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ITTO - CITES

PROGRAM FOR IMPLEMENTING CITES LISTINGS OF TROPICAL TREE SPECIES

Newsletter

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Donors

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United States of America

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China

Private sector donors: Abbott-Solvay, Indena, EuroMed and Plavuma

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 during 2012-2016 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 also provides 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 the end of 2015.

EDITORIAL

The ITTO-CITES Program is now reaching the end of its second phase, with most of the 44 activities funded during this phase now either complete or nearing completion. The Program has made valuable contributions to the implementation of CITES for tropical tree species over the past four years, including establishing data and management plans that allowed sustainable trade of products from species such as *Prunus africana* and *Pericopsis elata* to continue contributing to the economies of range states. The Program has also expanded its focus to new species and countries, including providing assistance to assess and better manage rosewood resources in several countries, a growing concern globally.

The Program will publish a final version of this Newsletter in April 2016, following which there will be a break in publication until funding for a proposed third phase of the Program is secured. It is hoped that publication of the Newsletter will re-commence in 2017 together with the launching of activities under the next phase of this important collaborative initiative. Stakeholders should also note that ITTO will publish a special issue of its Tropical Forest Update focusing on the ITTO-CITES Program in April 2016; check ITTO's website (www.itto.int) or email tfu@itto.int to obtain a copy.

Steve Johnson, ITTO

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 $9 million (EUR 7.5 million) and has to date been funded by the European Union (through the European Commission - EC), United States of America, Germany, Norway, the Netherlands, China and the private sector. The third (and final significant) installment of EUR 1.2 million under the ITTO-EC contract that provides for two-thirds of the Phase II budget was received from the European Commission in March 2015. The United States of America also continues to support the Program, pledging USD 125,000 during the 51st ITTC Session in November 2015. China also became a donor to the Program in 2015, with a pledge of $100,000. The government of Germany also agreed that starting in 2015, half of the budget it was providing under ITTO's regular project cycle for PD 620/11 Rev.1 (M) (total budget $2,046,274) "Development and Implementation of a Species Identification and Timber Tracking System in Africa with DNA Fingerprints and Stable Isotopes" could be counted as a contribution to the ITTO-CITES Program due to the close linkages between the Program and project objectives. A total of $2.64 million has to date been added to the non-EC contributions to the Program, leaving about $66,400 to be sought from non-EC donors under the provisions of the ITTO-EC contract. This amount is likely to be exceeded once a contract being negotiated with private sector partner Euromed is finalized in early 2016 to support additional work on *Prunus africana*.

Activity progress reports

Under Phase II of the Program, ITTO has, in consultation with the CITES Secretariat, funded 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 36 Activities approved or extended under Phase II are now underway or have been completed. In addition to the 36 Activities approved or extended under Phase II of the Program, eight Activities under the TMT component are currently under implementation. Progress in the German-funded project PD 620/11 Rev.1 is also reported on as noted above. An additional 14 Activity proposals (eight in Africa, two in Asia and four in Latin America) submitted to ITTO by countries are pending approval/availability of funds under the proposed Phase III of the Program.

Information about each country Activity (country, Activity document summary, 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 ongoing Activities and those completed since the last issue of the Newsletter (earlier completed Activities have already been reported on in previous issues of the Newsletter).

Africa

Cameroon

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: 26 months

This Activity is a continuation of assistance to Cameroon to address recommendations from its first non-detriment findings (NDF) report on *Pericopsis elata* in production forests produced under Phase I of the ITTO-CITES Program. The Activity aims to implement the main recommendations outlined in the NDF report and those related to law enforcement regarding *P. elata*. It is executed by the *Agence Nationale d'Appui au Développement Forestier* (ANAFOR) in collaboration with the national association of timber companies. A total of nine experts have been recruited to implement nine specific activities in the field. They are from research institutions, including universities, and the National Institute for Development and Agricultural Research (IRAD).

ANAFOR organized a meeting of the Scientific Committee in July 2015 with the aim to examine the different reports submitted by the experts. Four out of the nine specific activities were completed, namely, (i) training forest farmers on the silviculture of *P. elata*; (ii) production of 8,200 seedlings of *P. elata* for plantations; (iii) studies on the soils and edaphic properties of *P. elata*; and (iv) studies of pests and diseases of *P. elata*. ANAFOR is planning to organize the second meeting of the Scientific Committee by the end of December 2015 with the aim to examine

Identification of a mother tree to be retained in the GVI forest management unit, east Cameroon. *Photo: Tientcheu*

the reports submitted by experts on four other specific activities including (i) testing different sampling designs to better assess the stock of *P. elata* in production forests in Cameroon; (ii) studying the physical and technological properties of *P. elata* wood; (iii) establishing permanent plots of *P. elata*; and (iv) enriching the production forests with *P. elata*. The third meeting of the National Technical Committee will also be organized in January 2016 to discuss the main outputs of the Activity. The phenological study encountered a huge delay due to irregular fructification of *P. elata*. ANAFOR is planning to re-schedule the completion of the Activity to June 2016 so as to enable the finalization of the phenological study. The Regional Coordinator for Africa (RC) reminded ANAFOR on the necessity of producing relevant scientific data. It is envisaged that the completion date of the Activity will be re-scheduled to mid-2016. The disbursement of the final instalment of funds from ITTO will be made following the presentation of a paper for ITTO's Tropical Forest Update.

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: ANAFOR
Status: Operational
Start date: November 2013
Planned duration: 18 months
Actual duration: 26 months

The Activity 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 Activity is executed by 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.

The coordination team conducted a field monitoring mission in July 2015, followed by the first meeting of the Scientific Committee in charge of validating the reports from the experts. A total of five outputs were identified. The first important result obtained was the cleaning of the plantation of Bidou II in March 2015. The products obtained which had been validated by the Scientific Committee were used by the expert in charge of studying the technological properties of *P. elata* wood. Notwithstanding this, the expert in charge of silviculture expressed some concerns regarding the low quality of the seeds used in the nurseries.

Two other outputs are now available and were examined by the meeting of the Scientific Committee at the end of December 2015, namely, (i) the study of the technological properties of *P. elata* wood; and (ii) the development of the simple management plan of the Ndeng Ndeng forest plantation.

The last two outputs, namely, (i) phenological and dynamic observations; and (ii) settlement of village plantations have encountered delays and will now be completed before June 2016. For the first output, the delays are due to irregular fructification as mentioned earlier. For the second output, the expert encountered high mortality rates, but has nevertheless produced seedlings from vegetative propagation which are being distributed to farmers for planting. It is envisaged that the completion date of the Activity will therefore be re-scheduled to June 2016.

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

Implementing agency: ANAFOR in collaboration with Double HELIX
Status: Operational
Start date: April 2014
Planned duration: 12 months
Actual duration: 21 months

The Activity commenced implementation in April 2014 and contributes to the ITTO-CITES Program output calling for development of cost-effective regulatory systems for the trade in CITES-listed tree species. The first training workshop on DNA sampling was organized in Cameroon from 2-3 June 2014, in the "Residence Julie", at Kribi, by ANAFOR in collaboration with Double HELIX. Samples of cambium were collected in east Cameroon by a student from the University of Douala and a field technician from ANAFOR. More specifically, 540 samples of cambium in three forest concessions, namely, the GVI-Ouesso Forest Management Unit; CFC-Ngola 35 FMU; and SEFAC-Libongo FMU were collected, including samples of cambium from all exploitable trees of *Pericopsis. elata* with diameter at breast height of at least 90 cm that were enumerated in the 2015 annual plot of the GVI-Ouesso FMU.

