



## INVENTORY OF PALM SPECIES IN SELECTED BARANGAYS OF MONDRAGON, NORTHERN SAMAR, PHILIPPINES

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### Abstract

This study was conducted to determine the Inventory of palms in five (5) sampling sites in Mondragon, Northern Samar. Particularly in Barangay Cablangan, Talolora, Nenita, Mirador, and San Antonio. Specifically, this study attempted to: identify the different palm species in the study area; determine the abundant palm species in the locality; and to determine the environmental parameters prevailing in the study area. Based on the data gathered, it is conducted that 10-palm species in the five sampling sites in Barangay of Mondragon, Northern Samar were found. The ten-palm species, in their local name are: *Adonidia marrillii*, (Manila palm) *Pandanus Amarylifolius* Roxb (pandan), *Chrysalidocarpus lutescens* Bory H. Roxb. (buri), *Cococ nucifera* Linnaeus (Lubi), *Livistona rotundifolia* (Lam) Mart. (anahaw), *Crytotachts renda blume* (red palm), (jelly palm) and *Cycas Revoluta* Thumb (Sago palm). The most abundant of the species were, lubi, 91.96, anahaw 3.55; nipa 0.22; red palm 0.57; buri 1.28, palmera 0.33, jelly palm 0.41, sago with 0.33. The economic importance of the palms includes food production, for medicine, for house construction, handicraft, related uses and ornamental. Environmental parameters such as the substrate types of loam, sand, clay on a combination of sandy loam and clay loam substrate with slightly acidic pH of 5 to 6 and temperature of 27.4°C-28.17°C. the data on these parameters were taken simultaneously with the sampling of palm in each study area.

**Keywords:** *Palm Species, Barangays Of Mondragon, Philippines*

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### 1. Introduction

Arecaceae (sometimes known by the alternative name *Palmae*), the palm family, is a family of flowering plants belonging to the monocot order *Arecales*. There are roughly 202 currently known genera in the palm family with around 4,000 species most of which are native to tropical or subtropical climates. (Byzantine,2006). Many palms are obscured by the ability of the fruit to disseminate the species naturally over distances of thousands of miles. Palms have been, and still are, used for a variety of purposes by local people. Many common products and foods are derived from palms, and palms are also widely used in landscaping. Making *dactylifera* L.) them one of the most economically important plants. The taxonomy of Northern Samar palms is so poorly understood that efforts to conserve palm are inhibited by yet unidentified obstacles. (Zona, 2002). The date palm (*Phoenix dactylifera* L.) one of the 14 recognized species of the genus phoenix, which is itself one of the 183 palm genera currently

known phoenix belongs to the tribe *Phoeniceae*, the subfamily coryphoideae and family *Arecaceae*(palmae)and has a wide natural distribution in the old world. (Aurora,2002).

The general objectives of the study will be identifying the palm species in selected areas. Specifically, this study aimed to document the different species of palms found in the study area. Determine the most abundant palm species in the study area. Enumerate the uses of the palms in the study area. To know the uses of this palm species in the locality. What is the prevailing environmental condition where the palm species grow.

## 2. Methodology

Mondragon Northern Samar, which is the largest in land area among the towns of the province of Northern Samar, having a total land area of 289 sq.km. It is composed of 24 barangays 2 of which is in the Poblacion, nine (9), along the highway. Fifteen (15) are located in the outskirts of the town. This study will be conducted in the identified barangays, namely, barangay Cablangan, Talolora, Nenita, Mirador, San Antonio. These barangays served as the sampling sites for the collection of ornamental and wild palm species. The primary products are; coconut, rice, root crops,and different varieties of vegetable. The soil types in these barangays range from loam to sandy-loam which favors the growth of palms. For this reason, an abundant population of palm species occupies these areas which are dominated by coconut,it being the most economically productive among the palm species. However, a significant number of other palm species also inhabit these barangays based on a pre-survey scanning conduct by the researcher.

