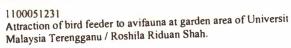
ATTRACTION OF EPO FEEDER TO AMERICAN AT EXPOST

FORULTI SITTS DOT TEXTOLOGY TIPS TO TOUR SITE TERESTORY 2007 UN 4860

LP 41 FST 3 2007





PERPUSTAKAAN
UNIVERSITI MALAYSIA TERENGGANU (UMT)

21030 KUALA TERENGGANU		
Į.	1030 KUALA TERENGGA 1000512	31

Lihat sebelah

HAK MILIK PERPUSTAKAAN UMT

ATTRACTION OF BIRD FEEDER TO AVIFAUNA AT GARDEN AREA OF UNIVERSITI MALAYSIA TERENGGANU

By

Roshila binti Riduan Shah

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:

Roshila, R. S. 2007. Attraction of Bird feeder to Avifauna at garden area of Universiti Malaysia Terengganu. Undergraduate thesis, Bachelor of Applied Science in Biodiversity Conservation and Management, Faculty of Science and Technology, Universiti Malaysia Terengganu. 71p.

No part of this project report may be produced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without written permission from the author and the supervisor(s) of the project.



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: <u>ATTRACTION OF BIRD FEEDER TO AVIFAUNA AT GARDEN AREA OF UNIVERSITI MALAYSIA TERENGGANU</u>, oleh <u>Roshila Binti Riduan Shah</u>, no. matrik: <u>UK 10400</u> telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi lijazah <u>Sains Gunaan Pemuliharan dan Pengurusan Biodiversiti</u>, Fakulti Sains dan Teknologi,Universiti Malaysia Terengganu.

Tarikh: Asla 7

8/5/2007

Disahkan oleh: /Verified by:

Penyelia Utamal Maio Supervisor

Nama:

WONG CHEE HO

Cop Rasmi:

Pensyarah Jabatan Sains Biologi Fakulti Sains dan Teknologi Whiversiti Malaysia Terengganu

21030 Kuala Terengganu.

() Library Comments of the Co

Nama:

Cop Rasmi:

DR. AZIZ BIN AHMAD

Ketua Jabatan Sains Biologi/Head, Department of Biological Sciences

Ketua Jabatan Sains Biologi Fakulti Sains dan Teknologi Universiti Malaysia Terengganu 21030 Kuala Terengganu

ACKNOWLEDGEMENTS

There were numerous people that assisted with this project and supported me from beginning to end. The subsequent are a few individuals that I would like to thank and acknowledge.

First, I would like to thank my supervisor as well as Final Year Project Coordinator, Mr Wong Chee Ho, for his great support, encouraged me to look at my project and editorial criticisms of the final document. My course mate who involve in the same project, Nurrul Asyikin Zainal for her assistance and constantly pushing me forward in my project progress.

Secondly, thank to the lab staff for the helps given; Mr. Mohammad Embong, Tuan Haji Razali Salam. Thank, also for other lecturers and many people who are involved indirectly that have been supportive throughout this project. Thank to a number of friends especially Nor Zulaikha Che Mat assisted with data collection and data entry and I am appreciating of that. To the Department of Biological Sciences, thanked for its financial support and helping to facilitate many ways for the birds study. At last, Faculty of Science and Technology, Universiti Malaysia Terengganu (UMT) gives me a chance to do my project.

Finally, special thank to my lovely family for their constant and moral support. My mother, for her maintains support for everything that I do and her friendship. My father should be thanked for his financial assisted and advised. My fiancé, thanked for his love, understanding, and mental support that he continues to give me every day. He has been a part of the project through his sincerely of help, references collection and always remained confidents in my ability to complete this project even when I was not so sure. Lastly, thank to my brothers for their encouragement and support.

