# CFA Newsletter

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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

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# The new wildfire law in South Africa: what consequence?*

*Winter-cured grassland fuels in South Africa's Grassland and Savanna Biomes create a fire hazard in most years. (Photo: Fred Kruger)*

**Introduction**

The decade following South Africa's first democratic election in 1994 marked a period of energetic and far-ranging law-making, while the decade since then has been the time for implementing these new laws, all to support the policies intended to transform South Africa into a modern, equitable society. This account in two parts (the second will be published in the September CFA Newsletter) gives a brief history of the modern regime for the regulation of rural fire management. The present situation shows substantial progress in establishing the Fire Protection Associations, the new institutions for local, communal fire management. There are lags in implementing other facets of the law, and a degree of inconsistency in the interpretation of certain of its stipulations, but the principles followed in the design of the statute, guided principally by South Africa's 1996 Constitution, provide a foundation for further progress.

**Wildfire hazard and environmental fire regimes**

In South Africa, as in southern Africa as a whole, fire has an important ecological role in most biomes. Managing natural resources, and protecting South Africa's rich biodiversity, requires maintenance of ecologically fit fire regimes[1].

* This is the first of two articles written by Fred Kruger dealing with wildfire in South Africa. The second will appear in the next issue of the CFA Newsletter.

[1] See e.g Forsyth *et al.* 2010 for an analysis of ecologically fit fire regimes across South Africa's biomes.

Fire ecology goes hand in hand with fire hazard, and in the southern African region, the effects of rural fires are severe. The episode of intense fire weather in 2008 is illustrative. In this period, a weather system marked by extreme dryness and strong gusty northerly to westerly winds, ahead of a major regional weather front, passed slowly over the interior and east of the subcontinent, following a long rainless period. The episode began in the last week of August in the arid savanna of central Botswana, with the Ghanzi Fire, which eventually burnt for over a week, spreading over 5.2 million ha[2]. A series of fires followed, across South Africa and into Mozambique – by 31 August Working on Fire[3] reported: *'Some of the most devastating veld fires of the year raged through the north eastern parts of the country this weekend with wind speeds of 85km/hour recorded in some areas grounding aerial fire fighting resources and endangering ground veld fire fighting teams. Forestry plantations, agricultural land, buildings and livestock were destroyed in more than 50 veld fires in KwaZulu Natal and Mpumalanga. On Sunday a new grass fire was burning near Bethlehem in the Free State while later in the day an out-of-control fire near Piet Retief in Mpumalanga chased towards the town.'* Fire response capacity was overwhelmed throughout the region. By 8 September, 32 people were reported killed in Mozambique, and the fires there burned down 722 houses, making 2,805 people homeless, and affected 16,000 hectares of agricultural land. In South Africa, scores of people lost their lives in the fires, and economic losses amounted to billions of Rands.

And just a year before, during the period from January to August 2007, 61,700ha of plantation forest burnt in KwaZulu-Natal and Mpumalanga, 2,9% and 9,5% of the total area of plantations respectively in these two provinces. ForestrySA estimated the value of standing timber burnt amounted R1,33 bn (2007 prices), and that of this, 40% was unsalvageable. More important however, were the forward effects of the disaster, with the consequent impacts on wood flows, especially sawlogs for construction timber, being felt throughout the economy. This was accompanied by closure of manufacturing capacity, loss of rural jobs, and many other adverse effects. In 2001, 23 people lost their lives in a single fire in the Kruger National Park, again, in the early spring, September.[4]

**South Africa's law-making moment**

A quick succession of statutes establishing a new regime of natural-resource governance followed enactment of South Africa's new Constitution in 1996: the National Forests Act, the National Water Act, and the family of statutes around the National Environmental Management Act being examples[5]. These laws were written and were to be implemented to comply with the Constitution as a whole, but especially with the requirements for cooperative governance. Since South Africa now had three spheres of government, national, provincial and local, cooperative governance meant not only horizontal cooperation, but also cooperation among these three spheres. The definitive mark of the new system of natural-resources statutes is its hierarchy of frameworks. The result was a system of 'polycentric governance' in natural resources management: polycentric governance referring to the situation where the resource system is managed by several interlinked statutes, ordinances and traditions, and involves actors at several different levels.

**Wildfire law in a congruent framework of natural-resources law**

As a consequence of the country's hazardous fire environment, as well as to support fire management for environmental objectives, the statutory reform after 1994 included a new law to govern the management of rural fire, the National Veld and Forest Fire Act (the NVFFA: Act 101 of 1998)[6]. A 150-year history of research, local and international experience, and legislative trial and error served to support the formulation and implementation of the NVFFA[7]. But it was the 1996 Constitution that opened the way to writing a law that could redress past failings, especially through the FPAs. The NVFFA reconfigured the law regime governing wildfire management, a regime that had evolved from the mid-seventeenth-century fire prevention decrees, the Cape Colony's Forest and Herbage Preservation Act of 1859, and the Forest Act of 1888, later superseded by the post-1910 national forest laws, and the Soil Conservation Act and its successor, the Conservation of Agricultural Resources Act.

As an element of the larger system of laws, the NVFFA required congruence with two other statutes in particular, the Disaster Management Act (Act 57 of 2002), and the National Environmental Management: Biodiversity Act (Act 10 of 2004). Although the NVFFA preceded these other two statutes, consultation among the drafting teams during the writing of the NVFFA together with the requirements for cooperative governance foreshadowed a good fit among these once each took effect. From the former, a national disaster management framework guides provincial frameworks, which in turn guides frameworks in the sphere of local government. For biodiversity, the system consists of the national biodiversity framework, bioregions and bioregional plans, and biodiversity management plans, in succession. The NVFFA must find coherence with this system of environmental governance: for example, the national disaster management framework provides for sectoral risk-management frameworks, of which wildfire management is one.

[2] Division of Conservation & Management 2009, Dube 2013.

[3] Working on Fire is an entity within the Extended Public Works Programme of the government of South Africa, which recruits, trains and deploys people from disadvantaged communities to support integrated veldfire management; it now maintains 200 teams in different parts of the country: see http://www.workingonfire.org/ and Part 2 of this report.

[4] Forsyth *et al.* 2010.

[5] In fact, most of the new natural-resource and environmental statutes contained important elements of prior policy-making; for example, the National Water Act incorporates recommendations from the 1970 Water Commission, which in turn contained recommendations of the 1968 Interdepartmental Committee on Afforestation and Water Supplies, and so on: see, for example, Muller 2011, Venter *et al.* 2008.

[6] In South Africa, the terms 'veldfire' and 'forest fire' are partially interchangeable; 'veld' refers in common usage to the vegetation of the open countryside (other than crops); here, 'rural fire' refers to both, and includes fire in crops.

[7] See e.g. Pooley 2012.

This provides the background to an account for the next CFA Newsletter, in which we look more closely at this new law, and progress achieved in its implementation.

**Fred Kruger**
Skukuza, South Africa
Research Associate of the Centre for Environmental Management, University of the Free State
fkruger.za@gmail.com

*The author is a former Director of the South African Forestry Research Institute and the Division of Forest Science and Technology at South Africa's CSIR, and as an independent expert held policy oversight in the writing of the draft bills for the National Veld and Forest Fire Act as well as the National Forests Act. In this article he as written in his personal capacity. The UK Department for International Development funded much of the work required for the new laws discussed here as well as the subsequent work to assist their implementation.*

**REFERENCES**

Division of Conservation & Management. *Summary Report of the 2008 Fire Season January 2009.* Department of Forestry & Range Resources, Republic of Botswana, 2009.

DUBE, O. P. Challenges of wildland fire management in Botswana: Towards a community inclusive fire management approach. *Weather and Climate Extremes* 1 (2013): 26–41.

FORSYTH, G. G., KRUGER, F. J. and Le MAITRE, D. C.. National Veldfire Risk Assessment: Analysis of Exposure of Social, Economic and Environmental Assets to Veldfire Hazards in South Africa. CSIR, 2010, 100 plus appendices.

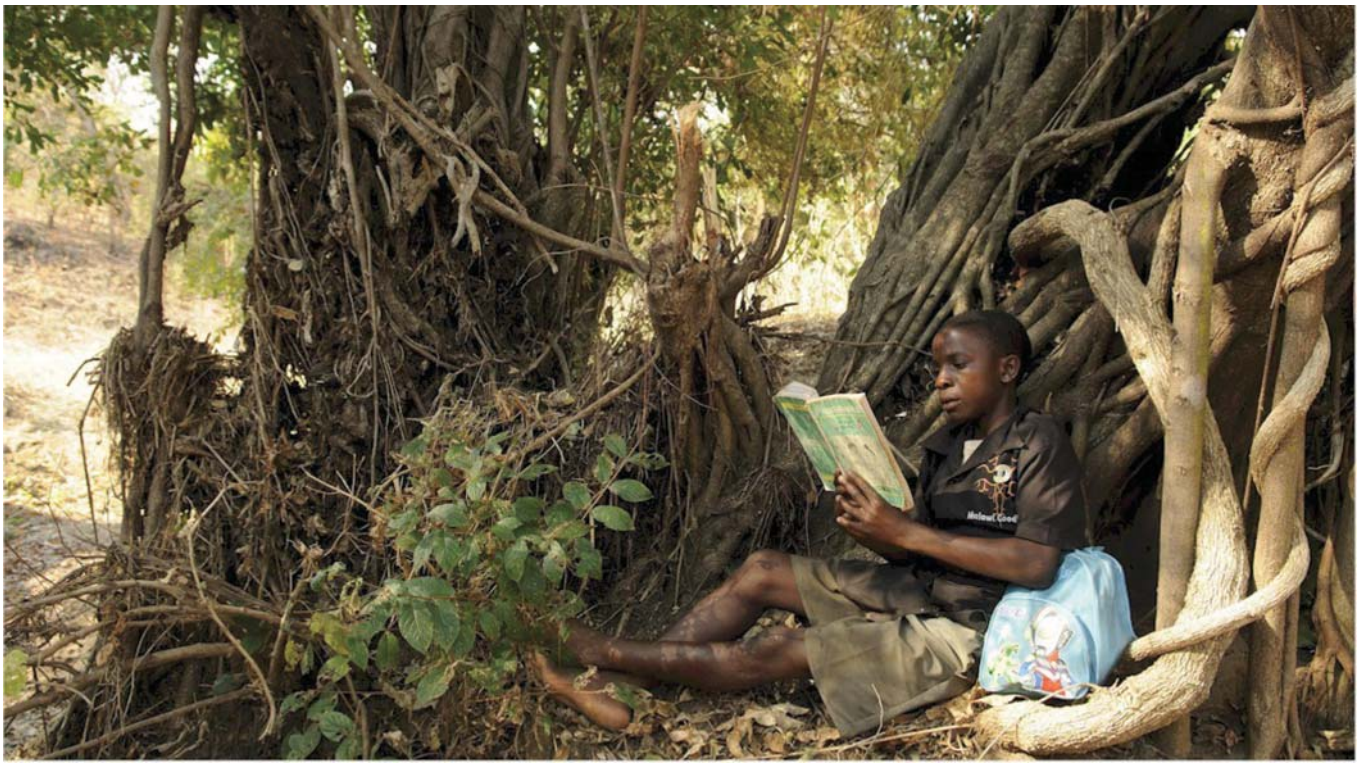
MULLER, M., Lessons from South Africa about the Management and Development of Water Resources for Inclusive and Sustainable Growth, *ERD Background Paper* (2011), pp. 24, 35. Retrieved 22 May 2014 from http://erd-report.eu/erd/report_2011/documents/dev-11-001-11researchpapers_muller.pdf

POOLEY, S. Recovering the Lost History of Fire in South Africa's Fynbos. *Environmental History* 17 (2012): 55–83.