**Barangay Cablangan** - It is situated near the mountain about 8.0 kilometers away from municipality. this barangay has a rocky and sandy substrate. In front of this are; falls, river, rice field and palm species can be found in mountainous place. The livelihood in this barangay is farming. It could be reached through motorcycle.

**Barangay Talolora**- is situated near mountain about 9.0 kilometers away from municipality. It is another sampling site of this study. The area has also rocky and Sandy substrate. this barangay contains ornamental plants and varieties of palm species, the major livelihood in this barangay is farming.

**Barangay Nenita**- is situated near mountain about 10.0 kilometers away from municipality is one of the barangays of the municipality of Mondragon. the area has a rocky road. This barangay contains many root crops, and varieties of palm species, the major livelihood in this barangay is farming.

**Barangay Mirador**- is situated near mountain about 12.0 kilometers away from municipality. The area has a rocky road, these are many palms, ferns, root crops, rice, the major livelihood in this barangay is farming.

**Barangay San Antonio**- is situated near mountain about 14.0 kilometers away from municipality. It is this barangay is the farthest among these (4) barangays. These are many root crops, herbs, rice, it can be also a mountainous place and there are palm species.

### Sampling Techniques

Purposive sampling was employed in this study. Pre-survey was conducted in identified study sites. It is a type of sampling technique wherein the researcher does simply study whoever or

whatever is available but use judgement to provide information. Representative species of palm present in sampling site was collected.

### **Data Gathering Procedure**

For each sampling site, the researcher was complete enumeration during sampling in order to identify and classify the palm species presented in the area. The collected specimen was preserved. Determination of prevailing environmental condition was done simultaneously during the sampling, the temperature; types of substrates was determined by actual observation. The mature vegetation was determined through ocular survey in the study area. Altitudes was determined through measurements of elevation of the species where the palm species grow. Interview was conducted to the respondents (age 18-50) on the sampling area to determine the economic value of palms found in their locality (attach interview guide).

### **Respondents**

The respondents of this study were the residents in selected barangays of Mondragon, Northern Samar. The researchers select 18-50 years old, and they are farmer-respondents who answered the questions for the survey.

### **Collection of Specimen**

Representative samples of the palm species was collected at least one specimen and after collecting the species and each specimen was at size of 30 cm long. The information on the plants was documented such as its name and the place where it was gathered, following the format in figure 2, which was then attached to the preserve sample (Potot,1995).

### **Identification of the palm Species**

All palms collected in the study area was identified down to the species level with available references. Authentication of the specimens was done by expert botanist from the College of Science.

### **Determination of Environmental Parameters**

The environmental parameters namely: Type of substrate, soil temperature and soil pH.

### **Type of Substrate**

The type of substrate was collect where palm species are found and further classified whether it is sandy,loamy,clay. The substrate type was determined through the texture laboratory examination in the Department of Agriculture, Soils Division.

### **Soil temperature**

To determine the soil temperature, a hole was digging of the wooden block so that the soil thermometer is push all the way into this hole approximately near the palm. The Temperature reading in different areas where palms was found in each sampling site. The Thermometer was placed in 5 cm, depth in the soil. After three (3) trials of observing having an interval of ten (10) minutes.

### **Soil pH**

Measurement of pH was taken in every sampling site using pH meter. pH meter was placed in the soil about 5 cm. Depth for about 2 to 3 minutes, after which, the reading was recorded.

### **Preparation of Herbarium**

To preserve the plant, specimen, was subjected to the following procedure, drying, poisoning and mounting of the specimen in the herbarium of the specimen in the herbarium sheet (Adopted from Potot,1995).

