CFA Newsletter

No.74 September 2016 ISSN 1750-6417

Contents:

CFA Newsletter
is the newsletter of the Commonwealth Forestry Association

Editor: Alan Pottinger

Contact: The Crib, Dinchope, Craven Arms, Shropshire SY7 9JJ, UK

Tel: + 44 (0) 1588 672868

Email: cfa@cfa-international.org

Web: www.cfa-international.org

The views expressed are not necessarily those of the CFA.

What's beer got to do with sustainable forestry?

Canadian foresters celebrate the link between beer and good forestry practice

I once worked with a visiting Finish researcher at our research institute in Canada. One night we were sharing beers and thoughts on how new ideas come into being. We were both computer geeks at the time trying to harness artificial intelligence (AI) to work on complex forestry problems, but we were failing. Our AI applications were unable to find innovative solutions like the human counterparts we modeled. His theory was that the human brain is a large neural network and new thoughts are formed when the links between neurons are broken, something alcohol does, and new pathways between nodes are found. We tipped our glasses back justifying our beer consumption as work product that would hopefully provide a solution the next morning to our struggling AI system.

At the time we did not realize innovation in forestry and beer go a long way back. German beer purity laws, *Reinheitsgebots*, interestingly originated in the same area of the world where sustainable forestry emerged as a concept. Morgenstern (2007) noted the concept of sustainability, *Nachhaltigkeit*, emerged first as regulations for forest inspections and volume estimates in Bavaria by the 16th century. The principle of sustainable management followed and was incorporated in all Austrian and German states by the 19th century. These forerunners developing our modern sustainability concepts were perhaps influenced in their pure thinking by drinking pure beer as regulated by the Bavaria beer purity law of 1516.

In Canada, when I attended forestry school in the early 1980s, there wasn't a beer purity law. But in the early 1980s my classmates' choice in beer was limited, ale or lager with maybe one or two national brands to chose from. Like our beers, Canadian forestry was also rather simple. Our professors taught us

Canada's dominant boreal tree species, black spruce, made great paper – and that was it. No need to innovate into other products. Limited choice in beer equated to limited products in forestry.

Fast forward 35 years and Canadian's choice in beer has expanded through thousands of small craft brewers producing innovative beers, some using tree parts. Big Spruce Brewing in Cape Breton, Nova Scotia, creates a spruce beer harvesting black spruce tips just after they elongate in early summer. The spruce tips are added at the end of the boil to produce a hoppy, full bodied, and deeply rich Indian Pale Ale (IPA). Sawdust City Brewery of Gravenhurst, Ontario produce a pine needle IPA. The added pine needles give the beer an underlying complexity. Sawdust City also produce an ale brewed with a yeast foraged from the Limberlost Forest to replace the ancient brewer's yeast. Only one of the eighty yeasts they found on the forest floor made it through the lab process. The forest yeast gives the beer a distinctive flavour.

In parallel Canadian forestry has taken an innovative path. No longer is black spruce seen as only suitable for paper. Now we are researching nano particles, biorefineries, and producing bio-oils. Tall buildings of engineered spruce and other species are sprouting up across the country. We still make paper, but the forest value chain takes many paths and produces multiple products in today's modern industry.

Perhaps these parallels are unfair; German purity laws and the pure thoughts of our sustainable forestry pioneers, innovative Canadian craft brewers and innovative Canadian forest products. But I like to think my Finnish colleague and I were on to something way back when we shared a few beers unsuccessfully solving our artificial intelligence problem. Perhaps we just weren't hoisting the right innovative beer.

Steve D'Eon
Registered Professional Forester
Deep River, Ont., Canada

REFERENCE

Morgenstern, E.K. 2007. The origin and early application of the principle of sustainable forest management. For. Chron. 83(4): 485–489.

Association news

The Queen's Commonwealth Canopy – more countries sign-up

THE QUEEN'S COMMONWEALTH CANOPY

Together our forests will thrive

We are pleased to announce that 13 countries have now committed to The Queen's Commonwealth Canopy with another 10 currently in the process of gaining accreditation.

The QCC presents a rare opportunity to unite the whole Commonwealth family and save one of the world's most important natural habitats – forests. By creating a pan-Commonwealth network of forest conservation projects, the QCC will mark Her Majesty The Queen's service to the Commonwealth while conserving indigenous forests for future generations.

Every Commonwealth country has the opportunity to participate in the QCC by nominating and dedicating existing or future conservation projects that meet the broad objectives of the initiative.

Those countries with limited forest cover will also have the opportunity to participate through the planting of native trees, the conservation of other indigenous vegetation, or by supporting QCC partnerships with fellow Commonwealth members.

The QCC website at ***queenscommonwealthcanopy.org*** has been revised and contains our new video – take a look and let us know what you think!

A window on the past: the diary of a delegate at the 1952 Commonwealth Forestry Conference

Participants prepare for the 1952 Commonwealth Forestry Conference

As we look forward to the 19th Commonwealth Forestry Conference, to be held in India in April 2017, it is fascinating to read extracts from the diary of a participant at a previous meeting, the 6th Commonwealth Forestry Conference, held in Canada in 1952.

Christopher Latham, one of our Vice-Presidents, contacted us recently and suggested that CFA members might like to read extracts from the diary of his late father, Bryan Latham, who was at the time an official representative of the UK Timber Trade Federation.

Bryan Latham (BL) sailed from Liverpool on board the Empress of France on 29th July, arriving in Montreal on 5th August.

The Commonwealth Forestry Conference opened on 11th August. However, pre-conference, BL was invited to attend meetings of a forest products utilisation committee. The Conference set up five committees; timber utilisation, forest products research, survey of resources, management of silviculture, and forest policy

BL spoke of the strong objection taken by the UK timber trade to the export tax levied by some colonies on wood. The trade considered these duties unjustifiable and undermining Imperial Preference (a system of tariff concessions granted by members of the British Empire or Commonwealth to one another). On forestry policy the Timber Trade Federation (TTF) was solidly behind the concept of sustained yield.

The Conference then took a break for two weeks for what was described as 'roving' through the woods of Ontario and Quebec – 'A blend of sightseeing and serious observation'. However, two days were spent at the federal government's forest experimental station at Petawawa; where delegates were presented with firefighting demonstrations, and of special note they had the opportunity to get an airlift in the firefighters' helicopter.

BL noted in his diary a dinner given to the delegates by The International Harvester Company where, The Ottawa citizen reported, 'during this period information will be exchanged on pulp and paper developments, aerial forest surveys, conversion of wood waste into commercial products and forest economics.'

The Conference then recommenced in Toronto where following the dinner given by The Province of Ontario a reporter wrote 'Regardless of those who say that the British Commonwealth and Empire is all washed up, there is often plenty of evidence that it's the best association of nations yet devised and will be around for a long time to come.'

The work of the Commonwealth Forestry Bureau at Oxford was discussed and many delegates expressed themselves well satisfied with the services rendered by this important organisation.

Emphasising the damage caused by pin hole borers and ambrosia beetles, The Commonwealth governments were urged to encourage the greatest possible co-operation between the timber specialising authorities and the timber trade. Another resolution dealt with the marketing of certain tropical timbers by groups, as in Malaya.

BL wrote in his diary that he considered the Conference's outstanding contribution to forestry to be the establishing, once

Bryan Latham (left) watching a tree-planting demonstration in Ontario with the Forestry Commission Director General, Sir Authur Gosling (right).

and for all, of the concept of sustained yield. ' If the community does not establish Forest Acts it fails in it`s duty to the forest.' He continued 'To establish a sound financial basis for sustained yield there must be orderly marketing, and Commonwealth governments are strongly urged to do everything possible to ensure this.'

Once work concluded the delgates then headed off for a 13 day tour of British Columbia. This comprised visits to forests, felling operations and sawmill/pulp integrated operations, interspersed with some sightseeing and, in the case of BL, some salmon fishing.

Upon return to Ottawa a unique meeting of The Empire Forestry Association (the predecessor of the CFA) was held, the first such meeting held outside the United Kingdom. The occasion was used to place before the delegates, both foresters and traders, the great advantages to be gained from joining the Association, both from the personal point of view and as a great bond in binding together foresters from all over the Commonwealth.

Finally, on the 10th October Bryan Latham again boarded the Empress of France bound for Liverpool. He calculated that he had covered 21,000 miles over some three and-a-half months!

Forest Scenes

Global Vegetation Fire Challenges and Outlook

In many parts of the world areas at high wildfire risk are contaminated by the heritage of armed conflicts and industrial or nuclear accidents. In Europe large tracts of lands are contaminated by unexploded ordnance stemming from the World Wars and other more recent armed conflicts. The high risk of injuries and deadly fatalities due to uncontrolled explosions or intake of radioactive smoke or dust particles require specialized equipment to protect fire management personnel. This specialized wildfire suppression tank, operated by a German company on UXO-contaminated lands in Brandenburg State (around Berlin), is a converted T-55 combat tank with unchanged armor. It allows safe application of 11,000 liters of water and water additives for fighting dangerous fires. This kind of technology should be used on radioactively contaminated terrain in places like Russia, Belarus and Ukraine (e.g. in the Chernobyl Exclusion Zone). Photo: GFMC/DiBuKa.

Profile of Global Fire Challenges

Every year, roughly an average of about 600 million hectares of vegetated lands is affected by land-use fires and wildfires (Mouillot and Field 2005). Worldwide, wildfires are trending toward longer burning periods, heightened severity, greater area burned and increased frequency. Consequences include detriment to environment, socio-economic costs including threats to human health and security, and higher shares of emissions into the atmosphere. Conversely, due in large part to human activities such as expanding infrastructure, industrial activities, or mismanagement of fire, fire

regimes are shifting dramatically and creating positive feedback cycles in sensitive ecosystems, notably in the Arctic tundra (Mack *et al*. 2011), in peatlands (Page *et al*. 2002), and in tropical rain forests (Cochrane and Laurance 2002). Sensitive, non-fire-adapted areas can contain highly concentrated carbon stocks, which are rapidly released during fire events with devastating consequences both locally and globally. For example, fires burning in Indonesia alone, during the El Niño dry season in I997 and 1998 produced an equivalent of up to 40% of the *global* gross carbon dioxide (CO_2) emissions from fossil fuels for that year (Spessa, 2013). The Indonesian haze crisis this past year often put up daily CO_2 amounts higher than the entire European Union industrial economy (Huijnen *et al*., 2016). Globally, emissions resulting from vegetation fire can constitute one-third of total releases of carbon dioxide annually (Page *et al*. 2002). The National Disaster Mitigation Agency (BNPB) of Indonesia, estimated the damages to the national economy caused by fires in 2015 amounted to US$16.5 billion, or around 1.9 percent of the country's GDP; to put a price tag on fires globally is impossible. In addition to the environmental and economic impacts, a humanitarian dimension is growing with some models indicating the annual average number of premature deaths resulting from vegetation fire smoke exposure, range between 180,000 (Lelieveld *et al.* 2015) and 339,000 (Johnston *et al*. 2012). While much emphasis is placed on the negative effects of fire – in many instances more fire is exactly what is needed to reduce some of these consequences. For example, applying "prescribed fire" in fire-adapted environments can contribute to lowering the severity of wildfire events which can wreak havoc on communities in the wildland urban interface (WUI), where measures have not been taken to reduce fuel buildups.

Political Challenges

Political challenges facing fire managers range from the sensationalized affair of protecting celebrity mansions in Hollywood Hills, to coordinating firefighting efforts between two warring countries when border-crossing fires threaten villages. Fire managers and policy-makers from the local to the supranational, are tasked with addressing the contribution of vegetation fire emissions to climate change, the application of fire in land-use change, accumulating effects of global change on fire regimes, and increasing impacts of fire on society, notably on human health and security. Additional challenges include the role of vegetation fires on environment and humans, stemming from collateral damages of armed conflicts and impact on contaminated terrain including industrial, unexploded ordnance and radioactivity; fire-induced immediate threats to human health and pre-mature mortality through fire-smoke pollution, and on and beyond agricultural systems (e.g. trans-boundary impact of agricultural fires causing long-range transport and deposits of black carbon on the Arctic ice) (IWFC, 2015).

