



VULTURE CONSERVATION ACTION PLAN

(2023-2027)



Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation
Department of Forests and Soil Conservation





Slender-billed Vulture and Indian Vulture, Photo: Ankit Bilash Joshi



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Kathmandu, Nepal

2023



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Front Cover: White-rumped Vulture, Photo: Ankit Bilash Joshi

Back Cover: Red-headed Vulture, Photo: Pratap Gurung



Government of Nepal
Ministry of Forests and Environment
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FOREWORD

Vultures are facing significant threats in Nepal and throughout South Asia, primarily due to the use of non-steroidal anti-inflammatory drug diclofenac and other drugs like nimesulide, ketoprofen and aceclofenac in livestock. These drugs have been found to cause renal failure in vultures, leading to death and significant decline in their numbers. In addition, deliberate poisoning and electrocution are also advancing as a threat to the vultures.

The Vulture Conservation Action Plan for Nepal 2023-2027 is the result of extensive research and consultation with stakeholders, including government agencies, non-governmental organizations, and community groups. It outlines a range of activities, including monitoring and research, habitat conservation, advocacy and awareness-raising and veterinary interventions. The establishment of the vulture safe zone is a significant milestone in vulture conservation efforts globally. It serves as a model for other countries facing similar challenges and provides hope for the recovery of vulture populations in the region.

I firmly believe that this action plan will make a significant contribution to the conservation of vultures in Nepal and help ensure that vultures continue to play their important role in maintaining a healthy ecosystem. However, the successful implementation of this plan will require the commitment and cooperation of all stakeholders. I therefore urge everyone to work together to ensure the protection and survival of these important birds.

The DNPWC greatly acknowledges the contribution of Bird Conservation Nepal (BCN) for providing financial and technical support to develop this action plan and also thank all those who have contributed to the development of this action plan. I look forward to working with you all in its implementation.

Finally, I am confident that this action plan will contribute to long-term existence of the species and its habitat.

Maheshwar Dhakal, PhD
Director General



Government of Nepal
Ministry of Forests and Environment
Department of Forests and Soil Conservation



FOREWORD

The Vulture Conservation Action Plan (2023-2027) has been meticulously crafted, drawing upon past learning's and addressing the pressing conservation challenges faced by vulture species in Nepal. The plan's primary objective is to safeguard these species, which are under significant threat due to the use of diclofenac and other harmful NSAIDs in livestock treatment.

Recognizing that a substantial portion of the vulture population resides outside protected areas, the Department of Forest and Soil Conservation (DoFSC) firmly believes that this action plan will play a pivotal role in preserving vulture habitats and ensuring a secure food source for these magnificent birds. The engagement of local communities, particularly forest user groups, has always been of paramount importance in vulture conservation efforts, and it will be further strengthened through the implementation of the Vulture Safe Zone concept. Given the extensive home range of these creatures, the collaborative and cooperative efforts of all stakeholders are indispensable in ensuring their survival. Consequently, the DoFSC remains steadfast in its commitment to conserving critically endangered vultures through initiatives encompassing rescue and rehabilitation.

This action plan offers ample opportunities to establish a win-win situation, effectively linking conservation efforts with benefits for the local communities. By bolstering the management of community-operated vulture safe feeding sites, for which Nepal has already garnered international recognition, we can foster a mutually beneficial relationship. I am optimistic that our collective endeavors will yield success in implementing this action plan, thus achieving yet another milestone in our vulture conservation program.

Lastly, I would like to extend my heartfelt congratulations to all those involved in the development of this invaluable document. Your unwavering dedication and commitment are commendable. I eagerly look forward to witnessing the successful outcome of this action plan, as it marks a significant stride in our ongoing pursuit of vulture conservation. Together, let us forge ahead, fostering a harmonious coexistence between vultures and human communities, thereby preserving the biodiversity and ecological integrity of our cherished natural heritage.

Devesh Mani Tripathi
Director General

Acronyms and Abbreviations

AD	Anno Domini before Christ
BCN	Bird Conservation Nepal
BNHS	Bombay Natural History Society
BS	Bikram Sambat (Nepali Calendar Year)
BZ	Buffer Zone
BZCF	Buffer Zone Community Forest
BZMC	Buffer Zone Management Committee
CBD	Convention on Biodiversity
CBO	Community-Based Organization
CF	Community Forest
CFUG	Community Forest User Group
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNP	Chitwan National Park
CR	Critically Endangered
DDA	Department of Drug Administration
DFD	Diclofenac Free District
DFO	Division Forest Office
DoFSC	Department of Forests and Soil Conservation
DLS	Department of Livestock Services
DNPWC	Department of National Parks and Wildlife Conservation
DoA	Department of Agriculture
GoN	Government of Nepal
GPS	Global Positioning System
INGO	International Non-Governmental Organization
IUCN	International Union for Conservation of Nature
IVAD	International Vulture Awareness Day
MoFE	Ministry of Forest and Environment
NBSAP	National Biodiversity Strategy and Action Plan

NP	National Park
NPR	Nepalese Rupee
NSAID	Non-Steroidal Anti-Inflammatory Drug
NTNC	National Trust for Nature Conservation
PA	Protected Area
RSAT	Release Site Assessment Tool
RSPB	Royal Society for the Protection of Bird
SAVE	Saving Asia's Vulture from extinction
VCAP	Vulture Conservation Action Plan for Nepal
VCBC	Vulture Conservation and Breeding Centre
VSFS	Vulture Safe Feeding Site
VSZ	Vulture Safe Zone
VU	Vulnerable
WHO	World Health Organization
WWF	World Wide Fund for Nature
ZSL	Zoological Society of London



Egyptian Vulture adult and chick on nest. Photo: Pratap Gurung

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White-rumped Vulture, Photo: Chungba Sherpa

Executive Summary

Vultures are scavenging birds of prey that eat only dead carrion and play an important role in the ecosystem due to their rapid consumption in the group. Except for Australia and Antarctica, vultures can be found on every continent. Nine of the 16 species of old-world vultures are found on the Indian subcontinent, with six resident species in Nepal. Out of nine vulture species in Asia, four are classified as critically endangered by the International Union for Conservation of Nature.

The use of diclofenac medicine for treating livestock is the major cause of the decline of the vulture population. To halt the decline of vultures in Nepal, both ex-situ and in-situ conservation has been practiced. The Government of Nepal banned the production and use of veterinary diclofenac in 2006. In the meantime, promoted the vulture-safe drug Meloxicam subsequently and successfully implemented the first (2009-2013) and second (2015-2019) Vulture Conservation Action Plans for Nepal. Nepal initiated a pioneering idea in the world of working with local communities to establish a Vulture Safe Zone since 2009. As a result, the vulture population especially Critically Endangered Vultures i.e.

White-rumped Vulture and Slender-billed Vulture are in partial recovery with the declaration of the world's first scientifically validating vulture safe zone. However, vultures are still under high threat due to the use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) other than meloxicam and tolfenamic acid, direct or indirect persecution by humans or poisoning of domestic cattle retaliation against their loss, electrocution, habitat degradation, disturbance by proceeding mine excavation, road construction, river exploitation in and around the vulture nesting sites.

The main goal of this Vulture Conservation Action Plan is to restore and maintain the viable wild vulture population in Nepal. The objectives of the action plan are:

1. Prevention of NSAIDs poisoning and control of the deliberate poisoning of cattle carcass
2. Promote scientific research to enhance knowledge
3. Release of captive vultures into the safe environment
4. Promote a safe food supply to vultures
5. Habitat conservation and safeguarding from power infrastructures
6. Sensitize stakeholders and build their capacity
7. Build partnerships at local, national, and international levels
8. Strengthen the Vulture Safe Zone

Each objective is further detailed with outputs and actions. A total of Nepalese Rupees 148,005,000.00 has been estimated for the plan of five years. The Department of National Parks and Wildlife Conservation bears ownership of the document and collaborates with different stakeholders to ensure the successful implementation of this action plan.



