

Short communication

Scaling up Vulture Safe Zone to conserve a greater number of Endangered raptor species: A case for creating a Raptor Safe Zone in Nepal

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Abstract

Nepal has successfully piloted the Vulture Safe Zone, a broad-scale conservation strategy for Endangered vulture species. An obvious question is: what more can we do to build on this accomplishment? Through this paper, I advocate for expanding the Vulture Safe Zones to include other threatened raptors to create Raptor Safe Zones (RSZs). RSZs are a logical next step for Nepal because this country is a global hotspot for raptors and because the RSZ will help conserve 23 threatened raptor species, both within and beyond existing protected areas. I discuss opportunities, challenges, and the way forward for creating RSZ.

Keywords: Central Asian Flyway; Broad-scale conservation, IBA, Scavengers

spread across the globe that have been identified to be important for birds (Baral & Inskipp 2005; Donald et al. 2019). The set of 27 IBAs in Nepal (Baral & Inskipp 2005) has now been expanded to 42 (BCN, DNPWC, and DoFSC 2023). However, for declining bird species that migrate or have large home ranges, broader landscape-scale conservation efforts that include both protected areas and OECMs are needed for effective conservation. An example of such an effort is the innovative Vulture Safe Zone (VSZ) conceived (Chaudhary et al. 2010), piloted (DNPWC 2015), and declared (Sabiniarz 2021) in Nepal.

After the alarm about rapid vulture declines across India (Prakash et al. 2003) and South Asia, and the identification of diclofenac as the primary cause of decline (Oaks et al. 2004) a broad spectrum of government agencies, conservation organizations, scientists, and local communities came together to help conserve multiple species of vultures in the region. Among many actions taken to conserve vultures (DNPWC/MoFSC/GoN 2009; DNPWC 2015; DNPWC and DoFSC 2023), Nepal came up with novel approaches such as creating community-managed safe feeding sites (restaurants) for vultures, creation of Diclofenac Free Zones, and the creation of Vulture Safe Zone (DNPWC 2015). VSZs are large areas that vultures use intensively around existing nesting colonies and which are deemed safe for vultures by identification, removal, and monitoring of threats (primarily diclofenac and other NSAIDs), and are supplemented by advocacy and mass awareness campaigns (Chaudhary et al. 2010; Mukherjee et al. 2014; Galligan et al. 2019). Fundamental to VSZ are the smaller

1 | Introduction

For a small country, Nepal boasts a large diversity of species, including birds. Reasons for this diversity include the wide variation in altitude and topography over a relatively small geographical area, resulting in the creation of diverse habitats and biomes (Baral and Inskipp 2005) and strategic location along the Central Asian Flyway. Among the 892 bird species reported from Nepal, 42 are globally and 172 are nationally threatened (DNPWC & BCN 2022). A network of protected area systems in Nepal acts as a refuge for both resident and migratory birds. In addition to the protected areas, other effective area-based conservation measures (OECMs; Gurney et al. 2021) such as Important Bird and Biodiversity Areas (IBAs; Baral and Inskipp 2005) exist to conserve biodiversity beyond the protected area system.

Based on a set of criteria developed by BirdLife International, IBAs are a network of over 13000 sites

building blocks, i.e., district-level Diclofenac Free Zones created through mass sensitization and commitment of the veterinary community to not use diclofenac, and continuous research and monitoring of vultures and veterinary pharmacies. The success of Nepal's VSZ is underlined in its replication in other regions (e.g., South Asia and Africa) and the selection for the release of the first set of captive-raised vultures into the wild. The success of VSZ raises obvious questions. What next? Can it be scaled up further? If yes, how? Below, I argue for scaling up VSZs to include more raptor species.

2 | Materials and methods

This article does not involve research, interaction with communities, or direct contact with animals and therefore does not have specific methods or results. The area coverage is Nepal. Literature related to vultures, vulture safe zone, raptor conservation, and conservation outside protected areas were searched online and relevant papers cited.

3 | Results and discussion

3.1 | Moving forward with VSZs

Answers to how we may move forward with VSZs may include increasing the size of VSZs (by merging or expanding), increasing the intensity of conservation measures within the VSZs, improving the legal and institutional framework of VSZs, or expanding existing structures and mechanisms to include additional taxon. I urge the conservation community to expand VSZs to include other threatened raptor species and create Raptor Safe Zones.

3.2 | Why raptors and where?

Raptors are defined as “all species within orders that evolved from a raptorial landbird lineage and in which most species maintained their raptorial lifestyle as derived from their common ancestor” (McClure et al. 2019) and include all vulture species. Of the 892 species reported from Nepal, a little more than 9% (83 species) are raptors, but 22% of all threatened bird species in Nepal are raptors (DNPWC & BCN 2022). There are 28 threatened raptor species in Nepal (Inskipp et al. 2016; Subedi et al. 2023).

