





Snow Leopard Intrusions into Livestock Corrals in Badakhshan, Afghanistan: Challenges and Solutions

Zalmai Moheb*¹  · Kharoosh Sahel¹ · Muhibullah Fazli² · Musa Hakimi² · Salahuddin Ismaily¹

1. Wildlife Conservation Society–Afghanistan

2. National Environmental Protection Agency of the Islamic Emirate of Afghanistan

*  (Corresponding author, mohebzalmai@yahoo.com)

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Abstract

Snow leopards (*Panthera uncia*) frequently prey on livestock throughout their range, posing a potential threat to human livelihoods and endangering the predator's own survival. In this study, we document seven incidents of snow leopards intruding into livestock corrals and engaging in surplus killing in three districts of Badakhshan, Afghanistan. Six of the predation incidents were attributed to a single individual, occurring in five locations of Wakhan District and eventually in Yumgan District, where the captured animal was relocated. The remaining predation incident occurred in Keran-wa Munjan District, marking the first recorded evidence of snow leopards in this area. In all but one of the incidents, the predator was trapped in the corral it intruded and safely released back to the wild with the

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support of the National Environmental Protection Agency (NEPA) and Wildlife Conservation Society (WCS) team in Afghanistan. Local communities have been supportive in releasing the snow leopard despite losses of over 50 livestock. To mitigate negative interactions between snow leopards and livestock, conservation efforts should focus on conserving prey species, implementing predator-proof measures for livestock corrals, and utilizing collar tracking when a trapped snow leopard is found in a corral. Unfortunately, when an individual repeatedly enters livestock corrals and continues killing livestock, capture and relocation to captivity often become the only viable option to address the problem and ensure the animal's safety from retaliatory action by affected herders.

Main text:

Intrusion by snow leopard (*Panthera uncia*) into livestock corrals, leading to surplus killings, is a common occurrence throughout the species' range, including in the Wakhan National Park in northeastern Afghanistan (Mishra and Fitzherbert 2004, Moheb and Paley 2016). Livestock predation impacts community livelihoods, particularly in

areas where livestock husbandry serves as the primary source of income (Moheb et al. 2022 and increases the risk of retaliatory killing of snow leopards. Several factors contribute to livestock predation by snow leopards, such as a decline in wild prey populations, human encroachment in wildlife habitats, inadequate protection of livestock by herders, and an increase in predator density (Suryawanshi et al. 2013, Khorozyan et al. 2015, Chen et al. 2016, Rashid et al. 2020).

In this study, we present seven documented cases of snow leopard intrusions into livestock corrals across three districts of Badakhshan. Five incidents occurred in Wakhan, one in Keran-wa Munjan, and one in Yumgan District. A snow leopard, identified as a healthy adult female in all cases, entered household corrals in three neighboring villages in western Wakhan, where it killed and injured over 50 sheep and goats on five separate occasions within a span of 67 days (Table 1). In four incidents in Wakhan, the leopard became trapped in the corral (Fig. 1) but managed to escape on one occasion. It was

Table 1
Details of the snow leopard livestock predation incidents in Badakhshan, Afghanistan in early 2023.

Date	Villages	District	Corral Protection	No. Sheep & Goat		Predator ¹	
				Killed	Injured		
11-Feb-23	Wark	Wakhan	Weak ²	13	3	Present	Released
13-Feb-23	Kishnikhan	Wakhan	Weak	2	2	Present	Released
19-Feb-23	Wark	Wakhan	Weak	22	-	Absent	Escaped
22-Feb-23	Wark	Wakhan	Weak	-	-	Present	Relocated
4-Mar-23	Razer	Keran-wa Munjan	Weak	1	-	Present	Released
18-Apr-23	Qazideh	Wakhan	Weak	12	-	Present	Relocated
Early May-23	Ab-e Jukhan	Yumgan	Unknown	Unknown	Unknown	Present	Unknown
		Total		50	5		

¹ Status of predator when herders reached the impacted corrals and actions taken.

² Local corral with no proper protection that is accessible to predators through its ventilation, roof, or door.



