

Sources of Reduction of Himalayan Musk Deer (*Moschus leucogaster*) in Gilgit Baltistan (Pakistan)

Kashaf Salamat^{1*}, Nighat Altaf¹, Mahrukh Cheema¹ and Adnan Ahsan².

1. Department of Zoology, University of Sialkot, Sialkot 51310, Pakistan
2. Department of Biology, Punjab College Kubay Chak, Sialkot 51310, Pakistan

*Corresponding Author: kashafsalamat111@gmail.com

ABSTRACT

Musk deer live in mountainous region of Himalayas. it has very small head, stickily built primitive animal. it possesses musk pod at rut use as an constitute in some of the world best fragrance and medicine. musk deer is a more successful simulating agent of heart and central nervous system Musk is more efficient cure for snake venom as compared to cortisol. about 500-1000 kg and 170 kg per year in China and Japan respectively export and import musk pod. synthetic musk has been started to use in fragrances but in pharmaceutical industries musk pod is still in use over- hunting and poaching plaining a vital role in illegal trading that shows hunting pressure is 22.2% increasing livestock impact has decrease musk deer density in Himalayas. goals are set as mapping current habitat range, approximating currant numbers of population and reporting the market worth of musk products.

Keywords: Himalayan musk deer, Musk pod, Poaching, Market Worth
Introduction

Musk deer divided into seven species [1]. *Moschus leucogaster* the Himalyan musk deer (*Moschus chrysogaster*), *Moschus moschiferus* or the siberian musk deer, *Moschus cupreus* or the Kashmir musk deer, *Mochus fuscus* or the black musk deer. *Moschus anhuiensis*, *Moschus berezovskii* or dwarf musk deer [2]. musk deer are dispersed across the forest and mountainous zones of asia. ranging from just north of the aractic southward to the northern boundry of magnolia and extending to the korean peninsula they are found in asian countries northern India, Northern Pakistan Gilgit-Baltistan is part of the greater Himalayan region [3]. musk deer was present in considerable numbers, inhabiting shrubby and bushy areas at altitudes of 2,100-4,000 meters above sea level in the himalayas from chitral across Gilgit Baltistan, Indus Kohistan, Western China, and Kashmir up to Tibet [4]. In Pakistan, there is no reliable information on its distribution or population levels. these threats poaching, hunting, climatic variations, habitat degradation, and lack of conservative measures. few studies have investigated the population of this species in Pakistan [5]. river until suggestion of broader distribution in Gilgit Baltistan and robert's reported about musk deer presence from Astor Gilgit Baltistan. adjacent to the Gilgit Baltistan. population estimate is suggested to 120 musk deer in 2002 for Neelum valley (Azad Jammu Kashmir, Pakistan). with the largest population of 22 animals in Machiara National Park. Subsequent estimates indicated that the Machiara National Park was home to approximately 64 musk deer. A number of surveys are conducted about the most remote and inaccessible ridges upper limits of tree line. suspecting the vast steep mountainous terrain featuring favorable musk deer habitat and minimal human presence, may yet support sustainable populations of musk deer in face of escalating hunting pressure [6].

Threats to Population

Pakistan is one of the important range countries of musk deer distribution [7]. for centuries, the musk deer has been hunted for its prized musk, musk pod present in males at rut, is harvested for extraction of musk use in the perfume and medicine industries, which is one of the oldest and most coveted ingredients in the perfumery industry, due to its exceptional fixative and fragrant properties According to data in 2000 (65%) musk pods were collected. while in 2001 (73.8%) musk pods were collected [8]. There was a sharp increase in 2002 (97.77%) musk pods were collected as they are more costly than gold. due to its high cost, drastic population reductions have occurred as a result of excessive harvesting, and in recent years, the utilization of musk in the perfumery industry has dwindle as it has been partially substituted with artificial musk. pure musk demand for the pharmaceutical industry is about 500-1000 kg per year in China. This demand is a key factor for poaching those results in decline of musk deer. pure musk has been utilized as a calming agent and as an energizing substance to treat a range of health issues in Eastern Asian Nations, particularly in China. There are signs of a downward trend in the musk deer population across its geographic range. Traditionally musk deer are hunted using hand crafted guns and traps, by the use of guns and snares. snare is steel wired tool that place on musk deer activity area to catch them to obtain male musk gland, even out of male, female and fawn only male have musk gland at breeding time. due to high use of snares by poachers the death rate of Himalayan musk deer is

increasing even on the edge of extinction. The downward trends of population are also due to habitat destruction and temperature variations. relatively 74% temperature important in the long term it may be a serious threat. Deforestation and human interference also account in the decrease of population [9].

Endangerness

Musk deer are classified as endangered by the IUCN [10]. japan is exemplar country that import 170 kg musk per year, mainly of the Himalayan origin [11]. the price of musk exceeds that of an equal weight of gold. a workshop organized by IUCN, comprising wildlife experts, naturalists, and technicians, classified the musk deer as critically endangered in Pakistan [13]. noting that there is no reliable information on its distribution or population levels [14].

