Beyond Nationality: Opportunities for Trans-Boundary Wildlife Conservation

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DIALOGUE
Science, Scientists, and Society

Table of Contents

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Political borders do not apply to wildlife. The innate tendency to move across long distances in search of resources and mate are common among the smallest of insects to the largest of mammals. Umpteen species of wild fauna are known to take up great travels throughout the year, spanning several thousands of kilometres, across various countries; even before many countries were invented. One of the classic examples includes the Arctic Tern, which is known to travel across the south and the north poles, covering more than 80,000 km annually (Egevang C et al. 2010). It is hence, naïve and ironic to exclaim the ownership of any species to any political unit.

Maps of nations have kept changing for centuries, and so have borders and landscapes. Along with people, the wildlife and the environment also get affected due to political instabilities and chaos about changing boundaries. The famous case of 'Agent Orange,' a chemical used to flush the Viet Cong troops and the North Vietnamese by devastating forest areas is just one of the many ways that war and political instability have affected biodiverse areas (Singh J 2017). Presently, when every nation wants its boundaries walled, scientists worldwide stay united for uninterrupted flow of nature's elements across the political boundaries. While the idea of a 3,200 km long US-Mexico wall was supported by a democratic majority, more than 2,500 global scientists, including those from these two countries, stood united to defend the right of wildlife to pass these human constructs of nations (Peters R et al. 2018). Similar examples from other parts of the world are in heavily disputed areas of the Middle East and Central Asia, which, unfortunately, are not even comprehensively documented and heard of.

The Indian subcontinent has witnessed political conflicts since ages and yielded some disputed borders. The most prominent among them is the relationship between India and Pakistan-whereboth countries share a total of 3,323 km of the line of control (LoC) and international border. There are different landscapes and biogeographic regions that fall under this dividing

line. From cold deserts of Ladakh and mesic temperate mountains of Kashmir to hot deserts of Rajasthan and Gujarat, the floral and faunal assemblage changes drastically along the Indo-Pak border, of which few species are long-ranging migrants, while others are endemic to these regions. Military presence and war through the decades have affected the native flora and fauna, particularly in the Hindukush mountain range (Ali and Shaoliang 2013). The abyss of sour relations and armed conflict has left huge research and conservation gaps in such regions and yielded an uncertain future of wildlife, especially in border areas. In many highly sensitive zones, both the countries have been separated with permanent walls and fencing, which prevents any sort of human infiltration. Unfortunately, such obstacles have hampered the movement of animals along these borders, mainly terrestrial animals.

Political bitterness has laid a thick ice of inactiveness in the field of nature conservation along the disputed regions. Realizing complexities and danger along the borders, civilians are often not allowed to trespass, and thus, modicum information comes out in terms of the status of wildlife. Uncertain future and status of wildlife in such areas is a major cause of concern for wildlife conservationists across the globe. Political rationalization and cooperation between nations prevail over border bitterness and might sprout the seeds of harmony between the two nations. Sometimes, tiny steps can work wonders to eradicate the 'Berlin Wall' of hatred and communication gap. However, amidst war and disputed borders, long-ranging wildlife species are the ones getting impacted the most. The current conservation narrative has moved largely from a species-oriented focus to a landscape-oriented one, which is greater in the sense of its interdisciplinary role (Global Snow Leopard 2020; Desert Management Plan 2017-27). However, the spatial coverage of conservation areas is often limited by the international, political borders, in spite of landscape continuity. One of the obvious downsides of this is the difference in the political, social, economic and institutional approach to the landscape in question, apart from the hindrance of the movement of wildlife across physical borders. This necessitated a conversation around trans-boundary conservation. According to the IUCN, a Trans-boundary Protected Area is *"a clearly defined geographical space that consists of protected areas that are ecologically connected across one or more international boundaries and involves some form of cooperation"* (Vasilijević M et al. 2015). Trans-boundary Protected Areas not only provide connectivity for animal movement but are also important to maximize a species range as well as maintaining a viable gene pool (Vasilijević M et al. 2015). Additionally, a dialogue of trans-boundary conservation also serves as a potential peace-building step between participating countries, which is why such protected areas are also termed as 'peace parks.'

