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**Facing change:
A warming story**

Almost every day, it seems we hear further evidence that the Earth's climate is changing. During the last century, global temperatures climbed by about 0.6°C – the largest increase in at least one thousand years. As a result, snow cover is decreasing, glaciers are retreating, flowering and fruiting cycles are shifting, rainfall patterns are changing, and extreme weather events are more frequent. And people are dying. The World Health Organisation says climate change killed 150,000 people in 2000, a death toll that could double again in the next 30 years if current trends are not reversed. Whether the topic is the effect of climate change on livelihoods, the melting Arctic sea ice or coral bleaching, the evidence seems clear – the world is starting to warm up.

For many forest professionals, however, the onset of a warming world is not considered a real problem. 'With so many other more pressing and localised issues to deal with today – such as halting illegal logging, why should I divert attention to what seems to be a long-term problem?' the cautious forest professional could ask. In this issue, IUCN and WWF present some compelling evidence, such as the latest findings from a global assessment sponsored by IUCN and published in *Nature* of the effect of climate change upon species extinction rates, as to why climate change is certain to become a growing pre-occupation for forestry and conservation practitioners around the world.

Although governments and some businesses are starting to take responsibility for their carbon dioxide (CO₂) emissions, it is now increasingly accepted that the current warming of the Earth cannot be avoided. Past and current emissions to the atmosphere will lead to at least another 1°C warming over the next 50 years. Since we cannot prevent all climate change, WWF and IUCN are beginning to look at strategies to increase the resistance and resilience of forest ecosystems, and forest dependent communities, to manage the period until policy makers adequately address this serious threat. In this issue we report on our respective work to incorporate climate change into our conservation strategies, such as WWF's manual to provide guidance to forestry and conservation practitioners on how to increase forest resistance and resilience to climate change and the series of pilot restoration projects underway to apply this guidance.

On our feature pages we take up the hotly debated issue of carbon sequestration and the role of forest projects in the Kyoto Protocol emissions trading system, and highlight our efforts to learn on the ground how carbon sequestration could possibly contribute to environmental and social objectives if explicitly designed with these objectives at the fore.

With this issue, IUCN and WWF hope to show that climate change is not a subject that can be ignored for 50 or even 20 years, but one that needs to be addressed now. Only by thinking, working and learning together can we develop conservation strategies to manage the new uncertainties created by climate change.



Extinction Risk from Climate Change

A global assessment of the effect of climate change upon extinction rates has revealed some alarming trends. Alison Cameron and Chris Thomas, authors of the research findings, summarise the results — setting the scene for this issue's featured topic: climate change and forests.

Over the past 30 years climate change has produced numerous shifts in the distributions and abundances of species and has been implicated in one species-level extinction. Climate modellers have been striving to provide more reliable climate projections, whilst ecologists have been developing methods to model species distributions in relation to climate conditions. A recent study reported in *Nature* brought these disciplines together for the first time.

Using projections of species distributions for climate scenarios for the year 2050 the study assessed extinction risk across 1,103 species. Only those species whose entire distributions could be modelled were selected, including terrestrial plants, mammals, birds, reptiles and insects. The regions included in the study cover 20 per cent of the Earth's terrestrial surface. Three approaches were explored, based on the Species Area Relationship in which the estimated probability of extinction shows a power law relationship with geographical range size. Two dispersal scenarios were looked at; a highly optimistic scenario where species were assumed to disperse freely to suitable areas and a contrasting pessimistic scenario where species would not be able to disperse and colonise new areas.

Results range from a nine per cent extinction rate (the most conservative Species Area Relationship applied to the minimum expected climate scenario in combination with the unlimited dispersal assumption) up to 52 per cent (the least conservative Species Area Relationship applied to the maximum expected climate change scenario in combination with the limited dispersal assumption). Under the mid-range climate warming scenario 15-37 per cent of species in the sample of regions and taxa will be 'committed to extinction'. The species are not all expected to be extinct by 2050, but declining in that direction.

There are an estimated 14 million species on earth. Therefore, if the projections were to be extrapolated globally, and to other groups of land animals and plants, the analyses suggest that well over a million species could be threatened with extinction as a result of climate change by 2050.

Climate change is likely to be as great a threat to biodiversity as habitat loss and other extinction drivers. For

instance, in tropical forests global extinction related to habitat loss is expected to be lower than the rate projected for scenarios of mid-range climate change (24 per cent extinction).

Regional differences are also expected. The extinction risk in the montane forests of Queensland, Australia, for example, is dominated by climate change (between 7–13 and 43–58 per cent, for minimum and maximum climate scenarios, respectively) because the forest is legally protected, but forest loss will remain the dominant threat in other regions.

These estimates show the importance of rapid adoption of technologies to decrease greenhouse gas emissions and strategies for carbon sequestration. New approaches urgently need to be developed to identify which species, taxonomic groups and biodiversity hotspots are at risk from climate change.

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Lamington National Park, Queensland, Australia

Private property

A challenge for forest conservation in Central-East Europe



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A man collecting fruit from the forest near Smiltene Valkas, Latvia

Piotr Tyszko of the IUCN Office for Central Europe reports on a project aimed to address issues raised by the rapid change in land ownership in the region.

Political changes have led to the large-scale privatisation of forests in Central-East Europe (CEE) – up to 50 per cent of forest area in some countries. As a consequence there are close to three million, mostly new, forest owners in the region, who often have insufficient experience and knowledge of sustainable forest management practices.

Newly privatised forests are thus at risk, both as an economic resource and a biodiversity reservoir. The IUCN Programme Office for Central Europe (IUCN-CE) is implementing a project to address these threats, as part of a broader initiative of IUCN, FAO and CEPF (European Confederation of Forest

Owners). The project aims to strengthen private forestry and promote sustainable forest management practices in CEE.

Representatives of forest owners associations and IUCN experts from the Czech Republic, Estonia, Hungary, Latvia, Lithuania and Poland met in Latvia in December 2003. The goal was to review biodiversity conservation issues in private forests and update the sociological information on forest owners.

Forest owners in the Baltic countries and Hungary are a diverse group. Forest property is highly fragmented, for example, in Estonia properties of less than 5 ha constitute 61 per cent of the holdings but cover only 19 per cent of the total private forest area. The majority of owners are elderly men who do not depend financially on the forest. Many of these owners are open to conservation values and to the sustainable forest management concept. Those who possess larger tracts of land are more business-oriented. Some want to generate profits right away. Others have a long-term profit perspective and understand the need for sustainability. However, if a contribution to nature conservation affects their profitability, they expect compensation. In countries with an uninterrupted history of forest ownership (i.e. Western Europe and to some degree Poland) forests are often treated as a family asset and as a source of long-term sustainable revenue. In these areas many owners take pride in the sustainable management of their forests.

Clearly, educational programmes directed at forest owners should be adjusted to particular target groups within the sector, taking into account the differing motivations. All actions should be based on solid sociological knowledge. Currently, IUCN is working on a guidebook to communicate biodiversity conservation to forest owners. The publication will include a review of conservation issues, model communication strategies, and model extension and training materials. It is expected to be widely consulted in the region, and should be available later in 2004.