TABLE OF CONTENT

]	Page
A C k	NOWI	EDGEMENTS		ii
	OF TA			
	OF FIG			vi vii
		BBREVIATIONS		vii
		PPENDICES		ix
	TRACT			X
	TRAK			хi
		INTRODUCTION		1
1.1		luction		1
1.2		tives of Study		2
	ت و ا			_
CHA	APTER 2	2 LITERATURE REVIEW		3
2.1	The o	rigin of birds and their relationship with man		3
2.2	Adapt	tation of bird structure and function for flight		4
2.3	Migra	ition and navigation		4
2.4	Threa	tened species and Conservation		5
2.5	Bird watching		6	
2.6	Feedi	Feeding birds		6
2.7 Birds need and survival		need and survival		7
	2.7.1	Bird foods and types of seed to provide		7
	2.7.2	Foods to avoid		9
	2.7.3	Water for birds		10
	2.7.4	Nesting		10
2.8	Garde	en as a bird friendly habitat		10
	2.8.1	Garden birds in Peninsular Malaysia		11
2.9	Impor	rtant of bird feeder		11
	2.9.1	Bird table		12
	2.9.2	Hanging feeder		12
	2.9.3	Ground feeder		13

2.10	Placement of bird feeder	13
2.11	Threats to birds on bird feeder	13
	2.11.1 Predator	14
	2.11.2 Diseases	14
2.12	Other feeder visitor	15
CHA	PTER 3 MATERIALS AND METHODS	16
3.1	Study area	16
3.2	Study period	17
3.3	Study design	17
3.4	Preparation	20
	3.4.1 Bird cake preparation	20
3.5	Observation	20
3.6	Identification	22
3.7	Data analysis	22
	3.7.1 Statistical Analysis	23
CHA	PTER 4 RESULTS	24
4.1	Overall results of observation	24
4.2	Monthly observation	24
4.3	Daily observation	29
4.4	Observation based on hour	35
4.5	Observation based on bird feeder	35
4.6	Kruskal-Wallis test analysis	36
4.7	Mann-Whitney test analysis	36
4.8	Observation based on bird behaviour	36
4.9	Birds species according to Status, Occurrence and Law Protection	37
4.10	The new species accumulative curve	37
СНА	PTER 5 DISCUSSION	44
5.1	Overall results of observation	44
5.2	Monthly observation	45
5.3	Daily observation	46
5.4	Observation based on hour	46

5.5	Observation based on bird feeder	47
5.6	Kruskal-Wallis test analysis	48
5.7	Mann-Whitney test analysis	49
5.8	Observation based on bird behaviour	50
5.9	Birds Status, Occurrence and Law Protection	51
5.10	Potential bias	51
CHAPTER 6 CONCLUSION		53
REFE	REFERENCES	
APPE	APPENDICES	
CURRICULUM VITAE		71

LIST OF TABLES

Table		Page
Table 3.1	The schedule of sampling occasions	17
Table 3.2	The data sheet for bird observation	21
Table 3.3	The mode of behaviour bird species observed	22
Table 4.1	Birds species observed at garden area of UMT	26
Table 4.2	Bird species observed in particular months	26
Table 4.3	Birds species observed attracted to bird feeder	39
Table 4.4	Bird species consumed food on bird feeder	40

LIST OF FIGURES

Figure	Pa	ge
Figure 3.1	Location of study area	16
Figure 3.1	Placement of bird table and hanging feeder at study area	18
C		18
Figure 3.3	Placement of ground feeder in study area	
Figure 3.4	Setting of bird feeders	19
Figure 3.5	Types of bird food	20
Figure 4.1	Number of bird sighting attracted to bird feeder according to	27
D' 10	month	27
Figure 4.2	Number of bird sighting attracted to three types of bird feeder	27
	according to month	
Figure 4.3	Number of bird sighting around bird feeder according to month	28
Figure 4.4	Number of bird sighting attracted to bird feeder according to day	30
Figure 4.5	Number of bird sighting attracted to three types of bird feeder	31
	according to day	
Figure 4.6	The frequency of bird's presence that attracted to bird feeder	32
Figure 4.7	Number of bird sighting around bird feeder according to day	33
Figure 4.8	The frequency of bird's presence near the bird feeder	34
Figure 4.9	Number of bird sighting attracted to bird feeder according to time;	38
	morning, afternoon and evening	
Figure 4.10	Number of bird sighting on and around bird feeder based on time	38
Figure 4.11	Number of bird sighting attracted to different types of bird feeder	39
	based on food	
Figure 4.12	The percentages of bird behaviour throughout the sampling	41
Figure 4.13	The percentages of bird species according to their status	41
Figure 4.14	The percentages of bird species according to their occurrence	42
Figure 4.15	The percentages of bird species according to their protection	42
Figure 4.16	The new species accumulative curve of birds present on bird	43
	feeder according to month	

