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The IUCN / WWF Forest Conservation Newsletter

August 1998

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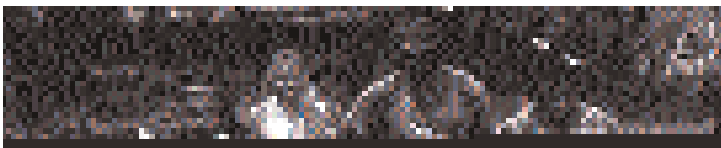


BP plans gas pipeline through PNG rainforest

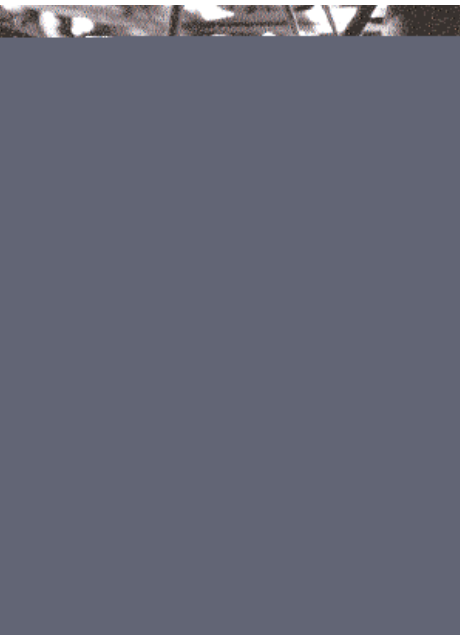
Tropical fire problem spreads to Mexico, Central America and Florida

Conservation officials reported that fires which raged throughout Mexico - especially in Tabasco, Chiapas and Oaxaca states - were even more ecologically damaging

News in brief

Protected forest area to triple in Brazilian Amazon

The Brazilian government has committed itself to establishing 25 million hectares of new forest protected areas by the year 2000, tripling the area under protection and bringing about 10 per cent of the Amazon into a protected area network.



The government was responding to the joint WWF/World Bank alliance initiative which aims to establish at least 50 million hectares of new forest protected areas and 200 million hectares of independently certified forest by the year 2005. To mark the agreement, President Cardoso signed decrees for two new protected areas in the Amazon, and two more in the critically threatened Atlantic forest, together totalling almost 600,000 hectares. The protection will be expensive; the total amount needed will be defined during a six month project announced as part of the launch ceremony, but it is estimated that the scheme will cost between US$48 million and US$156.6 million. It comes in a year when Brazil lost a million hectares of forest in the Amazonian state of Roraima due to uncontrolled fires. An area of the Amazon the size of France has already disappeared over the last few years. Brazil's Atlantic coast forest is disappearing even faster, according to a new study by Brazil's National Institute for Space Research. The forest once covered 1.3 million square kilometres along the coast, but is now only 7 per cent of its original size.

The new protected areas, set aside on 29 April 1998, are Virua National Park (Roraima, 227,011 ha), Serra da Mocidade National Park (350,960 ha), Jurubatiba National Park (Rio de Janeiro, 14,680 ha) and Fazenda Uniao Biological Reserve (Rio de Janeiro, 3,120 ha).

Photo: Three toed sloth eating the fruits of an Acai palm
Edward Parker/WWF

Protected areas news in brief

Protests in Australia
Thousands of Australian environmentalists and Aborigines marched in Sydney in May to protest against the planned construction of a Aus$12 billion uranium mine in the immediate vicinity of the World Heritage listed Kakadu National Park, saying the project could destroy the park's fragile ecosystems. The issue raises the question of rights of traditional aboriginal owners to say "no" to mining.
Sources: *Hong Kong Standard,* 6-4-98 and WWF Australia.

Fire used in US restoration programme
Government ecologists propose setting fires in several wilderness areas to restore a pre-European settlement habitat. Controlled fires in No Return Wilderness in Idaho could prevent fire-resistant ponderosa pines from being replaced by douglas and grand firs, and fires in the Upland Island Wilderness in Texas could help long-leaf pines from being crowded out by shortleaf and loblolly pines.