Here, we are giving an account of some key bird and mammal species of different biogeographic realms between India and Pakistan (Table 1). Further, we are highlighting a few species of different realms, which can be used as flag-bearers of peace between these nations with the holistic approach of Trans-boundary management. As the border between these two nations passes through five biogeographic realms, we have identified five flagship species of peace, to draw the attention of concerned people and political leaders (Fig 1). While much on the ecology and conservation of these species might be known in India and Pakistan, we highlight their importance in the potential Trans-boundary Protected Areas in between these countries.

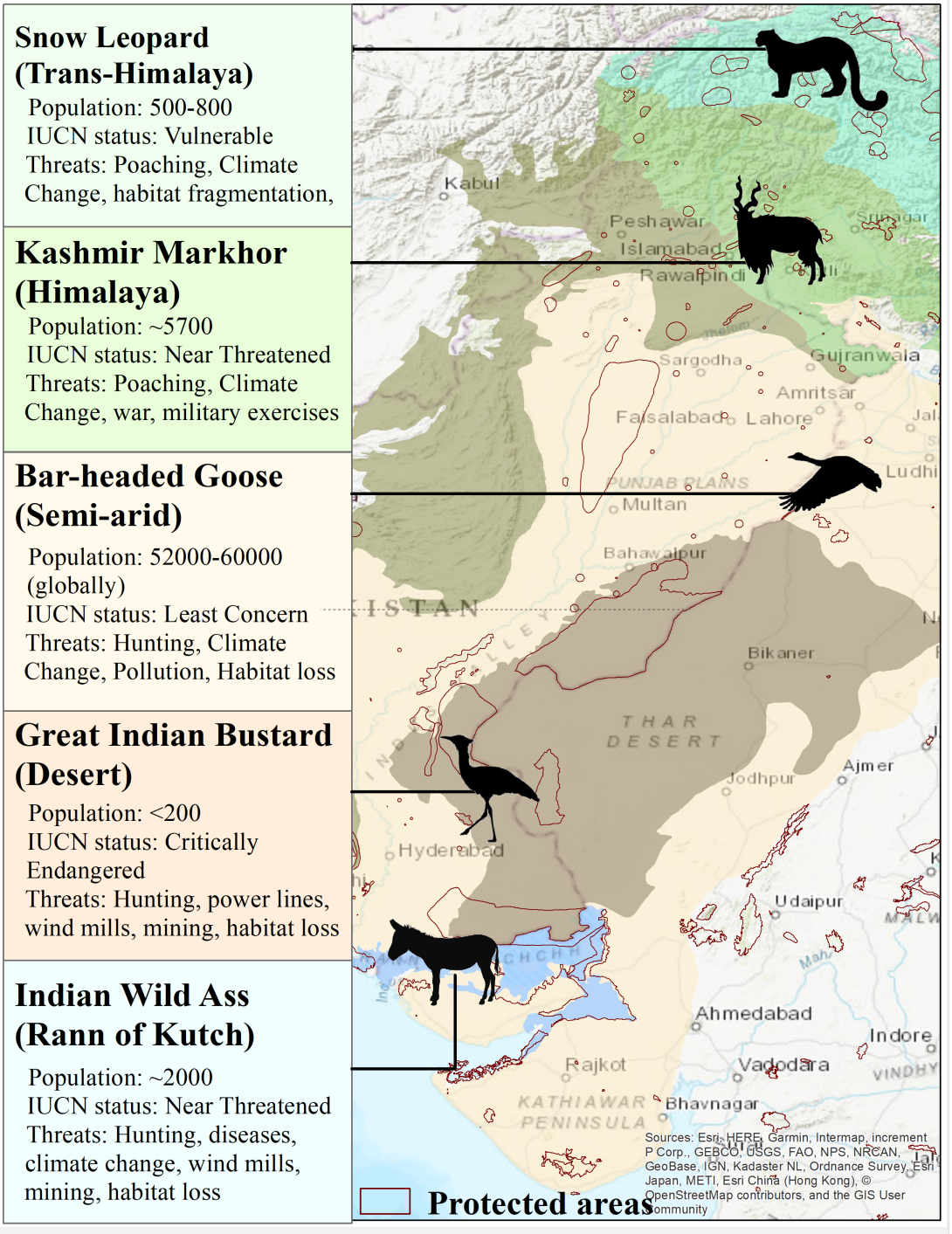

Fig 1 Flagship species known to inhabit the Indo-Pak boundary region across the five biogeographic realms