LIST OF ABBREVIATIONS

cm entimeter

DWNP Department of Wildlife and National Park

g gram

% percentage

H value of Kruskal-Wallis test

IBA - Important Bird Area

IUCN International Union for Conservation of Nature

km - kilometers

m meter

N - north

U - value of Mann-Whitney test

UMT - Universiti Malaysia Terengganu

WBCA - Wild Bird Conservation Act

WWF - World Wildlife Fund

LIST OF APPENDICES

Appendix A	The figures of bird species attracted to bird feeder	61
Appendix B	The figures of bird species around bird feeder	62
Appendix C	The list of bird species observed	64
Appendix D	The list of bird Status, Occurrence and Protection of Wildlife	68
	Act 1972	
Appendix E	The result of statistical analysis	69

ABSTRACT

The study of bird feeder attraction had been conducted at the garden area of Universiti Malaysia Terengganu (UMT) for six months started from August 2006 until January 2007. The importance of this study is as an alternative to conserve bird population. The purpose of this study is to identify and check the species of bird presence via bird feeders and to examine the feasibility of bird feeder as a conservation tool. Direct observation method was used to observe appearances of birds on or around bird feeders. A total of 361 sightings representing 12 bird species from 10 families of two orders have been observed at sampling area. At this, 103 sightings (28.5 %) were attracted to the bird feeder. The most dominant species of bird attracted is the *Pycnonotus goiavier* with 71 % of sightings. Ground feeders attract the most bird visits, which represent 68 of sightings (66 %). January was the peak number of birds attracted to the bird feeder with 47 sighting. In conclusion, three species attracted to bird feeder in which *Pcynonotus goiavier* was the major species. The feasibility of bird feeder was necessary and appropriate as a conservation tool due to high bird attraction.

TARIKAN BEKAS MAKANAN BURUNG KE ATAS KEPELBAGAIAN BURUNG DI KAWASAN TAMAN UNIVERSITI MALAYSIA TERENGGANU

ABSTRAK

Kajian mengenai tarikan bekas makanan burung telah dijalankan di kawasan taman Universiti Malaysia Terengganu (UMT) selama enam bulan bermula pada Ogos 2006 sehingga Januari 2007. Kepentingan kajian ini adalah sebagai pilihan untuk pulihara populasi burung. Tujuan kajian ini adalah untuk mengenalpasti dan menyemak kehadiran spesies burung melalui penggunaan bekas makanan burung dan untuk menguji kebolehlaksanaan bekas makanan burung sebagai alat konservasi. Kaedah pemerhatian secara langsung digunakan bagi memerhati kehadiran burung pada atau sekitar bekas makanan burung. Sejumlah 361 bilangan pemerhatian burung daripada 12 spesies dan 10 famili (dua order) telah diperhatikan di kawasan kajian. Daripada ini, didapati 103 bilangan pemerhatian (28.5 %) tertarik pada bekas makanan burung. Spesies burung paling dominan hadir pada bekas makanan burung ialah Pycnonotus goiavier dengan jumlah 71 peratus pemerhatian. Catatan pemerhatian burung paling tinggi pada bekas makanan burung adalah di atas tanah, dengan 68 pemerhatian (66 %). Bulan Januari mencatatkan bilangan tarikan burung yang tertinggi sebanyak 47 pemerhatian. Kesimpulannya, tiga spesies tertarik kepada bekas makanan burung dimana Pcynonotus goiavier merupakan spesies utama. Kebolehlaksanaan bekas makanan burung adalah perlu dan sesuai sebagai alat konservasi disebabkan tarikan burung yang tinggi.