Society of American Foresters

International Forestry Working Group Newsletter

Working Group B3

December 2014

Obituary

Budowski, Gerardo (1925-2014)

Dr. Gerardo Budowski, of Venezuelan nationality, was one of the best-known and widely respected scientists in Latin America devoted to tropical ecology, natural resource management and agroforestry. Dr. Budowski earned his Master's degree in the Inter-American Institute for Cooperation on Agriculture (IICA) in Turrialba, Costa Rica en 1954, where he studied under Dr. Leslie Holdridge, the well-renowned ecologist who developed the Holdridge Classification of World Life Zones.

Dr. Budowski earned his doctoral degree in 1961 from Yale University. After his doctoral program, he returned to IICA where he headed up the Natural Resources Program from 1956 to 1967, directing a considerable number of Master's students during this period. During this

productive phase of his career, Dr. Budowski began to perceive more clearly the opportunities and limitations of diverse production systems in the tropics.

Dr. Budowski next went to the United Nations Educational, Scientific and Cultural Organization (UNESCO) en Paris, France to participate in that institution's new program devoted to ecology and conservation. There, he led the organization of the International Conference on the Biosphere, which gave rise to the worldwide Man and the Biosphere Program, active to this day. In 1969, he was elected to become the first Director General of the International Union for the Conservation of Nature now the World Conservation Union (IUCN) with headquarters in Switzerland, a post he held for six and one half years. Under his leadership over 5,000 scientists became involved in the six commissions that made up the action program of IUCN during that period.

In 1976, Dr. Budowski again returned to the Tropical Agricultural Research and Higher Education Center (CATIE, previously IICA) in Costa Rica, where he directed the Natural Resource Department for 10 years. In 1986 he became part of the recently formed University for Peace in Costa Rica, where he worked until 2004 as Director of Renewable Resources. From 1992 to 1997, Dr. Budowski was also elected President of the International Society of Ecoturism. From 1989 to 1996 he served as member of the Technical Advisory Committee of the Consultative Group on International Agricultural Research (CGIAR), a period during which the Center for International Forestry Research (CIFOR), with headquarters in Bogor, Indonesia, was founded.

Dr. Budowski was the recipient of many prestigious awards including the Henri Pittier Medal from the Government of Venezuela, the "Siempre Verde" Medal for the Government of Nicaragua, the Golden Arc from Holland, among others. He was named an honorary member of the World Wildlife Fund and the IUCN. He was designated the "Most outstanding graduate" of IICA-CATIE, when the institution completed its 50th anniversary. He was also an Emeritus Professor of both CATIE and the University for Peace. In December 2005, CATIE bestowed on him the doctorate *honoris causa.*

During his remarkable career, Dr. Budowski produced over 300 publications in Spanish, English, French and German. He created the agroforestry program in CATIE in 1976, and is considered one of the founding fathers of this extremely important discipline. From early on in his career, Dr. Budowski developed a keen interest in issues relating to the management of natural tropical forests, the importance of secondary forests for wood production and biodiversity conservation and the role of forest plantations. He carried out official missions in over 30 countries on four continents and was author of a book in Spanish entitled "Nature Conservation as an Instrument for Development".

Dr. Budowski met his wife Thelma Palma from Panama while she worked in IICA as a professional in scientific communication. He is survived by two daughters. Dr. Budowski sustained his passion, active involvement and dedication to conservation and development in the tropics throughout his remarkable life.

Note from the editor

Why do we have an International Forestry Working Group and why publish a newsletter? The Society of American Foresters describes working groups as "communities of interest" and believes that working groups allow members to connect with other members who have similar interests. The IFWG is a bit different from other working groups in that the technical fields of members vary considerably, but the shared interest is in the international links that foresters have as they work to protect, conserve, and manage forests and utilize trees for the wide range of services they provide. Most forest concerns and opportunities do not respect political boundaries. With this issue of the newsletter we expand our readership to former members of the dormant International Society of Tropical Foresters. This should allow greater opportunities for people with an international perspective on forestry to communicate with people of similar interests. While this issue is dominated by material provided by SAF members, we welcome contributions from our entire readership for the next issue.