Natura 2000 Network behind schedule
The European Union's plans for a European ecological network are running late because Member States have not met commitments made six years ago in the Habitat and Species Directive. 1998 and 1999 will be crucial years for identifying and agreeing sites, with a final list approved by December 1999.
Source: Spotlight on Natural 2000 7, WWF.

Ecuador's Yasuni National Park again threatened by oil drilling
French and Argentinean oil companies are already drilling in the 900,000 ha UNESCO biosphere reserve. There are now plans to exploit new areas in the centre of the park, threatening both wildlife and the Huaorani, an indigenous group now reduced to an estimated 3000 people.
Source: WRM Bulletin number 12, May 1998

Alberta wilderness in Canada may open to commercial uses
The Whaleback area of the Rocky Mountains could be opened to mining, logging and oil and gas drilling, following recommendations from a 15-member local committee charged with deciding the region's future. Environmentalists say "the stage is being set for ugly confrontations."
Source: *Toronto Globe & Mail,* 20-5-98

Suriname creates major new reserve
A 4 million acre reserve, covering around 12 per cent of the country, has been declared by the government of Suriname. The protected area combines three existing reserves and two other areas which had been marked for logging by Asian timber companies. The US-based Conservation International has raised US$1 million for long-term management.
Source: *San Francisco Chronicle* 18-6-98.

Reserves become national parks in Madagascar
Three natural reserves - Andringitra, Marojejy and Zombitse-Vohibasia - are becoming full National parks, with full implementation of management plans, thanks to a decision taken by the government in late 1997.

Convention on Biological Diversity - gains and losses in Bratislava:

Political intrigue undermined much of the progress on forests that could have been made at the CBD. Andréa Finger gives an overview.

The fourth Conference of Parties of the Convention on Biological Diversity met from May 4-15 in Bratislava. WWF and IUCN hoped for three main outputs: greater cooperation between the CBD and the Intergovernmental Forum on Forests, a forest work programme, and improved funding for forest biodiversity through the Global Environmental Facility, GEF (see arbor*vitæ* 8). None of these aims received unequivocal support from COP IV. Although the forest work programme was approved in principle, under pressure from the Canadian government the implementation was left to the CBD's scientific committee (SBSTTA) rather than through setting up a thematic panel as generally supported by NGOs - thus in effect delaying the whole programme by up to two years. The commitment for the GEF to give a high priority to forest biodiversity was achieved, but this is linked to the forest work programme and if the latter is weak it could also affect GEF's support for forests. Although there was much emphasis on cooperation with the IFF processes, this was only explicit in respect to forest protected areas. So although progress has been made in principle - particularly with regard to a work programme - it remains unclear as to what may happen in practice.

G-8 Ministers approve Forest Action Plan:

In May, G-8 foreign ministers meeting in London, UK, approved the G-8 Action Programme on Forests, writes Carole Saint Laurent.

This Action Programme was first announced at the Denver G7+1 summit last year, but few details had been provided. Prior to the London meeting the Action Programme was popularly rumoured to be destined for oblivion as NGO pressure focused the attention of the G-8 on climate change. At the last minute, however, agreement was reached to announce the content of the Action Programme. It is aimed at the conservation and sustainable management of forests in the G-8 countries and in their partner countries (through bilateral and multilateral arrangements) and focuses on assessment of G-8 member forests, development and implementation of national forest conservation programmes and protected forest networks, elimination of illegal logging and trade, and harnessing the resources of the private sector. Significantly, the plan also calls for provision of forest-monitoring groups and organisations with greater access to data-gathering technology.