I n t r o d



Himalayan Griffon, Photo: Tashi R. Ghale

u c t i o n

1.1 Relevance of the Action Plan

The revision and endorsement of the Vulture Conservation Action Plan (VCAP) 2023-2027 with a well-defined strategy is an ultimate need to bridge gaps in the implementation of the previous VCAPs. The Government of Nepal, Department of National Park and Wildlife Conservation (DNPWC) is paramount to implement the conservation actions of wildlife and their habitat in the country. According to the Nepal Biodiversity Strategy and Action Plan (NBSAP), a conservation action plan is an executive guiding tool that stimulate towards the conservation initiation of target species (MoFSC, 2014). Gyps species are one of the threatened species throughout the range. White-rumped Vulture (WRV), Slender-billed Vulture (SBV), Red-headed Vulture (RHV), and Indian Vulture (IV) are categorized as critically endangered species and Egyptian Vulture (EV) categorized as endangered. The

vulture conservation actions undertaken in the country for more than a decade resulting the partial recovery of the vulture population in the country. Furthermore, monitoring on use of toxic drugs other than diclofenac, establishment of a Vulture Safe Zone (VSZ), ecological monitoring of vultures, and movement tracking via telemetry tagging is the major initiative to be instigated for long-term conservation of globally threatened vultures in Nepal.

1.2 Action Plan Development Process

To revise the VCAP, DNPWC approved the Terms of Reference (ToR) for the preparation of the VCAP. Accordingly, the task force was formed at the DNPWC to prepare a draft of the action plan. The task force prepared a draft action plan based on a literature review, stakeholder discussions, and local consultation workshops. The draft plan was shared with the technical team of DNPWC for their feedback. In addition, a national workshop was organized in Kathmandu to share and get feedback on the draft of VCAP. The draft of the action plan was reviewed by a panel of experts before finalizing the action plan.

1.3 Scope of the Action Plan

More than a decade of vulture conservation efforts results in the partial recovery of the vulture population in Nepal (Galligan et al., 2020). This conservation action plan emphasizes on strengthen of the Vulture Safe Zone, elimination of toxic NSAIDs and minimize the other threats, the continuation of Vulture Safe Feeding Sites, movement tracking, and understanding of the ecological behaviour of captive released and wild telemetry tagged vulture in coordination with different stakeholders. The vulture conservation action plan encourages regional collaboration with vulture range countries and transboundary dialogue to discourse the different issues.

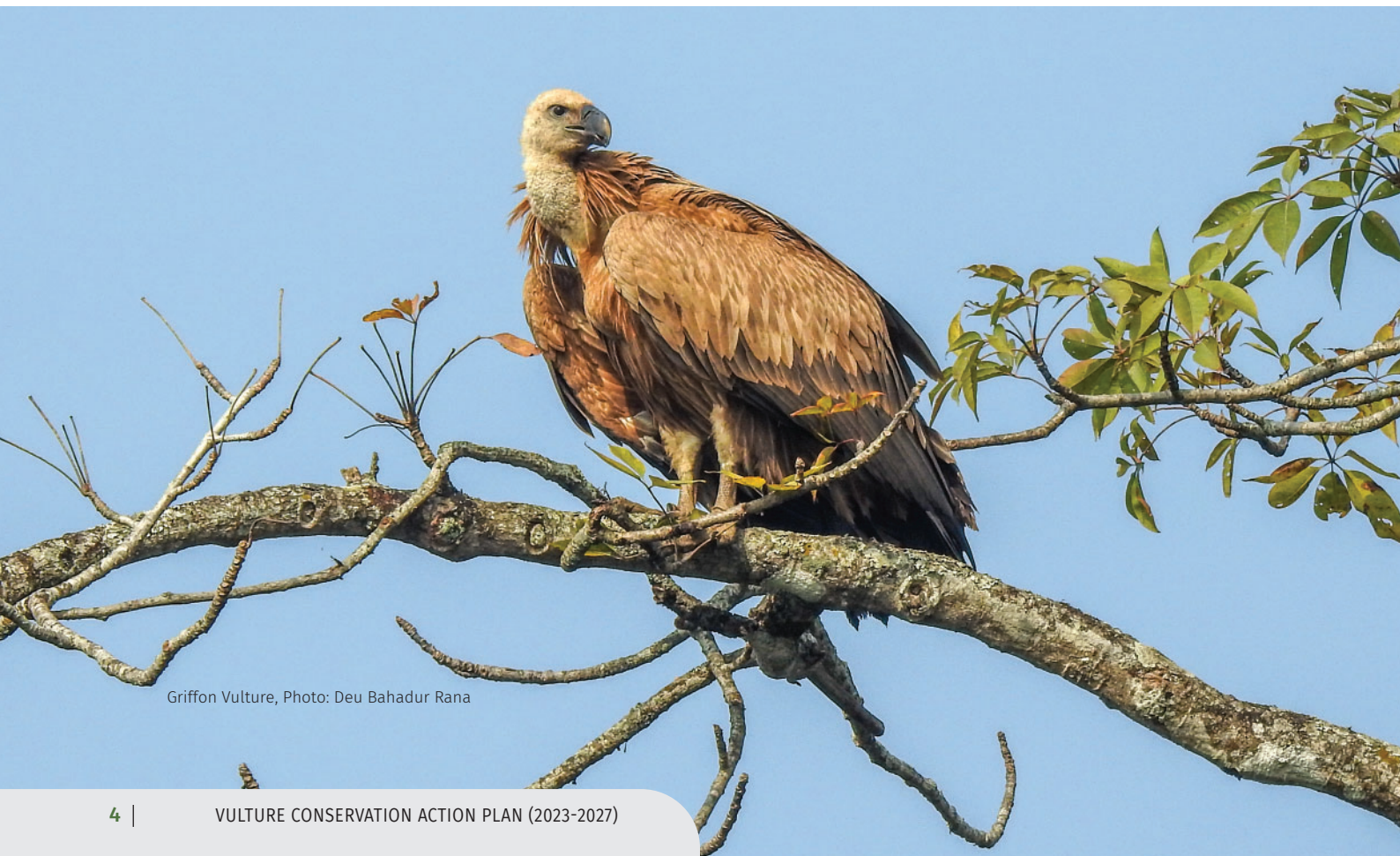
Background

2.1. Taxonomy

Vultures of the world are systematically classified under two families Cathartidae (The New World Vultures) and Accipitridae (The Old World Vultures). Accipitridae vultures include 16 species scattered within nine genera (*Aegypius*, *Gypaetus*, *Gypohierax*, *Gyps*, *Necrosyrtes*, *Neophron*, *Sacrogyps*, *Torgos*, and *Trigonoceps*). Cathartidae vultures include seven species belonging to five genera (*Coragyps*, *Cathartes*, *Gymnogyps*, *Vultur*, and *Sarcoramphus*). The major difference between old and new-world vultures is that old-world vultures depend on sight to find food whereas many new-world vultures have a very good sense of smell and can smell dead animals from a distance of up to two kilometers. In addition,

Cathartids differ most conspicuously from Accipitriform in their lack of grasping foot and lack of a syrinx but also in many other important characteristics of skeleton, musculature, feather tracts, moult, internal organs, physiology, sexual dimorphism, and eggshell structure (Ligon, 1967).

Nepal supports nine species of vultures from five genera (*Aegypius*, *Gypaetus*, *Gyps*, *Neophron*, and *Sacrogyps*) all belonging to the Accipitridae family; namely: White-rumped Vulture *Gyps bengalensis* (WRV), Slender-billed Vulture *Gyps tenuirostris* (SBV), Red-headed Vulture *Sacrogyps calvus* (RHV), Indian Vulture *Gyps indicus* (IV), Egyptian Vulture *Neophron percnopterus* (EV), Himalayan Griffon *Gyps himalayensis* (HGV),



Griffon Vulture, Photo: Deu Bahadur Rana

Bearded Vulture *Gypaetus barbatus* (BV), Griffon Vulture *Gyps fulvus* (GV) and Cinereous Vulture *Aegypius monachus* (CV). This comprises all species recorded from the Indian Subcontinent (DNPWC, 2015).

