

Fiber analysis of paper

Ruth Noguerón

May, 2011

Outline

1. Fiber analysis
2. Why we did it?
3. Findings and reactions
4. Insights

1- What is fiber analysis?

- Existing technology
- Experts can determine:
 - Pulping process (e.g. kraft, mechanical, chemical)
 - Wood type (e.g. hardwoods, softwoods)
 - Genus, sometimes species

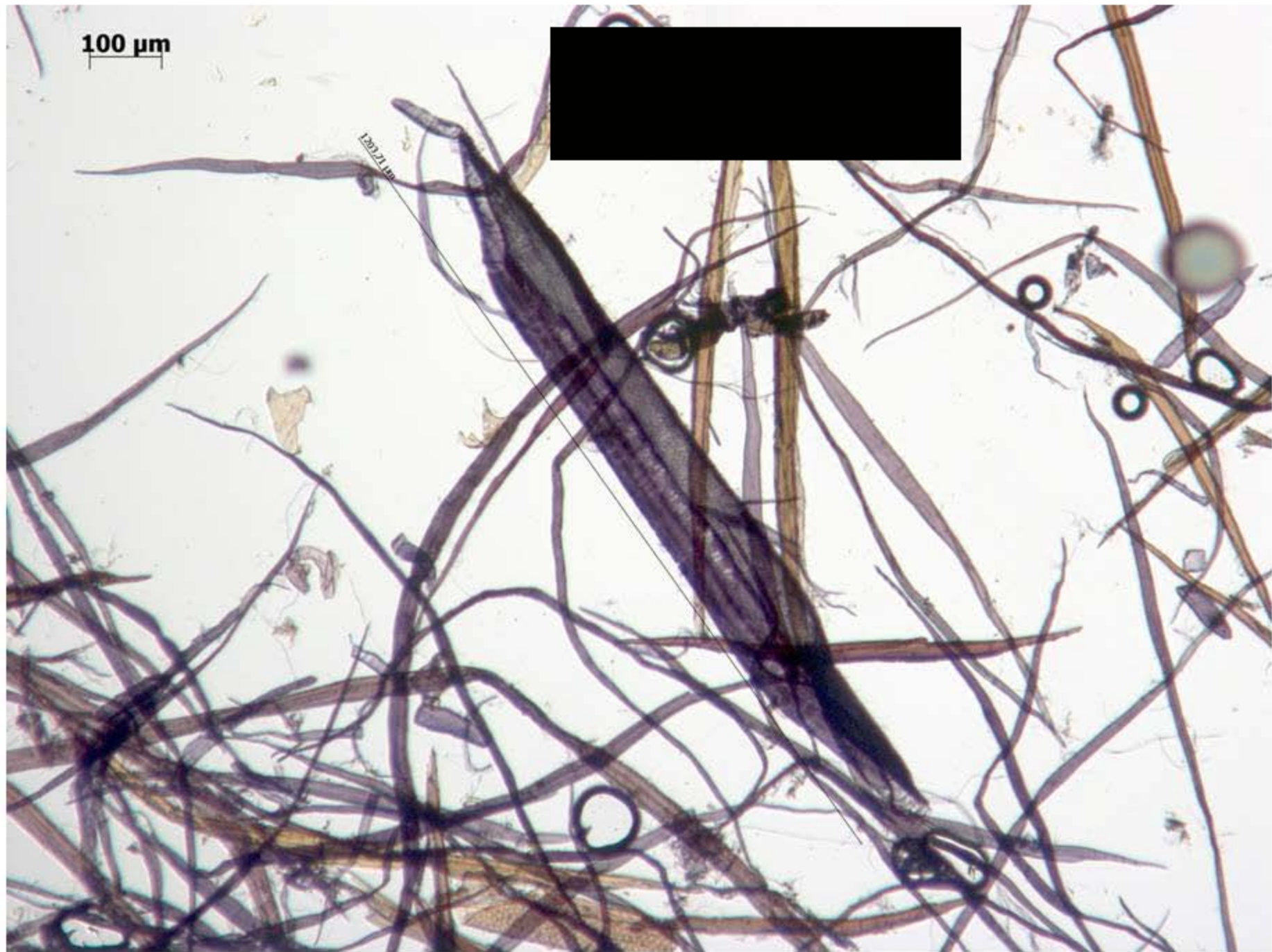
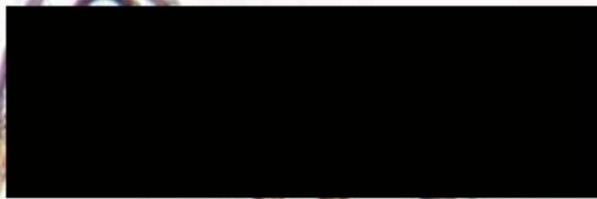




100 µm

100 μm

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2- Why we did it and how?

