

## Human-Carnivore Interaction: Patterns, Causes and Perceptions of Local Herders of Hoper Valley in Central Karakoram National Park, Pakistan

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**Abstract :** Human-carnivore conflict is considered to be a major conservation and rural livelihood concern because many carnivore species have been heavily victimized due to elevated conflict levels with communities. Like other snow leopard range countries, this situation prevails in Pakistan, where WWF is currently working under Asia High Mountain Project (AHMP) in Gilgit-Baltistan of Pakistan. To mitigate such conflicts requires a firm understanding of grazing and predation pattern including human-carnivore interaction. For this purpose we conducted a survey in Hoper valley (one of the AHMP project sites in Pakistan), during August, 2013 through a questionnaire based survey and unstructured interviews covering 647 households, permanently residing in the project area out of the total 900 households. The valley, spread over 409 km<sup>2</sup> between 36°7'46" N and 74°49'2"E, at 2900m asl in Karakoram ranges is considered to be one of an important habitat of snow leopard and associated prey species such as Himalayan ibex. The valley is home of 8100 Brusho people (ancient tribe of Northern Pakistan) dependent on agro-pastoral livelihoods including farming and livestock rearing. The total number of livestock reported were (N=15,481) out of which 8346 (53.91%) were sheep, 3546 (22.91%) goats, 2193 (14.16%) cows, 903 (5.83%) yaks, 508 (3.28%) bulls, 28 (0.18%) donkeys, 27 (0.17%) zo/zomo (cross breed of yak and cow), and 4 (0.03%) horses. 83 percent respondent (n=542 households) confirmed loss of their livestock during the last one year July, 2012 to June, 2013 which account for 2246 (14.51%) animals. The major reason of livestock loss include predation by large carnivores such as snow leopards and wolf (1710, 76.14%) followed by diseases (536, 23.86%). Of the total predation cases snow leopard is suspected to kill 1478 animals (86.43%). Among livestock sheep were found to be the major prey of snow leopard (810, 55%) followed by goats (484, 32.7%) cows (151, 10.21%), yaks (15, 1.015%), zo/zomo (7, 0.5%) and donkey (1, 0.07%). The reason for the mass depredation of sheep and goats is that they tend to browse on twigs of bushes and graze on soft grass near cliffs. They are also considered to be very active as compared to other species in moving quickly and covering more grazing area. This makes them more vulnerable to snow leopard attack. The majority (1283, 75%) of livestock killed by predators occurred during the warm season (May-September) in alpine and sub-alpine pastures and remaining (427, 25%) occurred in the winter season near settlements in valley. It was evident from the recent study that Snow leopard kills outside the pen were (1351, 79.76%) as compared to inside pen (359, 20.24%). Assessing the economic loss of livestock predation we found that the total loss of livestock predation in the study area is equal to PKR 11,230,000 (USD 105,797), which is about PKR 17, 357 (USD 163.51) per household per year. Economic loss incurred by the locals due to predation is quite significant where the average cash income per household per year is PKR 85,000 (USD 800.75).

**Keywords :** carnivores, conflict, predation, livelihood, conservation, rural, snow leopard, livestock

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