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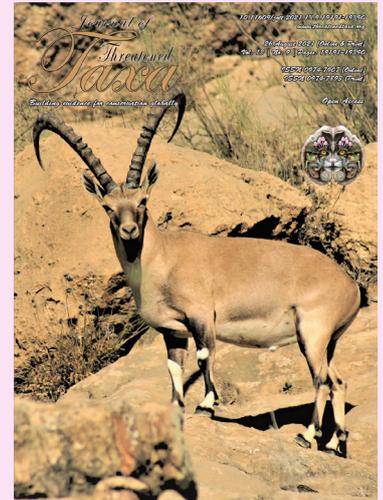
NOTE

CHEMICAL IMMOBILISATION OF A EURASIAN LYNX *LYNX LYNX* (LINNAEUS, 1758) (MAMMALIA: CARNIVORA: FELIDAE) WITH KETAMINE-DEXMEDETOMIDINE MIXTURE IN LADAKH, INDIA

Animesh Talukdar & Pankaj Raina

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Chemical immobilisation of a Eurasian Lynx *Lynx lynx* (Linnaeus, 1758) (Mammalia: Carnivora: Felidae) with ketamine-dexmedetomidine mixture in Ladakh, India

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The Eurasian Lynx *Lynx lynx* is a species of global conservation importance (Breitenmoser et al. 2015). It ranges from Europe to eastern Asia, including the alpine steppe of the Tibetan plateau and northern Himalaya (Namgail 2004). In India, it has been recorded in the Trans-Himalayan region of Ladakh (Namgail 2004; Sharma & Dutta 2005; Kotia et al. 2011). Habitat loss and poaching have been identified as the major threats to the Eurasian Lynx in India (Kotia et al. 2011). However, little information is available about the species in India, especially regarding its ecology and conservation status (Namgail 2004).

Various wild animals face threats and even physical injury due to their interactions with humans and various anthropogenic activities and sometimes require rescue interventions. Such interventions are justified for their conservation value and importance for human-wildlife interaction mitigation (Pyke & Szabo 2018). Rescue and rehabilitation are treatments designed to facilitate the process of recovery and subsequent restoration of some or all of the individual's physical, sensory, and mental capabilities that were lost due to injury, illness, stress or

disease (Jones 1961).

In this context, chemical immobilisation of individual animal is regarded as safe and effective as it causes minimal stress (Neilson 1999). In felids, ketamine and dexmedetomidine have been used as an anaesthetic agent for chemical immobilisation (Lamberski 2015).

Chemical immobilisation of a Eurasian Lynx: We report the successful chemical immobilisation of a female adult Eurasian Lynx (Image 1) whose age was estimated to be five years with an estimated weight of 25kg. It was trapped inside a traditional stone structure used to store grass and fodder in Kungyam village. This village is located at an elevation of 4,180m in Nyoma block of Leh district in Changthang, Union Territory of Ladakh (Figure 1). Villagers alerted the Department of Wildlife Protection. When the rescue team reached the village on 29 December 2020, they found the animal unable to escape from the stone structure. It was obviously under severe stress, most likely due to confinement to a small area for a long time and because of human presence. Thus, it was decided to intervene and chemically immobilise the individual so to be able to

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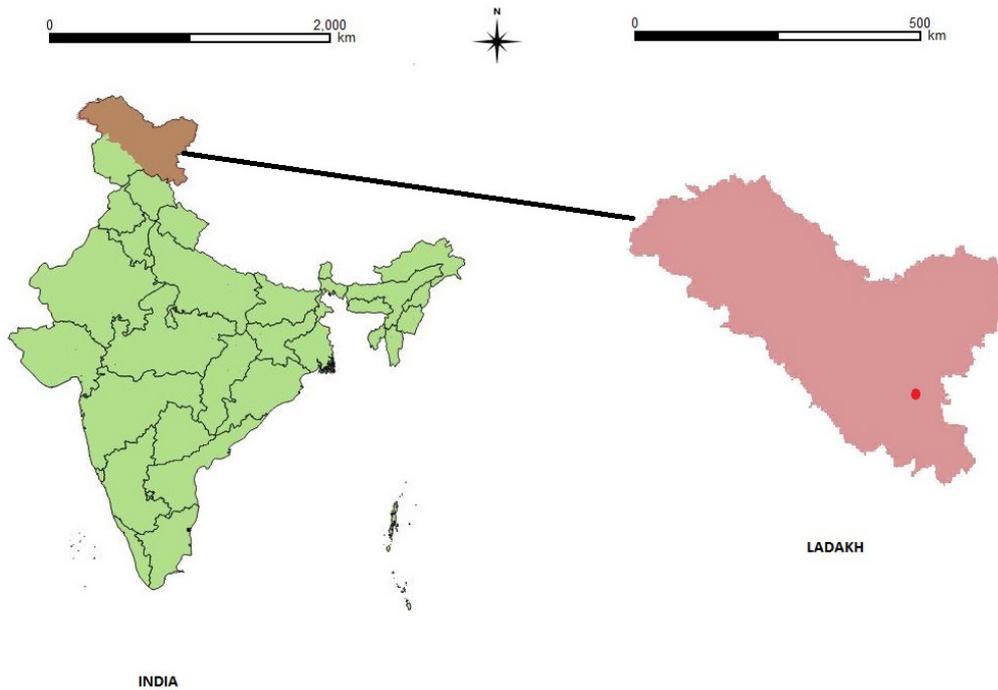


