

# The Ecologist

**Saving hurricane-felled trees in Puerto Rico**

[Mark Nelson et al](#)

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Government departments are turning their back on hardwood salvage efforts in Puerto Rico.

Puerto Rico is facing challenges on many fronts: large debts, poor infrastructure, and an economy in tatters. Added to this, Hurricanes Irma and Maria brought the largest devastation seen on the island since the 1930s.

Recent political decisions by the Puerto Rican Department of Natural and Environmental Resources (DRNA) to stop the salvage and economic use of valuable, hurricane-felled hardwood trees have exacerbated an already grave situation.

This is a tragic and unnecessary decision given Puerto Rico's rich forestry history.

## Historical Background

Up to 1940, colonial [deforestation](#) had reduced the Puerto Rican forests that once covered the island to less than 10 percent. Around this time, the US Forest Service began extensive plantings of suitable native and regional hardwood trees.

The eminent forester, Dr. Frank Wadsworth, spearheaded this effort over many decades. To his regret, these beautiful planted forests were off-limits to even selective cutting and use.

By the 1950s, Puerto Rico had lost its traditional wood industries. The country has experienced the largest increase of [secondary forest cover](#), now at around [60 percent](#) of the island.

The [Institute of Ecotechnics](#) (IE) aims to develop approaches that harmonise human technologies with the natural world. Much of its work comprises consulting to biomic projects that take on difficult challenges in regions where conventional solutions do not work.

IE decided to locate its tropical rainforest biome project in Puerto Rico in 1983. The land - Las Casas de la Selva - is home to the [Tropic Ventures Sustainable Forestry & Rainforest Enrichment Project](#), and focused on developing methods of sustainable forestry and timber production in secondary rainforest.

The Puerto Rican government welcomed the project because virtually all of the wood used in Puerto Rico was being imported, rather than being grown on the island.

## Sustainable forestry

With the cooperation of the Puerto Rican DRNA and Department of Forestry, 40,000 tree saplings were planted between 1985-1990 on 100 hectares - about 25 percent of Las Casas de la Selva.

Three hundred hectares have been left undisturbed as a long-term wilderness preserve to observe secondary forest recovery and for watershed protection, research and educational ecotourism. The trees were line-planted as this ecological method of forest enrichment requires minimal disturbance of surrounding secondary forest.

Project staff and Earthwatch Institute volunteers conducted detailed monitoring of the tree plantings over a decade. The results published in the international journal *Bois et Forêts Tropiques* document this successful demonstration of ways to increase the value of secondary forests usually regarded as worthless because of their slow growth.

Sustainable forestry in secondary forests might reduce pressures on primary forests, valuable also for their remarkable overall biodiversity.

Studies from the University of Puerto Rico showed that biodiversity of plants, trees, and coqui frogs - an important part of the forest ecosystem - were unaffected by the line-planting.

## Reforestation initiatives

Las Casas de la Selva became one of the first forest projects to earn recognition by the Puerto Rican government for its regenerative and sustainable approaches as a Stewardship Forest.

The Las Casas de la Selva project - in cooperation with the US Forest Service, the Institute of Tropical Forestry, and the DRNA - has raised the issue of responsible use and care of the island's forests to public and government attention.

The reforestation initiatives of the mid-twentieth century included urban tree planting and street tree planting projects. By the early 2000s these trees outgrew their spaces and many urban trees were being cut down.

In 2012, Thrity Vakil and Andrés Rúa, of Las Casas de la Selva, became aware of the widespread practice on the island of cutting down old trees and grinding/chipping them to send to landfills.

Incredibly, this even applied to obviously valuable trees, like teak and mahogany. The wasteful "disposal" of these trees cost the cities just like any other garbage removal.

### **Coordinated effort**

In response, Thrity and Andrés formed [Puerto Rico Hardwoods](#) (PRH) to raise awareness and to begin salvaging these urban hardwoods as well as harvested trees from Las Casas de la Selva.

Local agencies welcomed the initiative as it saved money for the municipalities and reduced pressures on landfills. Using a portable sawmill from the Las Casas project, PRH began showcasing dozens of beautiful Puerto Rican woods and won the prestigious 2016 EnterPRize business award for Sustainability.

Hurricanes Irma and Maria motivated PRH to help lead a coordinated effort to save these valuable trees on an unprecedented scale. Doing so involved many battles with reluctant federal and local bureaucrats.