- Blair Orr, IFWG Chair
(bdorr@mtu.edu)

Contributed Articles

Soil Science Society of America
Celebrating 2015 International Year of Soils

Society will focus on educating the public about this precious natural resource

The Global Soil Partnership (GSP) at the Food & Agriculture Organization (FAO) of the United Nations has declared 2015 the **International Year of Soils**. In celebration, the Soil Science Society of America (SSSA) is coordinating a series of activities throughout 2015 to educate the public about the importance of this precious natural resource.

"When GSP recognized the urgent need to raise awareness and promote sustainability of our limited soil resources by designating 2015 International Year of Soils, we knew this was our opportunity to make an impact with the public," says David Lindbo, past president of SSSA, and a professor of soil science at NC State University. "Soil—like air, water and sunlight—is one of the natural resources necessary for life," says Lindbo. "By telling the story of what soil does for us as humans, we hope to increase the respect humans give back to soil, to protect it for future generations."

SSSA's 6,000+ members are being encouraged to interact with the public with a series of 12 monthly messages throughout the year. If you would like an SSSA member to speak to your audience (schools, community groups, gardening groups, etc.) please fill out the Ask a Scientist form at www.soils4teachers.org/ask . In addition, SSSA members have created materials for educators to teach to the K-12 audience. All materials can be found at www.soils.org/iys starting on January 1st and will be updated throughout 2015.

The twelve monthly themes developed by SSSA are:

January – Soils sustain life

February – Soils support urban life

March – Soils support agriculture

April – Soils clean and capture water

May – Soils support buildings/infrastructure

June – Soils support recreation

July – Soils are living

August – Soils support health

September – Soils protect the natural environment

October – Soils and products we use

November – Soil and climate

December – Soils, Culture, and People

As part of their celebration of IYS, SSSA is developing a series of 12 two-minute educational videos. They are working in conjunction with Jim Toomey, who has worked with the UN in the past. He also authors the environmental cartoon, Sherman's Lagoon. January's *Soils Sustain Life* video will be shown during the UN's International Year of Soils celebration on Dec. 5th in New York City, and can be seen here https://www.soils.org/iys/monthly-videos .

The **Soil Science Society of America (SSSA)** is a progressive international scientific society that fosters the transfer of knowledge and practices to sustain global soils. Based in Madison, WI, and founded in 1936, SSSA is the professional home for 6,000+ members and 1,000+ certified professionals dedicated to advancing the field of soil science. The Society provides information about soils in relation to crop production, environmental quality, ecosystem sustainability, bioremediation, waste management, recycling, and wise land use.

Follow SSSA on Facebook at https://www.facebook.com/SSSA.soils, Twitter at SSSA_Soils. SSSA also has a blog, *Soils Matter,* at http://soilsmatter.wordpress.com/. Additional soils information is on www.soils.org/discover-soils, for teachers at www.soils4teachers.org, and for students through 12th grade, www.soils4kids.org.

THE TROPICAL FORESTRY SITUATION

A review by Frank Wadsworth

FAO has released its 2014 annual report on the State of the Forests of the World, a 120-page document, this year emphasizing the socioeconomic benefits from forests. The report presents five chapters. After the introduction there is definition of socioeconomic forest benefits, followed by the status and trends in the benefits. Chapter 4 reviews measures taken by countries to realize and increase socioeconomic benefits from forests. Chapter 5 provides a summary of the findings with suggestions.

The report defines socioeconomic as those benefits to society of economic activity. Descriptions of these benefits have been identified by the Forest Resource Assessment, Forest Europe, the International Tropical Timber Organization, and the Montreal Process Criteria. Economic Indicators from these sources include value of forest product removals, exports and imports of forest products, the value of domestic production, and revenue from forest-based environmental services. Labor Indicators include employment, wage rates, and training. Consumption Indicators include consumption of wood and wood products, forests used for subsistence, and the number of persons depending on forests for their livelihoods. Governance Indicators include involvement of stakeholders in forestry policy and management, and distribution of revenues from forest management. Other Indicators include forest industry structure and efficiency, and recovery and recycling of forest products.

