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The IUCN/WWF Forest Conservation Newsletter

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Forest Landscape Restoration

Accommodating competing land-uses means trade-offs

Why the need for yet another new concept in the already jargon-ridden field of forest conservation? Well, with more than half of the world's forests now fragmented or degraded, and biodiversity decline and rural poverty still major challenges, restoration is more important than ever. It is clear that conventional solutions – limited largely to reforestation schemes – will not suffice. To make a real difference, any restoration initiative will need to tackle the underlying causes of forest degradation, integrate biodiversity conservation and meet the needs of local people who depend on forest-based goods and services. Restoration will also need to look beyond the individual site-level interventions to ensure they add up to an optimal result at the landscape level.

Forest landscape restoration (FLR) has been developed to help meet these criteria for success, by focusing on a multi-stakeholder, learning approach. Much more than simply putting trees back in the landscape, FLR is a difficult, challenging concept to put into practice. Land-use options need to be negotiated with different stakeholders and the inevitable trade-offs between competing land-uses need to be explicitly addressed.

The ultimate goal of an FLR initiative is a mosaic of different land-uses that strengthens the ability of the landscape to provide ecological goods and services, and improves local people's well-being. The exact techniques used to achieve this goal will vary, as illustrated by the diverse case studies in this issue. FLR activities can run the gamut from the promotion of natural regeneration and the management of secondary forest to the rehabilitation of primary forest and the use of agroforestry and tree plantations.

The FLR concept is still evolving as its proponents and practitioners bring new ideas to the table and the Global Partnership on FLR, launched in 2003 by WWF, IUCN and the Forestry Commission of Great Britain, provides a vehicle to share experiences and build up a portfolio of learning initiatives from around the world. At the same time, two guides on FLR are about to be published, one by ITTO and IUCN, the other by WWF. We should stress though that there is no one-size-fits-all FLR template and continued experimentation is vital if we are to learn how to implement FLR in different situations. So, rather than pinning FLR down to a single blueprint, let one thousand FLRs bloom!

Chris Elliott, WWF and Stewart Maginnis, IUCN

Amazon deforestation – from bad to worse

Figures released by Brazil's environment ministry in May show that deforestation rates in the country's Amazon forest are worse than almost ever before. Forest loss in the year up to last August was the second highest on record, totalling 26,000 square km, a 6 per cent increase on the previous year. This means that nearly one-fifth of the entire Amazon forest has been lost – and this after Brazil's government launched an action plan last year to save the Amazon. Environmentalists are placing the blame for the runaway rates on the government's lack of commitment to stop the deforestation and on the country's soy boom that is in full swing.

Soy continues to gain ground in the Amazon

Soy has become Brazil's number one export commodity and the current government is actively promoting soy sales as a means of earning valuable foreign exchange. With evident success too, as soy exports – primarily to China and Europe – helped Brazil achieve a record trade surplus last year. The environmental costs of this soy expansion are high, as soy, along with cattle ranching, is now one of the main drivers of deforestation in the Brazilian Amazon. Almost half of the near-record deforestation occurred in the state of Mato Grosso where the state governor, Mr Blairo Maggi, is also the world's largest soybean producer. Nicknamed 'king of deforestation' by local environmentalists, Mr Maggi has called for a tripling of the amount of land planted with soybeans during the next decade in Mato Grosso, and his company announced last year that it intended to double the area it has in production.

The Brazilian government has also come under attack for its inconsistent policies that promote real estate speculation in forest areas to expand cattle ranching and industrial-scale agriculture. And it is clear that the government's impressive legislative moves to declare protected areas and penalize illegal logging have failed to curb the deforestation. "Creating protected areas is a truly effective conservation measure, but it is not a sufficient mechanism to stop deforestation," said Denise Hamu, WWF-Brazil's CEO. "We need to halt the rampant destruction of the forest and ensure that its resources benefit both people and nature."

Sources: www.news.independent.co.uk, May 20, 2005; www.guardian.co.uk, May 20 2005; www.panda.org, May 19, 2005

news in brief

Wildfire alert in Alaska: A spruce forest fire in April got Alaska's fire season off to the earliest start in recent memory. An abundance of beetle-killed spruce in the area – a phenomenon scientists put down to a warming climate – has created a high fire hazard this year, and fire alerts have also been posted for much of the western US due to low water levels and high temperatures. The problem is compounded by the absence of National Guard troops, usually directed to forest fires but currently deployed in Iraq. On the bright side, Alaska's record burn last year looks set to create a morel mushroom boom this year. The highly-prized mushrooms thrive on previously burned land and Alaska's extension services are providing rural communities with maps of burned areas and mushroom gathering advice to support a potentially lucrative cottage industry.
Sources: www.alertnet.org, May 4, 2005; www.uaf.edu/ces

Shanghai's tissues wiping out wood supplies: Shanghai's rapidly growing demand for toilet paper and tissue is putting heavy pressure on forest resources, according to a recent survey of the city's paper use. Wood pulp has become the third largest product imported by China after petroleum and steel, according to Wang Yueqin of Shanghai Paper Trade Association and the annual consumption rate for tissue and toilet paper is now at 140,000 tonnes for Shanghai alone. Several Chinese factories are now experimenting with wood-free alternatives, using material such as straw and sugarcane to produce the paper goods.
Source: www.chinadaily.com.cn, February 15, 2005

After the woodpecker...: It's not just the ivory-billed woodpecker that has made a startling comeback from assumed extinction. In May a specimen of the Wollemia pine *(Wollemia nobilis)* – a genus discovered in Australia's Blue Mountains in 1994 after having been considered extinct for the last 2 million years – was planted in the Royal Botanic Gardens at Kew. Presently one of the rarest trees on earth, Wollemia is about to start a dramatic recovery when saplings go on sale to the public later this year.
Source: www.societyguardian.co.uk, May 10, 2005

Forest alliance renewed: WWF and the World Bank announced in May the renewal of their partnership on forest conservation and sustainable use. Known as the WWF/World Bank Alliance, the partnership will support the establishment of new forest protected areas and improved management of forests both within and outside protected areas. The Alliance will also help facilitate regional cooperation and the adoption of policies favouring more effective forest management. The two organizations aim to help reduce global deforestation rates by 10 per cent by 2010.
Source: www.panda.org, May 25, 2005

Industrial action for Aceh: So far, despite pledges of support from the international community for the post-tsunami reconstruction of Aceh, no government has donated timber or contributed to the provision of sustainably sourced timber for rebuilding homes and schools. The US timber industry however has been more forthcoming. In May, the American Forest and Paper Association joined in partnership with WWF and Conservation International to seek North American timber donations and cash to cover shipping costs. The partnership is organizing a pilot shipment of timber to build about 1000 homes – one per cent of the number of houses estimated to be required in the province.
Source: www.alertnert.org, May 11, 2005

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Too small to survive? Borneo's orang-utan populations are shrinking with the forests

Borneo's forests on borrowed time

Borneo could lose most of its lowland forests within ten years if current deforestation rates continue, according to a new report by WWF. This would threaten the survival of the pygmy elephant and orang-utan, as well as the island's economic potential. By 2020 the remaining populations of orang-utans may be too small to be genetically viable, due to fragmentation of their forest habitat, say the report's authors.

The findings of the report, 'Borneo: Treasure Island at Risk' supports an earlier World Bank study that predicted the disappearance of lowland rainforests in Kalimantan (the Indonesian part of Borneo) by 2010. If deforestation on the island continues at the current rate of 1.3 million hectares per year, only the less biodiverse peat and montane forests will remain.

According to the report, logging, forest fires and conversion to oil palm plantations are driving the destruction of Borneo's forests. As these threats come to a head, scientists are continuing to discover new species in Borneo. Between 1994 and 2004 at least 360 new species were discovered including plants, insects, fish, amphibians and reptiles.