Political implementation of these approaches is largely an exercise at the science-policy interface, where actors, activities and institutional arrangements are working to engage in and support the transfer of science and expertise upwards into policy mechanisms and downwards into implementation strategies feasible for practitioners. These mechanisms in large part are voluntary and non-binding. An example is the International Wildfire Preparedness Mechanism, which aims at enhancing national to international fire management capacities by sharing of knowledge and expertise (IWPM, 2016). Another approach is bilateral agreements, several of which have been reached, like between the United States and Canada, or Australia; some have worked quite well, but more on the grounds of exchanges in expertise and political goodwill. The Association of Southeast Asian Nations (ASEAN) Haze Agreement to combat transboundary haze from fires is the globe's only multilateral binding agreement to do with fire – yet it remains an example of political progress without problem solving – evident during this past year's repeat of the 1997–98 crisis in Indonesia. Importantly, it goes to show that fire politics and challenges must be addressed at more than one level and (supra)national efforts must also work in concert with actions and activities at the lowest, local level, which include everything from navigating conflicts of interests and corruption, to local law enforcement, building capacity and supporting community-led fire management.

Opportunities and Initiatives

A recent development towards addressing global fire concerns is the effort to establish a number of additional fire management resource centers in regions of the world including South America, Sub-Saharan Africa, South Asia and Southeast Asia. Like the currently operational centers in Southeast Europe (based in FYR Macedonia), Eastern Europe (Ukraine) and Central Asia (Mongolia), these centers are to expand local to international cooperation and response mechanisms, facilitate cross-sectoral communication and exchanges of information and technical and scientific expertise, facilitate training programs and especially enhance local and regional capacity by promoting principles of Integrated Fire Management (IFM). For instance, the Regional Central Asia Fire Management Resource Center in Ulaanbaatar, Mongolia, plays a critical role in addressing increasing demand for collection and distribution of data and information relevant to fire management among local stakeholders and regional neighbourhoods; it is facilitating capacity building at regional level, and supporting the exchange of human and technical resources. To enhance capacity and participation in fire management of civil society, notably local rural communities, the Center is also conducting community-led fire management trainings. Most importantly the center is facilitating national inter-agency coordination in fire management and the cross-boundary cooperation dialogue within the neighbouring countries of Central Asia.

Challenges rooted in cultural norms such as the use of fire as a land conversion tool, are most effectively dealt with locally. Participatory Community-Based Fire Management (CBFiM) incorporates indigenous knowledge and thousands of years of human experience in the benign use and balanced application of fire to support ecological and human needs. CBFiM objectives include creating awareness for dangerous burning conditions, enhancing capacity to contain escaped burns, and thereby reducing the number of livestock and human casualties, instances of lost dwellings and agricultural crops, and lesson the occurrence of large uncontrolled fires that release large amounts of emissions. Regional Fire Management Resource Centres like the one planned for Indonesia (serving SE Asia) will be bridging the science-policy interface to, through principles of good governance, build on success models from other regions, but specifically suited for addressing the high level of stakeholder conflicts (e.g. between smallholders and multinational palm oil and paper pulp corporations), land-use and property rights challenges, and also recognizing the sensitive and globally valuable ecosystem at stake. The Indonesian government, including its newly formulated Peat Restoration Agency stand ready to partner on these critical challenges; an emissions forecasting, early warning, and fire prevention center is also in its formative stages. Working in tandem with these initiatives, a regional

resource center, which functions both horizontally and across the three levels of local, national and regional governance structures – is anticipated to prove as effective and valuable as it's other regional predecessors have.

Globally most emphasis in fire management is given to the empowerment and capacity building of local rural communities. By taking over responsibility for the management of community forests and other lands local communities shall assume a key role in the prevention and suppression of wildfires that may threaten rural assets, including forests, agricultural lands, villages and critical infrastructures. Capacity building in fire management includes the safe application of fire in land-use systems and wildfire hazard reduction. The photograph shows Nepalese villagers training prescribed under-canopy burning and surface fire suppression with hand tools – an example of outreach work of the UNISDR Regional South Asia Wildland Fire Network. Photo: GFMC/Sundar P. Sharma.

Outlook

Mutual gains can be achieved by supporting and participating in current, emerging, and planned initiatives which fall under the scope of IFM, and contribute to realizing Sustainable Development Goal 15[1] and to the challenges of the Sendai Framework for Disaster Risk Reduction[2]. The persistent challenge of fire managers is to manage fire to support the long-term biological integrity of any given landscape, while accounting for the negative consequence of fire and yet meeting diverse human needs. In many instances more ecologically benign fire is both effective and highly constructive; scientists in northern Australia are even showing from an emissions modelling standpoint that applying Aboriginal early-dry-season savanna burning techniques, result in fewer emissions and increased carbon sequestration over time, while simultaneously rejuvenating the ecosystem for plants, animals and human use (e.g. grazing) (Russell-Smith *et al.* 2013). In General, emphasis is needed on prevention over suppression, and in fire-adapted climates, the best approach to prevention is increasing the use of prescribed fire – a less-intensive and less ecologically damaging alternative to mostly human-caused, climate and drought driven out-of-control fires. Aside from better prevention and increased early warning mechanisms, fire management should be better integrated into initiatives like Reducing Emissions from Deforestation and Degradation (REDD+) or those offered by the Global Environment Facility (GEF) and Green Climate Fund; fire management capacity should be bolstered at local, national and regional levels. These institutional arrangements, activities and initiatives can best be supported through regional centers of excellence, where committed individuals, over time, and with the support of governments and organizations, can manage and relate to fire sustainably. Building effective institutional arrangements, networks of people, and integrating best practices and sound science into windows of opportunity in the policy process, while empowering local communities, may be the best steps we can take to ensure that globally fire is fulfilling its ecologically benign role, while limiting its destructive impacts and occurrence in sensitive environments. Ultimately, fire must be understood as much as a social challenge as one that is environmental.

The Global Fire Monitoring Center (GFMC) is an institution of the Max Planck Institute for Chemistry, Max Planck Society for the Advancement of Science, hosted by the Freiburg University, Germany. Since 2005 GFMC is an Associated Institute of the United Nations University (UNU). Since 2001 GFMC is serving as coordinator and facilitator of the UNISDR Wildland Fire Advisory Group and the UNISDR Global Wildland Fire Network, a global voluntary network that is providing policy advice, and science and technology transfer to enable nations to reduce the negative impacts of vegetation fires on the environment and humanity; and to advance the knowledge and application of the ecologically and environmentally benign role of natural fire in fire-dependent ecosystems, and sustainable application of fire in land-use systems.

Johann G. Goldammer and **Lindon N. Pronto**
Global Fire Monitoring Center (GFMC)

[1] SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (UN, 2015b).

[2] By outlining clear targets and priorities, the Sendai Framework for Disaster Risk Reduction 2015–2030 aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years. The Framework was adopted at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, on 18 March 2015 (UN, 2015a).

REFERENCE

Cochrane, M.A., and Laurance, W.F. (2002). Fire as a large-scale edge effect in Amazonian forests. *Journal of Tropical Ecology 18*(03), 311–325.

Huijnen, V., Wooster, M., Kaiser, J.W., Gaveau, D.L.A., Flemming, J., Parrington, M., Inness, A., Murdiyarso, D., Main, B., and van Weele, M. (2016). Fire carbon emissions over maritime Southeast Asia in 2015 largest since 1997. Nature Scientific Reports 6: 26886. DOI: 10.1038/srep26886.

IWFC (2015). *The Pyeongchang Declaration "Fire Management and Sustainable Development"* Paper presented at the 6th International Wildland Fire Conference (IWFC), Pyeongchang, S. Korea. Online, accessed on 08.08.2016 http://www.fire.uni-freiburg.de/korea-2015/IWFC-6-Conference-Declaration.pdf

IWPM (2016). International Wildfire Preparedness Mechanism (IWPM). Online, accessed on 08.08.2016 http://www.fire.uni-freiburg.de/iwpm/index.htm

Johnston, F.H., Henderson, S.B., Chen, Y., Randerson, J.T., Marlier, M., DeFries, R.S., Kinney, P., Bowman, D., and Brauer, M. (2012). Estimated global mortality attributable to smoke from landscape fires. *Environmental Health Perspectives Online*. doi:http://dx.doi.org/10.1289/ehp.1104422

Lelieveld, J., Evans, J.S., Fnais, M., Giannadaki, D., and Pozzer, A. (2015). The contribution of outdoor air pollution sources to premature mortality on a global scale. *Nature, 525* (7569), 367–371. doi:10.1038/nature15371

Mack, M.C., Bret-Harte, M.S., Hollingsworth, T.N., Jandt, R.R., Schuur, E.A., Shaver, G.R., and Verbyla, D.L. (2011). Carbon loss from an unprecedented Arctic tundra wildfire. *Nature 475* (7357), 489–492. doi:10.1038/nature10283

Mouillot, F., and Field, C.B. (2005). Fire history and the global carbon budget: a 1x1 fire history reconstruction for the 20th century. *Global Change Biology 11*, 398–420.

Page, S.E., Siegert, F., Rieley, J.O., Boehm, H.D.V., Jaya, A., and Limin, S. (2002). The amount of carbon released from peat and forest fires in Indonesia during 1997. *Nature 420*, 61–65. doi:10.1038/nature01131

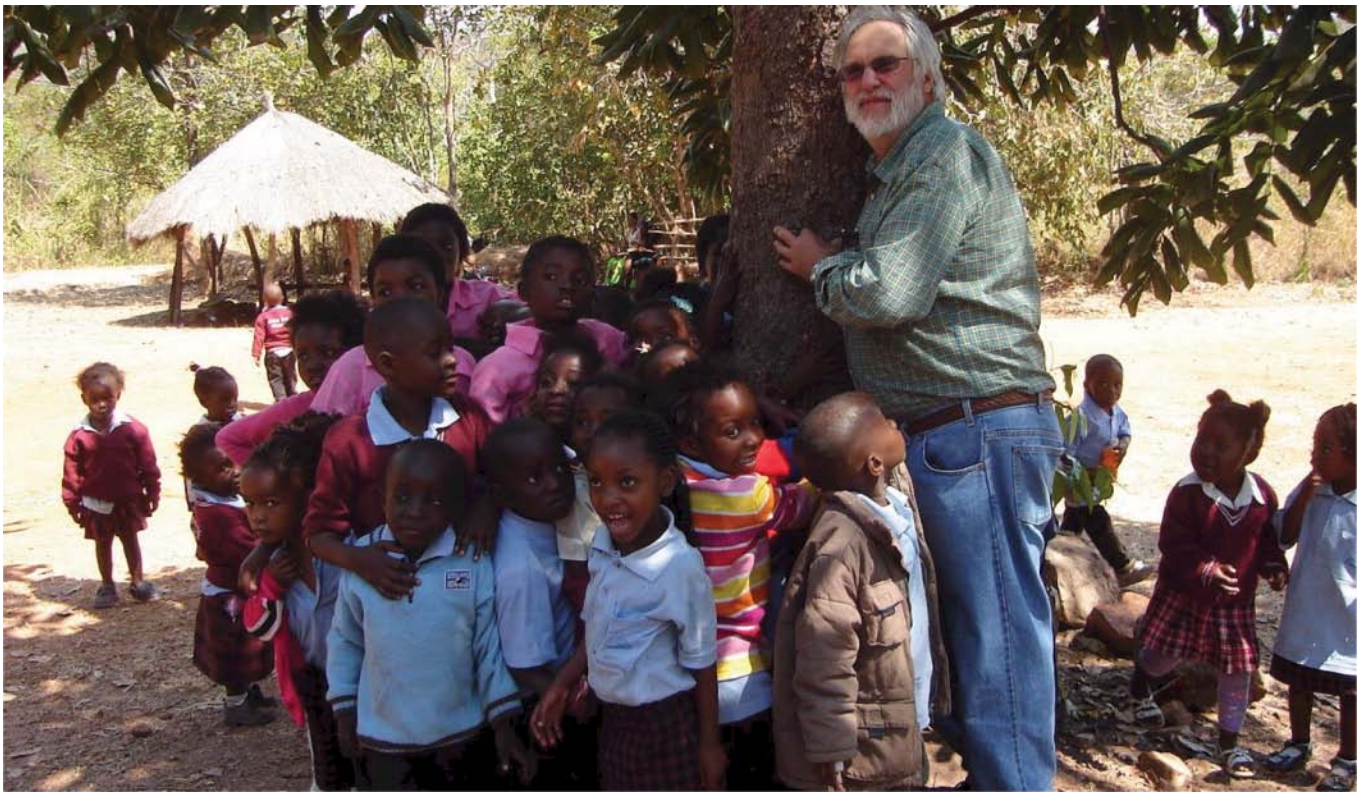
Russell-Smith, J., Cook, G.D., Cooke, P.M., Edwards, A.C., Lendrum, M., Meyer, C.P., and Whitehead, P.J. (2013). Managing fire regimes in north Australian savannas: applying Aboriginal approaches to contemporary global problems. *Frontiers in Ecology and the Environment 11* (s1), 55–63.

