

Official review of the PhD thesis

Implication of snow leopard distribution, population dynamics and landscape genetics, and prey preference for its conservation in Nepal

Author: **Bikram Shrestha**

Supervisor: **prof. RNDr. Pavel Kindlmann, DrSc.**

The PhD. Thesis deals with different aspects of biology (distribution, population dynamics, landscape genetics and connectivity, trophic ecology and conservation (human-snow leopard conflicts) of snow leopard (*Panthera uncia*) in the Nepalese Himalaya (Sagarmatha National Park) and in the Annapurna Conservation Area, during period 2014–2016. Data were obtained from camera traps, scat's genetic analysis and monitoring of fresh pugmarks and scrapes. Direct count method was used to study for its main prey, blue sheep resp. bharal (*Pseudois nayaur*) and Himalayan tahr (*Hemitragus jemlahicus*). PhD thesis is based on the results of seven subsequent original articles which were published or are in press.

Shrestha B, Kindlmann P (accepted) Assessment of habitat suitability of snow leopard in Nepal using MaxEnt modelling. In: Kindlmann P. (ed.) Population dynamics of snow leopard, Springer, Dordrecht, in press.

Shrestha B, Sherchan AM, Joshi J, Karmacharya D, Kindlmann P (accepted) Non-Invasive genetic population survey of snow leopard and its co-predators in Annapurna and Sagarmatha

region of Nepal. In: Kindlmann P. (ed.) Population dynamics of snow leopard, Springer, Dordrecht, in press.

Shrestha B, Krenova Z, Traxmandlová I, Kindlmann P (accepted) population dynamics of snow leopard and its prey species in Annapurna and Everest regions of Nepal. In: Kindlmann P. (ed.) Population dynamics of snow leopard, Springer, Dordrecht, in press.

Shrestha B, Kindlmann P (2020) Implications of landscape genetics and connectivity of snow leopard in the Nepalese Himalayas for its conservation. Scientific Reports 10, 19853.
<https://doi.org/10.1038/s41598-020-76912-7>.

Shrestha B, Kindlmann P (accepted) Hair identification key of Himalaya mammals of Nepal as a tool to study food habits of snow leopard. In: Kindlmann P. (ed.) Population dynamics of snow leopard, Springer, Dordrecht, in press.

Shrestha B, Aihartza J, Kindlmann P (2018) Diet and prey selection by snow leopards in the Nepalese Himalayas. PLoS ONE 13(12): e0206310.
<https://doi.org/10.1371/journal.pone.0206310>.

Shrestha B, Rana BD, Karki BJ, Khatri TB, Kindlmann P (accepted) Snow leopard-human conflict and effectiveness of its mitigation measures. In: Kindlmann P. (ed.) Population dynamics of snow leopard, Springer, Dordrecht, in press.

I do not comment the quality of particular articles. It means that absolute level of contributions was confirmed by the independent reviewers and it is not necessary to do it once again by me. PhD.thesis extends the knowledge about the biology and protection of the snow leopard and it is also a very good exaple of modern integrated investigation of importance of human exploitation in the ecosystems and biodiversity.

Remarks: Discovered results have more similar aspects like results of lynx research in the Czech Republic.

Questions:

1. What impact has a poaching on snow leopard population in Nepal ?
2. Does diet of snow leopard include also rare Nepalese species as *Muntiacus muntjak*, *Naemorhedus goral*, *Capricornis thar*, *Tetracerus quadricornis* or *Sus salvanius* ?
3. What is the important of small prey (f. i. *Marmota* sp., *Ochotona* sp., *Lepus* sp.) in snow leopard diet ?
4. Which aspect is the most important in interactions in the Nepal: overhunting of ungulates, habitat fragmentation or some others ?

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

20.5.2021

prof. Ing. Jaroslav Červený, CSc.

Department of Game Management and Wildlife Biology

Faculty of Forestry and Wood Sciences,

Czech University of Life Sciences, Prague

