

**STATUS AND HABITAT SELECTION OF RED PANDA *Ailurus fulgens*
F.G. Cuvier, 1825 IN ILAM, NEPAL**



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RECOMMENDATION

This is to recommend that the thesis entitled "**STATUS AND HABITAT SELECTION OF RED PANDA *Ailurus fulgens* F.G. Cuvier, 1825 IN ILAM, NEPAL**" has been carried out by Miss Anjali Limbu for partial fulfillment of the requirement for Master's Degree in Zoology with the special paper of "**Ecology and Environment**". This is her original work and has been carried out under my supervision and guidance. To the best of my knowledge, this work has not been submitted for any other degree in any institutions.

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LETTER OF APPROVAL

On the recommendation of supervisor "Prof. Dr. Tej Bahadur Thapa; Central Department of Zoology, Tribhuvan University" this thesis submitted by Anjali Limbu entitled "**STATUS AND HABITAT SELECTION OF RED PANDA *Ailurus fulgens* F.G. Cuvier, 1825 IN ILAM, NEPAL**" is approved for the examination and submitted to Tribhuvan University in partial fulfillment of the requirement for the Master's Degree 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. The findings stated in this dissertation are based on my field works. All sources of information have been specifically acknowledged by reference to the authors.

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CERTIFICATE OF ACCEPTANCE

This thesis work submitted by Miss Anjali Limbu entitled "**STATUS AND HABITAT SELECTION OF RED PANDA *Ailurus fulgens* F.G. Cuvier, 1825 IN ILAM, NEPAL**" has been accepted as a partial fulfillment for the requirement of Master's Degree of Science in Zoology with special paper "**Ecology and Environment**".

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ABSTRACT

Adequate information on the distribution, habitat preference and threats of Red Panda (*Ailurus fulgens fulgens*) is lacking in Nepal, especially outside of protected areas. This study aimed to assess distribution and relative abundance; habitat use and explore the conservation threats of Red Panda in 5 blocks of 4 Community forests namely Singadevi, Chitre- Hile, Chhipchhipe and Kalikhop- dadheli of Eastern Ilam, Nepal in April-May 2018. The study included the Reconnaissance survey for specific site selection and Red Panda sign survey to estimate distribution and abundance. Habitat was studied along horizontal survey line (altitudinal line intercept) at altitudinal interval of 100m, where tree species were sampled by ten tree plotless method. Vegetation analysis of bamboo, shrub and herb was done by using quadrat method within each panda sign plot and systematic plot. Threats for Red Panda were studied by direct observation and questionnaire method. Altogether 23 transects summing to 23 km were established along with 92 systematic and 41 panda sign plots. The study revealed presence of Red Panda in all four community forests with clumped pattern of fecal group distribution and Red Pandas were evenly distributed in different habitat type available. The evidences were scattered from 2,200 to 2,700 m asl and more abundant from 2,400m- 2,500m asl. A Red Panda was noticed directly during study (26.99918 N, 088.089 E) in Singadevi block. Habitat features were analyzed using generalized linear model method. Among the 13 habitat variables used, bamboo density (E=0.022162, P<0.05, S.E=0.008604), bamboo cover (E= -0.049678, P<0.05, S.E=0.022408), water distance (E= -0.009805, P<0.05, S.E=0.002518), altitude (E= -0.007647, P<0.05, S.E=0.003269), canopy cover (E=0.049195, P<0.05, S.E=0.021659) and slope (E= -0.102326, P<0.05, S.E=0.058709) showed significant impact in the likelihood of habitat selection by Red Panda. Red Panda preferred the area with dense bamboo density and canopy cover. Middle altitudinal range of study area (moderately steep slope) which is close to water sources having less bamboo cover was preferred by them. The most preferred site of defecation by Red Panda was tree (78.12%) followed by forest floor (15.62%) and rocks (6.25%). The most important tree species in Red Panda habitat were *Lithocarpus pachyphylla* (IVI = 45.05), *Symplocus theifolia* (IVI= 37.19), *Symplocus pyrifolia* (IVI =20.99), *Quercus lamellose* (IVI= 19.25), *Magnolis campbelli* (IVI= 17.25) etc. Shrub species of *Arundinaria maling*, *Daphne bhousa*, *Viburnum erubescens*, *Eupatorium adenophorum* and the herbs like *Pteris sp.*, *Elastostema sessile*, *Rubus sp.*, *Viota sp.* etc were found to be the most preferred species by Red Panda. Livestock grazing, Human disturbances and Malingo cutting were the major threats associated with Red Panda in the study area. Out of total disturbance counts, the highest 41% was livestock grazing. The threats can be minimized by launching of conservation awareness program, strict implementation of rules and regulations and livelihood development program of villagers.

