Society of American Foresters

International Forestry Working Group Newsletter

Working Group B3

September 2014

Thanks to everybody who sent in an article for this newsletter. Our next issue will be in December. As the submissions were small in number this time I hope as you work on your international projects you consider writing a short article for the International Forestry Working Group newsletter. For those of you attending the SAF convention, I hope to see you at the Thursday evening international forestry reception and the late Friday afternoon working group meeting.

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

Contributed Articles

What happens when hot gets hotter: The first forest warming experiment in the tropics

Molly Cavaleri (macavale@mtu.edu)

Within the next 20 years, already warm tropical forests will begin to experience an even hotter climate regime, where the new minimum temperatures will be greater than the current maximum temperatures. Tropical species, unlike species from higher latitudes, may find it quite difficult to function because they have evolved for millions of years under very narrow temperature ranges. These hot spots of biodiversity are also responsible for exchanging more carbon dioxide (CO_2) with the atmosphere than any other biome on Earth. The consensus of climatologists, ecologists and modelers is that tropical forests are currently acting as an overall sink of carbon; that is, they are taking in more CO_2 through photosynthesis than they are releasing through plant and soil respiration. However, if tropical plants and soil microbes alike are not be able to physiologically adjust to this unprecedented warming scenario, the balance could tip, resulting in a net release of carbon to the atmosphere which would exacerbate warming further on a global scale.

Our poor understanding of how tropical forests will respond to projected increased temperatures severely constrains these global predictions. To meet the increasing need for improved understanding of tropical forest responses to global warming, a group of scientists are

implementing a field warming experiment in a wet tropical forest in Puerto Rico called the Tropical Response to Altered Climate Experiment (TRACE). This group, led by Tana Wood (Adjunct Scientist, U.S.D.A. Forest Service), Molly Cavaleri (Michigan Technological University), and Sasha Reed (U.S. Geological Survey), and joined by many other collaborators from multiple agencies and universities, will be investigating short and long-term responses to experimental warming of both above and below-ground components of the ecosystem. The experiment is currently being installed at the Sabana Field Research Station in Puerto Rico, and is expected to be completed in late Fall, 2014. The site and field station are within the El Yunque National Forest and managed by USDA Forest Service International Institute of Tropical Forestry (IITF). The project is funded for the next three years, primarily by the Department of Energy's Terrestrial Ecosystem Science Program and IITF.

The primary goal of this experiment is investigate the effects of warming on both nutrient and carbon fluxes in a globally important yet poorly understood ecosystem that has strong potential feedbacks to global climate. In order to achieve this goal, understory vegetation and soils will be warmed with infra-red heaters, while nearby towers will give access to complimentary warming of individual canopy leaves and branches using flexible heated cables. This field warming experiment would be the first of its kind in any tropical forest. Additionally, the experiment will provide critical information about the vulnerability and adaptation potential of the only tropical forest in the U.S. National Forest System, El Yunque National Forest. See www.forestwarming.org for more information on the project, and stay tuned!