1. Drying plant specimens. The numbered specimen was inserted in folded newspaper, then pile-stocked between two plants presses, with cardboard alternately placed between sets. The plant press was tightened with rope and then dried under the sun and sometimes in improvised oven. The newspaper inside the plant press were changed regularly to prevent spoilage of the specimen and to hasten drying.
2. Poisoning of Dried Specimens. When the specimens are thoroughly dried, they was poisoned in a 25% alcohol solution to protect the specimen from molds. The poisoned specimen was re-dried.
3. Mounting of the specimens on the Herbarium sheet. Each dried plant specimen was carefully glued on the center of a while mounting sheet. The mounted specimens was placed over them for a day in order to produce a net appearance. Each mounted specimen was labeled properly as in Fig. 3. The respective label for each specimen was glued at the bottom right hand of each mounted specimen.

The samples was placed in plastic bags with appropriate identification as that in the record book. These samples was brought to the College of Science Research laboratory for authentication and for herbarium preparation. Photo documentation of the palm species in the sampling sites was done to show the habitat and to aid in the identification of the species.

### **3. Results and Discussion**

Table 1 present the identification of palm species present in the five (5) selected barangay of Mondragon, Norhern Samar. Ten (10) palm species were found in the sampling sites. These were *Adonia merrillii* (Becc), *Butia Capitata*, *chrysalidocarpus lutescens* H. wendl., *Cocos nucifera* Linnaeus, *Copyha eleta* Roxb., *Cycas revolute* thumb, *Crytostachys renda* Blume, *Livistona rotundifolia* (lam), *Nypha fruticans* Wurmb, *Pandanus amaryllifolius* Roxb.

Barangay Talolora, yield the most number of ten (10) palm species; followed by barangay Nenita barangay Mirador with eight (8) palm species; *Adonidia merrilli* (Becc), *Cocos nucifera* Linnaeus, *Corypha elata* Roxb, *Pandanus amaryllifolius* Roxb., *Livistona rotundifolia* (lam), *Crystostachys renda* Blume, *Chrysalidocarpus lutescens* H.Wend, *Cycas Revoluta* Thumb.

Barangay cablangan and barangay San Antonio both have seven (7) palm species. The palm species found in barangay Cablangan were *Adonidia merillii* *Butia capitata*, *Cocos nucifera* Linnaeus, *Cycas revolute* thumb, *Corypha elata*, *Pandanus amaryllifolius* Roxb, *Livistone rotundifolia* (Lam). While those found in barangay San Antonio were *Corypha elata* Roxb, ,

*Adonidia merrillii* (Becc), *Livistona rotundifolia* (Lam) *Pandanus amaryllifolius* Roxb, *Cocos nucifera* Linnaeus, *Cycas Revoluta* Thumb, *Butia capitata*.

**Table 1. Identification of Palm Species**

PALM SPECIES		SAMPLING SITES				
LOCAL NAME	SCIENTIFIC NAME	1	2	3	4	5
Pandan	<i>Pandanus amaryllifolius</i> Roxb	/	/	X	X	X
Jelly Palm	<i>Butia capitata</i>	X	/	/	X	X
Red sealing wax palm	<i>Crystotachys renda</i> Blume	X	/	/	/	X
Sago Palm	<i>Cycus Revoluta</i> Thumb	/	/	X	X	X
Beatles	<i>Adonidia merrillii</i> (Becc.) Becc.	/	/	/	/	/
Anahaw	<i>Livistona rotundifolia</i> (Lam.) Mart.	/	/	/	/	/
Palmera	<i>Chrysalidocarpus lutescens</i> (Bory)H. Wedl	X	/	/	X	X
Coconut	<i>Cocos nucifera</i> Linnaeus	/	/	/	/	/
Nipa	<i>Nipa fruiticans</i> wurmb	X	/	/	/	/
Buri	<i>Corypha elata</i> Roxb.	/	X	/	X	X

Legend: Present: /

Absent: X

Sampling site: 1. Cablangan, 2. Talolora, 3. Nenita, 4. Mirador, 5.San Antonio

## 2. The Abundant Species of Palm

The table 2. Shows the abundant palm species in the (5) sampling site using a purposive sample in Mondragon, Northern Samar

Based on the interview conducted the most abundant species was recorded selected in five (5) barangay of Mondragon Northern Samar.

