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ITTO - CITES

PROGRAM FOR IMPLEMENTING CITES LISTINGS OF TROPICAL TREE SPECIES

Newsletter

In this Issue

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This Newsletter reports on activities under the second phase of the ITTO-CITES Program for Implementing CITES Listings of Tropical Tree Species. Following up on the successful first phase of the Program (2007-2011), this second phase is continuing work for four more years (2012-2015) on the most important CITES-listed tropical tree species in trade. The Program is majority-funded through a grant from the European Union (via the European Commission), which calls for part of the available funds to be devoted to activities relevant to both the ITTO-CITES Program and the ITTO Thematic Program on Trade and Market Transparency (TMT). The Newsletter is published on a quarterly basis, in English, French and Spanish, and is made available to all Program stakeholders and other individuals interested in the progress of the ITTO–CITES Program. This issue covers a summary of the Program activities up to August 2014.

Suggestions and contributions from Program stakeholders are essential to make future issues of this Newsletter as informative and interesting as possible. Please send any correspondence to the relevant contact(s) listed on the last page.

Editorial

Since 2007, the ITTO-CITES Program has strengthened the capacity and enhanced the knowledge and skills of forest managers, enforcement and customs officers, forest owners and concessionaires, and the timber industries in Asia to comply with the rules and obligations of CITES in managing the trade in products from *Gonystylus*, *Aquilaria* and *Gyrinops* species, especially the CITES Management and Scientific Authorities of Indonesia and Malaysia.

During Phase I of the ITTO-CITES Program, activities implemented in the Asian region focused exclusively on *Gonystylus* species (ramin), and in particular *G. bancanus*, as its products are the most widely traded in the global market. These activities included improvement of inventory design and silvicultural practices; development of specific guidelines for undertaking non-detriment findings (NDFs) for *Gonystylus* species; guidelines for monitoring flowering and fruiting, and vegetative propagation, of *G. bancanus* in Indonesia; the development of a DNA database for *G. bancanus* using leaf and bark samples in Sarawak, Malaysia; and the use of radio frequency identification (RFID) to track and trace the supply chain of ramin which has now been adopted for application in Peninsular Malaysia. The activities implemented in Indonesia, among others, have formalized cooperation in the mass propogation of ramin planting materials between the Forestry Research and Development Agency (FORDA) and the Centres for Seed Production (BPTH) of South Sumatra and South Kalimantan. This included the establishment of hedge orchards and genepools, the production of rooted cuttings, and the certification of seed sources.

As a result of the successful implementation of, and the benefits derived from the activities implemented under, Phase I of the ITTO-CITES Program, a number of the activities currently being implemented under Phase II of the ITTO-CITES Program will further enhance and ensure that the trade in ramin products are sourced from legal and sustainably managed forests. A case in point is the activity to further develop the DNA database developed in Sarawak to utilize timber extracts and to cover not only *G. bancanus*, but also to include the other 21 *Gonystylus* species found in Sarawak. (Activity "Use of DNA for identification of *Gonystylus* species and timber geographical origin in Sarawak"). Another follow-up activity under Phase II is the wider application of vegetative propagation techniques of ramin that will contribute to the survival of populations in the wild, and the "Guideline for Non-Deterimental Finding Assessment on Ramin (*Gonystylus* spp.)" in Indonesia, as well as the further dissemination of the "Roadmap Toward Sustainable Management and Conservation of Ramin (*Gonystylus* spp.)" under the Activity "Capacity building on seedling propagation techniques and awareness raising on CITES implementation and ramin roadmap".

With the expanded species scope of Phase II of the ITTO-CITES Program, Indonesia and Malaysia will also be able to address gaps in managing *Aquilaria* and *Gyrinops* species, especially those

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ITTO-CITES Program

The "ITTO – CITES Program for Implementing CITES Listings of Tropical Tree Species" aims to ensure that international trade in CITES-listed tropical tree species is consistent with their sustainable management and conservation. The specific objective of the Program is to assist CITES national authorities and the private sector to meet the requirements for managing and regulating trade in CITES-listed tree species; to provide capacity-building support, and to conduct specific studies where information is lacking so as to develop an enhanced global framework for the collection and analysis of information related to the biology and management of species and trade in tropical forest products. The main species covered to date are *Pericopsis elata* (afrormosia or assamela), *Prunus africana* (pygeum) and *Diospyros* spp. (ebony) of Central Africa and Madagascar; *Swietenia macrophylla* (big-leaf mahogany), *Cedrela odorata* and other *Cedrela* spp. (cedro) in Latin America; as well as *Dalbergia* spp. (rosewood) in both Africa and Latin America. Those covered in Southeast Asia are *Gonystylus* spp. (ramin) and *Aquilaria* spp./*Gyrinops* spp. (agarwood).

The main range States exporting significant volumes of these species are Cameroon, Democratic Republic of Congo, Madagascar and Republic of Congo in Africa; Indonesia and Malaysia in Asia; and Bolivia, Brazil, Guatemala, Honduras, Paraguay and Peru in Latin America. The direct beneficiaries of this Program are public authorities and private sector operators in the forest sector in the range States. The indirect beneficiaries are other Parties to CITES and members of ITTO that trade in these species, who will benefit through capacity building and awareness raising programs. Program assistance is available to countries that are significant exporters of products from CITES-listed tree species, or that have the potential to become significant exporters.

Program funding

Phase II of the Program has an approved budget of nearly $10 million and has so far received pledges of funding from the European Union (through the European Commission - EC), United States of America, Germany, Norway, the Netherlands and the private sector. The second and third pre-financing of EUR 1.2 million each under the ITTO-EC contract (that provides for two-thirds of the Phase II budget) was received from the European Commission in March 2013 and March 2014 respectively, with the same amount expected under the fourth pre-financing in early 2015. The United States of America is another strong supporter of the Program, with pledges to Phase II of USD 180,000 during the 48th ITTC Session in November 2012 and USD 200,000 during the 49th ITTC Session in November 2013. The Netherlands pledged USD 70,000 at the end of 2013; Germany, Norway and the private sector have made pledges of between USD 100,000 – 200,000 each for Phase II activities, some of which were carried over from Phase I. ITTO will encourage donors to continue providing funds to meet the co-financing provisions of the ITTO-EC contract since requests for support under the Program continue to exceed available resources.

Activity progress reports

Under Phase II of the Program, ITTO has, in consultation with the CITES Secretariat, approved 10 new Activities in Africa, 12 in Asia, 10 in Latin America and two global Activities; while one Activity in both Africa and Latin America approved during Phase I of the ITTO-CITES Program was extended and continued to be implemented under Phase II of the Program. All of the 35 Activities approved or extended under Phase II have finalized agreements with ITTO to facilitate their implementation or are in the process of doing so. In addition to the 36 Activities approved or extended under Phase II of the Program, an additional 12 Activity proposals (eight in Africa, two in Asia and two in Latin America) submitted to ITTO are pending approval/availability of funds.

Information about each country Activity (country, Activity document, executing and implementing agency, final reports, other outputs, etc.) can be found on the Program website (http://www.itto.int/cites_programme). The following section provides brief descriptions and progress reports for Activities undertaken since the inception of Phase II of the Program until August 2014 (except for Activities which have been reported complete in previous issues of the Newsletter). Activities pending funding will be reviewed as additional resources become available with a view to making the most effective use of available Program resources.

Africa

Cameroon

Settlement of a monitoring system for logging and processing of assamela and training control agents on the use of CITES tools and procedures in Cameroon

Implementing agency: *Agence Nationale d'Appui au Développement Forestier* (ANAFOR)
Status: Completed
Start date: September 2012
Planned duration: 12 months
Actual duration: 24 months

The Activity was completed in August 2014. It developed an effective monitoring system for logging, processing and trade in assamela products, and trained control agents in forest control and the use of CITES tools. A total of six outputs were achieved including (i) the scheme of data flow was developed; (ii) data required were identified; (iii) the architecture of the system was built; (iv) data were collected and stored; (v) users of the database were trained; and (vi) control agents were trained in the use of the CITES tools. The full completion report of the Activity is available on the Program website.

Law enforcement and management of* Pericopsis elata *in production forests in Cameroon

Implementing agency: *Agence Nationale d'Appui au Développement Forestier* (ANAFOR)
Status: Operational
Start date: November 2013
Planned duration: 18 months
Actual duration: 10 months

In almost all the forest management plans of southeast Cameroon, prescriptions were made to promote the regeneration and silviculture of *Pericopsis elata*, but tools or standards for such activities have never been developed by the forest administration. The Activity is a continuation of assistance to Cameroon to prepare its first non-detriment finding (NDF) report on *P. elata* in production forests under Phase I of the ITTO-CITES Program. The Activity, which is expected to be completed in April 2015, aims to implement the main recommendations outlined in the NDF report and those related to law enforcement regarding *P. elata*. The expected outputs of

the Activity will result in (i) research results well analyzed; (ii) silvicultural operations in forest concessions well promoted; and (iii) tools required for more effective implementation of forest laws and the CITES requirements in Cameroon well developed. The Activity is executed by the *Agence Nationale d'Appui au Développement Forestier* (ANAFOR) in collaboration with the Cameroonian Association of Timber Companies. The first Activity progress report was sent to ITTO in January 2014 while the second report was sent in July 2014. In the second progress report, ANAFOR had requested (and ITTO approved) the completion date to be re-scheduled from April to November 2015 with no change in the ITTO budget so as to allow the experts to complete their specific activities in the field, especially in the areas of phenology and silviculture studies.

A total of nine experts have been recruited and are currently working in the field. They are from research institutions, including universities, and the National Institute for Development and Agricultural Research (IRAD). ITTO sent the second installment of funds in August 2014.

Sustainable management of* Pericopsis elata *towards the implementation of the simple management plan of the Bidou II plantation in the Kienké South Forest Reserve, Cameroon

Implementing agency: *Agence Nationale d'Appui au Développement Forestier* (ANAFOR)
Status: Operational
Start date: November 2013
Planned duration: 18 months
Actual duration: 10 months

The Activity, which is expected to be completed in April 2015, aims to implement the simple management plan of Bidou II plantation of *Pericopsis elata*, based in the south region of Cameroon, which was prepared during Phase I of the ITTO-CITES Program. The expected outputs of the Activity will include (i) silvicultural operations in the Bidou plantation realized; (ii) seeds and seedlings required to develop new plantations produced; (iii) new plantations of *P. elata* established; and (iv) ecological, biological and silvicultural knowledge on *P. elata* improved and disseminated. The Activity is executed by the *Agence Nationale d'Appui au Développement Forestier* (ANAFOR) in collaboration with the National Institute for Development and Agricultural Research (IRAD). As with the Activity "Law enforcement and management of *Pericopsis elata* in production forests in Cameroon", two progress reports have been submitted to ITTO, the first one in January 2014 and the second one in August 2014.

