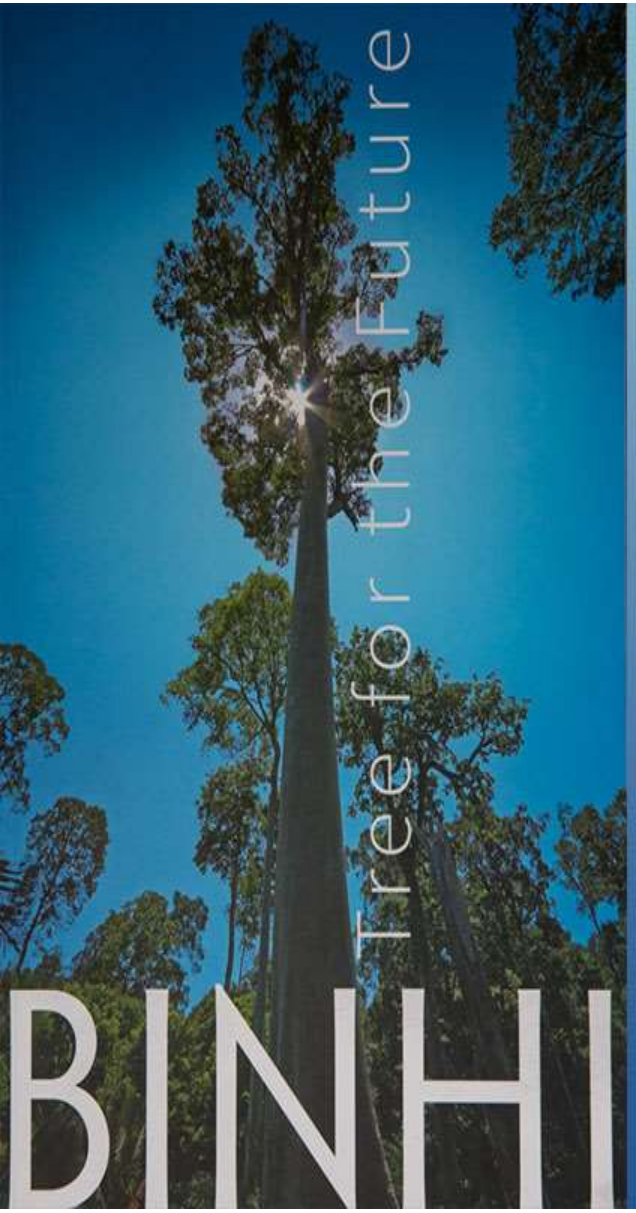


SEAMEO SEARCA
1966-2016

Agriculture and Development Seminar Series

BINHI: Debunking the Reasons Not to Plant Native Trees

Prof. Pastor L. Malabrigo, Jr.

Department of Forest Biological Sciences
College of Forestry and Natural Resources, UP Los Baños