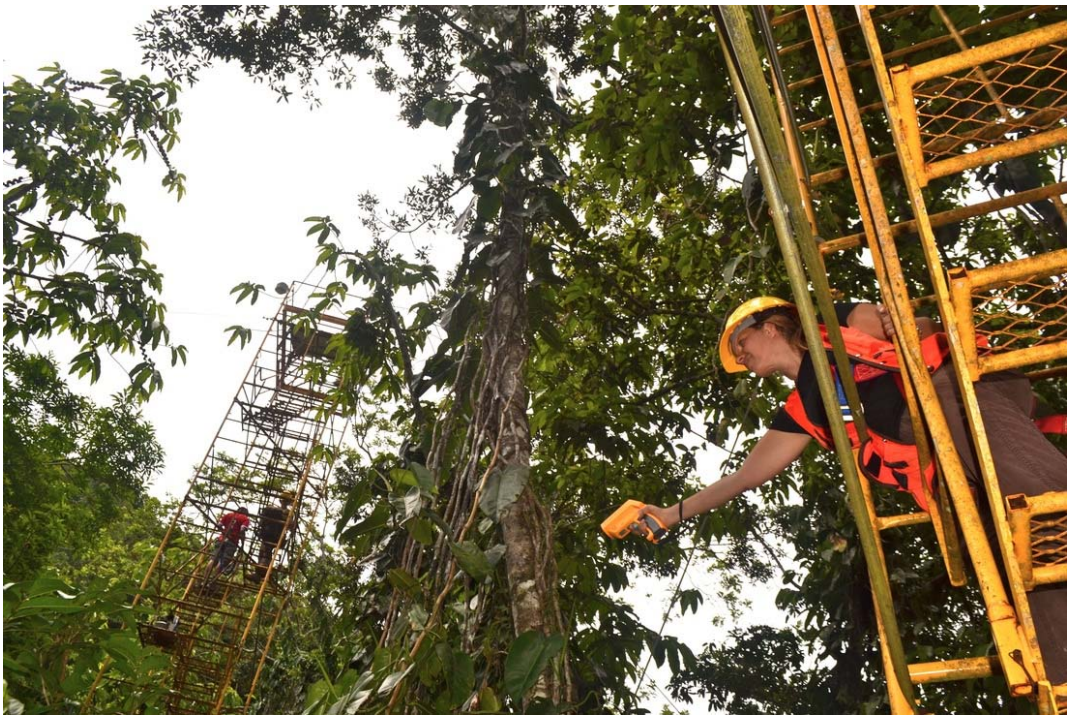

Figure 1. Project Principal Investigator, Tana Wood takes preliminary leaf temperature data from a canopy access tower in Puerto Rico (Photo by Molly Cavaleri).

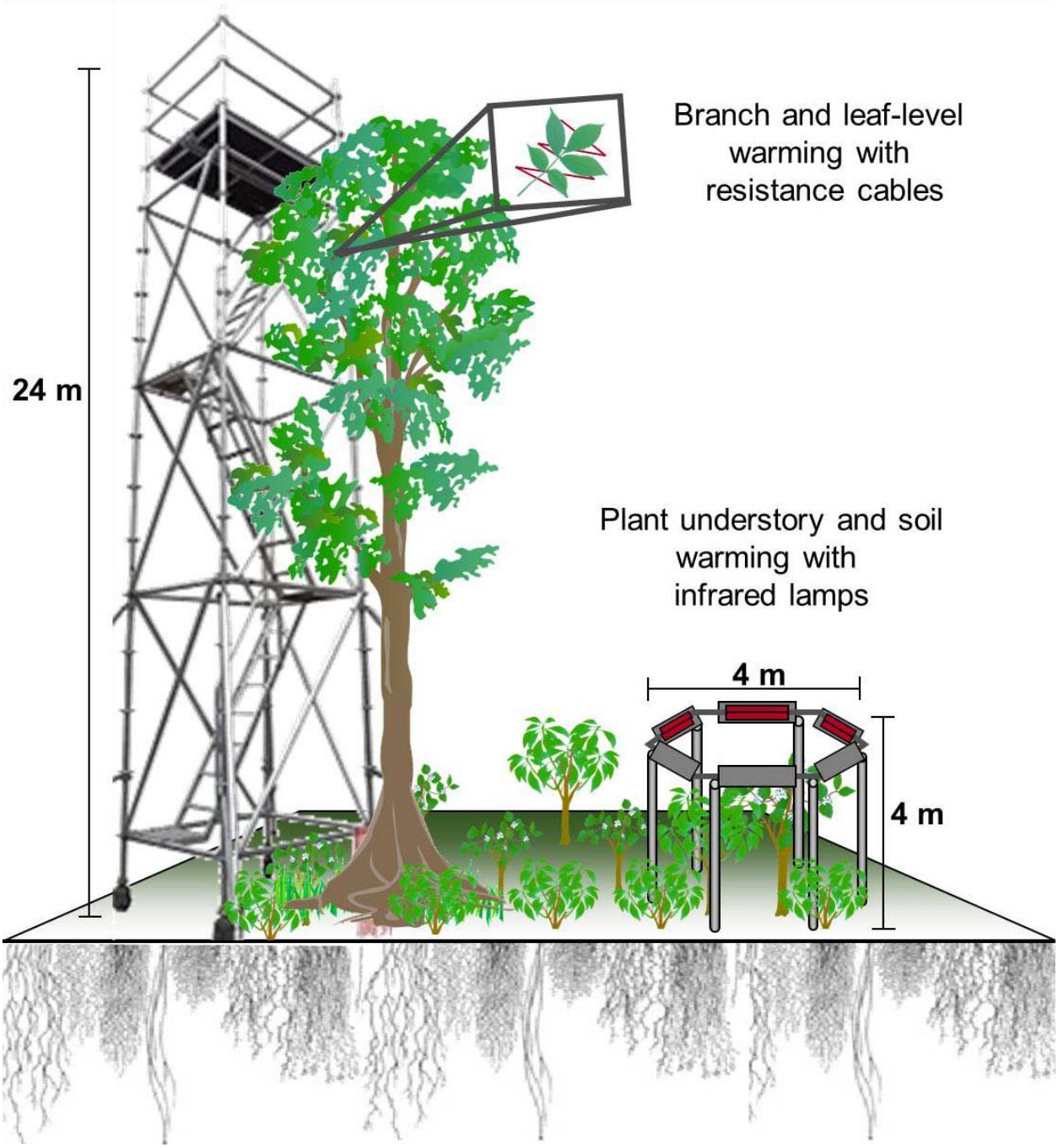

Figure 2. Canopy access towers will be used access individual branches and leaves in the forest canopy to install heated cables. Infra-red heaters will be installed above the understory woody vegetation to warm understory vegetation and soils. Together, these methods enable an integrated understanding of canopy and soil responses to warming (modified from figure in Cavaleri et al. Global Change Biology, In Review).

