



MEMORANDUM

FOR : All Regional Directors
All Assistant Regional Director for Technical Services
All PENROs and CENROs

FROM : The Director

SUBJECT : **FMB TECHNICAL BULLETIN NO. 19 GUIDELINES IN THE ESTABLISHMENT AND MANAGEMENT OF AN ARBORETUM OF NATIVE/ENDEMIC TREES**

DATE : SEP 14 2015



The National Greening Program (NGP) as mandated by Executive Order No. 26 issued in 2011 aims to pursue sustainable development for poverty reduction, food security, biodiversity conservation and climate change mitigation and adaptation. To further enhance the implementation of NGP, the planting of native/endemic trees that best thrive in specific region/province/municipality and showcase the site-matching requisites would reinforce significant milestone for NGP. Thus, the establishment of Arboretum of Native Trees for every PENRO is being pursued.

An arboretum is essentially a well-grown and representative collection of trees maintained for the purpose of reference and convenient source of seed and herbarium materials for use and exchange. It is a collection of living specimen for scientific studies, conservation of genetic resources, learning area for Dendrology and for the study of phenology and the reproductive biology of species (ITTO, 2000).

I. The Technical Bulletin (TB)

This TB aims to provide the Field Offices guidance on the considerations and procedures in the establishment of Arboretum of endemic or native tree species, including the materials to be used and standard costing or budgetary requirements. In addition, this would also serve as guide for field offices in the establishment of Arboretum which could mitigate the extinction or loss of endemic or native trees in the respective regions.

II. Users of the Technical Bulletin

The users of this TB are technical personnel of the DENR Field Offices. Likewise, LGUs and other stakeholders who endeavor to establish

similar projects may use this TB as guide in establishing Arboretum in their respective areas.

III. Arboretum Establishment

A. Considerations

1. Location of Arboretum

The Arboretum of native trees shall be located in accessible and visible areas along the national/nautical highway or in established parks/protected areas, portion of forestlands (tenured and/or untenured), mangrove areas, ancestral domain, grazing lands, community watersheds and communal forests. Landslide & flood-prone areas should be avoided, including areas nearby human settlements.

2. Functionality

The Arboretum should focus more on the conservation of flora in the province. The DENR PENRO offices should have an initial listing of native plants in their areas of jurisdiction as sources of their planting materials to enrich the database afterwards.

3. Contribution to Scientific and Cultural Life

The Arboretum should put emphasis on the existing native plant vegetation and unique ecology of the place as important plant areas (IPAs) under a specific forest type with its ultimate floristic composition within the region/island/province or municipality. It is the finger print or species trail of the original vegetation and ecosystem in a particular area. It should be based on existing and recognized bio-geographic zones of the Philippines.

4. Economic Importance

The Arboretum serves as a showcase of important economic plants in a particular place as major sources of food, building materials, clothing and medicine of the indigenous/local communities. The Arboretum also serves as demonstration sites for ecotourism and educational purposes for students and local citizenry and sources of seeds/plus trees.

5. Mapping and Establishment of Arboretum

- a. The current or existing arboretum and botanic gardens in country, with facilities and areas for the allocation of Philippine

forest trees can be considered by some PENROs having jurisdiction over them;

b. Proper enhancement with native trees existing *in-situ* IPAs having specific vegetation like pine forest, molave forest, dipterocarp forest, among others. The PENRO in coordination with the Local Government Units (LGUs) can establish and declare the important vegetation as Arboretum by planting additional native trees to build the collection of Philippine trees;

c. Water reservoir should be present and accessible or a construction of a natural pond is a prerequisite, but should not destroy the natural ecosystem and should be located away from visitor's sight; and

d. Consider the size of the Arboretum for potential areas for expansion in the long-term period.

B. Procedures

1. Name of the Arboretum

The Arboretum should be the specific vegetation that it represents and bears the name of the place or municipalities. A permanent billboard/signage showing important details of the Arboretum must be put up in conspicuous place for public awareness campaign and purposes, as shown in *Annex A*.

2. Area Requirement

The Arboretum with an area of at least two (2) hectares is accessible within areas enumerated in Item no. III.A.1 above, to be managed and protected for a long-term period, with a natural or near natural vegetation for ecological research and a well maintained collection records for monitoring purposes.

The area must be delineated/surveyed using GPS in WGS 1984 projection. A GIS-generated map shall be generated.

3. Planting

The Arboretum should follow the NGP's planting design in terms of specimen/plant distribution or spacing allocation in the planting site. Planting shall be by group or cluster of species by family.

A minimum of 200 saplings representing at least 50 different native and endemic tree species must be planted, in 10m x 10 meters

spacing or closer depending on the species, in open two (2) hectare area/space without disturbance to the existing patches of trees/vegetation. Coordinates of all planted species shall be determined and all species shall be charted/mapped. Each sapling (at least 3 meters in height) must be labelled/tagged using recycled soft drink tin cans or sturdier materials with consecutive numbers, corresponding common names and scientific names and secured by a nylon string for identification. A permanent marker with the same information in the species tag shall likewise be placed in front of every sapling, as both shown in *Annex "B"*.

IV. Site management and protection

The Arboretum should be managed by the PENRO who will be responsible in the implementation/monitoring of the different activities in collaboration with partners, private sectors, LGUs and institutions/peoples' organizations (POs). There will be outright replacement for sapling mortality to complete the total number of arboretum species. All saplings shall have a tree guard for protection purposes. Maintenance and protection shall be conducted by PENRO.

V. Budgetary Requirement

The funding for this activity shall be chargeable against OSEC Fund and form part of the NGP target for 2015. The Work and Financial Plan shall be prepared by the concerned PENRO and to be endorsed by the respective Regional Director to DENR Central Office thru the Forest Management Bureau.

