

SERPENTINE

FORMAFANTASMA: CAMBIO TRANSCRIPT

Formafantasma

Seeing the wood for the trees, 2020

Video, 16 min 52 sec

Courtesy of Formafantasma.

Production by Formafantasma

COLLABORATION: VANESSA RICHARDSON, European Investigation Agency

Forest ecosystems exist or have existed in every region of the world, from the tropics and subtropics to temperate and boreal regions.

The warmest and wettest regions tend to host the highest structural complexity and biological diversity. The Amazonian forests in South America are home to 16,000 described and undescribed tree species alone and to communities that speak over 300 different languages. Moving towards the poles, biodiversity decreases in line with the average temperature, while the ratio of land covered by forests increases: the boreal forest that covers 33% of the total forested area is thus the largest biome on the planet.

It is estimated that 80% of the world's intact forests are now degraded. Most intact forests remain in the tropical latitudes or the boreal forests of Canada and Russia.

There are over a thousand different ways to define a forest. This diversity primarily reflects the differing scales and concepts of land use and management priorities. For example, the criteria used to define forests may be legal administrative units on paper or based on potential timber yields, or by land cover such as ecosystem structure and composition.

How a forest is defined is important, as it provides the legal and operational basis for forest policies, governance and monitoring.

SERPENTINE

While older definitions of the forest stem solely from concerns over sustaining timber stocks, from the late twentieth century onwards, a new understanding of forests sees them as complex systems. Today, forests are valued beyond timber production and defined by the ecosystem services they provide, including climatic stability, climate change mitigation, non-timber forest products and the support of millions of culturally diverse peoples and animal species.

Another way to define a forest is by measuring the degree of human interference they have been subject to. Forests can be degraded and fragmented through the development of infrastructure projects like roads and dams or extractive industries such as selective logging or mining, or excessive hunting, and the intentional or accidental introduction of invasive, non-native species.

Relatively intact old-growth forests, also known as ‘primary forests’, are those ecosystems that have suffered little to no degradation and still maintain high structural and biological complexity. On the contrary, secondary forests can be described as forests that regenerate mostly through natural processes after significant human and/or natural disturbance of the original forest vegetation. They also display a substantial difference in the structure of the forest, and/or in the composition of the canopy species when compared to nearby primary forests on similar sites.

Forests contain more carbon in biomass and soils than is stored in the Earth’s atmosphere. Tropical mangroves and peatlands store the most carbon as they have the highest biomass density of all forest ecosystems. The largest and oldest trees, representing as little as 1% of the living biomass, sequester about half of the total carbon held in forests.

Intact natural forests store an estimated 40 times more carbon than tree plantations. Moreover, the regular harvesting and clearing of tree plantations releases stored carbon dioxide back into the atmosphere at every harvest and processing cycle. By contrast, natural forests continue to sequester carbon for many centuries.

Preventing deforestation and degradation of intact forests is therefore essential to avert both the climate and biodiversity crises we face.

Sources of timber

SERPENTINE

In two thousand and fifteen, approximately a third of all forests worldwide were designated as timber production forests, and these were either privately owned or leased through governmental concession.

Timber stocks also exist in the form of agricultural tree plantations, which are mostly monocultures, using one or a handful of non-native fast-growing tree species. The logging of natural forests occurs through a gradient of intensities from highly selective logging – the removal of a few, high value, trees per hectare – to complete clear-cutting.

Some of the adverse effects on the ecosystem are difficult to assess or delayed. High-value tropical hardwoods from natural forests tend to be slow-growing, long-lived, shade-tolerant species with high-density wood.

The repeated selective removal of high-value tropical hardwoods often leads to a cascade of negative effects. Even when forests are allowed to recover, regrowth is dominated by very different trees, mostly fast-growing, light-demanding, short-lived lower-value species.

Most forestry practices in use today were developed in the last century, and have cutting cycles of approximately 30 years. Nonetheless, a growing number of scientific studies suggest that this is not long enough to achieve sustainable timber yields by species since the composition of old-growth forests does not fully recover even after 50 years of regeneration.

At the same time, there has also been a global shift to promote forest recovery. Forest restoration emphasises historical fidelity to a supposedly natural model, aiming at the recovery of native species composition and a return to levels of ecological integrity as it existed before. Forest rehabilitation instead emphasises the functional aspects of recovery and may involve non-native species. As such, afforestation may be described as the conversion of land to forest, where that land has not historically contained forests.

Production and trade

Globally, the areas of natural old-growth forests are decreasing, while tree plantations are increasing. Plantations now account for 7% of the world's tree-covered areas and have an average annual rate of increase of 3.1 million hectares per year. Most

SERPENTINE

of these fast-growing tree monocultures are located in temperate zones (one hundred and fifty million hectares), whereas boreal and tropical zones account for around fifty-seven million hectares each.

Coniferous trees have needle-like, evergreen leaves and tend to have softwoods, compared to those with broad leaves and can be either deciduous, like oak trees, or evergreen, like holly, and these broad-leaved types also include tropical hardwoods and softwoods like Eucalyptus species.