VENTER, F. J., NAIMAN, R. J., BIGGS, H. C. and PIENAAR, D. J.. The Evolution of Conservation Management Philosophy: Science, Environmental Change and Social Adjustments in Kruger National Park. *Ecosystems* 11 (2008): 173–192.

# Association news

## Photographic competition winner announced



The CFA in partnership with the Commonwealth Woods, a legacy project of the 2014 Commonwealth Games to be held in Glasgow is pleased to announce the winner of the **Commonwealth Woods Photographic Competition,** established to show the diversity of forests throughout the Commonwealth. The winning photograph, entitled 'A quiet place for reading', was taken by Arjen van de Merwe who wins a digital camera. The competition was open to everyone and attracted entries from around the Commonwealth. The best 100 photos, are currently being exhibited in a gallery in Glasgow and can be seen on the **Photo Gallery** page of our website at www.cfa-international.org

# CFA welcomes new Youth Officer

Hello Everyone, I am pleased to introduce myself as the new CFA youth officer for the next two years. My names are Tolulope Mayowa Daramola. I am a PhD candidate at the University of British Columbia, Canada with research interests around land use, carbon forestry and climate change. I received my Bachelor's degree in Forestry at the Federal University of Technology Akure, Nigeria and Master's degree in Global Change Management at Eberswalde University for Sustainable Development, Germany.

One of my main responsibilities as the CFA youth officer is to foster close links within the CFA with members below 35 years of age. During my tenure, I intend to invest a significant level of energy towards engagement of young people across the Commonwealth in more active roles in forest management and to attract more young folks to the association. Furthermore, I encourage you to explore the CFA website for opportunities made available for young professionals and please do not hesitate to contact me if you require further information about my position. Thank you.

**Tolulope M. DARAMOLA**
***t.daramola@yahoo.com***

# EverGreen Solutions


The CFA would like to welcome new members **EverGreen Solutions**, who offer business and private clients a unique opportunity to invest in the forestry sector without the need to own or rent land. Clients can participate in the development stages of forestry projects then EverGreen Solutions manage the process of planting and managing the trees until harvesting. At harvesting, Evergreen Solutions through their network of partners, have secured guaranteed buy back contracts from some of the forestry market leaders in the UK today, which allows clients to sell their trees at a profit. More information on EverGreen Solutions can be found at **ever-greensolutions.co.uk**

# Letter

## The Great Green Wall

Dear Editor

In reference to the otherwise excellent article entitled ***What is the Great Green Wall for the Sahara and the Sahel Initiative (GGWSSI)*** of the *September 2013* edition of the CFA Newsletter, the following might be noted:

a) Some decades ago, around the late '70s to the mid '80s, the government of China started to establish the 'Great Green Wall of China'. Various technical, economic and social factors have militated against the success of this programme, despite huge government investment and a very flexible understanding of the term 'voluntary labour'. This Great Green Wall has been re-started a few times, accompanied by increased financial investment and increased PR by the government, and yet more 'voluntary labour'. But the resulting forest cover is disappointing, in terms of both quality and quantity. Many, well respected and experienced Chinese forestry experts have expressed serious concerns on the value of this programme, in particular in regard to the use of land and water resources. Perhaps it may be asked if the authoritarian communist government of China with its planned/command economy has had little success, is it likely that efforts of several independent and democratic countries across Africa will achieve more?

b) As we know, many attempts have been made in many countries to establish 'Community Forests/Woods', 'Village Tree Lots', 'Communal Firewood Plantations', and so on. One of the core features of such schemes has usually been that the labour provided for planting, maintenance etc is free or voluntary. The 'benefits' from such plantings, i.e. the soil and water conservation effects, and/or provision of fuel, are supposed to be shared – somehow. the initial push for these 'local' forests has usually come from outside, and in particular from NGOs and other such agencies, often foreign to the country, let alone to the local area. Again, the results in terms of wood and non-wood production, and forest cover have been disappointing. As far as it is possible to understand, it seems unlikely that sufficient funds will be made available to pay the labour for the planting of proposed GGWSSI either by the governments/authorities of the concerned countries or by foreign aid, and hence it is assumed that the required labour should be free or 'voluntary'. Given the understandable lack of enthusiasm that has been shown by people to provide free/voluntary labour for community forests to date, it would seem unlikely that working 'voluntarily' for the establishment and management of the GGWSSI would be very popular. It may be noted that 'community agriculture', state farms, collective farming *et al* have not succeeded in most countries, probably for similar reasons. It would seem that the initial proposal and plans for the GGWSSI are not based on local aspirations; and to assume that a forest across Africa will be primarily undertaken by 'voluntary' or free labour seems rather unrealistic.

c) One of the important reasons why forestry projects throughout the world have been less than successful has been the lack of technical inputs into the various stages of afforestation or reforestation activities, including planning, establishment, supervision, maintenance and harvesting. As far as skilled, knowledgeable persons were concerned these have often simply not been available in the countries where the projects were being carried out, and/or were provided by outside sources but were inadequate in terms of quality, appropriateness and experience, as well in terms of the amount of time they were made available – usually only for the planting phases, at most. It may surely be asked whether the necessary technical skills required for the GGWSSI even exist, anywhere – quite apart from whether they could or would be made available.

d) It is noted that several meetings of various officials have already taken place, and interestingly the creations of these groups of officials are listed under 'Achievements'. such activities of course are expensive. But if the GGWSSI were to get no further than the costly meetings stage, perhaps not too much harm will have been done. However, the real risk is not so much that a lot of money and other resources might be wasted but that in attempting to implement such a project as the GGWSSI a lot of harm will be done to the physical environment and hence to people's livelihoods. A sad but significant example of this is to be found in Ethiopia, where the failures of a hugely over-ambitious, poorly planned and executed food-for-work programme have resulted in wide-spread damage to people's lands and livelihoods.

e) Some sections of the otherwise excellent article produced by FAO for the CFA Newsletter are quite difficult to understand, for example, one paragraph of just two sentences reads:

"*The specific* ***added value*** *of the GGWSSI is to combine the governance, sustainable management of land and water, production insurance and social protection against climate change (cc), in order to secure producers' investment and improve local livelihoods. Another important added value is linked to the fact that the programme does not focus on short term aspects of drylands development but supports the adoption of a* ***medium to long term and comprehensive approach*** *to desertification, land degradation and drought (DLDD), climate change adaption and mitigation, loss of biodiversity and supporting a* ***functional coordination*** *centered*

*on Sustainable Land Management (SLM).*" This, despite including most known development clichés, would seem to cover everything and therefore mean almost nothing, and is in fact virtually content-free.

There are of course many much wiser and more technical discussions taking place about the proposed GGWSSI. Perhaps it would be interesting and useful to see more of these in the CFA Newsletter.

Thank you
Yours faithfully,
**Jane B Brown**
CFA Life Member

# Forest Scenes

## Commonwealth forestry – lessons for all

Britain's foresters today grapple with increasing demands – growing values placed on remnant semi-natural stands, silvicultural maturation of 19th and 20th century plantations, imperatives to furnish "ecosystem services" for soil, carbon, hydrology and biodiversity, climatic change, novel pests and diseases, woodfuel targets and aspirations to community and social forestry. We have much to learn from earlier practice by British foresters overseas and from Commonwealth forestry practice today. We do not always capitalise on this. This short article proposes a re-invigoration of exchange of forestry and agroforestry ideas, information and experiences between Commonwealth countries and Britain, through research collaborations between our forestry universities, technical secondments between national forestry agencies, commercial joint-venture working and public awareness-raising by CFA and the Commonwealth Education Trust.

*Protection forestry (aka "ecosystem services provision")*
Emphases on "natural capital" and "ecosystem services" in British forestry today recast older concepts of "protection forestry". These were tenets of British overseas forestry, especially in India, from the mid-1860's onwards. Wherever forested slopes with erodible soils were found, it was necessary to regulate forestry to protect soil and water. Regulation of livestock grazing to recruit natural regeneration and of hunting pressure to protect game were key components of the management of "reserved" and "protected" forest areas. Well-trained supervising "district foresters" were mandated to reconcile multiple-objectives on a "sustained yield" basis, with limited recourse to specialist advisers. Recent experiences in British forestry have seen inter-dependent aspects of forest management – natural regeneration planning, timber harvesting, conservation, game management, freshwater protection, recreation – handled by distinct "functional specialisms" either within the Forestry Commission (founded 1919) or across separate nature and freshwater conservancies (founded from the late 1940's). There have been tensions, with some degree of "second guessing" and "subordination" of the production forestry function. Recent emphases on realising carbon sequestration, soil conservation and flood mitigation "ecosystem services" from a fairly small and immature home plantation "natural capital base" have encouraged integration of resource management, notably in Wales where formal merger into a single conservancy (Natural Resources Wales) occurred in 2013. Some other European countries (notably Denmark) have always retained this "combined conservancy" model. Making it work in Wales (and perhaps the other home countries) will require some "burial of the hatchet" and certainly re-empowerment of beat/ district foresters as self-confident, autonomous agents able to "stand their ground". Suggested academic and operational collaboration with other Commonwealth forestry countries can assist in that process.

*Selection and shelterwood forestry*
Much of the post-1919 British forestry plantation resource continues to be managed on the regular "clear-fell and replant" silvicultural system. However that system is slowly losing ground to "alternative silvicultural systems" where forest cover is perpetuated, especially in sheltered areas of the estate with better soils. Motivating factors are economic – avoidance of significant replanting costs, silvicultural – regeneration of a wider range of more shade-tolerant species in the second and subsequent rotations, environmental – limitation of microclimatic, soil and wildlife disturbance at restocking and social amenity – preservation of an attractive forest landscape context for outdoor recreation. Despite trends, experience of and proficiency in selection and shelterwood silvicultural practices in Britain lags behind that in Continental European territories (e.g. France, Germany and Switzerland) where they predominate. Unsustainable reliance is placed on a very small cohort of experienced specialist silvicultural practitioners, many of whom are in the latter third of their professional careers. Teaching of classical silviculture in British university forestry departments has suffered since the 1960's due to the loss of the "overseas market" for selection and shelterwood skillsets, notably in India, Burma, Malaya, Guyana and tropical West Africa. We should realise that selection and shelterwood systems were the norm in many areas overseas-earlier British foresters often received pre-service training in relevant silvicultural skills in France or Germany before posting overseas. Later, Commonwealth foresters frequently trained at Oxford, Bangor, Aberdeen and Edinburgh. If we are not to return to the previous situation where aspiring British silviculturists need to train in Europe, we must find a way to reinvigorate home academic forestry provision through collaborations.

*Dryland plantation forestry*
Many people overseas will regard Britain as a rainy island, and exceptional rainfall totals during the past winter season will not discourage that! However parts of lowland England are in fact

seriously dry, locally only receiving ~500mm total annual rainfall and running summer deficits well over 200mm. A run of droughty summers, or winters that do not achieve soil recharge, can tip hardwood stands into decline. These effects are predicted to become much more serious during the next rotation, with deficits increasing towards 300mm and extreme drought events more frequent. Production forestry in these regions has effectively adopted a semi-arid pine plantation model since the 1930's, using Corsican pine (*Pinus nigra v laricio*) as the main timber species. Unfortunately this is now seriously affected by the needle-cast fungus *Dothistroma* (red-band needle blight), which also affects other potentially suitable pines such as *Pinus radiata* and *Pinus pinaster,* and may have some implications for the future potential of *Pinus sylvestris*. Some question the continued viability of closed-canopy conifer plantation forestry in these regions. The author has recently been involved in independent research examining the potential of a wide range of alternative tree species from Mediterranean climatic regions that might become relevant to domestic silviculture in these drier lowland areas. Clearly experience gained by British and Commonwealth foresters in Cyprus, Palestine, Australia, New Zealand and southern Africa are potentially relevant here. However British forestry participation in the relevant multi-lateral mechanisms lags behind that of countries with a "Mediterranean exposure" such as France, Spain and Italy. Key English-language Mediterranean forestry references by authors such as J.V. Thirgood and R. Meiggs date back 30–40 years. Here again there is scope for reinvigoration of home forestry via increased collaboration with our Commonwealth partners.