- Can it identify illegal wood in paper products?
- Can it be used to manage risk?
- 60 samples from 32 products tested



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Risk Free? Paper and the Lacey Act

By Ruth Nogueron and Craig Hanson on November 15, 2010



Tags: [business](#) [deforestation](#) [forest certification](#) [forestry](#) [lacey act](#) [united states](#)

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Tests detect potentially illegal wood in paper. Here are some tips to manage risk.

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Test results demonstrate that it is possible to detect potential Lacey violations for paper, thanks to modern technology.

The amended U.S. Lacey Act has already impacted the wood industry, from the investigation of [Gibson Guitars](#) to a recently-reported seizure of [Peruvian hardwood](#). Both of these cases involved solid wood products. But what about paper?

Paper poses the challenge of linking an illegally harvested tree in a faraway forest to a piece of paper purchased in the United States—after all the mixing and bleaching. Companies in the [Forest Legality Alliance](#) and others asked whether or not it is even possible to find Lacey violations in paper products.

Working with others, WRI decided to check it out.

We sent samples from 32 imported paper products to an independent fiber analysis laboratory. Samples we had tested came from stationery, paper bags, cardboard boxes, toilet paper, facial tissue paper, wrapping paper, and books—including pages, glossy cover sleeves, and cardboard from hardback covers. All products were purchased from stores and outlets in the United States.

With fiber analysis, scientists use high powered microscopes to look at plant fibers and vessels in a snippet

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Q&A: Fiber Testing, Paper, and the Lacey Act

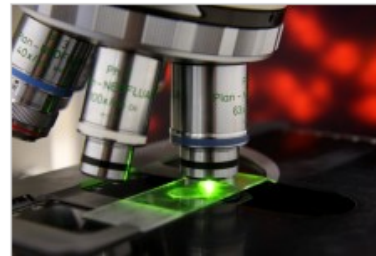
By Ruth Nogueron, Craig Hanson and Adam Grant on January 26, 2011



Tags: business deforestation forestry lacey act

Answers to frequently asked questions about fiber testing, a technology that can help find potentially illegal wood in the paper supply chain.

In November 2010, WRI posted "Risk Free? Paper and the Lacey Act" in which we discussed using paper fiber testing to find potentially illegally harvested wood in paper products purchased in the United States. The article received a lot of interest from companies in the forest product supply chain and from civil society organizations working to reduce illegal logging. Here, we respond to some frequently asked questions about fiber testing and how one might use the technology to manage risk in the paper supply chain.



1. What is fiber testing?

Fiber testing is a technology that is used to identify and quantify the mix of tree fibers contained in a sample of paper. Using high-power microscopes, specialized labs identify the composition of a sample of paper by observing the reactions of fibers when treated with various chemicals (e.g., change in color) and by identifying unique anatomical features in softwood fibers and hardwood vessels (e.g., shape, size, pit pattern). Vessels are structures that transport nutrients and water in plants and can be identified in paper. Depending on the quality of the fibers, experts can determine the pulp type (softwood vs. hardwood), pulping process (e.g., mechanical, chemical), the genus, and sometimes the species of the tree fibers contained in a paper sample.



2. Who uses fiber testing?

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Menhut Bantah Temuan WRI

Minggu, 02 January 2011

☆☆☆☆☆ (0 votes, average: 0.0 out of 5)



Menteri Kehutanan Zulkifli Hasan membatah hasil temuan World Resources Institute (WRI).

Temuan WRI—lembaga nonpemerintah di AS—menyatakan, kayu ramin menjadi bahan baku kertas yang dipakai untuk mencetak buku bacaan ringan dan sampul buku anak-anak. Berbagai buku itu diterbitkan dan dijual perusahaan AS, tetapi diimpor dari Indonesia, demikian temuan WRI yang dilansir November.

WRI menyatakan bubuk kertas yang diekspor Indonesia ke Amerika Serikat mengandung kayu ramin yang ditebang dari hutan alam. Zulkifli menegaskan, dalam jumpa pers akhir tahun, Kamis (30/12), "Ramin itu kayu mahal sekali, tidak mungkin dijadikan pulp."

