

ITTO -
CITES

PROGRAM FOR IMPLEMENTING CITES LISTINGS OF TROPICAL TREE SPECIES

Newsletter



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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 in the three months up to early 2015.

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

The Non-detriment finding (NDF) is one of the two pillars of CITES, the other is Legality of production which is self-explanatory. The NDF, the heart of the Convention for Appendix II listed species (the vast majority), is the advice of a country's CITES scientific authority to the management authority that the proposed export is sustainable and that it will not pose a threat in the long term to the survival of the species in the wild.

It took over 40 years for the CITES community to adopt general guidance regarding non-detriment findings. The Convention entered into force in 1975 but it was only in 2008 that, for the first time, 130 worldwide experts on NDFs from 33 countries met in Cancun, Mexico, to discuss and propose concrete sets of criteria that could guide scientists around the globe to formulate NDFs for animal and plant species groups (namely: trees, perennials, succulents and cycads, geophytes and epiphytes, mammals, reptiles and amphibians, fishes, and aquatic invertebrates).

Following that meeting in Mexico, progress on the work on NDFs accelerated. In 2010, one of the outputs of Phase I of the ITTO-CITES programme was of particular importance since it crystallized the work begun in Cancun by the *Trees* working group. That output was a publication produced by Indonesia, entitled *Guideline for NDF assessment on ramin Gonystylus spp.* During its 15th meeting (CoP15, Doha, March 2010), the Conference of the Parties to CITES discussed document CoP15 Doc. 16.3 on *NDF for timber, medicinal plants and agarwood* and, at its following meeting (CoP16, Bangkok, March 2013), the CoP agreed and adopted two Resolutions that address NDFs: Resolution Conf. 16.7 on *Non-detriment findings* and Resolution Conf. 16.10 on *Implementation of the Convention for Agarwood producing taxa*.

As can be seen from the progress reports summarized in this Newsletter, many national activities implemented during Phase I and Phase II of the ITTO-CITES Program focus on providing information for or undertaking NDFs for tree species listed in CITES Appendix II. A lot of progress has been made and a lot remains to be done but the ITTO-CITES Program will continue supporting range States of CITES listed tree species to keep strengthening their capacities to undertake this crucial assessment of the sustainability of the harvest and of the exports of products from such tree species worldwide.

Milena Sosa-Schmidt
CITES Secretariat

Donors



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

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* (afro-rosewood 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 around \$9 million (EUR 7.5 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 pre-financing 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 2014, with the same amount expected under the third pre-financing in March 2015. The United States of America pledged USD 180,000 during the 48th ITTC Session in November 2012; USD 200,000 during the 49th ITTC Session in November 2013; and USD 200,000 during the 50th ITTC Session in November 2014 while the Netherlands pledged USD 70,000 at the end of 2013 and USD 130,000 during the 50th ITTC Session. 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 \$1 million has therefore been added to the non-EC contributions to the Program and future issues of the Newsletter will report on this project as well as other Program funded activities.

ITTO will encourage donors to continue providing funds to meet the co-financing provisions of the ITTO-EC contract and 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 36 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 15 Activity proposals (nine in Africa, two in Asia and three in Latin America, as well as one global Activity) submitted to ITTO are pending approval/availability of funds. Some of these pending activities will be approved and funded under the TMT component of EC funds when the third pre-financing referred to above is received.

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 Activities undertaken since the inception of Phase II of the Program until early 2015 (except for completed Activities which have been reported 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

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: 14 months

This Activity is a continuation of assistance to Cameroon to address its first non-detriment finding (NDF) report on *Pericopsis elata* in production forests 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 Association of timber companies. ANAFOR requested to re-schedule the completion date from April to November 2015 so as to allow experts to complete their specific activities in the field, mostly on matters related to

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 has provided the second instalment 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: ANAFOR

Status: Operational

Start date: November 2013

Planned duration: 18 months

Actual duration: 14 months

The Activity started implementation in November 2013 and is expected to be completed in April 2015. The aim of the Activity is 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. A total of three experts have been recruited and are currently working in the field. The first important output was scheduled to be delivered in December 2014 with the clearing of the plantation. This specific activity has been re-scheduled for completion in January 2015. Nevertheless, according to ANAFOR, there is no risk that could affect the completion of the Activity in April 2015 as scheduled.

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

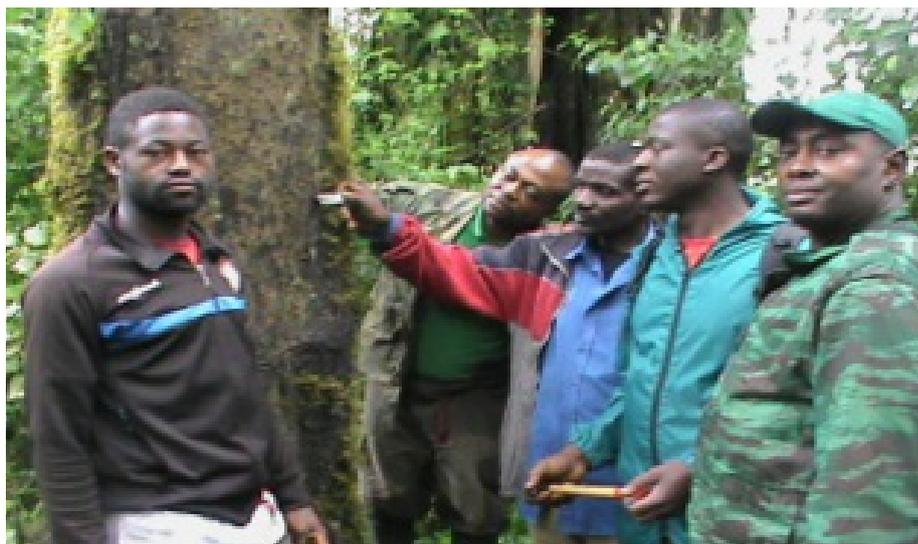
Status: Operational

Start date: April 2014

Planned duration: 12 months

Actual duration: 9 months

The Activity commenced implementation in April 2014 and supports the ITTO-CITES Program output for a cost-effective regulatory system 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 have already been collected in two forest



A team observing a tagged *Prunus* tree in North West Cameroon, October 2014.