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News in brief

Thanks to our departing editors: Sadly, after 25 issues of this Newsletter, and more than 10 *arborvitæ* specials our current editors, Sue Stolton and Nigel Dudley have decided to call it a day. We are sure that *arborvitæ* readers will want to join the Forest Programmes of both WWF and IUCN in expressing huge thanks to Sue and Nigel for all their dedication and hard work with *arborvitæ* over the last nine years. Starting as editors of the first edition in 1995, they have both given inspirational input, often well beyond the call of duty in helping to develop the high quality product that we see today. We are currently working with Sue and Nigel on a smooth transition to a new editor - more details in the next issue.

Ignoring endangered species: Environmentalists have criticised new regulations in the US that expedite forest thinning, burning and other fire control projects on public lands by eliminating the requirement that land management agencies consult with wildlife biologists to ensure protection for endangered species, as they could possibly undermine endangered plant and animal protection.

Source: Environment News Service (ENS), 24 March 2004

Tiger fears: A new report by TRAFFIC, *Nowhere to Hide: The Trade in Sumatran Tigers*, reveals that at least 50 Sumatran tigers were poached annually between 1998 and 2002. Latest available figures show that there are between 400 and 500 tigers left in the wild in Sumatra. Habitat loss is also a crucial factor in the tiger's decline. WWF is thus calling for a moratorium on clearing Sumatra's lowland forests, prime tiger territory, by two of the world's biggest paper companies APP and APRIL (see page 4).

Source: www.panda.org, 16 March 2004

Belize dam go-ahead: Despite the warnings of 18 of the world's leading forest experts and ecologists, plans to build a large dam in Belize have been given the go-ahead by the British Privy Council, ending a legal battle by conservationists who wanted new environmental impact hearings on the project. The dam on the Macal River valley in Belize will destroy a large area of rainforest, causing significant and long-lasting impacts on the ecosystems and species of the region.

Source: *The Scotsman*, 29 January 2004, www.scotsman.com



WWF-APP Engagement

Chng Soh Koon reports on a new relationship which did not live up to expectations.

It seemed like an odd relationship – a global conservation organisation and one of the world's biggest paper companies, known to have cleared much of what is probably Indonesia's last remaining lowland forests. Yet, the Letter of Intent which formalised, in August 2003, the WWF and Asia Pulp and Paper (APP) agreement was hailed by the UK's *Financial Times* (16 February 2004) as a likely signal of a new trend in the movement for corporate social responsibility. Six months later, however, the engagement has ended in deadlock.

Problems arose over a 12-year sustainable wood supply plan developed under the agreement by APP and its parent company, the Sinar Mas Group. The plan was rejected by WWF, who said it failed to adequately address the protection of forests of high conservation value, resolution of land disputes with local communities, and long-term sustainability of wood supply. APP also refused to put its forests under a temporary logging moratorium while credible conservation assessments are carried out.

WWF has called on APP's customers and creditors to put pressure on the company to immediately improve its wood supply plan, and, failing this, to review their business relations with APP.

Contact: Nazir Foad, WWF Indonesia's Director of Species Programme, NFOead@wwf.or.id, also see http://www.panda.org/about_wwf/what_we_do/forests/news/news.cfm?uNewsID=11451

Drafting a new Forest Code for Russia

On March 18th the Russian Government adopted a new draft Forest Code which opens the way for the privatisation of forests and reduces state control on logging activities. Victor Teplyakov of IUCN and Vladimir Dmitriev of WWF report.

When in 2000 the State Ecological Committee and Forestry Committee of Russia were re-organised, the Russian Government began a process of reforming the state forestry agencies and forest legislation. Since 2001 the President and the Government have been working on a new version of Russia's Forest Code. Forests cover more than half of Russia's territory, but the Code was prepared by bureaucrats of the Ministry of Economy behind closed doors and without the broad involvement of the public, ecologists or forestry experts.

The main causes for concern are that the code gives permission for forest privatisation, sale of forest lands, building cottages in protected forests and special protection territories, and conversion of forest lands into other land categories; overall it decreases forest control and favours illegal logging. The rights of people to live in the forest and use forest resources are restricted and the document does not allow for the inclusion of local people in decision making. Moreover, people are worried about the possible elimination of the traditional state bodies engaged in forestry activities on the ground – the forest management units (*leskhozes*).

WWF Russia, Greenpeace Russia, the Socio-Ecological Union and the IUCN Office for Russia and CIS have prepared extensive comments on the Forest Code. They highlight the need to reform present forest legislation and suggest ways to manage the different functions of forest control and forest management. The consensus is that it is too early to introduce forest privatisation in Russia, particularly as it may significantly restrict civil rights.

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News in brief

China new parks: In 2003, the State Forestry Administration (SFA) approved 64 new national forest parks across China to protect natural resources and boost tourism. China now has 503 national forest parks covering 10 million ha, and 1,700 forest parks covering 14.8 million ha.

Source: *China View*, news.xinhuanet.com

Bhutan forest management: A comprehensive forest management code has been agreed in Bhutan to act as a basic tool for forest management planners and implementers. The code includes elements for laying down short, medium and long-term planning along with socio-economic surveys, monitoring and evaluation, operational planning, forest management inventory, and health and safety issues.

Source: Kuensel Online, www.kuenselonline.com

Climate Change adaptation: Can we manage it?

With evidence of the negative impacts of climate change on biodiversity mounting, forest protected area planners and managers are asking: What pattern of change should we expect? And can we do anything about it? Leonardo Lacerda provides some answers.

When faced with past climatic change events, forest species have shown to be better able to adapt or migrate to other habitats when changes were gradual and natural connectivity existed. Today forests are seriously fragmented and degraded, reducing their ability to resist change. Human-induced climate change is thus expected to seriously compromise forest resilience and distribution. Globally, it has been estimated that at least one-third of the world's remaining forests may be adversely impacted by climate change during the 21st century, leading to a wave of mass extinction (see page 2).

The semi-arid spiny forest of Madagascar



The impacts of climate change in forests are shaped by a pattern of disturbance, movement of species and habitats, simplification and extinction. Extreme weather events are likely to exacerbate the vulnerability of forests. In the rush for migration, slower growing species will suffer more compared to fast-growing invasive species, leading to habitat simplification. Among the resulting effects, age-reduction, or the replacement of old-growth forests with younger stands, will put at risk the survival of a number of already endangered species. In such a scenario, not only relict and vulnerable forest habitats and species will be lost, but extinction of keystone species may lead to a cascading effect of further extinctions.

Change will not be distributed evenly across the landscape. Modelling carried out by WWF in the study *Habitats at Risk* reveals that greater changes are likely in higher latitudes and altitudes. In higher latitudes, taiga, tundra, boreal forests and the southwestern Australian forests and scrubs are expected to be severely modified. In tropical regions, areas in higher altitudes such as montane, cloud or dry forests will be affected. Elsewhere, island environments are especially at risk because of small populations, limited options for migration and sea level rise.

Planning responses

Facing up to the uncertainties inherent in climate change will demand flexibility, learning and adaptive management. One should start with an analysis of vulnerability, review adaptation options, define strategies, take action, monitor and ensure timely feedback. This process seems very familiar to the protected area practitioner. The novelty is to understand the ways in which climate change will exert additional pressure, and to provide appropriate responses. When defining adaptation options and strategies, three major dimensions stand out: spatial, temporal and functional.

