he that willfully will neither hear nor see?
English proverb



FORESTRY DEPARTMENT

COFO 2009/World Forest Week: "Forests in a changing world"



The Committee on Forestry (COFO) is the highest FAO forestry statutory body. The biennial sessions of COFO (held at FAO headquarters in Rome, Italy) bring together heads of forest services and other senior government officials to identify emerging policy and technical issues, to seek solutions and to advise FAO and others on appropriate action. Other international organizations and, increasingly, non-governmental groups participate in COFO.

Participation in COFO is open to all FAO member countries.

The two main themes of COFO 2009/World Forest Week are:

- Sustainable forest management and climate change
 - Keynote: Gro Harlem Brundtland, Nobel Laureate
 - Presentations by heads of the Collaborative Partnership on Forests on the CPF Strategic Framework for Forests and Climate Change
 - Financing sustainable forest management (SFM) and Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD)
 - Local forest management: the key to REDD success
 - Ecosystem-based adaptation to climate change
 - Fire and climate change
- Institutional change in a dynamic world
 - Heads of Forestry dialogue: managing change
 - Who are our customers, and what are their needs?
 - The future of forestry research and education
 - Impacts of economic turbulence on the forest sector

There will also be sessions covering policy and information issues, including: Collaborative Partnership on Forests Regional Forestry Commission bureaux;

Fire Management Actions Alliance and International Liaison Committee; UNFF Ad Hoc Expert Group on Finance; FRA Advisory Group; World Forestry Congress External Advisory Group; and Advancing SFM – a review of project experience.

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Spotlight on forest monitoring – remote sensing and field inventories to monitor forests worldwide

With global concern growing over deforestation, loss of carbon stored in forests and the role of forests in climate change, forest monitoring has grown in importance in a bid to safeguard forests and monitor emissions from deforestation.

During last year's G-8 Summit, world leaders "encouraged actions for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) including the development of an international forest monitoring network building on existing initiatives". The links between forests and climate change was also discussed at the climate change meetings in Poznań, Poland in December 2008. (Please also see page xxx.)

In 2008, countries and FAO reconfirmed their commitment to prepare jointly the next Global Forest Resources Assessment (FRA), a comprehensive data collection on the state of the world's forests, scheduled for release in 2010.

As part of FRA 2010, FAO, its member countries and partner organizations will undertake a global remote sensing survey of forests. The assessment will cover the whole land surface of the Earth, with over 10 000 samples. The FRA 2010 survey will generate:

- baseline information at the global and regional level on trends in rates of deforestation, afforestation and natural expansion of forests over the past 30 years;



- a global framework and common methodology for monitoring forest change;
- an information gateway providing easy access to remote sensing imagery;
- enhanced capacity in all countries for monitoring, assessing and reporting on forests and land use changes.

"The need to improve national forest monitoring is overwhelming as the demand for information has never been greater," noted Jan Heino, FAO Assistant Director-General for Forestry: "National policy processes are striving to address cross-cutting issues such as poverty alleviation and food security related to forests."

FRA 2010 will improve the capacity of all countries to self-monitor. Both FRA and FAO's national forest monitoring and assessment (NFMA) programmes strengthen the ability of developing countries to manage their information base to improve knowledge on social, economic and environmental aspects of forests. A global network of forest monitoring specialists in 176 countries shares information and experiences. National experts lead the assessments. Field teams carry out all fieldwork and national experts interpret remote sensing imagery.

"Deforestation continues at an alarming rate of about 13 million ha annually at the global level. By combining remote sensing technology with field data collection, we improve the quality of both methods. This provides more accurate information on forest trends and new information on the drivers of deforestation and forest degradation," concludes Jan Heino.

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FAO IN THE FIELD

Formulation d'une stratégie nationale de promotion et de valorisation des Produits Forestiers Non Ligneux (projet TCP/BKF/3201)

Au Burkina Faso, pays Sahélien, ce sont les produits forestier non ligneux (PFNL) qui constituent une importance capitale dans la vie quotidienne des populations, d'abord dans sa valeur primaire comme aliment très nutritif ou remède contre les maladies, mais aussi sur le plan économique car ils contribuent entre 16 et 27 pour cent du revenu des femmes rurales, fait encore plus important car ces femmes utilisent ces revenus pour fournir une meilleure alimentation et scolarité à leurs enfants. (A noter que les amandes de karité (un PFNL) représentent le troisième produit d'exportation du Burkina Faso.)

Récemment, plusieurs organismes de coopération technique présents au Burkina Faso ont inscrit la promotion des PFNL dans leurs priorités.