Photo: ANAFOR

management units in east Cameroon by a student from the University of Douala and a field technician from ANAFOR. Due to delays in obtaining CITES permits for export, there was a delay in delivering the collected samples to Double HELIX laboratory for analysis.

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: 6 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 organized in June 2014 in Kribi, Cameroon, the coordination team from Cameroon has sent students and field technicians to the forest to collect samples of *Prunus* as taught during the workshop. In this regard, the students started collecting samples at the end of August 2014 and the collected samples have been sent to Double HELIX laboratory for analysis.

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: 14 months

The Activity commenced implementation in November 2013 and is expected to be completed in October 2015. The Activity is 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 non-detriment findings (NDF) report on *P. elata* in north Congo. 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 committed to support CNIAF in achieving the envisaged outputs are currently revising and finalizing their reports. The coordination team had submitted the progress report in October 2014 and ITTO had disbursed the second instalment of funds in November 2014. The coordination team is preparing to organize a national workshop to validate reports submitted by the experts in early 2015. There is no risk that could seriously affect the completion of the Activity in another four-five months as scheduled.

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: 8 months

The Activity commenced implementation in April 2014 and supports the ITTO-CITES Program output for a cost-effective regulatory system for the trade in CITES-listed tree species. The Centre National d'Inventaire et



Preparation of a *Pericopsis elata* nursery in Tala Tala, North Congo, October 2014.
Photo: Banzouzi

d'Aménagement des Ressources Forestières et Fauniques (CNIAF) is the implementing Agency. Samples of cambium have already been collected in two forest management units in the North Congo by two students from the University of Marien Ngouabi, Brazzaville. Due to delays in obtaining CITES permits for export, there was a delay in delivering the collected samples to Double HELIX laboratory for analysis.

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: 46 months

The Activity which started under Phase 1 of the ITTO-CITES Program is now re-scheduled for completion in mid-2015. The Activity still encounters many problems in its implementation, namely, the instability/insecurity in the *Prunus* production sites due to 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.

In November 2014, the Regional Coordinator for Africa (RC) undertook a monitoring mission to evaluate the level of implementation of the work plan as agreed in the MoU signed between ICCN, the "Centre for the information and promotion of agricultural projects" (CIPAGRI) and the Catholic University of Grabben (CUG). In fact, following an earlier monitoring and

evaluation mission that was conducted by the RC in September 2013, it was agreed then that ICCN would just play the role of a facilitator, while field activities would be implemented directly by CUG and CIPAGRI. The RC noted that there was weak cooperation among the partners as CIPAGRI had conducted the field inventories alone, without involving CUG. In this regard, the RC proposed that the CUG authorities should convene a meeting with the other two partners to re-examine the role and responsibilities of each party. Nevertheless, CIPAGRI has currently stopped conducting *Prunus* inventories in new production sites due to security reasons.

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: 16 months

The Activity commenced implementation in September 2013 and 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 succeeded in producing the non-detriment findings (NDF) report 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 implementation of the recommendations made in the NDF report on *P. elata*. For the first objective, it was noted that there was substantial delay in the implementation of the activity which was mainly due to changes initiated at the level of the coordination team and the dysfunction of the coordination team. For the second objective, the RC assisted the DRC authorities in formulating a new quota based on additional data derived from management inventories. The new quota adopted was 23,240 m³. In spite of the delay, the Activity has produced some results including researchers and forest officers trained in formulating NDF; the preparation of the NDF report; the removal of DRC's *P. elata* from the CITES review of the significant trade process; and the motivation of many forest companies to finalize their management inventories so as to enable them to obtain the *P. elata* quota.

The DRC authorities thanked ITTO and CITES for their assistance in achieving the results and expressed their willingness to continue with the program and in fulfilling the CITES requirements. The biggest development challenge is to urgently put in place a framework to control and validate inventory results conducted by timber companies and to develop a fair tracking system that will allow the quick tracing of volume harvested from the first production forest till the exit points. The EC has proposed to send an independent review mission to DRC in 2015 to validate the inventory results used for the NDF; this activity will facilitate that mission and will be completed following it.

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 collaborations with Double HELIX

Status: Operational

Start date: June 2014

Planned duration: 18 months

Actual duration: 7 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 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 already sent students from the University of Grabben (Butembo) and field technicians to the forest to collect samples of *Prunus* as taught during the



A M.Sc. student collecting DNA sample (cambium) from a *Prunus* tree, North Kivu, DRC, October 2014. Photo: Ngoy

training workshop. Samples of cambium collected by the students and technicians have already been sent to the laboratory of Double HELIX for analysis. The Activity is being implemented according to schedule and without any delays.

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: 20 months

The project has been progressing well. About ninety percent of the activities relating to the creation of a website have been achieved. About 60% of the activities relating to Output 2 (Marketing plan developed and implemented at the enterprise level) 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 been 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 100% into French by December 2014. The delay in translation of the site 100% into French has led to postponement of active promotion of the site to French audience. 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. It should be noted that only six companies attended the workshop in spite of invitations sent to over 100 companies. Most likely explanation is that most of the companies do not have own marketing department and could not get the right personnel to participate. In addition these companies expected their full cost of participation to be borne by the project (which was not budgeted for). The first draft of marketing report is expected 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 were not successful. Customs offices and freight companies did not participate. 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: 11 months

The Activity has revised its effective implementation period and is now expected to be completed in early 2015. 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.

A training workshop on wood identification of ramin and ramin look-alike species was conducted in Bogor, Indonesia in April 2014, while a more focused training workshop on *Gonystylus* species identification was held in Jambi, Indonesia also in April 2014.