A total of three experts have been recruited and are currently working in the field. The first important output is expected to be delivered in three months dealing with establishment and management of *P. elata* plantations. According to the second activity report, the Activity will be completed in April 2015 as scheduled.

Pilot implementation of a DNA traceability system for* Pericopsis elata *in forest concessions and sawmills in Cameroon and Congo

Implementing agency: Double HELIX (in cooperation with ANAFOR and CNIAF)
Status: Operational
Start date: April 2014
Planned duration: 12 months
Actual duration: 5 months

The Activity supports the ITTO-CITES Program output for a cost-effective regulatory system for the trade in CITES-listed tree species. The main outputs are (i) development of genetic markers for *Pericopsis elata* suitable for DNA fingerprinting; (ii) capacity building and training of local teams in DNA sample collection and storage; and (iii) implementation of DNA traceability in three controlled supply chains from pre-harvest to point of export.

The first training workshop on DNA sampling was organized in Cameroon from 2-3 June 2014, in the "Residence Julie", at Kribi, Cameroon by ANAFOR in collaboration with Double Helix. The specific objective of the workshop was to build capacity and train local teams in DNA sample collection and storage. Some 30 participants from the CITES Scientific Authority (ANAFOR), the CITES Management Authority (Ministry of Forestry and Wildlife), trade companies and the universities including those in Douala, Dschang, and Yaoundé attended. It was noted that DNA could be used to verify the origin of the product at different levels, including (i) the geographic (global, regional, or local) level; and (ii) individual (tree) level. The second training workshop was organized at the "Espace Traiteur" centre in Brazzaville from 11-12 June 2014 by the *Centre National d'Inventaire et d'Aménagement des Ressources Forestières et Fauniques* (CNIAF). Participants came from the CITES Management Authority (DCN), Directorate of Forest Management, Directorate of Forest Control, non-governmental organizations (NGOs), and the University of Marien Ngouabi. The workshop was organized in two parts including theoretical and practical courses. In both countries, questions regarding the efficiency of the system, the sampling level, the salary limit imposed on the coordination team (6 months paid instead of 12 months), and capacity building were raised. With regard to capacity building, participants of the workshops proposed that the Program should also assist countries in establishing a laboratory for DNA extraction at the local level. Double Helix has indicated that they could assist in establishing such laboratory for identification of materials and in training local technicians.

The coordination teams from Cameroon and Congo have already sent students and field technicians to the forest to collect samples of *P. elata* as taught during the workshop. In Cameroon, the students were selected from the University of Douala while in the Republic of Congo, the two students were selected from the University of Marien Ngouabi, Brazzaville. The Congo Brazzaville team is expected to complete the first phase of the sampling by 25 August 2014 (35 samples from each of the two forest concessions in the north of Congo, giving a total of 70 samples of *P. elata*).

Pilot implementation of a DNA traceability system for* Prunus africana *in Prunus Allocation Units in Cameroon and Democratic Republic of Congo

Implementing agency: Double HELIX (in cooperation with ANAFOR and DCN)
Status: Operational

Participants at the training workshop on DNA sampling and extraction of *Pericopsis elata*, Kribi, Cameroon, 3 June 2014. Photo: ANAFOR

Start date: June 2014
Planned duration: 18 months
Actual duration: 3 months

This Activity aims to demonstrate that by using DNA techniques, *Prunus africana* bark could be traced back to specific trees from the controlled *Prunus* Allocation Units (PAUs). The proposed DNA traceability system will secure controlled supply chains, detect substitution of illegally harvested bark and allow for timely corrective actions to be implemented. Two training workshops were organized in June 2014 in Kribi, Cameroon and Kinshasa, Democratic Republic of Congo (DRC). The specific objective of the workshops was to build capacity and train local teams in DNA sample collection and storage. In DRC, the workshop was organized at the CEPAS centre in Kinshasa Gombé, from 6-7 June 2014. Some 30 participants attended the training, including personnel from the CITES Management Authority (DCN), Directorate of Forest Management, Directorate of Forest Control, non-governmental organizations (NGOs), and the University of Grabben from Butembo. Discussions were held to explore how to proceed with the DNA sampling, giving the small size of the annual plots of less than 100 ha.

The coordination teams from Cameroon and DRC have already sent students and field technicians to the forest to collect samples of *Prunus* as taught during the workshop. In Cameroon, the two students selected were from the University of Yaoundé and Buea, while in DRC the two students selected were from the University of Grabben from Butembo. The sampling of *Prunus* in Cameroon has started with the use of maps to identify trees in the Mount Cameroon area and that field sampling is expected to commence at the end of August 2014. The sampling in Bamenda has also started with the identification of trees in the forest (a community forest), but due to the rainy season the technician from ANAFOR in the Adamawa region (Ngaoundéré) expects that sampling in the forest will only commence at the end of September 2014.

Republic of Congo

Promotion of the silviculture of* Pericopsis elata *in the North Congo

Implementing agency: *Centre national d'inventaire et d'aménagement des ressources forestières et fauniques (CNIAF)*
Status: Operational
Start date: November 2013
Planned duration: 18 months
Actual duration: 10 months

The Activity, which is expected to be completed in October 2015, is a continuation of the work done during Phase I of the ITTO-CITES Program in the Tala Forest Management Unit in the North Congo (see NDF report *for Pericopsis elata* in Congo on Program website). It aims to address the main recommendations outlined in the non-detriment finding (NDF) report on *P. elata* in north Congo. The expected outputs of the Activity include (i) biological and ecological data on *P. elata* collected and analyzed; (ii) silvicultural operations well promoted in forest concessions located in north Congo; and (iii) results of the Activity published and disseminated. The Activity is implemented by the *Centre National d'Inventaire et d'Aménagement des Ressources Forestières et Fauniques* (CNIAF), in collaboration with the Timber Industries Association in Congo. All the experts who are supporting CNIAF in achieving the envisaged outputs are currently working in the field.

Democratic Republic of Congo

Non-detriment findings for* Prunus africana *(Hook.f.) Kalman in North and South Kivu, Democratic Republic of Congo

Implementing agency: Institut Congolais pour la Conservation de la Nature (ICCN)
Status: Operational
Start date: March 2011
Planned duration: 10 months
Actual duration: 42 months

The Activity which started under Phase 1 of the ITTO-CITES Program is now re-scheduled for completion in December 2014. The Activity still encounters many problems in its implementation, namely, the instability/insecurity in the *Prunus* production sites due the present of many rebel groups, and the long distance that separates Kinshasa, the headquarters of the implementing agency at the *Institut Congolais pour la Conservation de la Nature* (ICCN), and the production sites in North and South Kivu. Nevertheless, two local trade companies, namely, "Maison Kahindo Muvunga" and "PLAVUMA" have agreed to conduct *Prunus* inventories under the supervision of the Activity in secure production forests in the North Kivu.

The ICCN conducted a mission in early February 2014 to strengthen the field work done by "Phusys", the partner of one local trade company ("Maison Kahindo Muvunga"), in the Walikale territory. The ICCN has submitted to ITTO a practical roadmap to complete the Activity as per the monitoring mission of the Regional Coordinator for Africa conducted at the end of 2013. ITTO has disbursed the last instalment of funds that will allow the ICCN to continue to strengthen and monitor the inventories conducted by the trade companies, and to also conduct *Prunus* inventories in the Kahuzi Biega National Park. The ICCN, the "Centre for the information and promotion of agricultural projects" (CIPAGRI) and the two most important local trade companies organized a second training workshop in Butembo, North Kivu from 25 April-3 May 2014. During the workshop, participants were trained in conducting *Prunus* inventories. The Regional Coordinator assisted in this training workshop. As a result of the training workshop, CIPAGRI has developed a sampling design for *Prunus* inventories in the two main areas in the North Kivu, including Mbakira, Masuli and Vusigha, covering a total of 10,000 ha and Kiribata covering 1,700 ha. The Regional

Training of field technicians in conducting *Prunus* inventories in the Kalikuku Forest Reserve, Butembo, DRC, May 2014. Photo: ICCN

Coordinator has approved the sampling design and *Prunus* inventories are about to commence in those production sites.

Elaboration of non-detriment findings for* Pericopsis elata *in the Democratic Republic of Congo

Implementing agency: Direction de la conservation de la nature
Status: Operational
Start date: October 2013
Planned duration: 12 months
Actual duration: 11 months

The Activity, which is expected to be completed in October 2014, aims to collect data on the status of *Pericopsis elata* in the forest concessions of the Democratic Republic of Congo (DRC). It will include data on phenology, health and stocking, as well as current harvest rates and information on sound silvicultural practices of the species. The DRC authorities had succeeded in preparing the non-detriment finding (NDF) report in May 2014 as scheduled. The summary of the NDF report is as follows:

"*Pericopsis elata* faces regeneration problems in the Democratic Republic of Congo that are similar to those described and documented for the species in other Congo Basin countries and in West African forests. From January 1st, 2015, the Democratic Republic of Congo will only authorize exports of *P. elata* timber according to the CITES Convention framework, provided that such timber is sourced from forest concessions where, in compliance with legal requirements, inventory management reports have been submitted to the national forestry administration. Furthermore, authorized export volumes of *P. elata* timber will be strictly limited to a yearly sustainable quota determined on the strength of results provided by submitted management inventories. From 2015, the annual CITES quota for the species will be established on the same bases. As of May 31st, 2014, comprehensive and systematic management inventory reports have been compiled for six forest concessions located in the natural distribution area of *P. elata*. The combined productive area covered by these concessions is 1,072,598 hectares. On the basis of results provided by respective management inventories, those six concessions could be allowed sustainable felling of *P. elata* totalling a yearly cumulative volume of 16,690 m^3. Management inventories are currently being conducted in six additional forest concessions located in the natural distribution area of *P. elata*, covering a combined total area of 784,811 hectares. For those six additional concessions to be taken into account for the establishment of a quota and in order for volumes of *P. elata* logged in those six concessions to be eligible for export in 2015, according the CITES Convention framework, the six concession owners are requested to submit inventory management reports on their concessions by October 31st, 2014 at the latest. By November 30th, 2014 at the latest, the DRC CITES Management Authority will inform the CITES Secretariat of an annual 2015 quota for exports of *P. elata* equivalent to an allowed volume of sustainably felled *P. elata* established on the basis of the data contained in inventory management reports that will have been submitted. Timber tracking traceability procedures will be implemented to ensure that from January 1st, 2015, CITES export authorizations issued by the DRC for *P. elata* are linked only to volumes extracted from forest concessions where inventory management reports have been submitted"

The NDF report and the completion report of this Activity will be posted on the Program website when received by ITTO.