There was a delay in the delivery of the collected samples to the Double HELIX laboratory, due to delays in obtaining CITES permits for export. Another delay was caused by the change in the annual logging allocation to the GVI timber company that is being used to test the tracking system. The National Technical Committee in its meeting in May 2015 had noted these delays and recommended that (i) ANAFOR should re-organize the collection of samples in annual plots in collaboration with timber companies; (ii) ANAFOR should request the extension of the Activity for at least six months to allow the coordination team to yield some useful results; and (iii) Double HELIX should expedite the analyses of samples sent to its laboratories. All field activities planned under the Activity have been achieved and samples are now being analyzed by Double HELIX. ANAFOR is planning to organize a review and evaluation workshop in March 2016 to complete the project.

Pilot implementation of a DNA traceability system for* Prunus africana *in* Prunus *Allocation Units in Cameroon

Implementing agency: ANAFOR in collaboration with Double HELIX
Status: Operational
Start date: June 2014
Planned duration: 18 months
Actual duration: 18 months

The Activity commenced implementation in June 2014. It seeks to demonstrate that through the use of DNA techniques *Prunus africana* bark could be traced back to specific trees from the controlled *Prunus* Allocation Units (PAUs). After the training workshop that was

Harvesting *Prunus africana* bark at Mount Cameroon. *Photo: Wété*

organized in June 2014 in Kribi, Cameroon, and as taught during the workshop, the coordination team from Cameroon has sent students and field technicians to the forest to collect samples of *Prunus*. In this regard, the students started collecting samples in August 2014 at the PAU level. The collected samples have been sent to the Double HELIX laboratory for analysis. The students were sent back to the field and have collected *Prunus* samples in the annual plot at Mount Cameroon as well as from the processing unit of AFRIMED based in Bafoussam for testing the tracking system. In fact, fresh barks collected in different production forests (PAUs) in the north-west, south-west and Adamawa were transported to Bafoussam for primary processing which consists of drying and grinding in small batches for export through the port of Douala. ANAFOR had organized the second National Technical Committee meeting in October 2015. All field activities planned under the Activity have been achieved and samples are now being analyzed by Double HELIX. ANAFOR is planning to organize a review and evaluation workshop in March 2016 to complete the project.

Pericopsis elata *database management in Cameroon*

Implementing agency: ANAFOR
Status: Operational (TMT Component)
Start date: August 2015
Planned duration: 10 months
Actual duration: 5 months

The Activity aims to assist ANAFOR in managing and updating the database developed for the management, logging, processing and trade in *Pericopsis elata* in Cameroon which was developed through a related Activity in 2014. Specific activities include the training of forest officers in the management of the database, and providing assistance in field data collection, including equipment and materials. ANAFOR organized

the first meeting of the National Technical Committee (NTC) on 25 August 2015 where the Activity document including the objectives, the work plan and the budget were examined. The NTC appreciated the link made between this Activity and the former one implemented in 2014. The NTC recommended that (i) an additional data sheet be included in the current field logging book with specific elements related to *P. elata*; (ii) the data collection be automatic (obliged) for any forest company that wishes to exploit *P. elata* in Cameroon; and (iii) the coordination team should work closely with the timber industry association in planning field missions for data collection. Terms of references for the three studies had been developed and validated by the Scientific Committee in September 2015, namely, (i) updating of field sheets for data collection in different forest concessions; (ii) updating the volume base tariff; and (iii) updating and integration of the processing coefficient (log/sawn wood) in the database. The Regional Coordinator for Africa (RC) stressed that the studies related to the revision of the volume base tariff and in processing the coefficient should be in phase with similar studies being done by another project (C2D) funded by the French government as to avoid any duplication and to assure synergies. ANAFOR is now recruiting experts who will be sent to the field. There are no impediments foreseen that may affect the completion of this Activity as scheduled.

Republic of Congo

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

Implementing agency: *Centre national d'inventaire et d'aménagement des ressources forestières et fauniques* (CNIAF)
Status: Completed
Start date: November 2013
Planned duration: 18 months
Actual duration: 25 months

The Activity is now completed. The Activity was a continuation of the work done during Phase I of the ITTO-CITES Program in the Tala 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 NDF report on *P. elata* in north Congo. The Activity was 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. The coordinating team organized a national workshop from 10-11 February 2015 where three experts presented their reports on (i) soil and edaphic properties of *P. elata*; (ii) diseases of *P. elata*; and (iii) the biology and ecology of *P. elata*.

Meeting on the validation of the reports prepared by experts in charge of developing the database on logging, processing, and trade in *P. elata* in Congo, Brazzaville, 1 December 2015. *Photo: Banzouzi*

From 12-19 February 2015, the Regional Coordinator for Africa (RC) monitored the field work and noted that some wild seedlings of *P. elata* had been planted in 5 ha of forest in the Tala Tala Forest Management Unit using the 'lining' planting method. The RC proposed that the coordination team should acquire more seeds, put in place a bigger nursery, and test different sivilcultural techniques. The experts had submitted their final reports on all the work carried out in August 2015, which were approved by the scientific group of the Activity. Finally, a total of 12 ha of *P. elata* has been planted in forest concession areas. Final reports of the Activity will be submitted to ITTO in early 2016.

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

Implementing agency: CNIAF in collaboration with Double HELIX
Status: Operational
Start date: April 2013
Planned duration: 12 months
Actual duration: 32 months

The Activity commenced in April 2013 in conjunction with similar work being carried out in Cameroon. Collection of cambium samples of *Pericopsis elata* has been conducted in two forest management units in north Congo, including the Tala Tala and Dua-Ikié Forest Management Units (FMUs), as well as from all exploitable trees with diameter at breast height of at least 70 cm in the 2015 annual logging coupe of the Tala Tala FMU. Wood samples were also collected from the logs and sawn wood at the Tala Tala sawmill. These samples are being analyzed by Double HELIX and field specific activities are now completed after delays in accessing field sites and in sending samples to Double HELIX. CNIAF is planning to organize a review and evaluation workshop to complete the project in March 2016.

Settlement of a monitoring system of logging of Pericopsis elata *in North Congo*

Implementing agency: CNIAF
Status: Operational (TMT Component)
Start date: August 2015
Planned duration: 12 months
Actual duration: 5 months

The Activity aims to assist the Congo authorities in putting in place a database on the exploitation of *Pericopsis elata* in North Congo. The database will be able to track each log of *P. elata* produced in the two main production sites, Tala Tala and Dua-Ikié. The first National Technical Committee (NTC) met for the first time in September 2015 and examined the Activity document including the objectives, the work plan and the budget. The NTC appreciated the link made between this Activity and the recommendations formulated in the non-detriment findings report developed during the first phase of the Program. A total of three experts were recruited with the assistance of the Regional Coordinator for Africa (RC), namely, (i) an expert on the state-of-the-art of the current control system; (ii) an expert on geographic information system (GIS specialist); and (iii) a database specialist. The Scientific Committee met for the first time from 2-3 December 2015 in Brazzaville and examined and validated the reports submitted by the experts with some specific observations. This meeting was organized by the coordination team. In this regard, the database developed is quite simple, easy to use, and based on Excel work package. The Activity is on course to be completed on schedule

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: Completed
Start date: March 2011
Planned duration: 10 months
Actual duration: 57 months

The Activity started in March 2011 under Phase 1 of the ITTO-CITES Program and is now completed. ICCN sent their final report to the Regional Coordinator for Africa (RC) in December 2015. The report comprises five sections, covering (i) background/origin of the Activity; (ii) difficulties encountered; (iii) reaction/response to the difficulties; (iv) achievements; and (v) the way forward. It will be forwarded to ITTO in early 2016 following review and editing.

Prunus africana exists in large quantity in North and South Kivu provinces in DRC. Trade in the bark of *P. africana* was suspended in 2007 following concerns expressed on the over-harvesting of the bark using non-sustainable methods. This Activity which started in March 2011 was to address the concerns expressed by both CITES and the European Commission on *Prunus* harvesting in DRC.

The Activity suffered from several problems that had delayed its implementation, mainly the instability/insecurity in many *Prunus* production sites due to the presence of armed rebel groups, the long distance between the production sites and the coordination team based in Kinshasa, and the lack of adequate and trained persons on *Prunus* management.