Sementara itu Dirjen Bina Usaha Kehutanan Imam Santoso mengemukakan, biaya produksi ramin menjadi bubuk kertas begitu tinggi. Dia menambahkan, temuan WRI tidak berdasar dan berbau politik persaingan dagang.

"Ada yang ingin menghancurkan nama baik Indonesia dan mematikan dunia usaha Indonesia," papar Imam. Padahal, lanjutnya, Indonesia sudah berkomitmen menuju produk 'go green' juga sudah melakukan lacak balak industri kehutanan sampai kepada konsumen baik untuk pasar dalam negeri maupun pasar internasional.

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20 December 2010

A Response to the Finding of Ramin Fibers in Indonesian Paper Products Marketed in the United States

Surprise, But No Surprise: *Protected Tree Species Find Their Way into Indonesian Pulp and Paper Products*

**10 companies affiliated to Asia Pulp and Paper (APP)
have acknowledged that their concessions contain
ramin trees (*Gonystylus spp*)**

Executive summary

The recent finding by the World Resources Institute (WRI) that Indonesian pulp and paper products exported to the United States contain Ramin fibers, a protected tree species, mean that all those who produce, handle and trade in such products are liable to criminal sanctions under the US's Lacey Act.

Greenomics Indonesia is not surprised by the WRI's finding as the majority (70.45%) of concessions for the establishment of forestry plantations contain large tract of natural forest that have mostly cleared so as to make way for the plantations.

These tracts of natural forest are home to ramin and other tree species protected under both CITES and/or Indonesian law, and fiber from these species contributes to the raw materials supplied by the plantations to Indonesia's pulp and paper industry.

It is fiber from protected tree species found in these areas that then finds its way into Indonesia's pulp and paper products.

Thus, we are not only talking about ramin, but also many other species of tree that are protected under both CITES and Indonesian forestry legislation.

As the Lacey Act also recognizes protections afforded under the domestic law of producing countries, all those who produce, handle or trade in timber products sourced from species that are protected under CITES or Indonesia's domestic forestry legislation are in violation of the Lacey Act.

While Greenomics Indonesia's investigations into this matter have been confined to pulp and paper produced by Asia Pulp & Paper, given the characteristics of the Indonesian's forest landscape, there are good reasons

to believe that all Indonesian pulp and paper products are likely to contain fibers from ramin and/or other protected tree species as designated by Indonesian law.

Accordingly, all those involved in dealing with pulp and paper products containing protected tree species fibers in the US market need to be aware that their operations are more than likely in breach of the Lacey Act, and as a result they are leaving themselves open to criminal charges under its provisions.

The Jakarta Post

Wednesday, May 04, 2011 08:22 AM

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NATIONAL

RI paper has fibers from protected tree: Research

Adianto P. Simamora, The Jakarta Post, Jakarta | Thu, 12/23/2010 9:11 AM | National [A](#) | [A](#) | [A](#) |

Activists have asked the government to monitor the use of raw materials for paper following a laboratory finding that some products exported to the United States contained material from the protected ramin tree.

The analysis, done by the Washington-based World Research Institute (WRI), found paper containing ramin fibers (*Gonystylus spp*) in some children's and coffee-table books in the US market.

The researchers found the books were manufactured in and imported from Indonesia.

"The government needs to respond to the findings and evaluate the materials from the pulp and paper industry," Greenomics Indonesia executive director Elfian Effendi said Wednesday.

Greenomics issued a report following the WRI's findings, saying all Indonesian pulp and paper products were likely to contain fibers from ramin trees and other protected tree species.

The group said a majority of industrial forest plantations (HTI) were located in natural forests containing species of protected trees.

In its study, Greenomics analyzed 44 HTI with total concessions of 2.3 million hectares.

The 44 concessions contain 520,296 hectares of natural forest that has not been converted. "Of the 44, 31 are home to protected tree species, including ramin," he said.

Greenomics said ramin logs between 10 and 19 centimeters and between 20 and 29 centimeters were found in 10 of the concessions.

Ramin trees have been protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 2003.

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5- Findings and insights

- Fiber analysis can also help manage risk by verifying purchases

If the fiber mix	The paper
Has a high proportion of acacia, eucalyptus and some types of pine (plantation species)	Is made from plantations
Has a wide variety of fibers from different pulping processes; there might be species that are not common in the area of origin.	Is likely to be recycled paper
Has a high concentration of mixed tropical hardwoods, mixed temperate, or mixed boreal types of trees.	Is made from natural forests

Thank you!

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