ICCWC Guidelines for Forensic Timber Analysis

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USDA Forest Service International Programs
and
USDOJ INTERPOL Washington

UNODC
United Nations Office on Drugs and Crime

Best Practice Guide for Forensic Timber Identification

Developed by the International Consortium on Combating Wildlife Crime (ICCWC), led by the United Nations Office on Drugs and Crime (UNODC)

CITES INTERPOL UNODC United Nations Office on Drugs and Crime WORLD BANK GROUP WORLD CUSTOMS ORGANIZATION

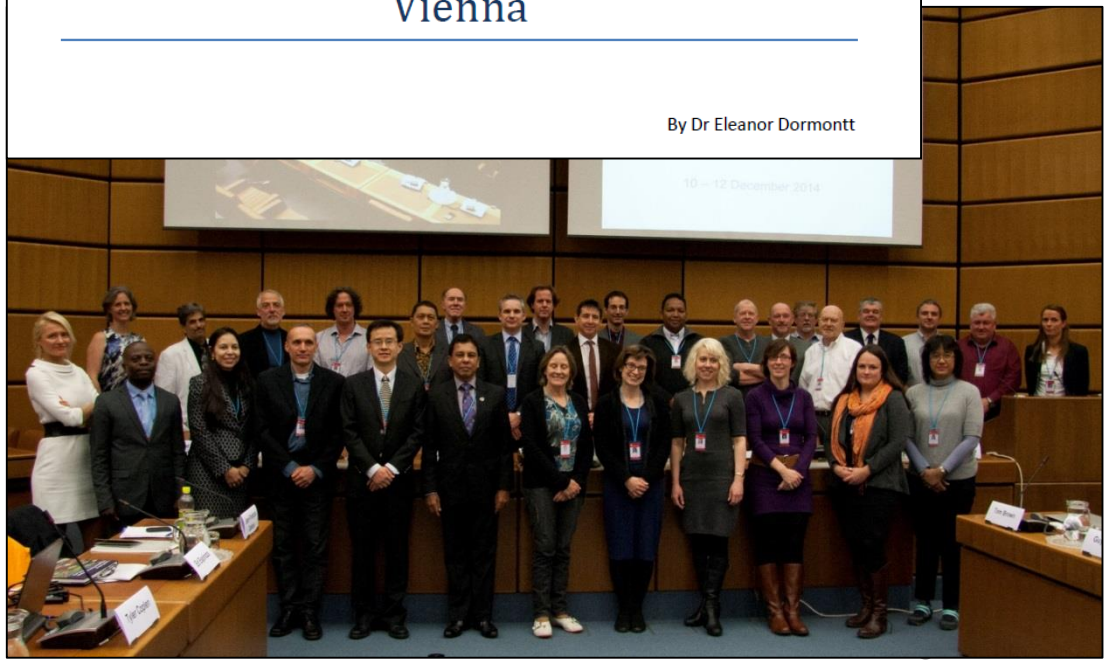
Approach

- Commission of Background Document
- Formation of Expert Group
- Organisation of two Expert Group Meetings
- Coordinated development of Guide

INTERNATIONAL CONSORTIUM ON COMBATING WILDLIFE CRIME

Background Paper for Expert Group Meeting on forensic analysis in support of law enforcement operations related to forest crime, 10 – 12 December, Vienna

By Dr Eleanor Dormontt



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Discussion

Forensic timber identification: It's time to integrate disciplines to combat illegal logging

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ABSTRACT

The prosecution of illegal logging crimes is hampered by a lack of available forensic timber identification tools, both for screening of suspect material and definitive identification of illegally sourced wood. Reputable timber traders are also struggling to police their own supply chains and comply with the growing requirement for due diligence with respect to timber origins and legality. A range of scientific methods have been developed independently with the potential to provide the required identification information, but little attention has been

Opportunities for Improved Transparency in the Timber Trade through Scientific Verification

ANDREW J. LOWE, ELEANOR E. DORMONTT, MATTHEW J. BOWIE, BERND DEGEN, SHELLEY GARDNER, DARREN THOMAS, CAITLIN CLARKE, ANTO RIMBAWANTO, ALEX WIEDENHOEFT, YAFANG YIN, AND NOPHEA SASAKI

In May 2014, the Member States of the United Nations adopted Resolution 23/1 on "Strengthening a targeted crime prevention and criminal justice response to combat illicit trafficking in forest products, including timber." The resolution promotes the development of tools and technologies that can be used to combat the illicit trafficking of timber. Stopping illegal logging worldwide could substantially increase revenue from the legal trade in timber and halt the associated environmental degradation, but law enforcement and timber traders themselves are hampered by the lack of available tools to verify timber legality. Here, we outline how scientific methods can be used to verify global timber supply chains. We advocate that scientific methods are capable of supporting both enforcement and compliance with respect to timber laws but that work is required to expand the applicability of these methods and provide the certification, policy, and enforcement frameworks needed for effective routine implementation.