The global production of wood products in two thousand and seventeen totalled 3.8 billion cubic meters of round logs, 485 million cubic meters of sawn wood, 402 million cubic meters of wood-based panels and 597 million tonnes of paper and paperboard. About half of the harvested round logs worldwide were used as fuelwood, for cooking and heating in households, small industrial activities, such as brick making and tea processing, and to a lesser extent for generating electricity.

China is the world's largest net importer of industrial Roundwood, and it is also the largest exporter of wood-based panels. In two thousand and sixteen, Europe consumed around one quarter of all sawn wood, around two fifths of the world's wood-based panels and one quarter of all paper and paperboard. If the Russian Federation is included, annual production of European industrial roundwood totaled 590 million cubic meters, representing about 32% of the total global production. On the same year on a country level, the USA was the largest producer of industrial roundwood – 357 million cubic meters.

Nonetheless, European tree cover is generally increasing. This large-scale afforestation is enabled through the import of wood and other commodities grown on land in other parts of the world.

Worldwide, there has been a steady boom in wood pellet production as fuel. One reason behind this burgeoning demand is the EU's Renewable Energy Directive. The inclusion of wood pellets as a potential energy source has been heavily criticised; over 800 scientists, including some authors of the Intergovernmental Panel on Climate Change, report co-signed several open letters to the European Union. They estimate that to support the Renewable Energy Directive, three times the European annual harvest of wood would be needed, causing widespread cutting in other parts of the world to meet the demand.

SERPENTINE

Governance and the future of forests

Illegal timber - wood extracted in the absence of a lawful logging concession or felling protected species - today accounts for 10 to 30 % of the global wood trade. Without considering the dramatic environmental damages involved, the illegal timber trade deprives producer countries of at least 10 billion USD dollars per year in lost state revenue. Illegal timber affects the market by driving the price of legal timber down, and fuels corruption and human conflict.

The European Union has responded to this issue, introducing the voluntary EU Forest Law Enforcement, Governance and Trade Action Plan in two thousand and three. The import of illegal timber is prohibited through the landmark two thousand and thirteen EU Timber Regulation that follows the two thousand and eight US Lacey Act Amendment and Australia Illegal Logging Prohibition Act introduced in two thousand and twelve.

In order to curb illegal timber entering the European market, bilateral Voluntary Partnership Agreements between member states and several tropical wood producing countries are being negotiated. The end goal is to encourage them to implement governance and to increase the participation of local civil society and independent monitoring along the supply chain.

Other regulatory treaties include the Convention on International Trade in Endangered Species of Wild Fauna and Flora – a multilateral treaty to protect endangered plants and animals from unsustainable international trade. It is signed by 183 countries and regulates over 35,000 species.

Despite increasing efforts in tackling illegal logging by implementing better regulations in the countries of origin, technological tools like DNA barcoding, chemical fingerprinting or machine-vision identification are being developed to complement existing techniques adopted to check suspect specimens stopped at customs.

Aside from governmental interventions, private market-based certification schemes such as the Forest Stewardship Council (FSC) have been developed. Initiated in the early 1990s, the aim of these schemes is to verify sustainable production throughout the supply chain, from the forest to the final retailer. The degree to which certified

SERPENTINE

operations adhere to sustainable forestry stands varies regionally. The type of standard can also vary. However, it is estimated that around 11% of global production was certified in two thousand and seventeen by FSC. Most certification occurs in tree plantations of temperate and boreal zones - only about 15 % are located in tropical forests.

Front runners in the timber industry have also responded to the challenge, and new economies have emerged to process and reduce waste. The UK, for instance, has increased its recycling wood waste tenfold, from less than a 4% recycling rate in the 1990s to 40–45% today.

Global demand for timber in construction is increasing. Between two thousand and two thousand and fifteen, the consumption of wood-based panels per capita grew by 80%. Wood panels can also be made from post-consumer recycled wood. The share of recovered wood in total raw wood consumption by the European particleboard industry has doubled to 30% over the last ten years, saving an equivalent of 15 million cubic meters of roundwood.

Today, engineered timber is promoted as an alternative to steel and concrete for the construction of a wide array of buildings, including high-rise structures. Replacing traditional building materials such as plaster, aluminium and iron with wood-based products is referred to as the ‘substitution effect’, this move, in theory, accounts for an alleged reduction of carbon dioxide during the production process as well as a reduction in the quantity of greenhouse gasses that are sequestered from the atmosphere during the life-cycle of trees. The demand for more trees in construction, however, puts pressure on a finite planet and arguably on land that could have been used instead to grow food, harbour natural ecosystems and wildlife.

Although technological advancements and a more attentive regulation of trades and sourcing are essential in fighting deforestation all around the world, by far the best and most cost-effective solution for protecting forests and promoting sustainable forest management is to ensure community forest rights. Across several countries, where local communities have secure land tenure, deforestation was calculated to be significantly lower than in surrounding forested areas. Worldwide, local people have proved to be the best guardians of their habitat: human livelihoods and culture depend on healthy forests.