Las Casas de la Selva lay directly under Hurricane Maria's eye in September 2017 and suffered major damage to its buildings, infrastructure and forest trees. But even as its managers began the task of cleaning up and evaluating the damage, PRH embarked on the effort to reverse government policy by saving the hurricane-felled trees from the usual practice of disposal.

In October, 2017, following PRH's sustained pressure, the Puerto Rican Environmental Quality Board (EQB) passed a resolution to separate the tree trunks from vegetative waste at the US Army Corps of Engineers (USACE) temporary debris sites.

### **Maximising value**

Estimates are that 30 percent of mature trees on the island were felled or damaged by Hurricanes Irma and Maria.

The USACE estimates 60 percent of total hurricane debris - 2.3 of the 3.8 million cubic yards - is vegetative material.

In response, the US Forest Service, with support from FEMA and USACE, began a pilot program to explore methods of log salvage. The goals included waste reduction; sequestering carbon in long-term wood products; providing resources for cultural restoration efforts; and maximizing the value of fallen trees.

The agreed procedure included making an inventory all valuable logs or stumps; the separation and chip of non-valuable logs for mulch or composting; organizing logs by species and category; and maintaining logs at the salvage sites to maximize value.

Under these agreements, a few thousand trees were delivered to a handful of capable sawmill operations including PRH in June/July 2018.

### **Global attention**

A deep blow to these efforts followed. FEMA decided that they would not reassign the log salvage mission to the Forest Service because the DRNA declared that they have jurisdiction over all the hurricane felled timber on the island - not just those on government lands.

The DRNA has declared most of the wood worthless, and indicated their intention to save only a small percentage of the trees and to resume the practice of grinding and waste-dumping the rest. It's estimated that they will spend \$150 million US Dollars to contract this destruction.

The extension of the resolution signed by the EQB expired in August 2018. It became obvious that the EQB and DRNA would not follow their own published recommendations to save the wood: "All wood classified or suspected of being classified as precious wood cannot be shredded and they must be segregated so that they can be available for workshops, industries, sawmills, artisans or any entity that can use them in a useful way."

The Puerto Rican Senate has recently begun hearings and appointed a commission to investigate what's happening with fallen trees on the island. There is an urgent need to bring the situation to worldwide attention.

In the wake of the most destructive hurricane Puerto Rico has faced, these short-sighted political decisions must not be allowed to further the destruction of such valuable resources.

### **Abrupt reversal**

Luis 'Wichy' Castro, Puerto Rico Hardwoods CEO, testified at the Senate hearings that the salvage of hurricane-felled trees could inject many millions of dollars into the local economy.

Castro also castigated the abrupt reversal of governmental policy: "In collusion with federal agencies and contractors, Puerto Rico was robbed of the opportunity to establish a forestry industry with the potential to create thousands of good paying permanent jobs.

"And at the head of that nefarious effort was none other than [...] the Department of Natural Resources (DRNA) [...] which opposes a plan organized by the Federal Forest Service and approved by FEMA and the Corps of Engineers that seeks to rescue the remaining wood and distribute it among the interested parties."

The DRNA justified their termination of the tree salvage program, and [stated](#): "Available wood can be used by governmental, private sawmills and artisans interested in the purchase of wood, as well as by educational and/or non-profit institutions that have the need for reconstruction."

This is an attempt to cover up the fact that valuable hardwood trees are already being shredded and sent to landfills. Only a very small fraction of the total hurricane-felled wood will be saved by the DRNA.

### **Increasing pressure**

Dr. Frank H. Wadsworth, founder of the International Institute of Tropical Forestry, commented: "For several months, PRH has been denouncing the crushing of all the wood that the Government has accumulated in collection centers.

"If it is true that the vast majority of the trunks that were knocked down by Hurricanes Irma and María are classified as waste, this whole issue should be re-evaluated completely."

Dr. William Gould, director of the Caribbean Climate Hub, [pointed out](#) that there are "hundreds of valuable tree species in Puerto Rico - a successful project for the production of fallen tropical tree wood could also serve as a model for the Caribbean and other parts of the world."

We must focus the outside world's attention on the issue to put pressure on Puerto Rico's government to act responsibly and assist the salvage and the generation of a real wood industry on the island.

### **These Authors**

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[Dr Mark Nelson](#) is the chairman of the Institute of Ecotechnics. His new book *Pushing our Limits: Insights from Biosphere 2* is about his two years as a biospherian during the first closure experiment.

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