Ghana

Improving intra-African trade and market transparency in timber and timber products

Implementing agency: Ghana Timber Millers Organization (GTMO)
Status: Operational
Start date: April 2013
Planned duration: 24 months
Actual duration: 17 months

African timber suppliers account for less than 10% per year of the total African imports of timber and timber products (ITTO 2010). One major constraint identified was the lack of knowledge among traders in the region. This proposal seeks to increase knowledge of the regional market and promote trade (thus leading to an increased intra-African market share) within the region through active engagement of traders and information provision. CITES-listed species will be a specific focus of this work. The outputs of the study will be an online timber marketplace, capacity building of enterprises to leverage ICT to enhance their competitiveness, and a geospatial database of market access and logistic information. The online timber marketplace will catalogue timber companies, trade leads and provide social media tool to facilitate liaison among African traders. In the marketplace, regular surveys will be conducted with traders, market intelligence gleaned, prepared and reported on the website for various users. This Activity is implemented under ITTO's thematic programme for Trade and Market Transparency utilizing funding made available for this purpose under the ITTO-CITES Program.

The project has been progressing well. About ninety percent of the activities relating to the creation of a website have been achieved, while about 60% of the activities relating to development and implementation of a marketing plan have been achieved.

The website for an online timber marketplace has been designed and developed. The design of African Timber Newsletter and social pages were also finalized. The online marketplace will promote trade and increase awareness of market information among traders in the region. The newsletter will convey relevant and timely information to actors in the marketplace. The marketing training will enhance the ability of companies to craft effective marketing strategies.

The translation of the website into French has not been achieved due to insufficient budget. The budget deficit resulted from addition of relevant plugins which were not available during the preparation of the project. However, some adjustment in the budget will be made in order to have the site translated into French by December 2014. The delay in translation of the site has led to postponement of active promotion of the site to French speaking countries in west Africa. This has led to a reduced number of companies which have signed up from French speaking countries.

The marketing survey and training were conducted. The first draft of the training proceedings will be available by December 2014. For Output 3 (Database of trade barriers and logistics established), customs survey and company survey relating to physical distribution were conducted. However, both surveys received few responses from customs offices and freight companies. The report of the customs study based on desk research is expected by December 2014.

Asia

Indonesia

Capacity building on seedling propagation techniques and awareness raising on CITES implementation and ramin roadmap

Implementing agency: Directorate of Biodiversity Conservation, DG Forest Protection and Nature Conservation
Status: Operational
Start date: February 2014
Planned duration: 12 months
Actual duration: 7 months

The Activity has revised its effective implementation period and is now expected to be completed in December 2014. The main objective of the Activity is to contribute to the enhancement of ramin plantation and conservation through capacity building and awareness raising activities on vegetative propagation techniques, CITES implementation and the wider dissemination of the Ramin NDF Guideline and the Ramin Roadmap which were developed during

Phase I of the ITTO-CITES Program. The expected outputs are (i) improved capacity on ramin vegetative propagation techniques; (ii) improved capacity and understanding of the CITES rules and regulation on ramin; and (iii) wider dissemination of the Ramin NDF Guideline and the Ramin Roadmap.

From 13-15 April 2014, a training workshop on wood identification of ramin and ramin look-alike species was conducted in Bogor, Indonesia where a total of 17 participants attended. They were mainly from the Ministry of Forestry's Research Unit Office, university and customs offices that are located in Java, especially Jakarta, Sumatra and Kalimantan. It involved technical presentations, identification techniques and an evaluation of their knowledge and skill at the end of the workshop.

As a follow-up, a more focused training workshop on *Gonystylus* species identification was held in Jambi, Indonesia fom 23-25 April 2014 where 18 participants from the research office of the Ministry of Forestry, Indonesia and local universities which are located in Sumatra and Kalimantan attended. It involved lectures, field identification techniques and an assessment of their knowledge and skill at the end of the workshop.

Another training workshop on ramin vegetative techniques was held in Pekanbaru-Riau, Indonesia from 8-10 June 2014, where 16 participants attended, mainly from the technical staff of the Forestry Research Unit, Ministry of Forestry, Indonesia and from local universities located in Riau, South Sumatra and Jambi. It involved classroom learning and field practices, including an evaluation of their knowledge and skill at the end of the workshop.

In June 2014, two national experts had been appointed to assess the current estimate of ramin growing stock in Indonesia where field survey is planned for the month of August 2014 in Riau and Central Kalimantan. Another national expert had also been appointed in June 2014 to further disseminate the Ramin Roadmap developed under Phase I of the ITTO-CITES Program, including its wider application. This work is expected to commence in September 2014.

Managing agarwood plantation in Indonesia

Implementing agency: Directorate of Biodiversity Conservation, DG Forest Protection and Nature Conservation,
Status: Operational
Start date: February 2014
Planned duration: 12 months
Actual duration: 7 months

The Activity has revised its effective implementation period and is now expected to be completed in December 2014. It aims to contribute to the sound management of planted agarwood from establishment to production, and trade, including artificially inoculated agarwood. The two main outputs envisaged from the Activity are, namely, (i) data on plantation, agarwood production and its quality from planted species; and (ii) a proposed national policy on agarwood plantation and production, including market potential and trade.

Identification of ramin and ramin looked-alike specimen at the Training Workshop held in Bogor, Indonesia, 13-15 April 2014. Photo: Directorate of Biodiversity Conservation, Ministry of Forestry, Indonesia

In documenting agarwood plantations in Indonesia and in estimating the annual production of agarwood and its quality, field visits to West Kalimatan, North Sumatra and Riau were undertaken to verify their establishment, including conducting in-depth interviews with farmers. In this regard, the documentation of agarwood plantations is now completed while a draft technical report on the annual production of agarwood and its quality has been prepared for further deliberation by the relevant authorities in Indonesia.

A public consultation was held in Makasar, South Sulawesi, Indonesia on 3 July 2014 in an effort to develop a mechanism to register and capture information ranging from plantation establishment to agarwood production and trade. It was attended by 30 participants comprising 25 participants from South Sulawesi with the other five participants from Jakarta.

In early August 2014, the Activity had recruited two national experts to conduct a review on trade and market of agarwood, as well as to draft a proposed policy on agarwood plantation, production and trade in Indonesia. Both the national experts are expected to commence their work in September 2014.

Promoting conservation of plant genetic resources of* Aquilaria *and* Gyrinops *species in Indonesia

Implementing agency: Centre for Rehabilitation and Conservation, Forestry Research and Development Agency (FORDA)
Status: Operational
Start date: October 2013
Planned duration: 12 months
Actual duration: 11 months

The objective of the Activity which is expected to be completed in October 2014 is to explore and obtain information on the current status of *Aquilaria* and *Gyrinops* species in Indonesia, with specific reference to their taxonomy, population and conservation status, and to promote initial establishment of genepools of selected species in specific and secure areas. Its expected outputs are (i) knowledge of the taxonomical and population status of *Aquilaria* and *Gyrynops* species; and (ii) the initial establishment of genepools of selected *Aquilaria* and *Gyrinops* species.

As of July 2014, the assessment of the taxonomical and population status of *Aquilaria* and *Gyrinops* species through examination of herbaria collection has been conducted at Puskonser, Wanariset and Bogoriensem, as well as the collection of agarwood at the Bogor Botanical Garden; while field survey in selected areas was conducted in Lampung, East Nusa Tenggara, West Nusa Tenggara, East Kalimantan, West Kalimantan South Kalimantan and South Sulawesi, including through interviews and discussion wth relevant stakeholders. A report on the taxonomical status and population of *Aquilaria* and *Gyrinops* species in Indonesia was prepared and presented at a technical workshop held in Bogor on 26 May 2014.

The review on the current status of *in situ* and *ex situ* conservation of *Aquilaria* and *Gyrinops* species in Indonesia was conducted through literature review and field survey in selected sites in South Sumatra, Bangka Belitung, Jambi, Bengkulu, Riau Archipelago (Batam and Bintan),

Agarwood plantation with diameter > 20 cm, ready to be inoculated in Bohorok, North Sumatra, Indonesia. Photo: Directorate of Biodiversity Conservation, Ministry of Forestry, Indonesia

South Kalimantan ad West Nusa Tenggara. Interviews and discussion with involved stakeholders were also conducted. A report on "*In situ* and *ex situ* conservation of *Aquilaria* and *Gyrinops*: A Review" has been prepared.

Collection of wildings and seeds was also undertaken and currently 12,437 seeds and 5,906 wildlings have been collected, mainly of *Aquilaria malaccensis, A beccariana, A. microcarpa, A cumingiana* and *Gyrinops versteegii.* From the collection, a total of 4,395 seedlings has been raised in the nursery comprising 1,041 from seeds and the balance of 3,354 from wildings. In this regard, initial establishment of *A. malaccensis* planted at a spacing of 3m x 3m was carried out in June 2014 on a 0.3 ha plot in Dramaga Research Forest; while *G. versteegii* was planted in July 2014 at a spacing of 2m x 3m on a 0.25 ha plot, also at the Dramaga Research Forest.

Development of a ramin conservation concept* (Gonystylus *spp.) for plantation forest concessions

Implementing agency: Directorate of Biodiversity Conservation and Association of Indonesian Forest Concessionaires (APHI)
Status: Operational
Start date: July 2014
Planned duration: 12 months
Actual duration: 2 months

The Agreement to implement the Activity was signed between ITTO and the Government of Indonesia in July 2014. Actions to enable the transfer of funds from ITTO and the recruitment of national experts to lead the various planned activities have been initiated. The aim of the Activity is to develop a ramin conservation concept (*Gonystylus* spp.*)* in the operation of plantation forest concessions. The outputs expected from the Activity are, namely, (i) a formulated ramin conservation concept for plantation forest concessions; (ii) a ramin conservation guideline for plantation forest concessions operation; and (iii) a review of the Minister of Forestry Decree No. 127/ KPTS-V/2002 on Temporary Moratorium of Logging Activities and Ramin Trade.