To address those problems, ITTO proposed to use the "Public-Private sector Partnership (PPP)" approach, where ICCN as the executing agency signed a MoU with the "Centre for the information and promotion of agricultural projects" (CIPAGRI) and the Catholic University of Grabben (CUG). It was also agreed that ICCN would play the role of a facilitator, while field activities would be implemented directly by CUG and CIPAGRI. Inventories were conducted in the field with the assistance of CIPAGRI and the CUG of Butembo under the supervision of ICCN. To enhance the implementation of such approach, the Activity proceeded in two phases involving (i) training of field teams of the private sector on *Prunus* management inventories in 2013; and (ii) training of CIPAGRI and CUG field teams and officers in conducting *Prunus* inventories and developing simple management plans in 2014.

As a result, inventories were effectively conducted in different production sites. The current annual quota for *P. africana* in DRC is 232 tons of dried bark where the production sites in Mwenda and Ibathaama are allocated with a quota of 72 tons, Walikalé with 30 tons, Manguridjipa with 44.67 tons and Lumé with a quota of 85.19 tons. Field inventories have recently been completed for the Rwenzory Mountain and the results will be published soon, which will increase the quota for 2016. The local staff of ICCN had also conducted inventories in the Kahuzi-Biega National Park (KBNP) in February 2015 which revealed that the park hosts important stocks of *P. africana* in some hills. ICCN and its partners had conducted several missions of sensitization of villagers on the economic importance of *Prunus* bark as compared to cutting down the trees for firewood. In addition, ICCN and the private sector (PLAVUMA and KAHINDO) had also started a huge regeneration program where a total of 3800 and 5000 seedlings had been produced in nurseries established in Lumé and Walikalé respectively. Some of the seedlings had already been planted through enrichment planting techniques in two hills identified in the Walikalé's NDF report as poor or less abundant with *P. Africana*, including Kateku and Ngambi (refer to Walikalé's NDF report).

ICCN is seeking additional funds to complete the inventories started in the KBNP. ICCN believes that the rational harvesting of *Prunus* bark in the KBNP will enhance the PPP approach and allow the park officers to build a good participative management scheme with villagers through the implementation of development projects in villages surrounding the park. ITTO has supported such a scheme in the Mount Cameroon National Park which is yielding some good results. ICCN will organize a workshop in early 2016 to share the results of the Activity and discuss further the way forward, especially in addressing the "possibility of harvesting *P. africana* in protected areas as a tool for implementing the participative management of the resource with villagers". ICCN is seeking additional funds from the German International Cooperation (GIZ) for organizing the workshop.

Although the Activity took longer than expected to complete all its planned activities, it has yielded important results that have allowed DRC to recommence sustainable exports of *Prunus* bark and allowed it to test with success the "PPP" approach.

Marking an exploitable tree during *Prunus* exploitation inventory in the Manguridjipa forest, North Kivu, DRC. The symbols on the tree identify clearly the exploitable tree (or tree with at least 30 cm diameter at breast height). *Photo: ICCN*

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: September 2013
Planned duration: 12 months
Actual duration: 27 months

The Activity is now expected to be completed in March 2016. It aims to collect data on the status of *Pericopsis elata* in the forest concessions of the Democratic Republic of Congo (DRC). The DRC authorities succeeded in producing the NDF report for *Pericopsis elata* in May 2014 as scheduled. The Regional Coordinator for Africa (RC) conducted a monitoring and evaluation mission to DRC in November 2014 with two objectives. The first objective was to monitor the implementation of the "NDF on *Pericopsis elata* in DRC", while the second objective was to monitor the level of

Seedlings of *Prunus* in a nursery for enrichment planting in Kateku and Ngambi hills in the Walikalé territory, North Kivu, DRC. *Photo: ICCN*

implementation of the recommendations made in the NDF report on *P. elata*. The RC conducted another monitoring and evaluation mission in March 2015 with the aim to (i) assist in the evaluation of the Activity conducted by the international consultant recruited by ITTO to undertake a mid-term review of the activities implemented under Phase II of the ITTO-CITES Program; and (ii) address the problem of the control of forest inventories. The mission noted the importance of putting in place a framework to control and validate inventories conducted by timber companies and to develop a tracking system that will allow for reliable and timely tracing of the first volume of the quota of 23,000 m^3 that was harvested from the production forests covered by the NDF.

In May 2015, ITTO disbursed the second instalment and in July/August the verification of management inventories in areas of high densities of *P. elata* as identified in the concessionaire's inventory reports was conducted by the Directorate in charge of inventories and management of the Ministry of Environment and Sustainable Development (MEDD). The validation team comprised the RC, an independent observer, and staff from the local CITES authorities. The verification report was presented to the cabinet of the Minister of Environment and Sustainable Development on 20 August 2015. The results reveal that timber companies working in *P. elata* areas in DRC have conducted or are still conducting forest inventories in accordance with the national guidelines adopted by the DRC authorities. The DRC authorities submitted an updated NDF report and quota request based on the recommendations of the verification reports to CITES and the EU SRG at the end of August 2015. This quota has been revised in November 2015 based on the progress made by timber companies such as COTREFOR (validated management plan) and Bego Congo (completed management inventories).

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

Implementing agency: Minister of Environment, Nature Conservation and Tourism (MECNT) in collaboration with Double HELIX
Status: Operational
Start date: June 2014
Planned duration: 18 months
Actual duration: 18 months

The Activity has been implemented in parallel with the similar Activity in Cameroon. It seeks to demonstrate that through the use of DNA techniques *Prunus africana* bark could be traced back to specific trees from controlled production sites in the North Kivu. The proposed DNA traceability system will secure controlled supply chains, detect substitution of illegally harvested bark and allow for timely corrective actions to be taken. The coordination team has sent students from the University of Grabben (Butembo) and field technicians to the forest to collect samples of *Prunus* as taught during a training workshop. Samples of cambium and bark collected by the students and technicians have already been sent to the laboratory of Double HELIX for analysis. An integral part of the traceability system involves taking DNA samples from the cambium of standing trees in *Prunus* Allocation Units (PAUs) and match them with DNA samples taken from bark post-harvest. However, Double HELIX has encountered some difficulties (mixture of bark samples much earlier in the supply chain and insecurity problems) in this approach and in March 2015 requested ITTO to change the scope of this Activity. Rather than matching the bark to individual trees (DNA fingerprinting), Double HELIX proposes to match bark samples back to distinct *Prunus* populations. Whilst the Activity would no longer be aiming to identify the specific tree that a piece of bark came from, Double HELIX would be able to identify and verify the PAU that the bark was obtained from. Samples collected according to the new approach had encountered delay in their analysis due to problems of communication between the German CITES authority (where the bark is being analyzed) and the DRC CITES authority regarding the CITES permits to allow the samples to be shipped. This shows the need for CITES to consider special permits and/or communications protocols for material being exported for research/scientific purposes designed to promote the sustainability of the species. Nevertheless, all field specific activities planned under the Activity have been achieved and samples are now being analyzed by Double HELIX. The implementing agency is planning to organize a review and evaluation workshop to complete the project in March 2016.

Ghana

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

Implementing agency: Ghana Timber Millers' Organization (GTMO)
Status: Operational (TMT Component)
Start date: April 2013
Planned duration: 24 months
Actual duration: 32 months

The Activity to improve market transparency for African timber products (including those arising from CITES-listed species) has been progressing well and is now nearly complete. The tariff database website (http://atmam.org/wp-content/uploads/StatPlanet.html) has been completed. The translation of the database into French has also been completed in so far as the web software allows (http://atmam.org/wp-content/uploads/StatPlanetfr.html). The resulting online tariff database in English and French, together with the on-line magazine (African Forests and Timber) launched at the end of the year, will facilitate the expansion of sustainable timber markets in the region. The Activity is expected to be completed by March 2016.