Keywords: certification, illegal logging, scientific verification, timber trade, wood identification

Forests are important sources of timber, nontimber forest products, and other ecosystem services; tropical forests alone harbor more than half of the world's plant and wild animal species and store about 247 billion metric tons of carbon (Saatchi et al. 2011). Illegal logging is a major cause of forest degradation and subsequent loss (Burgess et al. 2012) estimated to account for between 15%–30% of the global trade in timber and worth US$30–$100 billion annually, including processing (Nellemann and INTERPOL 2012). In tropical regions, illegal logging rates are thought to be even higher, with 50%–90% of timber likely to be illegally sourced (Nellemann and INTERPOL 2012). The consequences of these illegal activities are realized economically, socially, and ecologically. Legitimate concession holders, governments, and local communities are denied vital revenue; armed conflict and corruption are promoted; and regional biodiversity assets and ecosystem services are degraded (Sikor and To 2011, Reboredo 2013).

Illegal logging for the international timber trade is predominantly a response to the external demand for wood products generated by consumer nations; therefore, efforts to curb the practice must address these demand drivers in addition to targeting illegal operations on the ground (Johnson and Laestadius 2011). In attempts to stem such international demand, legislation in Canada (1992), the United States (2008), the European Union (2010), and Australia (2012) now prohibits the importation of timber products harvested or traded in contravention of applicable foreign laws (table 1). Importantly, in each legislation, all actors in the timber supply chain (except the final consumer) are responsible for ensuring the legality of the timber they purchase and must declare the identification and geographical origin of the timber in question. US legislation requires the declaration of the full scientific name (genus and species), whereas the remainder only require trade names, common names, or genus where the full scientific name is unknown. This approach can be problematic in determining legal status because most environmental protection laws are applied at the species level. Legislation in the United States and Canada require only that the country of origin be declared for traded timber, whereas legislation in the European Union requires the region and concession of harvest "where applicable," and Australia requires region and harvesting unit information in all cases. In addition to these declaration requirements, legislation in the European Union and Australia requires buyers to fulfill requirements for due diligence and provide evidence that the timber has not been illegally sourced. Legislation designed to address

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Aim and Audience

- Aim: Facilitate the employment of forensic science to the fullest extent possible to combat timber crime

- Audience: Law enforcement, the scientific community, prosecutors and the judiciary

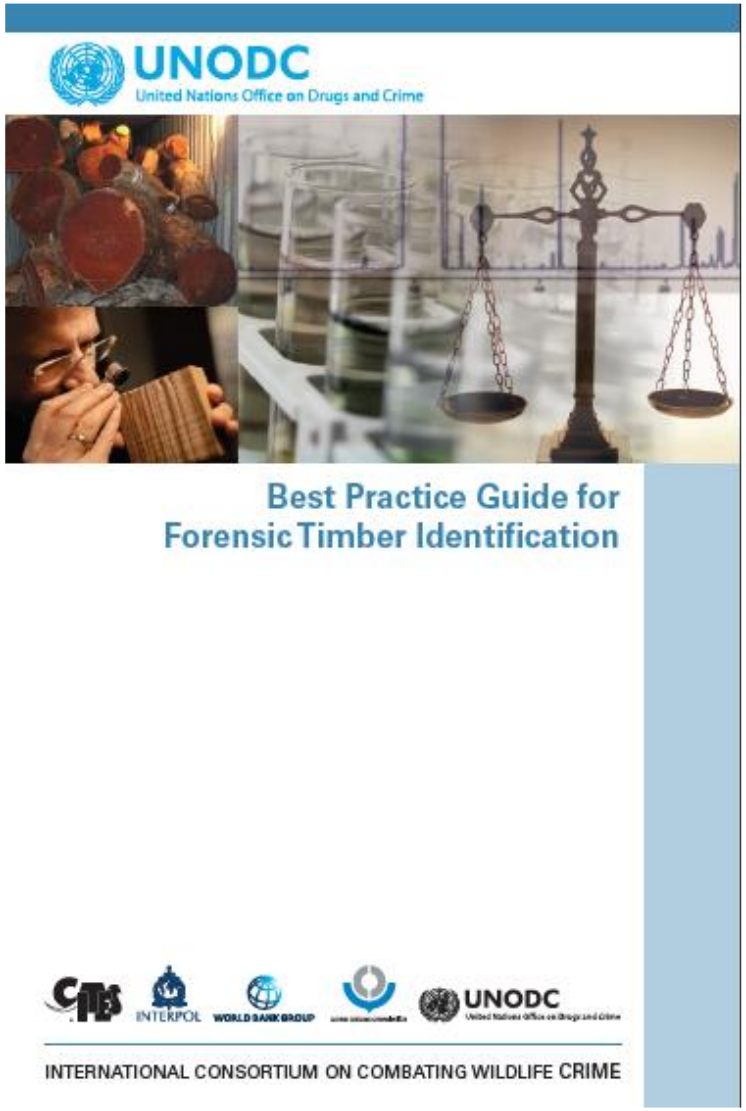
Structure of the Guide

Part I. From search decisions to forensic timber identification: Information for law enforcement

