

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Twenty-second meeting of the Plants Committee
Tbilisi (Georgia), 19-23 October 2015

Interpretation and implementation of the Convention

Trade controls and marking

Timber identification

DEVELOPMENT OF TIMBER IDENTIFICATION GUIDANCE

1. This document has been submitted and prepared by the United Nations Office on Drugs and Crime (UNODC).^{*} This document provides a summary of the ongoing work led by UNODC within the framework of the International Consortium on Combating Wildlife Crime¹ (ICWC) to strengthen the development and use of tools and technologies to address illicit trafficking of timber.

Background

2. The resolution 'Crime prevention and criminal justice responses to illicit trafficking in protected species of wild fauna and flora' adopted by the Economic and Social Council ([ECOSOC Resolution 2013/40](#)), encourages UNODC, in cooperation with ICWC, to continue its efforts to provide technical assistance to combat illicit trafficking in wild fauna and flora.
3. The resolution 'Strengthening a targeted crime prevention and criminal justice response to combat illicit trafficking in timber and forest products' ([Resolution 23/1](#)), adopted by Member States during the 23rd Session of the Commission on Crime Prevention and Criminal Justice (CCPCJ), invites UNODC to strengthen 'the development of tools and technologies for addressing illicit trafficking in forest products, including timber' and to 'promote enforcement related to illicit trafficking in forest products, including timber'.
4. Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) voted unanimously to bring 293 new timber species under CITES control (CoP16, Bangkok, March 2013) to ensure legal, sustainable and traceable trade in timber and non-timber forest products.
5. Resolution 11.3 (Rev. CoP16) on Compliance and enforcement, under RECOMMENDS, paragraph i) encourages Parties and organizations to promote and increase the use of wildlife forensic technology and specialized investigation techniques, such as controlled deliveries, in the investigation of wildlife crime offences.

^{*} The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

¹ ICWC is the collaborative effort of five inter-governmental organizations working to bring coordinated support to the national wildlife law enforcement agencies and to the sub-regional and regional networks that, on a daily basis, act in defense of natural resources. The ICWC partners are the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, INTERPOL, the United Nations Office on Drugs and Crime, the World Bank and the World Customs Organization.

6. CITES CoP [Decision 16.89](#) b) on Rhinoceros calls upon the Secretariat to 'develop, in conjunction with relevant institutions and experts, a manual containing guidelines on best practices, protocols and operational procedures, that will promote the use of wildlife forensic technology'.

Progress

7. UNODC recognised the need, as a first step, to consider the applicability of available scientific methods for timber identification in support of law enforcement operations and to ensure that a standardized approach is in place through the whole process from the crime scene to the court room, to address challenges posed by the transnational nature of illicit trafficking of timber.
8. A background paper produced by UNODC provides an overview of the existing scientific methodologies available for timber identification, discusses the suitability of each method as screening and diagnostic tools and the questions each can potentially answer. Additionally, it considers issues relevant to all identification methodologies, namely those of underlying variation, taxonomy, reference material, and the transition of techniques from research methods to forensic tools.
9. The transnational and organized nature of the illicit trade in timber necessitates a common and coordinated global response. UNODC organised an Expert Group Meeting (EGM) on Timber Analysis jointly with ICCWC partners in order to consider the requirements at national, regional, and international levels related to the entire crime chain; to address the challenges for timber identification and use of standardised methodologies; and to engage international expertise.
10. The EGM was convened in Vienna in December 2014 and brought together the law enforcement and scientific communities with participant experts from various national agencies, forensic and research scientists, front line law enforcement officials and legal experts. The meeting highlighted the need to address and discuss the process and practicalities of the different areas of work and related expertise required, the challenges specific to timber identification cases, and the necessity for increased communication and cooperation. A number of recommendations were formulated by the experts.
11. A Conference Room Paper was presented by UNODC to the 24th Session of the CCPCJ in May 2015, detailing the outcomes of the EGM and the scientific recommendations produced (included as Annex 1).
12. UNODC, ICCWC, and subject matter experts continue collaborative work for the development of a guide on the subject, which will be discussed at a follow-up EGM in early October 2015. The work covers the whole chain of custody, including information on the collection, analysis and interpretation of forensic timber identification evidence as well as exploring the options for further development of forensic best practices to support law enforcement investigations and lead to successful prosecutions.
13. At the follow-up EGM, draft decisions for consideration and adoption at CoP17 were agreed by the expert participants and these are presented as Annex 2.

Recommendations

13. The Plants Committee is invited to:
 - a) note the information contained in this document and Annexes.
 - b) note the recommendations made by participants of the EGM, with particular focus on recommendation 4 which deals with the provision of reference material.
 - c) consider the draft decisions referred to in paragraph 12 above and provide comments and recommendations.

