

Stands of Sago Palms in Northern Mindanao, Philippines

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Key words: sago palm, Northern Mindanao, roofing material

フィリピン北ミンダナオにおけるサゴヤシの生育

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Introduction

Sago locally called as "Lumbia" or "Landang" in the local dialect is known to exist both in coastal areas and along creeks and rivers in Northern Mindanao of the Philippines. Most of the present sago palms were planted by farmers or homeowners and / or abandoned.

Evidently the sago that grows today are remnants of palms growing for a long time in the field. More than 10 years old (mature) palms have been cut for starch extraction as a source of food during severe drought conditions when a little or no harvest from traditional rice or corn cultivation can be obtained, which is one of famine crops.

In the areas visited, the sago palms are found either along rice paddy fields or along creeks where water is constantly present. Some areas were dry areas with the normal rainfall as the primary source of water supply for the sago. Many of the palms are relatively young, about four to five years old with some exceptions of the flowering and fruiting stage. There are no commercial plantations of sago in the Mindanao Island. However, there are areas where more than one hectare of a pure sago stand can be considered to grow.

At present sago is considered to be of minor im-

portance in the economy of Philippines. It is mainly used for source of starch and roofing materials among poor farming household.

This paper presents the result of the observations about the areas of distribution, cultivation, and utilization of sago in Northern Mindanao, Philippines.

Methodology

The distribution of sago palms in Northern Mindanao were studied through the field observations, and the intention of cultivation and utilization was determined by visiting farms and interviewing the farmers how they manage the sago and what kind of uses they intended to do with sago.

The observations on the growth habits and the study on the densities of sago palms were noted in each sample farm. Photographs of palm stand were also taken to document the various stages of growth observed and to a certain extent the density of sago palms in the farm.

Results and Discussion

Geographic location / Distribution

Table 1 shows the geographic location, distribution, and extent of growth of sago in Northern Mindanao.

The location of cultivated and abandoned sago

Table 1 Geographic distribution of sago in Northern Mindanao¹

Province	Municipality	Barangay	Nature of growth
Misamis Oriental	Villanueva	Town Proper	Clusters
	Alubijid	Lanao	Forest
	El Salvador	Ipil	Forest / Clusters
	Cagayan de Oro	Bonbon	Small cluster
Agusan Del Sur	Prosperidad	Babah, Patin-ay	Small clusters
Bukidnon	Maramag	CMU Musan	Small cluster

¹Forest is more than one hectare of sago stand. Clusters are estimated to be not less than 1000 sq. m in area. Small cluster is not more than 25 palms including suckers.

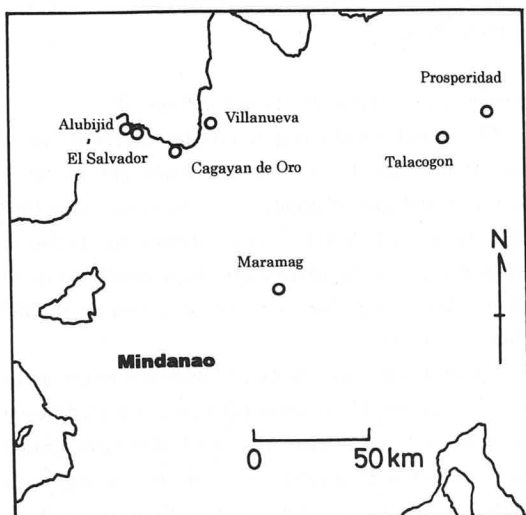


Fig. 1 Location of sago growing areas in Northern Mindanao, Philippines.



Photo. 1 Clusters of sago in El Salvador, Misamis Oriental, Mindanao, Philippines.

growth (Fig. 1) is in the marshlands of Agusan Del Sur and partly Agusan Del Norte, Northern part of Mindanao. Specially, the Municipality of Pros-



Photo. 2 Sago forest in Alubijid, Misamis Oriental, Mindanao, Philippines.

peridad and Talacogon were observed to have sporadic stands of sago in paddy rice fields owned by private farm holders. In the Agusan Provinces, the areas where sago is growing are waterlogged overall and have been converted to paddy rice production fields. It is apparent that the areas are flooded heavily during the rainy months of the year.