2.2 Distribution

2.2.1 Global

Vultures are found all over the world except in Antarctica and Oceania. Vulture dwells in diverse ecosystems and geographical ranges from the Amazonian rainforest to the East African savannah, Sahara Desert, and the Himalayas (Buechley & Sekercioglu, 2016). The Old World Vultures are found in Africa, Europe, and Asia while the New World Vultures are found in warm and temperate regions of America. Among the New World Vultures, Black Vulture (*Coragyps atratus*) and Turkey Vulture (*Cathartes aura*) are found in both North and South America. Greater Yellow-headed Vulture (*Cathartes melambrotus*), Lesser Yellow-headed Vulture (*Cathartes burrovianus*), Andean Condor (*Vultur gryphus*), and King Vulture (*Sarcoramphus papa*) are found only in South America and California Condor (*Gymnogyps californianus*) found only in North America. Among Old World Vultures, four species: Bearded Vulture, Cinereous Vulture, Egyptian Vulture, and Griffon Vulture is found (or had historical range) in all the three continents (Asia, Europe, and Africa). Himalayan

Vulture, Indian Vulture, Red-headed Vulture, Slender-billed Vulture, and White-rumped Vulture are found only in Asia. Additional seven species, Cape Vulture (*Gyps coprotheres*), Hooded Vulture (*Necrosyrtes monachus*), Rüppell's Vulture (*Gyps rueppelli*), White-backed Vulture (*Gyps africanus*), White-headed Vulture (*Trigonoceps occipitalis*), and Palm-nut Vulture (*Gypohierax angolensis*) are found in Africa. The remaining species, Lappet-faced Vulture (*Torgos tracheliotos*) is found both in Asia (the Middle East only) and in Africa (Anderson & Mundy, 2001).

Presently, 14 of 23 (61%) vulture species worldwide are threatened with extinction and the most rapid declines have occurred in the vulture-rich regions of Asia and Africa (Ogada et al., 2016). All Accipitridae species are protected under the Convention on International Trade in Endangered Species (CITES).

2.2.2 National

Among nine species recorded from Nepal, six species are resident, two species are migratory and one species occurs as a vagrant. Five species are currently considered globally threatened, and seven species are considered nationally threatened (Table 1). Detailed species-wise distribution of vultures recorded from Nepal is presented in Appendix 1.

Table 1 Resident / Migrant Status, Conservation Status, and Estimated Population of Nine Species of Vultures in Nepal

Species*	Resident/ Migratory*	Conservation Status (Global)+	Conservation Status (Nepal)#	Estimated Population in Nepal #
Bearded Vulture	Resident breeder	Near Threatened	Vulnerable	<500
Cinereous Vulture	Winter migrant	Near Threatened	Endangered	60-100
Egyptian Vulture	Resident breeder	Endangered	Vulnerable	300-1000
Griffon Vulture	Passage migrant	Least Concern	Data Deficient	-
Himalayan Griffon	Resident Breeder	Near Threatened	Vulnerable	<10000
Indian Vulture	Rare Visitor	Critically Endangered	Not Assessed	-
Red-headed Vulture	Resident Breeder	Critically Endangered	Endangered	200-400
Slender-billed Vulture	Resident Breeder	Critically Endangered	Critically Endangered	50-75
White-rumped Vulture	Resident Breeder	Critically Endangered	Critically Endangered	<2000

Source: *DNPWC/MoFSC/GoN 2009; +IUCN 2015; #BCN and DNPWC 2011, Inskipp et al. 2016

2.3 Ecology of Vulture

2.3.1 Habitats

Vultures inhabit in areas near human habitation and open areas usually prefer desert, forest, savanna, and grassland for their habitation according to their origin. Some vultures build their nests and breed in cliff whereas some in a tall tree nearby to water sources.

2.3.2 Breeding ecology

Old World Vultures (Accipitridae) have low breeding rates (maximum of one egg per clutch) and very slow growth rates (L. Brown & Amadon, 1968). However, BV sometimes lays two eggs per clutch. Vultures are monogamous birds and they pair up for life (Kanauija & Kushwaha, 2014). If one member of the pairs dies, the other often will take a new mate (Davitt, 2009). Vultures normally prefer nesting sites outside of forest edge, grasslands with scattered trees, or found in colonies in a treetop at about 27 meters from the ground level (Rana et al., 2019).

Among six resident breeders of vultures recorded from Nepal WRV, RHV and SBV build nests in tall trees. BV and HG build nests on cliffs. EV builds nests in cliffs and occasionally in trees. In Nepal, WRV and HG build nests in colonies while EV, BV, RHV, and SBV nests are found scattered. In Nepal, sometimes SBV and EV nests have been recorded within the WRV colonies. Similarly, BV and HG build nests on the same cliff in the Himalayas. However, RHV is strictly a solitary species.

2.3.3 Feeding ecology

All species of vultures recorded from Nepal feed exclusively on carrion. Houston (1984) reported that most of the biomass available to Vultures came from animals. Food is located by soaring in the group which may be composed of either intraspecies or interspecies and considerable aggregations can be formed.

Gyps vultures (WRV, SBV, IV, HG, and GV) strictly depend upon the flesh of carcasses for their food. The diet of BV mainly consists of bones of medium-sized dead domestic



Vulture feeding carcass, Photo: Krishna Bhusal

and wild ungulates (Brown & Plug, 1990; Margalida et al., 2008). EV is an opportunistic scavenger and feeds on a variety of birds, mammal, amphibian and reptile remains organic rubbish such as rotten vegetable matter; less dependent on large carcasses than other vultures. RHV feeds mostly on carrion. CV mostly feeds on the carrion of birds and mammals, also dead or stranded fish (Naoroji & Sangha, 2006).

2.3.4 Social Behavior

Vultures are highly social animals with a diverse range of breeding systems both within and among species, ranging from strict territoriality to various forms of social breeding (Christie & Ferguson-Lees, 2010). Their degree of sociality also varies widely irrespective of breeding system, with some species showing permanent forms of group living, whereas others have much more fluid social systems characterized by fission-fusion dynamics linked to food bonanzas, communal roosting, and other social gatherings (Donazar et al., 1993).

2.4 Importance of Vultures

Vultures are the natural scavenger, most notably the disposal of carrion, especially livestock carcasses. These services have an impact on economic activity, sociocultural aspects, environmental quality, and human health.

2.4.1 Economic Activity

When livestock dies in rural areas, in the absence of vultures, locals or local authorities must either accept the disamenity of the stench of rotting flesh and the increased disease risks or incur the costs of carcass disposal (e.g. by burial or incineration). Even in areas where dogs have increased considerably, they do not remove the need for carcass disposal because there are often insufficient dogs; and, as they are not such efficient scavengers, they leave part of the carcass unscavenged. This will ultimately have a direct impact on human health. Other important benefits society receives from the protection of vultures derive from the pleasure people might receive by viewing them. For example, some ecotourism companies include the possibility of seeing vultures within their itineraries, and several tour operators offer bird watching tours specifically to see vultures. Tourism attracted by viewing vultures generates additional income for sectors, which supply the tourism industry. For example, the Vulture safe feeding sites of Nawalparasi and Kaski districts, Nepal. The values placed on vultures may also include values on the option of viewing or bequest values for future generations.

2.4.2 Socio-cultural

Vultures have different aspects of belief based on different cultures and religions. They also have an important cultural role in the consumption of human corpses in sky burials within Nepal and Tibet. Sky burial is one of the ancient cultures of Buddhism in the high Himalayas of the Tibetan Plateau, also among Zoroastrians in the Parsi communities of India. Vultures, in this context, are symbolized or associated with purification and rebirth (Eldar, 2008). Furthermore, In the Hindu religion, animals, birds, and snakes are considered important for human existence, and within Hindu mythology, the vulture God Jatayu is regarded as a holy bird. Jatayu gave up his life while attempting to protect Sita, wife of Rama. Vultures are the spy of “God Sani” (Saturn) and are epitomized as the symbol of bravery in the famous Holy book Ramayana.