(Source: Wildlife Institute of India, Pakistan protected areas, UNEP-WCMC and IUCN 2020).

Table 1 Key bird and mammalian species in Indo-Pak boundary region from Himalaya to Arid zone.

Bird Species				
Sl.No.	**Common Name**	**Scientific Name**	**IUCN Status**	**Distribution**
1.	Cheer Pheasant	*Catreus wallichii*	VU	I, P (Himalaya)
2.	Demoiselle Crane	*Grus virgo*	LC	I, P (Semi-arid)
3.	Eastern Imperial Eagle	*Aquila heliacal*	VU	I, P (Semi-arid)
4.	Egyptian Vulture	*Neophron percnopterus*	EN	I, P (All zones)
5.	Greater Spotted Eagle	*Aquila clanga*	VU	I, P (All zones)
6.	Ibisbill	*Ibidorhyncha struthersii*	LC	I, P* (Trans/Lesser Himalaya, Foothills)
7.	Kashmir Flycatcher	*Ficedula subrubra*	VU	I, P (Himalaya)
8.	Monal Pheasant	*Lophophorus impejanus*	LC	I, P (High Himalaya)
9.	Pallas's Fish Eagle	*Haliaeetus leucoryphus*	EN	I, P* (Semi-arid, Foothills)
10.	Saker Falcon	*Falco cherrug*	EN	I, P (Trans Himalaya, Semi-arid)
11.	Sarus Crane	*Grus antigone*	VU	I, P* (Foothills, Semi-arid)
12	Slender-billed Vulture	*Gyps tenuirostris*	CR	I, P? (Foothills, Semi-arid)
13.	Western Tragopan	*Tragopan melanocephalus*	VU	I, P (High Himalaya)
14.	White-rumped Vulture	*Gyps bengalensis*	CR	I, P (Foothills, Semi-arid, Himalaya)
15.	Yellow-eyed Pigeon	*Columba eversmanni*	VU	I, P (Semi-arid)
16.	Lesser Flamingo	*Phoeniconaias minor*	NT	I, P (Arid)
Mammal Species				
1.	Caracal	*Caracal caracal*	LC	I, P (Semi-arid, arid)
2.	Common Leopard	*Panthera pardus*	VU	I, P (All zones)
3.	Eurasian Otter	*Lutra lutra*	NT	I, P (Trans Himalaya, Foothills)
4.	Himalayan Brown Bear	*Ursus arctos isabellinus*	EN	I, P (High Himalaya)
5.	Siberian Ibex	*Capra sibirica*	LC	I, P (High, Trans Himalaya)

6.	Indus River Dolphin	*Platanista gangetica minor*	EN	I, P (Floodplains/Foothills)
7.	Kashmir Musk Deer	*Moschus cupreus*	EN	I, P (High Himalaya)
8.	Striped Hyena	*Hyaena hyaena*	NT	I, P (Semi-arid and arid)
9.	Smooth-coated Otter	*Lutrogale perspicillata*	VU	I, P (Floodplains/Foothills)
10	Himalayan Grey Wolf	*Canis lupus*	LC	I, P (Himalaya)
11.	Peninsular Wolf	*Canis l. pallipes*	LC	I, P (Semi-arid & Arid)

**Vagrant/Locally Extinct?Unconfirmed, IUCN Status: LC-Least Concern, NT-Near Threatened, VU- Vulnerable, EN- Endangered, CR- Critically Endangered.*

