Inventory of Macroinvertebrates in Sapangdaku River, Barangay Sapangdaku, Cebu City

A thesis presented to
The Faculty of College of Arts and Sciences
University of San Carlos
Cebu City

In partial fulfillment
of the requirements for the degree
Master of Science in Biology

by

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April 2004

APPROVAL SHEET

This thesis entitled "Inventory of Macroinvertebrates in Sapangdaku River, Barangay Sapangdaku, Cebu City" prepared and submitted by MARY GRACE G. GONZALES 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.

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ACKNOWLEDGMENT

The author likes to thank the following people who had contributed much in making this paper a success:

1. Her adviser, Miss Juvy P. Bongo, for her useful comments and suggestions.

2. Her relatives and friends: Chembie, who helped in the illustrations. Nokie for the pictures. Nilo, Mervin, Greggy, Shawix, Beato and her brothers for their assistance during the sampling.

3. Her parents, Sinesio F. Gonzales and Gaudiosa G. Gonzales; brothers - Jerome, DTBoy & Gam; and sister - Cherry, for their prayers and moral support.

4. The Administration of Cebu Doctors' College Inc., for the financial support.

5. Most of all the God almighty for His blessing of perseverance and encouragement.

Moreover, to everybody, who in one way or another had helped in making this piece of work possible.

SUMMARY

Macroinvertebrates are the most common inhabitants in rivers that perform variety of functions. They are of great help in determining the ecological status of a certain ecosystem. Their presence, absence, or even abundance gives hint regarding the present condition of the river.

A survey of macronvertebrates in Sapangdaku River, Barangay Sapangdaku, Cebu City was conducted from May 2001 to March 2002. This is to provide primary background data regarding the macroinvertebrates in the river. Sampling was done for 6 months in every other month basis. Macroinvertebrate samples were collected using a kicknet with a mesh size of 0.5 mm. They were collected twice per station to insure adequate sample representation. The samples were then segregated and placed on pre-labeled glass containers with 10% formalin for preservation. Using a stereomicroscope, the macroinvertebrates were identified up to genus level. A total of 1,972 individuals from 5 phyla, four classes, eight orders, eighteen families and twenty-one genera of macroinvertebrates were collected and identified from the study area. The most abundant macroinvertebrate belongs to Phylum Arthropoda, Class Insecta; the larvae of *Smicridea* (Trichoptera: Hydropsychidae).

The macroinvertebrates were classified according to their feeding habit. The classification was based on their descriptions in the book of Pennak (1978), Usinger (1956) and Thorp & Covich (1991). The predaceous group represented by genus *Somatochlora, Argia & Tabanus.* The filterers were *Chimarra, Smicridea and Simulium;* mayfly nymphs and *Parapoynx* repesented the scrapers; and the scavengers were the snails, *Physa & Lymnae.*

The study also determined the habitat quality and the water quality, to know the environmental conditions that favored the existence of the macroinvertebrates in the river. Habitat quality was measured through bottom substrate, embeddedness, water velocity and bank vegetative stability.

The bottom substrates of the four sampling stations varied from areas composed of bedrock, cobblestone, gravel and pebbles. The water flow/velocity was generally under

slow-shallow condition. Water depth ranged from 5-15 cm, while velocity range was from 2 to 4msec^{-1}. The embeddedness was quite high, partly due to some areas that are prone to erosion. For the bank vegetative stability, some part was quite stable because of the presence of electric water pumps with cemented surroundings. Residential houses with concrete fences also added bank stability. Most part of the bank was steep, covered with big trees and some shrubs.

Water quality was determined based on the following factors: amount of rainfall, water temperature, water pH, amount of dissolved oxygen, amount of nitrate and amount of phosphate. Results showed that the amount of rainfall affected much on the number of individuals collected. The higher the amount of rainfall, the lesser number of macroinvertebrates collected. The water temperature, water pH and dissolved oxygen showed moderate measurements as compared to the water quality standards imposed by the DENR. The amount of phosphate was quite high than the water quality standard due to the frequent use of detergent by the residents for laundry.

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