Lauri M. Oikarinen









Endangered Valuable Tropical Hardwoods in Palawan Philippines

We must save, protect, propagate, research and educate about these critically endangered extremely valuable hardwood species before they go extinct

Initial survey on current availability & seeding schedule and seed germination analysis for protection, propagation and reforestation purposes

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Subtitle: We must save, protect, propagate, research and educate about these critically endangered extremely valuable hardwood species before they go extinct

Based on Lauri M. Oikarinen personal studies, observations and efforts. Saving the Wonder Trees (SAWE), a non-profit organization was established to fullfill these goals

This book is aimed to all people who love trees and want to plant many hardwood trees. Let's get out there and plant together!

Subtitle: Initial survey on current availability & seeding schedule and seed germination analysis for protection, propagation and reforestation purposes

Unpublished Master's Thesis research project

Name: Lauri M. Oikarinen

Thesis for a Master of Natural Resources - degree

The Degree Programme of Master of Natural Resources

Place and year: Ekenäs, Finland 2018-2019

This is my research project that targets researchers to encourage

to join efforts to study these unknown, unstudied hardwood species

The pictures in the front cover are all my own photos:
Great Mangkono tree, Huge Bulong-ita tree, seeds of Mangkono, Ipil, Narra, Mountain Agoho and one unknown species & sample of most of the seedlings available in my nursery. The back cover photo is my own grown Mangkono from the first seeds.

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Abstract of the Philippine hardwood protection program

In 2015, I Lauri M. Oikarinen, an Environmental Planner from Finland discovered super quality hardwood trees while looking for the best renewable local construction materials in Palawan for a Self-Sufficient House - just to find out they are already gone! I immediately started to research this issue on my own. This resulted in the findings that there are more than 40 super quality hardwood species in the Philippines (over 22 just in Palawan), but almost all of them are most likely going extinct without immediate intervention. Unfortunately, the current efforts taken are nowhere near enough to protect these species. I did not find any protection nor propagation programs that are propagating these hardwoods. If you want to plant these, you can only buy Narra and Ipil seedlings… The other 38 species are not even available. In the Greening the Philippines Program mostly other than endemic (indigenous species to the Philippines) species and only Narra and Ipil have been planted, and only some few others like Kamagong and Amugis in very small numbers. Success reports or follow-up results were not available anywhere. Something had to be done.

One cannot propagate a tree species without knowing something about it, so I launched a personally funded research on the propagation of all species we could get our hands on in Palawan. With the critical starting situation, positive results of availability of mother-trees were necessary to even dream of propagation. After the first surveys and propagation experiments, the results were positive and we founded Saving the Wonder Trees (SAWE) in 2017 to Save, Protect, Propagate, Research and Educate about these hardwood species. This is a non-governmental, non-profit, non-stock organization. Our main target is to know how to efficiently produce good quality seedlings for propagation, so a nursery was started.

As of now, I have received only about one thousand euros of external support and have been paying myself for all our expenses. This has seriously limited the actions and slowed down all operations. Our official (and my personal) target is to plant 1 million Philippine endemic hardwood species. This far this number is just below 1 thousand…

The good news is that I have showed, in both research and nursery operations, that we can produce tens of thousands (or as many as ordered) of good quality rare hardwood seedlings in our Palawan nursery! In February 2019 we found the first buyers who successfully planted ca. 647 seedlings, over half of our remaining second stock. They have reported good success in planting while almost all of the donated seedlings had perished and we will not donate anymore; donating seedlings in our experiments was non-functional…

Our current stock in October 2019 held 17 of the most valuable species and a total of 2,211 seedlings. Unfortunately, despite of all the efforts, we cannot find buyers for the seedlings and cannot afford to plant them for free. I had more than 5,400 seedlings in stock after the research project in 2018, but could not find ANY buyers, most perished…

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Abstract of the research project

Initial survey was conducted in May-June 2017 on endangered and critically endangered Palawan endemic (or indigenous to Palawan) hardwood species remaining after decades of excessive over-exploitation and illegal logging in selected areas with decent forest cover in the municipalities of Aborlan and Puerto Princesa. The survey targeted 27 most valuable and sought after hardwood species (reported, or suspected, to be endemic to Palawan), their typical habitat, as well as the annual flowering, fruit production and seeding schedule.

The survey was conducted with GPS mapping and the species were identified with the help of the local natives. Location and survey maps were constructed. Two particular areas are suggested for immediate protection: Huge Mangono and Malabayabas trees habitat and young dense Mangkono and Malabayabas habitat.

Seeds of four species: Mangkono, Ipil, Mountain Agoho and Narra were collected for germination analysis. They were plotted in Red soil (Long-Point) and brown soil (Apurawan) testing locations. Germination results were monitored for 4 months. This research was the entry for larger studies on Palawan and Philippine hardwood forestry to create a scientific foundation for ecologic, economic and social sustainability practices. There is a serious lack of research on these species; information is very scarce or non-existent.

The large seed species: Ipil and Narra, germinated very well: Ipil 16,67% (Long-Point) and 17,95% (Apurawan) Narra 18,52% and 14,81%, and are easy to propagate from the seed. Their seed availability varies largely depending on the individual trees and locations, seeds were collected two times a year, in November-December and February, from the same mother-trees. More research is needed. However, the tiny seed species: Mangkono and Mountain Agoho (pioneering species) practically did not germinate. Only up to 5 total of each species did germinate and all perished (Mangkono 0,66% Long-Point & 0,66% Apurawan, Agoho 5% & 2,5% germination rates). Two seedbed experiments with more than 2,000 Mangkono seeds sown had germination rates of ca. 0,5% and 1-3%, most seedlings perished. Mangkono seeds can be collected almost all year around with the best peak from November to February. Data for Agoho is lacking.