2.4.3 Ecological

Vultures play an essential role in maintaining a healthy ecosystem. Vultures are the most efficient scavenging birds and play a highly important ecological role through the rapid consumption of animal carcasses (Ogada et al., 2016). As carrion specialists, the absence of vultures from carcasses may affect the community composition of scavengers at carcasses, which could alter scavenging rates for individual species. In localized regions where vultures are functionally extinct, the absence of vultures at carcasses appears to have driven a rapid increase in the abundance of opportunistic species such as feral dogs and rats (Pain et al., 2003; Prakash et al., 2003). Therefore, vultures play an important role in decomposing carcasses, maintaining community structure, and moderating contact between mammalian scavengers at carcasses.

2.4.4 Human Health

An increase in uneaten livestock carcasses may pose a direct threat to human health because they provide a breeding ground for pathogenic bacteria leading to the possibility of direct or indirect infections. As such, these carcasses can be sources of a range of infectious diseases, such as anthrax (George et al., 1994; John, 1996; Vijaikumar et al., 2002). In removing carcasses rapidly and efficiently, vultures clean the environment and help protect humans, livestock, and wildlife from infectious diseases. A fall in the vulture population could increase the dog population (Prakash et al., 2003).

Major Conservation Efforts and Achievements

3.1 Conservation Effort

Vulture conservation in Nepal was initiated in early 2000. There was ignorance of the issue and the solutions across government, civil society, and the private sector. The sheer geographical scale of the problem and how to work across such huge areas brought its challenges. Since 2002, our vulture recovery programme initiated an integrated approach, which involves advocacy, education, monitoring, research, captive breeding, supplementary feeding, and site protection to help implement Nepal's Vulture Conservation Action Plan.

DNPWC in collaboration with DDA, BCN, NTNC, RSPB, and ZSL endorsing a ban on the production and use of a veterinary drug, diclofenac in 2006 and promoting the vulture safe drug, Meloxicam subsequently. Furthermore, realizing the rapid decline of the wild population and the urgent need to establish breeding centers, DNPWC established a Vulture Conservation and Breeding Centre (VCBC) at Kasara, Chitwan in 2008 aiming to conserve vulture species. The Major conservation efforts are described below.

3.1.1 Vulture Conservation and Breeding Centre

Due to the rapid decline of South Asian vultures, there is an urgent need to establish vulture breeding centers to protect them from extinction. As a result, BCN, NTNC, RSPB, and ZSL aided DNPWC, Government of Nepal, in establishing the VCBC at Kasara, Chitwan, Nepal, within

the Chitwan National Park in 2008. The goal of the program is to save two Gyps species, WRV and SBV.

With two breeding aviaries and two holding aviaries adjacent to the Gharial Breeding Centre, the breeding centre covers 6,375 square meters. In total, 60 juvenile WRV were captured as fledglings in the wild in Nepal's western regions and placed in two colony aviaries in VCBC, Chitwan. These birds were transferred from holding aviaries to the large colony to prepare for breeding in a mimic of natural habitat with ponds for bathing, perches that mimic tree branches, hammocks for nesting and laying egg, and shades for relief from the scorching heat. The large colony is designed with a 120-meter span, which encourages the birds to fly freely from one end to the other. A total of 18 chicks were hatched in VCBC since its establishment in 2008, indicating that the initiative has been a success.

All of the captive-bred chicks, as well as the captive-reared adults have been released with a satellite tag from the center.

3.1.2 Vulture Safe Zone

In 2009, Nepal pioneered the concept of establishing a Vulture Safe Zone (VSZ) working with local communities. A VSZ is an area surrounding one or more wild vulture nesting colonies, large enough to encompass the mean foraging range (>30,000 km²) completely free from diclofenac use. This VSZ concept arose from some

excellent conservation efforts to create diclofenac-free zones across the country utilizing a district by district, province by province approach.

There are three provisional VSZs (pVSZs) in Nepal centered around Pithauli (Nawalparasi), Bijauri (Dang) and Khutiya (Kailali) VSFS. Approximately 30 nesting colonies of vultures (largely white-rumped vulture, and other resident breeders) are protected within these pVSZs.

VSZ is an innovative way to ensure that these threats are minimized, and favourable conditions have been maintained to create a scientifically validated VSZ. A total of 76 districts been declared as a DFZ out of 77 districts till 2021 with coverage of 146,454 sq. km (BCN, unpublished). These are verified through declaration certificates and monitoring reports.

DNPWC in partnering with Bird Conservation Nepal (BCN) along with vet professionals, other conservation organisations, and government agencies has been regular partnering with communities within potential VSZs to completely stop the diclofenac use and other threats to vultures before declaring the area as VSZ. In the beginning, the big challenge was removing diclofenac from the veterinary system.

Since 2009, BCN has been working with local people to establish a Vulture Safe Zone in order to advocate for a diclofenac ban and to maintain a captive population of vultures in Nepal (Paudel, 2013). The districts are declared

as DFZs once diclofenac levels in veterinary pharmacies are monitored and the absence of diclofenac in the district is proven. The BCN, in collaboration with its local partner in stewardship of district-level government agencies and District Livestock Service Office, coordinates this program.

pVSZs are considered full VSZ status only after it is proven that the primary threat to vultures has been eliminated for that two years of pharmacy monitoring data with no veterinary diclofenac found and no dead vulture should be found with diclofenac poisoning at least for five years or no diclofenac residue to be found in more than 800 cattle carcass or through satellite tagging of 25 vultures for two years and doing the post mortem of the carcass to identify the cause of death.

3.1.3 Safe Feeding Sites

Nepal is the first country in the world to conceptualize a community-based Vulture Safe Feeding Site, which provides safe food within a Vulture Safe Zone to promote community support and long-term sustainability (Bhusal, 2018). The world's first community-managed Vulture Safe Feeding Site (Jatayu Restaurant) was established in 2006 at Kawasoti, Nawalparasi and similar efforts have been replicated in six other sites in Nepal. These Vulture Restaurants collect old and unproductive cows from nearby villages and reared for at least seven days to ensure that they are diclofenac-free and then fed to vultures after their natural death. The VSFS is the area surrounding one or more wild vulture nesting colonies



Vulture feeding carcass in Safe Feeding Site, Photo: Ankit Bilash Joshi

that is large enough to encompass the mean feeding range and is diclofenac-free. VSFS is commonly known as Vulture (Jatayu) Restaurant, a site where vultures are provided safe food while considerable efforts are made to free the prevalence of diclofenac.

In Nepal, seven VSFS are in operation, with the primary objectives of providing safe food for vultures and integrating local communities to enhance their livelihoods. Communities benefit from activities that generate income and connect them together. This neatly integrates biodiversity conservation with a source of revenue. Vulture Restaurants' surrounding villages developed a clear and strategic plan to save vultures and other wildlife by implementing sustainable living practices in rural communities. The goal was for these places to become model sustainable conservation and eco-tourism zones, demonstrating how people may not only survive, but also develop and thrive while conserving and maintaining the environment in which they live.

3.1.4 Research and Monitoring

Annual road transect survey follows east-west highway and covers most of the hilly areas of Karnali, Lumbini, and Gandaki provinces. This transect was established since the massive vulture falling-off in the country, the survey revealed the loss of White-rumped vulture and Slender-billed Vulture with 91% and 96% respectively in the country (Chaudhary et al., 2012). Since the mass decline of vultures was confirmed with the widespread

use of diclofenac, the NSAID monitoring is being undertaken in two different methods such as General and Undercover survey as a result of zero availability reckon to declaration of Diclofenac Free Districts. Annual breeding success of vulture is determined by the three visits of nest monitoring in each breeding season adding on vulture population, nesting, and foraging and feeding sites exploration and monitoring activities in various potential locations. Adding on, Nepal has released captive and wild White-rumped vulture in the wild to ensure the survival rate of the vultures with identifying the threats and their favorable habitat. Similarly, BCN has initiated Vulture Count Campaign since 2019 on the occasion of International Vulture Awareness Day (IVAD) following the same time interval on the same day method throughout the country annually.

