

This Thesis is dedicated to my beloved wife, who encouraged and assisted me in my research work with patience and understanding.

A STUDY OF THE FACTORS AFFECTING THE FLIGHT RHYTHM
OF DRONE HONEY BEES APIS MELLIFERA, L.

A Thesis
Presented to
the Faculty of the Graduate School
University of San Carlos


In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Biology


by
Verulo Gutierrez Rusiana
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This Thesis attached hereto, entitled A STUDY OF THE FACTORS AFFECTING THE FLIGHT RHYTHM OF DRONE HONEY BEES APIS MELLIFERA, L. prepared and submitted by Mr. Verulo G. Rusiana in partial fulfillment for the degree of Master of Science in Biology is hereby accepted.


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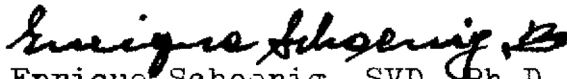
IN PARTIAL FULFILLMENT of the requirements for the degree of Master of Science in Biology, this thesis entitled A STUDY OF THE FACTORS AFFECTING THE FLIGHT RHYTHM OF DRONE HONEY BEES APIS MELLIFERA, L. has been prepared and submitted by Mr. Verulo G. Rusiana who is hereby recommended for the Oral Examination.



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ABSTRACT

This study was made to determine the specific ecological factors that affect drone flight activity. To do so, the investigator observed a colony of bees from February to June, 1970.

The factors affecting the flight activity of drone honey bees are the following:

1. temperature
2. rainfall
3. presence of cloud cover
4. shade
5. direction of the colony entrance

The factor which stimulates strongly the flight activity of drone is temperature. The greatest number of drones flew out of their colony when the temperature was high (35°C).

There is a considerable difference of drone flight before and after the rain.

On cold weather, drones fly earlier, but they do it slowly.

Drones were mauled and molested by the worker bees when food was scarce and when some host plants were not in bloom.

Ordinarily drones fly after 12:00 P.M. Optimum flights occur from 2:50 to 3:00 in the afternoon.

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CHAPTER I

INTRODUCTION

This study was attempted at on account of the interest the writer has on honey bees. It was a projected plan to set up the first beehive in Midsayap, North Cotabato, Philippines where environmental factors are believed to be conducive to the success of this beehive project. It is for this reason this M.S. Thesis is written.

The drones are members of the bee colony responsible for the fertilization of the queen bee. Artificial means (Strang 1970; Taber 1964) have been devised to stimulate the drones to fly and mate with the future queen bees.

It is the purpose of this research work to discover the ecological factor or factors responsible for influencing drone flight activity.

The introduced Italian honey bees, Apis mellifera L., are among the most widely discussed and studied insects on earth. They have been the subject of many useful studies on entomology and ontogeny. Their morphological as well as the physiological aspects have also been widely studied. Most research works so far have concentrated on the females and especially on the worker bees (Nowosielski, 1963 and Patton, 1963). However, the flight rhythm activity of the drones, the male bees of the colony, has received little