28 February 2017, Tuesday, 4:00-5:00 pm
Sam Arng Srinilta (SAS) Room, SEARCA

OUTLINE OF PRESENTATION

I. History of Forests Degradation

II. Biodiversity Crisis

III. Rehabilitation Efforts

IV. BINHI Tree for the Future

V. Synthesis

History of Forests Degradation in the Philippines

Source: Environmental Science for Social Change, 1999

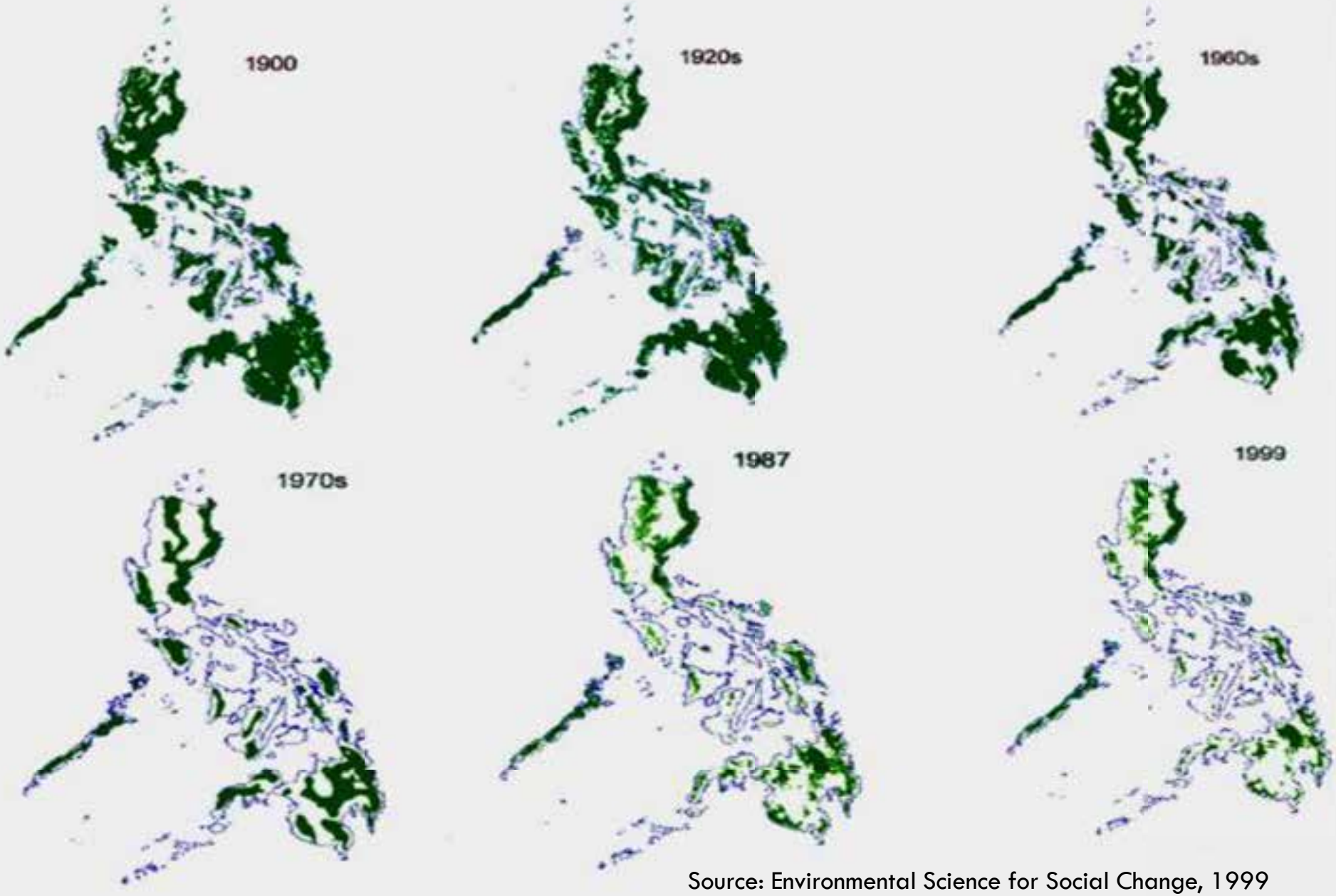
SPANISH COLONIAL PERIOD (1521-1898)

Philippine forest cover declined from 27 M ha in 1575 to 21 M ha in1898

Mainly due to:

- Reduccion
- encomienda
- hacienda

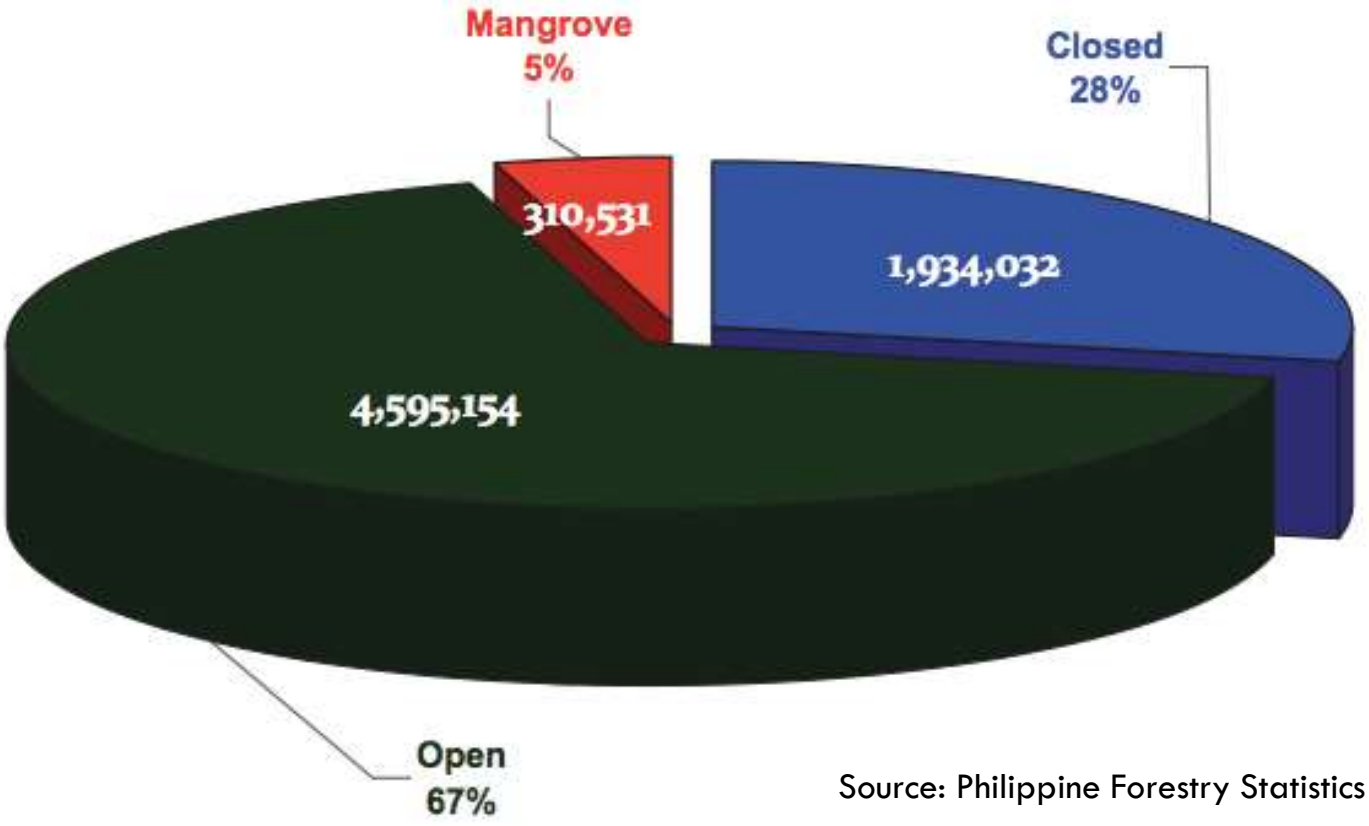
History of Forests Degradation in the Philippines