Part II. Undertaking forensic timber identification: Information for scientists

Part III. Forensic timber identification evidence in court: Information for law enforcement, prosecutors and the judiciary

Part IV. International cooperation



Timber Guide:
www.unodc.org/documents/Wildlife/Guide_Timber.pdf

Flow Diagram:
www.unodc.org/documents/Wildlife/Timber_Flow_Diagram.pdf

UNODC Wildlife and Forest Crime Publications:

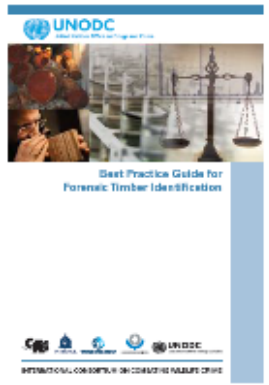
www.unodc.org/unodc/en/wildlife-and-forest-crime/publications.html

Topics
- Alternative development
- Corruption
- Crime prevention and criminal justice
- Drug prevention, treatment and care
- Drug trafficking
- Firearms
- Fraudulent medicines
- HIV and AIDS
- Human trafficking and migrant smuggling
- Money-laundering
- Organized crime
- Maritime crime and piracy
- Terrorism prevention
- Wildlife and forest crime
  - Overview
  - Global Programme for Combating Wildlife and Forest Crime
  - International Consortium on Combating Wildlife Crime
  - Resources
  - Contact us

WILDLIFE AND FOREST CRIME

Publications

In our determination to combat wildlife and forest crime we have developed informative material aiming not only to raise awareness of the issues but to build technical assistance. Some of our publications are presented below.



Best Practice Guide for Forensic Timber Identification

(English)

Law Enforcement Best Practice Flow Diagram for Timber

(English)

Application/Technical Transfer

Annual ILEA (International Law Enforcement Academy) Budapest

Illegal Logging and Forest Crime course (September 2015, October 2016)

- Integration of curriculum with ICCWC tools

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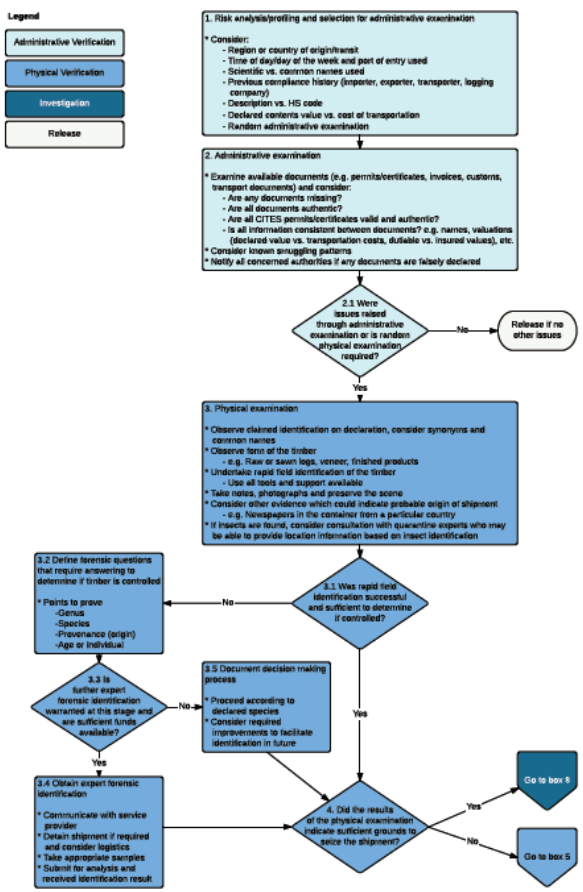
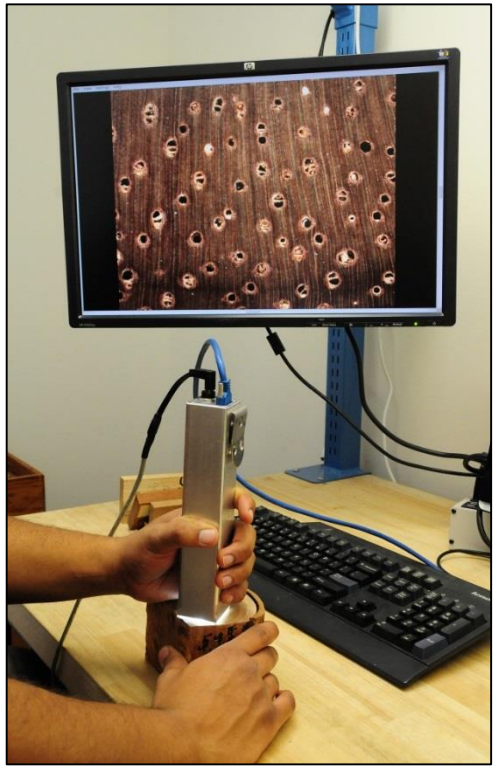
Best-practice flow diagram for timber