Improving sustainable* Pericopsis elata *conservation and trade regulation in Ghana

Implementing agency: Nature and Development Foundation
Status: Operational (TMT Component)
Start date: September 2015
Planned duration: 18 months
Actual duration: 4 months

The Activity aims to assess remaining stands of *Pericopsis elata* in Ghana (which is not a significant exporter of the species) and develop a plan for conservation and sustainable trade of the species. An inception workshop was held in October 2015 which was participated in by stakeholders from the Forestry Commission; the Ministry of Lands and Natural Resources (MLNR); the Faculty of Renewable Natural Resources; civil societies; trade industry associations; and the media. The workshop had generated interest on *Pericopsis elata* among the stakeholders present, especially the Project Management Team responsible for inventories of this species conducted by the Resources Management Support Center of the Forestry Commission of Ghana and the trial plantation stands management by the Forestry Research Institute of Ghana. The Activity intends to collaborate with these institutions in implementing the Activity, which should be completed on schedule.

Regional

***Development and implementation of species identification and timber tracking in Africa with DNA fingerprints and stable isotopes* (PD 620/11 Rev.1 (M))**

Implementing agency: Thünen Institute of Forest Genetics, Germany
Status: Completed (regular ITTO project cycle)
Start date: February 2012
Planned duration: 36 months
Actual duration: 46 months

This project has recently been included under the ITTO-CITES Program as explained in the section on Program Funding. It supports seven African countries (Cameroon, Republic of Congo, Democratic Republic of the Congo, Côte d'Ivoire, Gabon, Ghana and Kenya) to develop and implement tools to identify tree species (including CITES-listed species) and their geographic origin using DNA fingerprints and stable isotope technologies. Implementation is supported by 14 collaborative agencies in Africa, Asia and the Pacific, and Europe.

For each of the three main target species - iroko (*Milicia excelsa*, *M. regia*), sapelli (*Entandrophragma cylindricum*) and ayou (*Triplochiton scleroxylon*) - more than 1000 gene markers (single nucleotide

polymorphisms - SNPs) have been developed and genetic geographic reference maps have been created to tests claims of geographic origin. A similar approach has been taken for the development of a database of stable isotopes to determine the region of origin of a particular sample.

In addition, differences in DNA sequences have been identified for another 21 important taxa (including CITES listed species) in Africa that can be used to help identification to the species level. Blind tests are currently performed to evaluate the reliability of the various timber identification tools - DNA fingerprinting, stable isotopes, DNA sequencing and the more conventional approach of using anatomical characteristics - and the potential for combining various techniques.

To help build capacity and transfer technology, the project has also supported the establishment of three regional reference laboratories: at the Forest Research Institute of Ghana (FORIG) in Kumasi for West Africa; at the Institut de Recherche en Ecologie Tropicale, IRET in Libreville, Gabon, for Central Africa; and at the Kenya Forestry Research Institute, KEFRI in Nairobi for East Africa. Laboratory staff has been trained in the application of DNA fingerprinting and wood anatomical tree species identification techniques and also to perform simple DNA fingerprinting and stable isotope tests for determining origin. It is foreseen that in the future the regional laboratories will perform DNA testing directly on timber products, to ensure legality before export or to check claims of timber designated for domestic markets. The regional laboratories will allow neighbouring timber producing countries to access and make use of these facilities.

The project is now completed and the implementing agency is now finalizing the final report which is expected to be uploaded to the ITTO-CITES website in March 2016.

Asia

China

Supporting SMEs and importers of tropical timber for better understanding of CITES and the need to comply with CITES rules in China

Implementing agency: Research Institute of Forestry Policy and Information, Chinese Academy of Forestry (RIFPI/CAF)
Status: Operational (TMT Component)
Start date: October 2015
Planned duration: 18 months
Actual duration: 3 months

The agreement for the Activity was signed in August 2015 and implementation commenced in October the same year. The Activity aims to raise the capacity of SMEs and importers of tropical timber in the Yangtze River Delta to understand and prepare procurement strategies and business plans, taking into account the trade regulation requirements of CITES Appendices, including in wood identification. This would further improve market transparency and promote the trade in tropical timber from sustainably managed and legally harvested forests. The Activity is on course to be completed on schedule.

Preparatory meeting on the development of a concept for ramin conservation in plantation forest concessions. ***Photo: Directorate of Biodiversity Conservation, Ministry of Environment and Forestry***

Indonesia

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: February 2015
Planned duration: 12 months
Actual duration: 10 months

The Activity aims to (i) formulate a ramin conservation concept for plantation forest concessions; (ii) develop a ramin conservation guideline for plantation forest concessions operation; and (iii) conduct a review of the Minister of Forestry Decree No. 127/ KPTS-V/2002 on Temporary Moratorium of Logging Activities and Ramin Trade.

Focused group discussion to identify problems and preparatory meetings for conducting the expert panel working group in developing a concept of ramin conservation within the area of operation of plantation forest concessions were held in September and October 2015. It is planned that the expert panel working group meeting will be held on 15 December 2015. This was followed by a national workshop and an evaluation meeting held in late December 2015.

A field visit to Riau (Pekanbaru) to collect information for developing the guideline on ramin conservation within the area of operation of plantation forest concessions was conducted from 9-13 December 2015. In this regard, the holding of a national workshop to discuss the draft guideline and an evaluation meeting took place in late December 2015.

The national expert review of the Minister of Forestry Decree No. 127/KPTS-V/2002 on Temporary Moratorium of Logging Activities and Ramin Trade was completed by the end of December 2015. A national workshop will be conducted in early 2016 to discuss the review which will be followed by an evaluation meeting.

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

Implementing agency: Center for Forest Biotechnology and Tree Improvement Research (CFBTIR)
Status: Operational
Start date: January 2015
Planned duration: 12 months
Actual duration: 11 months

The Activity was recently granted a no-cost extension for three months until March 2016. It aims to contribute to the conservation and planting of ramin using wildlings and rooted cuttings in Sumatra and Kalimantan through genetic analyses and infusion of genetic materials to ramin cuttings.

Currently, DNA molecular analysis in the laboratory in Yogyakarta and the study of the morphological growth variation of the ramin plantation using the materials collected from the conservation gardens at Ogan Komering Ilir (OKI), South Sumatra and Tumbangnusa, Central Kalimantan are being conducted. Further collection of genetic material for DNA analysis in the Jambi Regency was conducted in November 2015.

The collection of wild genetic resources of non-*Gonystylus bancanus* species from Sumatra and Kalimantan to enable the initial establishment of an *ex situ* conservation garden

Morphological variation of branching of ramin at Ogan Komering Ilir, South Sumatra. ***Photo: Antonius Widyatmoko***

of these species was conducted in October 2015, covering the Bukit Pucung Forest area and the western part of the Bukit Barisan mountain. Two non-*G. bancanus* species were found, namely, *G. maingayi* (benban hitam) and *G. velutinus* (kayu minyak) of the Thymelaeceae family. Further collection of wild genetic resources was conducted in West Kalimantan in early December 2015. The selection of a site to establish a conservation garden for non-*G. bancanus* species is still ongoing.

Establishment of an integrated agarwood cluster in Bintan Island, Indonesia

Implementing agency: Center for Rehabilitation and Conservation, Forestry Research and Development Agency (FORDA)
Status: Operational
Start date: January 2015
Planned duration: 12 months
Actual duration: 11 months

The Activity was recently granted a no-cost extension for three months until March 2016. It aims to ensure (i) the sustainable production of agarwood from both natural and planted forests; and (ii) the sustainable production and conservation of the genetic resources, as well as to improve transparancy of trade in agarwood products.

The field work required to develop an integrated agarwood cluster has been completed and the technical report is being prepared. This was followed by a public meeting to finalize the agarwood cluster design in Bogor, West Java on 16 December 2015.

