

## LETTER FROM THE CONSERVATION FRONT LINE

**Rescue and rehabilitation capacity needed to save live pangolins seized from illegal wildlife trade in Nepal**K. Paudel<sup>1,2</sup>, R. Bashyal<sup>1</sup>, C. P. Pokheral<sup>3</sup>, P. Kaspal<sup>2,4</sup>, B. K. Karki<sup>5</sup> & A. P. Khatiwada<sup>2,3</sup>

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Globally, pangolins are under serious threat of extinction, mainly due to poaching, illegal trade and habitat destruction. Meanwhile, there are growing efforts and interest in saving pangolins, including from governments, academia and conservation NGOs (Heighton & Gaubert, 2021; Shibaike, 2021). The eight surviving species of pangolins comprise the most traded mammal species globally, causing their wild populations to decline at an alarming rate (Challender, Nash, & Waterman, 2020). Of these eight species of pangolins, three are listed as critically endangered, three as endangered and two as vulnerable in the global IUCN red list, and the species are also listed in CITES Appendix I (CITES, 2022; IUCN, 2022). However, the international conservation commitments and legislation are unlikely to be enough to save pangolins on the ground. For example, in Nepal, it is common to see people struggling to get the correct information and having the right skills to deal with confiscated pangolins, and in many cases ending up with harming them, even though they intend to help pangolins. Frontline conservation communities require practical information about the pangolin, including ways to handle, rescue and rehabilitate confiscated individuals.

Nepal hosts two pangolin species, i.e., the Chinese (*Manis pentadactyla*) and the Indian (*Manis crassicaudata*) pangolin. These species have been provided with national legal protection by listing them as protected species, mirroring the global conservation efforts. Nepal has demonstrated that it can protect megafauna (Aryal *et al.*, 2017) but has limited interventions for elusive species like pangolins. This is mainly because the government's conservation priorities are focused on charismatic megafauna species, particularly within the protected area network (Heinen & Shrestha, 2006). In contrast, the pangolin is not a major tourist attraction, and, in Nepal, most of their habitats lie in human-dominated landscapes outside the protected areas (DNPWC & DoF, 2018).

Our experiences show that the seizure and rescue of live pangolins are increasing in Nepal. So far, more than two dozen pangolins have been rescued and taken to the Central

Zoo in Lalitpur, managed by the National Trust for Nature Conservation. Unfortunately, none of them survived, so we started to release individuals that were brought to us into their natural habitat as soon as they arrived (pers. comm. R. Shah, in charge of Central Zoo on 07 Feb 2022). In recent years, rescued live pangolins have been released in many districts including, for Chinese pangolins, in Taplejung, Panchthar, Sankhuwasabha, Solukhumbu, Kathmandu valley, Kavrepalanchok, Sindhupalchok, Parsa, Makwanpur, Chitwan, Dhading and Gorkha, and for Indian pangolins in Bardia, Kailali, Kanchanpur and Surkhet districts. However, there is no available information or skilled human resources to examine their health status and injuries. Also, there is no post-release monitoring; thus, nothing is known about the released pangolins and their survival. The real problem arises when evidently injured or pregnant pangolins need to be rescued, which are not in the state to immediately be released back into their natural habitat.

To its credit, Nepal produced the Pangolin Conservation Action Plan 2018–2022, but unfortunately, the Plan failed to recognize the rescue, rehabilitation and management of live pangolins. When discussing live pangolin seizures and rescue events with the frontline officials, they often say that pangolin rescue comes with confusion. For example, in November 2020, a Chinese pangolin was seized near Kathmandu in Nepal (Fig. 1). Some of the authors of this Letter were called to help when the seized pangolin gave birth to a baby whilst in police custody. The police were unsure of how to deal with the mother and the baby pangolin; however, neither did the officials nor the researchers have any idea how to best help.

This example is representative and reveals that merely having the laws in place is insufficient to save individual pangolins. We need practical information on the safer handling of pangolins, the best available foods, feeding techniques, basic first aid and treatment guidelines, and captive care skills. Furthermore, it is crucial to disseminate such information in local languages/dialects to frontline



**Figure 1** A baby pangolin (left) was born in police custody after its mother (right) was seized from smugglers in Bhaktapur, Nepal. Photo: Kumar Paudel/Greenhood Nepal.

communities directly dealing with injured pangolins from illegal wildlife trade seizures.

Every single pangolin matters as they are globally threatened, and wild pangolin populations are declining across their range. There is a growing public concern to save pangolins, which is encouraging, but that is not in itself adequate for conservation in the field. There is an urgent need to equip frontline communities with the knowledge and capacity to help individuals that are confiscated and rescued. Nepal's local communities are very receptive and positive towards pangolin conservation (Khatiwada *et al.*, 2020). To add to this receptiveness, the science of proper rescue and rehabilitation techniques and enhanced capacity could help save many pangolins in Nepal's rural areas. Some of the conservation centres in Asia and Africa have successfully rehabilitated pangolins, i.e., Tikki Hywood Foundation in Zimbabwe, Nandankanan Zoological Park in India, and South China Normal University (see Zhang *et al.*, 2017; Parker & Luz, 2020). In addition to the research and proper guidelines in local languages, we also call for the exchange of such experiences and skills in other pangolin range countries like Nepal, where adequate knowledge and training is lacking.

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