Another training workshop on ramin vegetative techniques was held in Pekanbaru-Riau, Indonesia in June 2014. However, a similar training workshop planned for Kalimantan in August 2014 had to be rescheduled due to the haze encountered in Kalimantan and will now be held in December at the Banjarbaru Forestry Research Agency, South Kalimantan.

The national expert who was appointed in June 2014 to assess the current estimate of ramin growing stock in Indonesia had completed the field survey in September 2014 at PT. Diamond Raya Timber in Riau and Central Kalimantan, and is currently processing and analyzing the data, as well as preparing the technical report. Another national expert who was also appointed in June 2014 to further disseminate the Ramin Roadmap developed under Phase I of the ITTO-CITES Program, including its wider application, had conducted roadshows in South Sumatera in August, Central Kalimantan in September, and Riau in October 2014, and is now preparing a report



Meeting to discuss the results on the current estimate of ramin growing stock in Indonesia, Jakarta, Indonesia, 18 November 2014. Photo: Directorate of Biodiversity Conservation, Ministry of Environment and Forestry, Indonesia

on the outcomes of the roadshows. The third national expert who was appointed to review the Ramin NDF Guideline developed under Phase I of the ITTO-CITES Program and for its wider application had completed the task. A workshop to further discuss the the outcomes of the review will be held in December 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: 11 months

The Activity 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.

The report on the documentation of agarwood plantations has been completed and is currently being finalized, while the technical report on the the annual production of agarwood and its quality is being reviewed for publication.

Following the public consultation and the trials conducted in Makasar, South Sulawesi in July and Bogor in September 2014 to test the registration form which is an integral part of the mechanism to register and capture information ranging from plantation establishment to agarwood production and trade, the appointed national expert is now finalizing the report for further deliberation by the authorities in Indonesia.

The two other national experts who were recruited in early August 2014 had collected the required data and information for the review on trade and market of agarwood, and a proposed policy on agarwood plantation, production and trade in Indonesia, and are currently preparing their respective reports. A stakeholders consultation on agarwood plantation, production and trade and market was held in December 2014 in Bogor, Indonesia.

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: 15 months

The Activity which was expected to be completed in September 2014 was approved a no-cost extension until early 2015. It aims 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.

With the extension, further collection of seeds and seedlings in Kutawaringin Timur district was conducted in October 2014 as well as the establishment of genepools of selected *Aquilaria* and *Gyrinops* species in Indonesia. In this context, *Aquilaria malaccensis* from Lampung and Bengkulu, *Gyrinops versteegii* from East and West Tenggara, and several provenances of *A. beccariana*, *A. microcarpa*, and *A. cumingiana* were planted at the Dramaga Research Forest at a spacing of 3 m x 3 m

for *Aquilaria* species and 2 m x 3 m for *G. versteegii*.

Currently, a total of seven reports are being prepared, namely, (i) *Status Taksonomi dan Populasi Jenis-Jenis Aquilaria dan Gyrinops* (Taxonomical and Population Status of *Aquilaria* and *Gyrinops* Species); (ii) *Panduan Lapangan Pengenalan Jenis Pohon Penghasil Gaharu Aquilaria spp. di Indonesia* (Field Guide to Identification of Agarwood-producing species of *Aquilaria* spp. in Indonesia); (iii) *Panduan Lapangan Pengenalan Jenis Pohon Penghasil Gaharu Gyrinops spp. di Indonesia* (Field Guide to Identification of Agarwood-producing species of *Gyrinops* spp. in Indonesia); (iv) *Agarwood Bibliography: A Compilation of Abstracts on Agarwood Studies*; (v) *In situ and Ex situ Conservation of Aquilaria and Gyrinops: A Review*; (vi) *Manual Pembangunan Plot Konservasi Eks-Situ Jenis-Jenis Tanaman Penghasil Gaharu* (Manual for the Establishment of *Ex situ* Conservation Garden for Agarwood-producing species); and (vii) *Completion Report for the Activity*.

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: 6 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 Ministry of Forestry Decree No. 127/KPTS-V/2002 on Temporary Moratorium of Logging Activities and Ramin Trade. In this regard, the Agreement to implement the Activity was signed between ITTO and the Government of Indonesia in July 2014, but it is only now that a bank account has been opened to receive funds from ITTO. This is due to the rather long process and administration procedures required in Indonesia for a new bank account to be opened, and as such, the Activity could not be effectively implemented as envisaged.

Nevertheless, action has been initiated to identify and recruit the key personnel and national experts to execute all the planned activities. There is no potential risk in implementing the Activity as plantation forest concession holders and the Ministry of Environment and Forestry, Indonesia have a strong commitment to ensure that ramin conservation activities are effectively implemented on the ground and as an integral part of forest plantation management.



Field survey in estimating the annual production of agarwood and the quality of *Aquilaria microcarpa* plantation in Indonesia. Photo: Directorate of Biodiversity Conservation, Ministry of Environment and Forestry, Indonesia.

At the completion of the Activity, it is envisaged 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.

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

Implementing agency: Center for Biotechnology and Tree Improvement

Status: Operational

Start date: November 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 November 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 expected outputs of the Activity 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 benefits envisaged from the Activity are the early detection of genetic variation of ramin and the genetic infusion to ramin cuttings in the conservation gardens at OKI, South Sumatra and Tumbangnusa, Central Kalimantan; as well as *ex situ* conservation of non-*Gonystylus bancanus* species in Sumatra and Kalimantan.

The primary beneficiaries of the Activity are the Ministry of Environment and Forestry, Indonesia, the CITES Management and Scientific Authorities, research institutions, universities, and forest concession companies.

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

Planned duration: 12 months

Actual duration: 2 months

The Agreement to implement the Activity was signed between ITTO and the Government of Indonesia in November

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 expected outputs of the Activity 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 primary beneficiaries of the Activity are the CITES Management Authority, the CITES Scientific Authority, the Ministry of Environment and Forestry, Indonesia, research institutions, universities, companies, agarwood associations, local communities and governments.