1 Snow Leopard *Panthera uncia*

A surefooted felid species, which resides in the snowy rugged mountains of Ladakh and few parts of Kashmir, holds high global conservation significance along the LoC. The 1999 battle zone of Kargil falls under this region. The high-altitude regions (above 3,000 meters) of Kashmir and Ladakh are important for this majestic animal, which according to the IUCN Red List is a globally vulnerable species (McCarthy T et al. 2017). Despite being a disputed border area, the rugged mountains of Ladakh provide some of the safest habitats for snow leopards, and ecosystem services to the people in this region who are dependent on the snow-fed rivers originating from these mountains. Trans-boundary cooperation for conserving snow leopard can thus affirm the stand of these nations to combat climate change. Global Snow Leopard and Ecosystem Protection (GSLEP) is such an initiative, which aimed to protect at least 20 landscapes across ranging countries by 2020 (Global Snow Leopard 2020). It needs to be further strengthened with long-term goals and active participation from governments of all the ranging countries.

2 Kashmir Markhor *Capra falconeri*

One of the last few pockets left of the scanty populations of the spiral-horned mountain goat, Kashmir Markhor, exists along the Kashmir region. The globally near-threatened Kashmir Markhor is the national animal of Pakistan and has a small population in Kashmir's highly militant-dominated border areas of Baramulla and Shopian districts (Bhatnagar et al. 2009). The hard work of biologists unveiled the uncertain status and ecology of this species in these rugged mountains amidst war and conflict. We believe this species can be picked as a harbinger of peace and trust between nations and for its long survival through the trans-

boundary conservation. Conserving this species reflects on conserving the forested and alpine habitats in this region, which despite being considered important to regulate the climate and water security for the region's people, is constantly burned and bombed. This initiative can act as a strategic alternative or at least an advancement to the current situation at these borders.

3 Bar-headed Goose *Anser indicus*

"Birds don't know borders," a famous saying that suits well with a long-ranging species like the Bar-headed goose. The major population of the goose breeds in Central Asian wetlands and migrates towards lower Indian-subcontinent wetlands during winters. In India, Ladakh harbours the only breeding population of Bar-headed goose and recent studies show their migration towards Jammu and Punjab plains, where it spends the winter season and moves back to the breeding grounds in high altitude wetlands (Mahar et al. 2015). Hence, being part of the Central Asian Flyway, both countries have ample opportunities for conservation of many migratory species along with this one if the wetlands on borders are conserved. The mosaic of agricultural fields and wetlands in Jammu and Punjab regions are hotspots for such an approach and can guarantee the agricultural security of the region, which is greatly dependent on water regulated by wetlands.

4 Great Indian Bustard *Ardeotis nigriceps*

Once a contestant for the tag of India's National bird, the Great Indian Bustard is now critically endangered with ca. 200 individuals struggling to survive in the deserts of the Indian subcontinent. The bird mostly occupies the desert grasslands and semi-arid regions of Rajasthan and Gujarat. But, recent instances of its hunting in Pakistan not only prove their trans-boundary movement but also raise concerns about its survival. Hence, participatory management along the borders of Rajasthan is a need of the hour to conserve this species. If the two nations could put actions for proactive conservation of this species, it will, in turn, preserve the grassland ecosystem that is on the brink of losing its identity in both the countries and help conserve many more dependent endemic species. The Houbara bustard is another lesser-known cousin of the Great Indian bustard that could be benefited by this trans-boundary cooperation for the survival of its wild population (CMS 2018).

5 Indian Wild Ass *Equus hemionus khur*

Spread over miles of arid and hot deserts of Rann of Kutch in Gujarat is the last home to the near-threatened Indian wild ass. The population from Pakistan has neared extinction, with no recent records (Feh et al. 2002; Khan A A et al. 2015), mostly due to barricades on the borders for any physical movement (Kaushik H 2020). But there are chances of re-wilding those landscapes through trans-boundary initiatives. Despite having an increasing population, the species is

vulnerable to epidemic diseases in the Indian side. Hence, establishing another refuge would be a wise option (Shah N 1999). Through this conservation, a natural heritage of the landscape - the Rann of Kutch, could be holistically conserved, which guarantees the survival of its nomadic cultures from both nations.