*Agroforestry*

Agroforestry has been a well-established feature of tropical and dryland forestry in Commonwealth countries, capable of delivering greater productive outputs from the same land area than single-mode land-use (recent estimates suggest a 40% gain). Forest gardens in Sri Lanka, taungya systems in tropical hardwood plantations and New Zealand radiata pine-livestock systems, to name but a few examples. Temperate equivalents have been researched and promoted in Britain since the 1960's, but often seen as the preserve of committed advocates, while mainstream agriculture and plantation forestry remained polarised. A notable exception is the historical record of wood-pasture management in native woodlands, dating back many centuries. Modern silvoarable systems are widely applied in southern France using walnut etc. Wider adoption of designed silvoarable and silvopastoral systems in Britain could make a significant contribution to production of timber and woodfuel while ensuring "food security," in a context of diminishing/unreliable growing-season rainfall. A range of more frost-sensitive, cropping systems may become available during the 21st century, as has been the case during previous historical periods with 2–3°C temperature rises. Research and practitioner experience from Commonwealth forestry could make a significant difference to accelerating adaptation. Here, there is a role for public explanation by CFA/ Commonwealth Education Trust.

*Community forestry*

Increasing interest in community ownership and management of forest resources in Britain (most notably in Scotland) since the early 1990's has already drawn significant inspiration from the record of community forestry in India, Nepal and parts of Africa, and of bioregional planning in western Canada. Selected Participatory Rural Appraisal (PRA) techniques are today quite frequently applied in British forestry planning and consultation by public agencies. While by no means perfect, these approaches do increase the sense of community engagement in key forest planning decisions among a wider public mainly concerned with wildlife and amenity issues. In Scotland, a number of more remote communities with economic/ rural development motivations have taken a step further by purchasing forests from the Forestry Commission or entering into long-term management partnerships. Commonwealth forestry experience is likely to remain of value in maturing rural development forestry here.

**Scott McG Wilson**
Consultant Forester and Forest Ecologist
Aberdeen, Scotland

*Regenerating stand of Pinus radiata, Wareham Forest, southern England. Photo: Scott McG. Wilson.*

*Trial of woodfuel/arable alley-cropping systems, Wakelyns, eastern England. Photo: Scott McG. Wilson.*

# Wildcat gold mining threatens sustainable forest management in Honduras


*"We buy gold at a good price" – sign from Copén pulperia (corner store).*

Unregulated "wildcat" gold mining has long been a cause of ecological damage in tropical forests, and the Sico-Paualya region in northeast Honduras is no exception. As the global recession has taken its toll on Latin American economies, high gold prices and a lack of governance have made illegal mining increasingly attractive in Honduras, where poverty is widespread and legal employment opportunities scarce. Such mining frequently has negative ecological effects: in Suriname, associated increases in erosion were shown to shift riverine fish populations[1], while studies in nearby French Guiana showed inferior soil microbial functioning after mining[2]. In Ghana, industrial gold mining was cited as the primary cause of rainforest loss in the latter half of the 20th century[3]. Finally, the processing of ore with toxic chemicals, such as cyanide and mercury, has strong ecosystem and health impacts[4,5].

[1] Akpalu, W.; Parks, P.J. (2007). Natural resource use conflict: gold mining in tropical rainforest in Ghana. Environment and Development Economics 12: 55–72.

[2] Schimann, H.; Petit-Jean, C.; Guitet, S.; Reis, T.; Domenache, A.M.; Roggy, J.-C. (2012). Microbial bioindicators of soil functioning after disturbance: The case of gold mining in tropical rainforests of French Guiana. *Ecological Indicators* 20: 34–41.

[3] Mol, J.H.; Ouboter, P.E. (2004). Downstream Effects of Erosion from Small-Scale Gold Mining on the Instream Habitat and Fish Community of a Small Neotropical Rainforest Stream. *Conservation Biology* 18(1): 201–214.

[4] Cordy, P; Veiga, M.M; Salih, I.; Al-Saadi, S.; Console, S.; Garcia, O.; Mesa, L.A.; Velásquez-López, P.C.; Roeser, M. (2011). Mercury contamination from artisanal gold mining in Antioquia, Colombia: The world's highest per capita mercury pollution. *Science of the Total Environment* 410: 154–160.

[5] Webster, D. The Devastating Costs of the Amazon Gold Rush. Available: http://www.smithsonianmag.com/people-places/The-Devastating-Costs-of-the-Amazon-Gold-Rush.html?c=y&page=1 [last visited: August 28 2013].

Though official figures are unavailable for Sico-Paulaya, anecdotal evidence from a variety of local and international observers indicate a staggering increase in the volume and intensity of gold mining in the region over the past two years, none of it regulated. Such mining ranges in intensity from artisanal prospectors using little more than shovels and pans, to industrial-scale excavators. No chemical processing has thus far been observed, but it would not be difficult to conceal, as the area is large and sparsely populated. Earnings are also difficult to estimate, but conversations with local community members indicate that a laborer can make at least double the normal daily wage for agricultural work ($10/day) by mining gold. Those with more capital and larger-scale equipment are likely earning much more.

*Two of many excavators in the Paulaya River, near the communties of Copén and Paya.*

One community where the effects of mining on sustainable forestry have been especially pronounced has been Copén, Iriona, Colón, near the Paulaya River on the Northeastern Coast of Honduras and adjacent to the Río Plátano Biosphere Reserve (a UNESCO World Heritage site in Danger). Copén was recognized in October 2010 by the UN-FAO as a model for economic and ecological sustainability in its 15-year management and harvest of Bigleaf Mahogany (*Swietenia macrophylla*). The sale of Mahogany guitar parts to Taylor Guitars of California and other clients, as well as investment from many local and international partners (e.g. Honduran nonprofit Fundación Madera Verde; American non-profit GreenWood; U.S. Forest Service International Programs; Danish non-profit Forests of the World; United Nations Development Program Proyecto Ecosistemas) has allowed the community to purchase its own sawmill and make significant contributions to their own sustainable harvest and social development. These include the development of a state-of-the-art chain-of-custody timber-tracking system, purchase of accident insurance for workers and improvements in both education and local health care. Forestry income has and even contributed to the construction of a small-scale hydroelectric system in the nearby Maranones watershed, which provides electricity to the entire community.

Mining began on a small scale in the second half of 2011. The activity increased steadily until the present, where the most recent reports from Fundación Madera Verde and GreenWood staff indicate that every free room in Copén is now taken up by mining lodgers. Apart from their obvious social impacts,

which have been well documented around the world, rampant mining activities pose a direct threat to the forest—and the community—on a number of levels. First, prospectors have caused significant stream erosion in their search for gold within the harvest area (pictures 3, 4). This damages the watershed and reduces the prospects of continued third-party certification of the community's forestry operations. In addition, the high, short-term income derived from prospecting typically prevents the most skilled and experienced sawyers from engaging in sustainable timber harvesting, as the financial returns from mining are more immediate and the bureaucratic process less intense. Combined with a growing abundance of illegal land invaders within the harvest area, who are clearing land for ranching and farming and becoming more organized, the impact on future timber management and harvesting is uncertain.

Fundación Madera Verde, GreenWood, and community leaders are seeking increased government regulation of mining activity and illegal land invasions in the region. However, a lack of governance, poor infrastructure and cumbersome bureaucratic legal processes—combined with a general lack of trust in government institutions and the pervasive regional influence of drug cartels weaken the potential for such action to be effective. We urge strong leadership and a well-coordinated plan to ensure that mining and other illegal activities do not undermine nearly two decades of active forest management and a thriving, sustainable timber harvesting operation.

*Individual prospector in Sanguijuelosa watershed.*

**Alexander P. Karney**
GreenWood, ME, USA
alexp.karney@gmail.com

# Making a national tree seed collection in the UK

The Royal Botanic Gardens, Kew are establishing a national collection of tree and shrub seeds, conserved at the Millennium Seed Bank in West Sussex. The purpose of the collection is to provide a resource for researchers addressing the threats to trees in the UK and to conserve the genetic diversity of UK woody plant species *ex situ*.

With partnerships in over 60 countries, the Millennium Seed Bank Partnership is the largest *ex situ* plant conservation initiative in the world. The partnership involves world class seed conservation research and includes projects to help scientists and local communities store, propagate and make use of seeds. High quality seed collections stored in Kew's Millennium Seed Bank can be kept alive for centuries, this means that seeds collected as part of this project will be a resource for research and restoration initiatives for future generations.

*Collecting ash (Fraxinus excelsior) seeds at Crab Wood, Hampshire. (Photo: Clare Trivedi)*

Kew's Millennium Seed Bank already holds at least one collection of most orthodox tree and shrub species from the UK. The UK National Tree Seed Project (UKNTSP) is extending the number of these collections to better represent the genetic diversity present in the British landscape. There will be multiple collections for each tree and shrub species right across its native range. In order to optimise the usefulness of the collection, seed collections will be fully traceable to the individual tree they were collected from.

The collecting programme utilises the 'native seed zone' framework developed by the Forestry Commission which divides the UK into 24 native seed zones according to ecological and climatic conditions (Herbert, Samuel and Patterson, 1999). The project aims to collect seeds from each species in each seed zone where there is a native population. In seed zones which include higher altitude populations, the project aims to collect seeds from populations both above and below 300m.

The number of highly threatening tree pests and diseases in the UK has rocketed over the past 20 years (Forestry Commission, 2014). The increase in global trade and movement, coupled with a warmer, wetter climate and trees under stress has resulted in a number of highly pathogenic diseases and damaging pests which are having a major impact on plant health in the UK. 'Plant destroyer' (greek 'Phyto-phthora') fungal pathogens are having a major impact on native and exotic trees important for commercial forestry and biodiversity. Trees affected include Japanese larch (affected by *Phytophthora ramorum*), alder (by *Phythophthora alni*) and juniper (by *Phytophthora austrocedrae*). Other diseases, such as ash dieback, caused by the fungi *Chalara fraxinea*, including its sexual stage, *Hymenoscyphus pseudoalbidus*, is a serious threat to ash, one of Britain's most important native trees. Worryingly, ash dieback has already killed 60–90% of ash trees in nearby Denmark. Exotic insects,

including borers and leaf strippers, such as Asian long-horn beetle *(Anoplophora glabripennis*) and oak processionary moth (*Thaumetopoea processionea*), have already had localised outbreaks in the UK and are major concerns.

These threats led the UK government to appoint an independent Tree Health and Plant Biosecurity Expert Taskforce to advise on how best to address the challenges. The Taskforce called for improvement in preparedness and contingency planning in predicting, monitoring and controlling the spread of pests and pathogens (Defra, 2013a). There is clearly a need for research to support this recommendation (Defra, 2013b). The UKNTSP will provide an invaluable resource of material to support such research.

*Collecting ash (Fraxinus excelsior) seeds at Crab Wood, Hampshire. (Photo: Simon Kallow)*

Additionally, the project includes its own research component. Research on the population genetics of target species will inform seed collecting strategies and increase the knowledge-base for forest and conservation management. Overcoming some of the constraints faced by *ex situ* tree seed conservation, including developing protocols for banking short-lived and recalcitrant seeds, including the ecologically important oaks *(Quercus robur* and *Quercus petraea*), is also an important area of research for the project.