At the completion of the Activity, it is envisged that the outputs will enable a ramin conservation concept (strategy) within the operation area of plantation forest concessions be produced. A review document on the Minister of Forestry Decree No. 127/KPTS-V/2002 on Temporary Moratorium of Logging Activities and Ramin Trade will also be produced which will provide inputs to the government for its further work on the Decree.

The beneficiaries of the Activity will be plantation forest concession holders, the Ministry of Forestry (MoF) and non-governmental organiztions that are concerned with ramin sustainability.

Ensuring genetic diversity of ramin seed sources and ramin population from rooted cuttings

Implementing agency: Centre for Biotechnology and Tree Improvement
Status: Pending agreement
Planned duration: 12 months

The main objective of the Activity is to contribute to the conservation and plantation of ramin using wildlings and rooted cuttings in Sumatra and Kalimantan through genetic analyses and infusion of genetic materials to ramin cuttings. The expected outputs are (i) early detection of genetic variation of ramin in the conservation gardens at Ogan Komering Ilir (OKI) District, South Sumatra and Tumbangnusa, Central Kalimantan; (ii) genetic infusion to ramin cuttings in the conservation gardens at OKI and Tumbangnusa; and (iii) exploration and *ex situ* conservation of non-*Gonystylus bancanus* species in Sumatra and Kalimantan.

The primary beneficiaries of the Activity are the Ministry of Forestry, Indonesia (MoF), the CITES Management and Scientific Authorities, research institutions, universities, and forest concession companies. The project agreement is now with the government of Indonesia and is expected to be signed soon.

Establishment of an integrated agarwood cluster in Bintan Island, Indonesia

Implementing agency: Centre for Rehabilitation and Conservation, Forestry Research and Development Agency (FORDA)
Status: Pending agreement
Planned duration: 12 months

The Activity aims to ensure (i) the sustainable production of agarwood from both natural and planted forests; and (ii) the sustainable production and conservation of genetic resources, as well as to improve market transparancy of agarwood products, including the development of inoculation technology, processing and handling. The primary objective of the Activity is to accelerate the establishment of an integrated agarwood cluster in Bintan Island, Indonesia. The expected outputs are (i) the development of a design for an integrated agarwood cluster for Indonesia; and (ii) the development of a market information system for added transparency.

The envisaged benefit of the Activity is the availability of an integrated agarwood cluster as a model for developing sustainable management and conservation practices, including a market information system which will enable all stakeholders to interact. The project agreement is now with the government of Indonesia and is expected to be signed soon.

Malaysia

In vitro propagation of* Gonystylus bancanus *(ramin) in Sarawak

Implementing agency: Sarawak Forestry Corporation and Forest Department Sarawak
Status: Completed
Start date: October 2012
Planned duration: 12 months
Actual duration: 19 months

The Activity was completed in April 2014. The objectives of the Activity were to (i) establish effective protocols for the axenic (contamination-free) culture establishment of *G. bancanus* using field-grown planting materials; and (ii) establish protocols for *in vitro* regeneration of *G. bancanus* via direct organogenesis using axenic explants.

At the conclusion of the Activity, a total of three technical reports were prepared based on the work done under the Activity, namely, (i) "Induction of Organogenesis and Somatic Embryogenesis of *Gonystylus bancanus* (Miq.) Kurz (Ramin) in Sarawak"; (ii) "Shoot Induction of *Gonystylus bancanus* (Miq.) Kurz (Ramin) in Sarawak"; and (iii) "Axenic Culture Establishment of *Gonystylus bancanus* (Miq.) Kurz (Ramin) in Sarawak". A Completion Report of the Activity has also been prepared. These documents are being uploaded on the Program website as they are published.

Use of DNA for Identification of* Gonystylus *species and Timber Geographical Origin in Sarawak

Implementing agency: Sarawak Forestry Corporation and Forest Department Sarawak
Status: Completed
Start date: October 2012
Planned duration: 12 months
Actual duration: 19 months

The Activity was completed in April 2014. The objectives of the Activity were to (i) construct a molecular database of ramin for the identification of species and the geographical origin in Sarawak; and (ii) develop a protocol for extracting DNA from ramin timber.

Currently in addition to the Completion Report, four technical reports have been prepared based on the work done under the Activity, namely, (i) "Standard DNA Extraction Protocol for *Gonystylus* Species"; (ii) "DNA Extraction from Wood of *Gonystylus* Species"; (iii) "Geographic Pattern of Genotypic Variation of Ramin in Sarawak: Towards the Identification of the Timber Origin of Timber"; and (iv) "Development of DNA Sequence Database of Ramin for DNA-based Species Identification". The results from the Activity will complement those achieved under the Activity on *Development of DNA Database for Gonystylus bancanus in Sarawak*, implemented in 2008 during Phase I of the ITTO-CITES Program, which used DNA that were extracted from leaf and bark samples. These documents are being uploaded on the Program website as they are published.

Reproductive and genetic studies towards the conservation and management of* Aquilaria malaccensis *in Peninsular Malaysia

Implementing agency: Forest Research Institute Malaysia (FRIM)
Status: Operational
Start date: June 2013
Planned duration: 24 months
Actual duration: 15 months

The Activity which is expected to be completed in May 2015 will complement the work carried out between 2007 and 2008 under the project on "*In vitro* Technology for Mass Propagation and Phytochemical Analysis of *Aquilaria malaccensis* and *Aquilaria hirta* (Endangered Gaharu Producing Species)", and the "Conservation Studies and the Development of DNA Microsatellite Markers on *Aquilaria malaccensis* in Peninsular Malaysia" that was undertaken between 2011 and 2012, both projects being funded by the Government of Malaysia.

The Activity aims to (i) document the flowering phenology and reproductive behavior of *A. malaccensis*; (ii) develop DNA profiling databases of *A. malaccensis* in Peninsular Malaysia; and (iii) develop a conservation action plan to reduce harvesting pressures on wild populations for the agarwood resin. Its expected outputs are (i) reproductive information of *A. malaccensis*; (ii) ecological genetic information for the preparation of a conservation action plan for *A. malaccensis* in Peninsular Malaysia; (iii) DNA profiling databases of *A. malaccensis* in Peninsular Malaysia for timber tracking and forensic applications; and (iv) a conservation action plan to reduce harvesting pressures on wild populations for the agarwood resin.

To collect information on the reproductive ecology of *A. malaccensis*, two study sites have been identified in Perak and in the island of Penang where two mother trees were selected for detail study of flowering phenology, flower maturity, anthesis/receptivity and fruit development. Aborted flowers were also collected from seed traps and analyzed.

Population survey and sample collections of *A. malaccensis* were conducted throughout Peninsular Malaysia. From the 31 forest reserves/forested areas surveyed, a total of 595 samples was collected comprising 152 from Kedah, 65 from Perak, 75 from Selangor, 101 from Johor, 69 from Pahang, 31 from Terengganu and 102 from Kelantan. These together with the 369 samples collected under the Malaysian Government funded projects now total 964 samples representing 35 populations and are currently being used for genetic studies.

In this regard, DNA sequencing analysis has been completed for 933 samples from the 35 populations, while in-depth DNA sequencing of eight chloroplast regions is still ongoing using samples throughout Peninsular Malaysia. Microsatellite genotyping of 964 samples from the 35 populations has also been completed, while allele scoring for 10 loci was completed in July 2014. Nevertheless, allele scoring for generation of genotype data for two more loci is still ongoing.

Development of an information database for the conservation and sustainable use of* Gonystylus bancanus *(ramin) and* Aquilaria malaccensis *(karas) in Malaysia

Implementing agency: Forest Research Institute Malaysia (FRIM)
Status: Operational
Start date: June 2013
Planned duration: 22 months
Actual duration: 15 months

The Activity is expected to be completed in March 2015. The main objective of the Activity is to develop a web-based information system of ramin and karas in Malaysia for management and conservation purposes (MyCITES). The expected outputs of the Activity are information on (i) ramin and karas distributions in Malaysia; (ii) research and development of ramin and karas in Malaysia; (iii) timber trade and production of

Field verification of ramin distribution involving local people. Photo: Mohd Azahari Faidi

ramin and karas in Malaysia; (iv) Malaysia's policy and management practices of ramin and karas; and (v) a comprehensive web-based information system of ramin and karas in Malaysia that contains all the outputs from (i) to (iv).

Collection of non-spatial information of ramin and karas including ecology, phenology and habitat, from books, relevant journals and publications has been completed. Based on FRIM herbarium information and other published records on ramin and karas distribution, several sites throughout Malaysia have been identified for field verification. Visits to these sites have started in August 2014.

The collection of information on research and development related to ramin and kraras species in Malaysia from 125 and 145 publications on karas and ramin respectively, among others, journals, review papers, bulletins and theses, has also been completed.

In developing the MyCITES, meetings with four website developers were conducted and all four companies have now submitted their quotations and specifications. The development of the interactive web-based information system over a four-month period is expected to commence in September 2014.

Capacity building of Forestry Department Peninsular Malaysia's staff in identifying* Aquilaria *to species level and in the grading of agarwood

Implementing agency: Forestry Department Peninsular Malaysia (FDPM)
Status: Pending agreement
Planned duration: 12 months

The Activity aims to strengthen the competency and capacity of the Forestry Department Peninsular Malaysia (FDPM) staff, especially in the identification of *Aquilaria* to species level and the grading of agarwood or gaharu as locally known. At such, the objectives of the Activity are to (i) develop training materials, including practical field manual to enable staff of FDPM to undertake identification of *Aquilaria* to species level; (ii) develop a manual for the grading of agarwood to be used by the staff of FDPM; and (iii) provide training to a core team of trainers, which consists of 30 persons from FDPM, in order to provide continuous training to all the other staff of FDPM when required.