Although the report states that area statistics are a very poor indicator of socioeconomic benefits, this reference is not to their value but to their accuracy. Despite this, the report, repeatedly admitting underestimates, systematically gathers and analyses available data with very large numbers. For many the temperate zone can be segregated, making it possible to summarize approximately for tropical America, Africa, Asia and Oceania. Selections approximately for the tropics follow.

Socioeconomic Forest benefit	Total benefits	Tropical America %	Tropical Asia %	Tropical Africa %	Tropical Oceania %
Employment					
In forests	1,070,000 persons	29	51	18	2
Processing wood	1,580,000 persons	33	57	10	<1
Pulp and paper	1,000,000 persons	31	65	4	<1
Value adde					
Wood production	$63.6 billion	18	66	14	2
Processing wood	$20.0 billion	52	32	8	8
Pulp and paper	$33.3 billion	55	43	2	<1
Cook with wood	1,430,000,000 persons	3	76	21	<1
Homes partly wood	540,000,000 persons	4	79	8	9

In Africa and Latin America the estimated 2011 income from forest medicinal plants was $252 million, from forest animals it was $7,360 million, and from forest shifting agriculture it was $68,700 million. Full-time equivalent of people employed producing fuelwood and charcoal was 115 million.

In governance the reporting is mostly world-wide. Countries endeavored to increase the use of biomass but not waste reduction or recycling. Half of the world's countries, including some in the tropics have taken measures to involve traditional forest users in forest policies. Several countries, including some tropical, have taken measures to improve the use of forests for tourism. Few countries have taken measures to increase the application of traditional forest-treatment knowledge and practices.

Sociological benefits are derived mostly from the consumption of forest goods and services. Forest policies must explicitly address the role of forests in providing food, energy, shelter, and non-wood forest products, including erosion control and pollination. Many of the socioeconomic benefits from forests are compatible with government's greening and more sustainable economies. Government forest policies addressing forest resource investments were added in Burundi, Cambodia, Costa Rica, Côte d'ivoire, Guyana, Hondurus, Niger, and Uganda. National forest funding has been increased since 2007 in Brazil, India, Indonesia, Lao, Rwanda, Tanzania, and Viet Nam. More reliable information about the socioeconomic benefits from forests may help to raise awareness and monitor progress towards sustainable forest management.

A closing paragraph. A common theme throughout this publication has been the importance of putting people at the center for both the measurement of socioeconomic benefits and the development of policies and measures to enhance these benefits. A concerted effort will be needed to strengthen the availability of relevant information, including evidence that amended policies are indeed being implemented and have resulted in improvements to well-being. If this is done, it seems likely that the socioeconomic benefits from forests can be developed to meet the growing demands of society while maintaining the integrity of the forest resource base. This will improve the prospects for sustainable forest management and demonstrate how forests should be conserved for the multiple benefits that they provide.

Note:

> In its "focus on people, not only trees" this report repeatedly expresses satisfaction with "sustainable forest management", apparently assuring jobs for forest managers, but not sustained forests.

BUSHMEAT AND EBOLA IN AFRICA

A note was received from Boris Matejćić of Croatia citing information from Robert Nasi, Deputy Director of the Center for International Forestry Research (CIFOR) in Indonesia, a ten-year student of bushmeat.

Bushmeat killing in the forests of Africa is very different from that for horns or tusks. It is for meat to eat, be it caterpillar or elephant. Tens of millions of people depend on bushmeat and fish for 80 percent of their protein. In rural villages in the Cameroon, Gabon, and the Congo all of the people eat bushmeat. In the Congo alone, where there are 450,000 bushmeat hunters, 5 million tons of bushmeat is consumed annually, about equivalent to the cattle production of Brazil. Bushmeat is very nutritive; in villages where most of the bushmeat animals have disappeared stunting of up to 60 percent of the population results. Bushmeat hunting is unlawful in most of Africa, but in the absence of alternatives, there is no way to stop it. To substitute cattle pastures for equal meat production would require deforestation of an area the size of Britain.