The most abundant of the species were *Adonidia merrillii* (Becc.) Becc. (Bunga)*Cocos nucifera* Linnaeus (lubi) *Livistona rotundifolia* (Anahaw)which were present in Barangays Cablangan, Talolora, Nenita, Mirador and San Antonio.

*Cocos nucifera* Linnaeus (lubi), *Adonidia merrilli* (Becc) (Bunga), *Livistona rotundifolia* (Anahaw) is to be the most usable for, food production, medicine, house construction, handicraft, related and for ornamental purposes.

*Corypha elata* Roxb. (Buri) was present in Barangays Cablangan and Nenita.

*Chrysalidocarpus lutecegens* H. Wendl. (Palmera) was present in Barangays Talolora, Nenita and Mirador.

*Nypha fruiticans* Wurmb (Nipa) which present in Barangays in Cablangan, Nenita.

*Pandanus amaryllifolius* Roxb (Pandan) was present in Barangays in Cablangan, Talolora, Mirador, San Antonio.

*Butia capitata* (0.41) was present in Barangay Cablangan, talolora, Nenita.

*Cystotachys renda* Blume (0.57) was present in Barangay Talolora, Nenita, Mirador.

The least abundant species was *Cycas revoluta* Thumb (sago palm) which were present in Barangays Mirador, San Antonio.

**Table 2. Most Abundant Species of Palms in sampling Areas.**

PALM SPECIES		Barangays					Total	Abundance
LOCAL NAME	SCIENTIFIC NAME	1	2	3	4	5		
Pandan	<i>Pandanus amaryllifolius</i> Roxb	10	6	0	2	3	21	0.33
Talolora	<i>Calamus blancoi</i> Kunth	12	8	6	0	1	26	0.41
Red Palm	<i>Crytotachys renda</i> Blume	0	14	12	10	0	36	0.57
Sago Palm	<i>Cycus Revoluta</i> Thumb	10	9	0	1	1	21	0.33
Bunga	<i>Veitchia merrillii</i> (Becc)Moorif	14	11	13	15	10	63	0.99
Anahaw	<i>Livistona rotundifolia</i>	12	80	16	52	64	224	3.55
Palmera	<i>Chrysalidocarpus lutescens</i> (Bory)H. Wedl	4	7	9	1	0	21	0.33
Coconut	<i>Cocos nucifera</i> Linnaeus	1,100	9,00	1,000	1,300	1,500	5,800	91.96
Nipa	<i>Nipa fruiticans wurmb</i>	0	9	5	0	0	14	0.22
Buri	<i>Corypha elata</i> Roxb.	12	20	31	1	18	81	1.28
Total		1,174	1,064	1,092	1,382	1,597	6,370	99.97

**LEGEND:**

Present + Absent –

Barangays: 1. Cablangan, 2. Talolora, 3. Nenita, 4. Mirador, 5. San Antonio

**Description of the Palm Species**

All palms presented and described herein belong to family Aracaceae.



**Plate 1. Adonidia merrillii (Beatles)**

Common name: Dwarf Royal palm, (Eng); Manila Palm

It is a palm exhibiting a slender single trunk, up to 30 m tall and about 20 cm. wide, green at first, subsequently greyish and ringed by the remains of leaf scars. Its leaves, borne at stem apex, are pinnate, with a rigid but recurved rachis, and several rigid, closely packed segments. Flowers, yellow and fragrant, are unisexual, clustered in inflorescences basally arising from the leaves, and enveloped by two spathes; male flowers are more numerous and located at inflorescence apex, whilst female flowers, less numerous, are to be found at near the base. Fruits are hard, ovoid, red-orange colored they possess a fibrous mesocarp and a thin woody endocarp enveloping one seed.