WWF aims to assist Borneo's three nations (Brunei, Indonesia and Malaysia) to conserve more than 22 million hectares of rainforest in an area known as the 'Heart of Borneo', covering a quarter of the island's land area. This will help to sustain what is the last large block of forest remaining in the mountainous interior of Borneo and ensure that the forest will provide benefits to the people living in and downstream of this area. A workshop earlier this year brought together more than 150 government and NGO representatives from the three countries as an initial step towards a joint vision for the Heart of Borneo.

"It has become clear that without cooperation between Borneo's three nations, the fate of even the remotest parts of Borneo is uncertain," said Stuart Chapman, International Coordinator of WWF's Heart of Borneo Initiative. "In the Heart of Borneo we can still achieve conservation on a big scale and win before we are left with small, fragmented forest patches. This opportunity has to be seized and action taken quickly."

Source: www.panda.org, June 7, 2005. For more information visit www.panda.org/heart-of-borneo.

news in brief

Europe's dirty timber: Switzerland and Austria are caught up in the illegal timber trade, with respectively 8% and 10% of their wood-based imports coming from illegal or suspicious sources, as revealed by two recent WWF reports. The true scale of the problem has been underestimated, says Hans-Peter Fricker, CEO of WWF-Switzerland, and the origins of the wood obscured as the imports often come through other European countries where the timber is 'laundered' as it is processed into paper, furniture and other products. Meanwhile, the EU peacekeeping operation Eufor has started cracking down on the rampant illegal logging trade in Bosnia, as part of its efforts to tackle the country's organized crime. Helicopters with advanced surveillance equipment are being used to track down those involved in logging and exporting the illegal timber. "The criminal gangs involved in the logging business are often the same gangs involved in harbouring and protecting indicted war criminals." says Lt Col Rose of Eufor. "By tackling the loggers, we can also make progress in this area as well."
Sources: www.panda.org, March 3, 2005; news.bbc.co.uk, May 9, 2005

Desert retreats: China's fight to keep back the desert seems to be paying off. Zhu Lieke, Vice Administrator of the State Forestry Administration announced in June that areas affected by desertification have started to shrink for the first time in over 50 years. Intensive tree and grass planting programmes have succeeded in reducing desertified areas by about 38,000 sq. km. between 1999 and 2004, but the battle is by no means won. More than a quarter of China's land area is still affected by desertification. Ecological management, said Zhu, is no longer losing out against desertification but the two processes are "locked in a stalemate".
Source: news.xinhuanet.com, June 14, 2005

Rare species goes to pot: Conservation efforts for the Critically Endangered 'Hawaiian Palm' (*Brighamia insignis*) are being helped by developing this species as a houseplant. Once common on several Hawaiian islands, it is now literally clinging onto existence on the steep volcanic slopes of the island of Kaua'i, with possibly only seven plants left in the wild. A new initiative spearheaded by IUCN and two Dutch plant companies, Plant Planet and W. van Diemen's nurseries, has now propagated thousands of plants from seed which are being sold worldwide. For every plant sold, a contribution goes to the Hawaiian Plant Specialist Group of IUCN's Species Survival Commission, which is leading conservation projects for the 'Hawaian Palm' including protective fencing, site rehabilitation, propagation and re-introduction.
Source: www.iucn.org, May 3, 2005

Stuart Chape/IUCN

The Thai Forest Complex is a rugged mountainous area

Seven New World Heritage Sites

A tropical forest mosaic in Thailand is among the new World Heritage Sites designated.

The World Heritage Committee, which met in Durban in July, designated 7 new natural World Heritage Sites. The sites include Whale Valley in Egypt, where the last whales known to have legs are preserved as fossils on the desert floor, and Vredefort Dome in South Africa, the world's oldest and largest meteorite impact structure and site of the greatest single known energy release event in history. Also included are four coastal and marine parks in Mexico, Panama, Japan and Norway, and a vast tract of tropical forest in Thailand.

The Thai site, the Dong Phayayen-Khao Yai Forest Complex, was originally nominated as a smaller, single park but following IUCN's recommendations now includes four National Parks and one Wildlife Sanctuary which together form a nearly-contiguous area of 6,155 sq. km. The Complex comprises a mosaic of different tropical forest types and provides habitat for more than 800 fauna species including the critically endangered Siamese crocodile, the endangered Asian elephant, tiger, leopard cat and banteng (a wild cattle species), as well as nineteen vulnerable species such as the pileated gibbon and the Asiatic black bear.

Contact: Georgina Peard, gep@iucn.org

protected area news in brief

Tiger-free woods?: There may be no tigers left in India's Sariska Sanctuary, one of the country's most renowned tiger reserves. While WWF reported 22 tigers in the sanctuary in 2002, most, if not all, seem to have disappeared during July to December last year. Tiger numbers are also thought to have gone down in two other reserves, Bandhavgarh and Ranthambore, prompting Prime Minister Manmohan Singh to launch a police investigation and a new task force to tackle the widespread poaching problem. The task force submitted its report in August, which is available on the Project Tiger website below.
Sources: www.alertnet.org, April 2, 2005; www.projecttiger.nic.in

Private solutions in Kenya: Private conservation lands will now be able to supplement Kenya's government parks and reserves, following the announcement in May of a new national body, the Kenya Land Conservation Trust. The trust will establish land purchases, easements, leases and management agreements with private landowners to ensure protection and management of wildlife and wild lands. The African Wildlife Foundation, a Board member of the new trust, expects large numbers of ranches, farms and other areas to come under these conservation arrangements in the coming years.
Source: www.awf.org/news, May 16, 2005

Chile to sue careless camper: Chilean authorities are suing a Czech camper whose upturned stove destroyed 16,000 hectares of Torres del Paine national park in Patagonia in February. While the illegal use of a gas stove cost the tourist a $200 fine at the time, the Chilean government is expected to seek at least $5 million in compensation to cover the cost of the 12-year recovery plan for the park. The Czech government has already apologised to Chile and pledged support for reforestation of the world-renowned park.
Source: news.bbc.co.uk, March 29, 2005

Peru protects forests and indigenous peoples: One of the largest combined protected areas and indigenous territories in the world has been created in Peru. The Alto Purús Reserved Zone combines a traditional national park, a communal reserve for indigenous communities, and a territorial reserve to help protect the land rights of the Mashco-Piro, an indigenous group which has chosen to avoid all contact with the outside world to safeguard its traditional culture. The 2.7 million ha area is home to endangered wildlife including the jaguar, harpy eagle, scarlet macaw, giant river otter and black spider monkey, as well as being one of the last refuges for large populations of big-leafed mahogany.
Source: www.panda.org, April 1, 2005

Russia creates 5 new PAs: Five new national parks covering over 840,000 ha have been created in Russia – the first batch of a total of 21 federal protected areas pledged four years ago by the government. Three of the parks are in Russia's Far East and provide refuge to the endangered Amur tiger. The announcement of these parks coincided with a commitment by the Governor of Krasnoyarsk to double the region's protected area network by adding a further 3 million hectares – a move recognized by WWF as the 100th 'Gift to the Earth'.
Source: www.panda.org, May 18, 2005

New monkey puzzle solved: Two separate groups of researchers have discovered a previously unknown species of monkey in the forested highlands of Tanzania. The highland mangabey (*Lophocebus kipunji*), is the first new species of monkey to be identified in Africa for more than twenty years. Working in forests several hundred miles apart, the two research teams heard of each others' findings and jointly published official disclosure of their discovery in May. "These monkeys have probably been there for hundreds of thousands of years," said Dr Tom Butynski, a member of one of the research teams. "What are the chances of two independent projects finding the animal within a 10-month period?"
Source: www.iucn.org, May 24, 2005

Bombing elephants for conservation: Five villages in the Indian state of Assam are experimenting with chilli bombs to help prevent elephant-human conflict. Severe deforestation has greatly fragmented the elephants' habitat and forest encroachment has resulted in the deaths of dozens of elephants and humans. The bombs – tear gas-type weapons made of elephant dung soaked in chilli peppers, which are ignited and lobbed at the elephants – have proved effective in several other countries with similar problems. The bombs, together with a warning system of alarmed trip wires at the entrances of the villages, are part of a project being implemented by a local NGO and the UK's Chester zoo.
Source: news.bbc.co.uk, June 7, 2005

Global Partnership for FLR

Carole Saint-Laurent, IUCN's Senior Forest Policy Advisor, reports on how a global partnership has helped shift FLR from concept to practice.