On the spatial front, climate change concerns will need to be integrated into planning efforts at a much bigger, biogeographic scale. Maximising the size of protected areas, restoring and increasing the habitat connectivity in the landscape, and building understanding about the role of buffer zones and collaboration for ensuring flexibility of land uses, are examples of practices that will be required. Special attention will be needed to enable north-south as well as altitudinal migrations, and ensure representation of forest types across environmental gradients. There will be an increasing need to assist species to migrate to new areas, and to support the survival of others through *ex situ* conservation efforts.

Regarding the temporal dimension, protected area network planning will require looking at an evolutionary-scale. Identifying and protecting climatic refugia that were important in the past may teach vital lessons. Likewise, protecting mature, older forest stands may offer greater chances of survival to key habitats and species.

Finally, dedicating attention to the survival of some functional groups of species such as seed dispersers, pollinators and predators will be crucial for enhancing resistance and resilience. At the landscape level, maintaining natural fire regimes, improving natural resource planning and management, and promoting ecosystem health via restoration will be fundamental. A focus on functionality and on the goods and services provided by protected areas might also prove vital for human adaptation to the effects of climate change. Improved planning should anticipate and maximise the potential benefits that protected areas can offer in efforts to improve water and food security and to resist the effects of hurricanes, droughts, flooding, avalanches, coastal erosion and uncontrolled fires.

Instead of taking a despondent attitude given the lack of resolve of world leaders and climate negotiators in grappling with the real issue of reducing emissions, protected area planners and managers are waking up to the need to adapt to the challenges imposed by climate change. However, unless hard decisions are made to curb emissions, their efforts might be largely in vain in the defence against climate change.

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This article is primarily based on the WWF publications *Buying Time: A User's Manual for Building Resistance and Resilience to Climate Change in Natural Systems*, and *Habitats at Risk* available, respectively, at www.panda.org/news_facts/publications/climate_change and www.panda.org/downloads/climate_change/wwfparksbro.pdf

Setting the Agenda for Protected Areas

The seventh Conference of Parties to the Convention on Biological Diversity (CBD), held in Kuala Lumpur in February 2004, adopted a Programme of Work on Protected Areas – one of the most ambitious in the history of the Convention. Gordon Shepherd, WWF and David Sheppard, IUCN report on those areas which relate to forest protected areas.

The Programme of Work (PoW) sets clear targets including the establishment of a global network of comprehensive, representative and effectively managed protected area systems. Emphasis is placed on expanding protected area systems, strengthening the management of protected areas and ensuring that the costs and benefits of protected areas are equitably shared. The PoW builds on and reinforces the results of the Vth IUCN World Parks Congress and confirms the role of protected areas in biodiversity conservation and sustainable development and in the implementation of the Millennium Development Goals.

The seventh Conference of Parties (CoP-7) requested the Global Environment Facility (GEF) to support the implementation of the PoW and to work with donors to address the long-term financial sustainability of protected areas, with the aim of securing by 2008, sufficient resources to implement and manage national and regional systems of protected areas (para 12 (a)). CoP-7 also requested the Executive Secretary of the CBD to convene, before the end of 2005, a donor agency meeting to discuss options for mobilising new and additional funding for implementation of the PoW (3.4.7).

At the national level, the PoW obliges parties to 'elaborate outcome-oriented targets for the extent, representativeness and effectiveness of their national systems of protected areas' (para 24). The PoW states that protected area system gap analyses should be completed by 2006 (1.1.5) and the necessary additional protected areas be designated by 2009 (1.1.6). By 2005, Parties should assess financial needs related to the national system of protected areas and identify options for meeting these needs (3.4.1). By 2008, Parties should have established and begun to implement country-level sustainable financing plans that support national systems of protected areas (3.4.2).

The PoW calls on Parties to implement management effectiveness evaluations of at least 30 per cent of their protected areas by 2010 and of their national protected area

systems. Parties are also requested to integrate climate change adaptation measures in protected area planning, management strategies and in the design of protected area systems (1.4.5). The PoW also emphasises the integration of systems of protected areas into the broader land- and seascape, through ecological corridors to maintain ecological processes and cater for migratory species (1.2.3).

Parties are required to conduct assessments of the contribution of protected areas to the country's economy and integrate the use of economic valuation and natural resource accounting tools into national planning processes (3.1.2). Perverse incentives should be identified and removed (3.1.5) and efforts to integrate protected areas into broader sectoral plans such as poverty reduction strategies should be evaluated by 2006 (1.2.1). The rights of indigenous people and how they are affected by the creation and implementation of protected areas were also recognised (2.2).

An *ad hoc* open-ended working group on protected areas was created to support and review implementation of the PoW and report to the CoP; the group should meet at least once before CoP-8, 'subject to the availability of the necessary voluntary contributions'. Offers of financial support and hosting arrangements were made by several countries.

The PoW is the most significant and ambitious ever adopted by the CBD. It will have major implications for the future work and activities of IUCN/World Commission on Protected Areas (WCPA) and WWF IUCN's WCPA is currently reviewing its Strategic Plan to focus on how it can best support Parties in their implementation of the PoW. It is anticipated that this will have particular focus on targeted expansion of the global protected area system, particularly in the marine environment. Additionally, strengthening the effectiveness of protected areas, including through focused capacity building efforts and through better application of sustainable financing mechanisms, will be a priority. With regard to forests, WWF's work will focus on supporting Parties to improve forest representation by establishing new protected areas in the most outstanding and threatened forest ecoregions worldwide; to increase resilience through the building up of large and connected protected area networks; and to assess protected area systems and ensure appropriate follow up to recommendations, thus leading to improved management of the existing forest protected areas.

Source: The full text of the CBD/COP-7 decision can be found on www.biodiv.org/doc/meetings/cop/cop-07/official/cop-07-l-32-en.pdf

Farming for carbon

Richard Tipper from the Edinburgh Centre for Carbon Management (UK) explains one of the longest running land-based carbon offset initiatives.

The Scolel Té project for carbon management and sustainable livelihoods in Chiapas, Mexico operates in over 25 communities, among seven different indigenous Mayan and Mestizo groups of Chiapas and Oaxaca. The region is one of considerable biodiversity, containing some of the largest North American tropical rainforests, most of the remaining cloud forests and many endemic species. The region is populated predominantly by smallholder farmers producing maize and beans under the traditional agricultural system known as *milpa* for subsistence, plus coffee, fruits, firewood and textiles and wage labour for cash.

The project started in 1995 with a feasibility study funded by the Mexican government to examine the carbon benefits associated with various agroforestry and forest restoration activities proposed by indigenous communities and farmers' unions. Following this study a trust fund, the 'Fondo-BioClimatico', was established at a local branch of the national development bank to pool both carbon benefits from multiple

agroforestry activities and the finance to support these actions. In 1996 the project obtained funding from UK-DFID's Forestry Research Programme to develop a system for planning and managing forestry activities to produce carbon services in ways that contribute to the improvement of local livelihoods and biodiversity conservation. This system, known as *Plan Vivo*, is now used as the operating system for Scolel Té and similar projects in Africa and India. Plan Vivo carbon certificates are now among the most credible and widely recognised forms of carbon offsets available in the voluntary sector.