Malaysia

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: 19 months

The Activity which commenced implementation in June 2013 aims to (i) document the flowering phenology and reproductive behavior of *Aquilaria 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. At the completion of the Activity in May 2015, the 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 gather 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. Seed traps were positioned under the tree where they were visited once in every two weeks. A total of 68 trees had flowered in the Penang Botanic Gardens, while another 15 trees in

Perak. Aborted flowers were also collected from seed traps and analyzed. Fruiting had ended. In this regard, the current focus is on germination where quadrates were set beneath five trees for the regeneration study area at the Universiti Teknologi PETRONAS (UTP) in Perak. The number of seedlings was counted in every visit.

Population survey and sample collections of *A. malaccensis* had been completed and from the 31 forest reserves/forested areas surveyed, a total of 595 samples was collected. 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.

Microsatellite genotyping of the 964 collected samples and allele scoring for generation of the genotype data for 12 loci had been completed. Currently, the genotype data are being generated in Excel format for analysis. In addition, three approaches were used to determine the genetic relationship among the *A. malaccensis* populations, namely, cluster analysis, Principal Component Analysis (PCA) and STRUCTURE analysis. Preliminary results from PCA showed that the *A. malaccensis* populations in Peninsular Malaysia were divided into two major clusters. Data analyses using the other two approaches are still ongoing.

A paper entitled "Reproductive and genetic studies towards the conservation and management of *Aquilaria malaccensis* in Peninsular Malaysia" was presented at the side event of the IUFRO XXIV World Congress 2014 titled "ITTO and CITES collaboration to sustain tropical tree species", 9 October 2014, Salt Lake City, USA.

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: 19 months

The Activity which commenced implementation in June 2013 aims 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 ramin and karas in Malaysia; (iv) Malaysia's policy and management practices of ramin and karas; and (v) a comprehensive web-based



Fruits of *Aquilaria malaccensis* being collected from the seed traps to estimate the abortion rate. Photo: Lau Kah Hoo

information system of ramin and karas in Malaysia that contains all the outputs from (i) to (iv).

Based on FRIM herbarium information and other published records on ramin and karas distribution, several sites throughout Malaysia have been identified for field verification. In this regard, the karas population in the Penang Botanic Gardens has been identified and measurements taken during the field verification have been analyzed. Visits to other sites in Kedah, Pahang, Kelantan, Selangor, Johor and Melaka will be carried out in early 2015. Currently, the collection of information on the production and trade in ramin and karas in Malaysia, including their management practices, is still ongoing

A local website developer, Hasrimy Technologies Sdn. Bhd., has been appointed to develop the interactive web-based information system (MyCITES) which is expected to be completed over a four-month period.

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
Planned duration: 12 months
Actual duration: 4 months

The Agreement to implement the Activity was signed between ITTO and the Government of Malaysia in September 2014. Actions to enable the transfer of funds from ITTO and the recruitment of two national experts to lead the various planned activities have been initiated. The Activity aims to (i) develop training materials, including a 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.



Discussion with the website developer, Hasrimy Technologies Sdn. Bhd. Photo: Forest Research Institute Malaysia (FRIM)

It is envisaged that after the completion of the Activity, FDPM will be able to increase the number of competent personnel on the conservation and management of *Aquilaria* species, especially in species identification and the grading of agarwood. The main beneficiaries of the Activity will also include the private sector, especially those that are involved in the trade in 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: 11 months

Field activities started in August 2014. The rainy season, which was supposed to end in June, has never stopped. It is estimated that this year precipitation was 150% higher than in a typical rainy season. This has strongly affected the completion of the planned field activities. For example, timber production was only 25% of the planned current harvest level.

Forty-two permanent plots established in 14 mahogany seed bearers for demographic observations of mahogany natural regeneration were re-established and re-assessed. Data are being digitized. As the measurements are still ongoing, no results are available at this time.

Regarding growth and yield studies, seven permanent sample plots were re-measured. Assessment included measurements of bole height using an instrument called Vertex which 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 bole height.

During logging operations, 153 sample trees were measured for development of volume equations. Because logging had to be suspended due to the rains that started early this season, the activity will be resumed in the next harvest season. Nevertheless, data collected will be prepared for testing preliminary regression models.

Two M.Sc. students were trained in measuring regeneration plots and permanent sample plots for monitoring growth and yield, and four undergraduate students are currently being trained by the Activity. Data collection is part of their M.Sc. research projects. A field crew from the Agrocoortex Company was trained in measuring felled



Mahogany seedling in a regeneration area at Fazenda Seringal Novo Macapá, Acre state, Brazil. Photo: Natalino Silva.

trees and to collect data over the entire felling period for developing volume equations.

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 (extended to 34 months)

Actual duration: 28 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 September–November 2014. Field activities began 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 were 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



A road after heavy rains during the harvest season at Fazenda Seringal Novo Macapá, Acre state, Brazil. Photo: Natalino Silva.

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 has also included 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, more than 6,000 mahogany trees with diameter > 20 cm and 30 associated secondary timber species in a 204 ha permanent plot at Marajoara were re-enumerated for their survival, diameter growth, and recruitment in this long-term study area which was established in 2004. This permanent plot provides the baseline spatial and population density data for the Big-Leaf Mahogany Growth & Yield Model.

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).

A manuscript titled "Management implications of population structure: a modeling study of big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon" is near completion for submission to *Forest Ecology and Management*. Another manuscript titled "Predation and herbivory drive distance- and density-dependent seedling recruitment of a Neotropical emergent tree: the evidence from spatial models" is being revised for re-submission to a scientific journal after unsuccessful review by *Ecology*.

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: 11 months

Five researchers and students involved with the Activity attended one-day training course on 19 August 2014 on the use of the PHAZIR portable Near Infrared Spectroscopy (NIRS) device and program at the Forest Products Laboratory of the Brazilian Forest Service.