3.2 Major Achievement

3.2.1. Highway Survey

Not long after the catastrophic declines in vulture populations began, started monitoring vulture species throughout Nepal using major roads as a series of transects along which vultures have counted with 14 years of data illustrate and increase in White-rumped and Slender-billed vultures. The study shows population of two critically endangered Gyps vultures decline between 2002 and 2012/13 followed by partial recoveries between 2012/13 and 2018.

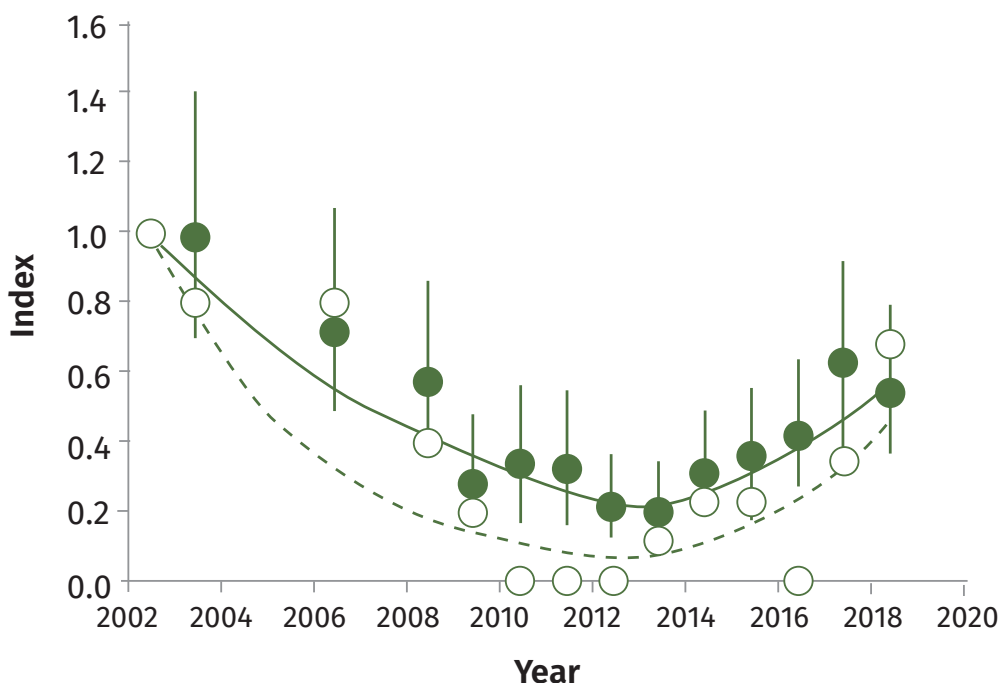


Figure 2: Annual index values for populations of White-rumped (WRV: filled circles) and Slender-billed (SBV: open circles) Vultures in Nepal for 2002-2018, relative to 2002. Vertical lines for the WRV points are 95% confidence intervals from the quasi-Poisson model. Curves show results from the fitted piecewise log-linear regression models for WRV (solid line) and SBV (dashed line). Crosses in the upper part of the diagram show the estimated breakpoints and their 95% confidence intervals. (Galligan et al., 2019)

3.2.2. Non-Steroidal Anti-Inflammatory Drugs, NSAID survey

Over a decades of NSAIDs survey shows virtually no prevalence of diclofenac in veterinary pharmacies and an increase in sales of meloxicam and few evidence of Tolfenamic acid (the vulture-safe alternative to diclofenac). However, the availability of NSAIDs other than diclofenac such as Nimesulide, Ketoprofen, Flunixin and Aceclofenac that have been proven as vulture toxic nurture serious threat in future. Strong advocacy work on vulture conservation and educating communities on the vulture-toxic-NSAIDs problem were important factors behind these achievements. The aim was to rid Nepal of diclofenac and prevent other vulture-toxic NSAID from taking its place. Thus, 76 of 77 districts of Nepal has been declared as the Diclofenac Free District. This was achieved through a programme of wide engagement with communities, local decision-makers and authorities, veterinarians and farmers, conservation organizations, and national media outlets. Nepal has swapped meloxicam for diclofenac, managed Vulture-Safe Feeding Sites, developed vulture ecotourism, and highlighted the importance of vulture role and their ecosystem services. It is these activities, on the back of the ban, which has truly benefitted Nepal's vultures.

3.2.3. Vulture Breeding Ecology

Systematic and continuous ecological monitoring of WRV in Nepal was started in 2008 primarily in and around the VSFS, Nawalpur. Continuing the ecological monitoring of vulture in different district of Nepal results in the

absolute number of active nests are increasing in recent years (Figure 3, Rana et al., 2019). All six resident vultures breeding ecology have been monitored throughout the country with 68.8% breeding success in 2020/21 breeding season whereas the breeding population of Critically Endangered SBV and RHV nesting sites is yet to be explored in wide range of its potential distributional range.



first captive White-rumped Vulture chick breed in wild, Photo: Deu Bahadur Rana

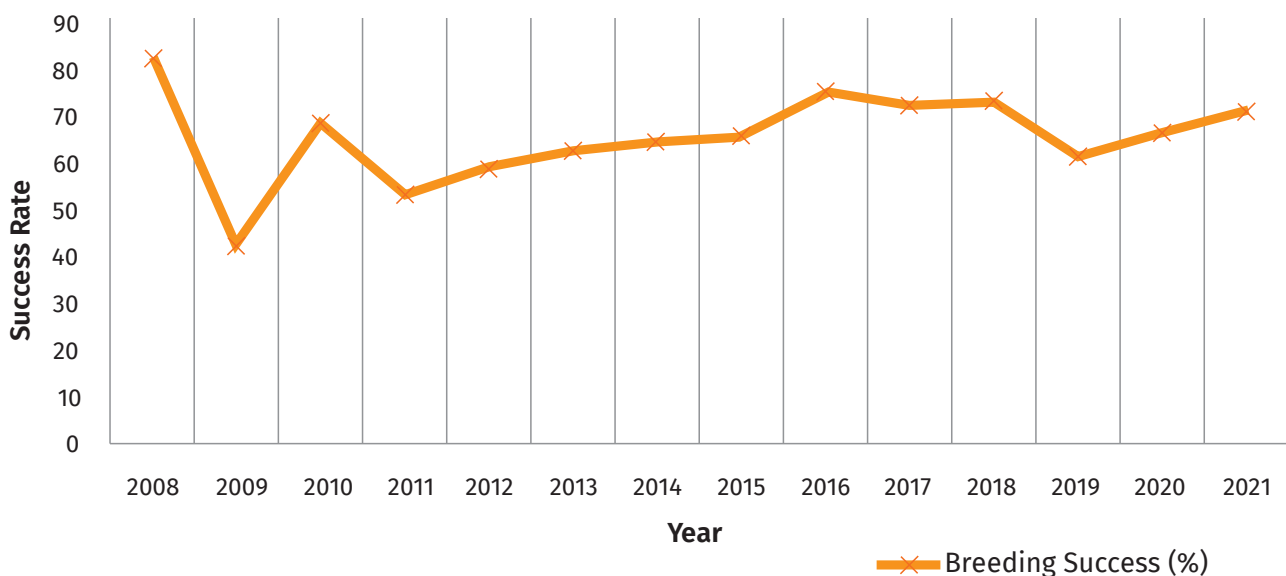


Figure 3: Breeding status of WRV in Nepal

3.2.4. Vulture Release

Nepal has released a total of 119 White-rumped Vultures in the nature since 2017-22 in six different events with telemetry tagging (Figure 4). These vultures are released in 1:1 ratio of wild and captive (captive-bred and captive-reared) vultures.