La FAO, en 2004-2006, a appuyé le projet pilote Analyse et développement des marchés (ADM) de micro-entreprises de promotion des PFNL, un partenariat entre le Ministère de l'environnement, l'ONG Tree Aid et elle-même. C'est, par ailleurs, cette expérience qui a révélé la nécessité de disposer d'une stratégie nationale en matière de PFNL, et qui a déclenché la requête du Gouvernement burkinabé auprès de la FAO pour ce projet qui commence aujourd'hui. En 2007, une autre initiative FAO dénommée *Forest Connecta Burkina Faso* a été mise à l'ordre du jour, dans le but d'appuyer les petites entreprises basées sur les produits forestier non ligneux. *Forest Connecta* a l'intention de servir de réseau national de communication et s'adresse surtout au problème d'isolement des petits entrepreneurs forestiers, isolement qui fait qu'ils ne se connaissent pas entre eux et n'ont aucune influence sur les politiques forestières, qu'ils ont des difficultés à accéder aux marchés, et que les prestataires de services s'intéressent peu à eux.

Malgré l'intérêt actuel porté aux PFNL au Burkina Faso, il subsiste un certain nombre de contraintes d'ordre social, légal, politique et scientifique. A savoir: les possibilités économiques ont entraîné des interventions disparates avec le risque de destruction de la base des ressources

naturelles impliquées et l'inorganisation des filières PFNL, souvent faite dans un cadre informel ou peu structuré. Quant aux technologies de collecte et de transformation, elles restent artisanales et souvent laborieuses pour les producteurs et productrices, et la sous-évaluation de la contribution des PFNL dans l'économie nationale a eu comme résultat immédiat un manque d'appui politique au secteur, un manque de textes législatifs spécifiques aux PFNL et une faible approche multidisciplinaire.

Pour toutes ces raisons, le Gouvernement du Burkina Faso a présenté une requête auprès de la FAO pour appuyer le développement et la mise en œuvre d'une stratégie nationale pour les PFNL et adapter le cadre national juridique correspondant, en vue de coordonner les initiatives, d'harmoniser les interventions des différents acteurs et d'offrir un cadre approprié de promotion et de valorisation des PFNL pour le bénéfice direct des populations les plus pauvres.

La FAO se réjouit de voir l'intérêt sincère démontré par les différentes parties prenantes. La réussite de ce projet ambitieux dépend largement de leurs disponibilités et de leur enthousiasme de porter à terme les objectifs établis.

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Enhancing the contribution of non-wood forest products to poverty alleviation and food security in Central African countries (project GCP/RAF/441/GER)

The Congo Basin is among the world's major reservoirs of biological diversity and is the home of some 60 million people. The agricultural resource base is poorly developed and insufficient to feed the fast expanding population. The forest sector plays an essential socio-economic role in the Congo Basin countries and provides a significant direct contribution to the food and income-generation needs of the rural people. Poor people, and particularly women, gather edible plants, bushmeat, insects, rattan and other non-wood resources for their subsistence and for income. However, the fast increasing



commercial exploitation of several NWFPs in the region is not only threatening the survival of many species but also the livelihoods of the poorest of society.

A key to improve the food security for forest-dependent people in Central Africa is to have appropriate and socially equitable legislation elaborated, tested and implemented. An example of such a set of legislation (called "subregional directives") has been developed through the German funded project "Enhancing food security through sustainable use of non-wood forest products in Central Africa" (GCP/RAF/398/GER), which was operational from 2005 to 2008.

The Central African Forests Commission (COMIFAC) Executive Secretariat and its member countries have officially endorsed these subregional directives and requested support from FAO for their implementation in all Congo Basin countries.

The Government of Germany has recently pledged additional support of US\$3.8 million for a new three-year FAO-implemented regional forestry project "Enhancing the contribution of non-wood forest products to poverty alleviation and food security in Central African countries" (GCP/RAF/441/GER), which will help COMIFAC and the Governments of Gabon, the Central African Republic and the Republic of the Congo to implement national level policies and legislation aiming at improving the food security and livelihoods of forest-dependent people through a more sustainable and socially equitable use of forest-gathered NWFPs. At pilot sites, the project will strengthen NWFP-based small- and medium-scale enterprises to benefit poor, local communities by promoting more value-added processing, marketing and by capacitating producers' support networks. The project will also better integrate NWFPs into national level socio-economic planning processes and strategies for poverty alleviation, food security and the right to food.

The Governments of Cameroon and the Democratic Republic of the Congo already receive FAO support for their implementation at the national level (through the ongoing project GCP/RAF/408/ECV), while assistance to the other COMIFAC member countries is envisaged with the support of the Congo Basin Forest Fund.