Spessa, A., Werf, v. d. G., Thonicke, K., Dans, J.G., Lehsten, V., Fisher, R., and Forrest, M. (2013). Modeling Vegetation Fires and Fire Emissions. In J. G. Goldammer (Ed.), *Vegetation Fires and Global Change—Challenges for Concerted International Action* (pp. 181–207). Remagen-Oberwinter: Kessel Publishing House.

UN, General Assembly (2015a). *General Assembly Resolution 69/283: Sendai Framework for Disaster Risk Reduction 2015–2030*. Online, accessed on 15.08.2016 http://www.unisdr.org/files/resolutions/N1516716.pdf

UN, General Assembly (2015b). *General Assembly Resolution 70/1: Transforming our world: the 2030 Agenda for Sustainable Development*. Online, accessed on 15.08.2016 http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

One man's approach to community forestry in Zambia



Village children hugging a tree after our talk on their best friend, the tree.

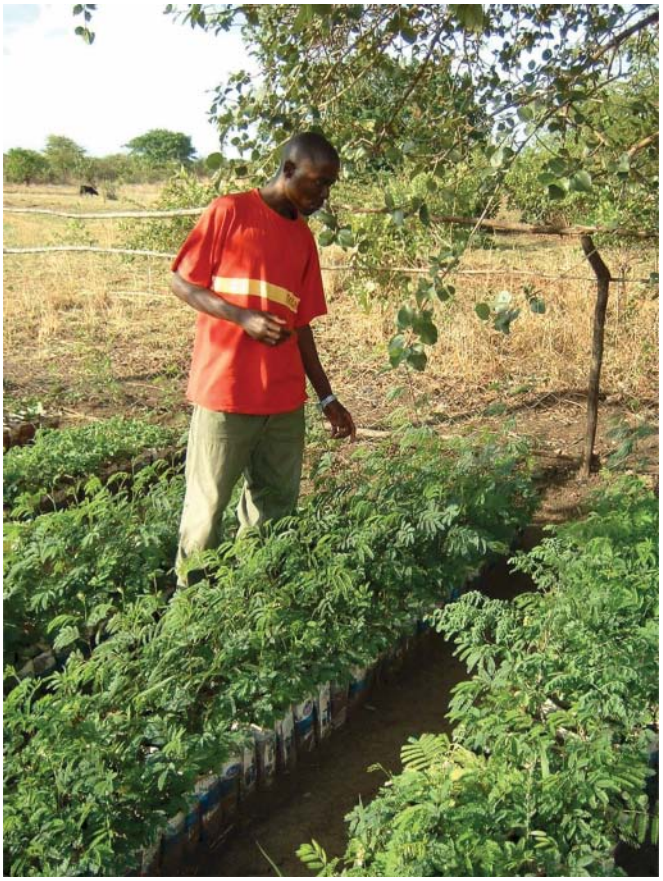
The world has changed in my short seventy years. Gone is the abundance of natural resources, non-renewable resources are becoming scarce. Renewable resources like our forests are being neglected, overcut and decimated to make way for progress and development. Having lived all my life in a rich natural resourced country like Canada it was very easy to become successful, reaping the benefits of this bountiful natural resource the forest.

For the first thirty eight years of my working career I had owned and operated a small forestry company on Vancouver Island, British Columbia, Canada. This chosen profession acquired by 'the hands on' approach took me into all aspects of logging and sawmilling; concluding in a successful business, cutting dimension lumber and producing added value products.

It was time for a change. In 2002 I volunteered with Voluntary Services Overseas (VSO Canada) to go to Zambia as a volunteer forestry expert working in community development. This foray into volunteering was my first step into my new world of retirement. I had never gone to bed hungry, was well clothed and never unemployed; it was time to pay back for such an abundant life.

I worked with an American Non-Governmental Organisation in Petauke District, Eastern Province of Zambia, 400 kilometers east of the capital, Lusaka. My job included visiting the districts' communities and work with pitsaw groups helping them improve their sawing technics and therefore improve the quality of lumber. This in turn created better prices for their timber and improved the lives of the forestry workers and their families.

The art of pit sawing which the communities were using in 2002 when I arrived is the same method used to cut timber to build the British ships that enabled Nelsen to defeat Napoleon in 1798 at the Battle of the Nile. The time I spent with this project made me aware of the lack of reforestation and waste being carried out in the forestry industry of Zambia. At the same



Felix Nguluwe our Mumbi Community Forest, Outreach Coordinator in the tree nursery in Mumbi Village.

time forests all across Zambia were being overcut and in some places were totally being destroyed to satisfy the need for fuelwood (charcoal and firewood). Burning firewood or charcoal is the most reliable method of cooking food and boiling water in Zambia. The increasing population and the need for more food has caused the rapid rate of deforestation for the expansion of agriculture land mostly for the production of maize; the staple crop of Zambia.

As my time as a volunteer with VSO was completed, I returned to Canada. The deep passion of wanting to help stop this deforestation brought me back to Zambia, just a few months later and have visited every year since. This time I was on my own, having little funding, mostly out of my own pocket. I used my contacts with people I had met while I was a volunteer in Petauke District. African Community Project was created.

My first facilitator in the program was Felix Nguluwe from Mumbi Village 20 kilometers south of Petauke towards the Mozambique border. He is a small holding farmer with a passion to grow trees. He remains a vital part of African Community Project, overseeing the harvesting of tree seeds used in our reforestation program. Some of the species that we have selected over the years are: Moringa for food and health, Leucaena for fuelwood and fodder and Jatropha which will eventually be used for biofuel. All three of these trees are fast growing and easy to grow which made them a great teaching tool for communities starting out in reforestation. These trees are now producing seeds used in the expansion of our program across Zambia. I found it very easy to work with communities across Zambia, getting to know the people, their wants and their needs. With my collected knowledge I have compiled a manual on how to create a sustainable community forest that is in circulation across Zambia and Africa*. Also later this year a volume will be added on tree species found in Zambia with their general description, uses and other information.

With the help of funders like Canadian Rotary Clubs and well-wishers we have been able to dig new wells, deepen and rehabilitate existing ones, build and repair schools, cattle dips, dams, supply schools with supplies and blackboards. Working in partnership with these communities on the basics that African Community Project supplies the technical knowledge and the seeds while the community does the planting and managing the trees. This concept is ever evolving, working with Traditional Leadership on traditional land ownership, and balancing the ever increasing need to produce more food for the growing population and making the communities aware of the need to care for the forests of Zambia. The creation of community forests would bring all stakeholders together to manage the forest lands around the community.

The Traditional Leaders were a very important stakeholder, as much of the forest land comes under the stewardship of the local Chiefs. The Government of Zambia has always been involved in our projects, giving advice and defining the laws that govern community forests. African Community Project recognises the restrictions the government has; due to lack of budget funding. Our concept is to give the responsibility of protecting and managing the forests to the local communities, thus the name: community forests. The community at large is the key to bring this concept into reality and after 14 years of community sensitization, it is working.

Unfortunately climate change has been the major factor in pushing the concept ahead. People want to know why the seasonal rains they rely on are late or very heavy causing flooding? Why water management is very important and water retention methods need to be implemented? Why is the everyday weather becoming more extreme? The daily temperatures are rising and in some cases they are falling. Two degrees does not seem like much but even this small amount changes the balancing act in weather in an already fragile environment. African Community

Girls planting out tree seedlings they have grown in the Community Forest nursery.

Project provides explanations to our member community forests of these changes.

In the war against global warming and climate change these communities are on the front line. They have the right to know how to cope with these changes in their everyday lives and what they should expect in the future. Both forestry and agriculture practices are changing, making agroforestry an important word in the vocabulary of the future. Every year since African Community Project was formed we have addressed the need to look after the natural environment with reforestation taking the leading role. The program that started with the one small tree nursery in Mumbi village growing 5,000 seedlings has grown to this year's targeted goal of distributing 2,000,000 tree seeds. African Community Project's approach of meeting the challenges of changing climates and reforestation has got the attention of the Government of Zambia, Traditional Leaders and the community at large. Requests to join our program pour in weekly from communities across Zambia and Africa. Our challenge now is to be able to provide the funding necessary to continue growing and provide vital information to interested stakeholders on the merits of the program.

Garry Brooks
102 – 25 Government Street
Victoria, BC, Canada, V8V 2K4
africancommunityproject@gmail.com

*GUIDELINES TO A SUSTAINABLE COMMUNITY FOREST (Practising Social Forestry)
Compiled by Garry Brooks. ISBN 978-0-9918693-8-1
This booklet is offered at no cost to communities striving to become self-sufficient and can be obtained by contacting the author

International Tree Foundation: leaving positive footprints

The Chairman of the Mount Kenya Environment Conservation checks trees that will form part of the 20M Tree's for Kenya's Forests project

We were founded in the 1920s, starting life as 'Watu wa Miti', becoming the Society of the Men of the Trees, with our name changing to the International Tree Foundation (ITF) in 1992. As we approach 100 years, our goal has been and always will remain to advocate for and promote community engagement in forestry.

We believe community based approaches are more appropriate, effective and sustainable and we prioritise support for nascent community-based organisations (CBOs) set up by highly motivated young leaders, determined to reverse the deforestation that scars their communities and landscapes.

We provide relatively small amounts of funding which enables CBOs to achieve significant impact and growth on their own terms. In the past five years we've worked with 46 community partners, in support of 54 projects in 15 countries, protecting natural forests and planting 1.4 million trees since 2013.

We've no intention of slowing down, after all with a founder like the late Dr Richard 'St Barbe' Baker, we've got some rather large forester's boots to fill.

Yesterday, today and tomorrow

Our pioneers were Dr Richard 'St. Barbe' Baker and Chief Josiah Njonjo, who in 1922 created Watu wa Miti (People of the Trees) in Kenya, through a mutual respect for the importance of trees.

St Barbe was a forestry officer responsible for issuing timber felling licenses in Kenya for the British colony. But after seeing the effects of deforestation, he vowed never again to issue licenses that allowed another tree to be cut – other than on a sustainable basis.

He began researching the impact largescale tree felling was having on the forests in Kenya. His journey took him throughout the country where he found forest devastation. Not only from commercial forestry supported by the colonial government, but also from methods such as shifting cultivation or 'slash and burn' practiced by Kenyan farmers. Lush green forests had turned into infertile scrubland, and restoration or replanting was not being done.

Forest resources such as fruits and medicines, timber for building and fodder for livestock were becoming increasingly scarce and crops would not grow on the increasingly infertile soil.