Mangrove Science Database

A Note from the Environmental Law Alliance Worldwide

Dear friends,

Mangroves play a critical role buffering coastal communities against flooding and storms and provide habitat for thousands of species of birds and marine animals. Recent evidence suggests that mangroves sequester carbon very effectively and healthy mangroves could help protect our climate.

Unfortunately, humans are destroying huge areas of mangroves and if we do not take action they may be functionally extinct by the turn of the century.

I am pleased to report on a new resource for protecting mangroves:
The ELAW Mangrove Science Database.

Dr. Heidi Weiskel, ELAW Staff Scientist, worked closely with David Pugh, ELAW Web Designer, to ensure that key research on mangroves, published by more than 75 scientists, is included in this comprehensive resource for citizens worldwide.

We have summarized each scientific study in our Mangrove Science Database in English and Spanish. We have plotted research on specific mangrove forests on a world map. As new studies are completed, we will add them to the database. Our user-friendly tool will help communities and grassroots advocates around the world make the case to protect mangroves.

I encourage you to visit the ELAW Mangrove Science Database and share it with your colleagues.

Thank you!

All the best,

Maggie Keenan, Communications Director

Viewing the Earth's Forests in 3-D

A laser-based instrument being developed for the International Space Station will provide a unique 3-D view of Earth's forests, helping to fill in missing information about their role in the carbon cycle. Here is the link from NASA:

New NASA probe will study Earth's forests in 3-D

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.

SAF World Forestry Committee News

The World Forestry Committee is pleased to announce that the recipient of the 2014 Gregory Award is Kelechi Eleanya, a PhD Student in Forest Resource Policy, Economics and Management at the University of Ibadan (Ibadan, Nigeria). The Gregory Award provides support to an international forester, allowing that individual to attend the SAF national convention. The Award is in honor of G. Robinson (Bob) Gregory, a pioneer in forest economics and resource development and a person who always thought of himself as a forester. Bob had a special interest in assisting low-income countries develop their forest resources in thoughtful ways for the good of society. With his wife, Ann, Bob traveled much of the world consulting for the Ford Foundation, the United Nations Food and Agriculture Organization, and host countries on matters related to forest development. Ann's intuition and social awareness of cultural attributes of each country were integral to Bob's success in partnering with individuals, governments and companies in various cultures and countries.

The World Forestry Committee also provides commentaries to the Journal of Forestry. The November issue will include a commentary on invasive species.

Pipa Elias, WFC chair
Danielle Watson, SAF Policy Associate

Interested in Serving on SAF's World Forestry Committee?

Take the next step to build awareness and interest in international forestry issues within the SAF community and beyond. Be a part of an active and fun committee dedicated to broadening SAF's perspective and involvement. Apply today by sending a resume and letter of interest to Danielle Watson, watsond@safnet.org.

Announcements, Meetings and Events

General Information: http://www.xcdsystem.com/saf/site14/

The registration link is in the right hand column.

World Forestry Committee and IFWG at the SAF Convention

In addition to the broad international presence through the concurrent IUFRO meeting there are several specific international events sponsored by WFC and IFWG.

Wednesday, October 8: **The World Forestry Committee Meeting** begins at 1 p.m. in the SLC Hilton, Salon 1. All are welcome.

Thursday, October 9: The immensely popular **International Forestry Reception**, sponsored by ArborGen and the Union of Concerned Scientists will be held from 7:30 to 10:00 p.m. at the Lamb's Grill, 169 South Main Street (close to the convention center and convention hotels). There will be appetizers and a cash bar. A Peace Corps recruiter will be present. As always, the event is open to anybody with an interest in international forestry. The event has been growing in numbers each year and is one of the more casual events at the convention. Stop by and talk international forestry.

Friday, October 10: **International Forestry Working Group Meeting**, at 5:30 p.m. in Room 255E of the Salt Palace Convention Center. If you have items you would like on the agenda contact Blair Orr, bdorr@mtu.edu. The current agenda is (1) Routine business and (2) Old Business: Pacific Island Invasive Plants.

Saturday, October 11: **Forestry Education and Partnerships**. Room 255A, Salt Palace Convention Center. Moderator: Jason Gordon, Mississippi State University. This session is

sponsored by both the World Forestry Committee and the International Forestry Working Group. There are other sessions and talks throughout the technical program that have an international focus.