After further field survey and consultation with agarwood farmers' groups, the Puput village in the Simpang Katis sub-district of Central Bangka Regency covering 30 ha was selected to form part of the agarwood cluster. In addition, it was also decided that the Trubus village covering an area of 10 ha in the Sungai Selan district, Central Bangka, would also be part of the agarwood cluster. Other areas that are still being considered include the National Forest Park of Gunung Mangkol and the Terak village in the Central Bangka Regency.

With the recruitment of a national expert and his assistant, as well as a web programmer/ designer in late August 2015, the development of the market information system on agarwood is progressing as planned. This will provide the necessary information on agarwood for the various parties involved in the market of agarwood products, ranging from traditional collectors, agarwood growers, middleman, small and medium enterprises to large exporters. This could in turn encourage them to contibute to the sustainable management of both the natural and planted agarwood in Indonesia. A meeting on capacity buildling and awareness raising activities on the establishment of the integrated agarwood cluster was held in late December 2015.

Malaysia

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

Implementing agency: Forest Research Institute Malaysia (FRIM)
Status: Completed
Start date: June 2013
Planned duration: 24 months
Actual duration: 28 months

The Activity aims to document the flowering phenology and reproductive behavior of *Aquilaria malaccensis* in Peninsular Malaysia, develop a DNA profiling database and prepare a conservation action plan to reduce harvesting pressures on wild populations for the agarwood resin. It commenced implementation in June 2013 and was granted a no-cost extension for another four months until September 2015 to enable further collection and analysis of flowering phenology data as there had been sporadic flowering activity during the year and for further observation of subsequent fruiting

Discussion on agarwood cluster with representatives from agarwood farmers' groups. ***Photo: Harisetiyono***

development. Results from this observation would contribute to the improvement of reproductive ecological information on *Aquilaria malaccensis*.

All the planned activities were completed at the conclusion of the Activity in September 2015, namely, (i) the reproductive ecology information on *A. malaccensis* where information on flowering phenology, floral bud development, flower maturity, anthesis/ receptivity, fruit development and maturation and germination from a total of 420 trees in 5 populations were studied; (ii) the ecological genetic information for the preparation of a conservation action plan for *A. malaccensis* in Peninsular Malaysia where DNA sequencing on 286 samples and microsatellites genotyping on 942 samples out of 35 wild populations were analysed; and (iii) DNA profiling databases of *A. malaccensis* in Peninsular Malaysia for 942 individuals, 7 species and 34 intraspecific variable sites for timber tracking and forensic applications were established. A stakeholder's dialogue was also conducted in September 2015 to gather views and suggestions to protect the agarwood in Peninsular Malaysia.

Participants at the stakeholder's dialogue held at the Ministry of Natural Resources and Environment, Malaysia in September 2015. ***Photo: Kevin Ng Kit Siong***

It is envisaged that the recommendations in the conservation action plan prepared by the Activity will enable the Forestry Department of Peninsular Malaysia (FDPM) and the various State Forestry Departments to better manage, conserve and protect *A. malaccensis* in Peninsular Malaysia. In addition, the results of the DNA profile databases of *A. malaccensis* for timber tracking and forensic purposes which could also be used for rapid species authentication and product certification will benefit the Ministry of Natural Resources and Environment, Malaysia (MNRE) as the lead CITES Management Authority (MA), and the Malaysian Timber Industry Board (MTIB) as the Malaysian CITES MA.

Currently, two reports entitled "DNA profiling databases of *Aquilaria malaccensis* (Thymelaeceae) for population and individual identification", and "Conservation action plan for the threatened agarwood species *Aquilaria malaccensis* (Thymelaeceae) in Peninsular Malaysia"; are being prepared. The Completion Report of the Activity is also being prepared. These reports will be uploaded to the ITTO-CITES website once they are published.

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: Operational
Start date: September 2014
Planned duration: 12 months
Actual duration: 15 months

The Activity was granted a no-cost extension for six months until February 2016. It aims to (i) develop training materials, including practical field manual to enable staff of Forestry Department Peninsular Malaysia (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 field manual on the identification of *Aquilaria* to species level, as well as a manual for the grading of agarwood had been field-tested by the staff of FDPM in September 2015. Both the manuals are being finalized and are expected to be published soon.

A training workshop on the identification of *Aquilaria* to species level and in the grading of agarwood was successfully conducted from 26-30 October 2015 in Kuala Terengganu, Terengganu where 35 personnel from FDPM were trained as trainers, using the syllabus developed in July 2015.

A meeting was held on 29 December 2015 to discuss the findings and outputs of the Activity, including actions required to ensure their usefulness and sustainability. The results of the Activity will enable FDPM to increase the number of competent personnel for the conservation and management of *Aquilaria* species, especially in species identification and the grading of agarwood.

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: 22 months

All field activities were fully completed during the last dry season (July-October 2015). Eighty percent of the remaining mahogany trees were revisited and measured for girth and bole height. This completed the set of 80 mahogany individuals which are being monitored for growth and yield. Botanical specimens were collected from approximately 70 trees species present in the permanent sample plots established in the Annual Production Unit 1-R. Specimens were prepared and sent for identification at the UFRA´s botanical laboratory.

Observations on 14 mahogany seed bearers to study dispersal distances revealed higher seedling densities within 0-50 m from the mother trees followed by 50-100 m distance. As expected, density decreases as distance from the mother tree increases.

A student preparing material for botanical identification (voucher herbarium specimen). *Photo: Natalino Silva*

New sample trees were measured during the last harvest season (July-November 2015) for developing volume equations for the Seringal Macapá forest management unit (FMU) and the best results were obtained for the Schumacher-Hall linearized model (LnV= -9.2707+ 2.007327LnD+ 0.830675LnH; r^2=96.73; syx%=10.53). Removal of sample trees of extreme dimensions (trees larger than 150 cm and smaller than 50 cm in diameter) which were under-represented in the sample increased the fit and precision of the model. The equation obtained can now be used to estimate standing bole volumes in forest inventories in the FMU within the range of 50-150 cm diameter at breast height (DBH).

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

Implementing agency: Institute of Tropical Forestry (IFT)/J. Grogan
Status: Operational
Start date: September 2012
Planned duration: 22 months (extended to 40 months)
Actual duration: 39 months

This year's field season at the two long-term research sites in southeast Pará, Brazil (see http://www.swietking.org/interactive-maps.html) was implemented successfully during November-December 2015. Field activities began in mid-November at Marajoara and Corral Redondo. More than 400 mahogany trees with diameter >20 cm in a combined area of 2,750 ha were re-enumerated and re-measured for diameter growth and observed for fruit production. Fieldwork also included recensus of several thousand naturally occurring and experimental seedlings planted from 1995 to 1997 for survival and growth. It also included more than 300 trees with diameter > 10 cm of key Amazonian timber species under study at Marajoara since 1997, including jatobá (*Hymenaea courbaril*), fava de bolota (*Parkia pendula*), and copaiba (*Copaifera duckei*). This year's field work marks the 20th 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.

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 Activity team used the Big-Leaf Mahogany Growth & Yield Model to simulate population recovery and future timber yields of big-leaf mahogany, including four lesser-known species, under management by forest communities and private industry in the Petén region of Guatemala since the mid-1990s. This work was done in collaboration with the *Centro Agronómico Tropical de Investigación y Enseñanza* (CATIE, Turrialba, Costa Rica) and the Guatemala's *Consejo Nacional de Áreas Protegidas* (CONAP). The analyses indicated that future harvests from natural forests in the Petén region are quite positive, mainly due to forest management regulations in Guatemala that restrict harvests to levels that can be replaced by natural growth and recruitment between cutting cycles. Results are being synthesized for submission for publication in the scientific journal *Conservation Biology*.

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: 22 months

The near infrared technique for wood identification has drawn the attention of scientific communities and international organizations involved in preventing illegal logging and associated trade. From September to November 2015, the Activity team presented the preliminary results in a number of international events.