Communities would move to fertile ground and continue the process leaving degraded land behind them as they moved on to survive.

St Barbe called together the elders from the Kikuyu community, and with Chief Josiah Njonjo's help they convinced the elders that trees were what would help their communities survive.

3,000 Moran warriors gathered to begin the great work of restoring the forest. A tradition began called the Dance of the Trees, marked the occasion.

But before St Barbe would allow the dance to proceed he called 50 volunteers to come forward who would become the first 'Watu wa Miti' – Men of the Trees.

Each member took a solemn oath to serve the principles of planting and caring for trees in order to save their land from desertification. Each upheld that promise, and the secret password 'TWAHAMWE' meaning "we are all one".

On his return to the UK in 1924 St Barbe formally established the Society of the Men of the Trees (MOTT), which gained momentum in many countries around the world; starting in Palestine in 1929 and spreading to 53 countries by 1959.

Education has always been important to us. In the 1930s we ran education programmes on tree planting for young tree planters, known as "Twigs", and during WWII we established a summer school in Dorset which by 1949 had become a week-long event held at Exeter University encouraging organic farming methods.

Our history has been closely bound to the Commonwealth. Richard Baker trained in forestry at the University of Saskatchewan, in Canada. He enjoyed visiting many countries including the USA and Australia, he was an enthusiastic supporter of the Chipko movement in India and even sailed the Atlantic Ocean.

He later emigrated to New Zealand, but his last journey was a return to Canada where he died and was laid to rest in 1982.

A memorial to St. Barbe Baker was unveiled in his birth village of West End in Hampshire in March 2003 and the Richard Baker archives are now housed by Saskatchewan University.

Today our small team is based in Oxford and we're fortunate to have a strong network of partners and volunteers, without whom we couldn't do what we do.

Following in St Barbe's footprints

St Barbe was also a pioneer in the drylands of Africa. In 1952, he developed a plan to plant a wall of trees across Africa to stop the southern advance of the Sahara. He called it The Green Front, and envisaged a 9 mile deep, 4,000 mile long wall of trees passing along 11 African countries – an extraordinarily ambitious vision.

Today thousands of farmers across Africa are contributing towards extraordinary efforts to 're-green the Sahel', through the collective power of small steps: giving a helping hand to natural regeneration and trapping scarce rain with simple structures. Together they are creating the Green Front. We're proud to carry this baton in the form of the Trees for Livelihoods project with our partners Sahel Eco in Mali. Funded by the Big Lottery Fund, it's making a major contribution to long term efforts to promote sustainable land use, encourage reforestation and restore soil fertility.

So far the project has achieved the regeneration of 76 635 trees, trained more than 7,000 men and women in sustainable land management and restored 1,225 ha of land.

These are remarkable figures. But they are based on a fundamental appreciation that a good quality of life is only achievable in the Sahel – by working with nature rather than against it.

20 Million Trees for Kenya's Forests – ITF Centenary Campaign – our most ambitious project yet!

We'll be 100 years in 2024. Not very old compared to the lifespans of many trees, but a centenary is a milestone in anyone's books. And we're returning to Kenya to celebrate it.

Only 7% of Kenya is covered by trees which equates to 67 trees per person compared to a global average of 420. It's one of the countries most affected by deforestation in Africa. This campaign is part of a wider strategy by the Kenyan Government to increase forest cover and to meet the reforestation targets under the COP21 Paris Summit and the UN's new Sustainable Development Goals.

Working together with a range of community, government and NGO partners, trees will be planted in and around Kenya's five highland forests, dubbed "Water Towers" because they play such a vital role in conserving the country's rivers, lakes and scarce water supplies.

This initiative will have a real positive impact on climate change, protecting forest habitats, whilst improving the lives of some of Kenya's most vulnerable people. Around a quarter of the trees will be planted on surrounding farmland to conserve soil and increase food production, and provide timber, fodder, fuel, fruits, nuts and medicine.

The first phase of the campaign – Mount Kenya Forest Landscape Restoration – is underway and we expect to plant 200,000 trees by the end of 2016.

Planting 20 million trees, is a huge undertaking and will require generous resources and many helping hands.

St Barbe said "Be like a tree in pursuit of your cause. Stand firm, grip hard, thrust upward. Bend to the winds of heaven. And learn tranquility."

We've channeled our inner Moran warriors – we're ready for the great work.

A look through our website: www.internationaltreefoundation.org will detail all the programmes we're working on. You'll also find our latest Impact Report detailing progress of projects.

Please follow us on www.facebook.com/internationaltreefoundation twitter.com/ITF_Worldwide

Misty Oosthuizen
International Tree Foundation
internationaltreefoundation.org/

Forest Risk Network – supporting greater collaboration between academics and the forest sector

What is the risk and consequence of tree death?

Forests are victims of disturbances on a regular basis. These include windthrow, fires, pest and diseases and droughts. Societies are dependent on the services that forests provide (timber, soil protection, food, to name but a few), and so there is a need to understand, manage and protect them. In 2011, with funding from NERC, we set up the Forest Risk Network, a network hosted by the University of Edinburgh. The network aims to provide a means of knowledge exchange between the UK research community with interests in understanding natural disturbance risks to forests, and potential end-users of that information. In the network we welcome stakeholders active within the global forest sector: including insurers, investors, carbon standards, public and private sector forest managers, those working in policy and advisory roles, or indeed anyone with an interest in this topic.

In recent years, our work has included linking an insurance company, looking to provide forest insurance to a region of China with limited fire history, with academics who could analyse satellite data to provide regional trends; working with carbon standards to help develop better ways of assessing potential losses from forest carbon projects; adapting analyses on the implications of drought on future timber yields to the requirements of the timber sector, and developing new ways of assessing pest and disease risk.

The work that we do is openly and freely available. Links to some of the key research themes that leading NERC-sponsored academics are currently working on can be found via our website: forestrisks.net.

Although we work primarily with the NERC-funded and wider UK research community, the focus of the research is on global risks to forests, and we are happy to work with end-users based anywhere in the world. We are particularly looking for end-users who might be interested in using existing research, or collaborating with academics to help develop new research. This could include investigating opportunities to form consortiums to bid for research funding, or linking end-users looking to commission academics for specific consultancy projects.

The Network was set up by **Dr Genevieve Patenaude** and **Susan Davies** at Edinburgh. Dr Patenaude is currently on maternity leave, however Susan continues to work on this theme and is about to start a new 3-Year NERC-sponsored Knowledge Exchange Fellowship to continue this work.

Please contact us if you are interested in our work or would like to hear more. Contact:susan.davies@ed.ac.uk

With special thanks to NERC for providing funding (NE/IO22183/1; NE/J019720/1; PA 13-021; NE/M008541/1) and to the various project partners who have lent their support to our projects over the years including: Acclimatise, Bosques Amazónicos, CONFOR, Ecometrica, Edinburgh Centre for Carbon Innovation (ECCI), Defra, Enviromarkets, FERA, Forest Carbon Ltd, Forest Research, Forestry Commission, ForestRe Ltd., Global Canopy Programme, Verified Carbon Standard, Willis Towers Watson, The Woodland Trust, WWF

ISO PC 287 – A new approach to wood and wood materials' chain of custody

When it was established, in the end of 2013, ISO Project Committee (PC) 287 *Chain of custody of wood and wood-base* products faced the criticism from some interested parties that asked a very basic question: Why do we need a new chain of custody standard? This skepticism was based on the premise that the market of forest-based companies already counts with a number of certification schemes, which are well accepted and recognized around the globe. The rationale for such project, proposed and lead by experts from Brazil and Germany, was also very simple: publish an International Standard that would suit the needs of smaller producers, allowing them to gain market, and with requirements that are strong enough in order to be applied by bigger companies that wish to demonstrate the legal origin of their products. The proposal's utmost goal was to develop a solid, market relevant International Standard that could help interested parties worldwide to make informed decisions and, consequently, facilitate the trade of responsibly produced wood and wood based products.

After almost three years, the development of ISO *38200 Chain of custody of wood and wood-based products*, which currently counts with the expertise of professionals from twenty-three countries and nine organizations in *liaison*, is making progress. The unique characteristics of ISO, as an independent, non-governmental international organization with a membership of 163 national standards bodies, has allowed the CoC experts to work, using consensus as a tool, towards the best technical, state of the art, solutions for the draft. Another attribute that differentiates the International Organization for Standardization (ISO) is the adoption of the neutrality principle when it comes to conformity assessment, granting the consequent disassociation from the establishment of certification schemes. This characteristic gives the ISO process more flexibility by allowing the consideration of broader aspects during the technical debates, since the issuance of a certificate by a third-party auditor is just one of the possible options for the user.

In order to publish a sound, comprehensive and widely accepted International Standard, the ISO PC 287 experts are developing a dynamic framework that encompass requirements for the CoC management, implementation of a due diligence system, input and output categories and CoC control methods. Completing the document's structure, informative annexes on social and environmental aspects, trade and customs, internal audits, legality of materials, risk indicators and examples of CoC control methods, will be available to provide guidance to users on the interpretation and best practices regarding these topics. One of the facets of ISO 38200 are the organizational requirements, in line with current management system standards, that will delimitate the practices for the establishment of the roles and responsibilities within the CoC system, the commitment from the top management, internal audits, subcontracting, outsourcing, identification and documentation of applicable legal requirements.

To help safeguard that only materials from legal sources enter the CoC, organizations implementing ISO 38200 will be required to develop full a due diligence system (DDS) based on risk management techniques. Some of the criteria used in the risk analysis include the assurance of lawful compliance, identifying the prevalence of illegal harvesting of tree species, official trade sanctions and the complexity of the supply chain. Proof of legality is the baseline for ISO 32800, but the concern with other relevant aspects of the forest-based industry are also being considered in the document. Guidance on Social criteria/social welfare and employment based on the ILO conventions; criteria related to environmental management, including climate chance, management of pollution and protection of biodiversity; are part of the draft.

Currently, the ISO PC 287 experts are in preparation for the Committee's next meeting, which will take place in Beijing, China, in November. In the occasion, the ISO 38200 draft will be further evaluated and edited, using as a base comments made by PC members and the debates that will occur during the meeting. ISO 38200 Chain of custody of wood and wood-based products is scheduled to be published in the second semester of 2017.

For more information, please access www.iso.org.

Leonardo Ramos Martins
Co-Secretary of ISO/PC 287

Publications

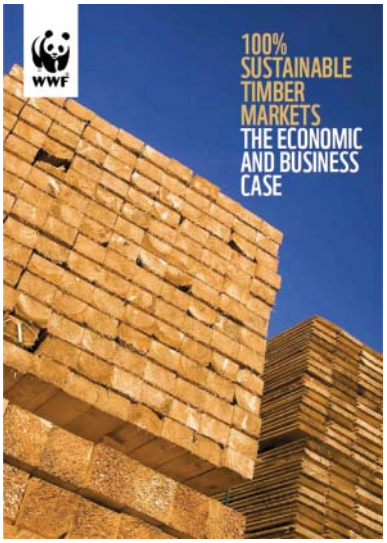
TED talk: How trees talk to each other

"A forest is much more than what you see," says ecologist Suzanne Simard. Her 30 years of research in Canadian forests have led to an astounding discovery — trees talk, often and over vast distances. Learn more about the harmonious yet complicated social lives of trees and prepare to see the natural world with new eyes.

Suzanne Simard: How trees talk to each other https://www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other

100% sustainable timber markets the economic and business case

WWF



The way in which businesses approach their sourcing of timber has a fundamental effect not only on the resilience of the world's forests, but on the very future of those businesses themselves.

WWF have commissioned an initial scoping report, setting out why this is the case, and the benefits of investing in sustainable timber supply chains and forest management, to encourage more companies to show a greater interest in sustainable timber. The report pulls together some of the evidence base from a financial and economic perspective that businesses should pay close attention to, and start to look with fresh eyes at the cost-benefit analysis of this investment.