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THE XIII WORLD FORESTRY CONGRESS

The first World Forestry Congress was held in Rome in 1926 and since then has generally taken place every six years under the auspices of FAO and organized by the government of the host country.

The previous XII World Forestry Congress, held from 21 to 28 September 2003 in Quebec, Canada, attracted 4 061 participants from more than 140 countries. The main output of the congress, the Final Statement, identified areas of priority concern to encourage decisions and actions by those involved in various aspects of forests and forestry, and in other related sectors, including NWFPs. In eastern Canada, for example, not only are the forests a source of materials for fuel and shelter, but also of food and medicine with more than 170 plant species documented as food sources.

For the XIII World Forestry Congress, Argentina has been selected to host the



event, which will be held in its capital city of Buenos Aires from 18 to 25 October 2009. The theme of this XIII Congress, *Forests in development: a vital balance*, will be tackled from the social, environmental and economic perspectives, thus providing an opportunity to analyse the various functions of the natural resources in local, regional and global contexts.

In particular, this event constitutes a forum for sharing knowledge and experience from developed and developing countries, regarding the conservation, management and use of the world's forests, and covers issues such as the international dialogue, socio-economic and institutional aspects, and forest policies.

A DVD showing Argentina and its forests has been produced by the Congress organizers and is available in eight languages (English, French, Spanish, Italian, Russian, Portuguese, Arabic and Chinese). Copies are available from the address below.

Internationally, renewed speakers will be called upon, representing academic and scientific organizations, the private sector, civil society, indigenous and rural communities, and public institutions connected with the forest sector, with the aim of offering a comprehensive, global view of forests.

Prominent guest speakers will treat conceptual aspects in plenary sessions concerning the seven thematic areas of the Congress and, in high-level round tables, covering issues of particular concern today, such as "forests and energy" and "forests and climate change" will be discussed.

Experts from every part of the world will have an opportunity to present voluntary papers also directly related to NWFPs, in the context of biodiversity conservation, small-scale forest enterprises, community forestry or trade and discuss them in simultaneous technical sessions under the various thematic areas of the programme.

Thus, the XIII Congress provides a unique and timely opportunity to examine the subject of trees and forests, with their multiple functions and role as suppliers of NWFPs and their social, economic and cultural contributions to sustainable development.



FOR MORE INFORMATION, PLEASE CONTACT:

Mr Olman Serrano (Associate Secretary General) or Francesca Felicani Robles (Legal Consultant-Assistant), XIII World Forestry Congress, FAO Forestry Department, Viale delle Terme di Caracalla, 00153 Rome, Italy.
Fax: +39-0657055137; www.wfc2009.org/

INTERNATIONAL YEAR OF NATURAL FIBRES 2009

The International Year of Natural Fibres (IYNF) will be officially launched at FAO in Rome on 22 January 2009.

The objectives of this special initiative are to:

- raise awareness and stimulate demand for natural fibres;
- promote the efficiency and sustainability of the natural fibre industries;
- encourage appropriate policy responses from governments to the problems faced by natural fibre industries;
- foster an effective and enduring international partnership among the various natural fibre industries.

A newsletter is being produced by IYNF. To subscribe, please send an e-mail to mailserv@mailserv.fao.org, leave the subject line blank, and put the text *subscribe IYNF-2009-L* in the body of the message.

FOR MORE INFORMATION, PLEASE CONTACT:

Brian Moir, FAO, Trade and Markets Division (EST), Room D860, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: IYNF-2009@fao.org; www.naturalfibres2009.org/

**When planning for a year, plant corn.
When planning for a decade, plant trees.
When planning for life, train and educate people.**

Chinese proverb



EUROPEAN FOREST WEEK
EUROPEAN COUNTRIES
20-24 OCTOBER 2008

The European Forest Week was marked by events in Brussels, Rome and throughout Europe. The week highlighted the contribution of European forests in mitigating the effects of climate change, providing wood and renewable energy, promoting freshwater supply and protecting the environment.

The European Forest Week, declared by ministers responsible for forests in 46 European countries, is jointly organized by the European Commission, FAO, the Ministerial Conference on the Protection of Forests in Europe and the United Nations Economic Commission for Europe, in close collaboration with the Presidency of the Council of the European Union (EU) at the time of the event, France.

Rome events (21-24 October) featured discussions on forests and climate change, energy, water and "working together for forests". Brussels events included a high-profile EU Presidency event (20 October), programmes by other European stakeholders and the European Economic and Social Committee (23 October). In country activities held simultaneously in participating countries throughout the region highlighted the means of fully utilizing the potential of European forests.