Ms. Maria Cecilia Bergo defended her master's thesis entitled "Calibration transfer for mahogany discrimination (*Swietenia macrophylla*) and similar species using NIRS and PLS-DA", which was supervised by Dr. Jez Braga and Dr. Tereza Pastore, the Activity coordinator. In addition to studying various cases of chemometric model transfer between three NIRS instruments (two benches and one portable), 155 mahogany samples were studied using NIRS. These samples came from 26 different countries around the world and have been provided by the Forest Products Laboratory (Madison, WI) in the United States.

The first interesting result was the identification of all 155 samples belonging to *S. macrophylla* species, separating them from the visually similar Amazonian wood, such as Andiroba, Curupixá and Cedar. Five Latin American countries had sufficient number of samples needed to carry out the origin discrimination analysis, and as a result it was possible to successfully differentiate mahogany from Honduras, Mexico, Brazil, Venezuela and Peru. Five binary discriminatory models were built (mahogany wood from one given country was separated from the other countries). The models for Honduras, Brazil and Mexico worked perfectly, while the models for Peru and Venezuela however required some adjustments. The results were presented in two side events organized by ITTO, namely, (i) a side event at IUFRO World Congress titled "ITTO and CITES: collaboration to sustain tropical tree species", on 9 October 2014, South Lake City, USA; and (ii) a side event at the CBD CoP-12 titled "ITTO-CITES: working together to sustain tropical tree species", on 15 October 2014, Pyeongchang, Korea.

The first pilot test took place at the Fazenda Seringal Novo Macapá farm, located on the banks of the Purus River, in Acre and Amazon states, from 7-11 October 2014. More than 2,000 spectra of cedar and mahogany wood were obtained under field conditions and they are currently being



A wood anatomist identifying cedar logs before applying the NIRS at Fazenda Seringal Novo Macapá, Acre state, Brazil. Photo: Tereza Pastore

analyzed and will be incorporated into the model for discriminating these two forest species.



A field team preparing wood surface for obtaining mahogany's NIRS spectra at Fazenda Seringal Novo Macapá, Acre state, Brazil. Photo: Tereza Pastore



A portable NIRS device being tested in field conditions at a sawmill in Manoel Urbano, Acre state, Brazil. Photo: Jez Braga

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: 9 months

Inventory work is in its first six months of implementation and is currently underway where sampling includes *Dalbergia retusa*, *D. stevensonii* species and other species of the genus that are found within the sampling units. The aim is to generate distribution maps and reliable data to propose management and/or protection in their naturally occurring areas in the remaining forests.

The inventory of the genus *Dalbergia* recorded an increase of 17.58% (13 plots), where 30% of the samples re-enumerated were *Dalbergia* species, such as *D. stevensonii* and *D. tucurensis* as they share the same ecological niche where the areas are totally flat with flooding during the

winter; and forests with an average height of 15-20 m. They are often associated with tree species, such as *Lonchocarpus castilloi*, *Spondias mombin*, *Lucida gymnanthes*, *Bursera simaruba*, *Metopium brownei*, *Sebastiania longicuspis*, *Protium copal*, *Jatropha curcas*, *Guettarda combsii*, *Aspidosperma cruentum*, *Swietenia macrophylla*, etc. Anthropogenic activities were detected in some of the evaluated areas, mainly fires that have led to the elimination of some of the species.

The first workshop on determining the minimum diameter cutting limits has been carried out which was targeted at professionals from the National Council for Protected Areas (CONAP) and the National Institute of Forests (INAB). The presentations at the workshop were based on the preliminary results of the inventory for trees having diameter classes ranging from 10 cm to 69.9 cm diameter at breast height (DBH), where a higher abundance was found in diameter classes ranging from 20 cm to 30 cm DBH.

Regarding the genus *Dalbergia* in Guatemala, it is necessary to promote forest management and the utilization of the species such as *D. stevensonii*, *D. retusa* and *D. tucurensis* under specific guidelines for minimum diameter cutting limits, including intensity and cutting cycles. These should be based on the current ecological conditions and that the existence of the species is not threatened which is in line with the main objective of the Activity which will contribute to robust non-detriment findings to support any future exports of these species.

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: 9 months

The set-up of the laboratory has advanced significantly with the creation of six areas/rooms, namely, (i) sample reception; (ii) offices; (iii) microscope area; (iv) histology area; (v) storage room; and (vi) xylarium. Furniture manufactured according to the specifications was placed in each area/room.

The Activity team has postponed the purchase of the laboratory equipment until January 2015, as three researchers will be visiting from the Center for Wood Anatomy Research (CWAR) of the United States Forest Service (USFS). Dr. Alex Wiedenhoef, the director of CWAR has offered to assist with the selection of equipment that best suit

the needs of the laboratory. The team will receive technical training and will also plan future collaborative work with CWAR. In addition to training a researcher under the ITTO-CITES Program, CWAR/USFS will support financially the training of two more researchers.

The harvesting and botanical collection of *Swietenia*, *Dalbergia* and *Guaicum* specimens are ongoing. In the case of *Dalbergia*, the species has been found in the southern coast of Guatemala in areas already mentioned in several publications. After an intensive search, the Activity team found *D. calycina* and *D. retusa* var. *retusa* where neither species has been recorded in Guatemala. Unfortunately, only a few trees were found due to intense destruction suffered since the 1970s. Both species need urgent protection measures. In the area in the Northern Transversal Strip in Guatemala, *D. stevensonii*, and a few trees of *D. tucurensis* and *D. retusa* var. *cuscatlanica* were found. The team will start work in El Peten in January 2015 where they hope to find these species as well.

The phenological study is currently underway and the Activity team expects that most of the species will be flowering during the first semester of 2015. On 4 November 2014, the team presented the preliminary results to a group of representatives from the US-CITES authorities, in Peten, Guatemala.