10:30-11:00 • Urban Forest Ecosystems and Climate Change Collaborative Research with Chinese Academy of Sciences To enhance the global competence and strengthen students' international research skills in urban forest ecosystems and climate change, we have implemented an international research program in collaboration with the Chinese Academy of Sciences. This presentation reports the research projects that are being conducted through the joint efforts. Zhu Ning, Southern University.

11:00-11:30 • International Forestry Activities at the University of Georgia Center for Forest Business This presentation provides an overview of international efforts at the University of Georgia's Center for Forest Business and shares its experiences in developing international links with forest institutions around the world. Bob Izlar, Center for Forest Business.

11:30-Noon • Research and Teaching Collaboration between the University of Tennessee and European Institutions The University of Tennessee is collaborating with the Salzburg University of Applied Sciences, University of Ljubljana, Slovenian research institutes, and additional universities in Austria and Germany to enhance research and education in the four countries. The presentation reviews the structure of the collaboration, outcomes, and future plans for the program. Donald Hodges, University of Tennessee.

Recent Publications

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

Global plantation potentials

Expansion of intensively managed forest plantations is due to prevailing demand. Plantations alone will not be sufficient for meeting the growing industrial roundwood demand. Natural and semi-natural forests in boreal and temperate zones will maintain their important role as a raw-material source. The supply from these forests is not likely to increase. Sustainable management of natural tropical forests will not result in any increase of roundwood supply. Therefore,

developing global industrial plantations sustainably will be crucial to meeting increasing wood demand in the long term.

S. K. Barua and others. Plantation vision: potentials, challenges, and policy options for global industrial forest plantation development. [International Forestry Review 16(2):117-127 2014]

African plantation requirements

Africa's natural and planted forests cannot supply the wood products the continent needs. Foreseen shortages in many countries have serious social-economic implications. Tree planting, a possible solution, is well below the level required to meet the predicted demand. The present 3.8 million hectares of plantations are largely a product of economic encouragement of private interests, the apparent best prospect for the future.

P. A. Jacovelli. The future of plantations in Africa. [International Forestry Review 16(2):144-159 2014]

Butterflies for recovery

In a study in Kenya of primary forests and those in various stages of recovery it was found that similarity of the composition of the butterfly community in restoring forests increased linearly with time. It was estimated that in restored forests the butterfly community could become similar to that of primary forests in 40 years if primary forests are nearby.

Margaret Nyafwono and others. Fruit-feeding butterfly communities as indicators of forest restoration in an Afro-tropical rainforest. [Biological Conservation 174:75-83 2014]

Plantation sustainability

A review of experimental results of acacia and eucalyptus plantation practice in Southeast Asia on 5 to 8-year rotations led to the conclusion that if management is in accord with recognized scientific principles, productivity can be sustained and improved and the properties of the soil can be conserved. Sustaining production will depend on an integrated approach to management, calling for new investments, redirection of research, and stronger partnerships amongst stakeholders.

E. K. S. Nambiar and C. E. Hardwood. Productivity of acacia and eucalypt plantations in Southseast Asia. 1. Biophysical determinants of production opportunities and challenges. [International Forestry Review 16(2):225-248 2014]

Eucalyptus clones

Industrial forest plantations with hybrid Eucalyptus clones have been hugely successful in Brazil. But there are many circumstances where it is less risky and more economically sustainable to plant seedlings. This is particularly true for difficult-to-plant pure species and for organizations that do not have the financial and technical resources to manage a clonal program. Nursery production greatly affects plant unit costs.

A. R. Griffin. Clones or improved seedlings of Eucalyptus? Not a simple choice. [International Forestry Review 16(2):216-224 2014

Retention forestry

Retention forestry retains keye elements of stands during harvesting to favor diversity in the residual. By retaining the biotic and abiotic features during logging it is possible to preserve a degree of speech richness equivalent to that of primary forests, at least at the stand level. Retention forestry is different from reduced –impact logging, the former focused on what is retained while the latter focuses on what is logged. Retention forestry will encourage development of management schemes that have multiple goals.

Akira S. Mori and Ryo Kitagawa, Retention forestry as a major paradigm for safeguarding forest biodiversity in productive landscapes: A global meta-analysis. [Biological Conservation 175:65-73 2014]

Silvopastures for Andean birds

The conversion of shaded crops to sun monocultures with lass habitat complexity and less biodiversity support leaves silvopastures, a combination of trees and pastures, a remaining habitat for visiting migratory birds. Although silvopasture habitat is not the equal of forests for the birds agroforestry remains and important complementary approach to conservation to improve the conservation potential of degraded Andean land.

Molly E. McDermott and Amanda D. Rodewald. Conservation value of silvopastures to Neotropical migrants in Andean forest flocks. [Biological Conservation 175:140-147 2014]

Teak in Benin

A study of small farm teak plantings identified three systems, small (labor dominant), medium and large (capital dominant). The farmers specialized in polewood production for cheap local construction. The motivations were to earn income, to satisfy household timber needs, and to secure title to the land. Secure land tenure and the existence of a domestic market outlet are essential for successful on-farm tree growing.