In 1997 the project was boosted by the Foundation for the Automobile and Society, a charity of the Fédération Internationale de l'Automobile (FIA). The Foundation committed to an on-going purchase of approximately 20,000t CO₂ offsets per year to compensate for greenhouse gas emissions associated with the Formula 1 and World Rally Championships. Since 1997 the project has gradually expanded, improving its administrative and technical systems through experience and a number of external reviews. Since 2000 the project has diversified its list of clients to include the World Bank, Pink Floyd and the World Economic Forum through Future Forests.

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Bringing Climate Change Down to Earth

Anne Hammill of the International Institute for Sustainable Development (IISD) explains how Forest Landscape Restoration is being used to adapt to climate change

Adapting to climate change must include measures that minimise vulnerabilities to climate variability and extreme weather events. Activities such as forest landscape restoration can help vulnerable communities reduce their exposure to climate-related hazards and extend options for sustaining livelihoods. IUCN, IISD, the Stockholm Environment Institute and the Swiss Organization for Development and Cooperation (Intercooperation) are working together through the IUCN Commission on Environmental, Economic and Social Policy (CEESP) to strengthen the use of ecosystem management and restoration activities in climate change adaptation strategies. Among the first priorities has been to identify

and evaluate interventions that have been successful in reducing vulnerability to climate impacts.

One such success story is PASOLAC (*Programa para la Agricultura Sostenible en las Laderas de América Central*), where Intercooperation has been working with communities since 1992 to increase the agricultural productivity of hillsides through sustainable soil and water management (SSWM) techniques. While hillsides represent the economic base for the majority of rural populations in Central America, they are also characterised by severe soil and landscape degradation. These degraded hillsides have led to more frequent water shortages during dry seasons and floods during extreme rainfall events.

Studies conducted on plots using SSWM have indicated improvements such as: a three per cent increase in water retention in the top 20 cm of soil between 1993-7 (equivalent to 60,000 litres of water per ha or six mm of rainfall); little or no erosion damage after heavy rainfall; year-round water flow; and sustained agricultural production during drought conditions. The overall result of PASOLAC's work has been increased community resilience to climate impacts.

IUCN and its partners will use lessons from the project to contribute to the design and implementation of adaptation strategies in areas with similar social and ecological conditions, and where there are projected climate change impacts.

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Maize cultivation with living fences and slope draining



CDM rules for forest project activities

Thelma Krug and Karsten Sach co-chaired the Contact Group on modalities for including afforestation/reforestation project activities in the Clean Development Mechanism of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. Here they outline the draft agreement reached on establishing forestry projects aimed at removing CO₂ emissions.

Introduction

The issue of climate change and forests has been one of the most challenging faced by Parties to the United Nations Framework Convention on Climate Change (UNFCCC). It is commonly agreed that protecting our global forest estate is key to reducing CO₂ emissions from the biosphere. The hotly debated question within the negotiations, in the run-up to the Kyoto Protocol and afterwards, however has been whether the carbon uptake of forests should or should not be integrated within the Kyoto emissions trading system.

After extensive discussions during the sixth Conference of the Parties (COP6), Parties agreed at COP7 that afforestation and reforestation project activities would be eligible under the Clean Development Mechanism (CDM). However, as a precautionary measure, it was decided that the net acquisition of credits from these project activities by an industrialised country should not exceed one per cent of its total emission rights in the first commitment period of the Kyoto Protocol (2008-2012). In 2001, the Subsidiary Body of Scientific and Technological Advice (SBSTA) created a Contact Group to develop definitions and modalities for including afforestation/reforestation project activities under the CDM, with the aim of adopting a decision at COP9. After two years of negotiations, Parties arrived at a consensual 20 page text in December 2003, establishing the modalities and procedures for forestry CDM projects. The key aspects of this decision are outlined below.

Definitions and general modalities

Parties agreed to apply the same definitions of 'forest', 'afforestation' and 'reforestation' as those agreed for Articles 3.3 and 3.4 of the Kyoto Protocol (para 1). Host countries have to select minimum values for tree crown cover, land area and tree height within the ranges indicated in the forest definition, which shall remain fixed for all CDM forestry projects registered prior to 2013 (paras 8, 9).

As with small-scale emission reduction CDM projects, small-scale forestry projects shall be subject to simplified



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modalities and procedures in order to reduce transaction costs. They are defined as projects that result in less than 8,000t CO₂ removals per year and are developed or implemented by low-income communities and individuals (para 1i). The simplified modalities are to be agreed at COP10 in December 2004.

Non-Permanence

One singular aspect of forestry project activities is the temporary nature of CO₂ removals by sinks – due to the forest lifetime and exposure to external factors that may provoke the release of the stored carbon, such as fires, pests, degradation or harvesting, and the impact of climate change itself. This is a crucial difference to emission reduction CDM projects. A ton of CO₂ that is not emitted due to the implementation of energy efficiency measures or as a result of an increased use of renewables will permanently stay out of the atmosphere, whereas a ton of CO₂ that is removed by a biospheric sink may return to the atmosphere at any time, thus only temporarily benefiting the climate.

The concern with non-permanence was addressed by establishing two modalities of non-permanent credits: 'temporary certified emission reductions (tCERs)' and 'long-term certified emission reductions (lCERs)'. Regardless of



the unit chosen, a verification of the carbon stock has to be conducted every five years. In the case of tCERs, units with a validity of one commitment period are issued, but may be re-issued if the carbon stocks remain at the next verification. In the case of ICERs, units with a validity of up to 60 years are issued. However, units may be cancelled in case of carbon reversal. Upon expiry, both tCERs and ICERs need to be replaced by other units, so as to reflect the temporary nature of the carbon uptake.

Parties also agreed to limit the period of time during which a project can generate credits: either a maximum of 30 years, with no renewal allowed; or a maximum of 20 years, with at most two renewals. By granting potentially long crediting periods an incentive is given to long-term forestry. At each renewal, however, the project developer has to demonstrate that the original project baseline is still valid or that adjustments have been made to account for new data. The crediting period has to begin at the start of the project activity, implying that greenhouse gas emissions due to land preparation activities have to be accounted for.

Additionality, baselines and leakage

According to Article 12 (5c) of the Kyoto Protocol, an emission reduction CDM project activity can only be registered if its emission reductions are 'additional to any that would occur in the absence of the certified project activity'. Thus CO₂ removals by CDM forestry projects have to be increased above those that would have occurred in the absence of the reforestation/afforestation project activity (para 18). This increase is verified against a project-specific baseline, established in a transparent and conservative manner and taking into account relevant national and/or sectoral policies in the forestry sector (para 20).

The increase (or changes in carbon stocks) has to be verified in all carbon pools agreed at COP9 (para 1a), which include above-ground biomass, below-ground biomass, dead organic matter (litter and dead wood) and soil organic carbon, or on chosen pools, provided that this choice does not result in an increase in the expected issuance of credits (para 21).

In the estimation of the project baseline, greenhouse gas emissions may not be included hence avoided emissions cannot be accounted for. On the other hand, any increase in the amount of emissions of greenhouse gases that result from the project activity must be deducted from the verified increase in carbon stocks (para 1d-f). This includes emissions both within and outside the project boundary, the latter known as 'leakage'. As an example, suppose that the CDM reforestation/afforestation project activity provokes the displacement of people and/or activities occurring in the area where the project will be implemented and results in native forests being deforested elsewhere. The resulting emissions need to be deducted from the actual carbon uptake of the established project activity. Since this may lead to negative results, the project shall be designed in such a way as to minimise leakage (para 24).