Apart from these five peace-bearers, the Indian subcontinent has many species that have performed a pivotal role in trans-boundary conservation and cooperation (Table 1). The Siberian crane, once a yearly visitor to the wetlands of India, has now gone extinct from the country. According to experts, this is largely due to the mass hunting of the species in its migratory route, as it stopped over in Afghanistan (Meine and Archibald 1996); a classic example where international cooperation could have helped a species. Such examples point to the dire need of efforts for other species, like the ones mentioned earlier. The aforementioned species are not the only ones that require conservation attention. But as flagship species, they can potentially break the ice between neighbouring countries, which might bring a paradigm of not just trans-boundary management, but also a conversation along the lines of economic, social and political peace. The Royal Manas National Park (India and Bhutan), Pilibhit-Dudhwa-Suklaphanta landscape (India and Nepal), Sundarbans (India and Bangladesh) and Kailash Sacred Landscape (India, Nepal and Tibet) are positive examples of trans-boundary management in South Asia. Recently, India, Nepal and Bhutan signed a Memorandum of Understanding (MoU) to build a trans-boundary peace park spanning the Manas and the Kanchenjunga landscape. This step, taken with funding from the United Nations Environment Program (UNEP-WCMC 2020), International Centre for Integrated Mountain Development (ICIMOD) and the SAARC development fund aims to boost conservation efforts as well as ecotourism models between the countries. Of course, many scholars and military personnel have written and convened about the possibility of a peace park in the Siachen Glacier (Ali A 2002; Kemkar N A 2006; Swain 2009). Understanding its harsh conditions, they have mentioned the need for both India and Pakistan to come to terms with a treaty to recognize the Siachen Glacier as a cryospheric research area (King and Wilcox 2008; Ali S H 2011). Similarly, Pandit (Pandit M K 2020) advocated for a holistic approach to declare highlands of Indo-China Himalaya as peace parks. While the start of dialogue along these lines- especially at a time when climate change is impacting life on Earth- is praiseworthy, countries have to walk miles and reach a political consensus to commit to the possibility of conserving species common to both their turfs.

While the democratic majority of India and Pakistan are mostly concerned with the ‘strict actions’ that the country’s forces might take, there is no example of nature's contribution to people (Díaz et al. 2018) and peace at the boundary. Interestingly, both nations are committed to mitigating the impact of climate change on ecosystems and their services, irrespective of the extent and functioning of these systems across borders. However, there has not been a single study to demonstrate the necessity or success of transboundary conservation efforts. Moreover, of the 3,000 odd km of border and LoC, 550 km section is fenced. This is an impenetrable barrier for most terrestrial mammals. This issue will remain critical for any discussion on trans-boundary conservation without trust-building. Both nations are signatories to the Convention on the conservation of migratory species of wild animals (CMS 2018). The CMS meeting in February 2020 was represented by 129 global parties, to which ministries and delegates from both nations showcased their conservation initiatives. However,

both nations missed this golden opportunity to collaborate over the Trans-boundary initiative, as Pakistan skipped this meet. The CMS reflects the philosophy of right to movement and a unified world, and once again affirms the role of nature in showcasing the superficial human construction of a nation and its boundaries. Jingoism prevalent in both nations might be democratically backed but is of less significance when peace prevails. Examples elsewhere demonstrate that science and scientists, even when a handful, could change the course of majoritarian thought process (Malcom et al. 2019; Peters R et al. 2018). Hence, it is the need of the hour, where scientists from both the nations start discussions on working towards trans-boundary peace parks for maintaining nature's flow across the borders. This could safeguard not only the livelihood dependencies on these ecosystems, but also enhance the role of peace in the minds of the majority.

Demolishing walls of hatred and mistrust can be possible through a holistic approach like nature and wildlife conservation, and also through peace species and peace protected areas. On a positive note, if the Berlin wall could be brought down then of course we can do the same as we share a similar culture, identity and history.

Acknowledgements

The authors are thankful to the corresponding editor and anonymous reviewers for their constructive comments on the early draft of the manuscript.

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