The expected outputs are to produce (i) 200 copies of field-tested manual for the identification of *Aquilaria* to species level in Peninsular Malaysia; (ii) 200 copies of field-tested manual for the grading of agarwood to be used by the staff of FDPM; and (iii) 30 persons from FDPM trained as trainers and who are proficient in the identification of *Aquilaria* to species level and in the grading of agarwood.

A M.Sc. student measuring a permanent sample plot at the Fazenda Seringal Novo Macapá, Acre state, Brazil, August 2014. Photo: José Natalino Silva

At the completion of the Activity, it is envisaged that through enhancing the skill and expertise of FDPM personnel it would ensure the attainment of sustainable management and conservation of *Aquilaria* species. The project agreement is now with the government of Malaysia and is expected to be signed soon.

Latin America

Brazil

Ecology and silviculture of mahogany (*Swietenia macrophylla King*) in the western Brazilian Amazon (Phase II)

Implementing agency: *Universidade Federal Rural da Amazonia* (UFRA)
Status: Operational
Start date: February 2014
Planned duration: 24 months
Actual duration: 7 months

Field activities started in August 2014 although they were planned to occur in June. The rainy season has extended until August making it difficult to carry out timber harvesting. The Activity was suspended until the dry reason to allow for heavy machinery operations.

Two M.Sc. students were trained on measuring regeneration plots and permanent sample plots (PSPs) for monitoring growth and yield. Thirty six regeneration plots were cleaned and re-established to facilitate assessors' access to tally mahogany natural regeneration which was previously enumerated in the 2012 assessment. Actual measurement of the plots is due in September 2014 when six more plots will also be re-established and re-assessed.

Five PSPs were re-measured during the two-week field season. Measurement of bole height was introduced for the first time in the set of variables collected in the PSPs. The reason to include this variable is the availability of an instrument called Vertex that makes it possible to measure bole height with high accuracy. The instrument uses ultrasound and laser technology that overcomes the problem of 'impeders', such as leaves when pointing the instrument to measure tree height.

A team from Agrocortex Company was trained in measuring felled trees for developing volume equations. This activity will be continued during the entire felling period.

Big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon: Long-term studies of population dynamics and regeneration ecology towards sustainable forest management

Implementing agency: IFT/J. Grogan
Status: Operational
Start date: September 2012
Planned duration: 22 months
Actual duration: 24 months

Project activities continue to focus on data management, analysis, and synthesis for publication. A list of all publications resulting from the support of the ITTO-CITES Program is available at http://www.swietking.org/our-research.html. All publications are also available on request in PDF format (jgrogan@swietking.org).

The article titled "Management implications of long-term tree growth and mortality rates: a case study of big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon", prepared by the Activity team, was published in the scientific journal *Forest Ecology and Management* (vol. 330, pp. 46–54).

A manuscript titled "Predation and herbivory drive distance- and density-dependent seedling recruitment of a Neotropical emergent tree: the evidence from spatial models" is under peer review at the scientific journal *Ecology*. This manuscript uses the big-leaf mahogany growth and yield model to simulate outcomes from different seedling predation scenarios.

A manuscript titled "Management implications of population structure: a modeling study of big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon" is also being prepared by the Activity team for submission to *Forest Ecology and Management*.

Preparations are underway for the 2014 field season at the Activity's two long-term field sites in southeast Pará, Brazil (see http://www.swietking.org/interactive-maps.html). Field activities will begin in the first week of September at Marajoara and Corral Redondo. During September and October more than 400 mahogany trees with diameter > 20 cm in a combined area of 2,750 ha will be re-enumerated and re-measured for diameter growth and observed for fruit production. This year's field work marks the 19th consecutive annual census since the Activity began in 1995 with the support of the ITTO Fellowship Program. These are the most comprehensive and longest-term data available describing mahogany adult survival, growth, and reproductive behavior under natural forest conditions. Without consistent annual effort to obtain these data, many of this Activity's main outputs, including the Big-Leaf Mahogany Growth & Yield Model (http://www.swietking.org/model-applet.html), would not have been possible.

Field work will also include re-enumeration of several thousand naturally occurring and experimental seedlings out-planted from 1995 to 1997 for their survival rate and growth. Several other key Amazonian timber species have also been under study at Marajoara since 1997, including jatobá (*Hymenaea courbaril*), fava de bolota (*Parkia pendula*), and copaiba (*Copaifera duckei*). In addition, new research initiatives investigating site and mahogany population histories through the use of dendro-chronological techniques are planned.

Using the Near Infrared Spectroscopy (NIRS) technique on a pilot scale, as a potential tool for the monitoring of mahogany trade

Implementing agency: Laboratory of Forest Products / Brazilian Forest Service (LPF/SFB)
Status: Operational
Start date: February 2014
Planned duration: 24 months
Actual duration: 7 months

The portable Near Infrared Spectroscopy (NIR) instrument was acquired by the Forest Products Laboratory of the Brazilian Forest Service (LPF/SFB) in early July. The next step will be to conduct a training course on the use of the instrument for the Activity team of the implementing agency. This activity is scheduled for 19 August 2014. Five experts were selected for the training comprising two experts in wood chemistry; one expert in chemometrics; one specialist in wood anatomy; and one post-graduate student in chemistry.

The collection of *Swietenia macrophylla* samples from the state of Rondônia, Brazil, as well as samples from other countries in South America was successfully conducted. All the samples will form part of a spectral database of the species which will allow the differentiation of visually similar wood and also, possibly, to identify its origin or provenance.

The first technical meeting of the Activity was held on 16 April 2014 in Brasilia, with the participation of Dr. Steven Johnson from ITTO, Dr. Ivan Tomaselli, the Regional Coordinator for Latin America, representatives from FUNTEC, the head of LPF, and the Activity team from the LPF and University of Brasília. On 16 May 2014, Dr. Emmanuel Ze Meka, the ITTO Executive Director visited LPF/SFB and held discussion on the various aspects related to the implementation of the Activity.

Dr. Ze Meka, ITTO Executive Director, visiting the wood anatomy division of the Forest Products Laboratory, Brasília, Brazil, 16 May 2014. Photo: Floriano Pastore Jr.

The first NIRS Activity meeting held on April 16, 2014, in Brasília, Brazil. Ivan Tomaselli (second left), RC for LA and Steven Johnson (third left), ITTO-CITES Program Coordinator. Photo: Floriano Pastore Jr.

Guatemala

Inventory of population and species abundance of* Dalbergia retusa *and* D. stevensonii *in areas of natural occurrence in Guatemala

Implementing agency: *Fundación Naturaleza para la Vida* (FNPV)
Status: Operational
Start date: April 2014
Planned duration: 24 months
Actual duration: 5 months

The Activity is expected to generate scientific information on the abundance, natural distribution, current distribution, natural dynamics and behavior of the species *Dalbergia retusa* and *D. stenvensonii* to determine the current population status of the genus *Dalbergia*, in areas of natural occurrence.

The Activity began with an analysis of the basic information collected in scientific publications and national geographic information systems in Guatemala (CITES species inventory stratification Phase I and II, physical, climatic and anthropogenic general aspects); which allowed specific GIS strata to be defined for subsequent field work. In this regard, seedlings, saplings, small trees and trees will be evaluated at the 4 cardinal points in a 1 ha plot, divided into 4 sub-plots of 20 m x 50 m. As part of the research on the genus *Dalbergia,* the Activity team has evaluated 25 check-points in the Department of Petén, and based on the mapping systems created, 3 plots have been established.

According to initial indicators of the genus *Dalbergia*, the species has been found in areas with specific characteristics, such as totally flat areas, areas with possibility of flooding during the rainy season, forest with an average height of 15 m, and forest with 60% light incidence in its understory. *Dalbergia* species are associated with other tree species such as *Lucida gymnanthes, Bursera simaruba, Metopium brownei, Sebastiana longicuspis, Protium copal,*

Wood characteristics of the genus *Dalbergia*. Photo: FNPV

Measurement of a *Dalbergia* tree, Guatemala. Photo: FNPV

Jatropha curcas, Guettarda combsii, Aspidosperma cruentum, Swietenia macrophylla, etc; and with forest having on average 12 trees ≥ 25 cm dbh/ha, average height of 13 m, and with little natural regeneration. In addition, the species does not exhibit any phenological patterns in terms of flowering frequency.

According to research and field observation, the main factors of *Dalbergia* population reduction are due to land use change, illegal trade, forest fires, traditional agriculture, lack of knowledge about the use and value of the species, etc. The results of the Activity will enable the development of a strategy that defines and guides the short-, medium- and long-term actions required to control anthropogenic activities which are putting the ecosystems at risk where *Dalbergia* species occur.

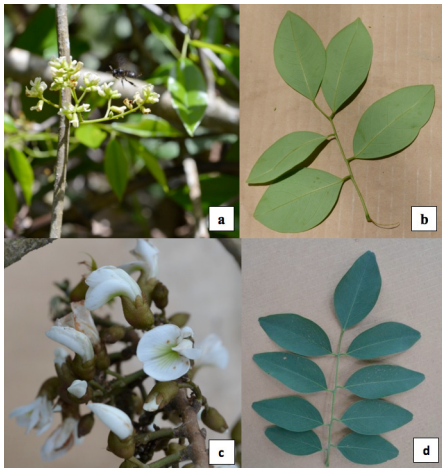
Establishment of a forensic laboratory for wood identification and description for the application of legal processes and systems of traceability of products included in CITES

Implementing agency: Nature for Life Foundation (FNPV)
Status: Operational
Start date: April 2014
Planned duration: 24 months
Actual duration: 5 months

The Activity was developed as an initiative of the National Council for Protected Areas (CONAP), the National Forestry Institute (INAB), the Public Ministry (MP), the College of Agriculture at the National University of San Carlos de Guatemala (FAUSAC) and the Nature for Life Foundation (FNPV). Its objectives are to: (i) develop capabilities to legally identify woods of tree species included in CITES Appendix II; (ii) generate phenological and botanical information regarding *Swietenia macrophylla* King, *S. humilis* Zucc., *Guaiacum sanctum* L., *G. officinale* L., *Dalbergia stevensonii* Standl., *D. retusa* Helms, and other *Dalbergia* species, which grow naturally in Guatemala; and (iii) generate macroscopic, microscopic, histochemical and physical data for such tree species.

The Dean of the College of Agriculture (FAUSAC) has assigned a room for the installation of the laboratory in a new building. Although the laboratory is ready for use, the development of histological procedures for the woods of the species is being conducted at the Microscopy Centre of the College.