The data received from the released vultures have made the pleasing movement preferably west and northern Mid-hills to the south, India from the release site. This information has great impact on identifying the roosting, nesting and foraging sites in different parts of the country. Trans boundary collaboration on vulture conservation with India has greatly improved not only between conservation bodies but at the government official level as the vulture roam far and wide and does not know international boundaries. Furthermore, it is great to welcome the new chicks hatched from the Captive-reared White-rumped Vulture. Monitoring the movement and behavior of vulture fitted with the GPS Telemetry tagged was initiated in Nepal since 2013. Moreover, three Red-headed Vultures, three Himalayan Griffon are fitted with GPS telemetry tagged in 2014 and 2019 respectively. In total 11 BV were tagged and monitored (Subedi et. al., 2020).

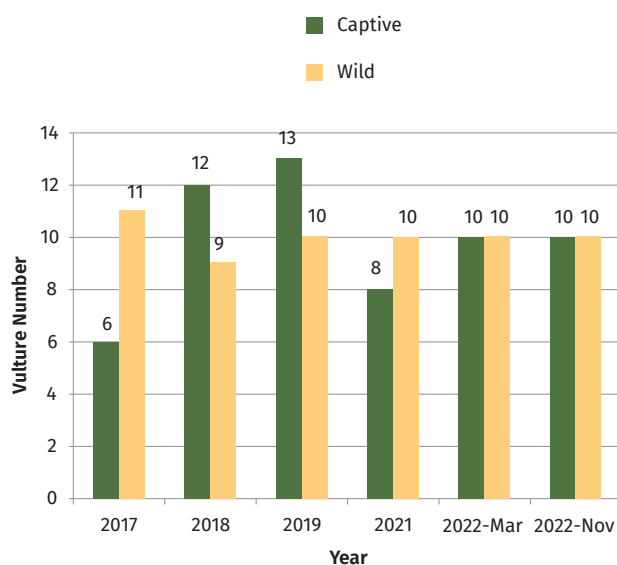


Figure 4: Number of telemetry tagged captive released and wild White-rumped Vultures

3.2.5. Vulture Safe Zone

Gandaki- Lumbini Vulture safe zone was scientifically approved and declared as the true VSZ at the 11th annual meeting of SAVE, based on extensive pharmacy survey over a long period in which no diclofenac found in the market. There was no evidence that any birds died of NSAID poisoning. The high survival rates of wild birds, especially adults, and the lack of evidence for NSAID-caused mortality, suggest that vulture habitat in the Nepal VSZ is virtually free from diclofenac and that other hazards.



Figure 5: Vulture Safe Zone and Diclofenac Free Districts in Nepal

Conservation Threats

4.1 Use of Vulture Toxic NSAIDs in Livestock Treatment

The widespread veterinary drug, diclofenac used to treat livestock suffering from pain and inflammation were premeditated as the primary means of the catastrophic

decline of the vulture population resulting in severe danger of extinction from their distribution ranges in past decades (Harris, 2013; Oaks et al., 2004). The government of Nepal including other South Asian countries banned on production and use of harmful NSAID diclofenac and instead promoted Meloxicam, a safe alternative drug.



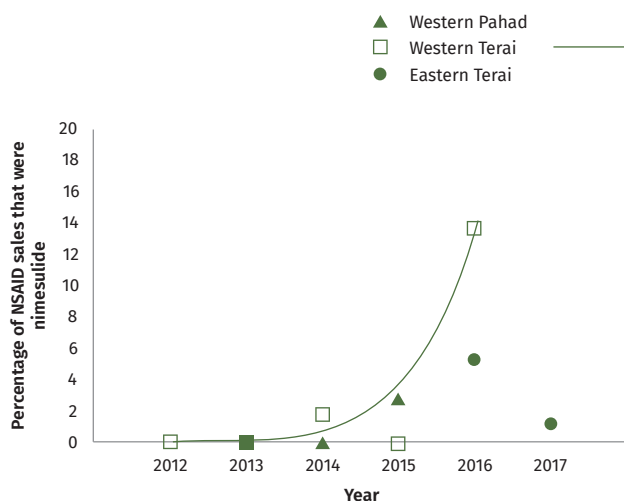
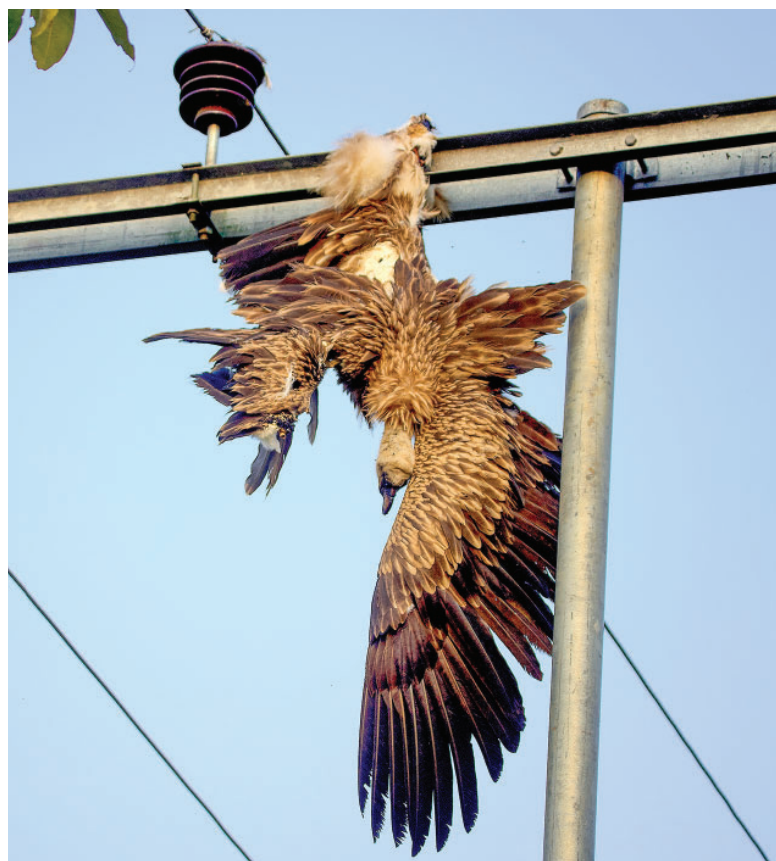


Figure 5: Percentage of pharmacies that sale nimesulide during covert (undercover) surveys of pharmacies in three regions of Nepal from 2012 to 2017.

Now the use of vulture toxic drug diclofenac highly reduced in the region (Galligan et al., 2020). However, diclofenac is not the only NSAIDs responsible for vulture-toxic and thereby killing vultures. Recently, the evidence for toxicity to vulture further six NSAIDs other than diclofenac has been scrutinized namely ketoprofen, nimesulide, aceclofenac, carprofen, phenylbutazone, and flunixin. These NSAIDs are competing with meloxicam for diclofenac's former market share, posing a major threat to Asia's critically endangered vultures' recovery.