Figure 1: *Intruded snow leopard trapped inside corral when the corral owner arrived at the site in Kishnikhan Village on 13 February 2023.*

eventually captured and relocated to Yumgan District, where it continued to kill livestock, leading to its re-capture. Although genetic verification was not performed, the phenotype, locations and dates strongly suggest that these six incidents were caused by a single individual. Additionally, a different snow leopard (based on the distance and date of the incident), entered and got trapped in a corral in Keran-wa Munjan District, located approximately 100 km southwest of Wakhan, marking the first recorded presence of a snow leopard in the area outside the IUCN confirmed range (McCarthy et al. 2017).

Recent incidents of snow leopard depredations in Badakhshan showcased a unique response from local communities. The National Environmental Protection Agency (NEPA), as the responsible government organization, received support from the Wildlife Conservation Society (WCS) field team in Wakhan, effectively persuaded local communities to release the animal unharmed. Although these incidents sparked anger among the communities, they ultimately agreed to release

the predator. In four instances, Wakhan villagers had direct access to the intruded animal, yet it was either released in the same area ($n = 2$) or relocated to a different site within the species' range ($n = 2$). The collaborative efforts of NEPA and the local communities with the technical support of WCS played a crucial role in the successful resolution of these encounters.

The local authorities in Wakhan, engaged with the provincial authorities, to get directives how to handle these cases. During the fourth incident, a traditional cage built made of wood beams and gabion was prepared (Fig. 2), and the animal was enticed to enter by smoking out the corral. It was relocated to Rig-e Jurm area (Fig. 3), approximately 35 km east of its capture location. Over a month later, during the fifth predation incident, the same animal was captured in the corral and subsequently transported to Faizabad, the provincial capital. It was kept there for one night in a relatively calm environment with adequate food and better cage conditions before being released (Fig. 4) in Sar Ab-e Jukhan, Yumgan District, about 100 km southwest of the capture site. The animal was



Figure 2: *Local communities trapped a female snow leopard in Wakhan after a fourth intrusion into a corral. The animal was remarkably calm.*



Figure 3: District authorities and the head of NEPA Department in Badakhshan softly released the captured snow leopard in Rig-e Jurm, Wakhan District.



Figure 4: District authorities and the head of NEPA Department in Badakhshan released the captured snow leopard in Sar Ab-e Jukhan of Yumgan District.



Figure 5: District authorities and the head of NEPA Department in Badakhshan released the snow leopard captured by local people after killing a livestock in Razer Village of Keran-wa Munjan District.

marked with red paint on its head, allowing for easy identification when it was recaptured in another livestock corral it had intruded (Table 1). The Yumgan District authorities then took the animal and reportedly released it in Keran-wa Munjan District. The successful outcome of these incidents, with the conflict animals being spared from harm by impacted herders, highlights the importance of prompt and supportive action by the authorities, such as NEPA. It also demonstrated the trust exhibited by local communities when provided adequate support.

In Keran-wa Munjan and Yumgan districts, there was no apparent negative perception or retaliatory response against the predator. In Wakhan, where occasional livestock losses to snow leopard predation occur, we attribute the positive outcome to previous public awareness efforts, a generally positive perception of the species, adherence to

the regulations, and the responsive action of local authorities and conservationists.

Local and provincial authorities promised the affected households' compensation and requested WCS to predator-proof their corrals. Additionally, WCS will continue mobilizing community rangers to patrol the area, raising awareness about the conservation of snow leopards and their natural prey. Preserving wild prey species, implementing predator-proofing measures for livestock corrals, collaring intruder predators when trapped inside corrals, and maintaining vigilance regarding snow leopard presence are vital preventive actions to safeguard this mountain predator from retaliatory harm, as well as protecting the livelihoods of communities in northeast Badakhshan, heavily reliant on livestock as their primary source of income. Unfortunately, when an individual snow leopard repeatedly enters livestock corrals and kills livestock, capture and relocation to captivity often become the only viable solution to resolve the issue and safeguard the animal from harm by affected herders.

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