Source: Environmental Science for Social Change, 1999

CURRENT STATE OF PHILIPPINE FORESTS

FIGURE 3. FOREST COVER OF THE PHILIPPINES: 2010
(In hectare)



Source: Philippine Forestry Statistics (2012)

CURRENT STATE OF PHILIPPINE FORESTS

World's 10 Most Threatened Forest Hotspots

Rank	Hotspot	Remaining Forest	Predominant Vegetation Type
1	Indo-Burma (Asia-Pacific)	5%	Tropical, Subtropical moist broadleaf forests
2	New Caledonia (Asia-Pacific)	5%	Tropical, Subtropical moist broadleaf forests
3	Sundaland (Asia-Pacific)	7%	Tropical, Subtropical moist broadleaf forests
4	Philippines (Asia-Pacific)	7%	Tropical, Subtropical moist broadleaf forests
5	Atlantic Forest (South America)	8%	Tropical, Subtropical moist broadleaf forests
6	Mountains of Soutwest China (Asia-Pacific)	8%	Temperate coniferous forests
7	California Floristic Province (North America)	10%	Tropical, Subtropical dry broadleaf forests
8	Coastal Forests of Eastern Africa (Africa)	10%	Tropical, Subtropical moist broadleaf forests
9	Madagascar and Indian Ocean Islands (Africa)	10%	Tropical, Subtropical moist broadleaf forests
10	Eastern Afromontane (Africa)	11%	Tropical, Subtropical moist broadleaf forests; Montane grasslands and Shrublands

Source: Conservation International 2011

CURRENT STATE OF PHILIPPINE FORESTS

BIODIVERSITY CRISIS

MEGADIVERSITY COUNTRIES: Just seventeen nations collectively claim within their borders more than two-thirds of the Earth's biological resources. These countries are also home to a major portion of the planet's cultural diversity. In terms of plant and animal species at risk, as much as 80 percent of the world's most endangered biodiversity is found within the megadiversity countries.

- Philippine biodiversity are one of the most threatened in the world.
- 2nd biodiversity hotspot
- 4th most endangered forest ecosystems

BIODIVERSITY CRISIS

Summary of Philippine Threatened Plants

Category	Angiosperms	Gymnosperms	Pteridophytes	Bryophytes	All Taxonomic groups
Critically Endangered (CR)	89 (80)	-	10 (9)	-	99 (89)
Endangered (EN)	140 (114)	9 (4)	35 (27)	2 (2)	186 (147)
Vulnerable (VU)	123 (91)	2 (0)	51 (34)	-	176 (125)
Other Threatened Species (OTS)	56 (45)	-	8 (6)	-	64 (51)
Other Wildlife Species (OWS)	70 (47)	-	99 (80)	-	169 (127)
All Categories	478 (377)	11 (4)	203 (156)	2 (2)	694 (539)

After Fernando et al. 2008. Threatened Plants of the Philippines (Asia Life Sciences)

