

**INVESTIGATION OF ENDOPARASITE INFECTING WILD
PROBOSCIS MONKEY (*Nasalis larvatus*) IN LOK KAWI
WILDLIFE PARK**

DAHLIA DAHALAN

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

DECEMBER 2014

ACKNOWLEDGEMENT

I would like to express my deepest appreciation to all who provided me the possibility to complete this report. A special gratitude I give to my one and only supervisor, Mdm. Siti Sarayati bt Abd Mawah, whose contribution in stimulating suggestions and encouragement and helped me to coordinate my project especially in writing this report.

Furthermore I would also like to acknowledge with much appreciation the crucial role of the staff of Lok Kawi Wildlife Park, who gave me the permission to collect all the necessary samples to complete this study. Special thanks goes to my peers too in helping me throughout this study.

Last but not least, appreciation to my parents for supporting me all the way in order to complete this study. I appreciate the guidance given by other supervisor as well as the panels especially in the project presentation that has improved my presentation skills, thanks to their comment and advices.

SIGNIFICANCE OF THE STUDY

OBJECTIVES OF THE STUDY

CHAPTER 2: LITERATURE REVIEW

2.1. *Amphibians*

2.1.1. Population of *Amphibia* in the world and Malaysia

2.1.2. Feeding ecology of *Amphibia* in the world

2.1.3. Threats affecting *Amphibia* in the world

2.1.4. Amphibian population in Malaysia and its threat

2.1.4.1. *Pseudis* in Malaysia

2.1.4.2. *Rhinophrynus* in Malaysia

2.1.5. Conservation status

CHAPTER 3: METHODOLOGY

3.1. Study sites

3.2. Materials

3.2.1. Raw materials

3.2.2. Chemicals

3.2.3. Apparatus

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1: INTRODUCTION	
1.1 Background Study	1
1.2 Problem Statement	3
1.3 Significance of the Study	4
1.4 Objectives of the Study	5
CHAPTER 2: LITERATURE REVIEW	
2.1 <i>Nasalis larvatus</i>	6
2.1.1 Populations of <i>Nasalis larvatus</i> and habitat	7
2.1.2 Feeding ecology of <i>Nasalis larvatus</i>	8
2.1.3 Threats affecting <i>Nasalis larvatus</i>	10
2.1.4 Intestinal parasites transmission and as a threat	11
2.1.4.1 Protozoa as a threat	15
2.1.4.2 Helminths as a threat	16
2.1.5 Conservation status	17
CHAPTER 3: METHODOLOGY	
3.1 Study sites	18
3.2 Materials	
3.2.1 Raw materials	19
3.2.2 Chemicals	19
3.3.3 Apparatus	19

3.3	Methods		
3.3.1	Fieldwork		
3.3.1.1	Sample collection		20
3.3.1.2	Number of samples		20
3.3.1.3	Weight of the samples		20
3.3.2	Laboratory method		
3.3.2.1	Direct smear technique		21
3.3.2.2	Fecal floatation technique		21
3.3.2.3	McMaster counting method		22
3.3.2.4	Eggs per gram (E.P.G)		22
3.3.2.5	Prevalence rate		23

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1	Presence of endoparasites in the fecal sample	24
4.2	Prevalence rate of endoparasites	28
4.3	Fecal egg count	31

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

CITED REFERENCES	36
APPENDICES	40
CURRICULUM VITAE	45

ABSTRACT

INVESTIGATION OF ENDOPARASITES INFECTING CAPTIVE PROBOSCIS MONKEY (*Nasalis larvatus*) IN LOK KAWI WILDLIFE PARK

Nasalis larvatus are considered as endangered species and parasitic infection might affect the monkey overall health. High parasitic infection leads to the lowering of survival and reduce the fitness of the monkey itself. The aim of this study were to detect the presence of endoparasites and quantify the prevalence rate of the gastrointestinal parasites infecting the captive proboscis monkey in Lok Kawi wildlife Park. A total of 10 random fecal samples of captive proboscis monkey in Lok Kawi Wildlife Park were collected and brought back to Kompleks Sains dan Agroteknologi (KOMSAT) for examination. In the laboratory, the endoparasites were identified via direct smear and fecal flotation method. Prevalence rate and EPG were determined based on the two methods applied. The result shows that three groups of endoparasites present in the samples with nematode have the highest prevalence rate (80.00%), followed by protozoa (70.00%) and cestode (50.00%). One of the factors that cause the monkey to get infected is most probably due to contaminated food, water and environment.