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FOR MORE INFORMATION, PLEASE CONTACT:
efw@unece.org; www.europeanforestweek.org/



CULTIVATED AGARWOOD IN VIET NAM: A GUIDED FIELD TOUR OF SUCCESSFUL AGARWOOD PRODUCTION IN THE MEKONG DELTA
VIET NAM
1-4 NOVEMBER 2008

Organized by Seven Mountains Co. Ltd, Viet Nam, this field trip and seminar in An Giang Province focused on agarwood inducement technology, plantation management, processing, markets, yields and products.

For over 14 years, the Seven Mountains Region in An Giang Province has been the research site for cultivated agarwood development. Seven Mountains Co. Ltd has now started cultivated agarwood commercial operations in the area. It was at this rural location in the heart of the *Aquilaria* plantations that this agarwood

seminar and plantation field trip were conducted to provide in-depth information on the latest results and trends in cultivated agarwood development.

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FOR MORE INFORMATION, PLEASE CONTACT:
dungnguyen@baynui.com/
(For additional information on international cultivated agarwood development, please see CA Companies updated Web site at:
<http://cultivatedagarwood.com/>)



IUFRO CONFERENCE ON GENDER AND FORESTRY. GENDER ISSUES IN NATURAL RESOURCES MANAGEMENT – PERCEPTION AND EXPERIENCES IN DIFFERENT PARTS OF THE WORLD
DEHRA DUN, INDIA
16-19 NOVEMBER 2008

On behalf of the International Union of Forest Research Organizations (IUFRO) units Gender Research in Forestry and Education, and Gender and Forestry, the Forest Research Institute (FRI), Dehra Dun, India, hosted this conference.

The conference explored experiences with gender sensitivity and gender analysis in forest management and organizations in the forestry sector as well as challenges to the sustainable livelihoods of forest dwellers and users all over the world.

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FOR MORE INFORMATION, PLEASE VISIT:
www.iufrogenderindia.info



CLIMATE CHANGE AND SUSTAINABLE LIVELIHOODS
GUILDFORD, UNITED KINGDOM
20 NOVEMBER 2008

The diminishing wood resource and restrictions imposed on felling in natural forests have focused world attention on the need to identify a substitute material that should be renewable, environmentally friendly and widely available. In view of its rapid growth, a ready adaptability to most climatic and soil conditions and properties comparable with many fast growing woods, bamboo emerges as a very suitable alternative.

Climate Change and Sustainable Livelihoods included a success story of an integrated bamboo development programme to create sustainable livelihood opportunities for the rural poor of India. The core activity was the cultivation of bamboo under plantation conditions and the complete utilization of bamboo, using both traditional methods and high technology processes.

The design and implementation of the programme focused on the support needed for the beneficiaries to achieve their livelihood goals, within an overall framework of environmental and economic sustainability.

Lionel Jayanetti, speaker at the event, has been working mainly on the use of renewable building materials, specializing in bamboo development as a sustainable livelihood for the poorest of the poor in the developing world.

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FOR MORE INFORMATION, PLEASE CONTACT:
Lionel Jayanetti, TRADA, Stocking Lane, Hughenden Valley, High Wycombe HP14 4ND, United Kingdom. E-mail: ljayanetti@trada.co.uk



9TH NATIONAL CONFERENCE ON SCIENCE, POLICY AND THE ENVIRONMENT: BIODIVERSITY IN A RAPIDLY CHANGING WORLD
WASHINGTON DC, UNITED STATES OF AMERICA
8-10 DECEMBER 2008

There is an urgent need for scientists, conservationists and policy-makers to re-examine the biodiversity issue. We must look both retrospectively at a quarter century of "modern" conservation efforts – what has worked well and what has not, but also prospectively at the greater challenges of the next quarter century. We need to look broadly at the many scientific discoveries and the many issues involving the use, abuse and conservation of biodiversity, including cultivated as well as wild species and ecosystems.


This National Council for Science and the Environment (NCSE) conference brought together some 1 000 scientists, conservationists and policy-makers to develop a strategy to guide a new United States administration and others working to conserve biodiversity around the world.

It developed an approach for biodiversity management and conservation in a twenty-first century context, including: strategies for biodiversity, conservation and sustainable utilization; scientific needs for understanding biodiversity values, losses and consequences; and expanding understanding: information, education and communication.

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FOR MORE INFORMATION, PLEASE CONTACT:
Dr David Blockstein, National Council for Science and the Environment (NCSE), 1101 17th Street NW, Suite 250, Washington DC, 20036, United States of America. Fax: 202-628-4311; e-mail: david@ncseonline.org/; http://ncseonline.org/conference/biodiversity/

 **COFO 2009/WORLD FOREST WEEK**
 ROME, ITALY
 16-20 MARCH 2009

(Please see page 58 for full information on this event.)