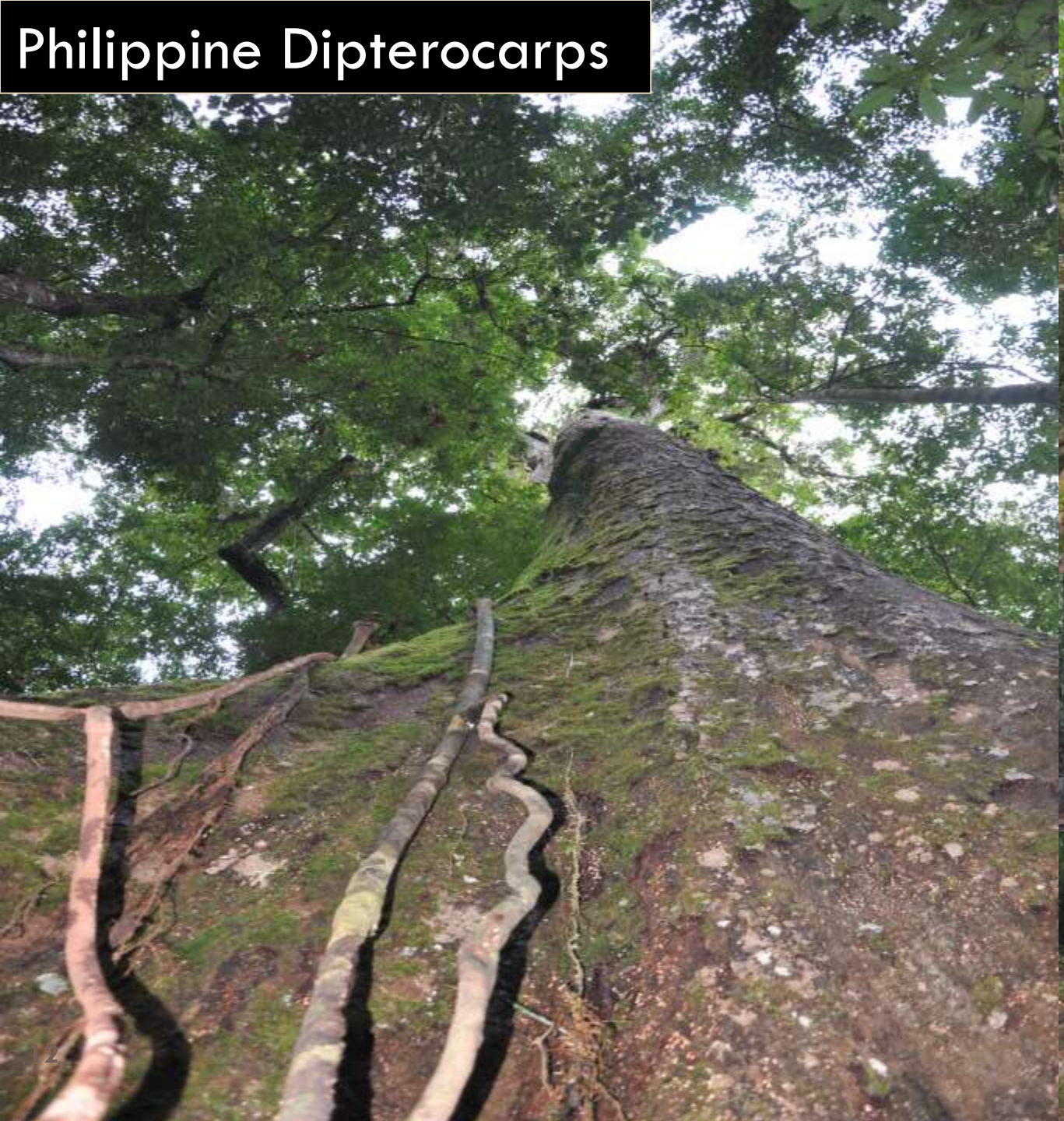
MOST THREATENED TREES

The mightier fall down first

380 Threatened tree species

- 40 CR
- 57 En
- 77 Vu

Philippine Dipterocarps



Philippine Iron Wood

Philippine Ebony

Philippine Oaks

Philippine Nutmegs

REHABILITATION EFFORTS

	Colonial Period (1910-1945)	Post-war Period (1946-mid 1970s)	CBFM *et al.* (mid 1970s-2010)	NGP (2011-2016)
No. of projects	35	90	5,503	No data
Distribution	26L:6V:3M	46L:31V:14M	All regions	All regions
Target area (ha)	535,000	166,877 (1948-1960)	7.9M	1.5M
Area planted (ha)	26,660	17,390	1.6M	242,507 (December 2016)
Total costs	3.574M	16.693M	No data	15B
% survival	15%	No data	71%	No data