The Activity team has started its field work, e.g. identifying locations of natural populations, collecting and collating herbarium specimens, as well as phenological studies. The technical staff is involved in both desk and field work. To date, the team has identified natural populations of *S. macrophylla*, *S. humilis*, *G. sanctum and Dalbergia* spp. *(D. stevensonii, D. retusa*, *D. tucurensis* and *D. calycina)*.



***Dalbergia stevensonii* flowers and a pollinator visiting the flowers (a); penta-foliate pinnate leaves (b); *Dalbergia calycina* flowers (c); 9-foliate pinnate leaves (d). Photo: Myrna Herrera**

Non-detriment findings - Practical guidance for CITES-listed tree species

Implementing agency: CONAP and BALAM Association (Guatemala) and *Universidad de Córdoba* (Spain)
Status: Pending agreement
Planned duration: 15 months

The Activity aims to provide guidance to CITES Authorities regarding the procedures, methodologies and information required to develop non-detriment findings for timber and other tree species so as to facilitate the adequate implementation of export provisions for CITES-listed species and ensure that their international trade is consistent with their sustainable management and conservation. This will be achieved through the implementation

of 18 activities during a 15-month period. The project agreement is now with the government of Guatemala and is expected to be signed soon.

Guyana

Enhancing the sustainable management and commercial utilization of the CITES-listed species* Cedrela odorata *(red cedar) in Guyana

Implementing agency: Guyana Forestry Commission (GFC)
Status: Operational
Start date: August 2014
Planned duration: 18 months
Actual duration: 1 month

Historically, the focus of Guyana's wood products sector has been on a few key primary species, principally Greenheart (*Chlorocardium rodiei*) and Pupleheart (*Peltogyne venosa*). The Activity will focus on the assessment, development, marketing and promotion of *Cedrela odorata* (red cedar) which is listed on CITES Appendix III for the countries of Brazil, Bolivia, Columbia, Guatemala, and Peru. The Activity will build on Guyana's efforts to develop and promote its lesser used species as part of a multi-pronged strategy for managing the country's commercial forest estate sustainably. This Activity is implemented under ITTO's thematic programme for Trade and Market Transparency utilizing funding made available for this purpose under the ITTO-CITES Program.

The Activity will enable Guyana to undertake an assessment of its commercial forests so as to determine the status of the species. The outputs from the resource assessment will be used to develop a management plan for the sustainable harvesting of red cedar, as well as to build capacity in the industry to enable it to harvest and market the species domestically and internationally. Plans to conduct the resource assessment on the status of red cedar have been initiated where a combination of aerial photography and ground assessment will be used.

The objective of the Activity is to "enhance sustainable forest management of the forest sector of Guyana through improved market intelligence and trade of CITES-listed timber species". The specific objective is to "strengthen forest planning and marketing of CITES-listed, current and potential timber species from Guyana". Among the main expected outcomes of the Activity are completion of a resource assessment of red cedar in Guyana's commercial forest estate so as to establish the status of the species and formulate a strategy for developing and commercializing the CITES-listed species in Guyana, including the development of a statistical database.

Peru

Confirmatory evaluation of forest inventories of cedar and mahogany species

Implementing agency: *Universidad Nacional Agraria La Molina* (UNALM)
Status: Operational
Start date: November 2013
Planned duration: 10 months
Actual duration: 10 months

The Activity aims to design a technically and statistically supported method for confirmation of forest census results and the occurrence of mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela* spp.) species.

The Activity team has completed the first two planned field studies, which were conducted in forest concessions and native communities of the Department of Madre de Dios. The field work aimed to examine location and conduct measurement of mahogany and cedar trees, so as to use them as "standard trees", and as input in the calculation of tolerance for acceptance of the variables of measurement in forest censuses as part of the process of designing an inventory confirmation system.

In the first field study, the Activity team collected information from 58 mahogany and 163 cedar trees, comprising seed trees and commercial trees, whereas in the second field study the team collected information on 129 mahogany and 87 cedar trees. In total, 437 mahogany and cedar trees were evaluated. The information was used to make the necessary adjustments to the tree sampling design for the evaluation of forest census and to have preliminary information to determine the acceptable ranges for evaluation of quantitative variables. See the section "Article from Program Activity" for more details on this analysis prepared by the Activity team.

Measurement of mahogany tree diameter at breast height (dbh) at Maderyja Forest Concession, Tahuamanu, Madre de Dios, Peru. Photo: Project UNALM – ITTO/CITES

As part of the monitoring and dissemination of the Activity, the second and third meetings of Consultative Committee were held in May and July 2014, respectively with the participation of the Ministry of the Environment (MINAM), the Ministry of Agriculture and Irrigation (MINAGRI), the Agency for Supervision of Forest Resources and Wildlife (OSINFOR) and the USAID Project Technical Assistance (PAT/USAID). In addition, the third meeting included the participation of Ms. Sofia Hirakuri, a staff of the Regional Coordinator for Latin America for the ITTO-CITES Program, as part of her monitoring mission. In both meetings the progress of measurement of trees and the sampling design were presented.

The final field study will be conducted to test and finalize the methodology, while the fourth meeting of the Consultative Committee is planned at the end of the Activity so as to provide information on its final outputs to all stakeholders.

Management of mahogany (*Swietenia macrophylla *King.) and cedar (*Cedrela *spp.) seed stands in a forest concession for the conservation of the Tahuamanu Seed Stand in the province of Tahuamanu, Madre de Dios, Peru

Implementing agency: *Universidad Nacional Agraria La Molina* (UNALM)
Status: Operational
Start date: August 2014
Planned duration: 18 months
Actual duration: 1 month

From 2012, UNALM and the General Directorate of Biological Diversity of the Ministry of Environment have been conducting studies on the evaluation of populations of natural regeneration of mahogany and cedar species in Peru. The aim is to generate inputs that contribute to understanding the natural regeneration of these two species. In these studies, the Activity team has assessed seed trees and the natural regeneration of both species.

To complement the study on seed trees, the current Activity aims to improve the condition of the seed stands and ensure their establishment in natural forests, and control mahogany and cedar seed production in the seed stands conservation areas in Tahuamanu, Madre de Dios. Having a controlled germplasm will allow improvement in seed production in terms of quality and quantity for both the species, as well as for the benefit of the institutions dedicated to reforestation work, and hence, ensuring the species' survival in the wild.

Global

Preparation of the publication "Atlas of tropical timber species - 1st Edition: Technological characteristics and uses of 273 tropical timber species (and 17 temperate species)"

Implementing agency: CIRAD, France
Status: Operational
Start date: October 2013
Planned duration: 24 months
Actual duration: 11 months

The project aims to make reliable and timely information available on the technological characteristics and uses of tropical timber species by producing, publishing and disseminating an Atlas of tropical timber species covering the information contained in the latest TROPIX software (version 7 - 2011). This new edition of the Atlas of tropical timber species (including CITES-listed species) will facilitate and enhance access to information on these timber species for all operators in the sector concerned, both for producers (forest managers, logging companies, policy makers) and consumers (importers, traders, timber industrialists, users).

The project is funded under a grant from the EU to the ITTO-CITES program which provides for part of the funds pledged to be used for Trade and Market Transparency (TMT) activities of ITTO Thematic Programme (TP) with objectives relevant to both programs. The project agreement was signed in September 2013 and implementation commenced in October 2013 by the Executing Agency, CIRAD of France.

As of July of 2014, the project implementation was basically on track and the following achievements had been realized:

- Documentary research and complementary literature reviewed. The 290 species originally planned to be described in the Atlas was increased to 328 species;
- Additional testing technology and digitization of wood samples developed;
- Collection of photos, books or wood products carried out. 150 more pictures have been collected and the collection is continuing;
- Writing technical descriptions for species to be added in Tropix and Atlas has been finalized. About two-thirds of the species descriptions to be added to the Tropix software have already been drafted;
- The manuscript of the Atlas is well under development.

CITES Timber Trade Study

Implementing agency: ITTO
Status: Operational
Start date: April 2014
Planned duration: 8 months
Actual duration: 5 months

The study was requested by CITES Parties in Decision 15.35 to review trade in timber products from listed tree species that fall outside the listing annotations. Its outputs will be used to inform an ongoing review of listing annotations, including annotations for tree species. In July 2014, progress in the study was described to the 65th CITES Standing Committee (SC); the SC formed an Inter-sessional Working Group on Annotations and suggested that the study focus on four species for which the listing annotation limits CITES trade controls to primary (minimally processed) wood products: *Pericopsis elata*, *Dalbergia cochinchinensis*, *Cedrela odorata* and *Swietenia macrophylla*. The trade study will assist in the annotation review by examining range country trade in processed wood products that are not subject to CITES trade controls. Although the trade study cannot (and is not intended to) provide definitive evidence of trade in listed species outside the scope of the annotation, initial results display the scale and complexity of wood products trade and show that many range countries export processed wood products that might include products manufactured from CITES-listed tree species. The study, funded as part of the TMT component of the EU funds provided to the ITTO-CITES program, is expected to be completed by the end of 2014.

Relevant events/ initiatives

The technical team of the Activity "Assessment of regeneration of natural big-leaf mahogany and cedar populations in Peru" presented the methodology for the evaluation of recovery of mahogany and cedar populations, and the results of the application of the methodology by the Department of Ucayali through a study carried out by MINAM with the assistance of the UNALM technical team during 2013 at the meetings on the "Research progress on CITES Peruvian wild flora species", that was organized by the Ministry of the Environment (MINAM) and the USAID Technical Assistance Program (PAT-USAID). The meetings were carried out in Pucallpa, Lima, Tarapoto and Iquitos on 11, 14, 16 and 22 July 2014, respectively. The participants were representatives from MINAM and PAT-USAID/MINAM, UNALM and other representatives of regional governments, including forestry engineers, technicians and non-governmental organizations.

The Regional Coordinator for Africa participated at several meetings and training workshops in Cameroon, Congo Brazzaville and Democratic Republic of Congo in the second quarter of 2014 as noted in the Activity progress reports above.

Article from Program Activity

"Assessment of regeneration of natural big-leaf mahogany (*Swietenia macrophylla* King) and cedar (*Cedrela odorata* Linnaeus) species in Peru". Lombardi, I; Garnica, C; Carranza, J; Ortiz, H; Ponce, B; Gamarra, J; Barrena, V. In press.