 **SHEA 2009: OPTIMIZING THE GLOBAL VALUE CHAIN**
 OUAGADOUGOU, BURKINA FASO
 25-27 MARCH 2009

Between 2004 and 2008 the shea industry has effectively doubled. How will we continue that growth while addressing key challenges?

Firms from more than 12 African countries will join experts, international buyers and regional service providers to explore fundamental and cutting-edge issues in the shea industry. Topics to be discussed include: environmental and social issues; production sales; product quality and management of shea parklands; impact of cultivation of biofuel crops; consumer trends; quality standards and regulation; and value of an industry alliance.

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FOR MORE INFORMATION, PLEASE CONTACT:
Vanessa Adams (Director) or Dr Peter Lovett (Shea Butter Technical Advisor), West Africa Trade Hub, 4th Street, Kuku Hill, Osu, Accra, Ghana. E-mail: plovett@watradehub.com; www.watradehub.com; www.globalshea.org/



HONEY – THE SWEET STUFF BECOMING A SOUR ISSUE – INTERNATIONAL CONFERENCE
 GLOUCESTERSHIRE, UNITED KINGDOM
 26-27 MARCH 2009

Honeybee numbers in the world are dropping for understandable reasons: habitat loss and fragmentation, infestation of apiaries by parasites and widespread use of agricultural chemicals, including industrial pollution. Being animal keepers and food producers, beekeepers have to follow the legal prescriptions.

This conference will not only cover honeybee reductions around the world, pesticide and antibiotics excessive usage issue, guidelines and regulations updates, authenticity and adulteration problems, but it will also educate and create awareness of practices in different countries, new developments on the markets, clean labels and sugar substitution, food safety aspects and many more.

Our speakers will cover different areas of concern and approaches from beekeeping farms, factories, processing plants, manufacturing processes, retailers' perception, legal labelling issues, consumer analysis, laboratories and bee inspectors' view.

The conference will be filled with real life case studies and guidelines on food safety, sustainability and global sourcing.

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FOR MORE INFORMATION, PLEASE CONTACT:
Campden and Chorleywood Food Research Association, Chipping Campden, Gloucestershire GL55 6LD, United Kingdom. Fax: +44 (0) 1386 842100; e-mail: info@campden.co.uk



SECOND WORLD CONGRESS OF AGROFORESTRY (INCLUDING SPECIAL SESSION ON NTFPS)
 NAIROBI, KENYA
 23-28 AUGUST 2009

NTFPs have long been collected for food, medicine, income and pleasure, and play an important role in rural households. Some have well-established domestic and international markets. Peoples from around the world have been nurturing native plants found in their forest lands for these products. In recent years, concerns have been raised about the sustainability of these resources

because of reduced habitat and possible overharvesting. Today, forest farming is promoted and recommended for ecological and economic reasons, to provide alternative income sources while conserving forested landscapes.

There will be a special session topic at the Second World Congress of Agroforestry focusing on NTFPs, namely: Forest Farming in Temperate Climates with Non-Timber Forest Products: Opportunities, Challenges, and Solutions. This session will explore research and extension activities that promote opportunities and address challenges in producing NTFPs through forest farming in temperate climates.

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FOR MORE INFORMATION, PLEASE CONTACT:
Jim Chamberlain, Ph.D., CF, Research Scientist, Non-Timber Forest Products, US Forest Service, SRS-4352, National Agroforestry Center, 1650 Ramble Road, Blacksburg, VA 24060, United States of America. Fax: +1-540-231-1383; e-mail: jachambe@vt.edu or jchamberlain@fs.fed.us; www.sfp.forprod.vt.edu or www.srs4702.forprod.vt.edu/

 **INTERNATIONAL TRADITIONAL AND DESIGNER BASKETRY COMPETITION**
 TENERIFE, CANARY ISLANDS
 4-6 SEPTEMBER 2009

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FOR MORE INFORMATION, PLEASE VISIT:
www.pinolere.org

 **XIII WORLD FORESTRY CONGRESS**
 BUENOS AIRES, ARGENTINA
 18-25 OCTOBER 2009

(Please see page 60 for full information on this event.) ♣





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From the Blue Mountains of India to the islands of Indonesia, the experiences of local communities that depend on non-timber resources from forests for their livelihood come alive. Part manual and part storybook, this publication aims to share insights as well as lessons learned by the partners of the Non-Timber Forest Products Exchange Programme that are engaged in NTFP enterprise development.