Socioeconomic and Environmental Impacts

Ideally, afforestation/reforestation activities should be beneficial to the local population and to the environment as they create jobs and enhance biodiversity and watershed security on degraded land areas. But this does not happen automatically.

Therefore the modalities require the project participants to undertake an analysis of the socio-economic and environmental impacts, including impacts on biodiversity and natural ecosystems. This analysis should include, for the environmental impacts, information on hydrology, soils, risk of fires, pests and diseases; and for the socio-economic impacts, information on local communities, indigenous people, land tenure, local employment, food production, cultural and religious sites, and access to forest products. If any negative impact is considered significant, project participants need to undertake a socio-economic and/or environmental impact assessment and describe planned monitoring and remedial measures to address them.

One issue of concern raised during the negotiations by several Parties was regarding the use of potentially invasive alien species and genetically modified organisms. The COP9 decision now recognises that host Parties evaluate risks associated with the use of potentially invasive alien species and genetically modified organisms (GMOs) and that Annex I Parties evaluate, in accordance with their national laws, the use of tCERs or ICERs from afforestation/reforestation projects which make use of potentially invasive alien species and/or GMOs.

Conclusion

The agreement reached at COP9 on rules and modalities for afforestation and reforestation project activities was the final missing piece of the Kyoto Protocol implementation rules. We consider that, giving the complexities of the negotiations and the many sensitive issues involved, the agreed package represents a good and balanced deal: the definitions chosen ensure consistency between Annex I and Non-Annex I parties; the modalities to account for non-permanence reflect aptly the guiding principle that any reversal in removals shall be accounted for at the appropriate point in time; the rules on baselines and leakage are set in a conservative manner; and socio-economic and environmental aspects are adequately addressed.

Now that the rules are set, afforestation and reforestation project activities can apply for registration with the Executive Board. Since the negotiations on this issue were very contentious and there remains a lot of scepticism with regard to forestry projects as a means of carbon accounting, it is suggested that project developers ensure that their projects will also yield high benefits to the local people and the environment, thus contributing also to the goals of the Convention on Biological Diversity, the Convention to Combat Desertification and other international agreements.

Contact: Thelma Krug, thelma@dir.iaii.int and Karsten Sach, karsten.sach@bmu.bund.de. The Decision 19/CP.9 on *Modalities and procedures for afforestation and reforestation project activities under the Clean Development Mechanism in the first commitment period of the Kyoto Protocol*, is contained in Document FCCC/CP/2003/6/Add.2, (pages 13-31), available at <http://maindb.unfccc.int/library/>. In the current text, any particular paragraph cited is referring to this decision.

Final piece of the “Kyoto puzzle” in place

Often contentious negotiations on the use and rules for afforestation and reforestation under the Kyoto Protocol's Clean Development Mechanism were finalised in December 2003. Brett Orlando, Stephen Kelleher and Jill Bowling offer a joint response to the outcomes from the perspective of IUCN and WWF.

Outside the main plenary hall of the UNFCCC COP9 negotiations on 11 December 2003 in Milan a small crowd of negotiators gathered, exchanging respectful handshakes as they celebrated the adoption of the rules for including afforestation and reforestation activities under the Clean Development Mechanism (CDM). A negotiation that

started in Kyoto in 1997 that had exhausted and at times frustrated negotiators and observers (including WWF and IUCN) was now complete.

IUCN and WWF actively participated in the two-year process to define the final rules, and worked closely with Parties, environmental NGOs and other stakeholders to promote rules that maximise environmental and social co-benefits, minimise the potential for negative outcomes, and maintain the environmental integrity of the Kyoto Protocol. The views of Parties on the issue of sinks were extremely divergent and conflicting. Given the impassioned nature of the issue and the intense debates surrounding it, the rules adopted in Milan represent a workable compromise to WWF and IUCN.



Reaching consensus

Our two institutions varied, and sometimes differed, in respective approaches to the issue over the years, but with the adoption in 2001 of the rules for implementing the Protocol, we agreed to coordinate our approach through our existing joint forest policy, particularly through our programme on Forest Landscape Restoration (FLR). We shared a commitment to ensuring that the principles governing the use of forest projects under the Kyoto Protocol, agreed at Marrakech during the COP7, were upheld for all forest projects, including those pertaining to afforestation and reforestation in developing countries under the CDM. Key among these principles are that projects:

- contribute to the conservation of biodiversity and sustainable use of natural resources;
- do not account for the mere presence of carbon stocks;
- account for any reversal of sequestration through fire, pest, disease, etc. at the appropriate place in time; and
- are based on sound science.

IUCN used its status as an Intergovernmental Organisation in the UNFCCC to convene a series of regional consultations and technical workshops for African, Asian and Latin American delegates, together with the UN Environment Programme (UNEP) and the Food and Agriculture Organization (FAO). These meetings provided a neutral forum for delegates to explore areas of convergence and reasons for divergence, and they also helped to facilitate a higher level of coordination in the international negotiations.

WWF worked to keep the focus of Kyoto on industrial emissions reductions, and this will continue to be the major focus of its climate work. At the same time WWF promoted the adoption of principles and criteria to maximise environmental and social co-benefits of CDM projects and minimise risk. WWF also decided that it will develop a small number of pilot carbon sequestration projects maximising biodiversity and social co-benefits, in order to contribute to learning. It also produced a manual on carbon accounting and best practice guidance for social and environmental assessments for carbon sequestration projects to help guide these efforts.

The final rules represent a true political compromise and manage to address the Marrakesh principles albeit in ways not entirely satisfying to IUCN and WWF. On the issues of baselines, additionality and leakage, Parties opted for a streamlined set of methods that are analogous to the rules adopted in Marrakech for CDM energy projects. Attempts to make these methods more stringent failed in large part because of the difficulty in operationalizing them.

Parties unfortunately could not agree on a single approach for dealing with the issue of non-permanence in forest projects. Both the temporary and long-term crediting approach taken address the need to account for a reversal of carbon sequestered at an appropriate point in time. By creating two crediting systems, however, the Parties have created more confusion at a time when clarity is needed.

Small is beautiful?

Latin American, African and Asian delegates met in Lima, Peru in early March 2004 for an inter-regional consultation on small-scale afforestation and reforestation CDM projects. Several countries proposed special provisions for projects that produce up to 45,000t of CO₂ removals per year, at the COP9 in Milan. A few large developing countries were not in favour of these projects and a much smaller threshold (8,000t CO₂ removals per year) was accepted.

The meeting, hosted by the Government of Peru and organised by FAO, IUCN and UNEP, resulted in two group submissions to the UNFCCC to streamline the CDM modalities and procedures and create mechanisms to facilitate their implementation. The submission from Peru on behalf of Bolivia, Colombia, Costa Rica, Guatemala, Mexico and Nicaragua, Panama and Uruguay; as well as the one from Namibia, Senegal and Uganda on behalf of the Africa Group proposed simplified baselines and measuring plans for projects, official development assistance support for project development, and an exemption from the two per cent adaptation tax imposed on all CDM projects.