Modified from Pulhin *et al.* 2006

Mahogany (*Swietenia macrophylla)*

Yemane/Gmelina (*Gmelina arborea)*

Falcata (*Paraserianthes falcataria)*

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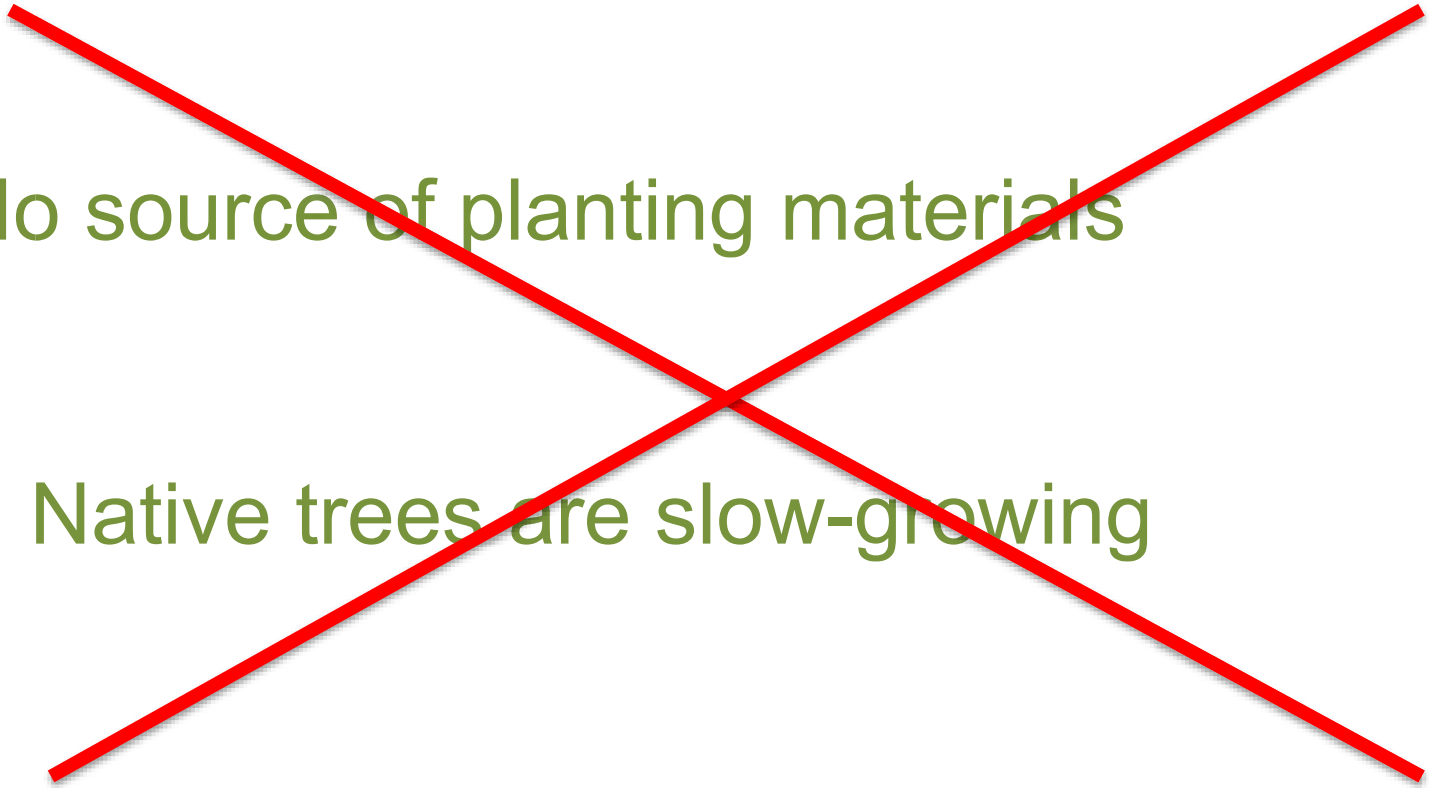
WHY THESE STRANGERS?

TWO COMMON REASONS (EXCUSES)



Cuernos de Negros

Bagtikan *(Parashorea malaanonan)*


La Paz tropical lowland evergreen rainforest
Pasonanca Natural Park

Palawan Narig *(Vatica manggachapui* ssp. *obtusifolia)*

Narig laot *(Vatica maritima)*

Mayapis *(Shorea palosapis)*


Shorea guiso


Shorea malibato


Shorea palosapis


Shorea polysperma

Yakal *(Shorea astylosa)*

White lauan *(Shorea contorta)*

Mayapis *(Shorea palosapis)*

Tanguile *(Shorea polysperma)*

Dalingdingan *(Hopea foxworthyi)*

Apunan *(Diospyros cauliflora)*

Native trees are slow-growing



Kamagong *(Diospyros blancoi)*

Yakal malibato *(Shorea malibato)*

Muan Elem. School, Kidapawan

Molave *(Vitex parviflora)*

Ginatilan Elem. School, Kidapawan

Perez Elem. School, Kidapawan

Our trees for the future started to bear flowers, fruits and seeds that become seedlings only in 3 years

