

**POPULATION STATUS, DISTRIBUTION AND HABITAT USE OF
BARKING DEER (*Muntiacus muntjak*) IN SHIVAPURI NAGARJUN
NATIONAL PARK, KATHMANDU, NEPAL.**



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A thesis submitted in partial fulfillment of the requirement for the award of the degree of **Master of Science in Zoology** with special paper Ecology and Environment.

Submitted To

**Central Department of Zoology
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April 2015**

DECLARATION

I hereby declare that the work presented in this thesis entitled “**POPULATION STATUS, DISTRIBUTION AND HABITAT USE OF BARKING DEER (*Muntiacus muntjak*) IN SHIVAPURI NAGARJUN NATIONAL PARK, KATHMANDU, NEPAL**” has been done myself and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by references to the authors or institutions.

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RECOMMENDATIONS

This is to recommend that thesis entitled “**POPULATION STATUS, DISTRIBUTION AND HABITAT USE OF BARKING DEER (*Muntiacus muntjak*) IN SHIVAPURI NAGARJUN NATIONAL PARK, KATHMANDU, NEPAL**” has been carried out by Jyoti Prasain for the partial fulfillment of **Master’s Degree of Science in Zoology** with special paper **Ecology and Environment**. This is her original work and has been carried out under my supervision. To the best of my knowledge, this thesis has not been submitted for any other degree in any institutions.

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LETTER OF APPROVAL

On the recommendation of supervisor “Dr. Mukesha Kumar Chalise” this thesis submitted by Ms. Jyoti Prasain entitled “**POPULATION STATUS, DISTRIBUTION AND HABITAT USE OF BARKING DEER (*Muntiacus muntjak*) IN SHIVAPURI NAGARJUN NATIONAL PARK, KATHMANDU, NEPAL**” is approved for examination and submitted to the Tribhuvan University for the partial fulfillment of the requirements for **Master’s Degree of Science in Zoology** with special paper **Ecology and Environment**.

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CERTIFICATE OF ACCEPTANCE

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ABSTRACT

This study aimed to determine population status, distribution and habitat use of barking deer (*Muntiacus muntjak*, Zimmermann) in the Sikre VDC forest of Shivapuri Nagarjun National Park in Kathmandu. Direct count and line transect methods were used to collect data on determination of population, distribution, while pellets, hoofmark and barking calls were also taken on account to complete them. The variance-to-mean ratio was used to determine distribution pattern while relative preference index (RPI) and analysis of variance (ANOVA) was used to assess the habitat preference. Statistical tools such as χ^2 -test and two way ANOVA were used for data analysis.

A total of seven individuals (four males and three females), 138 pellet group 94 footprints of barking deer were recorded during the study. The density of the barking deer was 1.4 individual per square kilometer. Out of seven individuals observed in the study area 57.14% were males including male infant, 42.85% were females (Table 1). Among all sex and age groups, male to female sex ratio was computed at 0.57:0.42 that is four males and three females. The result showed the clumped distribution pattern of barking deer ($S^2/\bar{X} = 2.80 > 1$) and similarly clumped and uneven distribution of fecal pellets ($S^2/\bar{X} = 94.53 > 1$) and ($\chi^2 = 283.61 > \chi^2_{0.05}$ at 3 d.f). Among four different habitat types, upper mixed hardwood forest were most preferred by the barking deer (RPI = 1.17) but the lower mixed hardwood forest was avoided. There was no significant difference in distribution of pellets groups in different habitat types ($F=0.812 < F_{0.05}$ at (3,9) d.f) but there was significant difference in distribution of different category of pellets ($F=7.54 > F_{0.05}$ at (3,9) d.f) by them.

Major human disturbances in forest include firewood extraction, fodder collection and livestock grazing. Livestock keeping and alcohol making were the main alternative sources of income generation. Average amount of firewood consumption was about six to ten kilogram per day for each household. This study showed that human disturbances seemed the main cause for destruction and fragmentation of wildlife habitat of the study area.

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LISTS OF ABBREVIATIONS

Abbreviated from	Details of abbreviation
BNP	Bardia National Park
BZs	Buffer zones
CA	Conservation Area
CDZ	Central Department of Zoology
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CNP	Chitwan National Park
DNPWC	Department of National Park and Wildlife Conservation
IUCN	International Union for Conservation of Nature and Natural Resources
ShNNP	Shivapuri Nagarjun National Park
Temp	Temperature
WWF	World Wildlife Fund