

IMPACT OF *Mikania micrantha* ON THE HABITAT OF GREATER ONE-HORNED RHINOCEROS (*Rhinoceros unicornis* Linnaeus, 1758) IN BAGHMARA BUFFER ZONE COMMUNITY FOREST, CHITWAN, NEPAL



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CENTRAL DEPARTMENT OF ZOOLOGY INSTITUTE OF SCIENCE AND
TECHNOLOGY TRIBHUVAN UNIVERSITY KIRTIPUR, KATHMANDU
NEPAL
MAY 2014**

DECLARATION

I hereby declare that the work presented in the thesis entitled “**Impact of *Mikania micrantha* on the Habitat of Greater One-horned Rhinoceros (*Rhinoceros unicornis* Linnaeus, 1758) in Baghmara Buffer Zone Community Forest, Chitwan, Nepal**” has been done myself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specially acknowledged by reference to the author(s) or institution(s).

Date:

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Signature

Madhav Prasad Aryal

RECOMMENDATIONS

This is to recommend that the thesis entitled “**Impact of *Mikania micrantha* on the Habitat of Greater One-horned Rhinoceros (*Rhinoceros unicornis* Linnaeus, 1758) in Baghmara Buffer Zone Community Forest, Chitwan, Nepal**” has been carried out by Mr. Madhav Prasad Aryal for the partial fulfillment Master’s Degree 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 the any other degree in any institutions.

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LETTER OF APPROVAL

On the recommendation of supervisor “Associate professor Dr. Ramesh Shrestha” this thesis submitted by Mr. Madhav Prasad Aryal entitled “**Impact of *Mikania micrantha* on the Habitat of Greater One-horned Rhinoceros (*Rhinoceros unicornis* Linnaeus, 1758) in Baghmara Buffer Zone Community Forest, Chitwan, Nepal**”. This thesis is approved for the examination and submitted to the Tribhuvan University in partial fulfillment of the requirements for Master’s Degree of Science in Zoology with special paper “Ecology and Environment”.

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This thesis work submitted by Mr. Madhav Prasad Aryal entitled “**Impact of *Mikania micrantha* on the Habitat of Greater One-horned Rhinoceros (*Rhinoceros unicornis* Linnaeus, 1758) in Baghmara Buffer Zone Community Forest, Chitwan, Nepal**” has been accepted as a partial fulfillment for the requirements of Master’s Degree of Science in Zoology with special paper “Ecology and Environment”.

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ABSTRACT

This study was carried out aiming to assess the floral diversity, status and distribution of *Mikania* and its impact on *Rhinoceros* habitat in three different habitats namely natural forest, planted forest and grassland in the onset of monsoon season. For Sampling $20 \times 20 \text{m}^2$, $5 \times 5 \text{m}^2$ and $1 \times 1 \text{m}^2$ sized quadrates were used to obtain quantitative data related to trees, shrubs and herbs having sampling intensity 0.8%, 0.1% and 0.004% respectively under belt transect method of data collection. Altogether 88, 53 and 50 plant species were recorded in natural forest, planted forest and grassland respectively. Among three habitats, natural forest was found to be more diverse, followed by planted forest and grassland. Based on IVI of tree species natural forest was classified as *Albizia-Trewia* forest and planted forest as *Dalbergia-Trewia* forest. *Mikania* was found to be more abundant in planted forest than in natural forest but in grassland, *Imperata cylindrica* was found to be more abundant and followed by *Saccharum spontaneum* and *Mikania micrantha*. Altogether 41 food species of rhino were recorded, among them *Imperata cylindrica*, *Saccharum spontaneum*, *Phragmites karka* were smothered by *Mikania* invasion. *Myrsine chisia* and *Litsea monopetala* were found to be more severely impacted among major tree species followed by *Mallotus philipensis*, *Dysoxylum binectiferum*, *Milusa veluta*, *Acacia catechu*, *Dalbergia sissoo* and so on. The preference habitat of *Rhinoceros* was found to be more severely impacted by *Mikania micrantha* invasion where more number of *Rhinoceros* was recorded. The abundance of *Mikania micrantha* and the species richness are highly negatively correlated at the 0.01 level and same types of correlation was found between coverage of *Mikania micrantha* and food species of *Rhinoceros unicornis*, which indicates that higher coverage of *M. micrantha* in the plot lowers the species richness and food species of *Rhinoceros unicornis*. Food species of *Rhinoceros unicornis* is more sensitive towards presence of *M. micrantha* than overall species richness.

Key words: *Mikania*, Species diversity, Impact, Rhinoceros, Invasive species

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ABBREVIATIONS/ACRONYMS

BBCF	Baghmara Buffer Zone Community Forest
CBD	Convention on Biological Diversity
CDB	Central Department of Botany
CDZ	Central Department of Zoology
CNP	Chitwan National Park
D	Diversity
DNPWC	Department of National Park and Wildlife Conservation
IAS	Invasive Alien Species
ISR	Index of Species Reduction
IUCN	The World Conservation Union
IVI	Important Value Index
km	Kilometer
L	Linnaeus
m	Meter
NP	National Park
NPWC	National Park and Wildlife Conservation
NTNC	National Trust for Nature Conservation
PV	Prominence Value
UK	United Kingdom
UNESCO	United Nations Educational Scientific and Cultural Organization
WR	Wildlife Reserve
WS	Wildlife Sanctuary