**Commission on Crime Prevention
and Criminal Justice
Twenty-fourth session**

Vienna, 18-22 May 2015

Item 7 of the provisional agenda*

**World crime trends and emerging issues and responses in
the field of crime prevention and criminal justice**

Outcome of the Expert Group Meeting on Timber Analysis

(10-12 December 2014)

Summary

To facilitate the development of appropriate international guidance on timber analysis, UNODC hosted an Expert Group Meeting in Vienna from 10-12 December 2014 jointly with its partners of the International Consortium on Combating Wildlife Crime. The Expert Group Meeting convened participants from relevant national agencies, research institutions, front line law enforcement agencies, legal experts, and the scientific community. The purpose of the meeting was to discuss the applicability of available scientific methods for timber identification in support of law enforcement operations and how a standardized approach can be globally applied to support their implementation. The meeting provided a unique forum for law enforcement and the scientific community to discuss the practicalities of their work, the challenges they face when working on timber identification cases, and the need for increased communication and cooperation. During the meeting, participants elaborated a set of key issues and recommendations which form the basis of this conference room paper; a consolidated list of ten recommendations specifically developed by the scientific participants can be found in Annex 1.

I. Background

Within Wildlife and Forest Crime, illegal logging and international trade in illegally logged timber is a major problem, especially for forest-rich countries in the developing world. An INTERPOL and United Nations Environment Programme Report published in 2012 estimated illegal logging, including processing, to be worth between US\$ 30 to 100 billion per year globally. Illegal activities can occur at all stages in the timber supply chain and have all the hallmarks of organized and sophisticated crime, sharing many characteristics with other transnational criminal activities, frequently involving fraud, money-laundering, corruption, and counterfeiting.

The International Community has recognized the severity of the problem of global biodiversity loss and degradation of ecosystems, and this is reflected in a number of recent conferences, resolutions, and decisions. During the 22nd Session of the United Nations Commission on Crime Prevention and Criminal Justice (CCPCJ) in April 2013, Member States strengthened the mandate of the United Nations Office on Drugs and Crime (UNODC) in the field of wildlife and forest crime by adopting a resolution on "Crime prevention and criminal justice responses to illicit trafficking in protected species of wild fauna and flora" which was subsequently adopted by the Economic and Social Council (ECOSOC Resolution 2013/40). The resolution encourages UNODC, in cooperation with all members of the International Consortium on Combating Wildlife Crime (ICWC), "to continue its efforts to provide technical assistance to combat illicit trafficking in wild fauna and flora." At the 16th meeting of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Conference of the Parties (CoP16, Bangkok, March 2013), 177 governments voted unanimously to bring 293 new timber species under CITES control to ensure legal, sustainable and traceable trade in timber and non-timber forest products. Furthermore, during the 23rd Session of the CCPCJ in May 2014, Member States adopted a resolution on "Strengthening a targeted crime prevention and criminal justice response to combat illicit trafficking in timber and forest products" (Resolution 23/1). The resolution encourages UNODC to promote enforcement, identify good practices in the area of criminal law, and promote the

development of tools and technologies, which can be used to combat illicit trafficking in timber and forest products.

Identification of timber products is challenging because diagnostic features generally used to identify tree species (i.e., leaves; flowers; fruit) are often lacking, and when present need to be assessed by expert scientists. For the untrained eye, timber identification is impossible. Law enforcement officers who encounter suspect timber shipments need assistance to identify the timber species and its legal status, and this information is critical to successful prosecutions. Laboratory analysis can provide scientific information and data that can significantly contribute to ensuring legal, sustainable, and traceable trade in timber and non-timber forest products. A standardized approach for both law enforcement and forensic laboratories is necessary to address challenges posed by the transnational nature of the problem.

To facilitate the development of appropriate international guidance, UNODC hosted an Expert Group Meeting on Timber Analysis in Vienna from 10-12 December 2014, jointly with ICCWC partners. The Expert Group Meeting (EGM) convened participants from relevant national agencies, research institutions, front line law enforcement agencies, legal experts, and the scientific community. The purpose of the meeting was to discuss the applicability of available scientific methods for timber identification in support of law enforcement operations and how a standardized approach can be globally applied to support their implementation. The meeting provided a unique forum for law enforcement and the scientific community to discuss the practicalities of their work, the challenges they face when working on timber identification cases, and the need for increased communication and cooperation. During the meeting, participants elaborated a set of key issues and recommendations which form the basis of this conference room paper, a consolidated list of ten recommendations specifically developed by the scientific participants can be found in Annex 1.