Uses: Seeds of this palm, incorrectly known as betel nuts, are widely employed, notably in South-East Asia, as a masticatory, due to its stimulating, digestive and cardiotoxic properties exerted by tannin and alkaloid substances present in them.



**Plate 2: *Chrysalidocarpus lutescens* H. Wendl. (Palmera)**

Scientific name: *Chrysalidocarpus lutescens* Bory.

Common name: Golden cane palm, Butterfly palm

*Chrysalidocarpus* is a large and incredibly diverse genus, with 138 species, that encompasses a wide range of sizes, habits and growth requirements. Nearly all *Dypsis* species are found in Madagascar with just few outlives in the Comoros and Tanzania. Many grow well in South Florida's growing conditions, but some species cannot tolerate alkaline soil and occasional cold winter temperature.

Cultivation: Easy to grow

Light requirement: Low to high

Hardiness: USDA zone 10

Soil PH: Low (acidic) high (Alkaline)

Water requirement: Moderate

Availability: High

Propagation: Propagation is done from seeds. It can also be done from the base seekers

Economic importance: For ornamental purposes (Aurora,1990)



**Plate 3. *Cocos nucifera* Linnaeus. (Lubi)**

Scientific name: *Cocos nucifera* L.

Common name: Coconut tree (Eng), Niyog (Fil), Lubi (Bis)

Unarmed, erect, tall palm reaching a height of 25 meters. Trunk is stout, 30-50 cm in diameter, thickened at the base; marked with annular scars. The leaves are crowded at the apex, 3-6 meters long, with a stout petiole. Leaflets are bright green, numerous, linear-anceolate, 60 to 100 cm long. Spadix is about 1 meter long erect, drooping, simply branched. Fruit is variable in size, shape and color, ovoid to subglobose, often obscurely 3-angled, 15-25 long. Endosperm forms a thick layer of fleshy substance adherent to the testa which is adherent to the shell. The shell is covered by a fibrous husk.

Distribution: Extensively cultivated in the Philippines. A native of tropical America but of pre-historic distribution all over the tropics; no evidence of its being an indigenous plant in the Philippines.

Habitat: It is cultivated in most parts of the Philippines and where favorable conditions are found, thrives equally well on the seashore and inland up to 1,500 meters. The palm cannot withstand a long dry season, such as found in the regions where rainfall is more or less distributed throughout the entire year, especially on slopes where moving ground water is constantly available.

Economic Importance: The coconut palm yields timber; food, fermented and unfermented drink, alcohol, vinegar, mats, ropes, hats, brushes, brooms and other article: fuel, caulking mat; utensils for households such as cups, bowls, spoon, and the like; oil for food cooking, illuminations, for making soap, substitute for butter and lard; ointments; oil cake for feeding domestic animals; for fertilizer. The bud makes an excellent salad. The palm is ornamental and is frequently planted for decorative effect. The fresh leaves are extensively used for temporary decorations, and large numbers of prepared young leaves are used for wrapping a nice confection known as suman.



Ecological status: Abundant; under cultivation

Etymology: The name Cocos probably derives from a Portuguese word meaning monkey, perhaps because its nut, bearing three germinating pores, resembles a monkey fac. Its specific name derives from Latin, meaning nut-bearing (from feo= 1 bear and nux-nucis=nut) (FAO, 1995)



**Plate 4. *Corypha elata* Roxb. (Buri)**

Scientific name: *Corypha elata* Roxb.

Common name: Buri Palm, Cabbage Palm (Eng): Buri (Fil)

Most stately and largest of the Philippines palms. Trunk is straight and erect, up to 1 meter in diameter and 20 meter in diameter and 20 meters in height. Leaves are large and fan-shaped, rounded in outline, up to 3 meters long. Palmately split into about 100, lanceolate, 1.5 to 6 cm wide, with stout black spines on the margins. Inflorescence is pyramidal, up to 7 meters high, the lower branches up to 3.5 meters long, with shorter upper branches, the ultimate branches about 1 meter long. Flowers are numerous, greecruish-white, 5-6 mm in diameter. Fruits are globose, fleshy, 2 to 2.5 cm in diameter and the seeds are heard, about 1.5 cm in diameter.