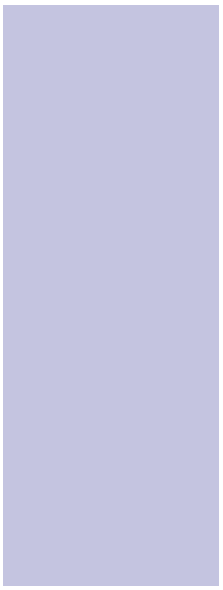
Comment: Lisbon meeting disappoints

The Third Ministerial Conference on the Protection of Forests in Europe, held in Lisbon June 2-4 1998, failed to agree clear and concrete action for forest protection and biodiversity enhancement, reports Stefan Leiner.

Ministers or representatives from 41 European countries adopted a General Declaration, a Resolution on “People, Forests and Forestry” and a Resolution on “Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management (PEOLG)”. A work programme will be developed, and a programme on the enhancement of biodiversity and landscape was adopted (although this only covers analysis and research). The meeting also adopted the criteria and endorsed the indicators for Sustainable Forest Management. In their speeches, most representatives described the “successes” achieved in their country. Many called for a “European framework for certification systems”. WWF had urged Ministers to overcome complacency and lack of political will to improve their biodiversity, by making clear commitments, adopting substantial policy goals, providing adequate policy instruments (including necessary funds!) and taking immediate action. One example was to set up a network of protected areas covering the most valuable 10 per cent of all European forests. WWF also argued for a substantial improvement to the criteria and especially the indicators of SFM. Contact: sleiner@wwfnet.org.

Research in Brief

The debate about sustainable forest management and protected areas continues, with Conservation International arguing against the usefulness of the WWF/World Bank target of 200 m ha of certified forests by 2005 (*Science* **280**, 1899-1900). Meanwhile, increasing efforts are being put into biodiversity conservation in production forests. Research in Belgium assessed different strategies for increasing biodiversity and natural ecological processes in homogenous Scots pine stands (*Biodiversity and Conservation* **7**, 249-260). An ITTO project in the Philippines is monitoring biodiversity in forests managed primarily for timber (*Tropical Forest Update* **8**(1), 8-9). The opportunities for non-wood goods and services in temperate and boreal countries are examined in a recent paper from the UN (*Geneva Timber and Forest Study Papers number 15*) and experience of managing NTFPs continues to increase, for example through rapid assessment of fungal diversity (*Biodiversity and Conservation* **6** (5), 669-680). Conflicts between renewable energy and forest conservation are highlighted in a paper discussing the role of biomass energy in Sweden (*Environment* **40**). A study in 20 central European states used woodpecker diversity to test the hypothesis that forest biodiversity is inversely related to urban-economic development. Species depending on naturally dynamic temperate forests are particularly sensitive to change. (*Conservation Biology* **12**, 200-208).



International forest policy initiatives seem to be stalled by disagreements and lack of political will. Yet, outside the global spotlight, some regions are starting to tackle the difficult transition to sustainable forest management. In the first of a double feature, Alberto Salas of IUCN's Mesoamerican programme describes the process in Central America.

The Central American Commission for Environment and Development and the Central American Council for Forests and Protected Areas are working with IUCN on an integrated approach to conservation, under the environment commitment of the Central American Alliance for Sustainable Development (ALIDES). Stuck between two continents, Central America contains three major biomes and 22 ecoregions, along with 30 million human inhabitants, half of which live in extreme poverty. It is also an area which has, over the past half century, undergone rapid deforestation.

Over the past decade, there has been an increase in environmental awareness within the region, reflected by a growth in protected areas. ALIDES stimulates governments to work together in addressing remaining problems through legislation, introduction of protected areas and sustainable forest management, use of environmental impact assessments, research and education. Between 1994 and 1997 a regional structure has been developed, with enhanced capacity for the coordinating organisations, along with introduction of a more participatory approach. The Central American Biological Corridor (see article on page 7) is a notable feature of this process.

Many challenges remain for the future, including the development of clear mechanisms for participation and representativity in planning conservation, greater decentralisation, new approaches to equity and the need to implement international, regional and national agreements.