Photo by Endre Vestvik (http://ourworld.unu.edu/en/bushmeat-stories-voices-from-the-congo-basin)

The link between bushmeat and ebola is through bats, one of the vectors. Ebola apparently killed animals before people. It is very likely that gorillas and chimpanzees become infected via bat droppings or dropped fruits half eaten by bats. Dead animals found in the forest may be infected and are sometimes taken as bushmeat, carrying the disease to people. In the villages even domestic animals may be carriers. The bushmeat hunter, the bushmeat buyer, and the people in general need more information as to what to avoid.

Peter Holmgren, Director General of CIFOR, with a global organization with offices in West and Central Africa, sees ebola as an urgent scientific challenge. Travel and field work in affected areas has been restricted. The forest research organization sees a call for research on the links between ebola and forest-related activities. From a forestry standpoint we have little to go on as to how and where the virus appears nor the risks connected to bushmeat chains. In the short term

reviews are planned to clarify scientific knowledge. On a longer horizon, research should provide perspective to put outbreaks of ebola in a wide context of risk management.

Contributed by Frank Wadsworth

Join an SAF Working Group

As a member of the Society of American Foresters you can join SAF working groups by going to the website:

http://www.safnet.org/workinggroups/join.cfm

If you want to join this working group, we are B3, the International Forestry Working Group. Please pass this information along to SAF members who might be interested in joining a working group – especially B3, the International Forestry Working Group.

Announcements, Meetings and Events

Conserving Biodiversity Conference at Yale

The Yale Chapter of the International Society of Tropical Foresters is proud to present the topic of their 21st Annual Conference:

Conserving Biodiversity across Multiple-Use Landscapes Through Strategic Governance and Land Use Planning

Information is also available at http://istf.yale.edu/

IFWG News from the SAF Salt Lake City Convention

The International Forestry Reception was again a success with about 100 people attending, including a group from the IUFRO convention that was held concurrently with the SAF convention. Thanks to the Union of Concerned Scientists and ArborGen for sponsoring the reception.

The IFWG membership meeting was less well attended, with only seven people showing up. Much of the meeting was devoted to explaining the role and purpose of the committee and its

relationship to the World Forestry Committee. Bob Sturtevant was elected chair-elect of the IFWG.

Bob Sturtevant

The International Forestry Working Group was named the outstanding SAF working group along with the Water Resources Working Group.

SAF World Forestry Committee News

The World Forestry Committee welcomes Jason Gordon as its 2015 chair. Jason is an Assistant Professor and Extension Specialist at Mississippi State University, Department of Forestry. A big thank you to Pipa Elias for serving as chair in 2014 and to those members rolling off of the committee – Blair Orr, Michael Jacobson, and James Harding. WFC had a productive meeting at the Convention. Gregory Award winner, Kelechi Eleanya, spoke about his work in Nigeria. The WFC also discussed several initiatives such as a greater online presence and promoting SAF internationally.

Jason Gordon, Incoming WFC Chair
Danielle Watson, SAF Policy Associate

Invitation to join the IUFRO Meliaceae Working Party e-list

Do you ever have questions on managing a species of Meliaceae, whether it might be a shootborer problem, keeping a plantation going, germplasm, or dealing with trade issues? Do you have insights to share from your research or practice on these species?

The Meliaceae Working Party of the International Union of Forest Research Organizations (IUFRO WP 1.02.04 – Sustainable Management and Genetic Resources of the Meliaceae; http://www.iufro.org/science/divisions/division-1/10000/10200/10204/) serves as a forum for the exchange of information on the sustainable management and genetic resources of Meliaceae, particularly the Swietenioideae, for all interested parties and countries.

