

# An Assessment Of Human Attitude Towards Carnivores In The Mongolian Altai

Claudio Augugliaro

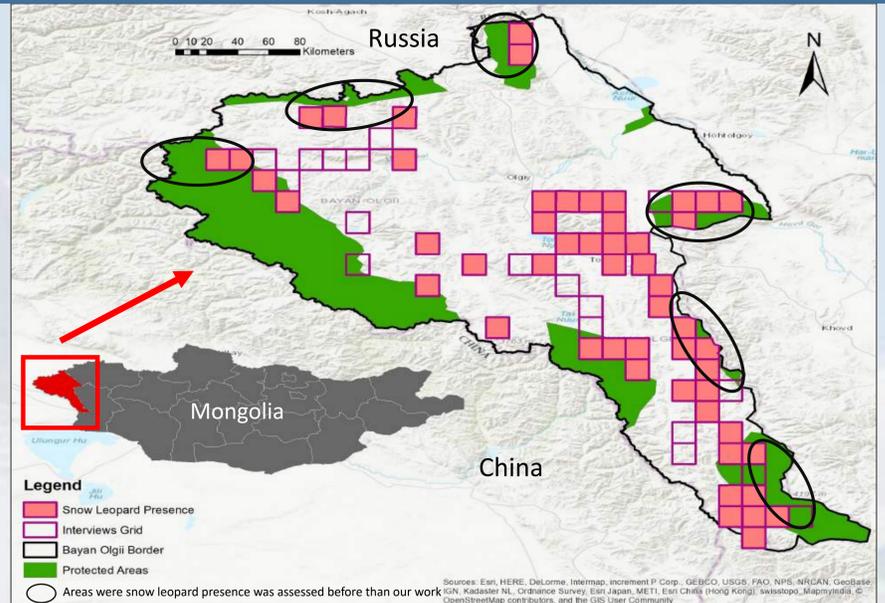
Department of Ecology and Evolution, University of Lausanne, 1015 Lausanne

E-mail: Claudio.Augugliaro@unil.ch

The traditional lifestyle is widespread in Mongolia where the nomadic herders represent a third of the total population and are very sparsely distributed in the territory. However, the passage from a centralized economy to a market economy after 1990 caused a huge increase of livestock (from 20 millions in 1990 to over 60 millions in 2017). In this context, the impact of carnivores on livestock can be directly linked to an economic loss for herders. These circumstances could affect negatively the herders' attitude towards carnivores, turning in negative consequences on threatened species like the snow leopard.

## Aims:

- What are the main causes of livestock loss?
- Is the attitude towards carnivores related to the actual livestock loss due to predation?
- What prevention practices are used by local residents to discourage and deterring carnivores reducing their attacks?



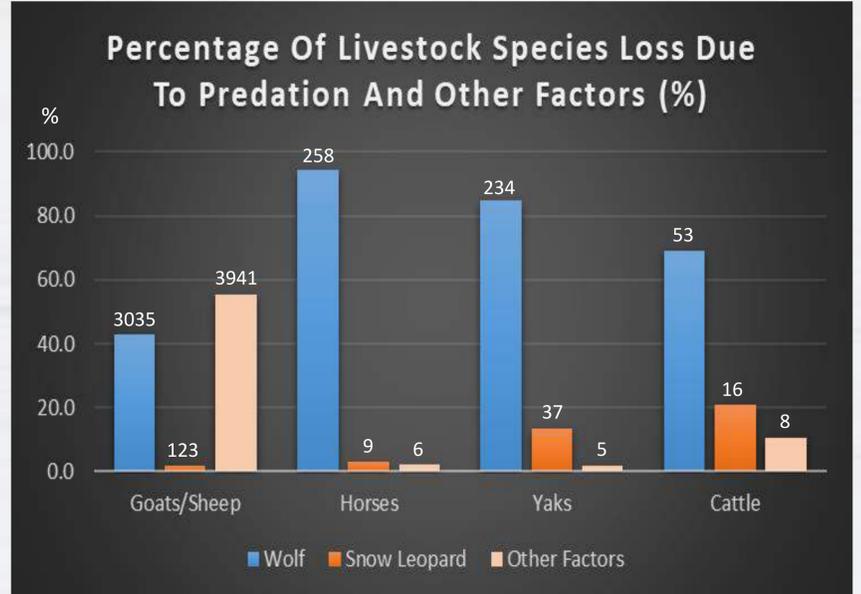
**Study Area:** the present research has been conducted in Bayan Olgii province (Mongolia). It covers an area of 45'705 km<sup>2</sup> with a population of 100'172 (in 2016).