It is hoped that more forest-based communities across Asia will find the inspiration in this publication to embark on innovative enterprises using the resources sustainably within their locality. To obtain a copy, please e-mail publications@ntfp.org

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This report synthesizes the literature on the role of informal economic activity in the United States of America's post-industrial economy. The NTFP sector serves as a case study of why it is important to consider informal economic activity when developing natural resource and economic development policy. We recommend steps policy-makers can take to identify and encourage positive aspects of the informal economic activity. We also highlight several areas of research to improve understanding of the role of informal economic activity in post-industrial societies. To request a free printed version, please visit: www.fs.fed.us/pnw/publications/order.shtml.

Download a digital version (PDF): www.treesearch.fs.fed.us/pubs/30182. Direct download link: www.fs.fed.us/pnw/pubs/pnw_gtr680.pdf

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OTHER RECENT PUBLICATIONS



Gestion durable des produits forestiers non ligneux dans la concession forestière de Pallisco. Étude pilote sur les techniques d'exploitation forestière 24. FAO, Rome, Italie. Cette publication réunit et synthétise deux études plus détaillées commanditées par la FAO entre juin 2007 et avril 2008 et publiées sous la forme de document de travail. Il s'agit de l'*Évaluation quantitative de la disponibilité des PFNL dans deux unités forestières d'aménagement (UFA) de la concession forestière de Pallisco et ses partenaires* et l'*Évaluation qualitative des PFNL*. Le projet, dans le cadre duquel ont été effectuées les deux études, a été réalisé avec l'aide financière du Fonds mondial pour la nature (WWF), de la société Pallisco Sarl et de la FAO.

POUR PLUS D'INFORMATIONS CONTACTER:
Simmone A. Rose, Forestier, Division des produits forestiers et des industries forestières, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italie. Courriel:
Simmone.Rose@fao.org

Natural dyes: sources, tradition, technology and science

At a time when more and more plants and animals are threatened with extinction by humanity's ever-increasing pressure on the land and oceans of the planet, this book sets out to record sources of colourants discovered and used on all the continents from antiquity until the present day. Some 300 plants and 30 animals (marine molluscs and scale insects) are illustrated and discussed by the author, whose passion for natural dyes, with their colours of unequalled richness and subtlety, has taken her across the globe in search of dye sources and dyers. Botanical/zoological details are given for each source and the chemical structures shown for each dye. Dyes employed by different civilizations, identified by dye analyses, are illustrated and relevant historical recipes and detailed descriptions of dyeing processes by traditional dyers are quoted and explained in the light of modern science. Other current uses of such colourants, e.g. in medicine and for food and cosmetics, are also noted.

Although natural dyes have been replaced largely by synthetic dyes, increasing worldwide awareness of the harmful consequences of the pollution resulting from the production and use of some synthetic colourants has led to a significant revival and renewed interest in natural colourants. As potential renewable resources, natural dyes are an integral part of the major issue of our time – sustainable development. The aim of this book is to provide a scientific background for such an important debate.

(Source: synopsis from Dominique Cardon. 2008. *Natural dyes: sources, tradition, technology and science*. *Bois et Forêts des Tropiques*, 295 : 70. ♣)



The pleasure of reading is doubled when one lives with another who shares the same books.

Katherine Mansfield

PIPELINE PUBLICATIONS

NON-WOOD FOREST PRODUCTS OUTLOOK STUDY FOR ASIA AND THE PACIFIC: TOWARDS 2020.

The growing importance of NWFPs in Asia and the Pacific is due not just to the potential role they can play in reducing poverty, but also to the possibility that through proper management and development models, NWFPs can meaningfully contribute to the future of the natural and economic assets of countries in the region.

A new working paper on the Asia-Pacific forestry sector, *The Outlook for Non-wood Forest Products in Asia and the Pacific*, authored by Regina Hansda, will be available soon from the FAO Forest Policy Division, Rome.

For more information, please contact:
Patrick B. Durst, Senior Forestry Officer,
FAO Regional Office for Asia and the Pacific, 39 Phra Atit Road, Bangkok, Thailand 10200. Fax: (66-2) 697-4445; e-mail: Patrick.Durst@fao.org

FAO'S NWFP HOME PAGE

Our Web site is gradually being updated and new features and documents are being regularly added. We invite you to visit.