We want to grow the IUFRO Meliaceae Working Party network to help move the information that you can share or that you need. We invite you to join our e list to participate. You can sign up at http://www.iufro.org/science/iufro-mailing-lists/list-management/wp-10204/ Scroll down to enter your email address, name (optional), and password (optional), and push the "subscribe" button.

For more information, contact Sheila Ward, working party Deputy Coordinator, at mahoganyforthefuture@gmail.com.

TROPICAL NOTES
Frank H. Wadsworth
International Institute of Tropical Forestry
USDA Forest Service
San Juan, Puerto Rico

Mahogany requires silviculture

A study of bigleaf mahogany (*Swietenia macrophylla*) within natural forest of Southeast Amazonia showed tree diameter to be a poor predictor of tree age. Trees 60 cm in diameter ranged in age from 33 to 180 years, with 74 years the median. This is at odds with a national policy of a 60-year length of rotation under management. Important tree growth variation begins during the first 10 years of a tree's life. Projected harvests cannot be attained without applying silvicultural treatments designed to increase stem diameter growth rate, particularly during the first 10 years of tree life.

C. M. Free and others. Management implications of long-term tree growth and mortality rates: A modelling study of bigleaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon [Forest Ecology and Management 330:46-54 2014]

Topography in China

An assessment of forest changes along topographic gradients in southern Yunnan was based on 500 plots of 20x20m. Significant changes found along the topographic gradient included species composition, diversity, seed mass, wood density, leaf area, maximum tree height, and tree growth. Results indicate that tropical forest composition can be predicted with GIS technology focusing on topography gradients, the threat to species from topographically oriented deforestation trends, and greater understanding of forest composition variation.

Liu J. Topography related habitat associations of tree species traits, composition, and diversity in a Chinese tropical forest. [Forest Ecology and Management 330:75-81 2014]

Runoff influence in India

Continuous monitoring of rainfall and runoff in two small watersheds during three years near Mussoorie, India showed that dense forest regulated streamflow and

controlled high peak flows, resulting in delayed discharge, making streams perennial and sustainable.

M. P. Singh and others. Evaluating forest influence on rainfall-runoff relationship from paired micro-watersheds of Lesser Himalayas, India. [Indian Forester 140(7):661-666 2014]

Butterflies and restoration

In the project to restore 15 million hectares of the Atlantic Forest of Brazil diversity of fruit-feeding butterflies in forests of 11, 22, and 54 years of recovery and native forest was compared. Results showed an increase in forest species of butterflies and a decrease of grassland species as restoration proceeded. Intermediate stages were more diverse than earlier and later stages, including both forest and grassland species. Even a fragmented forest landscape provided suitable habitat for recolonization.

L. B. Clara and others. Fruit-feeding butterfly communities are influenced by restoration age in tropical forests. [Restoration Ecology 22(4):480-485 2014]

Water diffusion in fast-growing woods

Water diffusion rates were determined for fuelwood chips of ten tree species of Costa Rica. Diffusion rate was found positively related to green moisture content and negatively related to wood specific gravity, woodchip length and the proportion of sapwood. Samples with both heartwood and sapwood had more rapid water diffusion in the heartwood. Diffusion of wood chips of high initial moisture content (>120%) and longer drying times included *Acacia mangium, Gmelina arborea*, and *Vochysia guatemalensis*.

Carolina Tenorio and others. Diffusion coefficient of water in chips of ten fast-growing species in plantations of Costa Rica. [Interciencia 39(2):129-135 2014]

Canopy position and leaf traits

In a rainforest of North Australia it was found that leaf mass per unit of area, and N, P, sugar and starch concentrations were all higher in sun-exposed upper canopy leaves, compared with their shaded lower canopy and deep shade understory counterparts. Leaf traits and photosynthesis were higher in the upper canopy leaves. Leaf density and activity in the light decreased with increasing depth in the canopy and temperature dependence remained constant.