Lessons learned

Quite apart from conservation, the region is undergoing Communication is proving to be an essential tool in this process. Starting the dialogue between local, national and regional levels is best tackled by starting with “innocuous” issues - that is those which do not touch on particularly sensitive issues. Experience so far has shown that the decision-making process can be influenced, but that in order to secure local needs within national and regional decisions, careful vertical integration of policy is needed.

An emphasis on local management of resources is central to the process. Decentralisation opens up many new opportunities for local participation and for a diversity of learning experiences, but does not guarantee that these will be taken up; real progress depends on the organisational capacity of many people and is not created automatically by sympathetic legislation. Municipalities have been found to have a greater capacity for managing natural resources than national governments, although this ability is not always used effectively. The overall impact of decentralisation on natural resource management remains uncertain, with both positive and negative examples from the region.

ALIDES has created a powerful and consensual vision of forests in the region. By 2025 it hopes that the region will have 25-30 per cent of the land in various protected categories, 10-15 per cent being managed as semi-natural forest and 5-10 per cent under plantations. A regional structure and cooperation scheme is already working to this end. Whilst much remains to be done, experience suggests that cooperation on the scale of a region is both possible and beneficial.

Contact: alberto.salas@orma.iucn.org

In the Central African region, the government of Congo (Brazzaville), in collaboration with IUCN, took the initiative to fill a void in national and regional approaches to forest conservation.In May 1996, they organised the first regional conference on moist tropical forests in Central Africa, with representatives of nine states participating, including Burundi, Cameroon, Central African Republic, Zaire (now DR Congo), Congo (Brazzaville), Equatorial Guinea, Gabon, Rwanda and Sao Tomé y Principe. The governments were represented by their line ministers, along with parliamentarians and civil servants. Representatives of national and international NGOs also participated.

During the conference, participants adopted the Brazzaville declaration, in which they reiterated their commitment to regional collaboration for forest conservation. They also decided:

- to institutionalise the conference into a permanent, biennial event
- to develop a work plan for the two years in between the conferences

Objectives and activities

The overall objective of the so-called Brazzaville Process is to strengthen regional collaboration amongst the Central African countries for the conservation and sustainable use of the moist forest ecosystems in the region, through:

- improved management of common and cross-border ecosystems and resources
-

Forest quality workshop

A joint project between IUCN, WWF and the Polytechnic of Lausanne (EPFL) is developing landscape-scale forest quality assessment methods for European forests. An expert group met in April to discuss criteria, indicators and the particular challenges involved in assessment on a landscape scale.

The emphasis on a landscape approach was judged to be critical to the success of the project. Landscape size will vary with geographical, social and political conditions, but the project will be drawing up criteria for the definition of "landscape". The forest quality system will be developed as a practical toolkit for landscape management rather than as a theoretical or academic exercise, with indicators measuring forest quality itself rather than quality of forest management. Many possible indicators were added to an existing list drawn up by WWF some time ago, and more generally a series of process indicators were added to the existing benefits and costs indicators. It was recognised that not all indicators would be suitable or measurable in every circumstance, but that during development of an assessment a list of indicators should be selected that reflects all the key areas of importance.

Use of the toolkit will vary with conditions and requirements - for example it could be an assessment system, planning tool or sometimes even used in advocacy work. Forest quality assessment cannot be completed by outside consultants or individuals alone, but requires analysis involving a full range of stakeholders. Preliminary discussions suggested that stakeholders should be involved in at least three stages in the process - decisions about indicators, measurement of indicators and assessment of the results. Degree of stakeholder involvement may change with circumstances, for example varying from methods of rapid rural appraisal through to full participatory rural appraisal, perhaps at different stages of the assessment.

A rapid assessment method has been developed and will be field tested in several countries.