These rules if agreed at COP10 in December 2004 would reduce transaction costs for small-scale projects, which are expected to have positive environmental and socio-economic benefits for local communities.

Contact: Brett Orlando, brett.orlando@iucn.org. The submissions are available in documents FCCC/SBSTA/2004/Misc.3 and FCCC/SBSTA/2004/Misc.4, posted on the UNFCCC website www.unfccc.int

On environmental and social impacts, proposals for additional criteria were refused by many developing country Parties on the grounds that they violated national sovereignty. A list of issues was agreed that project participants must address during the development phase, leaving a lot of the discretion to the host country Party as to the level of environmental or social risk and impact they are willing to accept. This includes the use of genetically modified (GM) trees, alien invasive species and large-scale commercial plantations, which are of real concern to WWF, IUCN and many others in the environmental community.

This means that sinks projects could have negative environmental and social outcomes. The challenge ahead is to support host country Parties to put in place appropriate legal and institutional frameworks, and enhance the technical capacity to implement environmentally and socially sound afforestation and reforestation projects. It will be important for environmental NGOs to closely monitor CDM forest projects to ensure they do not have negative environmental or social consequences.





WWF and IUCN Response

Given the size of the market for CDM forest projects (one per cent cap of industrialised countries' 1990 emissions) and prices for carbon credits (about US\$2-3 per tonne of carbon), no CDM project can expect to be financially self-sufficient from carbon income only. Carbon sequestration is only a lever that might make otherwise marginal forest investments more financially attractive and may be used in conjunction with other payments for environmental services for example, provision of clean water. This is where opportunities for Forest Landscape Restoration (FLR) lie.

IUCN and WWF will work to develop and implement and/or advise pilot carbon knowledge projects to test if they can sequester carbon and deliver biodiversity, environmental and social co-benefits. Such projects will use the FLR approach, which is defined as 'a planned process that aims to regain ecological integrity and enhance human well-being in threatened, deforested or degraded forest landscapes'. These projects will provide a framework for learning how to address the challenges of sinks, including leakage, permanence, additionality, baselines and monitoring and assess how successful these strategies can be.

Pilot projects will focus on generating goods and services including restoring forest functions and improving ecological processes and biodiversity at a landscape level; addressing socio-economic and environmental dimensions; addressing root causes of degradation such as land tenure; increasing forest resilience through enhanced connectivity and species diversity; and encompassing a mixture of locally appropriate approaches such as ecological corridors, agroforestry, on-farm trees, secondary forest regeneration and diverse plantations as appropriate in a particular landscape. In sum, the generation of environmental and social co-benefits, in addition to carbon sequestration, will

be a hallmark of this approach. These efforts aim to focus investor and government attention toward a holistic approach and away from large-scale monoculture forest plantations and other carbon sequestration activities that may have negative environmental and social impacts.

After all, the success of the rules adopted in Milan can only be judged in the future when we have seen the types of projects that emerge from the CDM and the credits that are bought and sold on the carbon market. Only then will we truly know if the negotiators in Milan got it right, and understand better if forests should be considered in future climate change negotiations, and if so, how. In the meantime, WWF and IUCN are committed to doing our part to promote project types that deliver environmentally sound and socially beneficial outcomes.

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Research in brief

Indications of climate change continue to be reported in the science journals. The level of carbon dioxide in the Earth's atmosphere has reached a record high according to new data from the US National Oceanic and Atmospheric Administration, with average levels of carbon dioxide rising to about 376 parts per million (PPM) for 2003, a steady annual increase of 2.5 ppm over the previous two years (*NewScientist.com*, 22/3/04). The global surface temperature of the earth for all of 2003 was +0.45°C above the 1961-90 annual average, making 2003 the third warmest year on record, according to the records maintained by Members of the World Meteorological Organization (www.wmo.ch/index-en.html). In Europe, 2003 was by far the hottest year on record, and research on monthly and seasonal surface temperature for Europe show that the late 20th- and early 21st-century European climate is warmer than that of any time during the past 500 years (*Science*, Vol 303 5/3/04).

The Reward of a Small Purchase of CO₂ Emissions

Workshops play an important role in the development of projects and initiatives for many conservation organisations, but what about the environmental costs involved. Here Nalin Kishor and Laura Ivers of the World Bank provide one example of how organisations can practice what they preach.



B. Nagnath, a local government official, hands a certificate confirming the sale of carbon to K. Subadrabai

An oil mill extracts oil from the seeds of *Pongamia pinnata*

In October 2003, a Workshop on the Reform of Forest Fiscal Systems held in Washington DC had an immediate development impact in Andhra Pradesh, India. The organisers of the workshop, PROFOR, DFID, GTZ and WBI, in a demonstration of commitment to 'walk the talk' on sustainability, decided to offset the CO₂ emissions associated with the event by purchasing reductions in CO₂ emissions in the village of Powerguda in Adilabad district.

Workshop organisers purchased emission reductions to offset 147 tons of CO₂, the estimated emissions from workshop delegates' travel to Washington DC. The carbon trading firm 500PPM verified and issued the reduction certificate. The carbon trade was facilitated by Nalin Kishor from the World Bank's forests team and Emmanuel D'Silva, who facilitated the project on the ground in Powerguda. According to D'Silva, the scope for this type of trading is enormous. "The Indian government has announced ambitious plans to produce bio-fuel through community based energy plantations of *Pongamia pinnata*, and *Jatropha curcas*, and other oil bearing seeds."

The demand for the traditional pongamia tree is growing fast as innovative new uses for it are being discovered. As the trees grow they sequester carbon. Oil is extracted from the seeds of the tree, which resemble almonds, and is used as a substitute for petroleum diesel, off-setting carbon emissions, and fuel-wood use, reducing tree cutting. The left over oil cake substitutes for chemical fertiliser on the villagers' farms.

The direct beneficiary of this innovative transaction is the Jungbai self-help group, a Powerguda civil society women's organisation that will use the money to start a seedling nursery for *Pongamia pinnata* trees, a native tree species grown in the local forest around Powerguda. K. Subadrabai, who received a cheque for US\$645 for the carbon sale on behalf of the women's organisation, said: "The village hopes to plant 10,000 pongamia plants in 2004 alongside roads, watershed areas, and on the edges of agricultural land." The villagers of Powerguda planted 4,500 saplings in 2002, and 500,000 were distributed in the Adilabad District.

Another village, Chalpadi did not have electricity until 2001 when pongamia oil was used to drive the generators to produce electricity in lieu of diesel oil. The President of the Chalpadi women's self-help group, K. Marubai, explained the urgent need to get electricity to the village. "We need electricity so our children can study at night. At present, they use candle light which is not good for their eyes. We are prepared to pay 50 rupees for this purpose." Fifty rupees amounts to two days wages, a huge amount for the indigenous people who live in poverty. B. Nagnath, a local government official, emphasises the benefits that electricity has brought to the villagers of Chalpadi. "Now they wear good clothes. The children go to school and study at home. This is a remarkable transformation of the village."

Contact: Nalin Kishor, Nkishor@worldbank.org, Laura Ivers, laivers@worldbank.org and Emmanuel D'Silva, ehdsilva@hotmail.com, www.profor.info/forestfiscalsystems.htm.