A.K.N. Aoudji and others, Planting teak, Tectona grandis L. F. in smallholders' farming systems in southern Benin. [Bois et Forets des Tropiques 319(1);7-18 2014]

Harvesting favors medicinal plants

A highly exploited medicinal plant in the Brazilian Cerrado is *Himatanthus drasticus*. Harvesting is done by debarking. In the test of flowering and fruit production a comparison was made between areas with 100% debarking, 50% debarking, and a control. Post treatment flowering and fruiting was least in the control, more on the 50% debarked area and more still in the 100% debarked area. This is believed to be a first record of increased non-timber forest products after several years of harvesting.

Cristina Baldauf and others, Harvesting increases reproductive activity in *Himatanthus drasticus* (Mart.) Plumel (Apocynaceae), a non-timber forest product of the Brazilian savanna. [Biotropica 46(3):341-349 2014]

Casuarina on La Reunion

The invasion of *Casuarina equisetifolia* on lava flows in the island of Reunion was recorded from 1972 to 2012. The extent of the invasion has increased twenty-fold in the past 40 years from 110 ha in 1972 to 2,373 ha in 2012. Lava flows have facilitated this spread. The Casuarina has accelerated the rate of successional change. It now poses a major threat to the small area of remaining lowland rain forests which cover <2 percent of their original extent.

Luke J. Potgieter and others. *Casuarina* invasion alters primary succession on lava flows on La Reunion island.[Biotropica 46(3):268-275 2014]

Toon wood at different ages

The wood of toon, *Toona ciliata*, at tree ages of 6, 12,, and 18 years from a plantation in Espiritu Santo, Brazil. We observed an increase in specific gravity and a reduction in shrinkage with age. The use of older trees is recommended for situations where high mechanical strength is required and for products of high dimensional stability.

Rafael Leite Braz and others. Physical and mechanical proprieties of the wood of *Toona ciliata* at different ages. [Floresta 43(4): 663-670 2014]

Kenya's diverse mammals

A master list of small and large mammals of Kenya covers the period since 1888, combining two data sets from 1888 to 1950 and 1950 to 2012. The record includes body mass, diet, feeding, and shelter habitat, and activity time. Data are based on museum specimens, and sighting records written accounts, photos and videos, 413 species in all.

Anika B. Toth and others 2014. Mammals of Kenya Protected Areas from 1888 to 2013. [Ecological Archives E0095-150.] National Museum of Natural History, Smithsonian Institution, Washington, DC.

Pine needle briquetting in India

Briquetting was introduced in India to reduce the drudgery of hill women and forest fires, and as an income generating activity for sales in the villages and nearby markets. 260 pine needle briquette making machines were installed in villages. In four years 6,526 pine needle briquettes were produced by 3,809 group members. Three quarters of the briquettes were used domestically rather than sold. The shifting of rural households from fuel wood to pine needle briquettes has reduced fuel wood needs by 1,1 metric ton per year per household. A wide range of commercial uses also exists for pine needle briquettes.

J. C. Pandey and others, Pine briquetting – An endeavor for green fuel. [Indian Forester, 140(5):478-482 2014]

Rainfall influence in Ghana

A study of 2,101 forest plots throughout Ghana indicated that 95% of 20 tree species were statistically associated with annual rainfall, 60% with rainfall seasonality, 45% with constancy in temperature, and 40% with temperature seasonality. The conclusion is that predicted reductions in annual rainfall will

result in a shift in the distribution of most species but the predicted increase in temperature is likely to have little effect.

Lucy Amissah and others. Rainfall and temperature affect tree species distribution in Ghana. [Journal of Tropical Ecology 30:435-446 2014]

Mangrove development in Java

Rapid seaward expansion of the Cimanuk river delta is giving rise to young mangrove stands. A fringing low intertidal zone is co-dominated by *Avicennia marina* and *A. officinalis* with abundant *Bruguiera parviflora, Rhizophora apiculata,* and *R. mucronata*. In a low to middle intertidal zone *Avicennia* and *Rhizophora* spp. codominate. A mid-intertidal zone is dominated by *Rhizophora mucronata* and R. *apiculata*. Seedling stands range from 52,500 to 73,500 stems per ha. and saplings from 5,268 to 5,660 per ha.

Sukristijano Sukardjo and Daniel M. Alongi. Mangrove community structure and regeneration potential on a rapidly expanding river delta in Java. [Trees 28:1105-1113 2014]

Tree guying and growth

In New Zealand to reduce the effects of winds 20 trees of *Pinus radiata* were guyed above breast height and their growth was compared to others not guyed during 5 years. Dbh growth of those guyed was constrained but compensated for by increased growth above the guying point. No evidence was found of a link between guying and compression wood or resin features.

