

**DIVERSITY AND CONSERVATION STATUS OF BIRDS IN BETANA  
WETLAND AREA BELBARI, MORANG, NEPAL**



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This is to recommend that the thesis entitled “**Diversity and Conservation Status of Birds in Betana Wetland Area, Belbari, Morang, Nepal**” has been carried out by **Mr. Umesh Pokharel** for the partial fulfilment of the Degree of Master of Science in Zoology with special paper Ecology and Environment. This is his original work and has been carried out under my supervision. To the best of my knowledge, this thesis work has not been submitted for any other degree in any institutions.

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## LETTER OF APPROVAL

On recommendation of supervisor Prof. Dr. Tej Bahadur Thapa, this thesis submitted by Mr. Umesh Pokharel entitled **“Diversity and Conservation Status of bird in Betana wetland area, Belbari, Morang, Nepal”** is approved for examination and submitted to the Tribhuvan University in partial fulfilment of the requirements for the Degree of Master of Science in Zoology with special paper Ecology and Environment.

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This thesis work submitted by **Mr. Umesh Pokharel** entitled “**Diversity and Conservation Status of bird in Betana wetland area, Belbari, Morang, Nepal**” has been accepted as a partial fulfilment for the requirements of the Degree of Master of Science in Zoology with special paper Ecology and Environment.

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## DECLARATION

I hereby declare that the work presented in this thesis has been done by myself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by reference to the author(s) or institution(s).

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## ABSTRACT

This study was carried out to understand the Seasonal Diversity and conservation status of birds in Betana wetland and its associated area. In order to accomplish these objectives, entire habitats were categorized into three types as forest, corridor and settlement areas. Bird surveys were conducted in two different seasons of a single year from January to July of 2014. For the survey, three line transects were set in three different habitat of covering a length of 7.5 km. Transect were taken as reference line for the plot setup. The plot was set in each 300m intervals on opposite sides of transect. The area of each Plot was of 50 m radius and 100m inside from the main reference line. Bird survey was done using direct count and call count method using a camera, binocular, reference book and a sound recorder. Species richness of the birds was calculated by using SPSS- software. Relation between species richness, habitat types and seasons were calculated using Kuskal- Wallis rank sum test. Altogether 55 bird species belonging to 10 orders and 24 families were observed in the study area. Among them 44 bird species were resident, 5 species winter migrants and 6 species summer migrants. The highest number of species (18) was represented by the order Passeriformes while the lowest number of species was represented by the order Psittaciformes and Galliformes. A significant difference in species richness of birds between different habitats ( $P$ -value = 0.016,  $df = 2$ ,  $2=8$ ). The species richness was found higher in corridor followed by forest and cultivated area. Availability of food and disturbances, elevation, and edge effect were the important factor for occurrence and distribution of birds in the study area. Human creating activities such as Habitat disturbances (picnic and boating), forest fire, poaching and grazing were the major threats to the avian community.

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## ABBREVIATIONS AND ACRONYMS

<b>Abbreviated form</b>	<b>Details of abbreviations</b>
BCN	Bird Conservation Nepal
BES	Bird Education Society
BCF	Barandabhar Corridor Forest
CDZ	Central Department of Zoology
CITES	Convention on International Trade of Endangered Species of Flora and Fauna
CNP	Chitwan National Park
DNPWC	Department of National Parks and Wildlife Conservation
GPS	Global Positioning System
IUCN	World Conservation Union
SPSS	Statistical Package for Social Science
TUCL	Tribhuvan University Central Library
VDC	Village Development Committee