The report highlights key benefits that will make the case for businesses to switch more rapidly to sustainable sourcing. These include:

- advantages in regulatory positioning
- easier raising of finance
- added brand value
- a more engaged workforce

It also gives manufacturers maximum scope for product development and provides retailers with a full range of tradable goods. These benefits can increase performance of the timber industry as a whole and ultimately aid the bottom line of all companies involved.

As the international market for timber will change in its dynamics in the next decades, without urgent action UK businesses who have failed to adequately plan for continuity of their timber resource could be left exposed with fewer commercial options.

The implications are far reaching with WWF's Living Forests report series concluding that global demand for timber is expected to triple by 2050 due to an increase in demand of wood and paper products from growing economies and populations. At the same time this report's analysis indicates that:

- Brazil has only 16 years of timber forests remaining, South Africa 7 years, Colombia 12 years, Mexico 9 years, Nigeria 11 years, Thailand 9 years and Pakistan 10 years.
- Primary forest is being depleted at an alarming rate in many forested countries, the most extreme examples being Nigeria, losing 99% of primary forest, and Vietnam 80% since 1990 – a loss of almost 2 million hectares in these two countries alone. This has a huge impact on the biodiversity and other important forest ecosystem functions.
- In the UK by 2050 less than 22% of the timber will originate from Britain.
- All the UK foresters interviewed for the report expressed grave concerns over the future of domestic softwood supply.

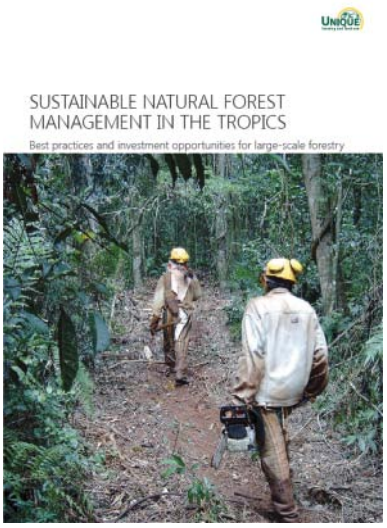
The report also sets out how sourcing timber from sustainably managed forests, will help protect the natural environment as forests not only provide timber but also supply a range of ecosystem services, such as carbon sequestration, water provision, flood prevention, erosion control and biodiversity. Securing long-term supply of timber from sustainably managed forests, will help protect wildlife and ecosystem functions residing in these forests, as well assisting in securing wider social benefits, and is also a contributor to the bottom line of businesses utilising timber as a resource, which currently is as yet widely unaccounted for as a benefit, only as a cost.

The report can be downloaded at http://www.wwf.org.uk/research_centre/research_centre_results.cfm?uNewsID=7900

Sustainable Natural Forest Management in the Tropics: Best practices and investment opportunities for large-scale forestry

UNIQUE

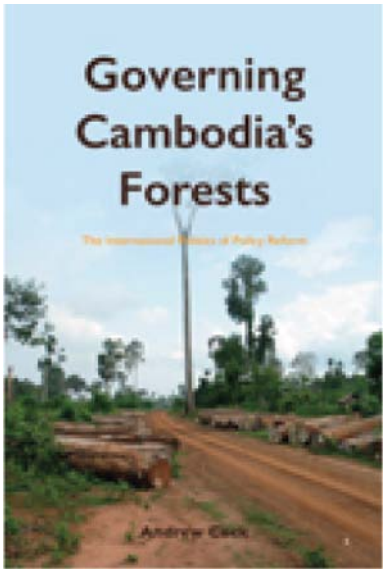
The report provides an assessment of best practices in natural forest management of large-scale certified companies operating in the tropics. It was developed based on primary data from 51 companies.



The report can be downloaded at http://unique-landuse.de/images/publications/UNIQUE%202016%20Sustainable%20Natural%20Forest%20Management%20in%20the%20Tropics.pdf

Governing Cambodia's Forests: The International Politics of Policy Reform

Andrew Cock, Nordic Institute of Asian Studies Press, Copenhagen.



The widespread destruction of Cambodia's forests in recent decades saw the loss of the last major area of pristine tropical forest in the region. The proceeds of often indiscriminate logging and the sale of forest and plantation concessions have enriched the country's ruling elite, but at great cost to its rural population. It was, moreover, a process in which foreign aid donors were deeply involved, even if the outcome was contrary to their intentions.

This book analyses how external reform agendas can be manipulated by domestic elites, and critiques ideas of "ownership" in relation to foreign aid provision. It offers a clear and persuasive argument as to why forestry protection programmes so often fail in the international system.

Through a detailed case study, this book provides the following:

- An examination of the loss of the last major area of pristine forest in Southeast Asia.
- An important contribution to the literature on aid donor–government interactions and the way these impinge upon the poor.
- A comprehensive understanding of the politics of forestry and foreign aid.

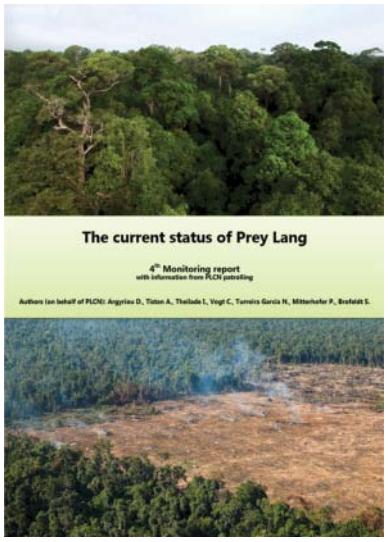
Tropical forest preservation is central to both meeting the goals of the 2015 Paris Agreement on Climate Change and the 2030 Agenda on Sustainable Development. This volume both dissects the governance challenges in foreign aid directed towards the forestry sector and offers policymakers a way forward. It highlights the central role that communities living in and around forest areas may play as local agents of the global common good, given the right incentives and careful insulation from the forces of globalization.

For more information on the book and the "Governance for Sustainable Development (GSD)" project with which the author is engaged, please visit the GSD project website, or contact Andrew Cock (Andrew.Cock@unu.edu).

The current status of Prey Lang

Prey Lang Community Network (PLCN)

PLCN is a grassroots environmental group of patrollers that came together to battle deforestation in Cambodia. Supported by many regional and international NGOs, institutions and universities, PLCN is armed with a specially designed smart phone application to monitor valuable resources and threats to their forest.The findings of the last year's Equator Initiative winners, PLCN, are presented in the 4th report with updated information about the situation of Prey Lang (= Our Forest).



This report contains data from the patrol period from December to March 2016, and total data since PLCN started recording data on February 2015.

You can download the report at: https://www.dropbox.com/s/mxps4f6dvrgq1c9/4th%20MR%20final.pdf?dl=0

Additionaly a new video summarizing the findings of PLCN, as well as it's work, can be found at https://youtu.be/lywMlY4ZpZs

Around the World

SE Asia: Rapid forest destruction puts Asia's wildlife at risk

Rapid conversion of natural forests in mainland South-East Asia have put more animals at risk of extinction but are not making it to the International Union for Conservation of Nature (IUCN) Red List of threatened species.

A remote sensing study led by the United States-based Duke University found that 79 mammals, 49 birds and 184 amphibians in the region now live within less than 20,000 square kilometres, a habitat range which the IUCN defines as an "endangered" zone.

The study analysed vast areas in mainland South-East Asia which include China's Yunnan province, Cambodia, Laos, Malaysia, Myanmar, Thailand, Singapore, Vietnam and eastern India. The region is said to have the worst deforestation in the world. In 2000–2010, countries in the region cleared around 480,000 hectares of natural forests each year, leading to habitat destruction and fragmentation. This destruction has become a factor in the region's 56 per cent share of the world's rubber production and 39 per cent of that of oil palm.

The study, published in *PLOS One* (3 August), notes that this rapid rate of deforestation is threatening 122 kinds of mammals, 183 birds and 214 amphibians that are endemic to the region. A traditional species-by-species assessment as done by the IUCN is deemed too slow to deal with this rising threat.

Stuart Pimm, one of the study's authors and a conservation professor at Duke University, says the team used remote sensing technology to analyse the changing landscape in mainland South-East Asia and how it has affected the distribution of animals living in the region.

The result surprised the researchers who said they found many animals not listed as "threatened" but were actually in danger.

"We argue that some species in the region are much more threatened with extinction than IUCN is saying. An example is the red-throated squirrel (*Dremomys gularis*). It appears to have a large range, but much of it is not at the right elevation, which isn't forested. It's probably in a lot more danger than the IUCN thinks," says Pimm.

Four mammals, nine birds and seven amphibians, which the IUCN had listed as species of least concern, are now living within a habitat of less than 5,000-square kilometre. Other endangered animals include the Assam mole shrew, Millet's leopoldamys rodent, chestnut-headed partridge, Malayan laughing thrust and Vietnamese green finch.

Achmad Farajallah, a zoologist from Bogor Agricultural University, reports the same pattern in Indonesia. In 2014, he published a study in *Nature Communications* which found that land conversion from natural forests to oil palm plantation has contributed to at least 45 per cent of the biodiversity loss.

Regarding the use of remote sensing in evaluating risks of animal extinction, Farajalla stresses that it should not be used as the main indicator. He says that aside from analysing shrinking habitat, risks of extinction can be influenced by other factors.

"To analyse a species' risk of extinction, we need information regarding its generation time, strategy of reproduction, feeding preference and its environmental support, including space and shelter," he says.

www.scidev.net

Indonesia: Mott MacDonald and APP working on alternative species programme

Mott MacDonald is working with Asia Pulp & Paper Group (APP) to support the company's efforts to develop an alternative species programme in Indonesia. The initiative will identify and introduce peat swamp forest trees that could replace *Acacia crassicarpa* trees as a new pulpwood material, especially in buffer zones where water levels have been raised.

Maintaining suitable water levels is crucial to rehabilitating peatland areas and protecting natural peatland forests. APP initiated these efforts by raising water levels on the perimeter of its suppliers' concessions, thus increasing buffer zones between plantations and natural forests. These wider buffer zones allow for near-natural water levels to be maintained at the edge of the forest, which is vital for its wellbeing as well as to reduce peat loss, carbon emissions and the risk of fire.

To date, approximately ten fast-growing species have been identified through the programme. The growth rates and pulping properties of these species will now be tested and monitored.

Hero Heering, Mott MacDonald's project director, said: "During this programme we plan to conduct further trials to assess over 100 additional tree species, with the best performing species being selected to undergo longer trials. The aim of the programme is to identify the best species and place them on a fast-track domestication program."

APP introduced its Forest Conservation Policy (FCP) in 2013 as a commitment towards developing and applying a new and sustainable business model, encompassing environmental protection and social safeguards. A cornerstone in the FCP was a commitment towards zero-deforestation, meaning that APP puts an end to all natural forest clearance as identified through high conservation value and high carbon stock assessments. APP also committed to protecting and restoring these natural forests and implementing peatland best management practices, with the intent to rehabilitate damaged peatland areas and ultimately reduce greenhouse gas emissions.

Aida Greenbury, managing director for sustainability and stakeholder engagement for APP, added: "The loss of natural forests and degradation of peatland contributes towards Indonesia's carbon emissions. The government has set a target to reduce carbon emissions by 29% by 2030 and we believe that our work to implement peatland best management practices, including the Alternative Species Programme, is one of several effective ways to support this effort."

The alternative species programme will run for five years.

About Mott MacDonald *Mott MacDonald (www.mottmac.com) is a £1.4BN global management, engineering and development firm. It is one of the world's largest employee-owned companies, with 16,000 employees and over 180 offices delivering sustainable outcomes for clients in 150 countries worldwide. It works on projects in the transportation, buildings, power, oil and gas, water and wastewater, environment, education, health, international development and digital infrastructure sectors.*

Mottmac.com

Costa Rica has managed to improve land rights and feed people by boosting agricultural production and protecting forests.