John R. Moore and others. The influence of stem guying on radial growth, stem form, and internal resin features of radiata pine. [Trees 28:1197-1207 2014]

Disappearing protection in Brazil

After rapid increases in proected area in Brazil during the 1990's and early 2000's there has started a decline. Between 1981 and 2012 93 events of downgrading protected areas were found. N increase since 2008 in Amazonia was due to generation and transmission of electricity. In parks and reserves 7.3 million ha were affected, of which 5.2 million ha were affected by downsizing or degazetting. Relaxing protective land status has become easy, even without consultation of civil society. If parks and reserves are to maintain their integrity there will be a need for a better understanding of the benefts of protected areas.

E. Bernard and others. Degrading, downsizing, degazattement, and reclassification of Protected Areas in Brazil. [Conservation Biology 28(4):939-950 2014]

Illegal logging in Indonesia

The government applied a multistakeholder approach to tackle illegal logging in a 738,000 –ha ecosystem in Sumatra.The network reported 190 offenses, confiscated illicit vehicles, equipment, and timber and arrested 138 illegal logging suspects. Of 45 cases 64% proceeded to court and 90% received prison sentences or first-offence verbal warnings. The multistakeholder results were promising but illegal logging still persisted at apparently similar levels at the project's end, indicating that efforts need to be strengthened. Nevertheless, several actions contributed to the law enforcement achievements, strong political will, strong stakeholder support, and promptly accessed funding.

Matthew Linkie and others. Breaking the vicious circle of illegal logging in Indonesia. [Conservation Biology 28(4):1023-1033 2014]

Logging vs. biodiversity

Although selective logging is said to be degrading much of the tropical forests, about as many studies have reported increases in biodiversity after selective logging as have reported decreases. An intensive study found that species richness of invertebrates, amphibians, and mammals decreases as logging intensity increases and that this effect varies with taxonomic group and location. Logging 63 m^3 /ha, as compared with 38 m^3/ha reduces species richness of mammals and amphibians to half. Total bird richness increases with logging intensity. But there is a shift to generalist species at the cost of forest specialists. The study helps to inform evidence-based sustainable logging practices and their respective relations to biodiversity conservation.

Zuzana Burivalova and others. Thresholds of logging intensity to maintain tropical forest biodiversity [Current Biology 24:1-6 2014]

Non-timber livelihoods

A study in Cameroon, Nigeria, and Ghana showed that remote communities and poorer households rely more on non-timber forest products compared to more accessible communities and wealthier households. Forest products are less important in more acccesible areas where farm income dominates. Non-timber forest products are an important component to rural livelihoods and make a significant and timely income contribution to poor households.

R. Malieson and others. Non-timber forest products income from forest landscapes of Cameroon, Ghana, and Nigeria – an incidental or integral contribution to sustaining rural livelihoods? [International Forestry Review 16(3):261-277 2014]

Products from sustained management

A comparison was made of public attitudes toward certified, sustainably produced forest products by the people of Malaysia and of Japan. The results showed that both populations were willing to pay a premium for certified wood products made from materials under the sustainable forest management as the REDD+ aimed at reducing CO emissions and preserving biodiversity.

M. Sakagami and others. Estimating potential preferences for wood products sources from forests that are managed using sustainable forest managemnent schemes. [International Forestry Review 16(3):301-309 2014]

Savanna and birds in Colombia

The bird communities of three savanna forest types were compared, (1) upland dry forest, (2) wide riparian forest, and (3) narrow riparian forests. A total of 109 species was recorded. The upland dry forest made the greatest contribution to the bird community, including the highest number of unique species. Forest indicator species, frugivores and ground insectivores, good forest quality indicators, predominated in the upland forest. The study highlights the complementarity of the three forest types for the conservation of the avifauna.

Natalia Ocampo-Peñuela and Andres Etter. Contribution of different forest types to the bird community of a savanna landscape in Colombia. [Ornitologia Tropical 24:35-53 2013]

Rice and pruned sissoo

An agroforestry experiment in India included rice and sissoo trees. The trees were pruned 0. 25, 50, and 75 percent. Interestingly, it was the 50% pruning that yielded the largest crop, the next was 75% pruned, then 25% pruned and least with no pruning yielded only 64% of the most productive.

H.Nayak and others. Economics of sissoo-rice based agroforestry system under different levels of pruning. [The Indian Forester 140(6): 2014]

Effective food security policies

Food security policies need to be ecosystem-aware and adhere to the following principles: recognition that ecosystem services are not limitless; see agricultural systems as agro-ecosystems; value ecosystems as productive assets; support increased investment in off-farm ecosystem assets; and strengthen local organization and amplify the voices of rural communities.