Abstract

The objective of the study was to assess regeneration of mahogany (*Swietenia macrophylla* King) and cedar (*Cedrela* spp.) species in permanent production areas located in the Madre de Dios region in Peru. The study was divided into three stages: the first stage consisted in the compilation of information originating from the area under forest management, through POA permits, control and supervision authorities, in addition to design an evaluation methodology for seed trees and natural regeneration; the second stage corresponds to the methodological and field work validation, evaluating the selected seed trees and compiling information on natural regeneration in 20 m x 100 m plots towards the four cardinal direction, considering seed trees as the central axis; and finally, the third stage consisted in the field data processing and analysis.

A total of 58 mahogany seed trees were evaluated, which presented an average DBH and total height of 0.86 m and 28 m respectively, with characteristics noted such as species being of high dominance and vigor, with a cup-shaped canopy of irregular circle, a circular-shaped basal area, straight and healthy stem as to plant phytosanitary evaluation; similarly, 65 cedar seed trees were evaluated, which presented an average DBH and total height of 0.69 m and 27.7 m, respectively. They are mostly individuals of high dominance, high vigor, with circular-shaped basal area, a straight and twisted stem, with a cup-shaped canopy of irregular circle, and a healthy phytosanitary condition.

Natural regeneration of mahogany has been observed; however, it is limited to saplings and seedlings found towards mainly the south and west of the sample area, which can reach a distance up to

210 m away from seed trees. Nevertheless, this regeneration fails to establish or successfully grow in forest plots where intervention occurred more than four years ago.

The cedar case is a little more encouraging, finding a considerable stock of seedlings that diminishes as you move on to the next stage of growth, mainly tall and short saplings. This species did not present any trend in the regeneration direction and they were found up to 160 m of distance from seed trees; however, in parcels with intervention conducted more than six years, there is no regeneration evidence, probably caused by high competition for light and space.

Finally, the existence of trees with diameter ranging from 50 cm to 70 cm for mahogany, and 30 cm to 50 cm for cedar has been observed.

Other Articles of Interest

The following material is reproduced from a recent pamphlet on forensic wood identification released by WWF (World Wide Fund for Nature). It is reproduced here with acknowledgement to WWF due to its relevance to work being carried out under the ITTO-CITES Program using many of the techniques covered and the interest of Program stakeholders in this type of work. For more information on the pamphlet or WWF, contact Johannes Zahnen (WWF Germany; johannes.zahnen@wwf.de).

Forensic methods used to verify the declared species and origin of wood

Illegal logging and related trade are huge international problems that are contributing significantly to forest destruction all over the world and as a result also to climate change and the decline in biodiversity. Illegal timber trade is often a form of organized crime, and illegal logging is estimated to account for up to 40% of global timber production. One consequence of this crime is a drop in the price of timber caused by illegal timber, which in turn makes trade with sustainably produced timber more difficult. Technical developments such as electronic tags that are attached to tree trunks after they have been felled and independent certificates have brought improvements and more transparency to the timber trade. However, these developments all lead to the information being passed along the value chain together with the raw material, which gives rise to the potential for manipulation. All the methods described below, some of which are well established and some of which are new, involve properties of the wood that are firmly ingrained in the wood and thus impossible to manipulate. These methods are therefore excellent not as replacements, but as additions to current information systems. They enable the accuracy of existing documents to be verified, which makes the timber trade more transparent. It is also possible, however, to monitor new legal requirements. The WWF believes the development and usage of these methods offer great opportunities for the fight against illegal timber trade and is therefore actively involved in their usage and development.

Species protection tracker dogs

Having found the use of species protection tracker dogs to be very successful in the area of wild animal and plant trade, the WWF initiated a pilot study to test the possibility of using tracker dogs for wood identification.

It is suspected that particularly valuable wood species are imported together with unprotected but similar-looking wood species. They may be transported in the same containers, for example. For this reason, the pilot study involved two tracker dogs being trained to detect big-leaf mahogany *(Swietenia macrophylla)*. The dogs were able to distinguish big-leaf mahogany from other wood species, some of which looked very similar. In the opinion of the WWF, this ability could close a gap in current practices, because there has to be an initial suspicion before officials can seize wood and send it to a laboratory for further examination. Customs or police officers are given a very specific task when it comes to indentifying wood species, but it can often be a big challenge, such as when they are confronted with woods that look similar and the wood species declared in the accompanying documents seems plausible - based on the outward appearance anyway.

The following links provide more information:

- www.traffic.org/non-traffic/non-traffic_pub23.pdf (Chapter 4 "Timber Detector Dogs")
- WCO News N°73; 2/2014; http://www.wcoomd.org/en/media/wco-news-magazine/latest.aspx

Microscopic wood species identification

Microscopic wood species identification is an established method used routinely to identify wood types, such as those among solid woods, veneers, plywoods, etc.

It consists of a macroscopic and microscopic examination during which the genus (according to the names/groups in EN 13556) and in many cases the species of wood samples can be determined unequivocally based on their anatomical structure. There are experts who are experienced in this area at various institutes in Germany, the UK, the USA, Brazil ... Devices and databases that will be able to be used to identify wood species on the spot in future are currently being developed. The WWF expects the number of options available to increase considerably, which will help customs officers to substantiate an initial suspicion, for example. The WWF has discovered falsely declared wood species in products and at the premises of companies a number of times in the past using this method

The following links provide more information on microscopic wood species identification:

- http://www.ti.bund.de/en/startseite/home/thuenen-kompetenzzentrum/serviceleistungen-m.html
- http://www.fpl.fs.fed.us/research/centers/woodanatomy/
- http://www.africamuseum.be/collections/browsecollections/naturalsciences/earth/xylarium
- https://science.naturalis.nl/en/collection/naturalis-collections/botany/
- http://www.kew.org/collections/anatslid.html

Stable isotopes (origin of wood)

Plants absorb the unevenly distributed isotopes (H, O, N, S, C, etc.) in nature and incorporate them into their structure. The stable isotope method has been the standard method used to verify the declared origin of products in the food sector for many years. Accordingly, the technique is used by six examination authorities as well as numerous private laboratories in Germany to verify the origin of wine, peppers, potatoes, olive oil and beef.

There are already extensive stable isotope databases available in Europe. Examples include the hen's egg database created by KAT, the most important egg inspection body in Germany and neighbouring EU countries, the pig meat database developed by BPEX in the UK and the German customs' caviar database. In 2013, the German customs' caviar database was successfully recognized as an instrument that could be used to confirm cases of caviar fraud (see below). The stable isotope method is currently the only origin method implemented in the European regulation on the verification of wine (Commission Regulation [EC No 2729/2000]).

Initiated by WWF Germany, several projects supported by the DBU (Deutsche Bundesstiftung Umwelt - German Environmental Foundation) were launched in 2004 to start usage of the method for wood as well. It is now used routinely for wood and is even used for ivory too. In 2013, the American EIA (Environmental Investigation Agency) used the isotope method to have the results of their investigation into illegal timber from Russia, which had been obtained using analytical methods, confirmed independently.

The following links provide more information on the isotope method:

- http://www.agroisolab.de/e-index.html
- http://wwf.panda.org/what_we_do/how_we_work/conservation/forests/news/successes/?199198/uncovering-forests-tell-tale-fingerprints
- http://eia-global.org/campaigns/forests-campaign/liquidating-the-forests/
- http://www.wwf.de/fileadmin/fm-wwf/Publikationen-PPDF/2013_WWF_Report_Illegal_Caviar_Trade_in_Bulgaria_and_Romania.pdf (p. 19)

DNA analysis (species and origin of wood)

Genetics can be used in several ways to support the fight against illegal timber trade. As with the isotope method, the results of a genetic origin analysis are able to verify a declared origin. They are derived through the identification of gene sequences, which differ for each species according to region. A number of projects have demonstrated the potential of this method. Furthermore, once a wood's species-specific markers have been identified, the genetics can be used to determine its species unequivocally.

If genetic tree-specific mapping has been carried out, the genetic fingerprint can also be used to verify the details of the origin of an individual tree down to the place where it was logged. The procedure can, for example, be used for very valuable woods, for which every logging location is recorded.

The following links provide more information:

- http://www.ti.bund.de/en/startseite/home/thuenen-kompetenzzentrum/serviceleistungen.html
- http://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/Fingerprinting_conf_rep_EN.pdf
- http://www.wwf.de/fileadmin/user_upload/Bilder/Final_Report_project_DBU_WWF_wood_fingerprinti ng_11_2011.pdf
- http://www.doublehelixtracking.com/
- http://www.adelaide.edu.au/adelaidean/issues/46461/news46561.html

NIR - Near infrared (species and origin of wood)

NIR is an analytical method involving short-wave infrared light in which molecules are made to vibrate by electromagnetic radiation and reflect specific spectra as a result. NIR is a very versatile method that basically reflects the chemical composition of products. It is a well-established way of determining the water content in substances. According to publications on the usage of NIR for wood, NIR is now able to produce concrete evidence of the content, species and origin of wood now as well. Unlike the genetic and isotope methods, however, NIR has not yet undergone extensive testing as a standalone method for wood.

There is one case (a WWF project on tropical woods) in which NIR was used as an additional parameter to improve spatial resolution. The stable isotope method (physical fingerprint) and the NIR method (chemical fingerprint) in particular are expected to complement each other synergistically in future. This is currently being tested in various projects.

The following links provide more information:

- http://www.wwf.de/fileadmin/user_upload/Bilder/Final_Report_project_DBU_WWF_wood_fingerprinti ng_11_2011.pdf (chapter 5.4.5)
- http://www.obaltimbertrackingnetwork.org/fileadmin/templates/globaltimbertrackingnetwork.org/upload/Regional_Workshop_for_Asia__Pacific___Oceania/YaNa_Liu.pdf
- http://www.globaltimbertrackingnetwork.org/fileadmin/templates/globaltimbertrackingnetwork.org/upload/Regional_Workshop_Americas/Near_Infrared_Spectroscopy__alternative_method_for_the_accurate_botanical_identification_of_similar_wood_species.pdf
- http://ffp.up.poznan.pl/pdf/40/Folia%20Forestalia%20Pol%2040-4%20Sandak%20et%20al.pdf

Remote sensing

Employing genetics, isotopes or NIR to determine an origin will reach its limits when it comes to small-scale infringements, which could be logging more than the permitted amount or logging outside of a concession area's boundaries, for example. The analysis of satellite images can provide helpful information here, however: As soon as access roads or routes are spotted to parts of a concession area in which, according to management plans, logging is prohibited, or small amounts of logging are detected outside of a concession area's boundaries, on-site checks can be carried out to help substantiate the initial suspicion. There are known cases in which remote sensing has been able to reveal illegal land appropriation or suspected logging outside a concession area (see below).