TABLE OF CONTENTS

DECLARATION	i
RECOMMENDATION	ii
LETTER OF APPROVAL	iii
CERTIFICATE OF ACCEPTANCE	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF PHOTOGRAPHS	ix
LIST OF APPENDICES	x
LIST OF ABBREVIATIONS	xi
ABSTRACT	xii
1. INTRODUCTION	1
1.1 Background	1
1.1.1 General physical characteristic	1
1.1.2 Behavior, activity and home range	1
1.1.3 Lifecycle and reproduction	1
1.1.4 Geographic distribution	2
1.1.5 Habitat and food habit	3
1.1.6 Population, threats and conservation status	4
1.2 Objectives	4
1.3 Rational of the study	5
1.4 Limitations of the study	5
1.5 Research Questions	5
2. LITERATURE REVIEW	6
2.1 Distribution and abundance	6
2.2 Habitat use	7
2.3 Conservation threats of Red Panda	8
3. MATERIALS AND METHODS	9
3.1 Study Area	9
3.1.1 Climate	10
3.1.2 Biodiversity	11
3.1.3 Socioeconomic status	12
3.2 Materials used	13
3.3 Research design	13
3.4 Methods of data collection	13

3.4.1 Preliminary field survey	13
3.4.2 Distribution and relative abundance	13
3.4.3 Habitat assessment	14
3.4.4 Threats assessment	14
3.5 Data analysis	15
3.5.1 Distribution	15
3.5.2 Habitat selection assessment	16
3.5.3 Threats	18
4. RESULTS	19
4.1 Distribution of Red Panda in Ilam	19
4.2 Relative sign abundance	20
4.3 Habitat characteristics	20
4.3.1 Species diversity, dominance and similarity index in panda sign and systematic plots	20
4.3.2 Importance value index of tree species in Red Panda sign and systematic plots	21
4.3.3 Analysis for shrub species	21
4.3.4. Analysis for herb species	22
4.3.5 Substrate use by Red Panda	22
4.3.6 Deposition of fecal matter (in %) by Red Panda in different slope and aspect categories	22
4.3.7 Habitat preference of Red Panda	23
4.4 Threats on Red Panda	24
5. DISCUSSION	27
5.1 Distribution of Red Panda	27
5.2 Relative sign abundance	27
5.3 Habitat preference	28
5.4 Potential threats	29
6. CONCLUSION AND RECOMMENDATIONS	31
7. REFERENCES	32
8. APPENDICES	38
9. PHOTOGRAPHS	45

LIST OF TABLES

Table	Title of table	Pages
Table 1:	Encounter rate of Red Panda sign groups/km in the five blocks in different altitudes	20
Table 2:	Variation of Dominance index, Diversity index, Evenness, Species richness, Var (H) and similarity index in systematic and panda sign plot	20
Table 3:	Percentage deposition of Red Panda fecal matter in different categories of substrates	22
Table 4:	Univariate GLMs for Significance test of Red Panda presence with different habitat variables	24
Table 5:	Multivariate GLMs for Significance test of Red Panda presence with different habitat variables	24
Table 6:	Cattle dung distribution in the five different blocks	25

