# AN ECOLOGICAL STUDY OF THE MANGROVE SWAMP OF SILUT BAY, LILOAN, CEBU

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Master of Science in Biology

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by

Ermelinda A. Hamoy

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## APPROVAL SHEET

This thesis entitled AN ECOLOGICAL STUDY OF THE MANGROVE SWAMP OF SILUT BAY, LILOAN, CEBU, prepared and submitted by Miss ERMELINDA HAMOY in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE IN BIOLOGY, has been examined and is recommended for acceptance and approval for ORAL EXAMINATION.

Thesis Committee

Araceli G. Almase
Araceli G. Almase, Ph.D.
Adviser

Leticia G. Cabrera
Leticia G. Cabrera, Ph.D.
Member

Fr. Enrique Schoenig
Fr. Enrique Schoenig, SVD, Ph.D.
Member

---

PANEL OF EXAMINERS

Approved by the Committee on Oral Examination with a grade of Passed.

Lourdes Y. Varela
Lourdes Y. Varela, Ph.D.
Chairman

Araceli G. Almase
Araceli G. Almase, Ph.D.
Adviser

Leticia G. Cabrera
Leticia G. Cabrera, Ph.D.
Member

Fr. Enrique Schoenig
Fr. Enrique Schoenig, SVD, Ph.D.
Member

Dionisio V. Gonzales
DIONISIO V. GONZALES, MA, MSBA, MPA
Representative
DEC, Region VII, Central Visayas

Accepted and Approved in partial fulfillment of the requirements for the Degree of MASTER OF SCIENCE IN BIOLOGY.

Comprehensive Examination Passed January 19, and 20, 1973.

Lourdes Y. Varela
Lourdes Y. Varela, Ph.D.
Dean, Graduate School

Date: September 23, 1975

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## ABSTRACT

This is an investigation of the ecological structure of a local mangrove swamp in Silut Bay, Liloan, Cebu. The study started in August, 1973 and ended May, 1974.

The vegetational structure of the mangrove swamp, its component and environmental parameters were considered. Ecological factors such as temperature, substrate, pH, salinity, oxygen content of the water and organic detritus were studied in relation to the vegetational structure.

Six stations were set at the mangrove areas around the bay where samplings and observations were made.

Ten species of primary and secondary mangrove plants were found in the different belts of the mangrove region. The dominant primary mangrove plants are Rhizophora mucronata L. and Sonneratia caseolaris L. both characteristic of the water-logged mangrove forest. Due to the luxurious growth of Rhizophora, this swamp could be classified as "Rhizophora mangrove type." The secondary mangrove plants are restricted to the mangrove fringe towards the terrestrial margin.

Associated algal flora were found as basal growths on trees and on the substrate within the forest.

Zonation is not distinct due to the limited tidal range and the absence of dominant species in the other belts of the mangrove swamp.

Thirty four species of transient and permanent dwelling animals such as gastropods, molluscs, crustaceans, mudskippers, insects and a few mammals were found in the different belts of the mangrove.

The narrow ranges of salinity, temperature, pH and oxygen content do not seem to influence the ecosystem.

The type of substrate ranging from sandy, sandy-rocky to muddy and the tidal fluctuation appear to be the factors which influence the mangrove components.

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# I. INTRODUCTION

The Mangrove swamp is a distinctive plant formation which is found throughout the tropics. In the Philippines, these swamps are found along the shorelines extending inland where the water is brackish. The term "mangrove" is applied to the individual species or association of various species of trees that inhabit these swamps. Brown and Fischer (1918), reported that about 400,000 to 500,000 hectares of the Philippine islands are covered with mangrove forests. Unfortunately, no new figure could be provided by the local authorities to include the more recent man-made changes which have taken place in these areas.

As of August 1974, the Bureau of Forestry (personal communication) reported that 2,664 ha of the provinces of Cebu occupied by mangrove forest have been leased and managed under legal permits.

The mangrove ecosystem is the most misunderstood and underrated of all ecosystems. Although they are hot, muddy and often impenetrable, their importance to man is indisputable. From man's point of view, the most important function of the mangrove community is that, it provides an enormous quantity of food for commercially important marine animals suitable for human consumption.

The mangrove plants serve as the base of the community's food chain, and as the food source in adjacent deeper waters. Furthermore, the mangrove trees help form islands and extend shores and are therefore important land builders. Because of their extensive prop roots, they can reduce tidal currents, causing extensive deposition of mud and silt which provides surfaces for the attachment of marine organisms.

It is regrettable that today mangrove trees are indiscriminately used. They are cut for firewood, and swamps are excavated for fishponds. Estuarine areas have been drained, dredged and filled with rubbles and garbage. Pier seawalls and dikes have been erected, others were converted into subdivisions, roads, parking lots, factory complexes and market sites - all under the guise of progress.

The ecological aspects of our local mangrove forest has not been thoroughly studied. Because of the wanton destruction of mangroves in our region, there is an urgent need to study this ecosystem, before it is too late. It is therefore the object of this study to investigate and describe the ecological structure of a mangrove forest. The study was made to determine the components of its plant and animal communities and