Lasantha K. Weerasinghe and others. Canopy position affects the relationships between leaf respiration and associated traits in a tropical rainforest in Far North Queensland. [Tree Physiology 34(6):564-584 2014]

Economics vs. biodiversity

A study of 30 examples of forest ecosystem services in the Far East concludes the there is a lack of synchrony between economic objectives of such services and tropical forest biodiversity. Highlighting the importance of matching supply and demand between each ecosystem service and its beneficiaries for economic values fails to protect forest biodiversity in remote and less disturbed regions.

L. R. Carrasco and others. Economic valuation of ecosystem services fails to capture biodiversity value of tropical forests. [Biological Conservation 178:163-170 2014]

Selectively cut forest light

A study in Malaysia compared the light entering primary forest and that which had been selectively logged 50 years earlier. There was still clear evidence of logging impact on the forest light environment. The selectively logged forest had shorter and smaller tree crowns, more open canopies, longer sunflecks, and a less heterogeneous light environment than the primary forest.

Toshihiro Yamada and others, Spatial and temporal variations in the light environment in a primary and selectively logged forest long after logging in Peninsular Malaysia [Trees – Structure and Function 28(5):1355-1365 2014]

Timber for China from Zambia

Chinese timber companies have established both timber buying and logging for the value of the wood species of Zambia. Activities of Chinese and non-Chinese logging companies provide limited benefits to rural communities. Non-Chinese companies provide more local employment than Chinese companies but the latter outbid the non-Chinese companies in the local timber market.

P. Asanzi and others, Rural livelihoods and the Chinese timber trade in Zambia's Western Province [International Forestry Review 16(4):447-458 2014]

Pruning may increase assimilation

In a study of *Eucalyptus regnans* in Chile plantations 2 and 3 years old were subjected to different intensities of pruning, removing up to 70 % of live crown length. By checking within 18 weeks after pruning, foliage recovery had increased to 30% more than that of unpruned trees. The highest values of CO_2 assimilation were found on the leaves of the trees receiving the most severe pruning.

M. Lisboa and others. Physiological response to pruning severity in *Eucalyptus regnans* plantations.[New Forests 45(6):753-764 2014]

Rainforest return

In Australia former rainforests have been taken over by *Acacias*. This produced curiosity as to whether the rainforest could return. In 26 forests of *Acacia* in the wet tropics A lack of *Acacia* recruitment was apparent. Late successional tree species richness and diversity increased with stand age, indicating recruitment under the *Acacia* canopy. Even large-seeded species were able to recruit. The conclusion was that secondary forest, even that dominated by a single species particularly that of a nitrogen-fixing legume, represents a viable means of tropical forest restoration provided that there is sufficient mature forest in the region.

W.L.J. Yeo and R. J. Fensham. Will *Acacia* secondary forest become rainforest in the Australian wet tropics? [Forest Ecology and Management 331:208-217 2014]

Management for water use

In Australian *Eucalyptus* plantations water productivity is the mass of wood produced per volume of water evapotranspired. Estimates of plantation water productivity were made in plantations of *Eucalyptus globulus* of from 3 to 10 years harvest age. Unfertilized plantations extended the growing season and water consumption into the summer when evaporation was high. With the application of nitrogen, plantation water productivity increased and depleted soil water earlier. This produced water stress that could be mitigated by reducing stocking density without reducing productivity.

Donald A. White and others. Managing for water-use efficient wood production in *Eucaluyptus globulus* plantations. Forest Ecology and Management 331:272-280 2014]

Successive plantations in Sumatra

In Sumatra there is a 193,500-ha pulpwood plantation, 90 percent *Acacia mangium*. Without additional land area it is imperative that productivity be maintained without environmental deterioration. Harvesting practices through to site preparation, planting, managing the stand to canopy closure have strong influences on growing conditions and productivity of the next crop, especially so when stands are harvested on short (5-10 year) rotations. From a first rotation MAI of 10 years of 30 m^3 ha^{-1} yr^{-1}. At the end of 7 years of the second rotation the average MAI was 48 m^3 ha^{-1} yr^{-1}. The increase is laid to carefully retained and distributed logging slash on the sites.