On 8 September 2015, the Activity team made a presentation on "NIRS technology: identification of wood species and origin" at the "ITTO and CITES: collaboration on threatened tropical tree species" side event at the XIV World Forestry Congress which was held in Durban, South Africa from 7-11 September 2015. A public demonstration of wood discrimination using a portable NIRS device was also conducted. In addition, a poster entitled "The potential use of NIRS to promote sustainable timber trade" was also presented. The Activity team leaders, Dr. Paulo Fontes and Dr. Tereza C.M. Pastore, attended the Congress.

Dr. Jez W. B. Braga of the Activity team presented a paper on "The application of chemometric methods and near infrared spectroscopy for wood discrimination" at the VI Forensic Seminar on Environmental Crimes, which was held in Brasília, DF, Brazil, from 21-25 September 2015.

Wood identification using MicroNIRS and MicroPhazir devices. *Photo: Alexandre Gontijo*

During the 17th International Conference on Near Infrared Spectroscopy (NIR2015), held from 17-23 October 2015 in Foz do Iguaçu, Brazil, Dr. Jez Braga delivered a presentation on "The evaluation of portable NIR instruments for discrimination of 6 similar tropical wood species by PLS-DA". In addition, Dr. Tereza Pastore also presented a poster entitled "Identification of Mahogany wood from 27 countries and similar species by NIRS and PLS-DA".

Dr. Vera Coradin participated in the Expert Group Meeting on Timber Identification which was promoted by the United Nations Office on Drugs and Crime (UNODC) within the framework of the International Consortium on Combating wildlife Crime (ICCWC), held from 7-8 October 2015 in Vienna, Austria. It is interesting to note that NIRS technology was included among 10 new technologies with great potential for wood identification.

The Activity is on schedule to be completed in early 2016.

Work on botanical identification of *Dalbergia* species. *Photo: Ronal Fernando Martinez*

Guatemala

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

Implementing agency: Nature for Life Foundation (FNPV)
Status: Operational
Start date: April 2014
Planned duration: 24 months
Actual duration: 20 months

Inventory work on the species *Dalbergia retusa, D. stevensonii* and other species of this genus was begun in Guatemala in May 2014, aiming to (i) determine the current population's status; (ii) analyze the dynamics of the species' environment and their identification; (iii) generate potential distribution models; (iv) propose ecological indicators that allow for monitoring; and (v) disseminate the results.

Preliminary results from 96 plots established throughout Guatemala show the presence of *Dalbergia stevensonii* in 24.24% in high-sparse and low-dense forests with flat to undulating topography, poor drainage, and 167-435 m elevation, mainly associated with the species of the genera *Lonchocarpus, Spondias, Gymnanthes, Bursera, Metopium, Sebastiana, Protium, Jathropa, Guettarda, Aspidosperma, Swietenia,* etc. Furthermore, the *Dalbergia retusa- tucurensis* association is 16.67% in forests with flat to hilly topography with good drainage to zero, from 210 to 480 m in high-dense forests to medium-sparse forests, and is associated with the species of the genera *Lochocarpus*, *Cedrela, Spondias, Bursera, Swietenia, Vochysia, Ceiba, Gliricidia*, etc. The *Dalbergia* species is found only as scattered trees in undulating to hilly terrain with difficult access and in forests that are no longer used for commercial purposes.

Based on historical GIS analysis over the past 20 years from 1991 to 2012, it was verified that the natural range of the *Dalbergia* genus had drastically decreased by 60% to 80% at the national level, reflecting an alarming situation for the survival of the species. Hence it is necessary to develop a national strategy to protect, conserve and manage the *Dalbergia* species in areas of natural occurrence.

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: 20 months

The Forensic Laboratory for Identification and Description of Woods was inaugurated on

21 September 2015 which was attended by important dignitaries and the national press. The inauguration ceremony was chaired by Dr. Carlos Alvarado, Rector of the National University of San Carlos de Guatemala (USAC). Other representatives included Dr. Sofía R. Hirakuri, ITTO-CITES Program; Dr. Tomás Padilla, Dean of the College of Agriculture (FAUSAC); Ing. Benedicto Lucas, Executive Secretary of the National Council for Protected Areas (CONAP); Ing. Josué Morales, Chief Executive of the National Forestry Institute (INAB); Dr. Aura Marina López, Public Prosecutor for Crimes Against the Environment of the Public Ministry; and Dr. Abimael Reynoso, General Manager of the Nature for Life Foundation (FNPV). The ceremony was also attended by the Directors and Deans of FAUSAC Departments, the Regional and Sub-Regional Chiefs of CONAP and INAB, as well as representatives from the Ministry of Environment, the European Economic Community, IUCN, *"Defensores de la Naturaleza"* Association, Rainforest Alliance, the Association of Forest Communities of Petén (ACOFOP), and other national and international governmental and non-governmental organizations.

As part of the Program, the Guatemala CITES Scientific Authority, Ing. César Beltetón, and the Lab Coordinator, Ing. Myrna Herrera, presented an analysis on the current status of the Guatemalan CITES-listed Appendix II tree species. The Activity's preliminary results show that *Swietenia macrophylla* has been managed sustainably by the Community and Industrial Forest Concessions in El Petén. However, there is an urgent need to implement conservation and sustainable management programs for *Swietenia humilis*, *Guaiacum sanctum*, *Dalbergia stevensonii*, *D. retusa*, *D. calycina* and *D. tucurensis*.

The implementation of the Activity is slightly behind schedule due to several factors, for example, field work is still ongoing to determine whether there are other *Dalbergia* tree species in Guatemala. Nevertheless, microscopic, macroscopic and physical characterization of woods is currently being carried out.

Ribbon cutting ceremony during the inauguration of the Forensic Laboratory. ***Photo: CONAP***

Participants of the Expert Working Group Meeting in Antigua, Guatemala, 16-19 September 2015. ***Photo: BALAM***

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

Implementing agency: *Universidad de Córdoba* (Spain), CONAP and BALAM Association
Status: Operational
Start date: September 2014
Planned duration: 19 months
Actual duration: 15 months

The objective of the Activity is to "*provide guidance to CITES authorities regarding the processes, methodologies and information necessary for making non-detriment findings for timber species and other species of non-timber trees*. The outcomes achieved to date include a compilation of the available information and analysis of the different options for the making of NDFs, and the holding of a working group meeting in Antigua, Guatemala, from 16 -19 September 2015.

A total of 14 experts attended the meeting, namely, Mr. Beltetón (Guatemala); Mr Betti. (Cameroon); Ms. Chua (Malaysia); Ms. Clemente (Spain); Ms. Correia de Mello (Brazil); Mr. Didik, (Indonesia); Mr. Farr (Canada); Ms. Ford (United States of America); Ms. Hirakuri (ITTO-CITES Program); Ms. Núñez (Peru); Mr. Quero (Spain); Mr. Rushemeza (Burundi); Mr. Schmitz-Kretschmer (Germany) and Ms. Sosa-Schmidt (CITES Secretariat).

A comprehensive document was prepared and sent to the experts before being tabled for discussion during the meeting. The experts were invited to share their experiences and best practices related to forest management, traceability, methodologies, risk analysis, and application of non-detriment findings (NDF) for CITES-listed tree species. In this context, the experts presented the following:

(i) NDF: overview of best practices at global level;

(ii) new applicable methods for NDF; and

(iii) methodologies for making NDF for *Swietenia macrophylla* in Guatemala, timber species in Peru, *Aniba rosaeodora* in Brazil, endangered tree species in Africa, *Prunus africana* in Burundi, *Aquilaria malaccensis* in Malaysia, agarwood in Indonesia, trees in Canada, trees in the USA, and trees in the EU.