The Global Partnership on Forest Landscape Restoration (GPFLR) was launched in 2003 by IUCN, WWF and the Forestry Commission of Great Britain to catalyze and reinforce a network of diverse examples of forest landscape restoration. To date, more than 20 governments and organizations have joined the partnership.

The first two years of the partnership focused on sharing knowledge on FLR and encouraging on-the-ground implementation. This has been achieved by exchanging information on where and how forest landscape restoration is or could be undertaken or reinforced, producing analytical papers on a range of issues, presenting case studies of FLR initiatives, and organizing workshops and consultations around the world.

An important milestone for the partnership came in April this year when it organized an international FLR implementation workshop in Petrópolis, Brazil hosted by the Brazilian and UK governments. The five-day workshop brought together more than 100 experts from 42 countries to discuss the future of the world's degraded forests. The workshop was instrumental in increasing understanding of how the conservation and livelihood benefits of forest landscape restoration can be maximized and in stimulating political, institutional and financial support for implementing FLR activities. Workshop participants endorsed the *Petrópolis Challenge* which calls for restoration of forest landscapes to benefit people and nature and contribute to reversing the trends of forest loss and degradation.

The *Petrópolis Challenge* identifies two main areas for follow-up: expanding the partnership and further demonstrating the value of FLR through new initiatives on the ground. The partnership encourages new members to join and aims to convene a second international implementation workshop within four years to take stock of what has been achieved by the community of practice. The partnership has also committed to launching a portfolio of new landscape restoration initiatives or learning sites by the end of 2006. These initiatives will provide experiences and learning on the role of forest landscape restoration in reducing poverty, improving local people's quality of life and conserving biodiversity.

The report of the Petrópolis workshop and the work of the GPFLR were officially presented to the 5th session of the UN Forum on Forests (UNFF-5), which took place in New York in May (see separate article on this page). A high-level roundtable on 'Restoring the World's Forests' held during UNFF-5 saw many countries speaking up in support of the forest landscape restoration approach.

Contact: Carole Saint-Laurent, carsaintl@bellnet.ca. Further information on the partnership can be found at: www.unep-wcmc.org/forest/restoration/globalpartnership.

UNFF-5 Failure

The 5th session of the UN Forum on Forests (UNFF-5) which took place in New York on May 16-27, 2005, was charged with reviewing the effectiveness of the International Arrangement on Forests (IAF) and considering a mandate for developing a legal framework on all types of forests. The session ended in failure with not only a lack of agreement on a future IAF but also no real learning of lessons from the first five years of the UNFF. While delegates did agree to global goals on reversing the loss of forest cover worldwide including through protection and restoration, enhancing forest-based benefits and contribution to international development goals, increasing significantly the area of protected and sustainably managed forests, and mobilizing new funding for forests, they could not reach consensus on setting timetables towards meeting these goals. However, a collapse of negotiations is better than agreement on something weak. Negotiations will resume at a new session of the UNFF (UNFF-6) on 13-24 February 2006 and provision is also being made for a seventh session. It will be important for these events to move beyond discussion to improvements in catalyzing implementation.

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research in brief

Rainproofing the rainforest: A five-year drought has just ended in one corner of the Amazon forest, where Daniel Nepstad, an ecologist with the Woods Hole Research Center in Massachusetts, has led an experiment to study how tropical forests respond to such long-term stress. The researchers installed thousands of large plastic panels a few metres above the ground to deprive a one-hectare forest area of 80 per cent of its rainfall. The result? The trees proved remarkably resilient and showed some hitherto unknown drought mitigation techniques – including, in some species, taking up water through their leaves. But in the end many of the smaller trees stopped growing and the tall canopy trees started to die. The canopy gaps left by the fallen trees had a dramatic effect on the fire hazard in the forest. The annual period of high flammability, seen in the control plot to last about 10 days, rose to 8 to 10 weeks in the experimental area. The study will now monitor how, and whether, the forest recovers from the drought conditions.

Source: Science 308 (5720): 346-347

Restoring Livelihoods and Landscapes in Tanzania

How much can forest restoration improve livelihood security? Edmund Barrow of the IUCN Regional Office for Eastern Africa does the numbers for an FLR programme in Tanzania.

More so than ever, governments and donors are requiring the forest sector to justify itself in terms of its contribution to poverty reduction, livelihood security and the Millennium Development Goals. Forest landscape restoration is no exception and long-term support for FLR relies on these results being clearly demonstrated. That's a tough task, given the qualitative nature of many of FLR's socio-economic benefits. Nonetheless, these benefits can be substantial – as shown by the case of the Shinyanga region of Tanzania.

Historically covered by extensive Miombo and Acacia woodlands, the Shinyanga region later became known as 'the desert of Tanzania' after its trees and woodlands were cleared to eradicate tsetse fly, free up land for agriculture and cater to the needs of a growing population. The cost of this clearance came in the loss of the many goods and services provided by the wooded areas. Dry season fuelwood and fodder were in scarce supply, groundwater supplies were dwindling and erosion problems were worsening.

In 1986 the government of Tanzania responded by creating the Shinyanga Soil Conservation Programme, or HASHI, with additional support from Norway. The programme was based on the reintroduction and restoration of the traditional *Ngitili* – managed woodland and forage enclosures – which had played a central part in the livelihood strategies of the local Sukuma agropastoralists. The programme provided advice on where best to site the *Ngitili*, how best to manage them and how additional activities could be integrated into this system. Restoration was achieved largely by reducing grazing pressure and allowing natural regeneration of trees and grassland in the areas chosen by farmers, local groups and villages. The programme's empowering approach together with the existence of traditional customary laws and institutions on resource use and supportive village governments created the right enabling environment for the restoration effort.

Single mother with her two sons and a worker in her restored *Ngitili*

Edmund Barrow

By the year 2000, between 300,000 and 500,000 hectares of *Ngitili* had been restored in the 833 villages of the region. The Sukuma have been very clear as to the difference the restored *Ngitilis* have made to their welfare – as revealed by the following figures:

US$14	average monthly value of restored *Ngitili* per person (Tanzania's rural average monthly consumption per person is US$8.50)
US$1,200	average annual value of the *Ngitili's* 16 most important natural resource products, per household
up to 6	hours are saved in collecting fuelwood, thatch or fodder
14%	of local households collect medicinal herbs from the *Ngitili*
36%	of local households use *Ngitili* to help pay for their childrens' education

Alongside these achievements in poverty reduction and livelihood security, the programme has also made significant biodiversity gains. One hundred and fifty two species of trees, shrubs and climbers are found in the restored *Ngitilis* in addition to over 145 species of bird – including some which are endemic to the region.