Costa Rica's policy promoting sustainable forestry while maintaining food production has made the country a role model to those fighting deforestation, according to a report issued Tuesday by Inter Press Service just one week after a United Nations report found that 70 percent of deforestation in Latin America is caused by large-scale agriculture.

"What FAO mentions about the rest of Latin America, clearing forests for agriculture or livestock, happened in Costa Rica during the 1970s and 1980s," Jorge Mario Rodríguez, the director of Costa Rica's National Fund for Forestry Finance, or Fonafifo, said to the press agency.

According to the Food and Agriculture Organization's report, the tropical countries lost 7 million hectares of forest a year between 2000 and 2010, while gaining 6 million hectares per year in agricultural land.

But Costa Rica's rain forest actually grew from less than a quarter of the total country's surface in the 1980s to more than half of the total surface today. Meanwhile, food production per person increased by 26 percent between 1990 to 2013.

Costa Rica changed its forest management in a context of crisis as "meat prices plummeted while ecotourism became a leading economic activity in the country," environmental economist Juan Robalino told IPS.

"Agricultural development doesn't necessarily require the expansion of croplands; rather, it demands the coexistence with the forest and the intensification of production by improving national farmers' productivity and competitiveness," said Ramírez.

While historically the idea of clearing forests was required to produce more food, in the long term forests are actually crucial for agriculture because they protect soil against erosion, conserve water and reduce the risk of floods.

The U.N. estimates that by 2050 the world will need to feed a population of more than 9 billion, up from 7.4 billion today. Yet 80 percent of arable land is already in use globally.

telesurtv.net

Brazil: Rio 2016 – opening ceremony features environmental rallying cry

A rallying cry to save the planet from environmental destruction has launched the Olympic Games as Rio de Janeiro put on a glittering opening carnival. The overwhelming theme of the evening was protection of the environment. "It is not enough to stop harming the planet, it is time to start healing it," programme notes from the ceremony's organisers read.

An early opening sequence depicted the birth of life, culminating in the sprouting of a green entanglement of leaves from the stadium floor depicting the Amazon rainforest. Indigenous Brazilians then performed native dances before creating huge "Ocas" or native huts in the centre of the stage.

Yet the party mood was halted in its tracks by a sombre sequence titled 'After the Party' which used NASA scientific maps to warn of environmental crisis facing the planet, detailing rising sea levels to melting polar ice caps. It culminated with Oscar-winning British actress Judi Dench and Brazilian thespian Fernanda Montenegro reading Carlos Drummond de Andrade's classic poem A Flor e a Nausea (The Flower and the Nausea).

The gloomy theme was lifted with a hopeful message, showing a boy captivated by the emergence of a seedling in a concrete jungle. The theme continued as the parade of more than 10,000 athletes from 207 teams across the globe got under way.

Each athlete was presented with a seed and a cartridge of soil to enable them to plant a native tree of Brazil, which will ultimately form an 'Athletes Forest' made up of 207 different species – one for each delegation. With the completion of the athletes parade, mirrored towers were cleverly opened to create five green Olympic rings of lush vegetation, symbolising what the forest will one day look like.

The innovative reforestation scheme comes, however, after the failure of one of the most talked about attempts to create an environmental legacy for Rio – cleaning up the city's polluted Guanabara Bay. Garbage, dead animals and human effluent continue to pollute the waters of the bay, into which the raw sewage of half the city is pumped daily.

www.abc.net.au

Mexico: Rising avocado prices fuelling illegal deforestation

Mexican farmers can make higher profits than most other crops so are thinning out pine forests to plant young avocado trees. The popularity of the avocado in the US and rising prices for the "superfood" are fuelling deforestation in central Mexico. Mexican farmers can make much higher profits growing avocados than from most other crops and so are thinning out pine forests to plant young avocado trees.

Such is the size of the market that it has become a lucrative business for Mexico's drug gangs, with extortion money paid to criminal organisations such as Los Caballeros Templarios (The Knights Templar) in Michoacán – the state that produces most of Mexico's avocados – estimated at 2bn pesos ($109m) a year.

Mario Tapia Vargas, a researcher at Mexico's National Institute for Forestry, Farming and Fisheries Research, told the Associated Press: "Even where they [the farmers] aren't visibly cutting down forest, there are avocados growing underneath [the pine boughs], and sooner or later they'll cut down the pines completely." Farmers in the mountains of Michoacán are engaged in a cat-and-mouse campaign to avoid authorities trying to prevent illegal deforestation.

There is also an impact on wildlife as the state's forests contain much of the wintering grounds of the monarch butterfly. A mature avocado orchard uses almost twice as much water as fairly dense forest, meaning less water reaches Michoacán's crystalline mountain streams on which the forests and animals depend.

Greenpeace Mexico said people were likely to suffer too. "Beyond the displacement of forests and the effects on water retention, the high use of agricultural chemicals and the large volumes of wood needed to pack and ship avocados are other factors that could have negative effects on the area's environment and the wellbeing of its inhabitants," it said.

Between 2001 and 2010, avocado production in Michoacán tripled and exports rose tenfold, according to a report published in 2012 by Tapia Vargas's institute. The report suggested the expansion caused loss of forest land of about 690 hectares (1,700 acres) a year between 2000 and 2010.

While trees take seven years to reach maturity, if each bears 100 avocados a year – a fairly low yield – farmers can make as much as $500,000 (£383,000) annually from the plot. Avocado prices jumped from about 86 cents in January to about $1.10 in July, partly because of weak seasonal supply from Mexico.

Farmers who refuse to cut gangs into the profits face retribution – two had their avocado packing plants burned to the ground last April for refusing to pay.

On 31 July, federal police in Morelia, the Michoacán state capital, detained 13 people and seized two avocado plants and two vehicles that were being used to turn a recently deforested plot into an orchard. Police said 260 pine trees and 87 firs had been cut down on a 4.7-hectare plot to make room for 1,320 avocado saplings.

www.theguardian.com

Global: A new strategic partnership announced for CIFOR with SNV

The Center for International Forestry Research (CIFOR) and the Netherlands Development Organisation (SNV) announced a new partnership to collaborate on knowledge, sharing, technical expertise and engagement on some key areas such as sustainable supply of agricultural commodities, business models and services provision to smallholders, innovations in financing mechanisms to provide affordable credit to smallholders, investment models that help build alternative livelihoods for smallholders, and forest management and restoration that account for the needs of smallholders.

The partnership was announced at the 2016 Asia-Pacific Rainforest Summit (APRS) in Bandar Seri Begawan, Brunei Darussalam. It was formalized in June 2016 under a Memorandum of Understanding (MoU) signed by SNV's Chief Executive Officer, Allert van den Ham, and CIFOR's Director General, Peter Holmgren.

With a common outlook of landscape-based strategies associated with sustainable agricultural supply and improved smallholders livelihoods, which deliver improved benefits for climate change adaptation and mitigation and economic development, CIFOR and SNV have agreed to build on each other's strengths to further their respective missions.

The partnership and coordination are being led by Richard McNally, SNV Global Coordinator for Climate Change, and Pablo Pacheco, CIFOR Principal Scientist and Team Leader for Value Chains, Finance and Investments. ''SNV is very excited to become a strategic partner with CIFOR. This will bring more research and scientific rigor into our more complex programs exploring the relationships between smallholder agriculture, forest protection and landscape management," McNally said.

"CIFOR sees significant value in this partnership as part of our efforts to link our research to actions in the ground that work for forests, economic development and rural livelihoods. SNV has developed an important capacity that will contribute to link our research to practice in ways that are meaningful to different local realities," Pacheco said.

SNV is a not-for-profit development organization with a focus on poverty alleviation and sustainable development. CIFOR is a non-profit, scientific facility that conducts research on the most pressing challenges of forest and landscape management. Both have a long-term presence across Asia, Africa and Latin America.

CGIAR.org

Sri Lankan mangroves respond to conservation plan

A year after Sri Lanka launched a mangrove conservation plan with funds from a U.S. conservation group about half of its 37,000 hectares of mangrove forests are in a various stage of revival, officials say.

With US$ 3.4 million from the Califronia-based Seacology and manpower and other support from the Sri Lankan government, some 283 community organisations have been engaged in the work of conserving and replanting mangrove forests. The national conservation body, Small Fisheries Foundation, is the local implementing partner.

Over the next four years 1,500 community groups will be looking after existing mangroves and also replanting an additional 3,000 hectares. Adding to the efforts, the Sri Lanka Navy has deployed its personnel to help with the planting of over 36,000 mangrove trees.

"Nations within and without the region are taking notice of the Sri Lanka mangrove conservation programme," Seacology executive director Duane Silverstein tells *SciDev.Net*.

In July, Sri Lankan President Maithripala Sirisena opened the island's first mangrove museum in the north-western Chilaw district. The museum expects to attract 20,000 visitors per year.

"There was a time when mangroves were cut for everything from firewood to clearing land for shrimp farms," Douglas Thisera, director of conservation at the Small Fishers Federation of Sri Lanka, says.

Thisera has been working on conservation for over two decades, from a time when mangroves were actually being cleared with state patronage. Starting from the late 1980s successive governments allowed large businesses to clear mangroves to set up shrimp farms.

What saved the mangroves was the failure of shrimp farming through infections. But, by then, over 40 per cent of mangroves along the north-western coast were destroyed.

The value of mangroves in protection shores was brought home when the December 2004 Asian Tsunami smashed into Sri Lanka's eastern coast. Mangroves are now protected areas and cutting them down is punishable by law.

Thisera said that the most important component of the programme is community participation. "The community has to value the mangroves, otherwise, they will simply use them for anything they see fit."

www.scidev.net

Europe's primeval forest may be at risk

The Białowieża Forest, which straddles Belarus and Poland, is Europe's last significant stretch of primeval forest. Now it may be under threat from commercial logging and the bark beetle.

Dawn in June in Białowieża forest in Poland is at about three o'clock in the morning. The dawn chorus is "a fantastic choir of different singing birds", a wildlife guide Arkadiusz Smyk (known as Arek) enthused to me. The birds here include: three-toed woodpecker, red-breasted flycatcher, collared flycatcher, white-backed woodpecker, black woodpecker, chaffinch, robin, river warbler, corncrake... and many more, easily meeting the demands of birders' lengthy checklists. There are so many birds in Białowieża because there are so many trees, which support a lot of the food that the birds need to eat – grubs, bugs and beetles.

Białowieża is in the far east of Poland, and stretches across the border into Belarus. It's been largely untouched for centuries – Polish kings and Russian czars left it undisturbed so that they could use it for hunting large game. On the Polish side of the border, the forest is a Unesco World Heritage Site, and is required to comply with European Union environment directives.

But the primeval perfection of the forest may be threatened – by commercial logging. The government in Warsaw has more than tripled the quantity of timber that they will permit to be extracted from this unique place. Naturalists say that allowing more logging in Białowieża defeats its purpose as a World Heritage Site. Foresters say they need to remove more wood so that they can make a decent living. They also want to remove dead trees – standing and fallen – because they say that the rotting 'cadavers' blight the beauty of the forest, and that tourists don't like them because they spoil their photographs.

Local people also want more trees cut down because of an infestation of a spruce bark-beetle. Wildlife guide Arek says the infestation doesn't matter: "Bark beetles invade spruce trees from time to time, and nature can handle it. The beetles come, then they go. It is always like this. There is no harm to the forest stand."

Forest rangers disagree – they say that beetles have attacked about a fifth of the healthy spruce trees in the forest, and that they could infect more. Arek is suspicious of such claims, saying that spruce timber from Białowieża – and oak too – are threatened with felling because there's a strong commercial demand for them. Because the forest is dark and closely packed, trees grow high as they reach up towards the light. Some spruce and oak here rise to 150 feet (45m). Height generates dense, strong – and profitable – wood.

Unesco inspectors recently visited the forest to arbitrate between loggers and naturalists. They are expected to reveal their findings in July. Polish Forests assured me that no logging will take place until then – other than clearing trees that may be a danger to passing traffic.