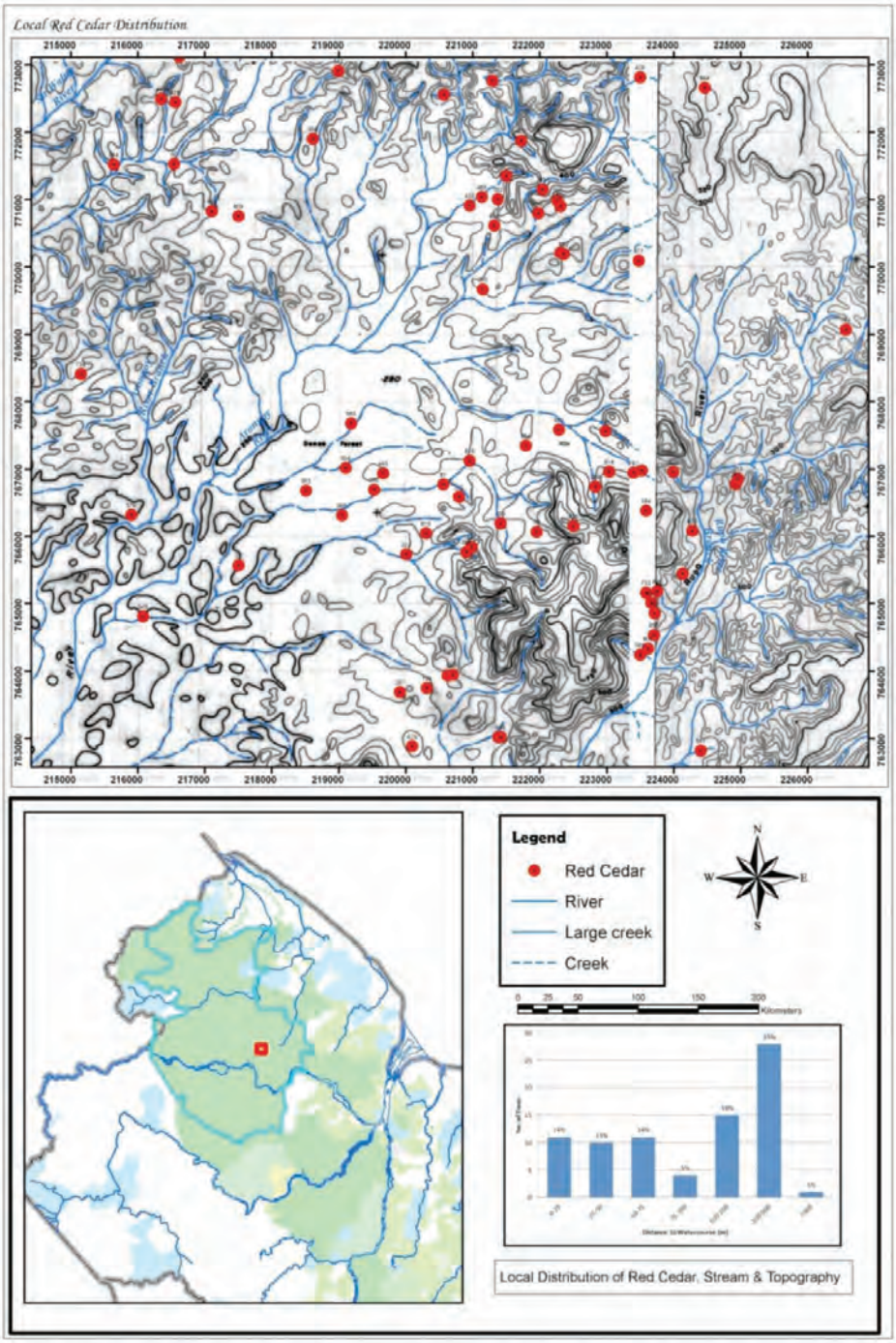
The outcome of the workshop was a revision of the various components in the Resolution Conf. 16.7 and the identification of elements required to adequately respond to it. There is a notable variety of methodologies applied by the Parties, given that Parties respond individually with the available instruments and capacities. A manual from which the Parties might find the different options is under preparation and its completion is expected in May 2016.

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 (TMT component)
Start date: August 2014
Planned duration: 18 months
Actual duration: 16 months

One of the main areas of work by the Guyana Forestry Commission (GFC), under this Actibity that addresses enhancing the sustainable management and commercial utilization of the CITES-listed species *Cedrela odorata* (red cedar) in Guyana, has been the development of a Protocol Framework for promoting international trade in red cedar from Guyana. In Guyana, the species has not been used commercially to the same extent as in other range countries. The main reason for the limited use is the scarcity of the species in Guyana.



Map showing local distribution of red cedar that was used to develop the Protocol Framework for International Trade in Red Cedar from Guyana. *Source: GFC*

The most recent report has focused on the domestic and international markets of the species, including a reporting framework for CITES. The report provides an overview of the current supply chain monitoring system and reporting framework for timber exports from Guyana; the historical production, marketing and trade in red cedar from Guyana; and assessment of opportunities for further developing markets for red cedar locally and internationally. It is divided into four sections, namely, (i) forest management and monitoring systems that are currently being implemented by GFC, including a protocol framework for international trade in red cedar products; (ii) red cedar production in Guyana over the period 2007-2014 and export volumes of red cedar from Guyana by product types over the period 2009-2014; (iii) prospects for further developing the domestic and international markets for red cedar; and (iv) consolidate these three aspects to arrive at a production and marketing strategy, and a reporting framework that guarantee consistent implementation of the trade regulation requirements of a CITES Appendix III listed species.

The report concludes that Guyana has a strong system in issuing forest permits and in monitoring which includes most elements of an effective chain-of-custody management system of forest produce from the point of harvest to point of export that allows for verification of legal origin of forest produce. Monitoring tools include the permit issuance system, the national log tracking system, the Codes of Practice, and concession and range level monitoring. The report also makes recommendations in the areas of strengthening and improving the management of the supply and production chains. The Activity should be completed on schedule in early 2016.

Peru

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: 16 months

The Activity aims to improve the conditions of seed stands and to ensure the sustainability of mahogany and cedar, while gaining knowledge on the phenology of these species and the best time for seed collection. The goal is to produce certified seed in the Tahuamanu seed stand in Madre de Dios, and to help achieve the conservation objectives in areas administered by the NGO Conservation International Peru.

Towards this end, selected mahogany and cedar trees were assessed where a total of 22 mahogany trees and 28 cedar trees were evaluated. A further 3 mahogany trees and 5 cedar trees in another plot were later added to the assessment. The information obtained consisted of dasometric data and qualitative variables such as vigor, shape of the tree crown, sanitary condition, dominance, infestation of lianas and jungle vine. In addition, associated species have also been evaluated to characterize the sites where they have grown. Moreover, sample plots for natural regeneration and seed stands have been established around selected trees.

The Activity team continues to collect meteorological data (temperature, precipitation, wind speed and direction, solar radiation, etc.) from the weather station located at the San Miguel camp. In order to observe and evaluate the phenological status of selected trees, monitoring is conducted once a week. Camera traps were also placed on the top of a mahogany tree canopy to photograph flowering and potential pollinators of this species. Furthermore, photographs of the

Aerial photo of mahogany trees taken by a drone and staff placing a camera trap for phenological evaluation. ***Photo: Proyecto UNALM-CITES-ITTO***

tree crown were also taken using a drone to obtain additional photographic materials. Other activities carried out during the period included the maintenance of access roads, coding selected trees, and preparing dendrochronological samples. The Activity should be completed in early 2016.

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 (TMT component)
Start date: October 2013
Planned duration: 24 months
Actual duration: 26 months

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

Production of the Atlas is progressing despite some delays, with the following achievements already accomplished:

- Documentary research and complementary literature reviewed. The number of species to be described in the Atlas was increased from 290 to 330 species (consisting of 313 tropical and 17 temperate species);
- Additional testing technology and digitization of wood samples developed;
- A new version of the TROPIX database (v. 8) describing species in greater number than the current version 7 (290 total instead of the current 245) and having new technological features requested by operators in the timber sector.;
- Photos of timber and end-uses of almost all species have been collected and digitized (all photos are included in TROPIX). It has proven more difficult than expected to obtain photos for some species being traded in small volumes or entirely new to the trade and completion of this activity has therefore been delayed;
- Writing technical descriptions for species to be added in Tropix database and Atlas has been largely finalized. As for the collection of photographs, writing technical descriptions for some new or minor species being traded is taking more time than anticipated. The share of added species in Tropix has reached over 87% of the foreseen total;
- Proofreading of technical descriptions for species to be included in the Atlas is ongoing;
- The manuscript of the Atlas for the designer/printer is being finalized.