There is a clear message here for the Tanzanian government on how it implements its poverty reduction strategy: environmental goods and services need to be a central part of the strategy and should be invested in at the local, district and national levels. Environmental and natural resource assets are important livelihood options for many rural people to meet their cash and contingency needs, for fuel and construction timber, to provide valuable medicine at the local level, and to improve the ground water supply.

As an example of forest landscape restoration, Shinyanga may not be a textbook case. It certainly predates the term FLR and has its origins in soil conservation rather than landscape restoration. However, it quickly evolved away from traditional forestry practice to the wider restoration of forest goods and services – and it illustrates perfectly the central aim of FLR to restore landscape integrity while also enhancing human wellbeing.

Contact: Edmund Barrow, edmund.barrow@iucn.org. The Monela et al study, from which the above figures are drawn, can be found at: www.iucn.org/themes/fcp/experience_lessons/flr.htm.

FLR is taking many forms, as forest restoration efforts move towards a landscape-level approach. The case studies of recent or ongoing initiatives covered in this issue show some of this diversity in FLR's evolution.

Argentina: tea in the corridor

Sofía Ferrari of Fundación Vida Silvestre Argentina tells of how FLR is supporting new livelihoods to help restore a green corridor.

FVSA

Hands-on training in palmito canning

The frontier community of Andresito in northeastern Argentina is certainly strategically placed for forest conservation. Located in one of the largest remnants of the Upper Paraná Atlantic Forest (UPAF), surrounded by two World Heritage Sites and harbouring or bordering eight other protected areas, Andresito's forests form an important corridor between these areas, facilitating the movement of flora and fauna. However, expansion of agricultural, ranching and forestry lands has led to fragmentation of this connection and loss of forest goods and services for the local people.

Since January of last year the NGO Fundación Vida Silvestre Argentina (FVSA) with support from WWF has been leading an FLR initiative that seeks to help stop the degradation and loss of the area's forests, strengthen the connectivity and effectiveness of the protected areas, and improve the local people's livelihood security. A tall order by any standard, and one that will require strong support from all the stakeholders involved – particularly the local inhabitants. With this in mind, the programme is working with 20 local farmers to consolidate a cooperative for the sustainable harvest and marketing of heart of palm – called palmito – and also other forest and farm products. By canning these products locally the cooperative members can earn a higher share of the market price – and consumers are willing to pay more for sustainably harvested palmito. In addition, the fact that this native palm grows under the forest canopy gives these farmers an incentive to maintain or increase their forest areas.

Along similar lines, a pilot activity is experimenting with production and marketing of organic shade yerba mate (a local tea) cultivated under the forest canopy. Native tree species are being planted in yerba mate fields to increase forest cover, improve soil quality and enable farmers to obtain higher prices for their better quality yerba mate.

Restoration techniques including tree planting and the removal of invasive species are also being tested in abandoned cattle fields and degraded forest remnants to see which treatments are ecologically and economically effective.

This initiative has adopted a landscape-level approach from the beginning, starting with a GIS analysis that helped develop a biodiversity conservation vision for the entire UPAF and identify priority restoration areas. Currently focusing on the key area of Andresito, the programme aims to develop FLR guidelines for use in other parts of the UPAF ecosystem.

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Madagascar: deciding where to begin

When faced with multiple landscapes and a multitude of conservation issues, where should forest landscape restoration start?

The notion of forest landscape restoration was introduced in Madagascar in a 2003 workshop organized by WWF-Madagascar. The workshop brought together the public and private sectors and research institutes to establish a national working group for FLR, prioritize forest landscapes for restoration and develop selection criteria based on the socio-cultural, economic, political and ecological features of the landscapes. An initial set of fifteen landscapes was later refined to five priority ones and a reconnaissance team, including some working group members, then visited these five landscapes to analyze them in more detail based on the agreed criteria. The Fandriana-Marolambo landscape, straddling Madagascar's central plateau and eastern escarpment, came up 'tops', particularly on the ecological criteria and was selected as the site of a pilot FLR initiative. A series of biological and ecological restoration targets were then set for this landscape to conserve specific wildlife species, including the endangered aye-aye (*Daubentonia madagascariensis*), restore specific riparian forests and reconnect isolated forest patches in several areas. A socio-economic analysis and target-setting exercise is also being completed to ensure that the restoration also addresses the needs of local communities. Active involvement of the full range of stakeholders is seen as critical and the project is seeking collaboration opportunities with the national association charged with the management of Protected Areas (ANGAP).

The process is now at the stage of gathering detailed information on what it will take to achieve the different targets and, where possible, mapping these requirements to identify the exact restoration locations and the most appropriate methods. Implementation of the FLR project is now poised to begin, as a newly-appointed programme coordinator is starting work in an office established in the landscape. Meanwhile the entire prioritization process has been documented for use in other regions.

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Forest Landscape Restoration – Seeing the Bigger Picture

Mark Aldrich of WWF and Sandeep Sengupta of IUCN look at what is behind the FLR concept and what will be needed to ensure its future success.

To many of us, the idea of a 'forest landscape' invokes an image of continuous forest cover stretching uninterrupted towards the horizon. Today's reality however is quite different as deforestation and forest degradation have altered many of the world's forest landscapes. Globally, an estimated 40-50 percent of the original forest cover has disappeared, and of that which remains in the tropics, less than half is still found in large, contiguous tracts. Most of the rest exists only in the form of fragmented, modified or degraded woodlands and other areas too degraded to be even classified as forest.

Despite this reality of forest landscapes, many national forest programmes and strategies still tend to focus exclusively on establishing networks of forest protected areas and/or the sustainable management of production forests. Even when restoration is recognized as a priority, it is often limited to reforestation efforts that result in industrial roundwood monoculture plantations. While these efforts can offer benefits such as slope stabilization and watershed protection, the results in practice are often poor with problems exacerbated by little involvement of, or few benefits to local people. If we are to successfully address some of the major challenges facing forest management and conservation in the 21st century, including contributing to poverty reduction, biodiversity conservation and enhancing resilience to climate change, then we have to look beyond such conventional site-based interventions. In taking a landscape-level perspective, we should be aiming to restore and maintain multi-functional forest landscapes that can sustainably provide the full range of goods and services that society demands from them. This is what the concept of forest landscape restoration (FLR) aims to deliver.

Overcoming steep slopes to restore forest landscapes

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What makes FLR different?

First coined by a group of forest restoration experts convened by IUCN and WWF in Segovia, Spain in 2001, FLR has been defined as: *a process that aims to regain ecological integrity and enhance human well-being in deforested or degraded forest landscapes.*

Unlike other large-scale restoration or afforestation approaches that focus primarily on maximizing forest cover, FLR focuses on how best to re-establish *forest functionality* – i.e. the goods, services and processes that forests deliver – in the context of the overall landscape. In other words, FLR is more than simply tree-planting. Technical interventions in the landscape can include one or more of the following:

- rehabilitation and management of degraded primary forest, including enrichment planting;
- management of secondary forest;
- promotion of natural regeneration on degraded lands and marginal agricultural sites;
- ecological restoration, including establishment of corridors between protected areas;
- plantations and planted forest; and
- agroforestry and other configurations of trees on farms.

Of the key elements that distinguish FLR are its attempts to build a landscape perspective into forest land-use decision-making, and to promote an optimal mix of land-uses within the landscape by involving the meaningful public participation of a wide range of stakeholder groups who collectively negotiate and decide on the most technically appropriate and socio-economically acceptable options for restoration. FLR is a forward-looking approach that recognizes the reality that forest landscapes support different stakeholders who often have different, and sometimes conflicting, forest land-use needs. Instead of trying to restore all degraded forest lands to their original pristine condition, FLR pragmatically attempts to balance these multiple trade-offs in a way that maintains the ecological integrity of forests (including their biodiversity conservation functions) while also enhancing human-well being at the landscape-level. This principle of both maintaining the ecological integrity of forests and enhancing human well-being at the landscape-level reflects the notion that whilst win-win

Forest landscapes need multi-layered restoration approaches

outcomes are extremely rare in reality, particularly at the site level, individual trade-offs should be more easily balanced at a landscape scale.