Please help us make this a rich resource by continuing to send us (non-wood-news@fao.org) your NWFP Web sites and citations of any publications that we are missing, as well as any research that you would like to share. www.fao.org/forestry/site/6367/en

Agroforestería ecológica

La agroforestería ecológica es la agricultura del siglo XXI. Se basa en los sistemas de vida, conservación y producción de las culturas ancestrales tropicales, en especial, de las culturas milenarias del neotrópico, con los aportes de la moderna agroecología. www.agroforesteriaecologica.com

ECOPORT

ECOPORT is a composite acronym derived from the words Ecology and Portal. <http://ecoport.org/ep?SearchType=displayHelpInfo&type=I&id=101008>

Forestry in Nepal

Forestry Nepal. Contains information on forest and non-wood forest resources of Nepal. www.forestrynepal.org

Nepal Foresters' Association. www.nfa.org.np/

Fruitipedia

Fruitipedia is an online encyclopaedia on edible fruits. It contains information on 200 fruits. Contribute articles to Fruitipedia and let your knowledge benefit others. www.fruitipedia.com

Livelihoods connect

The purpose of this Web site is to facilitate the practical implementation of sustainable livelihoods approaches. To subscribe: send a blank e-mail message with the words "subscribe livelihoods-update" in the subject field to: lyris@lyris.ids.ac.uk or subscribe online at <http://www.livelihoods.org/emailupdate/emailupdate.html#2> www.livelihoods.org/index.html

Mountain centre launches traditional resources portal

The International Centre for Integrated Mountain Development (ICIMOD) has launched a Web portal on "Access and Benefit Sharing from Genetic Resources and Associated Traditional Knowledge". The portal contains information about access and benefit sharing (ABS) mechanisms and processes being carried out, as well as the development and implementation of ABS regimes in countries of the Himalayan region. In addition, it provides links related to the subject and aims to serve as a regional clearinghouse mechanism on ABS. Through this facility, ICIMOD hopes to encourage, enable and support learning and foster multistakeholder discussions and sharing of the ongoing debates and dialogues at international, regional and national levels on the subject..

ICIMOD, a regional intergovernmental organization based in Kathmandu, Nepal, launched the portal as part of a project to promote ABS in the eastern Himalayan countries. The Centre has been working since 2005 with 13 partners in four eastern Himalayan countries – Nepal, India, Bangladesh, and Bhutan – in seven project sites, to promote the ABS process. Plans are under way to expand the project's coverage over the long term to the entire Himalayan region, which covers Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan – ICIMOD's regional member countries.

ICIMOD believes that local communities and stakeholders can protect and manage their genetic resources and biological diversity. This will only be possible if the people who take care of the resources also receive benefits from them, as well as full support from the local and national governments, civil society organizations and the international community. www.icimod.org/abs/

Rural associations and rural development in Georgia

The objective of this Web site is to popularize and encourage activities of rural associations by publishing information about their work, initiatives and projects. The site was created in 2007 within the project "Strengthening the Role of Rural Associations in Georgia" (STAGE).

The site is available in Georgian and English. www.ruralassociation.ge

Species grids

NASA's Socioeconomic Data and Applications Center (SEDAC), based at the Center for International Earth Science Information Network (CIESIN), has gridded nearly 12 000 species distribution maps which were originally in vector format (ESRI shapefile). The original data were developed by a consortium of conservation organizations including NatureServe, the International Union for the Conservation of Nature (IUCN), Conservation International and the World Wide Fund for Nature-United States of America. To make these data more useful for modelling and for integration with socio-economic and other data, SEDAC converted the entire collection of shapefiles to raster format.

This newly released Web site provides a search facility for quickly locating and downloading 1-km (30 arc-second) resolution grids of selected species maps in GeoTIFF format. Data are available for global amphibian distributions and for birds and mammals in the Americas. The Web site provides access to individual species distribution grids, along with family grids that show the density and distribution of species within a given family.

<http://sedac.ciesin.columbia.edu/species/>

Traditional Knowledge Bulletin

Subscribe: <http://tkbulletin.wordpress.com/>

NWFP-DIGEST-L

The Digest is a free monthly e-bulletin produced by FAO's NWFP Programme and covers all aspects of non-wood forest products. Past issues can be found on FAO's NWFP home page at www.fao.org/forestry/site/12980/en

You can take part in contributing to the continued success of this newsletter by sharing with the NWFP community any news that you may have regarding research, events, publications and projects. Kindly send such information to NWFP-Digest-L@mailserv.fao.org.

To subscribe: send an e-mail to: mailserv@mailserv.fao.org, with the message: subscribe NWFP-Digest-L; or through the NWFP Programme's home page at www.fao.org/forestry/site/12980/en ☛

CONTRIBUTIONS TO NON-WOOD NEWS

A strong characteristic of Non-Wood News is that it is open to contributions from readers. Should you have any interesting material on any aspect of NWFPs that could be of benefit to all our readers, please do not hesitate to submit it. Articles are welcomed in English, French and Spanish and should be between 200–500 words.

The deadline for contributions for Non-Wood News 19 is 15 May 2009.