Tindalo *(Afzelia rhomboidea)* tree at Tiris Elem. School, Osiao, Sorsogon

Considered as 1st documented flowering Malabayabas *(Tristaniopsis littoralis) tree* in the country at Nagotgot Nat'l High School, Sorsogon

Flowering Mangkono *(Xanthostemon verdugonianus)* in Nagotgot Nat'l High School, Sorsogon

Our trees for the future started to bear flowers, fruits and seeds that become seedlings only in 3 years

Planted Ipil *(Intsia bijuga)* already bear fruits in Bayan ni Juan, Calauan, Laguna

Flowers → **Seeds** → **Seedling**

In 6 years we already have 3 generations of Ipil *(Intsia bijuga*), a premium, endangered, native species.

Seedling from Calauan

Kidapawan, South Cotabato

Third generation

Trees of Yakal-saplungan (*Hopea plagata*) already bear fruits in Magubi demo Farm, Mailum, Bago City

93.5% survival rate of planted seedlings

Mahogany *(Swietenia macrophylla)*

Gmelina (*Gmelina arborea)*

Mangium *(Acacia mangium)*

Rain tree *(Samanea saman)*

Mapilig *(Xanthostemon bracteatus)*

Palawan Mangkono (*X. speciosus)*

Sierra madre Mangkono *(X. fruticosus)*

Mangkono *(X. verdugonianus)*

Photo by: Max Millan

Bago-adlau *(Xanthostemon philippinensis)*

Tindalo *(Afzelia rhomboidea)*

Ipil *(Intsia bijuga)*

Malakatmon *(Dillenia luzoniensis)*

Katmon *(Dillenia philippinensis)*

?

WHY NOT THE NATIVES?

LACK OF AWARENESS

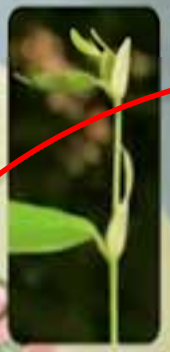
4 KEY STEPS

SPECIES RESCUE & PROTECTION

Seed Sourcing:

Full grown mother trees as seed sources

Seed and wildlings collection (to increase genetic material)



PROPAGATION

Hedge garden for production of cuttings

Seedling Production at the Automated Mist Irrigation Germination Shed

Seedling Recovery Area

Seedling Hardening Area

ESTABLISHMENT OF FUTURE MOTHER TREES; MONITORING & MAINTENANCE

Signing of Partnership Commitment

Tree Nurturing and Protection

ADVOCACY

Binhi Website
www.binhi.ph

The book features the 96 priority species

BINHI'S STRATEGIES

Creating Awareness


UPLB - EDC
Biodiversity Park


UP BIOLOGY - EDC


5


PHILIPPINE SCIENCE HIGH SCHOOL
IS A PROUD HOST OF ENDANGERED
PREMIUM PHILIPPINE TREES
Let's RESCUE, SECURE and PLANT MORE of our own
vanishing precious trees for a Greener Future!


2014


2014


UNIVERSITY OF ST. LA SALLE
IS A PROUD HOST OF ENDANGERED
PREMIUM PHILIPPINE TREES
YAKAL-MALIBATO


ALMACIGA

Rafael M. Salas Park and Nature Center Foundation


BENCAB ART FOUNDATION
IS A PROUD HOST OF ENDANGERED
PREMIUM PHILIPPINE TREES

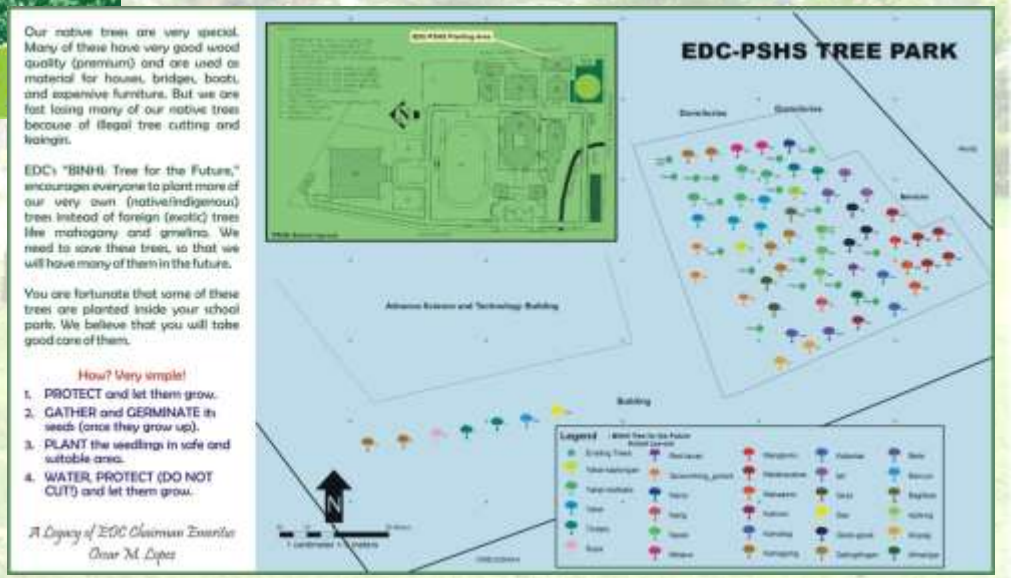
From 2008-2016 EDC planted more than 5,547 endangered trees in 16 regions with 131 partner institutions nationwide