Economic importance: It produces a fermented drink (tuba), alcohol, vinegar, syrup, and sugar. The trunk yields large quantities of starch. The bud (ubod) is used for salad or as a vegetable. The kernels of the young fruits are edible and are made into a sweetmeat. The mature seeds are used for beads (rosaries) and buttons. The petiole yields so called buntal fiber of which, the famous Balinag and Lacban hats are made, or which, when crudely extracted, is sometimes twisted into rope. Mature leaf is used for covering tobacco bales, rarely as a thatch for houses, while the ribs are used for making brooms. From the unopened leaf is obtained a very fine fiber, corresponding to raffia fiber, which is utilized in making cloth, fancy articles, and as string. Fibers secured from the ribs of the unopened leaves are extensively used in the manufacture of the so-called calasiao or pototan hats.

Ethymology: Kalas is a derivative of the buri palm, locally the term “kalas” means “to loosen” and refers to the loosened strands of a buri rope. When woven, kalas creates an interesting, rustic pattern with a distinct characteristic from its original material (Tomlison, 1990)



**Plate 5: *Livistona rotundifolia* Lamk. (Anahaw)**

Scientific name: *Livistona rotundifolia* Lamk

Common name: Footstool palm (Eng.): Anahaw (Fil.)

A tall tree reaching height of 15 to 20 m, the trunk straight, smooth, marked with close annular scars, leaves are crowded at the apex, their petioles long and armed on the sides with sharp hard teeth. Leaf leaf-blades are orbicular plaited, base cordate, about 1m in diameter, cleft into numerous 2.5 to 4 cm wide segments, those in the middle about 20 cm long toward the sides longer, all cleft at the apex into 2, lanceolate, acuminate, 3 to 5 cm long lobes. Inflorescences spathes and spreading branches. Flowers are small sessile, numerous about 2 mm long. The fruit is globose, some what fleshy, yellowish, about 1.5 cm in diameter.

Habitat: Growing scattered in the forest at low to medium altitudes.

Economic importance: Sometimes planted for ornamental purposes. The unexposed trunk is used for pillars in houses, as they take beautiful finish and last well when not exposed to dampness. The outer hard part of the trunk is removed in the form of strips and used for floors and houses. The buds are also edible. The leaves are used for thatching houses laid being much like shingles: leaves are also used for making raincoats when sawn together and also used for sun-hats

Ecological status: Indeterminate. This palm has the possibility of becoming endangered if excessive of leaves and/or cutting of stem for commercial use is limited to natural population. Needs to be cultivated for conservation.

Propagation: The plant is grown from seeds (FAO, 1995)



**Plate 6. *Nypa fruiticans* Wurm** (Nipa)

Scientific name: *Nypa fruiticans* Wurm

Common name: Nypha palm, Mangrove palm (Eng), Nipa (Fil)

The Philippines variety known as Luzonensis is endemic and common in Lowland forest. A stout, subterranean, trunkless and thornless rootstock. Leaves are at the ends of rootstock, large, rosette and compound, 5-10 meters long, arising from the stout underground stem (rhizome) leaflets are numerous rigid, lanceolate, up to 1 meter long, 2 to 7 cm wide. Male inflorescence is brown, erect up to 1 meter high, fruiting heads on the top of the erect stalk consist of compact, dry fibrous fruits with husks, 10 by 12 cm, ribbed or unevenly compressed too angular. The palm fruits are large. One-seeded.