**Sampling Design:** after consulting snow leopard Mongolians experts, we overlaid a grid on those areas where the snow leopard occurrence has been assessed (in the circle) and where it could potentially occur, according to the experts opinion. We discarded the uninhabited cells, which were not visited by the interviewees. We conducted 262 interviews in 81 cells (15x15 km), using a semi-structured questionnaire with both open and closed ended questions. The questionnaire included four main sections: 1) to explore the socio-economic condition, the herds size, the livestock species composition and pasture practices; 2) to explore about the occurrence of snow leopard and sympatric wildlife in the study area; 3) to investigate predation rate as well as other livestock causes of death (i.e. severe winters and diseases); 4) to assess the interviewees attitude towards the snow leopard, the wolf and the wolverine.

**Data Analysis:** we estimated the naïve occupancy (number of occupied cells on number of surveyed cells) for snow leopard, wolf, wolverine, Pallas's cat and Siberian ibex. We used a descriptive statistics to summarize the interviews results. The interviewees were householders living in the study area and owning some livestock (mean age: 48.1 years, range 22-77). The questions concerning the species occurrence and the livestock loss, were aimed to collect data related to the last 12 months.



Questions	Possible Answers	Snow Leopard (%)	Wolf (%)	Wolverine (%)
Could you please indicate your attitude towards the following species?	Strongly Like	67.4	1.1	0.8
	Like	18.8	10.7	78.5
	Indifferent / No Opinion	8.8	2.7	19.2
	Dislike	3.1	22.2	0.8
	Strongly Dislike	1.9	63.2	0.8
Is the presence of snow leopards/wolf/wolverine a sign of a healthy environment?	Strongly Agree	38.7	19.5	16.5
	Agree	54.8	54.0	67.4
	Indifferent / No Opinion	4.6	21.5	15.3
	Disagree	1.9	4.2	0.8
	Strongly Disagree	0.0	0.8	0.0
Should Snow leopard, wolf and wolverine be protected?	Strongly Agree	82.8	2.7	6.5
	Agree	8.4	19.9	65.9
	Indifferent / No Opinion	2.7	2.3	27.2
	Disagree	6.1	43.7	0.4
	Strongly Disagree	0.0	31.4	0.0
Are Snow leopard, wolf and wolverine an unacceptable threat to livestock?	Strongly Disagree	15.3	2.3	24.1
	Disagree	76.6	16.5	67.0
	Indifferent / No Opinion	5.4	0.4	7.3
	Agree	1.9	54.4	1.5
	Strongly Agree	0.8	26.4	0.0
Which of the following actions do you think should be taken towards the snow leopard and wolf?	Protect All	100.0	0.4	44.4
	Limited Hunting only outside the protected areas (no hunting inside)	0.0	2.3	55.6
	Limited Hunting inside and outside the protected areas	0.0	1.1	0.0
	Limited Hunting only inside the protected areas (unlimited outside)	0.0	20.3	0.0
	Unlimited Huting	0.0	75.9	0.0



Snow leopard and wolf are widely distributed in our study area. While the attitude of local people is absolutely positive towards snow leopard and wolverine, it is strongly negative towards the wolf. Over ¾ of the respondents think that wolves should be hunted without any number and area restrictions (even inside the protected area).

We recorded 3'765 cases of livestock losses due to predation and 3'961 cases of loss due to other factors.

Additional Information Concerning Attacks By Carnivores and Guarding Practices			
Where do the attacks occur?	Close to the House in the night	Pastureland	Anywhere
	58	114	85
What kind of pasture areas are more critical for attacks?	Cliff	Narrow Valley / Cliff	Anywhere
	14	189	58
During what season do you use a corral?	Throughout the year	Winter/Spring	Autumn/Winter/Spring
	34	197	31
What method do you use to for deterring carnivores?	None	Scarewolf	Light / Scarewolf
	196	48	18
What would be better to protect your livestock?	Checking / Proof Corral	Checking /Proof Corral / Light on the Herd	Increase the Number of Dogs
	67	180	15

## Conclusions:

The naïve occupancy for snow leopard was high and cover a much wider area than previously thought. The wolf presence was reported everywhere. Our preliminary results show the impact of predators like the wolf on small livestock species is important and comparable to that from other causes of mortality. However, the proportion of large livestock species killed by carnivores is much higher than lost due to other factors. This may have negative consequence such as retaliatory killing towards wolves through a range of actions (i.e. the use of holdlegs traps or the use of poison) which could affect other carnivores, such as the threatened snow leopard.

Acknowledgments: Prof. P. Christe (DEE University of Lausanne, Switzerland), Dr. F. Zimmermann (KORA, Switzerland), Fondation Herbetta (Switzerland), Green Initiative NGO (Mongolia), J. Choikhand, Khuandakh and all the local herders answered to the questionnaire.