For information and copies of working papers, contact:
Nigel Dudley: equilibrium@compuserve.com

Floodplain Forest Ecosystems in Europe
28 September - 1 October 1998, European Forest Institute and others
Contact: Emil Klimo, University of Agriculture and Forestry, Faculty of Forestry and Wood Technology, Zemedelsk 3, 61300 Brno, Czeck Republic

Local people and protected areas

Are protected areas enemies of development? Are they a cause of poverty among rural populations? Are they against people or for people? Gustavo Suarez de Freitas reports from Peru.

constitutes one of their greatest riches, is most required. This has been well understood, and the efforts of tropical countries to enlarge their protected area systems and improve their management have been extremely significant during the past decade.

While the modern concept of protected areas arose in countries now considered to be “developed”, it has been taken up and adapted by practically all countries. However an analysis based on the mistaken premise that conditions in all countries are similar leads to the incorrect conclusion that there is a permanent and unavoidable conflict between protected areas and local people, and that protected areas cause poverty and backwardness in indigenous communities.

Of course, many local people living in or around protected areas, whether traditional indigenous groups or not, exist in poverty. Many have problems related to land tenancy or access to resources. But this does not justify the simplistic conclusion that protected areas shouldn't exist. Poverty among rural populations in developing countries is, lamentably, very common and widespread, and its structural causes have little or nothing to do with protected areas. On the contrary, populations living in or near protected areas, especially when these are well protected against illegal commercial exploitation, often have access to relatively abundant natural resources, frequently reflected in a higher consumption of animal proteins. The existence of a well-managed protected area can provide direct benefits to local people and also serve to conserve places of special cultural or religious significance.

It is true that where attempts have been made in tropical countries to implant a vision of protected areas corresponding to the “developed country model”, conflicts have arisen and local people have sometimes been unjustly treated. However, the problem does not lie in the concept of protected areas, but rather in its application in a certain socio-economic or ecological reality, using a model derived from a different reality. The increasing use of Categories V (protected landscapes) and VI (managed resource areas) - the latter included among the IUCN categories as a result of proposals from Southern countries - and the use of participatory planning processes and collaborative management practices, are all indicators of a more positive relationship between rural populations and protected areas.

Many examples exist of the application of these ideas in the tropics, principally by NGOs working through Integrated Conservation and Development Projects. However, governments and international agencies have been slow to give the political and economic support required for application on a larger scale. The path exists; it is now up to society to commit itself to following it.

Gustavo Suarez de Freitas is Executive Director of Pro Naturaleza - the Peruvian Foundation for the Conservation of Nature, and Vice Chair for South America of the World Commission on Protected Areas. This article is adopted from a paper prepared for the Total Diversity Forum in Canada. 1996.

The Russian Far East

Since the collapse of the Soviet Union, forest management has changed dramatically. In some areas, the industry has almost collapsed, but on the other hand legal and illegal logging has spiralled out of control in parts of the Russian Far East, feeding the considerable appetites of its Asian neighbours for hardwood. Denise Meredith reports on a new WWF initiative.

In Primorskiy Krai alone, 360 logging interests are operating. Primorskiy Krai lies in the far south of the Russian Federation, bordered by Khabarovsk to the north and China to the west. The area covers 165,900 km^2 of which 80 per cent is forest, with many endemic species. In the north and at higher elevations Ayan fir, silver fir and Daurian larch predominate. Further south and in river valleys, northern and sub-tropical tree species mix to create unique Ussuri Taiga forests where over 20 tree species live per hectare, including rare oaks and the valuable Korean pine. Despite being legally protected, the latter is still logged for the lucrative markets in South Korea and Japan.