CAR
1. BenCab Museum, Benguet
NCR
2. Phil.Science High School, Quezon City
3. Quezon City Science High School
4. Muntinlupa National High School
5. Quezon City Memorial Circle
6. Bonifacio Global City, Fort Bonifacio, Taguig City
7. Rockwell Land Corp., Makati City and Ortigas, Pasig
8. UP Diliman Institute of Biology, Quezon City
Region 1
9. Diocese of La Union/Abra/I.Sur, Sta. Cruz, Ilocos Sur
10. Burgos Agro-Industrial School, Burgos, I.Norte
11-22. Burgos Elementary /High Schools (12)
Region II
23. Isabela State University, Cabagan, Isabela
Region III – 24**.** RMTU, San Marcelino, Zambales
25. First gen, Pantabangan, Nueva Ecija
Region IV-A
26. Bayan ni Juan, Calauan, Laguna
27. St. Benedict Monastery, Batangas
28. St. Francis Theology Seminary, Batangas
29. Nuvali, Sta. Rosa, Laguna
30. First Philippine Industrial Park, Sto.Tomas, Batangas
31. FPRC-Eugenio Lopez Center, Antipolo City
32. UPLB-CFNR, Los Banos, Laguna
33. Dayap Elem. School, Dayap, Calauan, Laguna
Region IV-B
34. Western Philippines University, Aborlan, Palaw an
Region V
35-53 BGPF 19 partner schools,Albay and Sorsogon
BGBU Basecamp
Region VI
54. UP Visayas, Miag-ao, Iloilo
Negros Island Region
55-63. NNGF 9 partner schools, Negros Occidental
64. University of Negros Occidental, Recoletos, Bacolod
65. Univ.of St. La Salle, Bacolod
66. Rafael Salas Park, Bago City
67. CENECO Park, NNGP
NNGP-MKNP Ecamp Area, Bago City
68. La Castellana Elementary School, La Castellana, Negros
69-77. SNGPF 9 Partner Schools, Valencia, Negros Oriental
78. Ong-Che Tee Bacong National High School, Valencia, Negros Oriental
79. Spi Global and Balugo Elem School, Valencia
Region VIII
80. Philippine Science High School, Tacloban, Leyte
81. KEITECH, Ormoc, Leyte
82-101. LGPF 20 Partner Schools, Ormoc-Kananga, Leyte
LGBU Admin Area, Kananga, Leyte
102. Prov. Of Southern Leyte
Region IX
103. Central Mindanao University, Bukidnon
Region X – 104. WMSU, Zamboanga
Regions XI
105. University of Southeastern Philippines, Davao
Region XII
106-118**.** MGPF 13 Partner elementary schools, Kidapawan, North Cotabato
119-124. MGPF 6 Partner High Schools, Kidapawan, North Cotabato
125. University of Southern Mindanao, Kidapawan
126. Kidapawan Doctors College Inc., Kidapawan
127. Cotabato Foundation College of Science & technology
Region XIII
128. CARAGA State University, Butuan

Creating Awareness

Tree Label Info

Info Board



Info Board

Tree Guard

Monitoring and Maintenance of BINHI TFTF Project Areas

THE BINHI WEBSITE IS A GOOD VENUE TO INFORM THE PUBLIC OF OUR SCIENCE-BASED PROJECT

www.binhi.ph

Let's rescue, secure and plant more of our very own endangered premium trees

energy
DEVELOPMENT CORPORATION

DALINGDINGAN

Hopea foxworthyi Elmer

Dipterocarpaceae Family

BINHI
Let the Future Take Root

Native • Critically Endangered (DENR DAO 2007-1)

Why should we protect the DALINGDINGAN? Aside from being critically endangered, it has good wood quality due to its moderately high strength, fine texture and light to dark brown wood color. Its wood is suitable for general construction, doors, windows, furniture, joists, beams, boat and ship building and farm implements. (Centeno, V.A)

How can we help save this vanishing hardwood species? When the tree reached maturity, gather its seeds (ready for collection after 3 months) during fruiting in April and May. (DENR,2005).