At the heart of FLR also lies an explicit rejection of top-down planning processes and expert-driven blueprints that prescribe what an ideal forest landscape should look like. This does not mean that 'experts' have no role to play. Indeed, the setting of overall conservation goals, the determination of what constitutes a conservation landscape, and the identification of 'natural thresholds' beyond which trade-offs should not occur, all require technical and scientific expertise. However, these should only be considered as facilitative inputs to inform the negotiation process between the stakeholders and should not drive the final decisions themselves. How forest landscapes look and develop over time is ultimately a matter of democratic societal choice.

From theory to practice - some key lessons learned

Of course the very nature of FLR means that it is a long-term, and in some cases, costly process. Given also the relatively recent development of many FLR projects, this means that the real results (and benefits) are not yet fully proven and still remain potential at this stage. However some useful lessons are already emerging, from which we can learn. We are also able to benefit from the experiences of those older or longer-term forest restoration projects around the world, which included approaches or elements which we now see as key principles of forest landscape restoration.

There is no standard, one-size-fits-all, template for FLR. Few initiatives will possess all the characteristics of FLR from the start – many will begin with some of the key ones, and expand in scale or scope over time. In hindsight, some of the early efforts were far too ambitious – we need to focus on programmes of a sensible scale with clear, and achievable biodiversity and livelihood goals.

Experience to date shows that practical implementation of FLR needs a good understanding of the bio-physical and socio-economic characteristics of the landscape, and negotiation between its various stakeholder groups to achieve an agreed plan for the restoration work. The starting point for implementing FLR may be very different from one landscape to another. These have already ranged from advocacy work for policy changes that support good restoration, through initial consultation with key stakeholders or socio-economic cost/benefit analysis of different options, to the initiation of small-scale pilot restoration projects to catalyse interest from potential partners and donors.

In all cases however, implementation will have to consist of a flexible package of interventions, as landscapes and the biological and social elements within them are dynamic, changing over space and time. This makes an adaptive approach to land-use management essential. Related to this, the development of an effective monitoring and evaluation framework at the landscape scale has also proved an important first step and forms the basis of further learning. The challenge of course is to keep such a tool simple, and quick-to-use while being robust enough to prove sufficient correlation between changes observed and specific interventions.

Many questions still remain unanswered – experience of implementation to date, and from compiling the forthcoming FLR guides (both described on page 16), indicate an urgent need to link field practitioners with researchers. And, while there is plenty of interest and enthusiasm for FLR, continuing to build support for implementation efforts amongst donors, including lending banks, governments and the private sector will be an essential factor for success. The highly significant policy shift recently made by the Forestry Commission of Great Britain (see page 10) represents the first major national -level step towards implementing FLR and will provide an important model for incorporating a landscape-level approach into a national forest sector strategy component.

Finally the importance of strong partnerships, both in terms of local collaboration between key stakeholders in the landscape, and at a broader national and international level is one of the most crucial, perhaps not surprising, lessons learned so far. This and many of the issues raised above are being addressed by an established community of practice operating as the Global Partnership on Forest Landscape Restoration (see page 5 for details) involving a range of government, non-government, national and international organizations.

In this challenging context it is crucial that we work together to share the lessons being learned, continue to provide strong evidence of the benefits of FLR, and ensure that FLR is incorporated into forest policies, wider biodiversity conservation, economic and financial planning and multilateral agreements. With an expanding set of FLR initiatives on the ground and a growing community of learning, the time is ripe for making FLR a central part of the forest sector's contribution to national and international environment and development priorities.

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This article draws on the ideas and perspectives of many people working on FLR within the IUCN and WWF networks.

Peru: holding back the cattle

Jose Luis Mena, Linda Norgrove and Mariel Reyes of WWF-Peru report on a watershed restoration initiative in the buffer zone of a protected area.

The rare high-altitude ecosystem in Peru's Tabaconas Namballe National Sanctuary is home to the endangered spectacled bear and mountain tapir as well as the country's only native conifer, *Podocarpus montanus*. The forests of the sanctuary and surrounding area have been under pressure from extensive cattle farming and expansion of small-scale agriculture, as evidenced by widespread degradation and deforestation.

Since early last year WWF-Peru has been working on forest restoration in priority degraded watersheds adjacent to the sanctuary. The initiative, supported by the Flanders government, has already involved an analysis of current land use practices, the development of land and natural resource management plans, and the identification and introduction of improved practices such as reforestation, soil erosion control and mulching.

Choosing where to start restoring was a rather difficult process. Initially the local people wanted to restore an area of land that is currently under dispute – being officially within the sanctuary but currently used for agriculture due to a misplaced boundary marker. The project staff concluded that, since restoration activities could later be used to assert land claims in the protected area, they would not be able to assist restoration efforts there – at least not until the boundary dispute was resolved and the conservation master plan for the sanctuary agreed on by all concerned. Within this same degraded watershed, lands neighbouring the Sanctuary were selected to begin the work and all the resident households that owned degraded land were visited to introduce the planned activities and ascertain their interest in getting involved. Some 39 families were chosen, based on their willingness to participate. The initiative is assisting them with a minimal daily allowance to undertake the restoration work that includes nursery establishment, land preparation, composting and tree planting. The tree species used have been chosen for their local uses including the provision of medicines, fuelwood, craft supplies, shade and fruit. The programme is also providing the participating families with training in the production of organic coffee and sugar, as a means of enhancing their farming income while also conserving and expanding their forests.

On a landscape level, the initiative aims to reduce pressure on the sanctuary's native forest, restore the erosion control and hydrological functions of the watershed and improve the connectivity and availability of habitat for the area's wildlife, in particular the spectacled bear and the mountain tapir.

Under the second phase of the initiative, it is anticipated that the programme will evolve into a broader FLR approach, scaling up to two more watersheds in and around the sanctuary and taking into account downstream linkages. These linkages relate to the planned diversion of water from this watershed, which naturally drains to the Amazon, to the Peruvian coast to irrigate a private sector tropical fruit plantation enterprise. The hope is that the programme will be able to secure payment for environmental services from the company involved to the local people, for the watershed functions they are maintaining. The programme will facilitate dialogue between the local farmers and the company managers.

So far, the main challenge facing this initiative is continued forest burning to create pasture for low-density cattle ranching. This is posing a high risk to the success of the programme and is being tackled through an environmental education campaign. Encouragingly, local interest in the restoration activities has sparked spontaneous replication in other degraded lands.

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England: restoring ancient woodlands

England's ancient woodlands are not only the country's most biologically rich ecosystems and important sources of hardwood timber and other products, but are also an integral part of England's historic landscapes and cultural heritage. Many of these woodlands have been lost to agriculture and development or degraded through conversion to plantations of exotic conifer species. Current threats to the remaining woodlands include climate change, excessive browsing and grazing by deer and livestock, and poor management practices.

A radical forest policy shift, announced by the UK government in June this year, will see the introduction of a fifteen-year campaign to restore these woodlands, based on a landscape-level approach. A two-year Action Plan has been drawn up, including specific plans to, for example, provide grants, advice and training to support better woodland management, promote woodland creation to extend, buffer and link ancient woodlands, and tackle specific problems such as unsustainably high deer populations and declining woodland bird populations. Millions of conifers and other non-native trees are expected to be felled to encourage natural regeneration of native species such as oak, ash and beech. The Action Plan will be updated as required by the Forestry Commission of Great Britain (a founding member of the Global Partnership on Forest Landscape Restoration) with input from other government departments and partner organizations. The overall vision is one in which "ancient woodland, veteran trees and other native woodland is adequately protected, sustainably managed in a wider landscape context, and is providing a wide range of social, environmental and economic benefits to society."