In order to build a collection at this scale, the project is working with partner organisations to carry out many of the seed collections. During 2013, partners included governmental organisations (the Forestry Commission) and NGOs (the Woodland Trust). Over the forthcoming months the project we will be widening the number of partners they are working with to capitalise on specialist and public interest. To support project partners to plan and carry out seed collections, a tree seed collecting manual has been produced and training days will be run across the UK.

This timely project will make an invaluable contribution to the long term conservation of the UK's forest genetic resources in challenging times.

The UK National Tree Seed Project has been made possible by funding generated by players of People's Postcode Lottery.

**Simon Kallow**
UK National Tree Seed Project Officer,
Royal Botanic Gardens, Kew
s.kallow@kew.org

**REFERENCES**

Defra (2013a) *Tree Health and Plant Biosecurity Expert Taskforce: Final report*. [online]. Available from: https://www.gov.uk/government/policy-advisory-groups/tree-health-and-plant-biosecurity-expert-taskforce [Accessed 14th March 2014].

Defra (2013b) *Government forestry policy statement*. [online]. Available from: https://www.gov.uk/government/publications/government-forestry-policy-statement [Accessed 14th March 2014].

Forestry Commission (2014) *Top tree pests and diseases*. [online]. Available from: http://www.forestry.gov.uk/forestry/infd-6abl5v [Accessed 18th March 2014].

HERBERT, R., SAMUEL, S. and PATTERSON, G. (1999) Using *Local Stock for Planting Native Trees and Shrubs. Practice Note*. [online]. Edinburgh, Forestry Commission. Available from: http://www.forestry.gov.uk/pdf/fcpn8.pdf/$file/fcpn8.pdf [Accessed 9th July 2013].

**LINKS**

Project webpage: www.kew.org/ukntsp
Millennium Seed Bank webpage: www.kew.org/msbp
Project Facebook Group: https://www.facebook.com/#!/groups/1419814888253870/

# Anthoropogenic deforestation drivers in Sierra Leone: implications for government interventions

Most deforestation drivers in Sierra Leone are anthropogenic and are often due to livelihood support and commercialization of forest products. Natural cause of deforestation such as landslides hurricanes, floods and earthquakes are very rare here. The following activities are the major drivers of anthropogenic deforestation in the country:

**Slash and burn farming system**

This practice affects, all the dry land ecologies of this country. It simply entails brushing and felling of the site and introducing fire to do the site clearing before crop cultivation. Crops cultivated often include rice (the staple food), maize, roots and tubers, pulses and vegetables, in a mix cropping system. Due to short fallow period ranging between about 4 to 8 years (depending on site fertility and the demand for farm land especially along the trunk roads) where the sale of firewood and food crops to motorists supports some of the farming operations. The farmer shifts to cultivate a new parcel of land after a maximum of two croppings when the soil nutrient status gets very low.

**Wildfires**

Wildfires are common during the dry season running from approximately late October to early May. They are caused by fires escaping from farm site burning, arson, children carrying

embers between farm huts, honey harvest, hunting of rodents and burrowing animals which are smoked out of their burrows. For rodents a parcel of land suspected to be hosting the animals is surrounded by fire while the hunters surround the plot ready to kill the animals as they escape the fire. These fires are mostly responsible for vegetation transition from forests to eventually grasslands, after many repeated annual incidences. The grasses are more adapted than the perennials because they complete their reproductive cycle in one growing season and produce seeds which are stimulated to germinate and grow by subsequent fires in the following year.

*Unrestricted logging can create conditions for further deforestation*

**Logging for timber**

Timber logging, in addition to contributing to deforestation actually opens up pristine forests to subsistence farmers and cash crop cultivators who would not challenge the big trees required by the loggers. This situation affects even the resulting secondary forests. Also, the logging waste(lops and tops) also fuel additional deforestation through the provision of biomass fuel to support wild fires during the next dry season. The gaps left by logging operations is normally invaded by grasses which complete their life cycles just before the onset of the dry season, further fueling wild fires. The economic crops are normally cultivated after 2–3 years of food crop cultivation depending on the index.

**Agricultural expansion**

This activity is often carried out in both the forest re-growth and the secondary forests. The expansion of existing plantations also degrades more forests and the land preparation process for both subsistence farming and cash crop establishment entails the use of wild fires, continuing the deforestation due to escaped fires.

Crops normally cultivated include: cocoa, coffee, oil palm, sugar cane, citrus, cashew avocado, pine apples and so on. These crops currently occupy over 900,000ha. of the total arable land area of 5.4 million ha. for reported cases. Small plantations established by small farmers are excluded in some cases.

**Mining of minerals**

Both the artisanal and large-scale miners are responsible for deforestation and land degradation in the country although the large scale miners cover larger areas. However, while the large scale mining operations are subjected to environmental impact assessment and the associated mitigation measures. However, the cumulative effects of the small scale operators results in a large area of land degraded. All mining operations involve deforestation and the clearing of the topsoil which often supports plant growth and in addition soil depth up to the mineral deposit is removed resulting in the destruction of biodiversity and soil structure.

Large scale miners include: the Koidu holdings doing kimberlite mining in Kono district, in the eastern province; Sierra Rutile company mining titanium oxide in 3 districts in the southern province; African minerals and London mining, mining iron ore in the Portloko district in the north and SIEROMCO mining bauxite in the south. They are all involved in land clearing and intensive earth movements including blasting. Unfortunately, mitigating measures are poorly monitored due to low staff strength and limited implementation capacity of the Environmental Protection Agency staff who are responsible for monitoring. For the artisanal miners the open pits left behind make re vegetation difficult and even risky due to the deep water bodies they leave behind.

**Stone and sand mining**

One of the significant legacies of the 11-year long war in Sierra Leone is inland sand and stone mining. Prior to the war sand was only mined at the beach or along the coast. The current process involves the digging up of stones in natural vegetation and even forest plantations resulting in the dislocation of the trees following the removal of the soil and stone hitherto anchoring the tree. Sand mining at river beds and river banks also results in the dislocation of trees which roots are exposed leaving even the leaning trees with little or no resistance to even light winds.

This activity was promoted by the massive post-war building rehabilitation and construction programmes nation-wide, which provided ready market for the internally displaced persons and refugees who often eke out their living from the business, mostly in the fringes of cities and large settlements.

**Wood harvest for firewood and charcoal production**

Unlike the normal firewood collection which entails the picking of pieces of dry wood, trees are now actually harvested, left to dry in the forest and later collected as firewood. Alternatively, the cut billets are put into dug pits, covered and lit for conversion into charcoal. Unfortunately, the twigs and leaf litter left behind, fuel subsequent wild fires resulting in more deforestation. Commercialized charcoal production sites often resemble clear felling sites with very impoverished vegetation which easily catches fire.

**Construction pole harvests**

Being another legacy of the war, this activity heavily relies on the ready market provided by the massive construction and reconstruction programmes of the construction industry. However, even before that the demand for construction poles had escalated during the war for shelter construction for both the rebels and the civilian populace. In standard buildings construction the poles are used as scaffolds, for site layout, ladders and in burial processes where billets are laid between the body and

the earth, and so on. A per caput pole consumption of 2.8 poles for the Western Area was estimated by the author during his masters programme in 1996, while 2.1 poles percaput was estimated by Kingston in 1985. Under recorded pole consumption by local communities in use as pestles for pounding or milling rice; as rafters and Pauline's in shelter construction; as door posts and for hanging clothes etc. are due to poor record keeping by them.

## IMPLICATIONS FOR GOVERNMENT INTERVENTION THROUGH POLICY INTERVENTION

- Most of the deforestation drivers indicated are associated with livelihood support for a country where about 70% of the population lived below the poverty line and of 1USD per day and 50% lived below the poverty line of 2USD in 2006. Poverty can be described as pervasive and most of the poor are heavily dependent upon the natural resource base for food and nutrition security, shelter construction, portable water, affordable energy and healthcare delivery. Thus policy formulation process has to take cognizance of this intimate relationship. The need for alternatives to the resources to be sustainably managed is paramount.
- Legally constituted forests under government management cover only about 5% on the total land area of the country with the remainder belonging to the local communities under communal management mostly through traditional by-laws. Thus, promoting community forestry development could arrest the current unprecedented spate of deforestation as the communities have put even the meager 5% under severe deforestation pressure. Community forestry development could increase reforestation and afforestation rates significantly especially if the forests qualify for REDD+ programmes thereby generating enough financial incentives in favour of conservation.
- Visibility on deforestation, soil, water, energy and natural resources conservation need to be more robust in order to create any meaningful impact Communities are currently not fully involved in the entire length of policy and legislative formulation process and therefore may not consider themselves as part of this all-important processes. There should be a change in mindset from policing policy to co-management of natural resources.
- Sectoral policies seem to be contradictory and conflicting in the absence of policy harmonization for all sectors in land use. The Lands, Works, Mines and road construction and infrastructure sectors' activities tend to undermine biodiversity conservation and therefore sustainable management. A policy harmonization process has been proposed in many for a but to no avail.
- The Forestry Department staff are very thin on the ground due to restrictions on staff replacement and recruitment as dictated by funding limitations. In addition, staff capacity is low due to the same reason. Finally, low salaries and an unattractive job environment is responsible for staff attrition in search of greener pastures. A protected Area: staff ratio of about 2,800: 1 is appalling.
- Forest research is seriously under-valued and undermined to the extent that forestry planning hardly benefits from the relevant data and information. Data on growth performance of especially indigenous species is lacking. This means that the community-preferred tree species can hardly be grown in large quantities and the communities' resentment of exotic species continues to undermine tree planting efforts.
- The expansion of legally constituted forests to cope with future demand for forest products is the ideal solution to sustainable resource management but this effort is frustrated by the huge arrears of lease rent payment spanning a period of five decades in extreme cases. The payment of these arrears and the continuous payment of realistic annual rents, could pave the way for the constitution of new estates.
- The Forestry Act (1988) and enforcing regulations(1990) make provisions for communities to apply for the conversion of their communal forests into community forests under a co-management condition, but the arrears of land rent payment and the mad rush for huge parcels of land for agricultural development projects is likely to exacerbate the land hunger situation especially for parcels, close to trunk roads or settlements, where harvests from farms can be easily sold to passengers.

## CONCLUSIONS

Deforestation drivers are mostly influenced by livelihood support, wood for commerce, energy, healthcare delivery, shelter construction etc. Policy formulation to contain deforestation need to consider alternatives to resources to be conserved. The promotion of community forestry is the only realistic way of increasing the area under forests and increase in the supply of forest products and services to cope with the demand for them. Unpaid huge arrears in land lease rent, will continue to create bad blood between the local land-owning communities and the forest management authorities. Finally, government should encourage the communities to convert their private forests into community forests under a co-management system, with realistic incentive schemes. Community development projects which alleviate poverty could ameliorate the poverty situation to the advantage of sustainable forest management.

**Emmanuel Alieu**
Senior Teaching Fellow, Forestry Department, Njala University, Sierra Leone
CFA Governing Council

# Forest resources of Armenia: is it possible to minimize ecosystem damage and wood losses?

*Forest landscape in Northern Armenia (Photo: Koghb)*

The break up of the USSR left the Republic of Armenia with an economic structure highly dependent on energy and raw material imports for its industries, as well as for food. Although Armenia has implemented a comprehensive land reform programme, over one-third of population is still beneath the subsistence line. The Corruption Perceptions Index in 2011 scored Armenia at 2.6, ranking it along with the Dominican Republic, Honduras, Philippines, and Syria.