Conversely, the increasing use of this technology means much more targeted patrols will be able to take place in locations where there are current indications of infringements. Recency is becoming more and more important as far as remote sensing is concerned, because pictures are becoming cheaper and cheaper (free in some cases) and are available at frequent intervals.

Remote sensing can also be used for a variety of processes, such as identifying the degree of degradation in forest areas and measuring CO2 storage. The different possibilities offered by the use of remote sensing are an area WWF Germany focuses heavily on.

The following links provide more information:

- http://wwf.panda.org/what_we_do/where_we_work/greatermekong/our_solutions/landscape_conservation_in_the_greater_mekong_region/responsible_forest_management_trade/?207264/learning-session-7-satellite-data-for-redd-mrv
- http://news.mongabay.com/2011/1004-hance_dole_satellite.html
- http://www.globalforestwatch.org/

Paper fibre analyses

"Tropical rainforest trees are felled to produce German children's books" is the conclusion two WWF studies came to in 2009 and 2012. Laboratories found mixed tropical hardwood (MTH) in the paper. MTH is a group of wood fibres used in paper and reconstituted wood products like chipboard. The fibres traditionally used to make paper include woods from temperate and boreal regions, plantation woods (usually eucalyptus or acacia for paper), cotton, straw and sugar cane. These established and well-known fibres, including the tropical plantation fibres, can be identified by laboratories as a matter of routine. Experience shows that tropical woods from natural forests occur as a mixture of many different species, the genera of which can sometimes be identified by certified laboratories using reference-based microscopy. The presence of such a mixture of different genera and species (collectively MTH), some of which are unknown, indicates that it probably consists of woods from tropical natural forests. The identification of an unknown wood species found in the paper in large amounts points to cultivated areas like plantations (not MTH).

The following links provide more information:

- http://wwf.panda.org/about_our_earth/search_wwf_news/?176641/tropical-forests-are-dying-for-german-childrens-books
- http://wwf.panda.org/wwf_news/press_releases/?207141/tropical-pulp-still-a-long-way-from-fiction-in-german-childrens-books
- http://www.wri.org/blog/qa-fiber-testing-paper-and-lacey-act
- http://ran.org/sites/default/files/turning_the_page_on_rainforest_destruction.pdf

General information on the methods

The advantage of the genetic fingerprint and the stable isotope method is the fact that the parameters examined are firmly anchored in the wood and therefore unchangeable. This is the main and most significant difference between these two methods and classic information systems, where information is hammered into the tree trunk, and electronic chips (RFID) that are attached to the tree trunk. The wood's origin is one of the pieces of information requested in the past, but it is has not been possible to check it until now. Falsely declared information regarding a wood's species and origin does not actually prove that the wood is illegal, but it is a strong indication that this is the case. If a wood's species and origin are not known or have been falsely declared, it is not possible draw a concrete conclusion regarding the wood's legality!

The further development of methods and the **combination** of different methods are expected to lead to even more accurate results when it comes to identifying a wood's species and origin in future.

Traffic

Interpol has estimated the global value of illegally traded wild species to be approximately 19 billion US dollars per year (excluding wood and fish). The economic damage caused by illegal timber trade is estimated to be about 15 billion US dollars per year.

To monitor international trade with threatened species and develop solutions, the WWF founded the international species conservation programme TRAFFIC in conjunction with the International Union for Conservation of Nature (IUCN) in 1976. TRAFFIC's purpose is to ensure that international trade involving living wild animal and plant species and their products only occurs in a sustainable manner, is conducted in compliance with national and international agreements and laws, and does not lead to the extinction of species. TRAFFIC has 25 offices on five continents and is the globally recognized expert organization in this area.

Examples of TRAFFIC's duties include the critical monitoring or trade involving protected species and developing innovative solutions that enable sustainable, legal and transparent trade. With regard to international timber trade, TRAFFIC has worked on drawing up legality guidelines, examined trade flows and supported, among others, governments and international trade associations with the enforcement of legal regulations for many years.

The following links provide more information:

- http://www.traffic.org/timber-trade/

International reference database / Global Timber Tracking Network

Genetics and isotopes need references that suspicious samples can be compared to or measured against. One important task of the future will therefore be to create an international reference database that is freely accessible but protected from unauthorized access. Another important task will be to collect reference samples in partner countries and putting the analysis results together, so that suspicious cases can be dealt with more quickly. An international database like the one mentioned above is currently being created with the help of financial support from Germany. The international organization Bioversity International, which is headquartered in Rome, will be responsible for launching it when it is ready.

The International Atomic Energy Agency (IAEA) has already said it is prepared to develop some wood standards so that isotope measurements can be calibrated. This means that isotope laboratories in every country will be able to take part in carrying out wood measurements and comparing the results.

Global Timber Tracking Network (GTTN), an international network headquartered in Malaysia, is a dialogue platform for wood identification and tracking methods. The WWF is a partner of the GTTN network and is a member of the advisory board involved in the creation of the international database.

The following links provide more information:

- http://www.globaltimbertrackingnetwork.org/home/
- http://www.bioversityinternational.org/

Upcoming events

ITTO and CITES: collaboration to sustain tropical tree species - Side event at IUFRO World Congress, Salt Lake City, USA, 9 October 2014.

ITTO and CITES: collaboration to sustain tropical tree species - Side event at CBD CoP 12, Pyeongchang, Republic of Korea, 16 October 2014.

10th Meeting of the ITTO-CITES Program Advisory Committee. Yokohama, Japan (during the 50th ITTC Session), 4 November 2014 (tbc).

More details on both of the above events are/will be available on the ITTO website.

Editorial (cont'd from page 1)

producing agarwood, such as *A. malaccensis* and *G. versteegii*. Activities currently being implemented include an assessment of the population status of *Aquilaria* and *Gyrinops* species and the establishment of genepools of some of these species in Indonesia; a detailed study on the flowering phenology and reproductive behavior of *A. Malaccensis*; DNA profiling databases to enable the tracking of the species and for forensic applications; and an action plan to conserve wild populations of agarwood in Peninsular Malaysia.

As all these activities are embedded within government agencies and scientific institutions, their ownership and sustainability is assured. In addition, it is envisaged that the results of the activities will be adapted within the context of the national policy frameworks of Indonesia and Malaysia to complement other ongoing work to achieve sustainable forest management and to ensure that the trade in timber and timber products are from legal and sustainable sources.

Thang Hooi Chiew
Regional Coordinator for Asia

Program Monitoring

To ensure the transparency of the ITTO-CITES Program, regular monitoring of field implementation is conducted in Africa, Asia and Latin America by the respective Regional Coordinators. Mid-term and ex-post monitoring will also be conducted as per the terms of the grant agreement with the EC and ITTO's rules and procedures.

In this context, a staff of the Regional Coordinator for Latin America, Ms. Sofia Hirakuri, carried out a field monitoring mission to Lima, Pucallpa and Puerto Maldonado in Peru to assess the implementation of the Activity "Confirmatory evaluation of forest inventories of cedar and mahogany species" which is being executed by the National Agrarian University La Molina (UNALM) from 10-16 July 2014.

The monitoring mission included visits to UNALM, Iberia, and to a concessionaire in Puerto Maldonado, as well as discussions with the Peru CITES Management Authority (MINAGRI) and the Scientific Authority (MINAM). In addition, she also participated at the joint workshop organized by MINAM and UNALM in collaboration with the Regional Government of Ucayali in Pucallpa on 11 July 2014. The methodology for evaluation of seed trees and regeneration of mahogany and cedar has been disseminated to the regional government of Ucayali, as well as other regional governments, such as Lima, Tarapoto and Iquitos on 14, 16 and 22 July 2014, respectively.

The main objective of the field visit was to monitor *in situ* the field work on information gathering carried out under the Activity. In the forest, Ms. Hirakuri observed the application of the methodological criteria by an evaluator on a mahogany and a cedar tree. Major issues covered/observed during the field visit included: (i) data survey about location and dasometric data on various mahogany and cedar trees that will be used as "standard trees" and serve as inputs to calculate indices of tolerance or acceptable level of measurement error in forest census; (ii) methodological procedure for technical analysis; (iii) acceptable level of measurement error of the diameter (dbh) and tree height; and (iv) evaluation of measurement precision and accuracy by evaluators. All the activities as proposed in the work plan have been duly implemented in the field.

The Regional Coordinator for Asia, Thang Hooi Chiew, also undertook a monitoring mission to Jakarta and Bogor, Indonesia from 11-14 August 2014 to evaluate the progress of the three Activities that are currently being implemented in Indonesia, namely, "Promoting Conservation of Plant Genetic Resources of *Aquilaria* and *Gyrinops* species in Indonesia", "Capacity Building on Seedling Propagation Techniques and Awareness Raising on CITES Implementation and Ramin Roadmap", and "Managing Agarwood Plantation in Indonesia". Discussion on the progress in signing the Agreement with ITTO for implementing the two Activities by the Forestry Research and Development Agency (FORDA), namely, "Ensuring Genetic Diversity of Ramin Seed Sources and Ramin Population from Rooted Cuttings", and "Establishment of an Integrated Agarwood Cluster in Bintan Island, Indonesia" was also held. He also visited the initial establishment of *A. malaccensis* on a 0.3 ha plot which was planted at a spacing of 3m x 3m in June 2014; and *G. versteegii* which was planted in July 2014 at a spacing of 2m x 3m on a 0.25 ha plot, both at the Dramaga Research Forest in Bogor.

The Regional Coordinator for Africa plans to undertake a monitoring mission to the Democratic Republic of Congo in September 2014 to evaluate and explore the feasibility to re-orientate the remaining work to be carried out under the activity "Elaboration of non-detriment findings for *Pericopsis elata* in the Democratic Republic of Congo". He will also work to ensure that the long-delayed DRC Activity on *Prunus africana* reaches a successful conclusion during his visit.

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