For more information visit www.forestry.gov.uk/keepersoftime

India: restoring a mangrove wetland

Selvam Vaithilingam of M.S. Swaminathan Research Foundation in India describes how science and community participation have made a powerful combination for the restoration of degraded mangroves.

Pichavaram mangrove wetland on the southeast coast of India, though only 1470 hectares in size, is considered one of the country's most important mangrove genetic resources, as it contains a rich diversity of species belonging to the *Rhizophoraceae* family and a highly vigorous natural hybrid of Rhizophora. It is also a source of livelihood for thousands of local artisanal fishing families.

A research survey by the M.S. Swaminathan Research Foundation (MSSRF) in 1992 revealed that over half of the mangrove forest in the Pichavaram wetland was in a degraded state and MSSRF began a restoration programme the following year, with funding support from CIDA. Local people were involved in the restoration effort from the beginning and were instrumental in diagnosing the cause of the degradation. Contrary to the accepted view in the Forest Department that firewood collection and overgrazing were behind the degradation, the local community pointed out that the degradation was most severe in the centre of the wetland, an area almost inaccessible to humans and cattle. MSSRF was able to confirm these findings during field trips and found that the degraded central parts of the forest were characterized by the stagnation of tidal water, caused by a trough-shaped microtopography that inhibited tidal flows. The resulting hyper saline conditions were killing the trees and preventing natural regeneration. Village elders and Forest Department staff were able to explain the presence of these troughs. It turned out that coupe-felling of the mangrove forest, practised by the Forest Department from the 1930s to 1975, had exposed large areas of the wetlands to evaporation of soil water and the subsequent shrinkage of the soil under felled areas had produced the troughs.

Local people have dug and maintained the canals

MSSRF

The obvious restoration solution was therefore to create facilities for free tidal flows in the affected areas. A ten-hectare degraded plot was chosen as a demonstration treatment site and in 1994, with community and Forest Department participation, a canal system was created to bring tidal water in and out. A main canal was dug through the central part of the degraded areas, and a series of feeder canals were extended across the entire plot. The main canal was then connected to natural canals nearby.

Once tidal flows were restored and salinity levels reduced, some 80000 propagules of *Avicennia marina* were planted along the banks and between the feeder canals, and about 4800 propagules of *Rhizophora* spp. were planted along the main canals. Natural regeneration and the arrival of other species' propagules with the incoming tidal water has further increased the forest cover and the growth rate in these areas is now comparable to that in healthy areas of the mangrove wetland. Local people participated fully in the restoration work by developing and maintaining the canal system in the demonstration site and by planting and tending the new mangrove trees.

The success of this demonstration plot generated a good deal of interest among local people and the Forest Department. Concerns about how the canals were to be maintained and the restored sites protected led to the development of a Joint Mangrove Management (JMM) programme, which ran until last year. This community-based programme has extended the restoration to cover the entire Pichavaram wetland as well as other wetlands in other parts of the country. India's Ministry of Environment and Forest has included the restoration technique and the JMM model in its National Mangrove Action Plan and is now supporting replication of the JMM programme by Forest Departments in the coastal states of Tamil Nadu, Andhra Pradesh and Orissa.

This initiative, although site-based rather than on a landscape scale, illustrates well the FLR principle of using a participatory, multi-stakeholder approach in forest restoration work. The subsequent scaling-up through replication of the JMM programme has generated significant biodiversity and livelihood benefits well beyond the specific sites of restoration. The protection that the restored Pichavaram mangroves provided to adjoining villages and other nearby inland areas against the Indian Ocean tsunami in December last year is a good recent example of that (see arbor***vitae*** 27).

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China: restoring panda landscapes

Zhu Chunquan and Ling Lin of WWF China highlight some aspects of the landscape restoration work in Minshan, western China.

Hanging on to habitat: pandas are losing ground to China's economic development

The mountainous Minshan landscape in China's Sichuan province covers some 33,000 sq. km and is home to a large proportion of the country's wild giant panda population. However the once-isolated area is coming under increasing threat from the push for economic development. Road and dam construction, tourism development and mining are competing with conservation efforts and have already fragmented the forests on which the pandas rely. WWF-China therefore identified Minshan as a top priority conservation area and, since 2001 has been applying a forest landscape restoration approach to balance conservation needs with economic development.

From the beginning, the landscape restoration programme has collaborated closely with a wide range of stakeholder groups including local communities, forest department staff, forest companies, academic institutions, protected area authorities and local and provincial government agencies. A joint vision was developed for the landscape, based on information from GIS, remote sensing and studies of the area's biological, social and ecological characteristics. The stakeholders met in a series of workshops to agree on a vision and specific targets for the restoration work. For example, by 2010 the initiative aims to expand the existing giant panda habitat by 30% and halt the decline in giant panda numbers. At the same time the programme is expected to strengthen the capacity of local people to achieve sustainable resource management and development.

So how do these two objectives – conservation and development – fit together in practice? A good example is the work with the forest companies, many of which have had to transition from timber production to forest conservation since the nationwide logging ban came into force in 1998. Hungry for new concepts and seed funding to turn their forest farms into conservation enterprises, the companies have welcomed the programme's promotion of ecotourism development and marketing. One forest farm is already transforming itself into an ecotourism destination and others are likely to follow suit.

Forest-friendly economic opportunities are also being pursued for the local communities. The initiative has linked up with Carrefour, a major supermarket chain, to help local people sell non-timber forest products from in and around the protected areas. A two-week trial promotion in three Carrefour branches in Sichuan sold some 6 tons of products such as honey, prickly ash, walnuts and dried mushrooms, worth around US$24,000. This money went straight back to local communities, via a newly-established local enterprise, and it is hoped that this valuable source of income will reduce the incidence of illegal harvesting and hunting.

As for the technical side of the restoration work, the programme has produced a set of landscape restoration guidelines and distributed these to the local forest department. Training in the different restoration techniques is planned for the near future, as part of the initiative's overall emphasis on capacity building for sustainable forest management and conservation.

These are only some of the wide-ranging activities of this programme. Others include expanding and improving the management effectiveness of the protected area network, developing other alternative income and energy sources for the local communities, and establishing co-management mechanisms to mitigate the threats from infrastructure development and the overharvesting of traditional Chinese medicinal products.

All in all, one of the programme's major achievements to date has been adoption of the 'landscape approach' by forest company and protected area staff alike. Through participating in the planning process and collaborating on programme activities, the forestry and conservation communities have been able to develop a consensus on how wildlife protection fits within a land use mosaic in the landscape.

And the biggest challenge so far? Just that – enabling and encouraging stakeholders to become involved in the initiative and building consensus among the huge diversity of stakeholder groups.

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The Challenge of FLR

Restoring forest landscapes is a tricky business. David Lamb and Don Gilmour, both forest restoration experts, reflect on four of the highest hurdles facing FLR implementation.


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What's the outlook for FLR?

Up until recently, large-scale land restoration efforts have been rather ad hoc or opportunistic activities, where choices have been made on a pragmatic basis rather than any careful scientific or socio-economic analysis. While some of these activities have shown impressive achievements, their site-level results don't necessarily add up to an optimum outcome at a landscape level.

Forest landscape restoration is a concept that seeks to overcome these problems and generate increased benefits by setting objectives for restoration across the entire landscape, and by applying deliberate planning to implement these activities. The advantages of a landscape approach over a site-based approach are intuitively obvious but there are often four common impediments to its implementation.