A public meeting in Białowieża village revealed strong local feelings. There were complaints about 'outsiders' interfering in traditional forest culture, and accusations that opponents of logging were 'pseudo ecologists.' Two local men reacted violently when a TV crew tried to film evidence that logging had not actually ceased. Two men threw plastic water bottles at the TV camera, screamed their fury, and assaulted the crew – with fists & expletives.

And I experienced a puzzling reluctance on the part of the director of Polish Forests, Konrad Tomaszewski, to have the BBC record his field trip presentation to the UNESCO inspectors. He wanted to hear my recording to authorise it before it was broadcast. I politely declined his invitation. One of Mr Tomaszewski's arguments in favour of extra logging is that Białowieża should be "a living community, not a museum".

Arkadiusz Smyk wants the forest to be preserved as a museum. He describes it as the last primeval forest of its kind in Europe, and says it provides unique, irreplaceable evidence of how a forest "behaves" when there is minimal interaction with humans. "Other forests all over Poland can be used for timber farming," he suggested, "just please leave Białowieża how it is."

Arkadiusz handed me his binoculars, and pointed to a small, perfectly round hole high up the trunk of a dead oak tree. A small bird popped its head out. A larger bird arrived, holding beetles in its beak. It placed them inside the hole – a middle-spotted woodpecker feeding its young in their nest.

news.bbc.co.uk

Zambia: New project aims to prevent deforestation by turning women into entrepreneurs

A group of young volunteers have discovered an inventive way to prevent deforestation in remote areas of Zambia – by encouraging women to become entrepreneurs. Project Optima, based in Kitwe, Northern Zambia, aims to curb charcoal use by producing cleaner, safer wood chip stoves, which consume less wood than charcoal alternatives. The project provides women with franchising packs, allowing them to sell stoves and the wood chips required to use them in their local communities at a small profit.

Edgar Chaloba and Naomi Chiluba, who are Zambian Challenges Worldwide International Citizen Service (ICS) volunteers, and their British counterparts Hannah Chen-Smart and Ryan Pugh devised the project as a way to switch charcoal using households to using sustainably harvested sticks of wood. "It will save the local people money in the long run. There is a huge burden on the poorer people to buy charcoal in Zambia, they live day to day and don't see future investment in cheaper and cleaner energy sources," said Ryan. "This is why we turned

to micro-franchising – It uses the spirit of salesmanship and entrepreneurship that are already present in Zambian culture as a conduit – encouraging local development. If the stove is on a shelf no one will buy it, when you have a salesman explaining what the stoves are and why they are so beneficial, people are really interested."

While Zambia is one of the most foliage rich countries on earth – with 60 per cent of its land mass covered in forest – it is also one of world's most prolific deforesters. According to recent data from the Centre for International Forestry Research (CIFOR), the deforestation rate in Zambia is currently around 250–300 thousand hectares a year – leaving experts concerned that Zambia's trees could be gone completely by the year 2030. One of the main causes of deforestation in Zambia is the use of charcoal. 90 per cent of the population use charcoal related sources of energy and about 75 per cent of households rely on it, according to the Stockholm Environment Institute – making charcoal a lucrative business venture and major source of livelihood for many people.

Due to inefficient kilns used in production, farmers can only rear around 10kg of charcoal for every 100kg of wood burnt, leading to large areas of forest being cleared in order to produce large amounts of charcoal – and increasing demand is resulting in replacement trees not being planted fast enough and large areas of land being cleared completely of all forest. Female life expectancy is also affected in Zambia by charcoal use due to large amounts of carbon dioxide released when cooking.

There have been a number of projects in recent years to combat Zambia's charcoal usage such as the UN's Global Alliance for Clean Cook Stoves – supported by Hillary Clinton and Barack Obama – and in Zambia there is the Lusaka Sustainable Energy project providing households with cook stoves financed by German power utility RWE Power AG. However, as Challenges Worldwide CEO Eoghan Mackie points out, promoting an entrepreneurial approach, instead of providing aid, encourages local growth as well as protects the environment.

"The enterprise-led approach not only creates jobs, but extends the reach of the new technology as more communities are able to be involved in the distribution chain. In many cases we have seen those resellers begin to deliver access to other forms of clean energy; such as solar power and water filtration systems. We have seen recent success with companies such as Vitalite and SunnyMoney in Zambia and Translight Solar and Solar now in Ghana. Challenges Worldwide are committed to delivering truly sustainable economic development through an enterprise first approach."

Ryan, Hannah, Naomi and Edgar are currently volunteers for Challenges worldwide ICS at Rainland's Timber, a Sawmill located outside Kitwe on the Copperbelt in Northern Zambia. Owner Nick O'Connor employs local people and is allied with WeForest to help stop deforestation.

WeForest run a project where local farmers sign a contract to stop producing charcoal and section off an area of their land for Assisted Natural Regeneration (ANR), where they let the natural bush grow back. Rainland's has adopted selling "Peko Pe" stoves on the sidelines for around 3 years – in order to recycle up waste wood from their own production and from local farmers. However, sales of the stoves have so far been limited to trade fares and specialist stores in the urban areas of Zambia where charcoal usage is much lower.

However, the stove has a lot of benefits within small communities on the Copperbelt, according to Zambia's Sustainable Agriculture Programme's (SAP) director Mpenza K. Mwanza: "The improved brazier is a vital tool in reducing women's care work burden associated with the collection of firewood, and health implications derived from other known traditional heat energy sources. Additionally, the brazier alleviates the problem of environmental mismanagement by reducing deforestation."

Volunteer Edgar insists that there has been steady interest in the product and believes that the one thing left to do is getting them out there: "I went to an Oxfam fair and you have so many local vendors asking if they can sell the stoves. There's an appetite for the product, people really want to get involved."

The volunteers were inspired by existing micro-franchising within Zambia – with the already successful examples of phone companies MTN, Airtel, Zesco who enlist vendors to sell "air time" (data and minutes for mobile phones) on the streets. "Word of mouth is really important in Zambia"confirms Ryan. "Street vending is completely legal so people see it as a good thing – people in Zambia trust each other more than larger businesses, usually preferring to buy things from local markets than massive conglomerates. The business environment is full of SMEs (small and medium-sized enterprises). People will tell you 'don't buy it through the company buy it through some guy.'"

"Essentially just selling the stoves wouldn't really work; so its worth getting the Zambian people to run their own businesses and make profit and a steady income."

The steady income comes through first selling a wood stove and then continuing to provide wood chips in local church and women's groups. The project aims to take advantage of what it calls the most lucrative agents for this kind of selling – local women. "People like to do as their neighbours or family do, and women have very strong social connections to their local communities through groups. We can see the value women have in this country, we want to do it the way the Zambians like to do it and make a real difference".

To support Project Optima head to their crowdfunding page: www.crowdfunder.co.uk/optima*. Ryan, Edgar and Hannah are volunteers for Challenges Worldwide ICS, a social enterprise supporting 1,500 small businesses in 40 countries. It is open to 18–25 year olds and is fully funded by the UK government. For more information or to apply to take part head to challengesworldwide.com*

www.independent.co.uk

UK: 17 suprising facts about trees

Fiona Stafford, author of the charmingly illustrated *The Long, Long Life of Trees*, explores the many ways in which humans interact with trees, celebrating our long history with these inspiring and much-loved natural companions. Keep reading for some of Fiona's favourite facts about trees!

Did you know . . .

1. Some yew trees in the UK may be four thousand years old. Since these trees have a unique capacity to regenerate, their age is difficult to assess. Some of the yews in country churchyards have been there longer than the church building.

2. Sycamore seeds flew into space in 1971 with Apollo 14 and after orbiting the moon, they returned to Earth to be planted. They grew into healthy 'Moon Sycamores', and are still flourishing in the United States.

3. In Scotland people used to plant a rowan tree by their homes, to keep witches away.

4. Shrubby willows, or osiers, are often planted when industrial sites are decommissioned because they soak up polluted water and absorb metals.

5. When Thomas Gray evoked the 'rugged elms' beside the graves in his famous 'Elegy Written in a Country Churchyard', he, and most of his readers, would have known that coffins were made from the wood of elm trees.

6. Henry VII adopted the hawthorn tree as his emblem because he was crowned on the battlefield at Bosworth, after defeating Richard III.

7. The frame of Morgan sports cars is built from the wood of ash trees, because it is so light and flexible.

8. The horse chestnut tree that Anne Frank used to watch from the secret hiding place, where she and her family sheltered from the Nazis, was alive until 2010, and when it was finally blown down in a gale, slips from the tree were saved and have been planted across the world in her memory.

9. In a game of chess the White pieces are often made from the wood of the holly tree, because it is so pale.

10. The growth of a mighty Oak tree is often dependent on the jay's penchant for acorns. Jays will gobble up acorns and bury the excess in the ground, often returning later to recover their store and, in the process, helping the oak seedling up to the light.

11. Pine needles provide a record of air pollution, because the particles settle in the wax coating of the pine's foliage.

12. John Constable's favourite tree was the ash tree.

13. Lombardy poplars became symbols of Liberty and Equality after Jean-Jacques Rousseau was buried in an island tomb, surrounded by these tall, straight, matching trees.

14. Some cypress trees can grow three or four feet in a year, making them the fastest hedges in the UK.

15. Pesto is made from the nuts of the Stone Pine, which grows naturally around the Mediterranean.

16. During the First World War, willows provided the lightweight wood needed for the huge number of artificial limbs for amputees.

17. The olive tree was sacred to Athena, the goddess of wisdom – and no wonder, since the olive, with its remarkable oil, was an essential source of food, fuel, light and timber in the ancient world.

Fiona Stafford is professor of English language and literature, University of Oxford. She is author and presenter of two highly acclaimed series for BBC Radio 3 titled The Meaning of Trees.

yalebooksblog.co.uk

SE Asia: Carbon emissions from 2015 fires greatest since 1997 – new study

A new study of the forest and peatland fires that burned across maritime Southeast Asia in 2015 has found that the carbon emissions were the largest since 1997, when an even stronger El Niño also resulted in extended drought and widespread burning.

Using a pioneering combination of regional satellite observations, on-the-ground measurements in Kalimantan, Indonesia, and the Copernicus Atmosphere Monitoring Service (CAMS) modeling framework, the study's authors determined that the daily carbon emissions released by the fires in September and October 2015 were higher than those of the entire European Union (EU) over the same period.

The study, published in *Scientific Reports*, was carried out by a team led by Vincent Huijnen of the Royal Netherlands Meteorological Institute and Martin J. Wooster of King's College London and the NERC National Center for Earth Observation, and included Daniel Murdiyarso and David Gaveau from the Center for International Forestry Research (CIFOR).

In September and October 2015, dry conditions and the delayed onset of seasonal rains contributed to extensive landscape fires, with the resulting smoke strongly impacting air quality in the region and the health of millions of people.

This research team is the very first to have measured the ground-level smoke composition from active peatland burning in the region. They combined that data with satellite information to derive the first greenhouse gas emissions estimates of the 2015 fires, finding that 884 million tons of carbon dioxide was released in the region last year – 97% originating from burning in Indonesia. The corresponding carbon emissions were 289 million tons, and associated carbon dioxide-equivalent emissions 1.2 billion tons.

Satellites provided data on the heat output being radiated by the fires, as well as information on the amount of carbon monoxide present in the surrounding atmosphere. From this, the total carbon emissions were calculated by combining those measurements with the newly determined emission factors of

Global: Can't see the wood for the climbers – the vines threatening our tropical forests

Woody climbing vines, known as lianas, are preventing tropical forests from recovering and are hampering the ability of forests to store carbon, scientists are warning. Instead of taking decades to recover, tropical forests are at risk of taking hundreds of years to re-grow because of lianas, which spread rapidly following extensive tree-felling.

In a new study published in the *African Journal of Ecology*, scientists advocate the temporary removal of lianas in selected areas to help tropical forests grow back. The team, from the University of York and Flamingo Land zoo, reveal for the first time outside of commercial forestry or plantation studies, how lianas are preventing the growth of trees in an African forest.

