

**DIVERSITY OF INSECT IN
GUA GUNUNG SENYUM, PAHANG**

NOR FATIHAH BT GHOZALI

**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
In the Faculty of Applied Sciences
Universiti Teknologi MARA**

JANUARY 2016

ACKNOWLEDGEMENTS

Alhamdulillah, all the praises to Allah SWT for the strengths given and his blessing in completing this thesis. In this opportunity, I would like to express my highest gratitude to my supervisor Miss Nur Athirah binti Abdullah and co-supervisor Miss Farah Amna binti Othman, for all their endless guidance and encouragement throughout completion of this thesis.

I would also want to give my sincere gratitude to the team of research project, Miss Siti Suhaila binti Harith, and Puan Sarina bt Hashim for their support in finishing this research project. Besides that, i also indebted with lab assistants especially Mr. Azman, Mr Suhairi, and Mdm Zairus for the guidance in conducting this research and also thanks to Universiti Teknologi MARA (UiTM) Jengka, Pahang for providing facilities needed.

I would like to extend my special appreciation to my teammate, Nurul Wahida binti Kamaruddin for working together in setting up the traps and for the full effort given either in field or in laboratory. In advance, i would like to thanks to my father, Ghozali bin Ahmad and to my brother, Mohd Ariff bin Ghozali for lending their hand in building the traps used. Lastly, thanks to my family for their endless moral and financial support and also thanks to all friends for helping either directly or indirectly in completion of this thesis.

Nor Fatihah binti Ghozali

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LISTS OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1: INTRODUCTION	
1.1 Background of Study	1
1.2 Problem Statement	3
1.3 Significance of Study	3
1.4 Objective	4
CHAPTER 2: LITERATURE REVIEW	
2.1 Cave	5
2.1.1 Cave features	6
2.1.2 Type of cave	7
2.2 Cave Fauna	9
2.2.1 Cave dwelling insects	11
2.2.2 Adaptation of cave fauna	12
2.3 Insects Life Cycle	14
2.4 The Role of Insects in Ecosystem	
2.4.1 Pollinator	16
2.4.2 Scavenger	16
2.4.3 Natural enemy	17
CHAPTER 3: METHODOLOGY	
3.1 Materials	
3.1.1 Raw materials	19
3.1.2 Chemicals	19
3.1.3 Apparatus	19
3.2 Sampling Area	19
3.3 Sampling Method	20
3.4 Laboratory Method	21
3.4.1 Pinning	21
3.4.2 Identification	22
3.4.3 Labeling	22
3.5 Data Analysis	
3.5.1 ANOVA	22

3.5.2	Shannon-weiner diversity index	22
3.5.3	Similarity test	22
CHAPTER 4: RESULTS AND DISCUSSION		
4.1	Total Collection of Insect	23
4.1.1	Characteristics of insect community in Gua Gunung Senyum	27
4.1.2	Species area curve and diversity index	28
4.2	Composition of Insects in Different Zone	30
4.3	Functional group in Gua Gunung Senyum	36
CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS		41
CITED REFERENCES		43
APPENDICES		47
CURRICULUM VITAE		51

ABSTRACT

DIVERSITY OF INSECT IN GUA GUNUNG SENYUM, PAHANG

Cave is a natural opening in rocky mountain that can be entered by human or other living organism. Animals that live in the cave are ranging from tiny microscopic invertebrates such as cricket and flies to large organism such as snakes, and bats. One of the common organisms in caves is insect. There are a lot of data recorded about the insect around the world, but record data for insects in the cave is still not properly described. With data record, the diversity of insect that present inside cave can also be compared with the diversity of insect living outside of a cave. Objectives of this study are to identify the diversity of insects that are present in the cave and to compare the diversity of insect in different zones based on light intensity of Gua Gunung Senyum, Pahang. For cave sampling, four types of trap which are pit fall trap, light trap, impact trap and sticky trap were used. Pitfall trap were placed in transect form and the other three traps are placed randomly in three different zones which are entrance zone, middle zone and dark zone respectively. The zones are classified based on the light intensity in the cave. As the result, there are 2292 individuals of insect were collected from three different zones. Entrance zone represents the highest abundance from the total collection which is 61%, while middle zone shows the lowest abundance with 6% and dark zone represents 33%. Formicidae have been recorded as the most abundant family with 1310 number of individuals in total, which is mostly abundant in entrance zone with 1264 individuals, while 40 individuals in middle zone and 6 individuals in dark zone. Family Simuliidae is the most abundant insect in middle zone with 54 individuals. The most abundant insect present in dark zone is Ripiphoridae from order Coleoptera with total number of individuals is 589. In further study, identification until the species level can be done to know that the value and inventory are more accurate. From the composition of insect species in three different zones, the diversity of insect will be known more accurately.