

**BIODIVERSITY CONSERVATION AND PROTECTED AREA
MANAGEMENT FOR SUSTAINABLE LIVELIHOOD: A CASE STUDY OF
SHIVAPURI NATIONAL PARK**

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE IN ZOOLOGY – ECOLOGY
PROGRAM

BY

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TO

CENTRAL DEPARTMENT OF ZOOLOGY
INSTITUTE OF SCIENCE AND TECHNOLOGY
TRIBHUVAN UNIVERSITY, KIRTIPUR
KATHMANDU, NEPAL
SEPTEMBER 2009

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DECLARATION

I hereby declare that the work presented in this thesis entitled “**BIODIVERSITY CONSERVATION AND PROTECTED AREA MANAGEMENT FOR SUSTAINABLE LIVELIHOOD: A CASE STUDY OF SHIVAPURI NATIONAL PARK**” 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.



.....
Sarjina Basukala

Date: September 13, 2009

RECOMMEDATION

It is my pleasure to mention that Ms. Sarjina Basukala has carried out this research entitled **“BIODIVERSITY CONSERVATION AND PROTECTED AREA MANAGEMENT FOR SUSTAINABLE LIVELIHOOD: A CASE STUDY OF SHIVAPURI NATIONAL PARK”** under my supervision. This is the candidate’s original work, which brings out important findings essential in protected area management. 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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Date: September 13, 2009

LETTER OF APPROVAL

On the recommendation of supervisor Professor Dr. Khadga Basnet, this thesis submitted by Ms. Sarjina Basukala entitled “**BIODIVERSITY CONSERVATION AND PROTECTED AREA MANAGEMENT FOR SUSTAINABLE LIVELIHOOD: A CASE STUDY OF SHIVAPURI NATIONAL PARK**” is approved for examination and submitted to the Tribhuvan University 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 Ms. Sarjina Basukala entitled “**BIODIVERSITY CONSERVATION AND PROTECTED AREA MANAGEMENT FOR SUSTAINABLE LIVELIHOOD: A CASE STUDY OF SHIVAPURI NATIONAL PARK**” 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

Information on biodiversity such as wildlife distribution, home range, community interaction, and their contribution to ecosystem development is essential for conservation and management of wildlife and protected areas. The research was conducted in Shivapuri National Park (ShNP) from October 2007 to October 2008. Two villages viz. Vishnu Budhanilkantha and Tokha Chandeshwari was selected for detail study. My research employed both direct and indirect methods such as direct observation in the study area, indirect method including identification of footprints, feces, scrapes, scratches, burrows, and quills. A total number 18 trees species belonging to 12 families in 10 quadrats of (20 x 20) m² each in major habitats of the study area. The Principle Component Analysis (PCA) showed a cluster of *Albizza procera*, *Alnus nepalensis*, and *Myrsine capitellata*. Similarly, *Rhododendron arboreum*, *Quercus glauca*, *Myrsine semiserrata*, and *Castanopsis indica* formed another group but these two groups usually came together. Fifteen mammalian species belonging to five orders and 13 families were recorded. Five mammalian species such as barking deer (*muntiacus muntjak* Zimmermann), jackal (*Canis aureus* Linnaeus), jungle cat (*Felis chaus* Guildenstaedt), monkey (*Macaca mulata* Zimmermann), and wild boar (*sus scrofa* Linnaeus) were recorded by either direct observation or indirect signs methods, which were distributed all around the study area. Livestock keeping and alcohol making were the main sources of alternative income generation. People collected leaf litter fall for manure making, insulator, and bed for livestock. Peoples were using firewood, kerosene, biogas, liquefied petroleum gas, electricity, cake etc for cooking food, heating and boiling for cowshed as different energy sources. From 60 household surveys, I estimated a total economic loss of Rs. 74182.5 per annum and Rs. 1236.37 per household. The null hypothesis was rejected in case of maize ($t = 3.44$, $P = 0.05$, and $df = 48$) suggesting that there was a significant difference in crop loss between Vishnu Budhanilkantha and Tokha Chandeshwari. One ropani (0.36%) of the total land area was abandoned in Vishnu Budhanilkantha VDC due to crop depredation by wild boar. Total density of cut stumps was two individual per hectare. Similarly, lopping intensity was 137 individuals per hectare. Collection of firewood, fodder, and leaf litter fall and grazing of livestock inside the park, unmanaged garbage, trails inside the park and pilgrims generated significant disturbance to wildlife and their habitat.

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