Climate Change: Adaptive management

WWF has been developing a programme of work on the impacts of climate change and how ecosystems can adapt to change. Jennifer Biringer reports on the outputs.

Conservation of ecosystems and biological resources during a period of global warming requires that we develop adaptive management strategies or accept that many systems may be lost to climate change. To address these challenges WWF is working on various fronts. As a first step, WWF has prepared a practitioner's manual on managing to reduce the impacts of climate change, covering many different ecosystems (see box below).

The second area of work is the development and implementation of pilot projects to apply the approaches proposed in the manual to areas which are highly vulnerable to climate change, such as low-lying coastal areas and mangroves. WWF has begun developing a generic conservation approach based on pilot initiatives in Tanzania, Cameroon, Fiji and India. The output of these activities will allow for the transfer of lessons to aid the development of conservation efforts in other mangrove sites.

Workshops were recently held in Tanzania, Cameroon and Fiji to identify adaptation strategies to be implemented over the next three years. The workshops began by assessing regional vulnerability to aid understanding of which components of the ecosystem are most likely to be impacted, and which may be more resistant to climate change. The

conservation strategies discussed ranged from designing reserves to account for migration needs and to protect 'refugia' that are naturally resistant; to responsive management activities such as restoration.

In the Rufiji-Kilwa-Mafia Complex in Tanzania, for instance, the creation of no fishing and no mangrove harvesting zones as well as the development of alternative fishing techniques aims to strengthen the system's natural coping capacity. Other strategies to decrease current stresses focus on providing alternatives to using mangroves for firewood and building materials, and decreasing the impact of rice and upland agricultural operations on the mangroves and the fisheries they support. The Gulf of Guinea contains Africa's most extensive mangroves, which help to stabilize the West African shoreline. Forming a dense barrier between sea and land, mangroves are a crucial food



© WWF-Canon / Peter DENTON

and fuel reservoir for coastal people. The area is under high stress from urbanisation, industrialisation and agriculture, and timber and petroleum exploitation around the Gulf coast. In the Cameroon Estuary, much of the degradation of mangroves can be avoided, reduced or mitigated through intensified mangrove restoration and management. Restoration can help restore water quality and stabilise soils and may also assist species' survival if tides move in at rates higher than natural rates of migration.

A crucial strategy to enhancing system resilience in all project sites is to reduce current stresses on mangroves, such as over-harvesting, destructive fishing practices and pollution in a way that strengthens community livelihoods. Results from the pilot initiatives will be fed into national-level adaptation strategies for each country. The integration of field and policy will lead to improved governance that is responsive to long-term impacts that climate change will have on mangrove systems, and to assist local stakeholders in predicting and responding to changing conditions in the future.

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Climate change is a reality and, however much pollution is reduced in the future, poses major problems for ecosystems. *Buying Time: A User's Manual for Building Resilience to Climate Change in Natural Systems* gives advice on minimising ecosystem damage and consequent loss of biodiversity. Specialists have prepared chapters on grasslands, forests, mountains, Arctic ecosystems, temperate and tropical seas and freshwaters and discuss use of protected areas and biodiversity impact assessments as tools in mitigating impact. While management cannot address all the problems it can certainly help and this book marshals together our current state of knowledge about how this might be achieved.

The Manual can be downloaded from: http://www.panda.org/news_facts/publications/climate_change/publication.cfm?uNewsID=8678&uLangId=1

WWF news in brief

Staff Changes: Chng Soh Koon joined the WWF Forests for Life Programme in January as Communications and Marketing Manager, based in Switzerland. Soh Koon was previously Programme/Communications Officer for the Asia-Pacific Programme. In March, Nils Hager also joined the Forests for Life team as Target Manager – Forest Management and Certification. A Swedish Forester, Nils spent the last six years in Bolivia, the last three with WWF Bolivia coordinating a Regional Community Forest Certification Project.

Contact: Chng Soh Koon, SKChng@wwfint.org. Nils Hager, nhager@wwfint.org

Waking Up to Climate Change

Brett Orlando explains a new IUCN initiative to become one of the first carbon neutral international organisations.

As the number of businesses taking responsibility for their greenhouse gas emissions grows, IUCN is working to minimise its impact on the global climate. Through the Climate Fund, the IUCN Secretariat is striving to make its business operations carbon neutral. This means that we reduce our emissions through greater energy efficiency and then offset unavoidable emissions by supporting emission-reduction projects outside the organisation.

The IUCN Secretariat is conducting the first ever audit of its greenhouse gas emissions produced from its worldwide business operations with the help of Future Forests and the Edinburgh Centre for Carbon Management (ECCM), two UK consulting firms. Our single largest source of emissions is air travel, representing about 80 per cent of the total. From now on, IUCN will report annually on its greenhouse gas emissions, like many corporations do.

We are encouraging IUCN Secretariat staff to explore opportunities to reduce our emissions through the purchase of green power and improving energy efficiencies for our offices and teleconferencing as an alternative to air travel. A voluntary charge is levied to cover the costs of offsetting the emissions from IUCN Secretariat business travel. The income generated from the charge is used initially to purchase carbon offsets from external providers, sufficient to cover the emissions generated by IUCN business operations, thereby neutralizing our impact on the global climate.

Income is also invested in a framework for learning how to develop an internal market for quality emission reductions, using the IUCN Secretariat's own field project portfolio. Five projects are included in this first phase of the learning and include the restoration of degraded forest land in the Huong River Basin in Vietnam, the Pangani River Basin in Tanzania, the Tacana River Basin in Guatemala and Mexico as well as in the forests of Loita and Mt. Elgon in Kenya. Together with ECCM and Future Forests, each project will conduct a baseline carbon study and make sure that the activities lead to real, measurable and verifiable benefits to the global climate.

These projects offer a chance to learn how under certain conditions carbon sequestration can improve local livelihoods and help achieve environmental objectives. We will give special attention to land tenure and the environmental co-benefits of the forest restoration activities such as watershed protection and fire management. Through the Fund, IUCN will also learn more about the emerging international emissions trading markets: who are the buyers and sellers and what do they want, and what kinds of purchasing agreements are common?

By investing in international emissions trading now, we hope to promote a market for high quality projects that contribute to wider conservation and development objectives. The lessons learned from the Climate Fund will help our members and partners create new opportunities for conservation finance through the sale of carbon credits. Furthermore, they can help to inform future international debates on the use of forests in mitigating climate change.

Contact: Brett Orlando, brett.orlando@iucn.org

IUCN news in brief

New Staff: Stephen Kelleher took up his duties on 1 March as Senior Programme Officer for the IUCN Forest Conservation Programme. Stephen has a Masters in Environmental Management, with a specialisation in Tropical Forestry, from Yale University and a B.A. in Political Science. He brings highly relevant skills and experience to the Programme, having worked for several years for WWF-US as Senior Programme Officer for Asia/Pacific and then as Deputy Director, Global Forest Programme. He is a US national and is fluent in French.

Contact: Stephen Kelleher, stephen.kelleher@iucn.org

New Forest Programme Website: The IUCN Forest Conservation Programme recently launched its new programme website as a knowledge management platform to provide information on major forest issues and to communicate the lessons learnt from its global and regional work to key audiences across the world.

