

Comments on the Ph.D. Thesis submitted by

Prakash Kumar Paudel, MSc.

„Understanding wildlife distribution in the human-dominated landscape of Nepal: implications for conservation“

In this thesis the Ph. D. candidate reviewed biodiversity status and its conservation in his native Nepal. He came to conclusion that linking the gaps between research and conservation of rare and endangered flora and fauna is needed. Three mountain ungulates barking deer - *Muntiacus muntjak*, Himalayan goral - *Naemorhedus goral* and Himalayan serow - *Capricornis thar* were used as model species. The candidate has investigated effects of human disturbances on wildlife distribution in the human-dominated landscapes of western Nepal, spanning from the subtropical Bardia National Park to the mountainous Shey Phoksundo National Park. He has also developed habitat suitability maps for the mentioned three ungulate species and recommended a conservation priority area for their conservation. A special emphasis was placed on the study of the distribution of Himalayan serow using different factors related to habitat fragmentation, hunting and patch characteristics and connectivity of forest in midhills landscape of Nepal. Wildlife hunting pattern in the region was also investigated in order to explore wildlife conservation issues from the social perspective. For collecting the field data, he had to spend extended time in the remote parts of rugged and remote mountains. As I learnt from the Acknowledgements, his life was even endangered during that period.

The thesis is based on 34 pages of introduction (divided into General introduction, Scope of the thesis, Summary of results and discussion, General conclusions, Conservation implications and References containing 149 citations) and seven parts in the form of either published papers or manuscripts. The General Introduction brings clearly arranged overview of the problems investigated and the thesis. The main part, i. e. the papers, is based first of all on three chapters of a book published recently by Springer in Dordrecht. The book presents unique data on various animal and plant groups from the Himalayan region. As such they represent essential contribution for the conservation of the Himalayan species in Nepal. The tree chapters represent substantial part of the book. The rest of the papers are three journal manuscripts, of which one has already been accepted for Animal Conservation. Declared submission to prestigious journals such as *Journal of Environmental Management* (Paper V), *Journal of Nature Conservation* (Paper VI) and *Conservation Biology* (Paper VII) looks impressive. There is no guarantee they will be accepted by these journals, however.

I have a few questions dealing with various parts of the thesis.

Poaching has been mentioned as the second most important general threat to the survival of the world's mammals after habitat loss (pp. 2 and 13 of General Introduction). How important problem actually is poaching (mentioned e.g., in Paper V, p. 17, line 2) in Nepal?

You have stated that there is a network of eleven national parks covering nearly 25% of the country's surface in Nepal. Then you say that the midhills, an intermediary landscape that connects the mountain region in the north with the low-land in the south, remain completely unprotected (p. 3). In contrast to that, later on you say "*more than 40% of the Nepal's area is currently protected under protected areas system*" (p. 13). How should we understand it?

You say "*The positive correlation of barking deer with disturbance variables, however, does not imply that they can survive in human disturbed areas.*" (pp. 14-15). In the UK, an introduced Reeves' muntjac (*Muntiacus reevesi*) has become a pest increasing in numbers despite the huge human settlement and disturbance. What might be the major difference, if any, between the Reeves' muntjac and your barking deer (*M. muntjak*) which would result in decline of the barking deer in proximity to villages (as shown in Paper V)? I do know it should be taken relatively. Still, could you comment it?

Based on my own experience with European ungulates, I wonder what are the criteria for distinguishing foot prints and faeces of barking deer, Himalayan goral and Himalayan serow from each other (Paper V)? How did you test your ability to distinguish foot prints and faeces of the three wild ungulates and sheep and goats (Paper V, page 7, lines 17-18)? Is there any sign of possible competition among the barking deer, Himalayan goral and Himalayan serow?

To conclude, Prakash Kumar Paudel is the first author of one accepted (Paper IV), two submitted (Papers V and VI) and one completed (Paper VII) journal manuscripts and two chapters in a book (Papers I, III). He is also the second author in a chapter of the same book (Paper II). According to my opinion, the aims of the thesis have been achieved and Prakash Kumar Paudel, MSc., the Ph.D. candidate, fulfils the requirements for the Ph.D. degree at the University of South Bohemia. Therefore, I do

recommend

his thesis for acceptance by the commission.

Praha 18th April 2012



Prof. Luděk Bartoš, DrSc.



**CZECH UNIVERSITY OF LIFE
SCIENCES**
Faculty of Forestry and Wood Sciences
**Department of Forest Protection and Game
Management**

Kamýcká ul. 1176, 165 21 PRAHA 6 - Suchdol
Tel, fax: 224 383 739

Official review of the thesis

Prakash Kumar Paudel

**Understanding wildlife distribution in the human-dominated landscape of Nepal:
implications for conservation**

The PhD. Thesis deals with different aspects of conservation of wildlife in the human utilized landscape in the Nepal. The main objectives of this study were: wildlife conservation posed by hunting in nonprotected areas, human disturbance in of wildlife distribution in midhill landscapes, habitat suitability for mountain ungulates and identifying areas for conservation, distribution patterns and conservation of the threatened *Capricornis thar*, patch size and connectivity presence of *Capricornis thar* in the fragmented landscape. The Thesis consists of general part (introduction; scope of thesis; summaries of results and discussion; general conclusions; conservation implications; references) and special part. Special part represents the most important component of the Thesis and it is created by seven papers, which are published, in print, submitted or one paper is manuscripted. It means that absolute level of the most of contributions was confirmed by the independent reviewers and it is not necessary to do it once again by me.

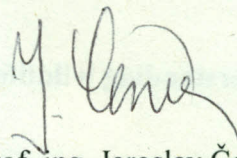
The results of the PhD. Thesis extend the knowledge about the landscape conservation and biodiversity of the Nepal as well as linking the gaps between research and conservation of rare

mountain mammals: *Muntiacus muntjak*, *Naemorhedus goral* and *Capricornis thar*. It is also a very good example of modern integrated investigation of importance of human exploitation in the ecosystems.

Remarks and questions: Rare ungulates are very important components of the biodiversity in many areas. Which aspect is the most important in interactions in the Nepal: overhunting, habitat fragmentation or some others? How is it with research of other rare mammal species in Nepal like *Sus salvanius*, *Tetracerus quadricornis*, *Uncia uncia*?

I consider the PhD. Thesis to be very good and recommend it to defence.

20.4.2012



Assoc. Prof. ing. Jaroslav Červený, CSc.
Faculty of Forestry and Wood Sciences,
Czech University of Life Sciences, Prague