For more information, please contact: Tina Etherington at the address on the front page or by e-mail to non-wood-news@fao.org

Readers of Non-Wood News – a survey

Findings from a survey completed in mid-2008 by three young volunteers in our NWFP Programme revealed that out of a total of nearly 4 000 subscribers to the *Non-Wood News* database (which does not represent our total readership), Asia is the region with the highest number of subscribers. India came out on top, with 477, or just over 12 percent of the global subscriber total.

See the table below for more details on our regional breakdown.

Region	No. of readers	% of total
Africa	922	24
Asia	1125	29
Europe	827	21
Latin America and the Caribbean	368	10
Near East	66	2
North America	425	11
South West Pacific	107	3
Total	3 840	100

Reader from Canada

Got a look at *Non-Wood News* last week and I was delighted that there is someone, FAO actually, that is documenting our resources. I started my business 11 years ago because I was finding that few people have any knowledge of the natural environment any more. Most people are totally unaware of all the great foods that exist outside of farms and cities. (Jonathan Forbes, Forbes Wild Foods, Canada)

Reader from Afghanistan

I am working and trying my best to explore other potential areas of NWFPs in Afghanistan and wish to contribute that only for *Non-Wood News* in future. (Mohammad Muktedir Hossain, Sector Specialist [Forestry], Afghanistan)

Requests received

Request for information: curana fibre
I'm looking for information on curana fibre. Do you have any contact information? I know it grows in Brazil but I haven't been able to contact any processing mill.

IF YOU CAN HELP, PLEASE CONTACT:
Aj Balthes, Ajbalthes@Conceptind.com



Recherche de financement pour le développement des PFNL au Canada

Des fonds seraient-ils disponibles pour des projets locaux? Je travaille auprès d'un centre de recherche et de développement en Outaouais (Canada) et ce centre se consacre énormément à la valorisation des PFNL sur notre territoire. Nous sommes aussi sur le point de développer un projet de régénération des bleuets sauvages en forêt et donc à la recherche de financement. Nous sommes un organisme sans but lucratif (OSBL). Pouvez-vous nous aider? Merci!

DANS LE CAS D'UNE RÉPONSE POSITIVE, VEUILLEZ CONTACTER:

Ann Lévesque, Adjointe scientifique, Centre de recherche et de développement technologique agricole de l'Outaouais, 188, rue Jeanne d'Arc, suite 200, Papineauville (Québec) J0V 1R0, Canada. Télécopie: (819) 427-9115
Courriel: al.credetao@videotron.ca
Site web: www.agro-outaouais.com

Request for information: essential oils
Our country (Turkey) has plenty of endemic plants. Essential oils obtained from these plants are used in cosmetics, food and many other sectors. We want to get essential oils from these plants and export them to other countries.

We want to make an investment in essential oil manufacturing and are, therefore, interested in learning more about the essential oil markets. For example, we need more information on: which essential oils have the highest demand; commodity prices; market structures; production process of essential oils; commercialization of essential oils, etc.

In addition, could any reader recommend reports, statistics, publications, Web sites on the market analysis of essential oils?

IF YOU CAN HELP, PLEASE CONTACT:
Engin CAGLAR, Çavuşpafla Caddesi, Sezer Sok, Pekmezci Apt. No:2/13, Bahçelievler, Istanbul, Turkey. GSM: +90 532 3522911; e-mail: caglarmeister@gmail.com

Request for collaboration: edible insects
I would like to develop a project on edible insects of francophone West and Central Africa. The project would cover ten countries, namely: Benin, Togo, the Niger, Burkina-Faso, Mali, Guinea Conakry, Cameroon, Centrafrique Republic, Congo Démocratique and Congo.

Would any readers be in a position to suggest a suitable contact person who would like to collaborate in setting up this initiative?

FOR MORE INFORMATION, PLEASE CONTACT:
M. Sévérin Tchiboza, Centre de Recherche pour la Gestion de la Biodiversité et du Terroir (CERGET), 04 BP 0385 Cotonou, Benin. Fax (+229) 21303084; e-mail: tchisev@yahoo.fr; <http://www.cerget.org/>



Boreal forests and their NWFPs



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Local people are taking advantage of the rich diversity of boreal forest NWFPs, both as opportunities to provide value-added products and as sources of food, adornment and medicine. **Left to right:** birch bark is woven to make attractive boxes in which natural cosmetics (soap and fir oil) and jams and herbal teas can be sold; women in Kamchatka, Russian Federation, are eating *Heracleum lanatum* Michx. (local name: "bears' pipes"); a young boy uses animal skins to keep warm; mushrooms are collected from the forest floor and sold, either dried or bottled.