Electrocution of Himalayan Griffon, Photo: Deu Bahadur Rana

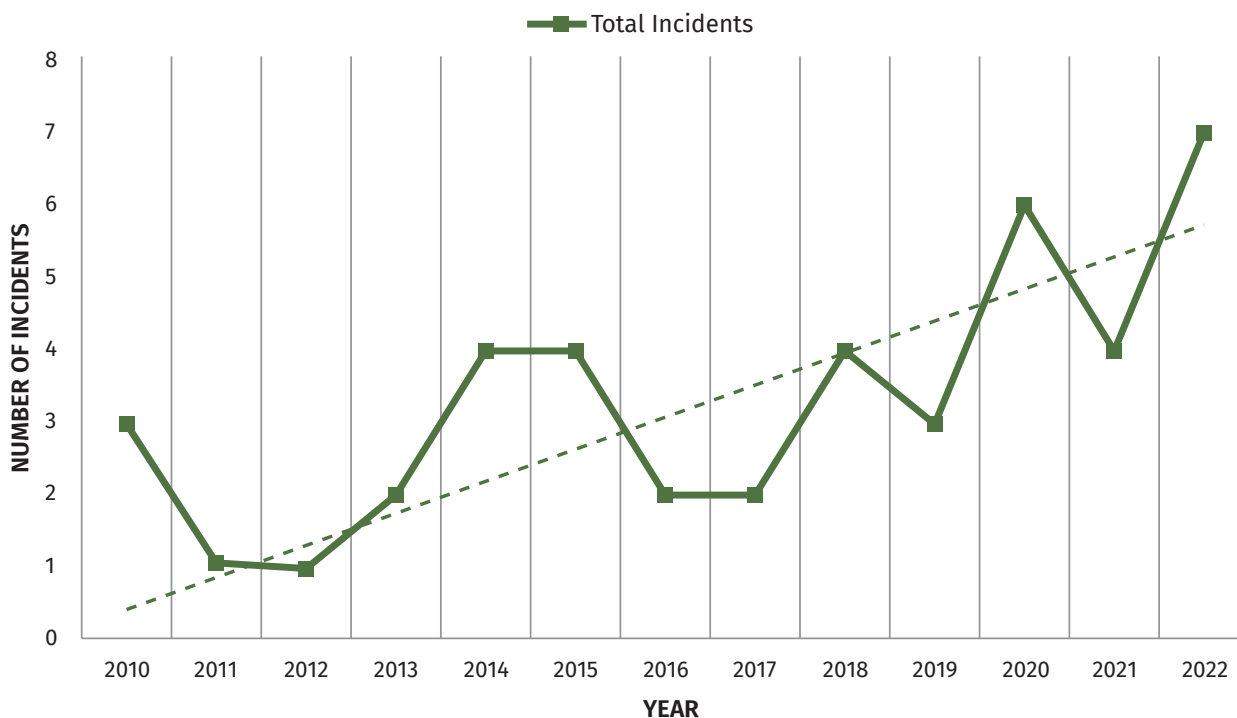


Figure 6: The trend of electrocution and collision incidents of vulture in Nepal

4.2 Habitat Loss and Degradation

In Nepal, various developmental activities are being undertaken as a result the natural habitat of different wildlife including the birds are severely disturbed and are forced to shift from their historic habitation to other best alternate locations. Road construction, mine excavation, tree felling, river exploitation, and other development activities nearby vulture colony are the major threats to vulture which has the direct impact on long-term survival. The Terai Arc Landscape (TAL) of Nepal is a key habitat for the WRV, with around 85 percent of the species' nests in the nation (Rana et al., 2019). Bhusal et al., 2020 estimated that 12.71 percent of total areas of TAL are currently appropriate for WRV and predicted that in the next 50 years, this suitable habitat will have fallen to 11.57 percent, i.e. 9 percent of current suitable habitat will be lost from the TAL area. In general, it is clear that habitat loss is not a direct threat to vultures. However, these various identified habitats should be prioritized for regular monitoring and management for sustainable recovery of such critically endangered species critical habitat that will disappear in the future if conservation initiatives are not implemented.

4.3 Electrocutation and Collision

Electrocutation from electricity and other residential lines has always posed a major threat to large flying birds. Above ground power lines (both medium voltage distribution

lines and medium to high voltage transmission lines) present potentially fatal risks for birds through risks of collision with overhead wires and the risk of electrocution. The trend of the electrocution incident is increasing in the later years. As the developmental works has been increasing in Nepal, these incidents may even rise in number causing a great threat to vulture population that have just started to revive in the wild.

4.4 Safe food availability

Localised food scarcity is also becoming threat to vulture whereas the livestock rearing practices is decreasing. The livestock herding trend is decreased to approx. 50% than previous decades in the country and the majority of herders follows burying as the carcass disposal mechanism. Thus, burying carcasses might be one of the likely causes of a future localized food scarcity for vultures.

4.5 Poison Baits: Use of Pesticides and other Poisons

Agriculture and livestock herding practices are the major occupations in Nepal. Human-wildlife conflict is the major threat throughout the country resulting in retaliatory killing with various practices such as trapping, poisoning, pesticides use, etc. thus the additional mortality of vultures from secondary poisoning can harm the small vulture population (Margalida et al.,



Mass death of vultures due to feeding of poisoned bait carcass, Photo: Deu Bahadur Rana

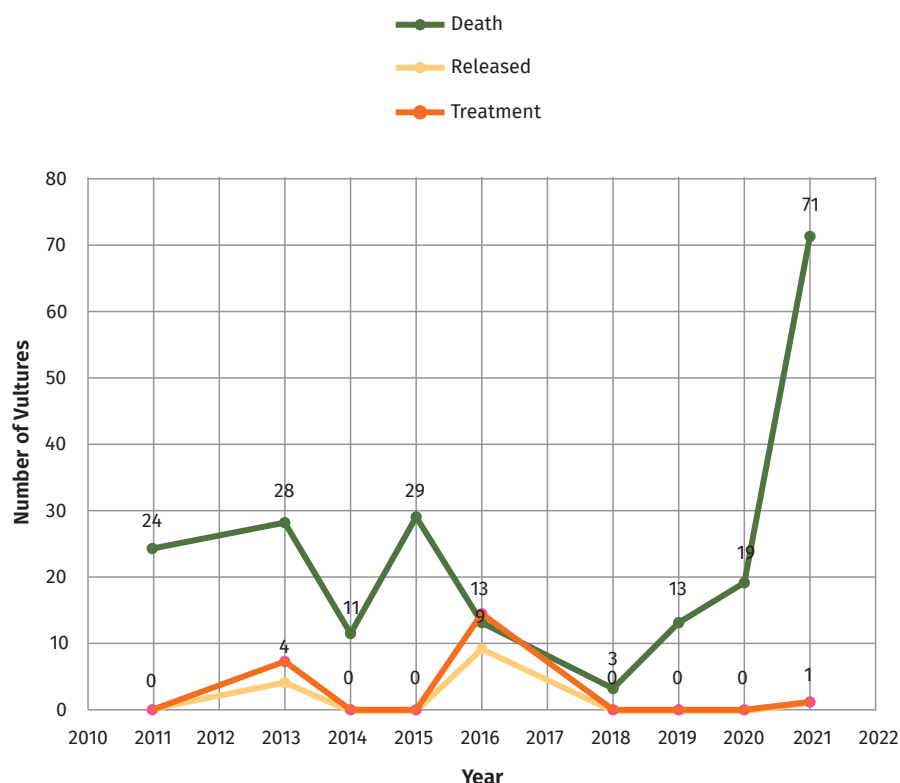


Figure 7: Number of vulture reported from Poison baits incidents

2014). In Nepal, a total of 211 vultures were reported victimized to death by the consumption of the poisoned carcass from the year 2010-2021 (BCN unpublished). Twenty-two vultures have been rescued and under treatment 14 of them were successfully released back. The population-level impact of poison-related mortalities of poorly understood vultures in Nepal.

4.6 Others

There are other occasional intentional and unintentional anthropogenic activities such as teasing the bird as entertainment, targeting by the catapult which can result in mortality. These are not generally thought to be a significant problem, but can be addressed by general awareness raising of the important role vultures play in the ecosystem. The eventual recovery of the Vulture population in Nepal may have threatened by toxic NSAIDs, unintentional poison baits, nest falling, human persecution, habitat loss, localized shortage of food, electrocution, diseases (Chaudhary et al., 2019, Bhusal, 2018).