Eko B. Hardiyante and E.0 K. Sadanandan. Productivity of successive rotations of *Acacia mangium* plantatiions in Sumatra, Indonesia: Impacts of harvest and inter-rotation site management. [New Forests 45:557-575 2014]

Variation in wood density and carbon content of tropical plantation tree species from Ghana

Abstract: Most research on carbon content of trees has focused on temperate tree species, with less information existing for tropical tree species and very little for tropical plantations. This study investigated factors affecting the carbon content of nineteen tropical plantation tree species of ages seven to twelve and compared carbon content of *Khaya* spp. from two ecozones in Ghana. For all sample trees, volume of the main stem, wood density and wood carbon (C) concentration were determined. Estimated stem volume for the 12-year-old trees varied widely among species, from 0.01 m^3 to 1.04 m^3, with stem C content ranging from 3 to 205 kg. Wood density among species varied from 0.27 to 0.76 g/cm^3, with faster growing species exhibiting lower density. Significant differences in wood density also occurred with position along the main stem. Carbon concentration also differed among tree species, ranging from 458 to 498 g/kg.

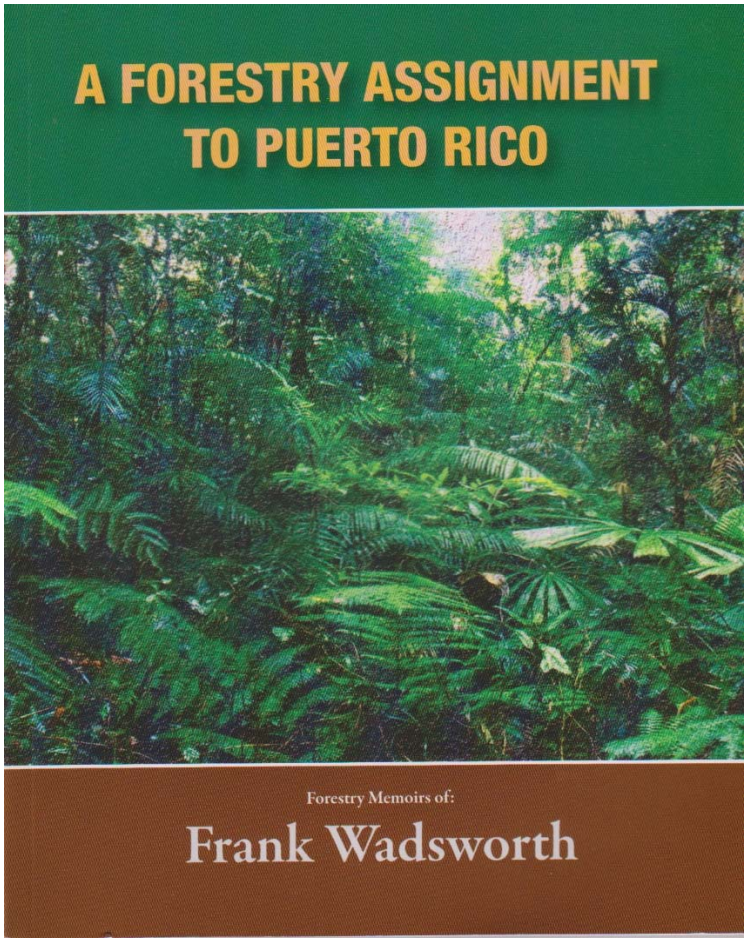
Daniel Yeboah, Andrew J. Burton, Andrew J. Storer, Emmanuel Opuni-Frimpong. 2014. Variation in wood density and carbon content of tropical plantation tree species from Ghana. *New Forests* 45:35-52

Urban Trees in Africa

Abstract: Crown diameter and tree density were measured in 52 communities in the Sudan-Sahel using satellite imagery to determine the relationships between rainfall and distance from community center to crown size diameter and tree density. As distance from the community center increased, tree density and crown diameter decreased. As rainfall increased, tree density decreased while crown diameter increased. Distance from

the community center is a proxy for age since urbanization and our results indicate that older parts of communities show longer and more consistent tree management. The trends in patterns of tree distribution and size in communities are different from those in natural woodlands.