II. Key Issues and Recommendations

Front line decision-making support

Participants stressed the critical need for effective tools to assist front line law enforcement officers in making decisions about which shipments should be stopped, checked and possibly seized, and how to obtain forensic timber identification results to support further investigations. The meeting provided an overview of the existing scientific methodologies available for the identification of timber, their suitability as both screening and diagnostic tools, and the questions they can potentially answer. Although there are currently various timber identification screening tools applied in different global contexts, participants noted the problems with awareness, accessibility and effective utilization of these resources given their varied nature and complexity. Resources for screening currently include identification guides and databases, access to specialized expertise such as dedicated CITES officers or wood anatomists, and use of detector dogs trained in the identification of specific trade-restricted timber species. Potential screening tools for the future include various automated systems utilizing wood anatomy and/or near infrared spectroscopy.

Participants determined a set of requirements for effective screening tools which include ease and speed of use, portability, accuracy, and cost effectiveness. Guidance is also required to assist law enforcement in the acquisition of appropriate samples of timber from larger shipments to be sent for diagnostic testing. Support requirements identified for front line staff extended beyond specific identification tools and included raising awareness; assistance in considering the legal framework in which they are operating and its impact on downstream decisions; guidance on how to make an assessment of verification requirements; information on the screening process; and guidance on the appropriate utilization of forensic identification services.

Forensic timber identification methods

More scientific research is required to improve the availability of forensically validated diagnostic timber identification methodologies, given the potential global requirements for these tests. Although many disciplines present potential scientific solutions to the various identification problems routinely encountered (e.g. wood anatomy, wood chemistry, plant genetics), very few have been thoroughly validated in a way that readies them for admission as evidence in a court of law. Participants highlighted the lack of adequate forensic validation of available methodologies and diagnostic tools for timber identification which is crucial for forensic purposes and testimony in court, along with expertise and experience in presenting evidence in court. The experts suggested that to alleviate this problem, forensic practitioners and laboratories capable of producing robust forensic timber identification outcomes are needed, and access to that information should be provided to law enforcement. Increasing the number of validated methods should be a priority and due consideration should be given to increased funding and improved access to appropriate reference materials.

Timber identification itself is a very challenging scientific problem, due to the lack of readily observable diagnostic differences among species and individuals from different geographical regions, meaning that in many cases the desired timber identification level is simply unachievable with present scientific knowledge. The radiocarbon-based aging of timber presents a notable exception as the validated technology is currently available and can provide a significant resource, since the year in which a tree was felled is frequently a central point in determining the legality/illegality of the timber product.

Participants produced a set of recommendations to begin addressing these scientific requirements of forensic timber identification (see Annex 1), which cover the collection and curation of samples (both reference and evidence), development of best practice guidelines for forensic analyses, forensic scientist expertise/certification, and development of global proficiency testing programs in forensic wood identification. The need for law enforcement to engage with the scientific community more effectively was also recognized. Specifically, participants recommended that opportunities for law enforcement to direct the development of identification tests by communicating their most pressing challenges in identification should be explored.

Reference materials

The availability of reference materials is essential to the future development of effective forensic timber identification tools. The current paucity of appropriate reference material was one of the central themes of the meeting and presents the greatest barrier to development and forensic validation of timber identification methodologies across the board. Participants expressed concern with the global trend for reduction in funding for essential basic taxonomic research and reference collection augmentation and curation, along with the massive increase in demand for forensic timber identification services, which rely on these collections for their development.

To help address these difficulties, participants emphasised that it is important for countries to recognize and prioritize national reference collections and associated scientific disciplines. Furthermore, participants proposed that Member States be requested to provide suitable reference materials, thus contributing to the reference sample collection of timber species listed in the CITES appendices. This would also have the effect of alleviating the financial burden associated with reference sample collection.

To support the collection of appropriate reference material, participants urged that best practice guidelines on appropriate collection and curation be developed in line with existing standards. To enable maximum utilization of existing reference material, participants suggested guidance be developed on how to internally validate non-taxonomically verified samples which can then be assigned a standard definition of reliability, based on the circumstances of collection and any subsequent verification.

Information availability and cooperation

Most queried timber is not forensically identified due, in the most part, to lack of appropriate information for law enforcement. Front line officers require increased awareness of what to look out for with regards to suspect timber, and they also require additional information on what assistance is available to them (such as access to dedicated CITES officers), and what options are available should they deem further investigation is warranted. Specific information is required about questions that can be answered by various identification techniques, the associated timelines and costs, and the practicalities of accessing those services (i.e. communication with appropriate forensic science personnel, collection, and transportation of appropriate samples). Participants highlighted the need for coordinated efforts and resources to collate the available information in a readily accessible format.