The forests of Armenia represent an indispensable element of nature contributing various tangible (e.g., wood supply), and intangible benefits (clean air and water, recreation, and anti-erosion benefits). The forests are also an important source of non-timber products: honey, berries, fruits and nuts, mushrooms, etc. The forests are remarkably rich in biodiversity, giving shelter to hundreds of rare flora and fauna species. Although forest lands play significant role in the enhancement of the nature protection, current forest management policies and planning rarely attend to sustainable use and conservation of the forest resources.

There are only limited logging operations in Armenia in comparison to the efforts to conserve and enhance existing scarce forest lands (official annual cut equals 70,000 $m^3$ under bark), but they are still impoverishing forest resources and destroying the basis of biodiversity through inadequate forest management practices, e.g., selection and cutting of the best trees, damaging young growth during removal of the wood, and chaotic road building (Thuresson *et al.* 1999, Ter Kazarov 2012).

Illegal logging (estimated annual volume over 600,000 $m^3$), as well as uncontrolled livestock grazing, extensive haymaking, and game poaching are widespread. Forest certification and wood legality verification process are still at their initial stage. Afforestation and reforestation programmes are limited, adequate rehabilitation of degraded ecosystems and lands is lacking, and survival rate of new plantings is low. There are also large losses of wood at sawmills (often up to 40 percent of wood felled).

Insufficient forest use planning and law enforcement as well as frequent complete disregard of appropriate technological operations during forest operations further exacerbate the situation. In reality, as the official annual allowable cut is poorly monitored and reliable database of forest resources is missing, the sites where legal logging is implemented hardly differ from illegal logging.

*Arid highland forest in Central Armenia (Photo: Djermuk)*

According to the state statistical data, in 2002–2005 Armenia exported hardwoods (mainly beech and oak) worth US$1.5 M mostly to neighboring Iran, whereas the import of wood (softwood), which predominantly comes from Georgia, Turkey, and Belarus, was in the range of US$5–11 M (Armenian National Statistical Service's Yearbook 2002–2010). It is believed, that the actual wood export figures are much higher due to the corrupted chain of custody. In addition, a range of recent research publications and national NGO's reviews as well as international experts' surveys suggested that in spite of several positive institutional tendencies (e.g., split of management, supervision, and monitoring functions between different agencies, adoption of the new Forest Code, development of forest policy and strategy papers, etc.), day-to-day forest management changed little and forest resources of Armenia (especially beech and oak old-growth) are under serious threats of desertification and extinction. So the earlier pledge of saving Armenia's precious forest ecosystems in its highlands (Ter-Ghazaryan 1999) is still valid.

Overall, the protection, regeneration, and sustainable use of the forest resources of Armenia should be radically improved by strengthening of planning and control capacity as a principal issue. An essential enhancement of technological operations both on forest logging sites and at sawmilling industries with a major focus on comprehensive balancing of relevant commercial, environmental, and socio-cultural aspects of the rural development plans should also be considered a priority concern. In order to meet all these challenges, a detailed master

plan of the development of the forest sector based on research studies and field surveys is urgently required. Such a plan should incorporate short-, mid-, and long-term benchmarks according to sustainable forest management criteria and indicators.

**REFERENCES**


NATIONAL STATISTICAL SERVICE OF THE REPUBLIC OF ARMENIA. *Yearbook*, 2002–2010.

K. TER-GHAZARYAN. 1999. Save Armenian Forests. In: *Commonwealth Forestry News* No6:5.

D. TER KAZAROV. 2012. Forest Biodiversity of the Transcaucasia: Threats and Mitigating Policies. In: *Proceedings of the International Conference "Conservation and Scientific Research of Especially Protected Areas of the Far East and Siberia."* Khabarovsk, 160 pp.

T. THURESSON, B. DRAKENBERG and K.A. TER-GHAZARYAN. 1999. Forest Resources Assessment in Armenia. *Final Report of the Project implemented by the Ministry of Nature Protection of Armenia and National Board of Forestry (Sweden)*. Ministry of Nature Protection of Armenia. Yerevan.



**Dima Ter Kazarov (aka Karen Ter-Ghazaryan)**
Freelance Forest Expert, Van Nuys, California, USA
dterkazarov@yahoo.com


# Trees, People and the Built Environment

Over 400 foresters, arboriculturalists, policy makers and researchers attended the Urban Trees Research Conference that was hosted by the UK Institute of Chartered Foresters and held in the University of Birmingham in April 2014.

In a video message to the Conference, the Prince of Wales stressed the "tremendous value" of urban trees. The architects Terry Farrell and Partners used examples from London to highlight the role of forward-looking master planning in making sure that cities do not ignore the "space between buildings", but use it for green infrastructure. Several Conference speakers emphasised the growing recognition of the human health benefits that come from access to urban green space; the burgeoning academic literature providing an evidence base to support this view can be accessed through www.greenhealth.washington.edu.

Tim Beatley, Professor of Sustainable Communities at the University of Virginia, gave a presentation on the concept of "biophilic" cities, which now include Montreal, Perth, Singapore, Wellington and Birmingham, as well as a number of cities in the USA, and all of which have pledged to work with nature as an integral part of their future development planning (see http://biophiliccities.org).

Further details of the Conference – which ranged from the challenges associated with compensatory planting for trees lost to development in São Paulo to a literature review on the role of urban forests in Africa – is available at http://www.charteredforesters.org/icf-events/icf-national-conference. The next ICF Conference, to be held in Cardiff in April 2015, will focus on Tree Health and Resilience in the UK.

**David Henderson-Howat**

# News from Guyana

In the last 'News from Guyana' in issue 64 of the *CFA Newsletter*, March 2014, I referenced a series of comments on the long-delayed annual reports and summary audits of accounts of the Guyana Forestry Commission (GFC). These URL references were to articles published by the independent newspaper *Stabroek News*. Although it is possible to read some articles online without restriction, usually a subscription is needed. Fortunately the entire set of comments has been made available by REDD-Monitor[1]. The only responses from Government so far have been complaints that the authors should also have mentioned the absence of annual reports and accounts on the forest sector from before 1992, under a different political administration.

Although an Access to Information Act was passed in September 2011, received Presidential assent two weeks later, and has had an Information Commissioner appointed on 22 May 2013, the Act is not yet operational because neither the Commissioner nor the government Ministries and agencies have yet determined what kind of information is subject to the Act. In Guyana, secrecy is traditionally the norm for the ruling Party and government agencies. Investigative reporting by the two independent newspapers has developed only slowly, and the shift towards online readership has diminished the funds available to pay journalists. Critical information often reaches the public domain only when a civil servant is so outraged by secretive government or Party decisions that documents are leaked to the independent Press or to people who then place the information in those two newspapers. Piecing together a coherent account of what is going on behind the closed doors of government agencies or the ruling Party is thus usually a matter of chance.

In April 2014, a correspondent overheard senior management of a transnational logger boasting that the company had

[1] see http://www.redd-monitor.org/2014/02/07/why-the-national-assembly-should-hold-public-hearings-on-the-guyana-forestry-commission/#comments and http://www.redd-monitor.org/2014/03/25/comments-on-the-guyana-forestry-commissions-annual-reports-2005-2012/

achieved regulatory capture, that is, enough bribes had been laid out for the entire process for regulating the activities of the transnational and its enclave economy to be compromised by corruption and rendered ineffective[2]. The Government has made no attempt to contest the report. Recent calculations using GFC's own data shows that about 75 per cent of the total area of large-scale long-term logging concessions are now held legally or *de facto* by Asian transnational loggers, and about 77 per cent of the total area of pre-logging State Exploratory Forest Permissions; a total of about 4.1 Mha (million hectares) out of the allocated 7.0 Mha of State-administered Production Forest. A recent paper shows how the regulatory capture has been achieved[3].

Both citizens and visiting consultants wonder why Guyana is so far behind most other countries in governance. Why is it so difficult to learn what national policies and laws and regulations actually prescribe? The project funded by the InterAmerican Development Bank to update the books of primary (statute) law has been completed, nicely bound sets are available for purchase, but the Government is charging more than US$ 4,000 per set. The sets do not actually include all the valid laws, and lack indices, and there is no equivalent DVD or set of DVDs with electronically searchable files. The Attorney General worried that lawyers might prefer to pay for under-the-counter photocopies of the laws, as they did for the now-printed Law Reports[4]. Fortunately, most but not all primary laws can be read and downloaded from the website of the Ministry of Legal Affairs although the extracts cannot be copy-and-pasted.

The important Regulations which operationalize the forest and mining laws have never been published in electronic form. Few loggers or miners, or staff of the two government agencies (Guyana Forestry Commission and Guyana Geology and Mines Commission) or their offices have copies. How can stakeholders comply with primary and secondary laws when the legislation is effectively inaccessible? It is not surprising that loggers and miners largely do not adhere to environmental requirements when they cannot verify what is required; see also the references under footnote 6.

The UN Development Programme (UNDP) helped to compile and publish a set of three simplified booklets in 2006, including a forest laws manual[5]. However, the forest law prescribed in that booklet was not introduced as a Bill to the National Assembly until 2007 and is still not operational today in 2014; the Minister has failed to publish a commencement order. So the confusion in rural areas is understandable. Moreover, the forest law proposed in 2007 is written in a very convoluted style, is difficult to understand, and is particularly out of line with best international practice. This law awards a great deal of administrative discretion to the GFC with no criteria for reaching decisions and no procedure for appealing against those decisions.

It is fortunate that the Ministry for Natural Resources and the Environment agreed in 2013 that the laws on natural resources should be revised. Such revision is included in the strategy for the introduction of [integrated] national land use planning[6] and in the process[7] for developing a Voluntary Partnership Agreement under the EU Forest Law Enforcement, Governance and Trade (FLEGT) action plan (2003).

Why does Guyana seem to be so retrograde, not only in the administration of natural resources? Partly it is because the ruling Party continuously in power since 1992 is old-fashioned Marxist-socialist with a 1930s view of politics and governance. Although the Party retains the executive presidency, it is now a minority in the National Assembly by one seat against a combined Opposition, 33 versus 32 seats. Control over the allocation of State-administered natural resources increases Party access to off-budget finance (bribes). This control is perceived to be vital for buying votes of the indigenous Amerindians and recovering full parliamentary control. Hanging onto political power is not just one of the objectives of the ruling Party, it is the main objective. As trees have no votes, readers can imagine how this situation is detrimental to sustainable forest management.

**Janette Bulkan**
CFA Governing Council

[2] *Kaieteur News,* 11 April 2014. 'Dem boys seh…Jagdeo ketchin' fits over de Waterfalls paper', http://www.kaieteurnewsonline.com/2014/04/11/dem-boys-seh-jagdeo-ketchin-fits-over-de-waterfalls-paper/

[3] Bulkan, J. 2014. Forest Grabbing Through Forest Concession Practices: the Case of Guyana. *Journal of Sustainable Forestry*, 33: 407–434.

[4] Guyana Government Information Agency (GINA), 28 February 2014. 'As Government moves to better legal architecture, copies of revised Laws presented to IDB, judiciary', http://gina.gov.gy/wp/?p=19808

[5] Forestry Training Centre Inc.; Guyana Forestry Commission; United Nations Development Programme. 2006. 'Forest laws manual, primarily for community based enterprises'. Capacity building for the management of natural resources and the environment project 2006–2007. Georgetown, Guyana; Guyana Forestry Commission.