PLANTED FOR THE FUTURE BY:	PLANTED ON:
ST. PAUL UNIVERSITY- Dumaguete	**Nov. 16, 2012**

Zephanie Danieles, Steff Aidan Daug & James Mondero)

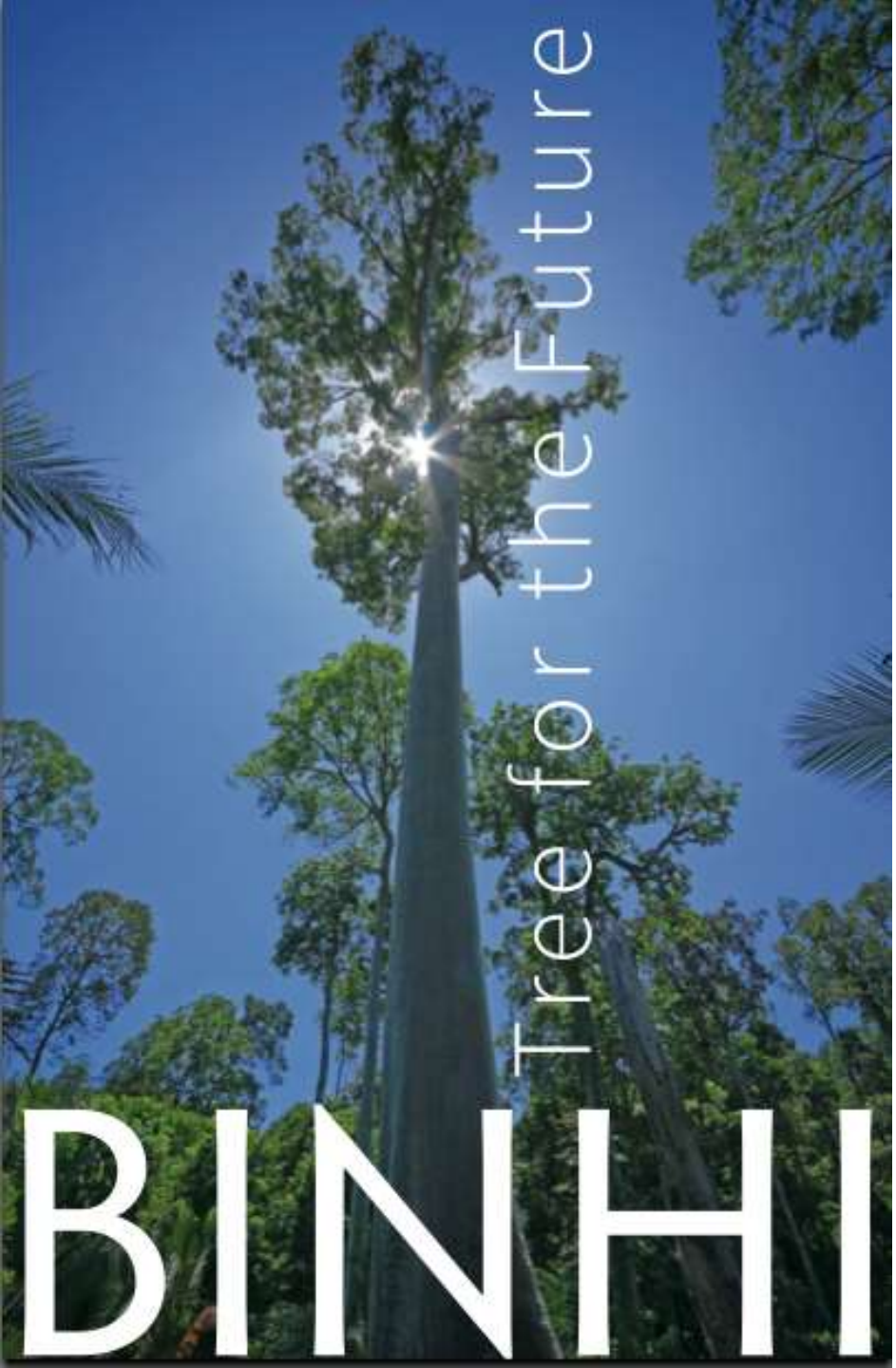
A tree biodiversity preservation project of Energy Development Corporation

PROVIDING TECHNICAL ASSISTANCE

PROVIDING TECHNICAL ASSISTANCE

PROVIDING TECHNICAL ASSISTANCE

PROVIDING TECHNICAL ASSISTANCE



Tree for the Future

BINHI

A book narrating the stories behind the search and rescue efforts for the 96 priority species of BINHI

SYNTHESIS

BINHI TREE FOR THE FUTURE BOOK LAUNCH