Most importantly, Nepal is considered a hotspot for raptors (Subedi et al. 2023 and references therein). In a global ranking of IBAs, McClure et al. (2018) reported that six IBAs from Nepal with the most raptor species, seven IBAs from Nepal with the most threatened raptor species, and eight IBAs from Nepal with the most number of declining raptor species in the top ten are from Nepal (Table 1). Furthermore, Chitwan National Park is ranked number one, and Koshi Tappu Wildlife Reserve and Koshi Barrage are ranked either number one or two globally in all three categories (Table 1). This is just the tip of the iceberg because eBird (eBird 2023) reports 68 species of raptors from Chitwan District alone. Among these 68 species, 10 are globally threatened and 28 are nationally threatened (DNPWC & BCN 2022). Because Chitwan National Park is the highest-ranked IBA globally for raptors in several categories (Table 1), and because the current VSZ is centered nearby at Pithauli and overlaps part of Chitwan National Park, I recommend that the creation of a Raptor Safe Zone in Nepal be initiated around Chitwan National Park (Chitwan and Nawalparasi East districts). The RSZ can then be expanded further.

3.3 | The opportunity

We are in the running to create the “World's first Raptor Safe Zone”, another conservation milestone for Nepal.

Table 1. List of 15 Important Bird and Biodiversity Areas of Nepal with four or more raptor species, and their global rank (reported if in the top 10) for the number of species, number of threatened species, and the number of declining species*.

Important Bird and Biodiversity Area (IBA)	Species (rank)	Threatened species (rank)	Declining species (rank)
Chitwan National Park	16 (1)	7 (=1)	13 (1)
Koshi Tappu Wildlife Reserve and Koshi Barrage	15 (2)	7 (=1)	12 (2)
Sukla Phanta Wildlife Reserve	11 (=4)	6 (=3)	10 (3)
Bardia National Park	11 (=4)	6 (=3)	9 (=4)
Barandabhar forests and wetlands	10 (=6)	6 (=3)	9 (=4)
Annapurna Conservation Area	10 (=6)	6 (=3)	8 (=8)
Farmlands in Lumbini area	7	5 (=8)	6 (=10)
Mai Valley forests	7	4	6 (=10)
Nawalparasi forests	5	4	5
Langtang National Park	6	3	5
Dang Deukhuri foothill forests and west Rapti wetlands	5	3	4
Dharan forests	4	3	4
Ghodaghodi Lake	3	3	3
Jagdishpur Reservoir	3	3	3
Khaptad National Park	4	2	3

*Based on (McClure et al. 2018).

With RSZ, we now have an opportunity to not only conserve the five globally threatened species of vultures but also four additional globally threatened and 20 nationally threatened species of raptors. Furthermore, we have an opportunity to demonstrate that the future of biodiversity conservation is an integration of conservation efforts both within and outside of the boundaries set by protected areas and OECMs.

3.4 | Challenges and possible solutions

Conserving multiple species over a large geographical area is not without its challenges. Each species has its own unique set of threats, and eventually, species-specific conservation plans are required to meet those needs. In addition, many raptor species have characteristics that are not shared with other raptors (e.g., nocturnal behavior, long-distance migration, dependence on aquatic resources); and in area-based conservation approaches (e.g., protected areas), those unique challenges can potentially be overlooked. However, there are also commonalities between the threats perceived by many raptor species. Challenges such as lack of education and awareness (DNPW & DoFSC 2023; McClure et al. 2023), land management (McClure et al. 2023), poisoning (e.g., NSAIDs and other poisons; Oaks et al. 2004; Subedi et al. 2023), infrastructure related (e.g., electrocution; Subedi et al. 2023), persecution (Subedi et al. 2023), habitat destruction (e.g., logging; McClure et al. 2018), and agriculture and aquaculture practices (McClure et al. 2018) can be addressed through a single-window approach such as RSZ. A key first step would be to identify the different threats for raptors in the proposed RSZ and create a plan to address those threats. This will require the collaboration of government line agencies at municipal, regional, and national levels, local communities, scientists, and birdwatchers. Second, we may need to identify

smaller sub-units to build RSZ. This could be municipalities or their wards. These smaller units provide an opportunity to launch intensive conservation measures that may not be feasible on a larger scale. Third, we need more research on raptors and how they use the available landscape; such research should not be limited to raptor ecology but should also include human socioeconomics.

5 | Conclusions

In the Anthropocene, protected areas and OECMs together may not be sufficient in conserving biodiversity because biodiversity, especially avian biodiversity, is not bound within those areas. To conserve species that easily move from one location to another, we will have to integrate biodiversity conservation into our homes/yards (Lerman et al. 2023), our workplaces, and our everyday lives across anthropogenically dominated landscapes. VSZs have set the foundation, and we have an opportunity to build on this foundation to bring biodiversity conservation to our homes and neighborhoods.

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Conflicts of interest

The author declares no conflict of interest.

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