

**HUMAN IMPACT ON WILDLIFE AND WILDLIFE
HABITATS IN MAENAM WILDLIFE SANCTUARY
IN SIKKIM HIMALAYA**



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**A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of Master of Science,
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RECOMMENDATION

It is my pleasure to mention that **Mr. Laxuman Chhetri** has carried out this thesis research entitled "*Human Impact on Wildlife and Wildlife Habitats in Muenam Wildlife Sanctuary in Sikkim Himalaya*" under my supervision and guidance. This is the candidate's original work that brings out important findings essential for conservation of wildlife. To the best of my knowledge, this thesis has not been submitted for any other degree. I recommend that the thesis be accepted for the partial fulfillment of the requirements for the degree of Master of Science in Zoology specializing in Ecology.

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APPROVAL

This thesis submitted by Mr. **Laxuman Chhetri** entitled "*Human Impact on Wildlife and Wildlife Habitats in Maenam Wildlife Sanctuary in Sikkim Himalaya*" has been accepted for the partial fulfillment of the requirements for the Degree of Master of Science in Zoology specializing in Ecology.

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ABSTRACT

I conducted my research on "Human Impact on Wildlife and Wildlife Habitats in Maenam Wildlife Sanctuary in Sikkim Himalaya" South Sikkim, which is highly disturbed in and around human settled areas and relatively undisturbed in the core area. The specific objectives of my research were to: a) explore vegetation structure, b) occurrence, abundance, and diversity of birds and mammals, c) compare them in disturbed and undisturbed sites, and d) assess human disturbances. I used both field survey and questionnaire methods for enumeration of vegetation, birds, mammals, and their conditions in the disturbed and undisturbed sites. Vegetation data were collected by taking four random samples of 20×20m plots in each disturbed and undisturbed sites, while birds and mammals were counted in two line transects of two kilometers each. Undisturbed site had higher number of tree species and tree density than disturbed site. The significant difference of mean number of trees between the disturbed and undisturbed sites indicated human impact on vegetation structure. I recorded thirty-seven bird species belonging to nineteen families during the field survey. The disturbed site had significantly higher ($t=2.92$, $df=2$, $p=0.05$) number of bird species than the undisturbed site. Fifteen mammalian species were recorded from both disturbed and undisturbed sites. The undisturbed site had higher number of mammalian species than the disturbed site, but the mean difference was not significant ($t=2.29$, $df=2$, $p=0.05$). The collection of firewood was the highest during winter and the lowest during summer due to the variation in consumption, which was the highest in Ravangla. The lowest consumption of firewood was in Mangzing. Similarly, fodder collection from the forest was the highest during winter, while the lowest during summer when availability is higher in the farms. Lingmoo extracted the highest fodder from the forest, while Ravangla extracted the least, which were based on their respective distance from the Sanctuary.

Major human disturbances in Maenam Wildlife Sanctuary include firewood extraction and fodder collection. This study showed that human disturbances, and availability of resources can increase the species richness of birds while suitable area is necessary for mammals for their abundance.

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