

STUDY OF STATUS, SEASONAL DIVERSITY, HABITAT UTILIZATION AND DISTRIBUTION OF BIRDS IN SATIKHEL COMMUNITY FOREST AND DALLU COMMUNITY FOREST IN SESHANARAYAN VDC
- Jyotendra Jyu Thakuri

**STUDY OF STATUS, SEASONAL DIVERSITY, HABITAT
UTILIZATION AND DISTRIBUTION OF BIRDS IN SATIKHEL
COMMUNITY FOREST AND DALLU COMMUNITY FOREST IN
SESHANARAYAN VDC**

**A DISSERTATION SUBMITTED FOR THE FULFILLMENT OF
THE REQUIREMENT FOR
THE MASTER'S DEGREE IN ZOOLOGY (ECOLOGY)**

**SUBMITTED BY:
JYOTENDRA JYU THAKURI**

**SUBMITTED TO:
CENTRAL DEPARTMENT OF ZOOLOGY
TRIBHUVAN UNIVERSITY
KIRTIPUR, KATHMANDU, NEPAL**

2007

RECOMMENDATION

It is my pleasure to mention that **Mr. Jyotendra Jyu Thakuri** has carried out the Dissertation entitled "**Study of Status, Seasonal Diversity, Habitat Utilization and Distribution of Birds in Satikhel Community Forest and Dallu Community Forest in Seshnarayan VDC**" under my supervision and guidance. This is the candidate's original work, which brings out important findings essential for biodiversity conservation in hill region. To the best of my knowledge, this dissertation has not been submitted for any other degree in any institution. I recommend that the dissertation be accepted for the partial fulfillment of the requirement for the Degree of Master's of Science in Zoology Specializing in Ecology.

Dr. Ramesh Shrestha

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu

Nepal

Date:

ACCEPTANCE

On the recommendation of supervisor **Dr. Ramesh Shrestha**, this dissertation submitted by **Mr. Jyotendra Jyu Thakuri** entitled "**Study of Status, Seasonal Diversity, Habitat Utilization and Distribution of Birds in Satikhel Community Forest and Dallu Community Forest in Seshnarayan VDC** " is approved for examination.

Dr. Tej Kumar Shrestha D.Sc.

Professor and Head

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu,

Nepal

Date :

APPROVAL

This dissertation submitted by **Mr. Jyotendra Jyu Thakuri** entitled "**Study of Status, Seasonal Diversity, Habitat Utilization and Distribution of Birds in Satikhel Community Forest and Dallu Community Forest in Seshnarayan VDC**" has been accepted as a partial fulfillment of Master's Degree in Zoology Specializing in Ecology

EXPERT COMMITTEE

Dr. Ramesh Shrestha

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu

Nepal

Dr. Tej Kumar Shrestha, D.Sc.

Professor and Head

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu

External Examiner

ACKNOWLEDGEMENTS

I wish to record my deepest sense of gratitude and profound regards to my academic supervisor, Dr. Ramesh Shrestha, lecturer, Central Department of Zoology, Tribhuvan University, Kirtipur for learned guidance and abiding interest. I have no hesitation in accepting that without the benevolent and large hearted co-operation of my supervisor, it would not have been possible for me to submit the thesis in time.

I express my gratitude and indebtedness to Dr. Tej Kumar Shrestha, professor and Head, Central Department of Zoology for his continuous help through out the study.

I am grateful to Dr. Hem Sagar Baral, the CEO of BCN for his encouraging words for my work. I would like to thank Mr. Yub Raj Basnet for his valuable suggestion. I would like to thank Mr. Hathan Chaudhary and Dev Ghimire for helping me in identifying new birds and providing books. I am thankful to Mr. Janak Raj Khatiwada and Mr. Mitra Pandey, I will never forget their great help in every aspects of my study work.

I would like to thank Anil Regmi (Ranger of District Forest Office), Mrs Primila Basnet (President of Satikhel Community Forest), Mr Ravi Basnet (President of Dallu Community Forest). Bhola Ram Subedi and Bhagabati Subedi

I am thankful to librarians of Central library, T.U., BCN, IUCN, DNPWC, Department of Meteorology and all staffs of the Central Department of Zoology.

Jyotendra Jyu Thakuri

Exam Roll : 525

Class Roll No.: 18

T.U. Reg. No. : 14215-95

Batch : 2060/61

ABSTRACT

The present Study was carried out to access the Status, Seasonal Diversity, Habitat utilization and Distribution in Satikhel community forest and Dallu community forest of Seshanarayan VDC.