It is expected that the electronic version of the Atlas will be available online in early 2016, with the printed version available later in the year. The Activity has received a 12 month budget-neutral extension to complete all outputs.

CITES Timber Trade Study

Implementing agency: ITTO
Status: Completed (TMT component)
Start date: April 2014
Planned duration: 8 months (extended to 18 months)
Actual duration: 20 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, 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 was completed in the third quarter of 2015 following an extension agreed to allow time to incorporate responses to a CITES notification to all Parties asking for information on their trade in products from listed tree species that might fall outside of the scope of the listing annotations. The results of the study were presented to the 22nd meeting of the CITES Plants Committee in October 2015. The study is now considered completed although further work is scheduled to be undertaken in 2016 using resources made available by the CITES Secretariat.

Establishment of a fully documented reference sample collection and identification system for all CITES-listed* Dalbergia *species and a feasibility study for* Diospyros *and look-alike species

Implementing agency: Institute of Integrative Biology (IBZ), Switzerland
Status: Operational (TMT Component)
Start date: November 2015
Planned duration: 13 months
Actual duration: 2 months

The agreement for this Activity was signed and the first installment of funds was sent to the implementing agency in early November 2015. The Activity aims to assist Madagascar to implement the Appendix II listings of nearly 200 *Dalbergia* and *Diospyros* species and Central American countries to implement the Appendix II listings of several *Dalbergia* species approved at CITES COP 16. The reference sample collection will be facilitated by collaborative agreements between the implementing agency and CITES authorities in Madagascar and Guatemala.

Preparation for field sampling and laboratory work, identification of sampling locations and the development of a sampling strategy, including a standardized sampling protocol, have been initiated. In this regard, research permits to commence sampling have been obtained from the authorities in Madagascar.

Relevant event/initiative

Ms. Sofia Hirakuri, a staff of the Regional Coordinator for Latin America, participated in the First International Workshop for Palo Santo Conservation in el Gran Chaco Americano, from 30 September-2 October 2015, in Asunción, Paraguay, which was organized by SEAM and the Paraguay CITES Management Authority. The workshop's main objectives were to share and obtain updated information on CITES Appendix II listed Palo Santo (*Bulnesia sarmientoi*) throughout its range of distribution; and to exchange experiences with neighboring countries on their international trade, achievements and impediments.

The workshop included participants from countries such as Argentina (CITES MA), Bolivia (CITES MA and SA), Paraguay (CITES MA and SA) and France (CITES-SA). Among the 80 participants were those from the public sector (SEAM, INFONA – National Forestry Institute, Customs, and Public Prosecutor Office), universities, private sector and cooperatives. A document covering the technical and administrative aspects that would serve as a basis for designing sustainable development plan for Palo Santo in Paraguay was produced by the workshop. Paraguay is in the process of becoming an ITTO member and it is hoped that work on Palo Santo can be part of Phase III of the ITTO-CITES Program.

Article from Program activities

"*Discrimination of similar woods by NIRS and PLS-DA considering temperature and humidity variations*". Rosylene E. C. Lopes. Master degree thesis based on the ITTO-CITES Program funded work on NIRS-based wood identification in Brazil which was implemented by the Brazilian Forest Service, Forest Products Laboratory.

Abstract

Wood is a natural, renewable and recyclable raw material with high chemical and structural variability used for different purposes. In order to curb its indiscriminate logging, inspection agencies need to carry out identification of timber loads. This identification can be performed by means of wood anatomy; however, this technique requires the presence of specialists, which are scarce. Previous studies have shown that the combination of near infrared spectroscopy (NIRS) with multivariate analysis can be an alternative method for wood identification. In this dissertation, five native wood species as well as one exotic wood species, all of which are anatomically similar, were identified using NIRS and partial least squares for discriminant analysis (PLS-DA), with considerations made for variations in temperature and humidity. Discrimination models with variable selection for wood species Andiroba, Cedrinho, Cedar, Curupixá, Eucalyptus and Mahogany were developed showing excellent results. However, when samples were subjected to 12 conditions involving variations in temperature and humidity, significant systematic errors and high misclassification rates were observed. These problems were solved after the model was updated by adding samples conditioned in these variations into the calibration set. The global models constructed has enable discrimination with 93.4%, 94.3% and 89.5% correct classification rate for Cedrinho, Cedar and Mahogany, respectively, with high moisture content. Therefore, the application of variable selection, model updating and construction of global models proved to be a viable strategy for improving the robustness of a discrimination model, improving its performance and expanding its applicability ahead of different conditions in relation to the ones on which it was built.

Upcoming event

17th meeting of the Conference of the Parties to CITES (CoP17), Johannesburg, South Africa, 24 September – 5 October, 2016 (ITTO and CITES plan to jointly host a Program side event and also a meeting of the Program Advisory Committee during the CoP).

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 are also 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 monitoring mission to Guatemala from 14-26 September 2015. The main objective was to conduct *in situ* monitoring of the three Activities implemented in Guatemala under the ITTO-CITES Program. They are, namely, (i) Non-detriment findings - Practical guidance for CITES-listed tree species; (ii) 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; and (iii) Inventory of population and species abundance of *Dalbergia retusa* and *D. stevensonii* in areas of natural occurrence in Guatemala.

The monitoring mission included participation in the Consultative Committee meeting with representatives from the CITES Scientific Authority of the National Council of Protected Area (CONAP), the National Forestry Institute (INAB), the Foundation Nature for Life (FNPV), and the Environmental Crimes Public Prosecutor Office (MP). A field visit was also conducted to one of Activity sites in Petén to participate in meetings with major stakeholders. It also included participation in the workshop convened under the Activity entitled "Non-detriment findings - Practical guidance for CITES-listed tree species", that was held in Antigua from 16-18 September 2015 (for details of the workshop, refer to the summary of the Activity).

At the inauguration of the forensic laboratory on 21 September 2015 at FAUSAC, she delivered opening remarks together with the representatives from INAB, CONAP, the Public Prosecutor Office, FNPV and the Rector of USAC. The establishment of the forensic laboratory for wood identification is on schedule as most of the infrastructure is completed.

The field visit to "Ruta del Mono", located in Aldea El Sapote, Petén, Northern Guatemala, on 24 September 2015, was to visit the forest area of naturally occurring *Dalbergia stevensonii* species, and to monitor *in situ* the forest area estimate by sampling points within the sample plots where this species is present. A major concern is that the natural occurrence of the *Dalbergia* species is found mostly in private properties. As such, it is important for all data collected be considered in the development plan or strategy for sustainable forest management or recovery of the species. The lack of scientific information on *Dalbergia* species is a major concern in sustainable forest management in Guatemala. All activities proposed in the work plan have been duly implemented in the field.

The Regional Coordinator for Latin America will be undertaking additional monitoring missions in Brazil, Guyana and Peru in early 2016.

The Regional Coordinator for Asia will be undertaking a monitoring mission to Indonesia in February 2016 to evaluate progress in Program activities that are currently being implemented by the Directorate of Biodiversity Conservation and Association of Indonesian Forest Concessionaires (APHI), and the Center for Forest Biotechnology and Tree Improvement Research (CFBTIR).

The Regional Coordinator for Africa will be undertaking monitoring missions in Cameroon, Congo and DRC in early 2016 to attend several Activity closing workshops and to ensure timely completion of all on-going Activities.

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