Participants recommended improved information availability for scientists with regards to forensic timber identification methodologies. Specifically, recommendations were made that guidance be produced on the following: best practice scientific reference sample curation and collection; internal validation of non-taxonomically verified reference material; best practice for forensic timber analysis (Annex 1).

Opportunities for improvements in communication and cooperation were highlighted between different law enforcement bodies (i.e. customs and police), as well as between scientists in different disciplines, and between law enforcement and the scientific community. Participants recognized awareness-raising as a key focus area to improve forensic timber identification outcomes and best utilize the existing resources available. Increased access to existing wood collections was also encouraged, to facilitate further forensic test development. The need for improved cooperation and communication with indigenous communities was also highlighted, to draw on knowledge and skills related to local timbers.

The way forward

Given the nature and extent of the problem, participants agreed that attempts to effectively reduce the illegal timber trade will require a concerted and coordinated effort over an extended period of time. Participants considered further UNODC meetings appropriate in order to follow up on the specific recommendations that were developed during the EGM. It was concluded that an umbrella guidance document should be developed as an outcome of the meeting, covering the entire chain of events from suspect shipment, through screening, diagnostic testing, seizure, investigation and prosecution. Participants suggested that in order to be relevant and useful to specific audience groups (e.g. law enforcement, forensic science, the legal profession), additional stand-alone materials and training tools should be developed that focus on the information and guidance relevant to specific audiences.

More broadly, the participants urged governments to recognize that the capacity to forensically identify timber, and therefore to tackle illegal logging, is dependent on support of botanical reference collections such as herbaria and xylaria. Moreover, the responsibility of collecting and maintaining appropriate reference material and related financial implications should be considered at the national level, when inclusion of additional taxa is pursued.

Annex 1

Forensic science recommendations for improved timber identification

1. Recognition of the critical importance of botanical reference collections worldwide and the associated scientific disciplines of plant taxonomy and wood anatomy. Without extensive well-curated reference collections, it is not possible to develop the scientific and forensic tools required to identify timber and enforce current laws.
2. Recognition that wood anatomical analysis should be the first identification step in all cases. Wood anatomists have a potentially critical role in acting as advisors on what (if any) other forensic identification techniques are available and/or required.
3. Recognition of the distinction between scientific services that can produce reference data, such as standard research laboratories, versus those which are appropriate for forensic testing, i.e. those which meet forensic standards for evidence handling and reporting.
4. Provision of validated reference material (herbarium voucher specimens, heartwood samples, lookalike species) to accompany the enactment of any new laws regarding timber taxa to enable suitable forensic tests to be developed.
5. Production of guidance on best practice scientific reference sample curation and collection, including who, where, when, and how samples should be collected for species, population and individual level identification, working within existing standards.
6. Production of guidance on how to validate internally non-taxonomically verified reference material for use when other material is not available.
7. Production of guidance on sample requirements for the various analytical disciplines.
8. Development of a standard definition of reliability/quality of reference samples, as used in other contexts, related to the circumstances of sample collection and its verification status.
9. Establishment of quality assurance in wood identification, towards certification of laboratory experts, and accreditation of the laboratory at a later stage.
10. Development of best practice guidelines for the various disciplines involved in forensic timber analysis.

**Proposed draft decisions to CoP17 to improve timber identification of
CITES listed and look-alike species**

Directed to Parties

CoP17 xx.x (a) Parties are encouraged to maintain, expand and/or create collections of timber samples as reference material, to make them available for the identification of timber, as well as for the development of analytical methodologies and identification protocols for listed timber and look-alike species.

Directed to Plants Committee

CoP17 xx.x (b) At its 23rd meeting, the Plants Committee shall consider the report of the Secretariat on Decision CoP17 xx.x (a) and, it will discuss:

- 1) how to identify and propose the adoption of nomenclature references for each of the CITES listed tree species;
- 2) how to determine the location of reference collections that hold the pertinent reference samples for each of the CITES listed tree species;
- 3) how to identify Parties interested under Dec. CoP17 xx.x (a), to hold, curate, and identify reference material, if resources are made available;
- 4) the value and ways of inviting Parties to consider minimum requirements or the development of guidance for collecting appropriate reference material;
- 5) ways to support Parties to develop forensic capacities for timber identification.

Directed to the Secretariat

CoP17 xx.x (c) Subject to the availability of funding, the Secretariat will work with UNODC, ICCWC and other partners to support the implementation of Decs CoP17 xx.x (a) and CoP17 xx.x (b).