Cultivation: Moderate easy

Soil pH: Low (acidic) to high (Alkaline)

Size: Moderate

Water Requirement: High

Economic Importance: The Nipa palm is one of the most important economic Philippines crops. The leaves are commonly use for thatching. Leaflets are used for making hats, baskets, mats, raincoats, wrapping for suman. The midribs are used for making brooms: the petioles for fuel (FAO, 1995)



**Plate 7: *Cyrtostachys renda* Blume**

Scientific name: *Cyrtostachys renda* Blume

Common name: Red sealing wax palm and Lipstick palm

Cultivation: Difficult to grow, Light Requirements: low to moderate, Hardiness: Soil pH. Moderate (neutral)

Lethal yellowing: Not known to be susceptible size: Moderate water requirement: Moderate to high. Availability: Medium:

Economic Importance: For ornamental purposes (Fairchild Tropical Botanical Garden, 1997-2008).



**Plate 8: *Butia capitata***

CN: Jelly Palm

Butia are plants that are small to moderate in size, solitary or clustering (caespitose), acaulescent with a subterranean stem, short and thick or erect with moderately tall stems to 8–12 m, frequently covered with persistent leaf bases when younger, these eventually abscising. The sheathing leaf base does not form any visible crownshaft, but is split to its base. There are 3–50 pinnate leaves in the crown, with a sheath and petiole that are sometimes indistinct, with a combined length of 3–195 cm (2 " to 77 " ), with the margins of the apparent petiole (the true petiole plus a portion of the sheath also known as the pseudopetiole) smooth, unarmed, with merely flexible fibers and membranaceous or armed with stiff, woody spiny fibers, some teeth-like; the true petiole is often short or absent, channeled or flattened above (adaxially) and convex below (abaxially); rachis 3–250 cm (2' to 98.5 ") long



**Plate 9: *Pandanus amaryllifolius* Roxb**

Scientific name: *Pandanus amaryllifolius* Roxb

Common name: Pandan

Pandanaceae is a family of flowering plants native to the tropics and subtropics of the old world, it continuous 982 know species is the most important sources of food. Particular species of Pandanaceae are used to make mats or in food products, leaves as flowering, or fruits. Male flower contains numerous stamens with free or fused filaments. Female flowers have a superior ovary, usually of many carpels or .a single carpel. Fruits are berries or drupes. The leaves are very long and narrow, sheathing, simple, undivided, with parallel veins: the leaf margins and midribs are often prickly.



**Plate 10: *Cycas revoluta* Thumb.**

Scientific name: *Cycas revoluta* Thumb.

Common name: Sago palm, King sago, Sago cycad, Japanese sago palm

*Cycas Revoluta* it is very slow-growing. Trunks take a long time to form 1 diameter trunks many take years to eventually reach 12 diameters. Male plant produces cylindrical staminate cones 40-50 cm in length, the numerous scales densely covered on the lower surface by round pollen sacs. The female plant forms a globose aggregate of modified leaves each of which is covered by a dense mat of yellowish hairs giving the structures a felt-like appearance.

### 3.3 Economic Importance of Palms

Table 4 present the importance of palm species presents in the study area of the economic uses, *Cocos nucifera* L. (Lubi) is considered to be the most usable from food production, medicine, house construction, handicraft related use and for ornamental purposes.

Based on the interview conducted, there (3) species that are locally considered or known as edible by the residents. These are *Cocos nucifera*, (Lubi) *Livistona rotundifolia* (Anahaw) *Areca catechu* L. (Bunga) Two (2) species have medical uses include *Areca catechu* L. (Bunga) *Cocos nucifera* (Lubi) four (4) species have plant parts used for house construction handicraft and related uses *Cocos nucifera* (lubi), *Corypha elata* Roxb. (buri) *Livistona Rotundifolia* Lam K. (Anahaw) and *Nypha fruticans* Wurm b. (nipa) Three (3) have ornamental uses *Areca catechu* L. (Bunga) *Cocos nucifera* L. (Lubi) and *Chrysalidocarpus lutescens* Bory. (palmera).