Figure 1 . Map showing the location where the Eurasian Lynx was rescued in Leh, Ladakh (red dot).

physically remove it from the structure and take it to the Rescue and Rehabilitation Centre in Leh for stabilisation. The ambient temperature was -10°C at the time of the operation.

Since the structure was located inside the village, the immediate release of the animal was not explored as it may have injured humans, become injured and even more stressed in the process. Initial efforts to capture it in a box trap were not successful. Subsequently, we attempted to chemically immobilise it using a remotely administered air pressurised syringe projector, model JM Syringe projector by Dan Inject. For this, two stones from the wall of the structure were removed and covered with a capture net made of cotton to prevent its sudden escape. However, the animal was not visible due to little light inside the structure, and the remote drug delivery system with ketamine (50 mg/ml; ANEKET, Neon Laboratories limited, India) and dexmedetomidine (0.5 mg/ml; DEXDOMITOR, Zoetis, US) mixture failed as we were unable to locate the animal in the dark. At this stage, it tried to escape through the hole and became entangled in the net. We placed a blanket on its head and immobilised it chemically using a combination of ketamine at 4 mg/kg body weight and dexmedetomidine at 0.02 mg/kg body weight with a 5ml disposable syringe (DISPOVAN; Hindustan syringes and medical devices Limited, India). The drugs were injected intra-muscularly in the right quadriceps muscle of the cranial thigh at

12:30h.

After four minutes of administering the injection, at 12:34h, the animal was deeply sedated. Its respiration was normal at 10 breaths/minute and eyes open with no palpebral reflex along with minimal salivation. It did not respond to stimuli such as pinching between digits and ears, showing excellent immobilisation and analgesia. It was carried to a transportation cage for transfer to the Rescue and Rehabilitation Centre in Leh for a thorough examination and subsequent rehabilitation. Examination did not reveal any external injury of the animal. Physiological parameters such as heart and respiratory rate, and body temperature were found normal at 42 beats/minute, 10 breaths/minute and 39°C , respectively, within 15 minutes of induction. Its actual weight was 20kg using a spring weighing scale. Thus, the actual dose received by the animal was ketamine at 5 mg/kg body weight and dexmedetomidine at 0.03 mg/kg body weight. After 30 minutes of injection of the drugs at 13:00h, atepamezole at 0.1 mg/kg body weight was injected into the left quadriceps muscle as reversal with the help of a 3ml disposable syringe (DISPOVAN; Hindustan syringes and medical devices Limited, India). A palpebral reflex was the first sign of recovery, noticed at 13:04h within four minutes of administering the reversal. The individual exhibited complete recovery after 30 minutes at 13:30h of administering the reversal injection. The whole capture time was 60 minutes from



Image 1. Eurasian Lynx *Lynx lynx* rescued on 29 December 2020 in Kungyam village, Ladakh. © Animesh Talukdar.

administering the ketamine and dexmedetomidine mixture until complete recovery.

There are no studies on chemical immobilisation of the Eurasian Lynx in Ladakh. The combination of ketamine and dexmedetomidine used in this incidence was found to be effective at a dose of 5 mg/kg body weight for ketamine and 0.03 mg/kg body weight for dexmedetomidine. The same drug mixture can be administered remotely. The drug dose used in this instance was similar to the combinations of ketamine and dexmedetomidine recommended by Schöne et al. (2002) for the Eurasian Lynx and by Lamberski (2015) for

felids in general.

The drug combination in our rescue operation was used for the first time on a Eurasian Lynx in India. Our experience with this combination on a single individual does therefore not account for possible effects of differences in age and sex of individuals, or of variations in weather conditions. We recommend to reduce stress in future rescue operations by minimizing the presence of humans. We propose to develop a protocol for chemical immobilisations used in rescue and release operations based on a larger sample size.

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