Detailed information in Part I of the Guide to support law enforcement

- Rapid field identification
  - Tools and identification techniques available to non-experts
  - Used to quickly establish a legal basis for intervention (e.g. seizure, provision of charging documents etc.)
  - Less accurate than expert forensic identification but adequate to establish grounds for further investigation.

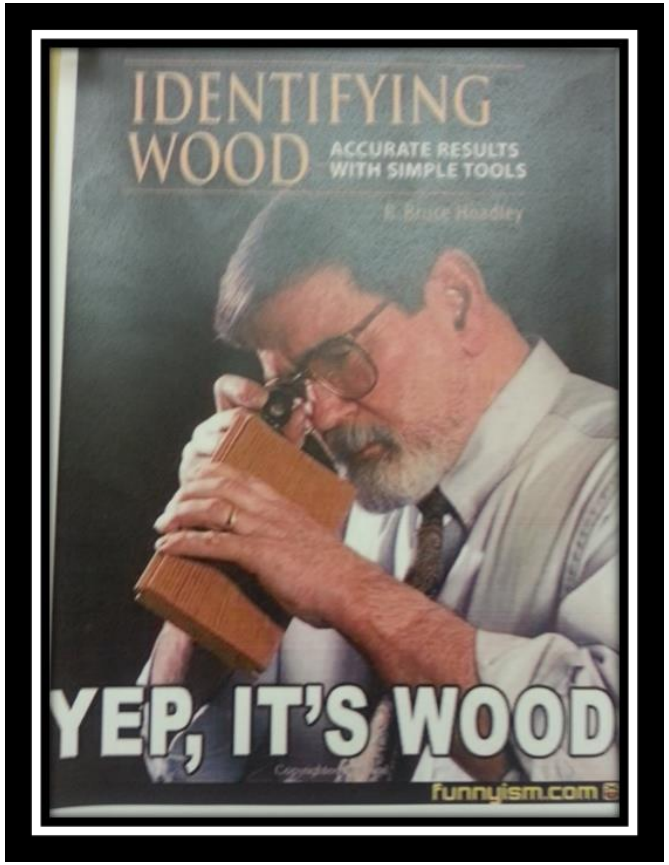


Detailed information in Part I of the Guide to support law enforcement

- Rapid field identification continued…
  - Macroscopic wood anatomical identification by law enforcement
  - Macroscopic wood anatomical identification by an off-site expert
  - Detector Dogs
  - Automated methods currently under development
    - Machine vision
    - Near Infrared Spectroscopy (NIRS)

Part II of the Guide - Undertaking forensic timber identification: Information for scientists

- Available methods for forensic timber identification
  - Wood anatomy
  - Dendrochronology
  - Mass spectrometry
  - Near infrared spectroscopy
  - Stable isotopes
  - Radiocarbon
  - DNA Barcoding
  - Population genetics and phylogeography
  - DNA profiling for individualization



Appendices

1. Glossary
2. Non-timber forest products and identification considerations
3. Non-timber forest products of CITES listed species
4. List of common risk indicators for trafficking of illegal timber and timber products
5. Information on CITES listed tree species
6. Native geographic distributions and known areas of cultivation of CITES listed tree species
7. Guidance for search of containers, freight vehicles and premises
8. Forensic identification method capabilities, approximate costs and lead times
9. Resources to assist rapid-field identification of timber and timber products
10. CITES listed timbers and lookalikes documented in CITESwoodID
11. One hundred important traded timbers documented in macroHOLZdata
12. Methods currently under development for rapid-field identification of timber
13. Example chain-of-custody form
14. Timber inventory and sampling data collection
15. Resources to assist microscopic identification of timber and timber products
16. Online resources for the acquisition of reference data

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COMBATING
WILDLIFE AND FOREST CRIME
UNITED NATIONS OFFICE ON DRUGS AND CRIME

Thank you

https://www.unodc.org/unodc/en/wildlife-and-forest-crime/forensic-guidelines.html