[6] Guyana Lands and Surveys Commission. June 2013. 'National land use plan'. Georgetown, Guyana; Guyana Lands and Surveys Commission. Page 10. http://www.lands.gov.gy/National%20Land%20Use%20Plan%20GoG%20June%202013%20with%20cover%20pages.pdf, and Strategic Environmental Advice. June 2013. 'Full version of draft costed strategic framework for the Ministry of Natural Resources and the Environment 2013–2018'. Georgetown, Guyana; Ministry of Natural Resources and the Environment. Section 5.5.1, table 36, page 171. http://www.nre.gov.gy/PDF/Costed%20Strategic%20Framework%20for%20the%20MNRE%20V5_final.pdf

[7] Guyana Forestry Commission. 2012. ' Guyana's Engagement with the European Union Forest Law Enforcement Governance and Trade Initiative'. National preparatory workshop, 27–28 September 2012. Georgetown, Guyana; Guyana Forestry Commission. Draft version 4, page 18. http://www.forestry.gov.gy/Downloads/Guyana's_National_Preparatory_Workshop_for_EU_FLEGT_Negotiations.pdf

# New Generation Plantations

The New Generation Plantations (NGP) platform works toward a vision of forest plantations that contribute positively to the welfare of local communities and do not replace natural forests or other important ecosystems.

WWF manages the NGP platform with participation from forest companies and governments around the world. The platform is a place to share ideas and learn about better plantation forestry practices through real-world examples. Participants commit to implementing good forest plantation methods on their own plantations. Through various events and study tours, NGP also seeks to influence other companies and governments to make environmentally and socially responsible decisions on plantation management.

The New Generation Plantations has built trust among participants, creating a platform between WWF, private plantation companies and public sector forestry agencies. As participants understanding of each other has grown it has opened up common ground where to work toward shared goals.

NGP are holding a summit in June where they will be pushing into the two most important and challenging forestry frontiers; social forestry and land use. Specifically, they will be looking at:

- How to channel large-scale positive investment through forestry into communities;
- How to produce more with less land and water, in harmony with nature.

If you want to find out more about the **NGP 2014 Summit** visit http://newgenerationplantations.org/en/events/2

**Luís Neves Silva**
Manager, New Generation Plantations
WWF International

# Obituary

## David Bills 1948–2014

*(Excerpts from the eulogy given at the funeral of David Bills on 4th April, 2014 by Bob Newman, Vice-President, CFA)*

David, in his career, clearly exhibited those characteristics which mark a well rounded individual with the intent and ability to lead. He was a student from Taroona High School and the Hobart Matriculation College and undertook roles after graduating in forestry at the Australian National University which gave him effective experience and competence in his career.

His first assignment after graduation was to work on policy in the then Federal Forestry and Timber Bureau where he assisted the Director General, Dr Neil Cromer, in organising the National Forwood peak conference dealing with, among other things, a wide range of community concerns about forestry, and included a stint working on Catchment Management at the Norwegian Forest Research Institute.

He then returned to Tasmania in 1978 and joined Associated Pulp and Paper Mills as an executive Forester. By the time he was in his early forties David, still working in the same operations, became a Board Member of North Broken Hill Ltd, who had bought APPM, and represented that Company's interests as General Manager from 1986 to 1995, in the largest forestry operation in Australia. The plantations of the Company were over 125,000 hectares and it exported very large quantities of a variety of wood products whilst serving the domestic market.

In 1995, at the age of 46, when the UK Forestry Commissioners decided on an International approach to fill the vacant position of Director General on the retirement of the incumbent, David responded to an invitation to apply, was successful and remained in that position for 8 years, retiring in 2004.

During his term of office he became a Commander of the Order of the British Empire for services to forestry in Her Majesty the Queen's Birthday Honours in 2001. Upon retiring from the DG position he became Vice-Chairman of the Forestry Commission of Great Britain.

David was only the second Australian born Forester to hold the U.K. Forestry Commission leadership position. In 2006, he also became the first Australian to be President of the Commonwealth Forestry Association.

David's success was hard earned. He exhibited a strong evidenced-based intelligent attitude and enthusiasm when applying himself to the many and varied tasks which he undertook. He also brought great deal of effective energy to the task in hand.

David's industry leadership career in Australia was well recognised: he served on the Board of the National Association of Forest Industries and was President in 1994 and 1995.

His leadership appointments also included being Vice President of the Tasmanian Chamber of Commerce and Industry, Chairman of Australian Veneers Ltd, Member of the Tasmanian Marine Board, which included the Port of Hobart and West Coast Ports, and Member of the Australian Prime Minister's Panel on sustainable development.

David's leadership roles in his position of Director-General of the UK Forestry Commission were also very useful in many spheres. He played an important role which came from the decisions of the United Nations Conference on Environment and Development (UNCED) 1992 resulting in the Rio de Janeiro Declaration. This resulted in establishing the UK Forest Plan which consequently resulted in the UK Forestry Commission

receiving a certificate from the World Wildlife Fund International (WWF) applauding the UK Forestry Commission for their efforts in promoting independent certification of forests by facilitating the UK Woodland Assurance Standard to Forest Stewardship Council standards and paying tribute to David's remarkable efforts with a Gift of The Earth Award.

He competently managed the devolvement of forestry management from the UK Forestry Commission as the single Authority to England, Scotland and Wales Parliaments

As well, David represented the UK position on forestry in Europe at the United Nations Food and Agriculture Organisation (FAO), The United Nations Conference on The Environment and Development and the Inter-governmental Forum on Forestry.

After retiring from the UK Forestry Commission David acted as an independent consultant to a number of clients, including SAFCOL the plantation owner and paper manufacturer in South Africa, as the first part-time Chief of the Confederation of Forest Industries and established its governance, management systems and business planning arrangements.

What a remarkable record and what a fine man.

On the front entrance of the building of the old Australian Forestry School at Yarralumla is a most apt quotation for David James Bills:

MIHI CURA FUTURI – Mine is the care of the future.

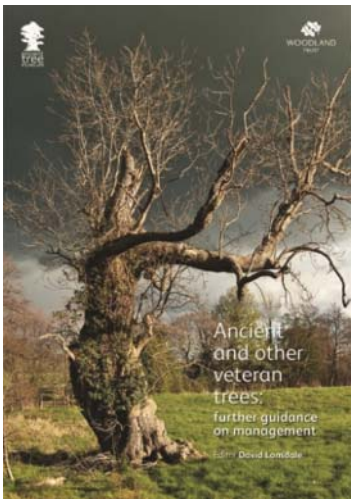
Vale David James Bills after a career well served.

**Robert.L. Newman** OAM FIFA, FCFA,RPF.
Vice President, CFA

# Publications

## Ancient and other veteran trees: further guidance on management

**The Tree Council**

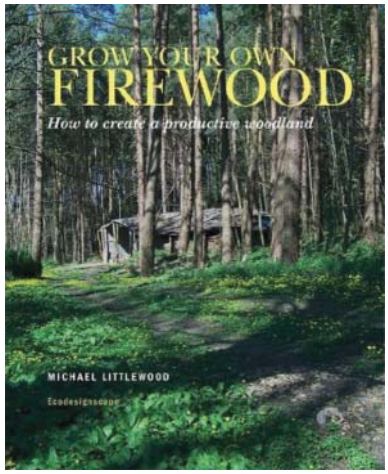



Ancient and other veteran trees: further guidance on management, edited by David Lonsdale, is essential reading for all tree owners, advisers and practitioners. This book recognises that, alongside the appreciation of old trees, there are responsibilities for their continuity, protection and care.

This 212 page, illustrated practical handbook from the Ancient Tree Forum brings together the latest guidance in relation to protecting ancient trees, how to survey and evaluate them, how to conserve their habitat values and how to undertake appropriate tree management.

## Grow your own firewood

**Michael Littlewood, Ecodesignscape**



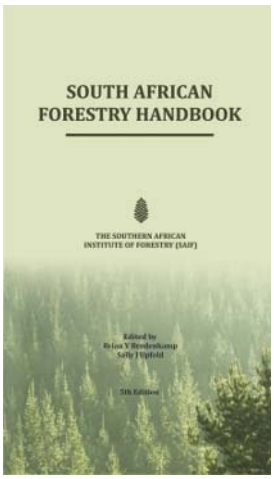

With the ever-rising cost of energy, it makes increasing economic sense to grow your own fuel. A woodland managed on a coppice cycle can provide an annual harvest of wood for fuel as well as timber for building and other uses. A woodland also offers the opportunity for landscape improvement and for the creation of wildlife habitats, and it can become a wonderful amenity for recreation and relaxation.

This guide is concerned primarily with the establishment of trees for firewood over the first 10 to 15 years. It takes you step by step through planning and designing your woodland, selecting the best species for your site, buying stock, preparing the ground, planting and protecting the trees, maintaining your new woodland, and harvesting the wood. It also explains how to bring existing woodland into productive management.

Creating a sustainable woodland is an inspirational and uniquely rewarding project, and with the help of this book you will be able to plan, plant and manage a productive woodland in harmony with nature.

# South African Forestry Handbook

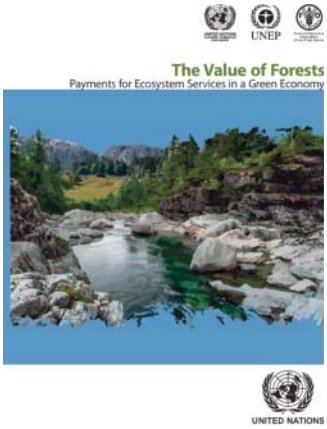
**The Southern African Institute of Forestry**




The long-awaited 5th edition of the South African Forestry Handbook has been published! The Handbook was edited by Brian Bredenkamp and Sally Upfold. The contents include an introduction by Michael Edwards and a brief history of the South African forest industry written by Willie Louw. The subsequent sections focus on: • Silviculture of plantations • Forest management • Sustainability and risk management • Forest engineering • Forest economics • Non-industrial forests and natural areas • Timber utilisation and forest products • Useful information including human resources in the forestry industry

# The value of forests: payment for ecosystem services in a green economy

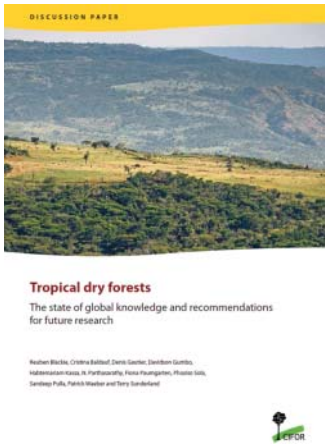
**United Nations**




Payments for Ecosystem Services (PES) describes the situation where the user of an environmental service, such as water purification, pays the landowners who provide that service. For PES to exist, there must be a clearly defined user and supplier, as well as a number of other necessary conditions, which are defined in this document using a summary of current sources. Particular attention is paid to how these conditions currently obtain within the UNECE region. The range of forest environment services is explored through fourteen detailed case studies, which examine best practice in promoting PES. Political and public relations implications of PES are discussed at length, and recommendations include the need for clarity about where PES may be a useful tool in moving towards a green economy and where other methods may be more appropriate. The document is available for free download at http://www.unece.org/index.php?id=35574

# Tropical dry forests – the state of global knowledge and recommendations for future research

**CIFOR**




This discussion paper assesses the state of knowledge on tropical dry forests as it relates to CIFOR's strategy and identifies research opportunities that align with CIFOR's strategic goals. Over the past two decades, CIFOR has accumulated a substantial body of work on dry forests, with a particular focus on African dry forests. This paper is intended to build on that work, by gathering wider research from around the world, as CIFOR seeks to widen the geographic scope of its research on dry forests. The present assessment explores five themes: climate change mitigation and adaptation; food security and livelihoods; demand for energy; sustainable management of dry forests; and policies and institutional support for sustainable management. These themes emerged as priority areas during discussions on dry forest research priorities held at CIFOR's Dry Forests Symposium in South Africa in 20112. Research on these themes should be considered a priority, given the importance of dry forests to people and ecosystems around the world and the threats posed to them. Available for free download at http://www.cifor.org/publications/pdf_files/WPapers/DPBlackie1401.pdf

# Around the World

## Brazil laundering illegal timber on a 'massive and growing scale'

Illegally logged timber in Brazil is being laundered on a massive and growing scale and then sold on to unwitting buyers in the UK, US, Europe and China reports Greenpeace. After a two-year investigation, the environmental campaign group says it has uncovered evidence of systematic abuse and a flawed monitoring system that contradicts the Brazilian government's claims to be coping with the problem of deforestation in the Amazon.