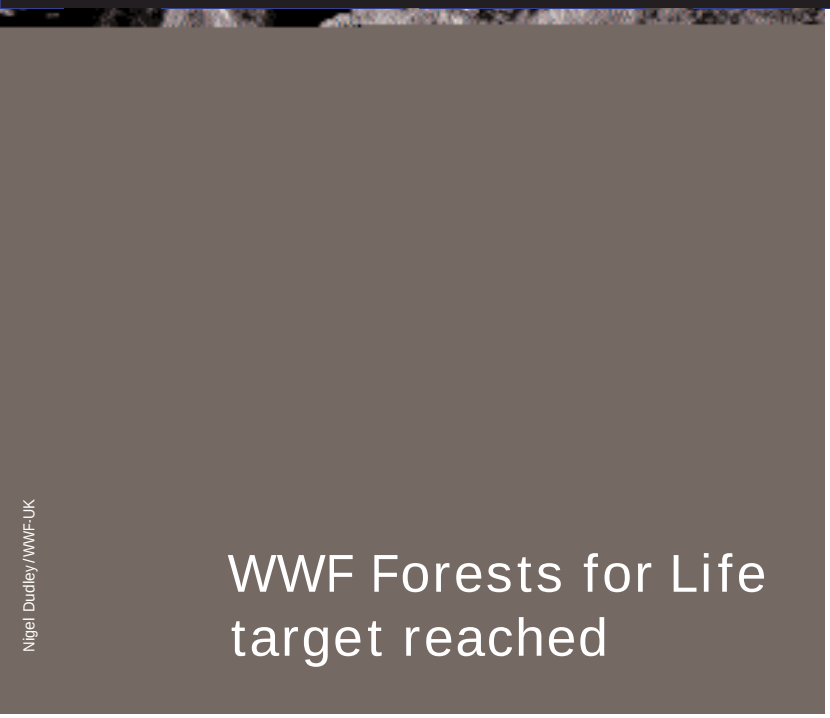
The forests support a host of rare and endangered species, the most celebrated being the Amur tiger. Nearly all of the world's remaining 450 Amur tigers live in Primorskiy Krai. They need large areas of uninterrupted forest to hunt, and as the forests disappear, so inevitably will the big cats.

In winter, temperatures can drop as low as -45˚C in the mountains and although relatively warmer on the coastline (-25˚C) the icy winds ensure harsh working conditions for the booming logging industry. Despite this, business has never been better and the money (for the few locals who see it) is highly prized in a country where even Vladivostock's citizens don't always have running water or heating. Most of the money from logging, however, doesn't go into the region's economy and those local companies who do make hard cash are receiving only a fifth of what the timber is worth on the open market.

New logging concessions were handed out by the region's local administration to foreign companies in December 1997, including one to the Korean timber giant, Hyundai. One of these allows the felling of 200,000 cubic metres of wood a year for the next 48 years in the beautiful Bikin Valley, but as the area leased to produce this timber cannot deliver what has been promised, nearby forests will inevitably be exploited. Reports suggest that the preferred method for logging in this area will be large-scale clear-cutting.

The main logging methods used in the Krai are selective logging (about 70 per cent) and small-scale clear-cutting, but both are often carried out in a very destructive way with the best trees being removed and everything else simply left to rot on the road sides. Soil erosion and flooding has now become a major problem in the Krai during the spring and summer months, with virgin forest being replaced by scrub and bog.

Additional problems for the forests include over-hunting, unsustainable collecting of berries, lianas and ferns (the latter encouraged by setting fire to the forests), gold mining



Nigel Dudley/WWF-UK

WWF Forests for Life target reached

In 1995, WWF set an ambitious target of ensuring that at least 10 million hectares of forests were independently certified as being well managed, under the auspices of the Forest Stewardship Council (FSC), by the end of 1998. By June, the target had been reached ahead of schedule. Alison Lucas reports.

Over 10 million ha of forest have now been certified as "well managed" according to FSC standards, involving over 115 forests in 25 countries. These forests, in countries spanning every continent, range from small-scale community forests in the Solomon Islands to much larger government-owned forests in the USA. More than 2000 products made from certified wood are now available to consumers around the world. Tim Synott, director of the FSC, pointed out that area of certified forest had more than doubled in the first half of 1998, suggesting a growing role for certification in the future.