Line transect method was used for direct observation of birds. Shannon's index of diversity and evenness was used for analysis of data, similarly relative abundance was calculated as Kopylov, 2002. Time duration was five month, from spring, summer and autumn.

188 species belonging to 10 orders and 29 families. Order Passeriformes has highest number of family and bird species. Summer season has the highest species richness and population followed by autumn and spring season. 85 species were residential similarly 16 species summer visitor, 16 species winter one was of unknown status.

Four main habitats; forest riverine, human settlement and agricultural land. Forest was the major habitat with highest specific number. Broad-leaved forest and secondary under growth forest found best forest type for birds. Distribution wise transect-1 lying in Pariban area has highest number of species followed by transect-2, 3 and 4. Feeding guild comprises insectivores, carnivores omnivores, granivores, frugivores and nectivores. Relative abundance was dominated by 5 very common species and 31 species have least relative abundance of rare category. The abundance and relative abundance category of birds were categorized depending upon the total population of birds.

There were few number of threatened birds; one globally threatened, one included in CITES category III and eight species in category II. Some threats for bird diversity in this area were water harvesting, forest fire, logging, human activities and road- noise pollution.

CONTENTS

	Page No.
Recommendation	i
Acceptance	ii
Approval	iii
Acknowledgements	iv
Abstract	v
Contents	vi-vii
List of Tables	viii
List of Figures	viii
Abbreviation	ix
1. INTRODUCTION	1-6
1.1 General Background	1
1.2. Aims and Objectives	5
1.3. Rationale	6
2. STUDY AREA	7-11
2.1. Location	7
2.2. Geology and soil	7
2.3. Climatic Condition	9
2.4. Biological description	11
2.4.1. Floral Diversity	11
2.4.2. Faunal Diversity	11
2.4.3. Socio-economic Aspect	11
3. MATERIALS AND METHOD	12-15
3.1. Preliminary survey	12
3.2. Materials	12
3.2. Line transect sampling	12

3.4	Data Analysis	13
3.4.1	Shannon's Index of Species diversity	13
3.4.2	Evenness index	14
3.4.3	Relative abundance	15
3.4.4	Feeding gulid analysis	15
3.5.	Time schedule	15
4.	RESULTS	16-25
4.1.	Bird Diversity	16
4.2.	Seasonal diversity of birds	16
4.2.1.	Bird diversity in spring	17
4.2.2	Bird diversity in summer	17
4.2.3.	Bird diversity in autumn	17
4.3.	Distribution of birds in transect	20
4.4.	Migratory Pattern	20
4.5.	Local Abundance Category	21
4.6.	Threatened Birds	22
4.7.	Feeding Gulid	22
4.8.	Habit utilization	23
4.8.1.	Habitat Association	24
4.9.	Threats to birds	24
5.	DISCUSSION	26-36
6.	CONCLUSION AND RECOMMENDATION	37-38
7.	REFERENCES	39-48

ANNEX

LIST OF TABLE

Table 1 :	Classification according to Order Family and number of birds	19
Table 2 :	Birds Included in CITES List	22

LIST OF FIGURE

Figure 1 :	Average Monthly Mean of Maximum and Minimum Temperature at Khokana Station from 1999 to 2005	9
Figure2 :	Average Monthly Mean Rainfall at Khokana Station From 1999 to 2005	10
Figure 3 :	Average Monthly Mean Relative Humidity at Khokana Station from 1999 to 2005	10
Figure 4 :	Species Richness and Population of Birds.	16
Figure 5 :	Distribution of Birds in Different Transect	20
Figure 6 :	Number of Birds Represented by Migratory Status	21
Figure 7 :	Number of Birds Represented by their Relative Abundance	21
Figure 8 :	Number of Birds Represented by their Feeding Guild	22
Figure 9:	Number of Birds Associated with Different Habitat	24

ABBREVIATIONS

UNEP	:	United Nations Environment Programme
WCMC	:	World Conservation Monitoring Centre
IUCN	:	International Union of Conservation
DOF	:	Department of Forest
hec	:	Hectare
VDC	:	Village Development Committee
CF	:	Community Forest
SCF	:	Satikhel Community Forest
DCF	:	Dallu Community Forest
FUG	:	Forest User Group
m	:	Meter
mm	:	Milimeter
rop	:	Ropani
CD	:	Compact Disc
CITES	:	Convention on international Trade of Threats and Indangered Species
FAO	:	Food and Agriculture Organization
FRA	:	Forest Resource Assessment
DNPWC	:	Department of National Park and wildlife Conservation
Gov	:	Government
np	:	Nepal
org	:	Organization
USA	:	United States of America
BCN	:	Bird Conservation Nepal