The first impediment is in finding mechanisms to develop a ***restoration strategy and plan*** for the landscape. This will inevitably involve agreeing on a set of overall objectives for the intervention. That is, FLR is not an ad hoc or random process but involves deciding on how to intervene in the existing landscape mosaic. This is currently a key stumbling block to the implementation of FLR, as it involves difficult and sometimes controversial decisions and trade-offs. Trade-offs can only be made if all the stakeholders understand the choices before them and the consequences of each choice. Resolving trade-offs will require skills in developing an inclusive, pluralistic and adaptive approach to management.

The second common impediment is in ***determining the interests or preferences of the various stakeholders*** with a legitimate interest in the area. What are the uses that can or might be made of various areas of land? What type of regrowth management or reforestation might be carried out? These options are likely to vary depending on, for example, whether the stakeholders are resident or non-resident, have legal or de facto land tenure, are rich or poor, politically powerful or weak. There is likely to be a large difference between stakeholders in how they share the costs and benefits of current land uses and future restoration activities. Resolving this will require the application of adaptive management, and particularly the use of multi-stakeholder analysis.

The third impediment is the ***identification of areas that should be reforested first*** for bio-physical reasons. These might be riparian strips, buffer zones around remnants, corridors between remnants, eroding hillslopes etc. But which should be done first? The choice will depend on some assessment of 'efficiency' – where will the best ecological outcome be achieved per unit of money or effort expended? Resolving this will take a careful evaluation of the landscape mosaic and the key ecological processes occurring across it. An overriding consideration will be the objectives that are agreed to for the overall FLR initiative.

The final impediment concerns ***incentives and compensation***. Some landowners may be happy with the status quo and will not want to change. Others may be unable to change for financial reasons (e.g. they are too poor to do so). And still others may need compensation for expenses that occur which largely generate benefits for other stakeholders. Just what types of incentives or compensation are appropriate – cash subsidies, cheap loans or payments for some future ecological services? These sorts of dilemmas are invariably case specific and not amenable to general answers.

It is clear that these impediments are interlinked and will require collaborative work by researchers and managers to find appropriate solutions. ***The real challenge to be addressed in operationalizing FLR is to systematize the approach and apply it across a landscape***. Two sets of guidelines for implementing FLR (sponsored by ITTO and IUCN, and WWF) have recently been prepared, but these will doubtless require considerable refining based on action learning during implementation – and they have yet to be field tested. While there is a growing portfolio of recent FLR initiatives in development, few of these cases have gone through all of the systematic planning processes referred to above. Efforts should be continued to raise sufficient long-term funding to implement FLR initiatives in degraded landscapes as operational-level action-learning trials in order to field test the whole concept.

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Rallying support for restoration in Argentina

Consuelo Espinosa of IUCN's South American Regional Office and Teresa Moncarz of Los Algarrobos report on the restoration work of this IUCN member.

For the last 3 years, the NGO Los Algarrobos has been implementing an environmental restoration programme in the San Roque river basin in central Argentina. The basin, covering 1,750 sq. km, is important not only for the region's tourism industry – its main economic activity – but also as the source of drinking water for the provincial capital, Córdoba. Forest degradation in the river basin is a growing problem with forest fires, overgrazing and soil erosion all in evidence. In addition, the presence of open refuse dumps throughout the basin threatens the environment and the tourism-based economy alike.

Los Algarrobos began the restoration programme with the explicit aim of making stakeholder participation the main driving force behind the transformation of the basin. The FLR activities were therefore combined with a whole range of communication, awareness-raising and capacity-building efforts, each targeting specific groups of actors. Even the identification of the distinct stakeholder groups was undertaken by a group of stakeholder representatives in a participatory manner, during the initial planning phase of the work. Three target groups were defined for the communication work: local communities and organizations, school children and tourists.

Spreading the message and mobilizing support for restoration then took different forms for the different groups. Local community members were reached via pamphlets distributed alongside local tax documents, training modules distributed with local newspapers and magazines, roundtable discussions, and guided trips organized around the basin. School children saw theatre shows and participated in role plays to explore how they could become involved in resolving some of the environmental problems in the area. Tourists, for their part, were shown how they could minimize their environmental impacts on the basin and were provided with information via brochures and the guided trips. These visits proved particularly effective as awareness-raising tools.

Training efforts, on the other hand, focused on different sets of stakeholders: local government authorities, teachers and trainers, the business community, as well as civil society organizations and the general public. The strategy adopted for training local authorities was to involve them from the very beginning in the scoping, planning and implementation of all the programme components. This has generated a high degree of support for the programme from this key stakeholder group.

Combined with these outreach activities, the programme developed an FLR model, designed over a one-year period through a series of stakeholder meetings and fieldwork activities. The model includes four restoration components: fire prevention, tree planting, soil management and crop rotation. The stakeholders involved in developing the plan decided that the tree planting work was the most urgent and have therefore started with this. The plan is to replicate the model in five locations within the basin, to cover a total area of 38,000 ha. Landowners are being provided with practical training on the aims and methods of forest landscape restoration, with a particular focus on upstream afforestation for controlling erosion, improving soil quality and diversifying their incomes.

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Local producers and Los Algarrobos staff in a restoration site

IUCN news in brief

FLR Material: IUCN's Forest Conservation Programme has produced a booklet on FLR in West Africa, calling for replication of FLR initiatives across the region. The booklet can be downloaded from www.iucn.org/themes/fcp/publications/files/flr_wafrica_english.pdf, or a hard copy requested from forests@iucn.org. The Programme has also produced a four-minute video on FLR, on behalf of the Global Partnership on Forest Landscape Restoration which was presented at UNFF-5. The video, *Forest Landscape Restoration: See the Bigger Picture*, is available in French, English or Spanish. For more details contact michelle.laurie@iucn.org.

Forest Dialogue: IUCN's Forest Conservation Programme hosted a two-day meeting of The Forests Dialogue (TFD) in June to discuss the often contentious topic of plantation forests. Twenty-two global forest leaders convened by the TFD and representing diverse interests and opinions reviewed the subject and reached agreement on the areas of the plantations debate that they will now explore together over the next 18 months.

Restoring Cork Oak Landscapes in Portugal

Degradation of Portugal's traditional cork oak landscapes has led to some costly consequences. Nora Berrahmouni of the WWF Mediterranean Programme Office reports on a new FLR initiative that is working with local people to help restore the integrity of these landscapes.

Tending saplings in the greenhouse of the NGO partner ADPM

Portugal leads the world in both its coverage of cork oak forests and its production of cork. However, the country's increasing rural-urban migration has meant that many of its traditional cork oak forests have either been abandoned or in the case of the Monchique region, replaced by low maintenance eucalypt plantations. In the absence of a landscape-level perspective, in part a factor of Portugal's land tenure system (where more than 99% of forest land is privately owned and property sizes are very small), the result has been a fragmented and vulnerable landscape.

With far fewer naturally fire-resistant cork oaks (*Quercus suber*) and almost no fire breaks, the landscapes have become highly flammable and the extensive fires in these areas during the last two summers have proven costly wake-up calls. The 2003 fires alone cost the country an estimated 1 billion euros, and the environmental costs have been devastating as large areas of habitat for the endangered Iberian lynx, Bonelli eagle and many endemic plant species have been lost. The societal costs have also been high as thousands of people are dependent on the cork industry for their livelihoods.

WWF responded last July by launching a five-year cork oak landscape programme to protect, manage, and restore the natural wealth of these landscapes by influencing the policies, practices and markets that affect them. Two pilot forest landscape restoration projects were initiated in southern Portugal, based on earlier biodiversity and socio-economic assessments and mapping exercises that identified the restoration priorities for re-establishing the integrity of the cork oak landscapes.