Language: English Key words: Indigenous tree species, tropical hardwood, biodiversity restoration, propagation by seed, seed production schedule, germination success, sustainable forestry

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1 The Philippine endemic hardwood protection program

Few years ago in 2015, I Lauri M. Oikarinen, an Environmental Planner from Finland discovered super quality hardwood trees while looking for the best renewable local construction materials in Palawan for a Self-Sufficient House - just to find out they are already gone! Just 20 years ago, you could have built your house from 70-years-lasting super-durable Hardwood… In a desperate one-man-effort I tried to find a way to protect something nobody seemed to be interested in: the most valuable Philippine endemic (or at least indigenous – data lacking) hardwood species – jewels of nature. With 4 inspired Palawan locals we founded a non-profit organization: Saving the Wonder Trees (SAWE) in 2017. I have started all of this with my own funds and sweat in the jungle. Now I am publishing our first publication to give all of you the chance to read what we have done and what we will do.

Our main target is to:

Save, Protect, Propagate, Research and Educate about the Philippine endemic hardwood species of great value. Starting from Palawan and hopefully expanding to other islands.

For this purpose, we need help to establish large enough protection areas and organize research projects. We have already surveyed many potential Mother-Trees, established a nursery and have produced few thousand rare seedlings. From all these efforts, we aim to publish a more comprehensive Philippine Endemic Hardwood Protection Program to give guidelines how we can save these wonderful species from extinction and bring their populations to sustainable levels.

1.1 Introduction to the hardwood protection program

Few people know that the Philippine Islands have their own gold, green gold: own endemic hardwood species. Unfortunately, most of the best species are now critically endangered due to over-exploitation without any control or planning. Most of them will go extinct if immediate intervention is not exercised. Like many other legislations, the Philippines has good protection laws in paper, but nothing much is done to ensure that they would be followed in the real life…

Saving the Wonder Trees (SAWE) has already started in small scale the first step: to survey potential Mother-Trees. We found enough in Palawan to harvest seeds and some wildlings to

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establish a nursery to propagate these majestic species. We also found enough individual trees for permanent protection and some key-biotope habitats for suggested protection areas. During the 2017-2019 this far, seeds from 16 species have been successfully acquired. Furthermore, wildlings or seedlings from 18 different hardwood species have been obtained. We are optimistic to collect seeds from at least 22 different hardwood species in Palawan. Our nursery produced over 6000 seedlings this far and we aim to break the 10,000 seedlings line this coming harvest season 2020.

SAWE has started an education effort by donating few seedlings to our first partner barangay (villages within municipality) schools. This was part of the research to study survivability of newly planted seedlings. All these observations will be used to publish and regularly update new guidelines for Palawan Endemic Hardwood Protection Program. We will do the same in Mindanao and Luzon as soon as possible, but we need much more support to get to that target.

1.2 Background; where it all started and how we got here

2015 I was travelling in several Philippine Islands and, of course, I went to Palawan "The Last Frontier" in search of peaceful place with forests, beach and mountains. I found that, but noticed immediately that something was wrong, badly wrong. I have the ability to see deeper than the surface thanks to my education as environmental planner/scientist with the focus on sustainable development. Palawan was not well either!

I observed the forests and some trees I really liked. But when I started to plan a small cottage construction, I was told by the local civil engineer that wood is not available in Palawan… How come? There are still forests in plenty… Well, few questions to local carpenters and others who "had built from hardwood" started this whole story that I am writing now.

20 years ago, everybody was building from hardwood without any thought or concern that they could run out and to the brink of total extinction. I found houses built from Ipil *(Intsia bijuga)* just few years ago. I was too late. Or maybe I really came too late to save these species. I immediately saw the trend what was happening and understood that these species had been in plenty and were depleted already completely from large areas and all the most accessible areas, in every barangay through Palawan…



This book is two books in one and
contains the following stories:

Save the Philippine Ironwood and other critically endangered highly valuable tropical hardwood species!

These wonderful trees are most likely going to go extinct without immediate intervention. We can propagate more than 22 different hardwood species now, if you help us to do so. We have an operating nursery and we can produce tens of thousands of high quality seedlings for reforestation every year, if there is someone who has land to plant them into the ground. Please help us to get continuous annual planting started!

At December 2019, our nursery had still over 2,000 pieces of 17 different Palawan hardwood tree seedlings in stock, but we cannot find enough buyers who would plant them! ----------

A research on the availability, germination and propagation of selected Palawan hardwood tree species: the Mangkono (Ironwood), Ipil, Mountain Agoho and Narra - It included the following field research:

* Surveys to find potential Mother-Trees
* Availability study of seeds and wildlings
* Seed germination analysis for selected species
* Observations and experiments on survival of seedling in nursery and out-planted.

There is practically no research on these species and this is an open invitation to study more about these magnificent species.

The surveys located enough Mother-Trees to successfully save, protect, propagate and educate about these hardwood species.

Some species can be easily propagated from seeds, while many others must be propagated from wildlings, as of now, due to extreme difficulty to collect enough seeds or very low-germination rates.

I would love to plant many trees in the field and help to organize more research, but I have no more resources to do enough. I am asking for all of you who love to plant trees to read what I have done this far and join my efforts to plant million trees first in Palawan and then other islands in the Philippines.

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Save the Philippine Ironwood and other critically endangered hardwood species!