Hereunder are the activities and materials in the establishment of arboretum and corresponding cost:

Activity	UWM	Cost (P)
1. Site validation, assessment, planning and mapping	ha	450.00
2. Site Preparation and Planting	ha	3,000.00
3. Maintenance & Protection	ha	1,500.00

Materials	Specification	Cost (P)
1. Sapling	Endemic/native	75.00/sapling
2. IEC/Billboard	1	8,000.00

- Tarpaulin	4' x 8'	
- marine plywood	4' x 8' x 1/2"	
- angle bar	1 1/2" x 1 1/2"	
- G.I. pipe	2"	
- Cement/gravel & sand (for foundation)		
2. Tree Guard		150.00/pc
3. Nursery Shed/Information site/Bahay Kubo		15,000.00
4. Foot trails or pathwalks		
5. Species tags	3.5" x 6"	
6. Tree Marker	5" x 8.5"	

Tree Markers printed on tarp/sticker with board or G.I. sheet and pvc pipe as stand placed in front of the 200 saplings;

VI. Arboretum Database and Maintenance

A complete database with attributes on the established Arboretum must be properly organized, prepared and submitted for monitoring purposes. The important information includes total area showing the geo-tagged planted sapling. A yearly monitoring and re-measurement of planted native trees shall be done by the PENROs for documentation purposes.

All native plant collections should be recorded in electronic and data log books within the PENRO Offices. Considering that precise labels/tree tags are indicated in each planted native tree following a standard database system in the PENR Offices, a central database storage can be done for the whole network of Arboreta.

Records will be submitted to the FMB in standard form (MS excel; landscape orientation) together with the geo-tagged photos every end of July and December of each year, as shown in Annex "C". Font is "arial narrow".

FOR INFORMATION AND GUIDANCE


RICARDO L. CALDERON, CESO III



Republic of the Philippines
Department of Environment and Natural
Resources
Provincial Environment and Natural Resources
Surigao del Sur

**ARBORETUM of PENRO Surigao del
Sur**

**CARAGA Timber Corridor
Brgy. Tubo-tubo, Cagwait, Surigao**

Total Area : _____ hectares

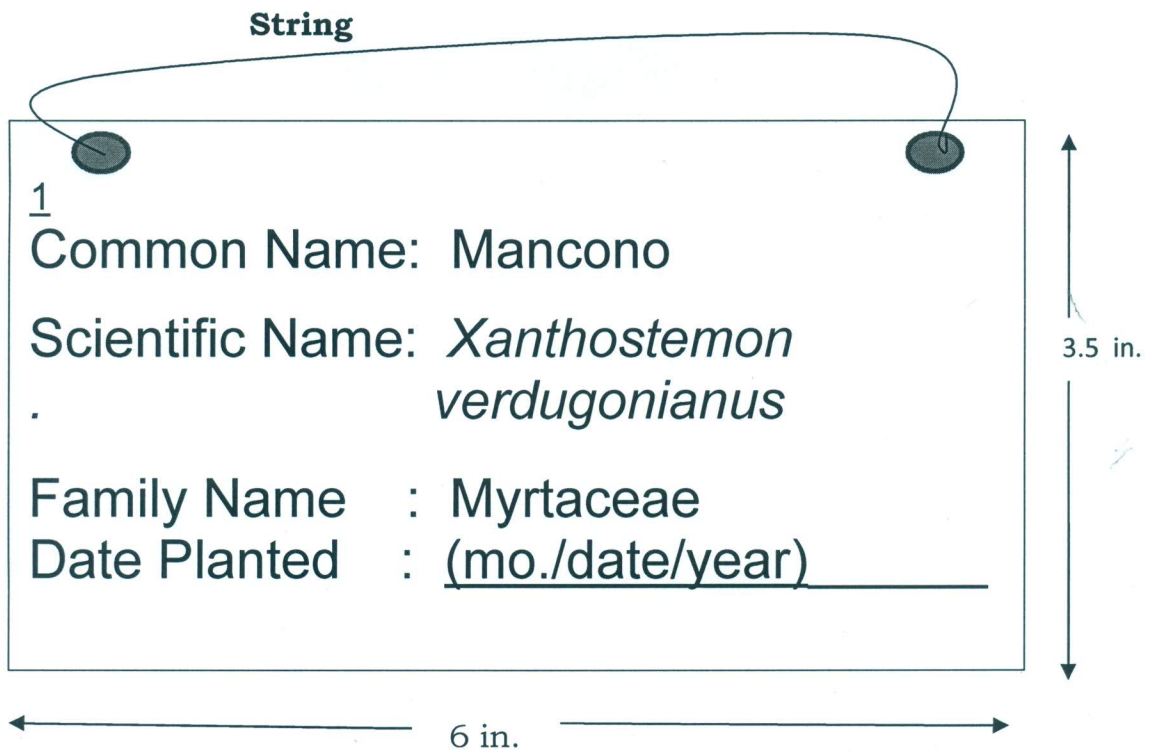
Date Established : _____

(Font: Arial 54 - with white background)

4 feet

8 feet

Billboard/Signage



1. Species Nametag



2. Marker

INDEX SHEET
 ARBORETUM OF PENRO _____
 Region _____

Date of Reporting: _____

Species No.	Scientific Name	Family Name	Common/ Local Name	Provenance (locality of collection)	Date Planted	Coordinates of Planted Sapling	Ecological status	Height and Diameter as of <u>month/year</u>	Health/Vigor
Species 1*	<i>Xanthostemon verdugonianus</i>	Myrtaceae	Mancono	Sibuyan Island, Romblon	Nov. 3, 2014		Endangered		

*Same species as appeared in the species nametag and Marker