J. C. Mohamed-Katerere and M. Smith. The role of ecosystems in food security. [Unasylva 241 64:14-22 2013]

Potential of women

Forestry and agroforestry systems are not gender-neutral. Empowering women in the forestry sector can create significant benefits for their households and communities in terms of food security, health, and education. Efforts to promote women's inclusion in forest-related institutions will help to maximize synergies between the forest sector and food security for the benefit of all.

L. Stloukal and others. Forests, food security and gender. [Unasylva 241 64:37-45 2013]

Ghana timber trends

Forest plantations are entering in Ghana to replace the declining timber resource. The rate of planting is not sufficient to close the gap between demand and supply, which drives illegal logging. Plantation establishment rates are not sufficient, and management of existing plantations is deficient. Secure land tenure is foreseen as essential to stimulate large scale planting of forest trees by farmers and other investors.

K. A. Oduro and others. Trends in timber production systems in the high forest zone of Ghana. [International Forestry Review 16(3):289-300 2014]

Incentives in Bangladesh

Interviews of 30 rural housejolds confirmed that customary forest law has very little capacity to control illegal logging. In contrast, income-generating options that influence the livelihoods of illegal loggers were found to have reduced both the number of illegal loggers and the frequencies and amount of timber harvested illegally. Illegal loggers responded positively with clearly defined rights and responsibilities. Tenure rights and alternative income-generating options were critical.

S. A. Mukul and others Comparing the effectiveness of forest law enforcement and economic incentives to prevent illegal logging in Bangladesh. [International Forestry Review 16(3):363-375 2014]

Bamboo pellets for China

Bamboo is a bioenergy resource of the future for China. Pellets are expected to be the new biomass solid fuel, with commercial potential. Properties were subject to study. All properties met the requirements of Pellet Fuels Institute Standard for Residential/Commercial Densified Fuel. The gross caloric value of bamboo pellets also met the minimum requirement for making commercial pellets.

Z. Liu and others. Important properties of bamboo pellets to be used as commercial solid fuel in China [Wood Science and Technology 48(5):903-917 2014]

Keystone Amazon plants

Keystone plants provide food resources to vertebrates during the season of scarcity Keystone species were identified on four criteria: (1) temporal non-redundancy, (2) year-to-year reliability, (3) abundance of reproductive-sized individuals and inferred fruit crop size, and (4) the variety of vertebrate consumers utilizing their fruit. Seven species are considered excellent keystone plant resources: two species of *Ficus*, and five lianas. Less than 5% of the plant community consistently provides fruit for a broad set of consumers during periods of resource scarcity.

Zoe Diaz Martin and others, Identifying keystone plant resources in an Amazonian forest using a long-term fruit-fall record. [Journal of Tropical Ecology 30 (4):291-301 2014]

Pine to rain forest

Twenty-three years of research on the establishment of rain forest in Sri Lanka demonstrate that native species recruitment of both pioneer species and site generalists grow well beneath pine plantations. Protection from fire is the single most important requirement for recruitment beneath pine. Establishing late-successional species requires planting rather than natural regeneration beneath the pine. Timber species should be planted beneath canopy openings. Pine plantations so enriched and cultivated with non-timber resources promise a better economic income than land restricted singly to tea.

Mark S. Ashton and others. Restoration of rain forest beneath pine plantations: A relay floristic model with special application to tropical South Asia. [Forest Ecology and Managenment 329:351-359 2014]

Sacred Forests and their origins

Sacred forest groves in the Western Ghats have long received protection and preservation of refugia of forest-dwelling species surrounded by agricultural landscapes. A finding that two sacred groves are about 400 years old eliminates the perception that they are relics of primary forest. The evidence suggests that at some time in the past there was a strong linkage between social and ecological influences. This suggests the degree that contemporary restoration of forests calls for social-ecological intervention.

Shonil A. Bhagwat and others. Cultural drivers of reforestation in tropical forest groves of the Western Ghats of India. [Forest Ecology and Management 329:393-400 2014]

Corridor requirements

Among biodiversity conservation solutions corridors may receive much public and political support. However, at best, a poorly implemented corridor is a waste of funds. At worst it may legitimize habitat destruction. Corridors planned by government agencies should involve substantial collaboration with professional ecologists at the pre- and post-corridor construction stages so that these initiatives are based on best practices and planned to facilitate the collection of data to improve implementation. There must be sufficient political will to allocate sufficient resources to manage corridors and to protect them from development pressure. With this, past missed opportunities in Southeast Asia can be redressed that resulted in paper corridors.

Anuj Jain and others. Moving away from paper corridors in Southeast Asia. [Conservation Biology 28(4):889-891 2014]

Schizolobium peels

Schizolobium amazonicum, one of the fastest growing pioneer trees of the Amazon, had its wood tested in the Brazilian rotary veneer peeling industry.in Brazil. The yield was similar or even higher than of those species used for this purpose in Brazil, like *Pinus* or *Eucalyptus*.