The National Council for Protected Areas (CONAP) and the National Forests Institute (INAB) requested the Activity team to organize a workshop on botanical identification of *Swietenia*, *Dalbergia* and *Guaicum* species, with a component on sustainable forest management. The workshop was held on 26 November 2014 at FAUSAC. A total of forty five people, mainly regional and sub-regional managers of CONAP and INAB, attended the workshop, which was highly valued by INAB and CONAP.



Botanical Workshop at FAUSAC, Guatemala. Photo: Victor Macario

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

Implementing agency: *Universidad de Córdoba* (Spain) and CONAP and BALAM Association (Guatemala)

Status: Operational

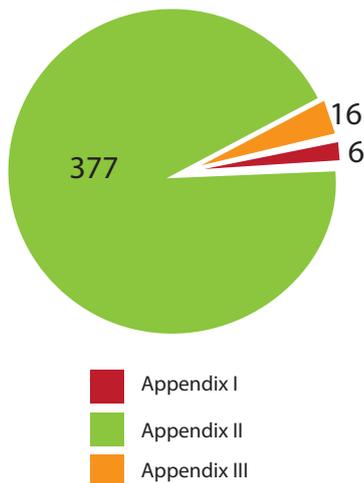
Start date: September 2014

Planned duration: 15 months

Actual duration: 4 months

The activity started in September 2014 and is expected to be completed in December 2015. The proposal was supported by the CITES MAs of Guatemala and Spain, the executing agencies are Asociación BALAM (Guatemala) and the University of Córdoba (Spain) and the collaborating agency is Consejo Nacional de Áreas Protegidas (CONAP, Guatemala).

The targets are the almost 400 tree species included in CITES as of early 2015, the vast majority of which are in Appendix II and therefore require NDFs as shown in the figure below.



The objectives of the Activity are 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.
- Ensure that the provisions required for the export of species listed in the CITES Appendices can be implemented in a suitable manner and that international trade is compatible with the sustainable management and conservation of the species.

Activities already underway are:

Review and summary of various proposals and steps followed in the process of making non-detriment findings for timber species and non-timber tree species.

The outcomes achieved so far are the following: Compilation of the results of the international workshop on non-detriment findings for tree species, the IUCN guidelines, workshops conducted by CITES Parties and other available information; analysis of the different options for the implementation of NDFs and summary of best practices.

Activities to be accomplished in the coming months are:

Simplified modeling of a guidance that includes the necessary elements and methodology for making NDFs.

Validation of the guidance by experts and by the Plants Committee.

Expected outcomes: Production of a simplified manual/guidance for making NDFs; compilation of the elements, definitions, if applicable, and methodologies and validation of the result by experts and the Plants Committee.

Organization of a Working Group with 12 ad hoc experts and the CITES Secretariat (officer for plants).

The meeting will be held in Antigua (Guatemala) from 22nd to 24th September 2015. The Working Group will analyze and discuss different options and cases with the purpose of preparing a document to be sent to the Plants Committee for discussion. Expected outcomes include the production of an updated manual/guidance following the amendments made by the expert group and production of an updated guidance following the amendments made by the Plants Committee.

Dissemination of the manual/guidance to CITES Parties

Versions in English, Spanish and French will be prepared for dissemination

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: 5 months

The Activity is executed by the Guyana Forestry Commission (GFC) and focuses on supporting the development and promotion of lesser used species, as part of a multi-pronged strategy for managing the country's commercial forest estate sustainably. The specific objective is "To strengthen forest planning and marketing of CITES-listed, current and potential timber species from

Guyana" and the following activities and outputs have been identified:

- a resource assessment will be conducted of known CITES-listed species specifically red cedar and the information and data will be used to develop a management plans, initially for red cedar. This plan will form the basis for developing similar plans if new species become CITES-listed in the future;
- marketing and promotional materials will be developed for red cedar aimed at informing both the domestic and international markets about the availability of the species in Guyana;
- training and awareness-raising will be conducted within the industry on the sustainable management and use of red cedar as a CITES-listed species, and
- monitoring and reporting systems, such as product tracking and chain of custody will be developed to manage red cedar.

The project agreement was finalized in mid-2014 and the first installment of funds sent in August. The first yearly plan of operation and other start-up documentation was approved in late August 2014, along with the proposed hiring of key staff. The resource assessment referred to above was just getting underway at the time of preparing this report.

Peru

Confirmatory evaluation of forest inventories of cedar and mahogany species

Implementing agency: *Universidad Nacional Agraria La Molina* (UNALM)

Status: Completed

Start date: November 2013

Planned duration: 10 months

Actual duration: 11 months

The objective was to design a technically and statistically supported method for the confirmation of forest census results with the occurrence of mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela* spp.) species. The Activity designed a methodology for forest inventories evaluation through the use of probability sampling and statistical techniques of quality control to find defective trees. The sampling units have been determined through sampling plots (areas of rectangular shape where cedar and mahogany trees are found) that are randomly selected. The selected sample plot should contain at least one tree to be considered a plot.

The sample size (n) is obtained using the following criteria, namely, (i) number of acceptance (zero tolerance: no defective tree in the sample); (ii) detection level (12.5%, 6.25% and 1.25%); (iii) level of confidence

(95%); and (iv) detection efficiency (0.75, 0.8,...1). The emphasis is on the criterion “number of acceptance” which is considered zero, given that the method does not accept defective tree. The sample size considered is between 23 and 31 sampling plots.

The conditions for considering a tree that is not defective are (i) location (located within a maximum radius of 60 m from the described geographic coordinates); and (ii) tolerances on diameter at breast height (DBH) measurement (15-38 cm for mahogany and 2-17 cm for cedar, according to diameter class of each timber species). With respect to height, the maximum tolerance is 2.5 m for mahogany and 2.2 m for cedar. Sampling is applicable until a defective tree is found. The Principal Component Analysis (PCA) is not rejected if the “n” sampling plots comply with all conditions (zero tolerance criterion).