Goals of Current Population Status in Pakistan

- Mapping and outlining the current range of musk deer and their habitat preferences.
- Approximating present population number and mortality of musk deer.
- Reporting the market worth of musk deer products all the data got by questionnaire.

Conservation Strategies

Himalayan musk deer presence in Pakistan makes the wildlife culture rich. illegal hunting, poaching, habitat destruction, human-wildlife conflict are counting in the decline of their population. Pakistan needs more advance conservation strategies like there is need of more efforts to provide them friendly habitat according to their optimized temperature requirements. as Machiara National Park conserving. there must be more spots along with geographic ranges where Himalayan musk deer are present in Pakistan. as Pakistan have no reliable information on its distribution and population level. then application of advance statistical approaches can create accurate data about numbers and population level of Himalayan musk deer in Pakistan. the decline of population of Himalayan musk deer in Gilgit Baltistan can be control by ruling laws of illegal hunting and poaching as well as by following laws against habitat destruction by citizens.

References

- [1] Abbas FI, Rooney TP, Mian A, Bhatti ZI, Haider J. The distribution, population status, and wildlife product trade of Himalayan Musk Deer in Gilgit-Baltistan, Pakistan. *Journal of Bioresource Management*. 2015;2(3):5.
- [2] Green MJ. The distribution, status and conservation of the Himalayan musk deer *Moschus chrysogaster*. *Biological Conservation*. 1986 Jan 1;35(4):347-75.
- [3] Khadka KK, Kannan R, Ilyas O, Abbas FI, James DA. Where are they? Where will they be? In pursuit of current and future whereabouts of endangered Himalayan musk deer. *Mammalian Biology*. 2017 Jul;85:30-6.
- [4] Upreti Y, Chettri N, Dhakal M, Asselin H, Chand R, Chaudhary RP. Illegal wildlife trade is threatening Conservation in the transboundary landscape of Western Himalaya. *Journal for Nature Conservation*. 2021 Feb 1;59:125952.
- [5] Green MJ. The distribution, status and conservation of the Himalayan musk deer *Moschus chrysogaster*. *Biological Conservation*. 1986 Jan 1;35(4):347-75.
- [6] Khan MZ. Agrobiodiversity in Gilgit-Baltistan on the verge of extinction. *Karakurm knowledge highways*. 2014:9-18.
- [7] Khan LA, Ahmad B, Chaudhary AA, Minhas RA, Awan MS, Dar NI, Ali U, Ahmad F, Kabir M, Bibi S. The human-wildlife conflict in Musk Deer National Park, Neelum Gureze Valley, Azad Jammu & Kashmir, Pakistan. *Brazilian Journal of Biology*. 2022 Jun 10;84:e261655.
- [8] Sharief A, Joshi BD, Kumar V, Singh H, Singh VK, Dar SA, Graham C, Ramesh C, Qayoom I, Thakur M, Sharma LK. Empirical data suggest that the kashmir musk deer (*Moschus cupreus*,

Published on: 31 August, 2024

<https://biologicaltimes.com/>

To cite this article: Salamat k, N Altaf, M Cheema & A Ahsan. Sources of Reduction of Himalayan Musk Deer (*Moschus leucogaster*) in Gilgit Baltistan (Pakistan). *Biological Times*. 2024 August 3(8): 11-12

- grubb 1982) is the one musk deer distributed in the Western Himalayas: an integration of ecology, genetics and geospatial modelling approaches. *Biology*. 2023 May 29;12(6):786.
- [9] Green, M. J. B., Distribution, status and conservation of Himalayan musk deer. *Biol. Conserv.* 1986;35(4):347-375.
- [10] Ohani A, Naithani S, Areendran G, Joshi S. Species distribution modeling of musk deer using remote sensing and GIS, Uttarakhand. *Int J Life Sci Res.* 2022;10(4):47-56.
- [11] Jing WA, Weladji RB, Xiuxiang ME. Age-related musk secretion and body weight in captive forest musk deer (*Moschus berezovskii* Flerov, 1928). *North-Western Journal of Zoology*. 2021 Dec 1;17(2).
- [12] Yuan N, Qin Y, Wang J, Shen L, Gao H, Xiang R, Zhu Y, Li Y, Zhou M, Bai S, Sheng Y. Musk secretion of endangered Alpine musk deer (*Moschus chrysogaster*): muscone content and the relationships to age, health, mating history and enclosure condition. *Biologia*. 2021 Dec 1:1-7.
- [13] Lv Q, Zhou X, Lu X, Shen L, Qin Y, Yuan N, Weladji RB, Meng X. Influence of stocking density on the stereotypic behavior, fecal cortisol and musk secretion of captive male Alpine musk deer (*Moschus chrysogaster*). *Biologia*. 2023 Nov;78(11):3135-42.
- [14] Jie H, Xu ZX, Su Y, Lei MY, Zeng DJ, Zhao GJ, Feng XL, Zheng CL, Zhang CL, Liang ZJ, Li DY. The transcriptome analysis of males musk gland in *Moschus berezovskii* (Artiodactyla: Moschidae). *The European Zoological Journal*. 2019 Jan 1;86(1):402-12.