The largest area of forest certified under the FSC is in Sweden and is owned by AssiDomn (one of the world's largest private forest owners), which has just completed certifying 3.3 million ha of forests - an area equivalent to the size of Belgium. "When the FSC principles were established, it was an excellent opportunity for us to communicate to our customers that we strive for environmentally sound forestry," said Lennart Ahlgren, President and CEO of AssiDomn. The company has also announced a partnership with WWF, over the next three years, to work together in persuading timber producers throughout Europe (and beyond) to produce more FSC certified timber and adopt less damaging, more sustainable, forest management.

For more information contact: alucas@wwfnet.org.

Consensus on Norwegian standards for SFM

The Living Forests project agreed a consensus on 25 standards for SFM, in a consensus between 13 stakeholders, including WWF. These are now being developed into certification standards, which is currently seeking ways to organise group certification in Norway. The Committee is also considering whether ISO, FSC or a combination of the two are used. Source: *News from The Living Forests*, Norway 2/98

"We have the opportunity and know-how to cultivate a new relationship with the world's forests, one that will reverse their decline, improve people's quality of life, and ensure that future generations inherit healthy forests. Whether this relationship develops fast enough will depend on who wins the fierce competition now under way - between, the powerful forces of the status quo racing to harvest the remaining forests before someone else does and the growing ranks of environmentalists, scientists, local people, and business and government leaders pressing for a viable alternative. Whether or not the bystanders to this competition recognise its urgency and throw their support to a new relationship with the forests in time will determine the outcome."

From: *Taking a Stand: Cultivating a new relationship with the world's forests*, by Janet Abramovitz, Worldwatch Paper number 140, April 1998. Available from the Worldwatch Institute, 1776 Massachusetts Avenue NW, Washington DC 20036-1904, $5.00 plus $8.00 shipping ($4.00 in North America). E-mail: wwpub@worldwatch.org

Sustainable forest management doesn't inevitably rely on aid programmes or well-paid consultants. Damar garden management in Pesisir Krui, Sumatra, is an example of a community's ability to manage forest sustainably under a long-term agroforestry system, without any support from external parties. Tri Nugroho and Iis Sileuw report.

Damar (*Shorea robusta*) has been domesticated, regenerated and used for commercial resin production for at least a hundred years in extensive forest "gardens". These also contain about 30 other commercial species including durian (*Durio zibethinus*), duku (*Lansium domesticum*), coconut, rattan, melinjo (*Gnetum gnemon*) and cinnamon. Damar and fruit trees are established within young coffee or pepper stands after one season of rainfed rice cultivation. Fruit is harvested while waiting 15-20 years for the damar to mature, whereupon the trees can be tapped regularly for 30-50 years. This system resembles the *taungya* agroforestry system, except that here farmers, rather than the forestry services, own the trees, choose the species and benefit from the harvest. Damar gardens also provide timber products, although the only trees harvested are naturally fallen trees, unproductive fruit trees, old and unproductive damar trees and some key timber species.

The owners of damar gardens have the right to decide whether they will harvest timber or not. There has been a very low level of damage in felling operations because directional felling is applied, and timber is usually processed into planks and beams on the spot. Timber can produce cash income for farmers, although there are sometimes problems in selling timber such as meranti and other Dipterocarps, due to the heavy bureaucracy involved.

At least 70 per cent of the local population are highly dependent on damar gardens. Viewed from a social perspective, the most significant problem facing the system is land tenure. Damar gardens have the same vegetation structure as natural forests and fulfil the ecological functions of natural forests including maintaining hydrological functions, soil fertility and biodiversity. (They also function as a stable buffer in supporting conservation of Bukit Barisan Selatan National Park, forming a sort of greenbelt bordering the Park and villages.) Paradoxically, this means that satellite images and aerial surveys do not distinguish between damar gardens and natural forests. As a result, according to government thinking the traditional owners have no right over the resources because they are "natural" forests. The government can assign the land as a production forest and change the function to, for example, an oil palm plantation. Other problems include lack of access to global markets to trade the gardens' produce. This is especially true in the resin trade, where in addition to facing price fluctuation, farmers also often receive less profit than other actors involved in the product trading as a consequence of the lack of access to market information. Even if resin is exported to Singapore, profits remain low.