Rafael Rodolfo de Meio and others. Rotary peeling yield of *Schizolobium amazonicum* (Leguminosae – Caesalpinioideae) [Acta Amazonica 44(3):315-320 2014]

Forests of the Congo Basin

With most of the semi-deciduous forest of the Congo Basin conceded to logging companies, data from six million hectares of forest in Cameroon, Central African Republic, and Republic of the Congo were studied to establish a baseline for management and conservation. Most of the forests studieds are characterized by species of *Celtis*. A huge area of secondary forest repeatedly disturbed has *Musanga* (Moraceae). Mixed *Manilkara* (Sapotaceae)is found on a huge area in southern Central African Republic and the northern republic of Congo with monodominant *Gilbertiodendron* (Fabaceae) along rivers.

Adeline Fayolle and others. A new insight in the structure, composition, and functioning of central African moist forests. [Forest Ecology and Management 329:195-205 2014]

Roads and deforestation

A study of 150,000 km of roads in the Amazon Basin found that nearly 95% of all deforestation occurred within 5.5 km of a road or 1 km of a river. Protected areas near roads or rivers had a much lower deforestation rate (10.9%) versus (43.6%) in unprotected areas. It is concluded that protected areas are having a strong mitigating effect on the risk of deforestation.

Christopher P. Barber and others. Roads, deforestation, and the mitigating effect of protected areas in the Amazon. [Biological Conservation 177:203-209 2014]

Growth under rubber

Enrichment planting is becoming a practice to convert rubber plantations back to natural forests. A test with 21 tree species was made in Bahia, Brazil. Overstory (rubber) tree basal area was the factor most influential in the growth of the planted trees. *Parkia pendula, Sloanea monosperma,* and *Tachigati densiflora* were the most successful species.

Danielle Rappaport and others. Tree species growth under a rubber (Hevea brasiliensis) plantation:native restoration via enrichment planting in southern Bahia, Brazil. [New Forests 45(5):715-732 2014]

Fire in Mexico

The forests of the Sierra San Luis of northern Mexico offer an opportunity to study the history of fires without the exclusions applied in the Southwestern US. Pine forests on parts of the region remain unlogged and ungrazed to this day. From 1650 to 1886 fires occurred during drought years. From 1887 to 2003 fires occurred not during drought years but in following wet years. Above-average precipitation promotes accumulation of fine fuels. Native Americans apparently had little influence on fires. Their rece0nt occurrence is most closely driven by climate. They apparently did not allow the huge fuel accumulations over the border in the US.

Jed Meunier and others. Climate and land use effects on wildfire in northern Mexico, 1650-2010. [Forest Ecology and Management 325:49-59 2014]

Logging and dung beetles

The seed dispersal effect of dung beetles is affected by logging. Dung burial rates decreased with canopy openness, with 40% of the dung on logging roads and log yards remaining unburied. What is buried there is moved less h0orizontally but buried deeper than in the forest. The imposition of limits on the number and size of logging road networks would be effective in retaining the ecological functions performed by diverse forest dependent species such as the dung beetles after logging.

Tetsuro Hosaka and others. Effects of logging road networks on the ecological functions of dung beetles in Peninsular Malaysia. [Forest Ecology and Management 326:18-24 2014]

Mahogany propagation

A study was made of the rooting of cuttings of *Khaya grandifoliola* and *K. ivorensis* and *Entandrophragma angolense* and *E. utile* using sand and soil in mixture. Rooting percentage was higher in *Khaya* than in *Entandrophragma* in all three soil media. The mixed sand and topsoil was the best medium for *Khaya* while the topsoil was better for *Entandrophragma*. The best cuttings from all species came from the middle of branches.

Sandra A. Owusu and others. Improving regeneration of mahogany: Techniques for vegetative propagation of four African mahogany species using leafy stem cuttings. [New Forests 45(5): 687-697 2014]

Teak in Togo

Subsistence landholders in southern Togo are interested in planting teak on their land for income generation. The purpose of this study was to determine how smallholder farmers could allocate land among maize, cassava and teak plantings in order to optimize financial returns. A linear programming model was developed to calculate the optimal land allocation for maize, cassava and teak. The model was solved for five farmer types using 15- and 30- year teak rotations, with timber priced at alternative market and government market prices, and with discount (real interest) rates of 8%, 11% and 15%. The analyses indicate that growing teak is profitable for most smallholders if grown on a 15-year rotation and sold on the alternative market. For Land Rich-Labor Poor farmers, teak is profitable under all regimes.

[Kenny, A.L., and others. 2014. Modeling Teak Introduction on Smallholder Farms in Southern Togo. Journal of Sustainable Forestry. (online: http://www.tandfonline.com/doi/abs/10.1080/.VBRWYxDZ2aQ#.VBRW2BDZ2aQ)]

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.