This observation was not a huge surprise based on previous work elsewhere in the tropics and its established use in forestry. However, the scientists also reviewed previous scattered studies and have revealed that the impact on tree growth rates is approximately equivalent across the tropics, on average nearly halving the rate of growth. More sparse data even suggests a net 7-fold decrease in the overall rate of biomass accumulation (accounting for tree mortality and the growth of new trees).

"The implications for the global carbon sink are profound," said Dr Andrew Marshall from the University's Environment Department and Director of Conservation Science at Flamingo Land. "No-one has until now compiled data from all over the world to see what the general trend is. What this study suggests is a trend; that lianas are impacting on the tropics but not just in selected sites."

However, Dr Marshall says the lianas also help to promote biodiversity and help sustain an abundance of plants and animals – creating "bridges" across the trees, food for monkeys and other animals, and generally adding to the overall function of forests. In the paper, the scientists highlight one climber, known locally as "the lion's grasp", because of its claw-like spines.

Dr Marshall said the problem had been caused by commercial logging, which allowed the lianas to flourish. "We don't want to advocate taking all the lianas out of the forest, that would be terrible. But a temporary removal in some places will help forests grow back," Dr Marshall added.

"Lianas are an important part of the ecology. If we temporarily cut them back the trees start growing more, with new trees sprouting and less mortality, resulting in more and more biomass in the forest. We don't have enough data yet to know which species respond well to clearing out lianas, that is the next stage in the research."

www.york.ac.uk

Africa: Trees contribute to reducing carbon footprints even after being cut down – UN Report

Forests can contribute greatly to the fight against climate change even after trees have been logged, according to a new United Nations report which looks at the impact of wood products on carbon storage.

"Forests are at the heart of the transition to low-carbon economies, not only because of their double role as sink and source of emissions, but also through the wider use of wood products to displace more fossil fuel intense products," the Assistant Director-General for Forestry at the UN Food and Agriculture Organization (FAO), René Castro-Salazar, said from Rome, where she is participating in the UN agency's World Forest Week.

According to FAO, the report – Forestry for a Low-carbon Future: Integrating forests and wood products in climate change strategies – is aimed at highlighting a "virtuous cycle" that exploits the life-cycle of wood products to boost the ability of forests to remove and store carbon from the atmosphere.

Trees lock carbon in their leaves, branches and soils, while deforestation and forest degradation account for up to 12 per cent of worldwide gas emissions.

Promoting wood as a renewable energy source may seem counter-intuitive, but 1.86 billion cubic metres of wood – more than half the world's wood output – is already used for that purpose, according to the report.

More directly, when wood is transformed into furniture, floors, doorways or beams to be used in construction, it does not instantly oxidize but continues to store the carbon it took in as a tree.

So the framing in a house might store carbon for up to 100 years, a dining room table less than 30, and paper a few years. The carbon is only released back into the atmosphere when the wood product is burnt or decays.

The report – the end result of collaboration among more than 100 experts – was designed primarily for policy-makers and experts, but is also tailored for architects and the energy industry.

Its guiding message is that optimal engineering of the carbon life-cycle of trees and wood products allows over the long-term – through technological advances and cleaner, greener methods of processing, the industrial use of wood – for sustainably harvested forests to complement and even enhance the climate mitigation benefits provided by conserved forests.

allafrica.com

carbon dioxide, carbon monoxide and methane measured at fires burning in October 2015 outside of Palangka Raya in Central Kalimantan province – one of the hardest-hit fire sites.

"There have been some isolated studies before where people artificially set fires in the lab to try to understand the chemical characteristics of peatland fire smoke in Indonesia. But no one had done this on natural fires, and especially not on the kind of extreme fires seen in 2015. We are the first people to do that," said Wooster.

The results indicate that regional carbon dioxide emissions from landscape fires were 11.3 million tons per day in September and October 2015, exceeding the EU's daily rate of 8.9 million tons. Further, 77% of the regional fire carbon emissions for the year occurred during that time – at the peak of the fires.

The scientists also compared their results to those of the 1997 El Niño-related fires in the region.

"In 1997 the drought lasted longer, the fires were more severe and a lot more forest burned. In 2015, fires mostly burned on degraded peatland covered with shrubs and wood debris," said CIFOR scientist David Gaveau.

The study's results have wide implications for future research, whether it is in respect to studies of landscape burning or the impacts of fire emissions on climate and public health, and they contribute to better understanding the need for fire prevention and improved landscape management.

"What is important is the applicability of a study like this in helping policy makers to use more accurate fire emission factors to design policy and act to prevent further fires and greenhouse gas emissions," CIFOR scientist Daniel Murdiyarso said.

us7.campaign-archive2.com

Global: Rights of indigenous peoples 'critical' to combat climate change

No longer is it about restoring the legitimate rights of over 370 indigenous peoples spread across 70 countries worldwide, many of them living in dire situation, but now about their central, critical role in combating climate change.

Victoria Tauli-Corpuz, the United Nations Special Rapporteur on the Rights of Indigenous Peoples has relentlessly emphasized this new reality. "Very few countries have so far made a clear commitment to a requirement in the Paris Climate Change Agreement that countries undertaking climate change activities should ensure the rights of indigenous peoples," she says, while reminding of "the large number of violent deaths of people protecting their forests and rights to land in 2015 – the deadliest year for environmental defenders on record."

"It's a dire situation in terms of respect for the rights of indigenous peoples," she told the participants in the United Nations Food and Agriculture Organisation's Committee on Forestry (COFO) which met in the Italian capital on July 18–22. "Indigenous peoples across the world experience the consequences of historical colonisation and invasion of their territories, and face discrimination because of their distinct cultures, identities and ways of life," according to UN Special Rapporteur on the Rights of Indigenous Peoples.

On this, FAO stated that "Governments must do much more to provide the enabling conditions required for indigenous peoples, local communities, smallholders and their organisations to restore degraded landscapes and achieve climate change mitigation and adaptation in practice."

Specifically, René Castro Salazar, FAO's Assistant-Director General warned that the issue of indigenous rights to land and territories was 'critical' for the success of climate change initiatives. "Unless we help indigenous peoples achieve secure land tenure and better governance, it will be very hard to achieve long-term solutions," Castro Salazar said. "We are lagging behind, and we need to do more."

A third of global forests are under some form of management by families, smallholders, local communities and indigenous peoples, and represent some of the most important carbon stocks in the world, FAO reported during the meeting. Government-recognised community forests alone hold an estimated 37.7 billion tonnes of carbon stock. "Family smallholders, local communities and indigenous peoples have a key role to play in preserving these carbon stocks by reducing deforestation, managing forests sustainably and restoring tree cover as part of productive rural economies, particularly when they belong to strong producer organisations," according to the UN agency.

In addition, an estimated 1.5 billion hectares of land hold potential for smallholder farmers to combine agriculture with trees. "But failure to find the best way to engage with local stakeholders and align their interests with forest conservation can significantly compromise the chances of achieving carbon sequestration and mitigation targets."

In an outcome statement issued at the close of the Rome meeting, participants urged governments to provide the enabling conditions required for local communities, indigenous peoples and local producers, "to manage larger territories, from securing and enforcing tenure rights to creating favourable business incentives and offering technical, financial and business extension services."

They also called on global financing mechanisms, government programmes and private investors to direct investment and support towards local communities, indigenous peoples, smallholders and producer organisations.

Finally, they called for climate change initiatives "to shift towards giving greater ownership to local communities, indigenous peoples, smallholders and producer organisations and engaging them in participatory and qualitative assessment of the forest cover and trees on farms they manage."

On the occasion of the Rome meeting, FAO issued a new study that helps to fill a significant knowledge gap on the presence and extent of forests and trees in the world's drylands, where the food security and livelihoods of millions of people, already precarious, are increasingly being threatened by climate change.

The study's preliminary findings show that trees are present with hugely varying densities on almost one-third of the world's 6.1 billion hectares of drylands, which cover an area more than twice the size of Africa. Almost 18 per cent of this area contains forests. An estimated 2 billion people, 90 per cent of whom are in developing countries, live in drylands. Recent studies have indicated the need to restore these areas to cope with the effects of drought, desertification and land degradation.

In particular, water availability in drylands is expected to decline further due to changes in climate and land use, the new study warns. "Poor people living in remote rural areas will be most vulnerable to food shortages, which combined with violence and social upheaval, are already leading to forced migration in dryland regions in Africa and western Asia."

Until now, there has been little statistically based knowledge on dryland trees – particularly those growing outside forests – despite their vital importance to humans and the environment, according to the study. The leaves and fruit of trees are sources of food for people and fodder for animals; their wood provides fuel for cooking and heating and can be a source of income for poor households; trees protect soils, crops and animals from the sun and winds, while forests are often rich in biodiversity.

Drylands are divided into four aridity zones (see map): the dry sub-humid zone, is the least arid of the four zones and consists mostly of the Sudanian savanna, forests and grasslands in South America, the steppes of eastern Europe and southern Siberia, and the Canadian prairie.

Most dryland forests occur in this zone, as do some large irrigated, intensively farmed areas along perennial rivers; at the other extreme, the hyper-arid zone is the driest zone and it is dominated by desert – the Sahara alone accounting for 45 per cent, and the Arabian desert forming another large component.

stopgetrees.org

UK: Tree planting at 'an all time low'

Official figures released today by the Forestry Commission show that the government is falling far short of its own tree-planting targets. The Woodland Trust says that the "drastic decline" in new woodland planting is "appalling" and could have serious environmental consequences. It accused government of missing its target in England by 86%. The environment department, Defra, said it was committed to growing woodland cover.

Data published today by the Forestry Commission, the government body responsible for expanding Britain's woodlands, shows that 700 hectares (seven km2) of woodland was planted in England last year. The goal was to plant 5000 (50 km2).

Austin Brady from the Woodland Trust, said: "These figures are all the more shocking against the backdrop of the growing evidence of the importance of trees and woods in tackling air pollution, improving water quality and offering scope to deliver natural flood management. "Something is drastically wrong with the way woodland planting is being supported across the various government departments that share responsibility for trees and woods." The government has committed to planting 11 million trees between 2015 and 2020.

Environment Minister Elizabeth Truss has spoken of their importance in helping to prevent flooding. Speaking in the House of Commons in December 2015 she said she wanted to look at the environment "on a catchment level, making sure that we put in place tree-planting programmes that can both reduce flood risk and improve the environment".

However, Mr Brady said: "There have been lots of really interesting and well-informed conversations – all the signals are positive, but the system of delivering the grants and getting things moving on the ground is not matching up with the fine words. It is not fit for purpose."

The UK is one of the least wooded nations in Europe. Only 10% of England is covered in trees. Average woodland cover in the EU is 37%. Government funding has been made available but grant schemes for planting trees changed last year.

There have been delays in processing contracts and payments. Under the Countryside Stewardship Scheme there are rigid rules determining the amount of land that needs to be planted and at what density to qualify for a grant.

There is also confusion around whether planting trees disqualifies farmers from part of their EU farm subsidy payments. This leads many farmers and landowners to avoid new planting altogether. A Defra spokesperson said: "Woodland cover in England is at its highest level since the 14th Century and we are committed to growing it even further. "The Countryside Stewardship scheme is an important opportunity to help expand our nation's woodlands, which is why the Forestry Commission is supporting landowners to make applications through a series of workshops and online support."

The Woodland Trust says that more flexible schemes are needed to allow landowners with more limited space to be able to qualify for funding. There also needs to be more clarity. Currently the government departments involved in tree management include: Defra, the Forestry Commission, Natural England and the Environment Agency.

Along with the environmental benefits of trees, according to the government's Natural Capital Committee report, which aims to put a financial price on the "ecosystem services" provided by natural resources, "woodland planting of up to 250,000 additional hectares ... near towns and cities can generate net societal benefits in excess of £500 million per annum".

news.bbc.co.uk