The two most important challenges at present are therefore (i) how to shorten the chain of trade so that more benefits go to local people and (ii) how to ensure that the government recognises the status of gardens owned by local people so that they feel secure with respect to land tenure. This may become easier in the future. The success of the damar gardens is now attracting help from development agencies both inside Indonesia and internationally, in an attempt to ensure that the system succeeds within a global market. ORSTOM (a French-based research institute) has carried out research since the early 1980s, focusing on ecological, silvicultural and socio-economic aspects of the gardens. LATIN, a Java-based NGO, has worked on community organisation, community mapping and community-based forest management since 1992, including trying to facilitate export of resin to Japan. WATALA, a Lampung-based NGO, is working with LATIN, and as a local NGO has more knowledge of the area and a good relationship with the local authority. CIFOR, the Center for International Forestry Research, began work in 1994 and at the same time a partnership of NGOs and researchers was established to coordinate activities, known as Tim Krui (Krui Team). The Ford Foundation has become an important funding source since 1995, channelling funds through ICRAF.

Almost 9000 tree species are threatened around the world, according to new research coordinated by Sara Oldfield for the World Conservation Monitoring Centre in Cambridge, UK. Nigel Dudley reports on a major contribution to our knowledge of forest resources.

The World Conservation Monitoring Centre and Species Survival Commission have spent three years laboriously compiling data about the threatened trees of the world, a task only made possible by generous funding from the government of the Netherlands. The result, which draws on contribution from over 300 experts around the world, is the most comprehensive status report on trees ever produced. It summarises information on the status of and threats to literally thousands of species around the world, along with over a thousand data sources.

The World List of Threatened Trees makes depressing reading. At least 77 species have already become extinct and over a hundred times that number - a staggering 8753 species - are judged to be under threat by WCMC or its consultants. Of these, almost a thousand (976) are classified as critically endangered and a further 1319 are endangered. Trees in these categories include many species that are known to be useful for timber, fuel, medicines, food and other materials such as oils.

Trees growing in tropical forests are, not surprisingly, under greatest threat, because both levels of speciation and current rates of deforestation are highest in these areas. However, risks are not confined to tropical rain forests, nor are they necessarily worst in the poorer countries. In Japan, 202 species are ranked as globally threatened, as are 141 in Australia, over half of which are species and subspecies of Eucalyptus.

WCMC has made a first attempt to evaluate threats, where these are known. “Felling” is rated the greatest threat overall, listed in 1290 cases, although it is a pity that the category is so broad and there is no way of knowing the reasons for extraction; much work is still required to evaluate the direct threats from the timber trade for example. Agriculture is next in level of threat, followed by expansion of settlement and, in descending order of

Changing perspectives on Forest Policy: Pakistan

Javed Ahmed and Fawad Mahmood

In brief

The Manual of Dipterocarps for Foresters, edited by M F Newman, P F Burgess and T C Whitmore, Royal Botanic Garden, Edinburgh and the Center for International Forestry Research (Royal Botanic Garden, 20A Inverleith Row, Edinburgh EH3 5LR, UK)
Now complete in seven volumes, with new volumes on Java to New Guinea (10), Borneo Island Medium and Heavy Hardwoods (20) and Sumatra Medium and Heavy Hardwoods (15).

Good Practice Guidelines: Short Rotation Coppice for Energy Production, multiple authors, available from British Biogen, 3 Hayne Street, London EC1A 9HH. Fax: +44-171-726-0801, E-mail info@britishbiogen.co.uk
Comprehensive attempt to consult, plan, plant and manage energy crops, aimed at a UK audience. An issue likely to become increasingly important in the future.