The evaluation of validation of the results by the field crews was conducted in the following way: DBH and height measurements - if one of the crews rejects the PCA and the other crew does not reject it, it would be necessary to make an extra final sampling; if two crews accept the PCA, the PCA would be accepted; if both crews reject the PCA, the PCA would be rejected. In determining the existence or not of a tree, the PCA is automatically rejected if at least one of the crews does not find a tree, otherwise it would be accepted.

The use of this method provides an effective tool for monitoring forest concessionaires, as well as a method of control and supervision for the national forest authorities in optimizing time, effort and resources that will benefit the Peruvian State. The report of this completed Activity is available on the ITTO-CITES Program website.

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: 5 months

The Activity aims to improve the conditions of seed stands and ensure their establishment in natural forests, and control seed production of mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela spp.*) at the Rodal Semillero Tahuamanu, Madre de Dios. In implementing the Activity, UNALM has the support of Conservation International Peru and the manager of the forest concession responsible for conservation at

the Rodal Semillero Tahuamanu. This forest concession has a significant population of mahogany and cedar individuals, despite great human pressures on its borders.

Information on the seed stand in Tahuamanu and other documents related to silviculture treatments, phenology and natural regeneration monitoring was compiled, including geographic coordinates and other variables on 92 individuals of *Cedrela spp.* found in various parts of the seed stand as this information was previously lacking. In addition, some mahogany trees have also been located and plotted for comparison with previous inventories.

A series of field activities will be carried out in order to design a methodology for appropriate management of seed stands in natural forests, while other complementary activities will include (i) quantification of the volume of production of fruits and/or controlled seed production; and (ii) establishment of guidelines for protection of seed trees selected for controlled seed production.

The Activity team has presented the objectives, methodology and activities that are envisaged to be implemented to the Consultative Committee that was established to guide the execution of the Activity. Representatives of the Consultative Committee include the Ministry of the Environment, the Ministry of Agriculture and Irrigation, the Forest Resources Supervision Agency (OSINFOR), the USAID Technical Assistance Program (PAT-USAID) and Conservation International (CI).



A base camp “Buen destino” at the forest concession in the Rodal Semillero Tahuamanu. Photo: Proyecto UNALM-CITES-ITTO



Examining a location map of cedar locations. Photo: Proyecto UNALM-CITES-ITTO

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: 15 months

The project agreement was signed in September 2013. The project implementation started in October 2013 and the project is well on track in accordance with the work plan. The following activities have been carried out:

- Documentary research and complementary literature reviewed. The original 290 species to be described in the Atlas was increased to 328 species;
- Additional testing technology and digitization of wood samples developed;
- Collection photo books on wood products carried out. 150 more pictures have been collected and more will be added;
- Writing technical descriptions for species to be added in Tropix database and Atlas finalized. About two-thirds of the species descriptions added to the Tropix software have already been drafted;
- The manuscript of the Atlas for the designer/printer finalized and completed.

The project receives a favorable reaction from all private or public operators informed of its existence. The Atlas of tropical timber is highly anticipated and a number of these operators have already spontaneously volunteered to participate by providing highly relevant data and information on timbers as well as pictures to illustrate

the technical descriptions in the Atlas. All operators surveyed agree that the quality of the work has to be high for the Atlas to be useful. The project team therefore carefully reviews the relevance of data and information to be included, in order to obtain a product of international standard that will be universally recognized as such.

CITES Timber Trade Study

Implementing agency: ITTO

Status: Operational

Start date: April 2014

Planned duration: 8 months (extended to 12 months)

Actual duration: 9 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 is expected to be completed in the first half 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.

Relevant events/ initiatives

ITTO and CITES organized two important events in the second half of 2014, namely, (i) a side event at IUFRO World Congress titled "ITTO and CITES: collaboration to sustain tropical tree species", on 9 October 2014, South Lake City, USA; and (ii) a side event at the CBD CoP-12 titled "ITTO-CITES: working together to sustain tropical tree species", on 15 October 2014, Pyeongchang, Korea.

In late October 2014, Dr. James Grogan and Dr. Christopher Free participated in a two-day workshop in Santa Elena, Petén, Guatemala titled "Preliminary Results from the Study on the Conservation Status of Mahogany, Spanish Cedar, Manchiche, Santa María, and Pucté in the Multiple Use Zone of the Maya Biosphere Reserve". In collaboration with the *Consejo Nacional de Áreas Protegidas* (CONAP), the *Empresa Comunitaria de Servicios del Bosque SA* (FORESCOM), the *Asociación de Comunidades Forestales de Petén* (ACOFOP), the *Centro Agronómico Tropical de Investigación y Enseñanza* (CATIE) and Rainforest Alliance, Dr. Grogan and Dr. Free used the Big-Leaf Mahogany Growth & Yield Model (see <http://www.swietking.org/model-applet.html>) developed under the ITTO-CITES Program to evaluate the sustainability of forest management practices implemented in community-based and industrial concessions in the Multiple Use Zone since the mid-1990s. On the second day, Dr. Free led a training workshop on how to upload and analyze inventory data in the Growth & Yield Model to address the question: What commercial density and volumes can we expect from future harvests given management practices implemented during the first harvest? Preliminary results presented at the workshop were positive.

The Regional Coordinators for Asia and Latin America attended the Tenth Meeting of the Advisory Committee Meeting of the ITTO-CITES Program for Implementing CITES Listings of Tropical Tree Species - Phase II that was held in conjunction with the 50th Session of the International Tropical Timber Council (ITTC) in Yokohama, Japan, 4 November 2014.

A technical team from the Universidad Nacional Agraria La Molina (UNALM) participated at the side event of the 20th Conference of the Party to the United Nations Framework Convention on Climate Change (UNFCCC COP-20) titled "ITTO contribution to sustainable forest management to mitigate climate change in Peru" which was organized by ITTO in collaboration with UNALM on 3 December 2014 in Lima, Peru. The team made presentation on various activities carried out by UNALM under the ITTO-CITES Program.