LIST OF FIGURES

Figure	Title of figures	Pages
Figure 1:	Global distribution (shaded area) of Red Panda	2
Figure 2:	Districts with confirmed range of Red Panda in Nepal	3
Figure 3:	Districts with potential Red Panda habitats in Nepal	3
Figure 4:	Location of study area in Eastern Nepal	9
Figure5:	Monthly mean rainfall recorded at the Meteorological station located in Ilam tea estate (2017) (Source: DHM Government of Nepal)	10
Figure6:	Monthly mean maximum and minimum temperature recorded at the Meteorological station located in Ilam tea estate (2016) (Source: DHM Government of Nepal)	11
Figure7:	Monthly mean maximum and minimum Humidity recorded at the Meteorological station located in Ilam tea estate (2016) (Source: DHM Government of Nepal)	11
Figure 8:	Distribution map of Red Panda in Gorkhe and Jogmai	19
Figure 9:	Bar chart showing the IVI values of the major trees (IVI > 10) in panda sign plot	21
Figure 10:	Deposition of fecal matter (in %) by Red Panda in different slope categories	23
Figure 11:	Deposition of fecal matter (in %) by Red Panda in different aspect categories	23
Figure 12:	Percentage of anthropogenic disturbance in Red Panda habitat	26

LIST OF PHOTOGRAPHS

Photograph	Title of photographs	Pages
Photo 1:	Red Panda habitat in Ilam	45
Photo 2:	Red Panda in Singadevi block	45
Photo 3:	Fecal pellets of Red Panda in forest floor	46
Photo 4:	Measuring DBH of tree	46
Photo 5:	Data collection	46
Photo 6:	Measuring the distance between trees	47
Photo 7:	Quadrat for shrub	47
Photo 8:	Malingos in study area	47
Photo 9:	Livestock grazing	47
Photo 10:	Cattle dung	47
Photo 11:	Illegal felling of tree in study area	47
Photo 12:	Questionnaire survey with villager	48
Photo 13:	Goth (shed) made of Malingos	48
Photo 14:	Welcome board in Gorkhe	48
Photo 15:	Tourist in the forest	48
Photo 16:	Road in India and Nepal border	48
Photo 17:	Lamidhura (India and Nepal border)	48
Photo 18:	Welcome in homestay	48
Photo 19:	Home stay in Gorkhe	49

LIST OF APPENDICES

Appendices	Title of appendices	Pages
	Appendix I: Questionnaire Survey Data Sheet	38
	Appendix II: Microhabitat plots in different blocks	40
	Appendix III: Floristic community parameters in different altitudes	40
	Appendix IV: IVI of tree species in Red Panda sign plots	41
	Appendix V: IVI of tree species in systematic plots	42
	Appendix VI: Density and frequency of shrubs in panda sign plots	43
	Appendix VII: Density and frequency of shrubs in systematic plots	43
	Appendix VIII: Density and frequency of herbs in panda sign plots	44
	Appendix IX: Density and frequency of herbs in systematic plots	44

LIST OF ABBREVIATIONS

Abbreviated form	Details of abbreviations
asl	Above Sea Level
CBS	Central bureau of Statistics
CF	Community Forest
CHAL	Chitwan-Annapurna Landscape
CITES	Convention on International Trade in Endangered Species
DBH	Diameter at Breast Height
DFO	District Forest Officer
DHR	Dharpatan Hunting Reserve
DNPWC	Department Of National Park and Wildlife Conservation
GIS	Geographical Information System
GoN	Government of Nepal
GPS	Global Positioning System
IUCN	International Union for Conservation of Nature
IVI	Importance Value Index
LNP	Langtang National Park
MoFSC	Ministry of Forest and Soil Conservation
PAs	Protected areas
RPN-Nepal	Red Panda Network-Nepal
SHL	Sacred Himalayan Landscape
SNP	Singalila National Park
SPSS	Statistical Program for Social Science
VDCs	Village Development Committees