Sterling, S.J. and B. Orr. 2014. Patterns of Tree Distribution within Small Communities of the Sudanian Savanna-Sahel. *Land*. *3*(4), 1284-1292. http://www.mdpi.com/2073-445X/3/4/1284



A Forestry Assignment to Puerto Rico. Copies are available free of charge from the IITF library. Calle Ceiba 1201, Jardin Botanico Sur, San Juan, P.R. 00926, USA.

Synergistic policies and measures are the key to advancing forest-based development

This is one of the key messages from the new book ***Forests under Pressure – Local Responses to Global Issues*** and the related ***Issue Brief*** produced by the International Union of Forest Research Organizations (IUFRO) Special Project World Forests, Society and Environment (WFSE).

The book is the result of a collaborative work of 144 scientist and experts who acted as authors in different capacities and over 60 reviewers.

Building on 27 case studies from different parts of the world the book focuses on conditions that foster or hinder progress towards sustainable forest management (SFM) and forest-based local development. The case studies use a common analytical framework of prerequisite conditions to examine the implementation of SFM. The analysis allows distinguishing prerequisite conditions and combinations of conditions that foster or constrain progress towards SFM and sustainable local development, and the interactions among these conditions.

The Issue Brief ***Synergistic policies and measures are the key to advancing sustainable forest management and forest-based development*** presents the main findings of the book and recommendations for the way forward in a concise format.

The book and the related Issue Brief can be downloaded at the IUFRO WFSE web-page:
http://www.iufro.org/science/special/wfse/

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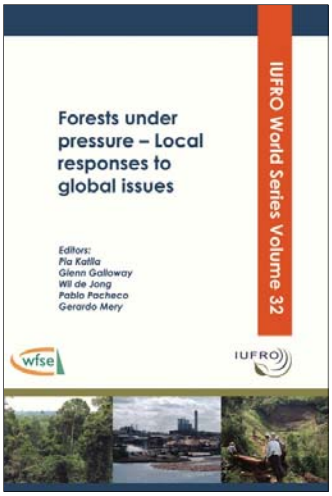

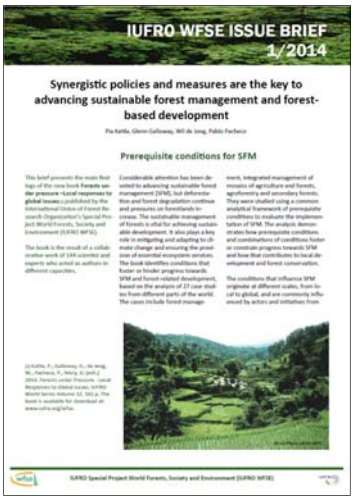

Sign up for the ITTO Tropical Timber Market Report

The International Tropical Timber Organization (ITTO) releases the Tropical Timber Market Report two times per month. You can receive a free email subscription by signing up at their website:

http://www.itto.int/market_information_service/

IUFRO-WFSE Publications

The IUFRO-WFSE Publications can be found here:

http://www.iufro.org/science/special/wfse/wfse-publications/

FAO State of the World's Forests 2014

The Food and Agriculture Organization's (FAO) Report on the State of the World's Forests 2014 can be found at this website: http://www.fao.org/forestry/sofo/en/

Reports from earlier years are also available at this site.

FAO InFO News
A newsletter from FAO Forestry

The Food and Agriculture Organization's Forestry newsletter is available at this link:

http://www.fao.org/forestry/infonews/en/

Unasylva

http://www.fao.org/forestry/unasylva/en/ - An FAO forestry publication going back to 1947.

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