BEECKMAN, H. ET AL.

Identification of Congo Basin woods and enforcement of timber trade regulations

Hans Beeckman[1], Tom De Mil[1], Victor Deklerck[2], Wannes Hubau[1], Maurizio Mascarello[3], Samuel Vanden Abeele[3], Mélissa Rousseau[1], Jan Van den Bulcke[2] & Steven Janssens[3]

[1]Royal Museum for Central Africa, Belgium
[2]Ghent University, Belgium
[3]Botanic Garden Meise, Belgium

hans.beeckman@africamuseum.be

There are numerous legal instruments for which wood identification matters: CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), FLEGT (European Union Forest Law Enforcement, Governance and Trade Action Plan), the EU-TR (European Union timber regulation), the American Lacey Act and the Australian Illegal Logging Prohibition Act.

However, wood identification down to species level is not straightforward, especially if the origin is uncert ain. Therefore we present five complimentary methods of identification. When used together, these methods assure a high-level identification.

1. Description of wood using formal wood anatomical features (InsideWood database).
2. Automatic recognition of wood anatomical patterns using state-of-the-art imaging techniques.
3. Visual keys based on microscopic images
4. Spectrometry using Direct Analysis in Real Time Time-Of-Flight Mass (DART TOFMS): presence of ions reveals wood identity.
5. DNA analysis: genomic DNA is extracted from plant tissue and sequenced on a high-throughput sequencing platform. The resulting DNA sequences are analysed with multiple bioinformatics tools to identify variable sites in the genome. These variable sites are matched with a reference DNA database to identify the investigated species.