**Table 3. Economic Importance of Palms**

PALM SPECIES		SAMPLING SITES				
LOCAL NAME	SCIENTIFIC NAME	1	2	3	4	5
Pandan	<i>Pandanus amaryllifolius</i> Roxb	/	/	X	X	X
Jelly Palm	<i>Butia capitata</i>	X	/	/	X	X

Red sealing wax palm	<i>Crystotachys renda</i> Blume	X	/	/	/	X
Sago Palm	<i>Cycus Revoluta</i> Thumb	/	/	X	X	X
Beatles	<i>Adonidia merrillii</i> (Becc.) Becc.	/	/	/	/	/
Anahaw	<i>Livistona rotundifolia</i> (Lam.) Mart.	/	/	/	/	/
Palmera	<i>Chrysalidocarpus lutescens</i> (Bory)H. Wedl	X	/	/	X	X
Coconut	<i>Cocos nucifera</i> Linnaeus	/	/	/	/	/
Nipa	<i>Nipa fruticans</i> wurmb	X	/	/	/	/
Buri	<i>Corypha elata</i> Roxb.	/	X	/	X	X

#### 4. Environmental Parameters

Table 4 present the data on the soil pH where the different samples were taken ranged from 5-6 in the pH meter.

Soil pH. Based on the mean pH barangays Cablangan, Talolora, and Nenita have the least pH of 5 while the highest were Brgy. Mirador and San Antonio having 6 soil pH

Soil temperature. The temperature of the sample where the species of palm grow. The soil temperature ranged from 27. 4°c to 28.17 °c.

The mean temperature in Brgy. Cablangan was 27. 38 °c: Brgy Talolora has mean temperature of 27.8 °c: Brgy. Nenita with 27°c: Brgy. San Antonio 28.68°c.

Substrate type. Table 4.3 shows the type of substrate in Mondragon where the species of palms grow ranged from sandy-loam to clay loam.

Sandy-loam were the type of substrate in Barangays, Cablangan, Talolora and Nenita.

Clay-loam substrate were found in Barangays, Mirador and San Antonio.

**Table. 4 Environmental Parameters of the different sampling sites of palm species**

Barangays	Soil pH(mean)	Soil temperature (mean)	Type of substrate
1. Cablangan	5.6	27.38 °c	Sandy-Loam
2. Talolora	5.6	27.8 °c	Sandy-Loam
3. Nenita	5	27.92 °c	Sandy-Loam
4. Mirador	6	28. 5 °c	Clay-Loam
5. San Antonio	5	27. 40 °c	Clay-Loam

It is implied in this study for those students who have interest of the study and who want to know more about the palms; to the community/barangays, they would benefit the economic value about the species of palms found in the locality.

To the researcher, would be able to distinguish or determine the significance of different palm species existed in their community.

#### 5. Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. The total number of palms collected was 10 species and it implies that these species of palms are very common in the sampling area and the people were able to conserve and preserve these species of palms.

2. The most abundant species are *Cocos nucifera* (lubi) *Areca catechu* (bunga) and *Livistona rotundifolia* Lamk (anahaw) with total value of .15. *Nipa fruticans* wurmb (nipa) with .12. *Corypha elata* Roxb (buri) *Pandanaceae* (pandan) *Butia capitata* (Jelly palm) *Cycus revoluta* (sago palm) and *Chrysalidocarpus luteceus* (Bory) H. Wedl with .06. because it implies that it is not only harvested and collected by the people in the sampling areas.
3. The economic uses of the palms are still need to the discovered by the residents because it has few uses in their place.
4. The environmental parameters are very ideal for the growth and development of the species of palms.

### Recommendations

Based on the findings in the conclusion of the study, the following recommendations are presented.

1. A similar study be conducted, covering of five Barangays in Mondragon, Northern Samar with a much wide coverage to verify and validate the present findings.
2. Seminars must be conducted in their place to increase the awareness of the residents of the economic uses of palms.
3. The environmental parameters must be given priority for detailed observations that affect the existence of the palm species.

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