In a report, Greenpeace cited five case studies of the fraudulent techniques used by the log launderers, including over-reporting the number and size of rare trees, logging trees protected by law, and over-extraction. It notes how forest management officials are implicated in the wrongdoing and several have previously been fined or detained for similar crimes in the past.

Far more than half of the wood from the two biggest timber producing regions of Brazil probably comes from illegal sources, it says, citing figures from the Brazilian environmental research NGO, Imazon, that 78% of the wood shipped from the vast Amazonian state of Pará is illegally felled, while the figure is 54% in Mato Grosso.

"Logging in the Brazilian Amazon is absolutely out of control. The current control system is being used to launder illegal timber," said Marcio Astrini, a campaigner who was part of the two-year investigation.

Widespread abuse of the current regulations for timber extraction allow illegal loggers to acquire dubiously obtained credits, according to environmental campaigners and federal prosecutors. With little oversight, big landowners obtain permission to cut down more trees than they intend to log and then sell on unused credits to lumber mills and other farmers.

The investigation is likely to increase pressure on the government to tighten its monitoring and certification systems to minimise the damage done to the Amazon, the world's biggest forest.

**Guardian.co.uk**

## Kenya: Trees offer economic lifeline

Tree are not just good for the environment; they are good for the economy. They are not just aesthetically appealing, they are economically enriching. The higher the forest cover, the better the economy. Finland has a forest cover of 19.1 million hectares, which is 55 per cent of the country. In 2006, Finland's forestry sector contributed $10.3 billion to the economy, which is approximately 5.7 per cent of the GDP. In the same period, Kenya's forestry sector contributed $368.2 million to the economy, approximately 1.7 per cent of the GDP.

Just like Finland, Kenya's forests can contribute substantially to the country's economy. But we cannot utilise what we don't have, so the starting point must be to set highly ambitious yet achievable forest cover targets. If countries like Finland and Gabon have a forest covers of more than 50 per cent, there is no reason why Kenya cannot aim for a forest cover of 30 per cent. This can only happen when people understand that more trees don't displace development, they enhance it and strengthen the economy.

In 2010, Kenya lost Sh5.8 billion to deforestation. The money that came in when the trees were cut down was only Sh1.3 billion. This proves that the immense economic value of trees doesn't lie within their trunks but in the ecosystem services that they provide to the economy.

The countless trees of Mau Forest Complex directly and indirectly sustain a huge percentage of Kenya's economy. They power two of Kenya's leading foreign exchange earners," tourism and tea. They also replenish the Mara River, which in turn nourishes the Mara wildlife that has earned Kenya millions of shillings.

It is, however, not just about the ecosystem services. Individual trees like bamboo can raise the economic tide of the country in a very direct manner. The Food and Agriculture Organization reports that globally, bamboo covers a total area of approximately 31.5 million hectares. This is an area that is bigger than the entire country of Rwanda. This vast bamboo acreage churns our billions of dollars every year. As far back as 2004, the Chinese bamboo industry created a value of $5.5 billion. Bamboo can be used for construction, pulp, board, cloth, food, fuel, medicine, utensils and crafts. In construction, bamboo can be used to literally build most sections of the house.

Kenyans and Africans as a whole must therefore grow trees with the full knowledge that in doing so, they are entrenching their very livelihoods. There must consequently be a national rallying call for Kenyans to grow trees so much that 30 per cent of the country will be under forest cover within years, not decades.

Think green, Act green.

**www.standardmedia.co.ke**

# U.K.: New science strategy for world-leading research in sustainable forest management and woodland creation

The Forestry Commission has recently launched a new Science and Innovation Strategy for the next six years. Research commissioned to deliver the strategy will help to keep the UK as a world leader in understanding, developing and delivering sustainable forest management and woodland creation. Sustainably managed forests and woodlands provide long term benefits to the economy, society and the environment.

Forestry Minister, Dan Rogerson, commented, "The important research that will come as a result of the new Science and Innovation Strategy for forestry in Great Britain will help to provide knowledge, evidence and skilled people to help address future challenges across tree health, adapting to extreme weather events, future forestry practice and many other related areas. This evidence and knowledge will allow the forestry sector to deliver a wide range of sustainable benefits from trees and woodlands to support a stronger British Economy."

Government Chief Scientific Adviser, Sir Mark Walport, added "I very much welcome the launch of this new strategy for forestry in Great Britain. In times of change, forestry needs long term continuity and this is helped by having a rich and robust evidence base to inform policy and practice."

The strategy's projects will provide the evidence base for delivering long term, sustainable health and wellbeing benefits of trees and woodlands to people; steer practical woodland management and expansion; help to direct environmentally sustainable land-use change and direct a wide range of sustainable benefits from trees and woodlands to support economic growth in Britain.

Roger Coppock, Head of Analysts for the Forestry Commission commented: "Science is not an end in itself. Research should inform forestry policy and guide forestry practice to ensure that Britain's forests and woodlands continue to be managed to be sustainable and resilient. This knowledge base will be open and accessible to create an environment that stimulates innovation and the development of products and services that will be of benefit to both the forestry sector and wider society".

Research programmes will integrate social, biological, and physical sciences to deliver more effective impacts. The strategy also recognises the links between economics, social science, and resource description, and these will be reflected in the research programmes.

The Science and Innovation Strategy was developed with stakeholders from England, Scotland and Wales during 2012 and on a public consultation exercise in 2013 and is available for download at http://www.forestry.gov.uk/forestry/HCOU-4VXJ5B

**forestry.gov.uk**

# Myanmar: Extinction stalks Myanmar's forests

Ashen earth strewn with the limbs of once-mighty trees is all that is left of the fearsome forest in central Myanmar that Wa Tote remembers from her youth. "We would only dare enter in a big group. The forest was deep and had many wild animals. Now we cannot even find a tree's shadow to shelter under when we are tired," said the 72-year-old.

At one point tigers were so common in the area that their bones were traded cheaply. Now they have vanished into memory. Large swathes of the undulating landscape of the Bago mountains have been stripped bare by logging firms over recent years and the last remnants of wood are being burnt. Locals say there are plans to replant the area with valuable teak trees – though even if they do, these will take up to 80 years to reach maturity.

Logging in Myanmar exploded under the former junta, as the generals tossed aside sustainable forestry practices in their thirst to cash in on vast natural resources. Experts say an insatiable world appetite for precious hardwoods is threatening rare species and helping to drive deforestation in one of the last major areas of tropical forest in Asia. The country lost almost 20 percent of its forest cover between 1990 and 2010, according to the UN Food and Agriculture Organisation.

Widespread degradation of the most densely wooded areas means that so-called "closed forest" more than halved in size, from 30.9 million to 13.4 million hectares. Experts say corruption and poor protection have enabled rampant illegal logging that lines the pockets of crony businessmen, soldiers and rebels groups alike.

A quasi-civilian government that replaced outright military rule in 2011 has sought to stem the flood of timber from the country with a ban on the export of raw logs which took effect on April 1. "Our ban will be very effective. There will be cutting, distribution and finishing of timber products locally, so that we can also increase employment opportunities," said the director general of the Ministry of Environmental Conservation and Forestry, Tin Tun.

Wildlife group WWF said the biggest driver of forest loss has been large-scale conversion for agriculture, often after woodland is degraded by logging or the collection of wood for fuel. It welcomed the export ban and said the government has also slashed quotas for teak and other hardwoods by 60 percent and 50 percent respectively for the coming fiscal year compared to 2012/13. "But given the high volume of illegal logging and exports in Myanmar, it will take a long time before we see how effective the ban will be," said WWF's Myanmar conservation programme manager Michelle Owen.

**www.thestar.com.my**

# India to have roadmap for cutting carbon emissions

India has unveiled a draft national policy to provide a roadmap for building comprehensive strategies for cutting carbon emissions from deforestation. Officials said the national policy for Reducing Emissions from Deforestation and Forest Degradation (REDD+) along with the strategies will lead to REDD+ readiness in the country and enable India to gain from international REDD+ mechanism for its pro conservation policies and efforts in future. At the same time, the policy, being formulated to tackle climate change, will also create financial incentives to local communities which are in the forefront of conservation of forests, they said.

Reducing Emissions from Deforestation and Forest Degradation (REDD+) under United Nations Framework Convention on Climate Change is a global endeavour to use carbon sequestration potential of the forests to manage climate change within accepted limits of tolerance. The key objectives of the draft policy include creation of REDD+ architecture at National and Sub-National levels to support REDD+ actions and development of an appropriate REDD+ strategy and implementation frameworks at a nested level to represent the diversity of forests in the country.

It envisages management of the forests for a bouquet of ecosystem services, safeguarding the rights and interests of local communities including improvement of their livelihood and also seeks to encourage and incentivise local communities for their role in conservation by transferring the financial benefits accrued on account of REDD+ to them based on their performance.

The REDD+ strategy is proposed for operationalising the implementation of REDD+ policy. It is expected to support the transformation in the forestry sector and other sectors that impact forests and needs to align with broader national development strategies. The strategy is to work for developing institutional framework and providing clear role and responsibilities for various players and stakeholders.

India unveiled the national policy months after the governments adopted "the Warsaw Framework for REDD+". In the UN Climate Change conference held in Warsaw last year, governments agreed on a set of decisions on ways to reduce emissions from deforestation and forest degradation. It had viewed that global deforestation accounts for some 20 per cent of the world's $CO_2$ emissions.

The set of decisions adopted in Warsaw bolsters forest preservation and sustainable use of forests with direct benefits for people who live in and around forests. The package provides a foundation for the transparency and integrity of actions and clarifies the coordination of support. It establishes the means for results-based payments if developing countries can demonstrate the protection of forests. For this purpose, the package is backed by initial pledges of USD 280 million.

**timesofindia.indiatimes.com**

# Burundi talks to Rwanda on beauty

Burundi and Rwanda recently had talks in Nyamagabe district on measures to preserve the Nyungwe-Kibira landscape that straddles their borders. "Through the bilateral cooperation, different activities have been accomplished plus many achievements have been realized and therefore we look forward to reinforcing the existing collaboration including the local community," Faustin Karasira, Head of Product Development at the Rwanda Development Board (RDB) said in a press release.

The Nyungwe-Kibira landscape forms the largest protected mountain forest block in East and Central Africa. In other parts of Africa such forest cover has been practically wiped away by uncontrolled logging and expansion of human settlements. However the population that lives near these two national parks still relies on the forests for survival. Burundi and Rwanda now coordinate their efforts to guard against the total destruction of the forests by encouraging good conservation practices.

"We have learnt a number of good practices during our visit especially the role played by the local authorities and communities in Nyungwe park conservation efforts and therefore we hope to implement them on our side," Mohamed Feruzi, the Director of the National Institute of Environment and Nature Conservation in Burundi said.

In 2008, a Memorandum of Understanding of Transboundary Collaboration was signed between the former Office of Tourism and National Parks (ORTPN) and Institut National pour l'Environnement et la Conservation de la Nature au Burundi (INECN).

The objective was to ensure a mutual collaboration for the protection of the shared landscape and mutual benefits by way of learning from each other. Feruzi said by working together the two countries can achieve more in conservation matters.