The Regional Coordinator for Africa attended the Expert Group Meeting on forensic analysis in support of law enforcement operations organized in Vienna, Austria, from 10-12 December 2014. He also undertook a trip to Bujumbura, Burundi in November 2014 to assist the CITES Scientific Authority in drafting the national action plan on *Prunus africana*.

Article from Program activities

"Management implications of long-term tree growth & mortality rates: a modeling study of big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon". Free CM, Landis RM, Grogan J, Schulze MD, Lentini M, Dünisch O.

Abstract

Knowledge of tree age-size relationships is essential towards evaluating the sustainability of harvest regulations that include minimum diameter cutting limits and fixed-length cutting cycles. Although many tropical trees form annual growth rings and can be aged from discs or cores, destructive sampling is not always an option for valuable or threatened species. We used an individual-based population model developed for big-leaf mahogany (*Swietenia macrophylla*, Meliaceae) in southeast Amazonia, Brazil to simulate stem age-size relationships and examine forest management implications of mortality and diameter increment growth.

Growth trajectories of 10,000 simulated mahogany trees were consistent with growth trajectories reconstructed from 32 mahogany discs with annual rings. Trajectories were highly variable and strongly autocorrelated; diameter was a poor predictor of tree age even when accounting for up to 10 years of previous growth history. Commercial-sized trees (60 cm diameter) ranged in age from 33 to 180 years (74 yr median). Only 12.5% of seedlings survived to this size, but survival and time to reach commercial size depended strongly on early growth history (first 10 years of life). A tree grown at the 75th percentile growth rate throughout its lifetime requires 70 years to attain commercial size, but Brazilian forest management regulations imply a rotation length of 60 years.

These results demonstrate that individual-based models parameterized with typical census data can incorporate individual variation and growth autocorrelation and realistically simulate tree growth and mortality. In the absence of tree ring data, such models can be used to evaluate the consequences of long-term growth and mortality for sustainable management. In the case of mahogany, our results suggest that non-detrimental harvests cannot be achieved without lengthening cutting cycles, increasing commercial tree retention rates, and regularly applying silvicultural treatments designed to increase stem diameter growth rates. Forest managers can have the greatest effect on the rate of commercial recruitment in the first 10 years after a harvest by implementing treatments ensuring that adequate numbers

of new stems establish and recruit to dominant positions in recovering canopy gaps. Regrettably, sustainable mahogany management systems developed based on understanding of the species' ecology will not be as simple as current harvest regulations in Brazil imply.

Citation: Free CM, Landis RM, Grogan J, Schulze MD, Lentini M, Dünisch O (2014). Management implications of long-term tree growth & mortality rates: a modeling study of big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon. *Forest Ecology and Management* 330: 46-54.

Upcoming events

A 5-day Asian Regional Workshop on Agarwood Management of Wild and Plantation Source Agarwood was organized by India with the support from the ITTO-CITES Program in Guwahati, Assam, India, 19-23 January 2015. This workshop, underway at the time of preparation of the Newsletter, will be reported on in detail in the next issue.

The *Centre National d'Inventaire et d'Aménagement des Ressources Forestières et Fauniques* (CNI AF) is planning to organize a national workshop to validate reports submitted by experts of the Activity - "Promotion of the silviculture of *Pericopsis elata* in the North Congo" in January or February 2015 in Brazzaville, Republic of Congo.

ITTO and CITES Secretariats will participate in several meetings/events focusing on the Program and several of the species it is working on during the EU FLEGT week in Brussels from March 16-20, 2015. The Secretariats will also jointly convene a side event to focus on Program impacts in Africa during the World Forestry Congress scheduled in Durban, South Africa, September 7-11 2015.

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 mid-term review of the ITTO-CITES Program will be undertaken in March-April 2015. A consultant (Dr. Ian Thompson) with extensive experience has been recruited for this assignment which, following the recommendations of the Program Advisory Committee, will include field visits to Program activities in DRC and Brazil, as well as consultations with ITTO and CITES Secretariats, major donors and other stakeholders. Results of the midterm evaluation will be summarized in the next issue of the Newsletter.

The Regional Coordinator for Africa conducted a monitoring mission to Kinshasa, Democratic Republic of Congo in November 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 has also assisted the DRC authorities in implementing the recommendations of the "NDF report on *P. elata*" formulated since May 2014.

A staff of the Regional Coordinator for Latin America, Ms. Sofia Hirakuri, carried out a monitoring mission in Brazil from 10-14 November 2014, as part of annual monitoring of field implementation of existing activities under the ITTO-CITES Program. The objective was to monitor the Activity on "Big-leaf mahogany (*Swietenia macrophylla*) in the Brazilian Amazon: Long-term studies of population dynamics

and regeneration ecology towards sustainable forest management" under J. Grogan's coordination, particularly to verify the fieldwork being carried out by the crew working at Marajoara since the beginning of September 2014 (for the 2014 fieldwork season).

The agenda included a field visit to two sites, namely, "Marajoara" and "Corral Redondo" located in the Redenção region, in southern Pará state, Brazil and meetings with the Activity's vice coordinator. Major issues covered/observed during the field visit were (i) visited unlogged watershed ('P10') with two 5 ha permanent plots, including giant cedrorana (3.61 m DBH); (ii) visited seedling experiments in Talhão 4: two large plots/16 clearings release clearings; (iii) observed re-enumeration (10th year) in a 204 ha permanent plot in Talhões 2 and 3; (iv) visited a mahogany seed tree (principal mother tree - Tree 110) used for study on mahogany flowering and phenology, and pollination and genetic variation; (v) visited 'new clearings' and release clearings in the area; and (vi) visited Corral Redondo site which is 15 km northeast of Marajoara. The experimental forest area is all natural regeneration. All activities proposed in the work plan have been duly implemented in the field.



Measuring stem diameter of cedrorana (3.61 m DBH) at Marajoara with Miguel Cruz (left) and Mark Schulze (right).
Photo: Sofia Hirakuri

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