ECTOPARASITE COMPOSITION OF BATS AT FOREST FRINGE OF SETUL, TERENGGANU

CHRISTOPHER VIJAYAN S/O RAMKUMAR

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU
2007

Ectoparasite composition of bats at forest fringe of Setiu, Terengganu / Christopher Inbaraja S/O Rajakumar.

Lihat sebelah

ECTOPARASITE COMPOSITION OF BATS AT FOREST FRINGE OF SETIU, TERENGGANU

CHRISTOPHER INBARAJA S/O RAJAKUMAR

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU
2007

ECTOPARASITE COMPOSITION OF BATS AT FOREST FRINGE OF SETIU, TERENGGANU

By

Christopher Inbaraja s/o Rajakumar

Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Applied Science (Biodiversity Conservation and Management)

Department of Biological Sciences
Faculty of Science and Technology
UNIVERSITI MALAYSIA TERENGGANU
2007

This project should be cited as:

Christopher, I. R. 2007. Ectoparasite composition of bats at forest fringe of Setiu, Terengganu. Undergraduate thesis, Bachelor of Applied Science (Biodiversity Conservation and Management), Faculty of Science and Technology, Universiti Malaysia Terengganu, Terengganu. 57p.

JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II
RESEARCH REPORT VERIFICATION

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: ECTOPARASITE COMPOSITION OF BATS AT FOREST FRINGE OF SETIU, TERENGGANU oleh Christopher Inbaraja a/l Rajakumar, no. Matrik: UK9510 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Gunaan – Pemuliharaan dan Pengurusan Biodiversiti, Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh: /Verified by:

.....

Penyelia / *Supervisor*
Nama: Mr. Wong Chee Ho
Cop Rasmi:

WONG CHEE HO
Pensyarah
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu.

Tarikh: 13/5/07

.....

Ketua Jabatan Sains Biologi/*Head, Department of Biological Sciences*
Nama: Dr. Aziz Ahmad
Cop Rasmi:

DR. AZIZ BIN AHMAD
Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 13/5/2007

ACKNOWLEDGEMENTS

Firstly, I would like to express my sincerest gratitude to the Lord Jesus Christ for His guidance and endless mercy throughout this project. Thanks to my supervisor, Mr. Wong Chee Ho for giving me the opportunity, freedom and guidance to successfully complete this project.

I would also like to thank my fellow partners who were together doing sampling in Setiu, Terengganu; Chang Kew Fong, Chan Shiao Ee and Or Oi Ching. En. Zeman, our boatman for helping us a lot during our sampling. Also not forgetting are my friends Asuar Ayunni Anuar and Tan Khee Boon for their great help in my project.

Also thanks to Histology laboratory assistant, En. Muhammad bin Embong for his help in guiding me how to handle the work in the laboratory.

Not forgetting, I owe a great thanks to my beloved family for their love, support, and care. My deepest appreciation to all my coursemates of Bachelor of Applied Science in Biodiversity Conservation and Management, 2004-2007. A special thanks to Dr. Mariana and En. Kulaimi from Institute for Medical Research (IMR) for providing me first hand experience in handling acarines and teaching me the methods to prepare solutions to process the ectoparasites during my two and a half months industrial training period from 1 May 2006 till 13 June 2006. To everyone who was involved in my project that I did not mention above, I really appreciate all of your help in completing my project successfully. May God bless all of you richly. Thanks again!

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ABBREVIATIONS/SYMBOLS

UMT	-Universiti Malaysia Terengganu
SPSS	-Statistical Process for Social Sciences
%	-Percentage
Nr	-Number
M	-Male
F	-Female
NR	-Non-reproductive
P	-Pregnant
L	-Lactating
PL	-Post lactating
LL	-Late lactating
A	-Adult
J	-Juvenile
R	-Recapture
WP	-With pup
*	-Recaptured bats

LIST OF APPENDICES

ABSTRACT

A six month study was conducted on the ectoparasite composition of bats at forest fringe of Setiu, Terengganu. This study was carried out from August 2006 till January 2007. The objectives of this study were to determine the bat ectoparasite composition in the forest habitat of Setiu Wetlands, to compare prevalence and abundance of ectoparasites among the bat species and to establish a checklist of bat's ectoparasites for further references. Thirteen species of ectoparasites belonging to seven different genera were collected including *Whartonia* sp., *Ornithodoros* spp., *Antricola* sp., *Streblia* spp., *Nycteribia* spp., *Meristapis* sp. and *Ctenocephalides* sp. The highest parasite prevalence index was found on *Eonycteris spelaea* with 87.63% infested with *Nycteribia* spp. respectively. The highest parasite infestation rate was found on *Eonycteris spelaea* with 96.77% respectively. Female bats were accounted for higher prevalence rates than males. Pearson correlation coefficients showed a significant correlation between two factors which is sampling period and temperature ($p > 0.05$).

KAJIAN KOMPOSISI EKTOPARASIT PADA KELAWAR DALAM KAWASAN PINGGIR HUTAN SETIU, TERENGGANU

ABSTRAK

Satu kajian selama enam bulan telah dijalankan untuk mengkaji komposisi ektoparasit pada kelawar dalam kawasan pinggir hutan Setiu, Terengganu. Kajian ini telah dijalankan dari bulan Ogos 2006 hingga Januari 2007. Objektif kajian ini adalah untuk mengkaji komposisi ektoparasit dalam kawasan pinggir hutan Setiu, Terengganu, membandingkan kadar kelaziman ektoparasit dan taburan ektoparasit di kalangan spesies kelawar yang ditangkap dan mewujudkan suatu data ektoparasit untuk rujukan akan datang. Tiga belas spesies ektoparasit daripada tujuh genus yang berbeza telah dikenal pasti iaitu *Whartonia* sp., *Ornithodoros* spp., *Antricola* sp., *Streblia* spp., *Nycteribia* spp., *Meristapis* sp. dan *Ctenocephalides* sp. Spesies kelawar yang mempunyai kadar kelaziman ektoparasit yang paling tinggi ialah *Eonycteris spelaea* dengan 87.63% dihinggapi *Nycteribia* spp. Taburan ektoparasit dijumpai paling tinggi pada *Eonycteris spelaea* dengan nilai 96.77%. Kelawar betina telah mencatatkan kadar kelaziman yang lebih tinggi berbanding kelawar jantan. Ujian koefisien Pearson telah menunjukkan nilai yang nyata di antara dua faktor iaitu jangka masa kerja lapangan dan suhu ($p > 0.05$).