**allafrica.com**

# Europe: Award-winning trees

A 1000-year old Field Elm (*Ulmus minor*) growooing in Bulgaria has won the title of European Tree of the Year. Known as the Old Elm, it is a well-known landmark in the town of Sliven, and features on the town's coat of arms. Meanwhile a Douglas fir (*Pseudotsuga menziesii*) growing in a glen near Inverness has been named the tallest conifer in Europe at 66.4 m (218 ft).

**The Garden, the jounral of the UK Royal Horticultural Society**

# Canada: Endangered trees application dismissed by B.C. Supreme Court

A B.C. Supreme Court judge has dismissed an application by environmental groups claiming the province fails to adhere to its own laws in protecting endangered coastal Douglas fir trees. Justice Gordon Weatherill sided with the government in ruling that the application for judicial review filed by the Western Canada Wilderness Committee and ForestEthics Solutions Society was premature.

Weatherill said in a decision released Friday that the groups should have first applied to the Forest Practices Board, which conducts independent audits and investigations to determine if the province is complying with laws to protect endangered forests. "Although the recommendations are not binding on the government, such a process is still an adequate remedy that should be sought before seeking judicial review," Weatherill said in his written ruling.

He said the government officially recognized in 2006 that coastal Douglas fir are a species at risk and created policies to balance the competing concerns of the logging industry and those pushing for environmental protection and aboriginal interests. The issue involves interpretation of the Forest and Range Practices Act and its regulations and whether the government has a mandatory legal duty to issue so-called section 7 notices to logging companies, the judge said. "If issued, these notices would, in effect, prevent logging operations that will impact the remaining 275 hectares of old-growth (coastal Douglas fir) in the coastal region."

The environmental groups sought judicial review of the government's failure to issue the notices to logging companies operating on Crown land on southern Vancouver Island but also the Gulf Islands and the Sunshine Coast. However, lawyers for the Forests Ministry and the Environment Ministry argued that step is discretionary, not mandatory.

Weatherill agreed that the notices are up to the government's discretion because it is required to balance the needs of various parties as part of the complex law. He noted that part of the act requires logging companies intending to harvest timber or construct a road on Crown land to prepare a forest stewardship plan, which must be approved by the government.

Weatherill also detailed the environmental concerns involved, saying that at one point, coastal Douglas fir was dominant, covering as much as 2,555 square kilometres on the B.C. coast. "Now, only a small fraction of these trees and their related ecosystem remain in an old-growth state. According to estimates, approximately as little as 20 square kilometres of these trees remain, and about 2.75 square kilometres are old-growth."

Torrance Coste, spokesman for the Western Canada Wilderness Committee, said the dire state of the forest is exactly why the groups took the drastic step of going ahead with court action instead of the Forest Practices Board. Coste said British Columbia should have introduced legislation 30 years ago to protect the area after increased development on southern Vancouver Island led to large-scale deforestation that now means 99 per cent of the ecosystem has been removed. "It's one step above extinction, and this ruling proves that that's perfectly legal in this province. The province does state that it's proud of its policies, proud of its oversight and should be held up as an example to the world."

While forestry provides employment and First Nations need to get their fair share from the resource, a mere one-per-cent remainder of old-growth forest is not an example of balance for all sides, Coste said. British Columbia needs a stand-alone endangered species law to ensure forests aren't logged to extinction and wildlife, including the mountain caribou and spotted owl, are able to recover, he said, adding Alberta is the only other province without specific legislation to protect endangered species. "The ruling's disappointing but it points to the larger failings in the way our laws are written in that they're not strong enough when it comes to protecting endangered species."

The environmental groups are considering whether to file an appeal of the decision.

**www.cbc.ca**

# Global: What's left when the fire goes out?

A **question posted in New Scientist:** ***I recently attended a bonfire party. There were various kinds of wood being put on the fire, including treated timber, such as old furniture and fences, and recently cut stumps and branches. Nearly all of it burned away, but at the end there was still some ash. Which bits of the wood don't completely burn, and why is there a residue left?***

- Like many plants, trees make sugars, cellulose and other organic molecules using carbon from the carbon dioxide in the air. They join it with hydrogen obtained by splitting water from their roots. The oxygen in the water is discarded into the atmosphere as part of this system of photosynthesis. All the other elements they need, like nitrogen, phosphorus and metals such as potassium, manganese, iron and zinc are obtained with the water from the soil.

When wood is burned, oxygen rejoins with the carbon and hydrogen from the organic compounds, releasing stored energy. Oxygen also joins with the trace elements, forming metal oxides and phosphates. It is these compounds that make up the solid ash, which is an excellent fertiliser, giving back nearly all the minerals originally taken from the soil.

Unfortunately, the nitrogen returns to the atmosphere. This explains why slashing and burning trees and other plants to create fields produces good yields for only a year or two before the land becomes nitrogen deficient.

*Keith Ross, Villembits, France*

- There are 17 chemical elements considered to be essential for the growth of most plants. These are carbon, hydrogen, oxygen and nitrogen in large proportions; medium proportions of phosphorus, potassium, calcium, sulphur and magnesium; and tiny amounts of boron, chlorine, copper, iron, manganese, molybdenum, nickel and zinc. These elements are the constituents of the wood that don't burn – the wood ash.

Different plant tissues contain these elements in proportion from 0.2 to 4 per cent, by dry weight. Therefore, the amount of ash left will depend on the tree species and which part of the tree has been burned – bark, trunk, branch, root or leaves. In addition, burn temperature can significantly affect the quantity and composition of the pile of residue, which is frequently less than the figures above due to flying ash.

The result is that most wood ash contains a high percentage of potassium and is recycled by gardeners who call it "potash".

*Peter Gosling, Farnham, Surrey, UK*

**Newscientist.com**

# Congo: A change of perception

Trucks loaded with logs leaving the Congo Basin rainforest, heading towards ports and leaving behind devastated landscapes is a more or less legitimate image that is firmly anchored in the public imagination. Indeed, in recent decades, remarkable progress has been achieved in almost all countries to not only operate more sustainably and strengthen legal logging in forests but also increase the added value of the timber.

"Over the last 20 years we have devoted our energy to forest management and certification, but in the Congo the next 20 years will be focused on more advanced and diversified wood processing, a key economic component of sustainable forest management," said Henri Djombo, the Congolese Minister of Forest Economy and Sustainable Development.

Roughly two timber sectors coexist in the Congo Basin – one oriented towards export and the other towards local and regional markets. The first primarily supplies logs, but the supply of primary processed wood products (sawn wood, veneer and plywood) is also developing. This is the case in Gabon, in particular, which in 2010 was the first state in the region to impose a total ban on log exports to encourage the emergence of a local wood industry.

In addition to the trend for industrial wood processing driven by local legislation, certification processes – essential for opening the door to major world markets – are being developed. While the practice is becoming more widespread, no importing countries currently require that only certified timber enters its market. However, in the United States under the amended Lacey Act or in the European Union under the EU Timber Regulation of March 2013, any operator using wood or wood products must be ready, if necessary, to prove that the wood was legally logged and exported. Certified wood (Forest Stewardship Council, PEFC) is proof of legality. The certification process is thus being applied throughout the chain, from logging to wood processing.

The second sector devoted to wood products for local or regional markets is primarily informal. Production is often of poor quality but this sector can still compete with the fledgling formal sector due to low prices. In Cameroon and the Democratic Republic of Congo, for instance, the price of timber sawn by villagers may be 20% lower than that of professional sawyers. "Eighty percent of my clients are French companies operating in Gabon. They come to me for high quality products and they go to the 'neighbourhood' (i.e. informal craftspeople) for anything else because it's cheaper," explains Daniel Charles, head of Art et Technique du Bois, a cabinetry company in Libreville.

The local sector is also beginning to feel the effects of a more favourable climate. Purchasing power is rising in Africa despite the decline in international tropical timber demand due to the economic crisis, fashion trends and increasing legal requirements of importing countries. A small but growing number of operators in the formal sector are focusing on local markets. In the collective mind, wooden houses are for the poor, but people are beginning to see that wood is chic too. In 2011, Djombo organised a show of model houses built with local wood in the Côte Sauvage beach area near Brazzaville, while in Gabon companies like Ecowood build 'ecohouses'.

The informal sector now needs structuring. In Cameroon, 'clusters' allow small-scale craftspeople to more easily source wood that is dried, graded and of traceable origin, and have access to industrial maintenance, transportation facilities and financial and administrative services. This encourages these operators to join the formal sector while also easing their access to secondary and tertiary wood processing facilities (wood for flooring, frames, mouldings, prefabricated building components), ultimately creating jobs and products with high added value.

**spore.cta.int**

# Canada: UBC's genetically engineered trees ready to change forestry industry

It's a rather ubiquitous polymer that keeps trees straight and rigid as they tower in the sky but lignin also has the distinction of giving the forestry industry major headaches when it's time to process the wood into pulp. Now a University of British Columbia researcher has genetically modified poplars to make lignin easier to break down during processing while not affecting the strength of the trees.

It's a huge leap in terms of environmental benefits and commercial viability for the industry, according to UBC wood science professor Shawn Mansfield. "These new technologies, while controversial, have a potential to really leave our pristine, native forests alone and have dedicated forests for applications that don't cause as many environmental issues," said Mansfield, who spent a decade working on this project with researchers from the University of Wisconsin-Madison and Michigan State University.

The forestry industries in the United States and Europe have made efforts to isolate the lignin polymer and use it to make sugars, biofuels or ethanol. Mansfield and his fellow researchers took a different approach, modifying the poplar's genes to make the lignin easier to break down during processing without affecting the plant's strength. Mansfield said the genetically engineered trees require fewer chemicals during processing while less power is consumed from machinery.

"It's really important to think about the environmental footprint that we're placing on society," he said, adding that the trees were also designed to sprout back up once they're chopped down. "Society has to be ready to accept trees or plants designed for [these] applications." Mansfield said he's confident the plants are ripe for commercial use, especially since the team chose to modify poplar trees that can be grown virtually anywhere in Canada.

UBC wood science professor David Cohen, who did not work on the project, said companies that have attempted to extract lignin for use in other products have not been able to find an economically practical way of doing so. He said Mansfield's trees have tremendous commercial viability, but the reluctance of Canadians to accept the virtues of genetically modified organisms (GMO) poses a major challenge. "There are people who feel really strongly it is against their religion to use GMOs and there's no amount of science, there's no amount of logic that's going to change their minds," Cohen said. "In terms of 10 years from now, having genetically modified forests in Canada, I would bet against that pretty heavily."

Nigel Protter, executive director of the B.C. Sustainable Energy Association, said he understands fears that the introduction of this species could have unexpected consequences on the environment. "I would certainly like to see this kind of research continue, but reasonably, carefully, responsibly," he said, adding the BCSEA hasn't taken an official position on genetically engineered trees. "We need more bullets in our gun to solve the climate change problem, so we can't dismiss efforts like this even though they might appear high-risk — and I'm not saying it is high-risk."

**www.biv.com**

# U.S. report points to impact of global warming on forests and coasts of Washington, Oregon, Idaho

Global warming is already altering forest landscapes in the U.S. Northwest, increasing wildfire risks and threatening coastal communities, according to a new federal scientific report released Tuesday. The National Climate Assessment provides a detailed look at the regional and state-level effects of climate change. It lists key concerns for Washington, Idaho and Oregon:

Climate change will alter Northwest forests by increasing wildfire risk and insect and tree disease outbreaks, and by forcing long-term shifts in forest types and species, the report says. Those impacts are already causing widespread tree die-offs and are certain to cause more forest die-offs by 2040.

Though wildfires are natural events in the Northwest, warmer and drier conditions have helped boost the number and extent of wildfires in U.S. Western forests since 1970s, and that trend is expected to continue.

Higher temperatures and outbreaks of mountain pine beetles, for example, area increasing pine tree die-offs in drier forests.

**www.ottawacitizen.com**