Large clusters of palms were observed in the Municipalities of El Salvador and Alubijid in Misamis Oriental, which is about 10, and 20 minutes drive respectively from the port of Cagayan de Oro. Some of the sites in these places are seemingly suitable for long-term studies on sago palms because of its abundance (Photo. 1 and 2).

Species identification



Photo. 3 Clusters of sago in the paddy field, Babah, Talacogon, Agusan Del Sur, Philippines.



Photo. 4 Thatch roofing material made of sago ready for market in Babah, Talacogon, Agusan Del Sur, Philippines.

It was observed that there are only two species growing in the area. They were almost thornless type and very few thorn type. The thornless type was morphologically identified as *Metroxylon sago Rottb.* and the thorn type was *Metroxylon sago rumphii* Mart. All growth stages can be seen in various individual farms. The oldest palm is estimated to be about 12 years old, counted the number of scars on the trunks and calculating with a rate of twelve leaves of sago palm development per year. However, there are few mature palms in these areas. The average age of a sago cluster or forest is estimated to be between four and five years old.

Nature of cultivation / growth

It was noted from farmer's interviews that the sago is not purposefully cultivated. Growth is maintained by allowing suckers to grow beside the mother palm. Removal of dried leaves of the palm is done to clean the adjacent leaves and suckers of the palm. One sago forest was observed to be growing in a relatively dry land in El Salvador, Misamis Oriental, although with a heavy rainfall the abundance of surface water in the field was observed there.

Harvesting and starch extraction

It was observed that there were no farmers cutting down palms to extract sago starch in the area, as far as we visited in Patin-ay, Prosperidad, Agusan Del Sur. Most of the palms are preserved to collect the leaves for roofing material. It was observed that mature palms that were more than ten years old had only four leaves left on the average because of heavy

harvesting of leaves for thatch (Photo. 3).

The thatch production from sago leaves is one of the off-farm income sources of farmers (Photo. 4). A hundred shingles of about 1.5 meters long, cost PhP 200.00 to PhP 600.00. One farmer in Alubijid, Misamis Oriental estimated their production of thatch from sago leaves to be as much as 60,000 shingles per year.

Starch extraction was rarely observed in the areas where we visited. Starch is extracted in a traditional manner and the quality is not of premium grade. Sago starch is prepared for staple by mixing with grated coconut in a mortar and pestle to make thick paste, while sago pearls are cooking with bananas, taro roots, beans, sweet potato, and coconut milk, as a local snack food called "Binignit". Crude starch is sold in the market for about PhP 12.00 per an ordinary salmon can.

Concluding Statements

Sago is considered to be a minor crop in Philippines at present. Its cultivation and uses are only for subsistence or as a resource of supplemental income and resource of poor farmers in the coastal areas of Northern Mindanao. However, sago palm has a good potential to take an important role in the Philippine economy because in addition to the production of high grade starch there are many by-products that can be derived from it.

The areas of Agusan Del Sur and Agusan Del Norte are supposed to be ideal for the commercial

sago production in the future where thousands of hectares of marshlands remained under-utilized at present. There is also abundant water supply which is to be needed for processing sago starch.

Sago palm can also be a genetically fitted transition species from the mangrove areas to forested lands. It has a good potential as a reforestation plant species in these areas. Sago suckers for new planting are available and abundant in many places and planting seedlings may not pose a serious problem.

The sites visited are also ideal for conducting experiments for studies on sago growth and develop-

ment, management and cultivation. Researches and reports such as this are required in order to develop the future utilization of sago palms and to find the future promising plant resources.

More sago growing areas remain unexplored. Our sources say that the Visayas Islands also have abundant cultivated and / or abandoned sago growing stands. For instance, the Province of Leyte is reported to have sago clusters and sago forest. These areas, however, remain to be surveyed to examine its commercial and scientific value.