Contact: www.iucn.org/themes/fcp/index.htm

Synergies Workshop: Practically speaking, all existing international commitments on forests cannot be comprehensively addressed by all parties at once. A 'Workshop on Promoting Synergy in the Implementation of the Three Rio Conventions' was hosted by the Italian Government in April 2004, to encourage the implementation of local level actions relating to forests and forest ecosystems and their use and conservation derived from the mandates and commitments under the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC). Synergies relating to Forest Landscape Restoration were highlighted by IUCN - and one immediate success was the announcement by the Italian Government to join the Global Partnership on Forest Landscape Restoration. While the convention policy frameworks continue to develop, governments and other implementation partners can push forward with specific actions on the ground that link conservation, sustainable management and livelihood objectives.

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arborvitae

ISSN 1727-3021

The next issue of arborvitae will be produced in August 2004 (copy deadline end of July), and will include a focus on Forest Ownership. If you have any material to send or comments please contact:

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Back issues of arborvitae can be found on: www.iucn.org/themes/fcp/publications/arborvitae/avnewsletter/avnewsletter21_25.htm

This newsletter has been edited by Sue Stolton and Nigel Dudley of Equilibrium Consultants. Managing editors Sandeep Sengupta of IUCN – the World Conservation Union and Mark Aldrich of WWF International. arborvitae is funded by IUCN and WWF. Design by HMD Graphic Design Ltd UK. Printed on paper manufactured from 100% post consumer waste.

Acknowledgements:

Mark Aldrich (Switzerland); Jill Bowling (Switzerland); Jennifer Biringier (USA); Bruce Cabarle (USA); Alison Cameron (UK); Zhu Chunquan (China); Chng Soh Koon (Switzerland); Dominick Dellasala (USA); Vladimir Dmitriev (Russia); Cinthya Flores (Costa Rica); Nazir Foead (Indonesia); Patrick Graichen (Germany); Anne Hammill (Canada); Liza Higgins-Zogib (Switzerland); Laura Ivers (USA); Dong Ke (China); Stephen Kelleher (Switzerland); Nalin Kishor (USA); Alexey Kokorin (Russia); Thelma Krug (Brazil); Leonardo Lacerda (Switzerland); Tom Lalley (USA); Brett Orlando (Switzerland); Duncan Pollard (Switzerland); Jessie Rios (USA); Viktor Teplyakov (Russia); Karsten Sach (Germany); Carole Saint-Laurent (Canada); Jeff Sayer (Switzerland); Gordon Shepherd (Switzerland); David Sheppard (Switzerland); Sandeep Sengupta (Switzerland); Virpi Stucki (Switzerland); Chado Tenzin (Bhutan); Richard Tipper (UK); Chris Thomas (UK); Piotr Tyszko (Poland)

The editors and authors are responsible for their own articles. Their opinions do not necessarily represent the views of IUCN and WWF.

Reviews in brief

Tropical Mountain Cloud Forests

Tropical Montane Cloud Forests are a rare ecosystem covering about 380,000 km², or approximately 2.5 per cent, of all tropical forests. Yet they support a remarkable diversity of plant and animal species. They also provide essential supplies of clean and dependable water to large populations of both mountain people and those in the lowlands. Cloud forests have been recognised for many years in the Americas as a distinct and important forest type. However in Africa and Asia they are rarely distinguished from other montane forest types and as a consequence they are rarely a priority target of conservation programmes in those regions.

Levels of poverty amongst mountain people are high in many developing countries. Cloud forests in tropical countries are often areas where the maintenance of high biodiversity values has to be achieved in ways that do not conflict with the development objectives of local people.

During the CBD COP-7 in February UNEP-WCMC, UNESCO and IUCN's Commission on Ecosystem Management (CEM) launched a *Cloud Forest Agenda*. This brought together the latest information on the distribution and status of cloud forests throughout the tropics and set out the priorities for their conservation. It urged countries and regional economic blocks with tropical montane cloud forests to undertake further assessments of the status, species diversity and the environmental and economic services that these forests provide. Conservation objectives and strategies for the tropical montane cloud forests should be developed for all regions. These should take into account the direct and underlying causes of any deforestation, and seek to establish the values of cloud

forests in local and national development programmes. It also urged that cloud forests should be given more prominence in biodiversity conservation programmes for mountain regions.

The *Cloud Forest Agenda* stresses the exceptional vulnerability of cloud forests to climate change. It urged that this be taken into account in developing conservation and management objectives and strategies. The vulnerability of these forests to habitat fragmentation and the need to 'build-on' the knowledge and practices of local and indigenous people to achieve conservation in cloud forest regions were also prominent messages from the agenda.

Montane cloud forests are excellent areas in which to apply the principles of ecosystem approaches to conservation as established by the CBD and promoted by the IUCN CEM. The problems of cloud forest areas can only be addressed through integrated holistic approaches. Simply allocating small patches of cloud forest to protected area status will not be enough. Cloud forest species need ecological gradients, dispersal corridors and even a degree of interventionist management to ensure that examples of different successional stages are maintained. For all of these reasons cloud forests present special challenges to the conservation community. At the same time they are excellent living laboratories for developing and testing more integrated 'ecosystem' approaches to conservation.

Review by Jeff Sayer, Senior Associate, WWF.
 The full report is available at:
www.unep-wcmc.org/press/cloud_forest_agenda

Eastern resource

Available from: www.rfebook.com, US\$59.95

The Russian Far East: A Reference Guide for Conservation and Development is the most recent comprehensive English-language reference text on the region. With contributions from an interdisciplinary team of ninety specialists from Russia, the US and the UK, the book provides an overview and analysis of the region's geography and ecology, natural resources, major industries, infrastructure, foreign trade, demography, protected area system and legal structure.

Flying away

Available from:
www.birdlife.net/news/news/2004/03/sowb.html

One in eight of the world's birds – 1,211 species in total – faces extinction and 64 per cent of Globally Threatened Birds, most of which are found in the tropics, are threatened by unsustainable forestry. The facts may not be new, but BirdLife's *State of the World's Birds*, brings together for the first time in one accessible place, the sum of existing research about the status and distribution of birds, current conservation actions and priorities, and what birds tell us about the health of the environment and wider biodiversity.

Environmental narratives and African realities

Available from: Ashgate, Debbie Fattore
info@ashgatepub.co.uk; www.ashgate.com, price £50

African Environment and Development edited by William G. Moseley and B. Ikubolajeh Logan, examines the connections between African rural livelihoods and emerging environmental narratives, regional political economies and environmental programmes. Case studies on a variety of topics from decentralization to fire management and ecotourism from different parts of Africa assist the reader to comprehend the topic in a concrete way. The book reveals the influence of a number of global environmental narratives on African environmental policy and practice, the interplay between regional political economy and rural livelihoods as well as environmental management as a result of global environmental politics and local agency.

After a decade and 25 issues we are passing on arborvitae to new hands. Developing, writing and editing arborvitae has been a rewarding task - and one that we could never have accomplished without the help of hundreds of people from WWF and IUCN and beyond. We don't have the space to thank everyone individually – but would like to wish you all the best and encourage you to keep contributing to the newsletter in the future.
 Sue Stolton and Nigel Dudley, Equilibrium