The two pilot projects, while both small-scale, were therefore conceived within a landscape perspective and were designed as learning opportunities to test tree planting and restoration techniques, build partnerships and generate trust and respect among the many different stakeholder groups involved. This approach has already yielded results with 25,000 plants produced in the tree nursery of the local NGO partner, a total of 14,500 saplings planted, and numerous site visits organized for local farmers, and NGO staff and foresters from Portugal, Morocco and Tunisia. But even more impressive has been the fact that the projects' emphasis on sharing the lessons learned has already enabled a scaling up of the forest landscape restoration approach. WWF has been working to build a partnership with the Algarve reforestation commission (a government body set up after the 2003 fires) to apply the FLR approach in the restoration of the burned forest landscape of Monchique. The commission was invited to several study visits and a press event on the pilot projects. On seeing the results achieved by these initiatives, the commission committed to work with WWF to co-fund a third pilot project in a 4000 hectare burnt area. This project will test forest landscape restoration techniques and develop guidelines for the use of these techniques in restoring burnt areas as part of a multi-stakeholder forest landscape planning process.

The big challenge in this work is to address the economic concerns of landowners while ensuring the ecological integrity of the landscape as a whole. The project will need to engage with the many small landholders and address the inevitable trade-offs at the site level. Eucalypt plantations have been the cash option of many landowners and their partial replacement with cork oaks and other species will need careful consultation and compensation. The project is therefore identifying policy measures and funding mechanisms that will help landowners cover the costs of forest management and restoration.

Perhaps the main lesson learnt from this project so far has been the value of starting small, both as an opportunity for learning and testing and as a way of demonstrating effective results. Scaling up can then be based on proven techniques and established partnerships. As the old adage goes, great oaks from little acorns grow!

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WWF news in brief

Staff Changes: After six years as Director of the WWF Forests For Life Programme, Chris Elliott will be leaving the programme to take up the position of Regional Vice President for the Pacific with WWF Canada from 1 October 2005. Kirsten Schuyt, formerly a Resource Economist with the Forests for Life team at WWF International, joined WWF-Netherlands on 1 July 2005 as Co-ordinator of the Forest Programme.

New Brochure: In May the Forests For Life Programme published a new brochure outlining its work in forest protection, management and restoration. The report can be downloaded from www.panda.org/forests/brochure or a hard copy can be requested from Nelda Geninazzi, ngeninazzi@wwfint.org.

arbor*vitæ*

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The next issue of arbor*vitæ* will be produced in December 2005 (copy deadline end of October) and will focus on forest conservation and poverty reduction. If you have any material to send or comments please contact:
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Back issues of arbor*vitæ* can be found on: www.iucn.org/themes/fcp/publications/arborvitae/avnewsletter/avnewsletter26_30.htm

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Reviews in brief

Forthcoming FLR Guides
Two complementary publications are due out soon offering practical advice on planning, implementing and monitoring FLR initiatives.

One book, *Forest Restoration in Landscapes: Beyond Planting Trees*, edited by Stephanie Mansourian, Daniel Vallauri and Nigel Dudley, will be published by Springer Publications in August and launched at the IUFRO World Congress in Brisbane, Australia. This book is a compilation of short chapters, bringing together the expertise of over 60 specialists and practitioners. Developed by WWF to provide guidance on how best to approach the restoration of forest functions in landscapes it offers simple, practical advice and examples from around the world, covering both temperate and tropical forests and is intended to outline for practitioners current knowledge and examples relevant to FLR, while highlighting outstanding gaps. This book, written primarily for ecologists, conservationists, researchers, foresters and students, can be pre-ordered from www.springeronline.com and www.amazon.com.

The other book, *Restoring Forest Landscapes: an Introduction to the Art and Science of Forest Landscape Restoration*, will be published by ITTO and IUCN in the autumn. This book has been designed as a 'reader' in FLR, setting out the main principles and techniques of the concept and providing readers with key sources of further information and guidance. With a wide range of FLR expert contributors, the book includes practical advice on, for example, understanding landscape dynamics, managing multi-stakeholder processes, selecting specific site-level options for different forest types, and using scenario modelling to optimize outcomes. The book is aimed primarily at national-level foresters and policymakers with the aim of encouraging and enabling them to start undertaking FLR initiatives in the field. The book is planned to be used in a series of national-level training workshops in ITTO producer countries and English, French or Spanish versions of the book can be requested from itto@itto.or.jp.

Exalting Excellence
Available from: patrickdurst@fao.org

In Search of Excellence: Exemplary forest management in Asia and the Pacific, edited by Patrick Durst, Chris Brown, Henrylito Tacio and Miyuki Ishikawa, is the result of a four-year process of whittling down 172 case study nominations of exemplary forest management in the region to the 28 cases selected for this book. The transparency strived for by the editors is admirable: criteria for selecting the case studies (learning potential for a variety of actors and contexts rather than excellence per se) are clearly explained and summaries of non-selected case studies are included in an Appendix.

The book rightly highlights that achieving excellence in meeting forest management objectives does not guarantee that the latter are uncontroversial – and many case studies explicitly analyze the conflicts surrounding them. A few of the case studies, however, are so devoid of context that it is hard for the reader to judge their 'excellence', in the absence of knowledge about what particular problem was overcome. The case study of the Chaubas-Bhumlu Community sawmill is a case in point: unless one knows how difficult it has been for Forest User Groups in Nepal to obtain rights to timber from the government Forestry Department one could easily dismiss the case as being of little value.

While the book's focus on excellence is engaging, its zeal against all things average is somewhat misplaced: if all forest management in Asia and the Pacific were of average quality, there would no doubt be fewer instances of forest destruction and illegal logging than at present. The book also over-reaches a little in developing a typology for good management, which bring little new, and a 'model' of good management – yet another addition to the many less-than-useful diagrams in the forestry literature. What remains though is a well-illustrated, engagingly written collection of interesting case studies – which should be good enough for most of us.

Fair Shares in Forest Management
Available from: www.rff.org

The Equitable Forest: Diversity, Community and Resource Management, edited by Carol J. Pierce Colfer, provides a rich and diverse collection of case studies on how different groups of stakeholders influence, and to what extent they benefit from, forest management in Africa, Asia and Latin America. Forestry development practitioners and researchers alike will find plenty to inspire them: theoretical frameworks and practical insights; forest ecology research methods as well as tools for participatory learning. The focus on how individual behaviour of outside facilitators can help or hinder the achievement of development objectives is refreshing in a field of endeavour where many authors have stressed structural constraints on improving equity *ad nauseam* – without providing any guidance to how this can be overcome in practice. The only part of the book that is less convincing is the closing chapter, which is disappointingly thin and includes some rather trite 'tips for forest managers'. This is all the more of a pity as the chapter contains some brief but tantalizing reflections on the nature of power, which are essential for improving equity, and which could easily have been worked out further as they resonate with the content of quite a few of the case studies.

IMPORTANT! Readership Survey

We are conducting a survey of arbor*vitæ's* readers to elicit their views on the newsletter and their ideas on any changes to its content and format. A short questionnaire is included with this issue and we encourage all readers to complete this form and return it using the envelope provided. If you prefer, or if several readers share the same copy of the newsletter, you can download the questionnaire or fill it online at www.iucn.org/forest or www.panda.org/forests. Alternatively you can request an electronic version from Forests4Life@wwfint.org and return the completed document to the same email address by 31 October.

We are also using this opportunity to update the mailing list of arborvitae, and to check whether or not you would like to continue receiving the newsletter. Please note that we cannot guarantee continued delivery to those readers who do not send in a completed questionnaire.

Many thanks for your cooperation and support,
The editorial team