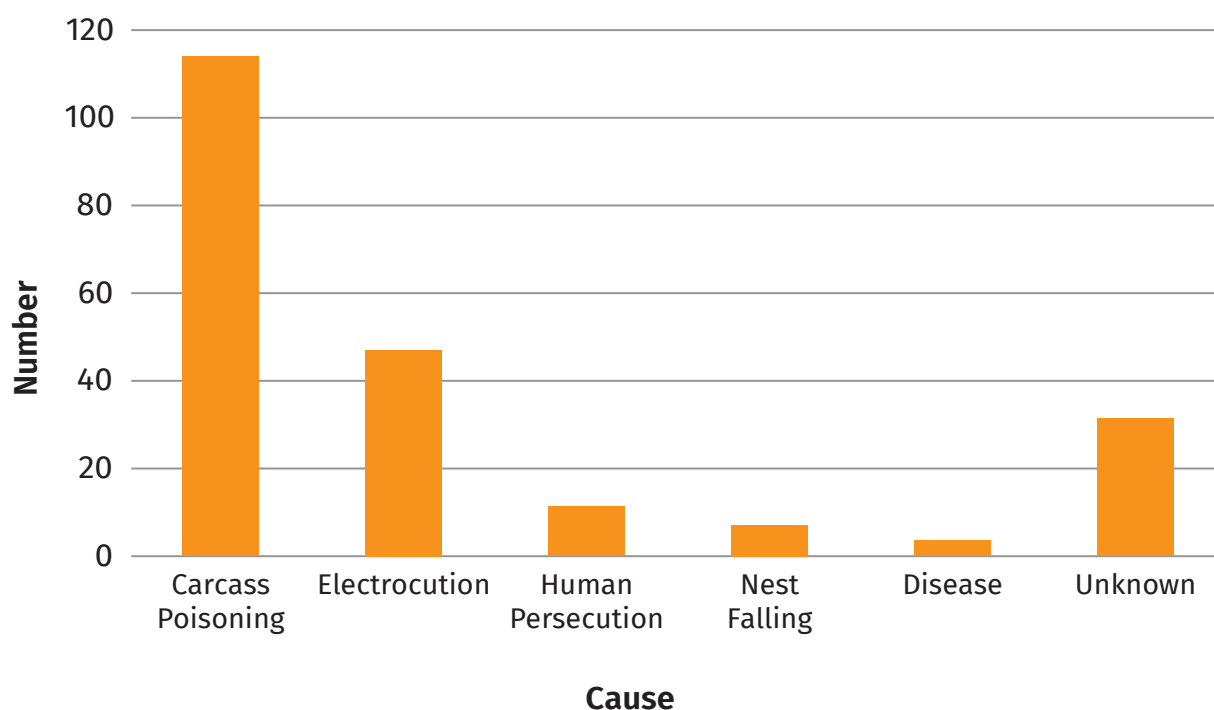


Figure 8: Cause of vulture death in Nepal from February 2010 to June 2019 (Chaudhary et al., 2019)

Challenges and Opportunities

5.1 Challenges

5.1.1 Use of Vulture Toxic Drugs on Livestock Treatment

The catastrophic decline of Gyps species across the Indian Subcontinent means that many other scavenging birds are also exposed to contaminated carcasses. Non-Steroidal Anti-Inflammatory Drug (NSAID), diclofenac has been subjected to a primary consequence of ecological disaster on the Asian vulture population. Despite the wide range of compounds belonging to this family of drugs available in the worldwide market, to date, beside diclofenac other six NSAIDs- namely ketoprofen, nimesulide, aceclofenac, carprofen, phenylbutazone, and flunixin have been tested for the toxicity on vultures of the Gyps genus under controlled conditions. Meloxicam has proven safe for vultures when used in cattle with a result of 0.5 hours against the 12 hours in diclofenac, meaning the activity of meloxicam is practically innocuous to vultures one hour after it's been inoculated whereas diclofenac is still active 24 hours after treatment (Fourie et al., 2015). Recent study has identified tolafenamic acid as the second confirmed vulture safe NSAID after meloxicam (Chandramohan et al., 2022) However, diclofenac, ketoprofen, aceclofenac, nimesulide, and flunixin have already proven fatal for vultures in the wild whereas the effect of other NSAIDs was merely seen during toxicity trials. The study reveals the availability of diclofenac in Nepal accounts for almost zero while other eleven different NSAIDs were recorded, several of which are known or suspected to be toxic to vultures (Galligan et al., 2020). Nimesulide has emerged as a fast-growing threat in Nepal and threatens to undermine the progress with removing diclofenac. Therefore some proactive steps are urgently required to address this.

The lack of adequate safety testing of other NSAIDs on Gyps vultures to identify safe and toxic drug and prevent harm from other potential risks different pharmaceutical products used for livestock treatment instict the serious poisoning challenges on vulture and other wildlife population.

5.1.2 Use of Poison Baits on a Carcass

Mortality resulting from illegal poisoning has unique characteristics that make its surveillance and the effects



Examination of dead vultures, Photo: Ishwari Prasad Chaudhary

on the population somewhat different from other anthropogenic causes of mortality (Martínez-Haro et al., 2008). Vultures are obligate scavengers and are therefore vulnerable to poisoning particularly at carcasses that are laced with poison deliberately to kill terrestrial carnivores. Accidental or secondary poisoning is one of the greatest issues in Nepal in preserving the remaining small population of vultures. Illegal poisoning has been documented as the detrimental effects on population dynamics, especially in those long-lived species with low reproductive rates and delayed maturity (Margalida et al., 2014) thereby vultures are susceptible to the introduction of toxicant in the food chain that anticipates towards severe extinction in future.

5.1.3 Research Gaps

In Nepal different level of research on megafauna including vulture have been undertaken however, it lacks the intensive exploration of potential vulture breeding and feeding sites, laboratory-based test to identify the actual cause of vulture death, corpse test to ensure antibiotic resistance level, level of food competition with other trophic carnivores as the major research gap which is crucial to address in the future conservation programme.

5.1.4 Legislation

Vulture serves the ecosystem by consuming a large mass of carrions and prevents the environment from the spread of different communicable diseases transmitted by various wild and domestic animals. The population

of the vulture was decline alarming to the extinction. It is unfortunate that these invaluable Gyps species still lack to enlisted on nationally protected species. NPWC Act 1997 has ascertained punishment on delinquents against illegal hunting of wildlife and birds but there is no rigorous procedure for immediate punishment. To ban on the use and production of various detrimental NSAIDs which are available in the market whilst the major challenges for long-term vulture conservation.

5.1.5 Low Level of Public Awareness

Numerous incidents of capturing and entertaining with a vulture, hitting them with the catapult, and sometimes killed due to the miss identification between raptors and vultures against retaliation against the loss of their chicken or even small ungulate in different locations within the country. The protection and understanding of vultures remain insufficient nationwide, and there is a lack of adequate punishment for harming them. Moreover, public awareness regarding superstitions, myths, and irrational beliefs surrounding vultures needs improvement to discourage such harmful practices.

5.1.6 Coordination Among Stakeholders

Vulture conservation in Nepal is a long-term conservation programme that aims to reach a broader level of national and international stakeholders. One of the challenges in vulture conservation is the less coordination among stakeholders. To address this issue, it is crucial to establish a shared vision and goals for vulture conservation that take into account the perspectives



Road Transect Survey of Vultures, Photo: Ankit Bilash Joshi

and needs of all stakeholders. This can be done through stakeholder engagement, consultation, and participatory decision-making processes. Effective communication and information sharing are also essential to ensure that all stakeholders are informed and involved in conservation efforts. In addition, it is important to recognize and respect the rights and interests of local communities and indigenous peoples, who may have traditional knowledge and practices related to vulture conservation.

5.1.7 Lack of Rescue and Release Facility

Vultures are found injured or grounded in various locations across the country, however only a limited number of injured vultures are rescued and treated. The successful and timely injured vulture rescue may affect due to the unskilled bird handling technique, lack of information, inaccessible demographic features. The rescued birds require ample rehabilitation facilities where the rescue and treatment center of vulture lacks in the country.

5.2 Opportunities

5.2.1 Research and Knowledge Enhancement

The distribution of the vulture population is well understood throughout the country however in-depth research on understanding the movement and breeding ecology, the sympatric relationship between scavenging birds of prey, vulture, and trophic carnivore is the key potential theme that has yet to be explored. Furthermore, it is also very crucial to conduct research

based on laboratory tests to understand the different aspects of medical examinations and make the vulture conservation programme successful.

5.2.2 Tourism Promotion

Nepal withstands as one of the famous tourist destinations due to its unannotated landscape beauty, wilderness, wildlife, and cultural diversity. The country holds all nine vulture species found in the Indian Subcontinent, offering a unique and enriching experience for tourists seeking refreshment, satisfaction, and opportunities for research and entertainment. Currently, vulture safe feeding sites are the well-known vulture tourism destination in Nepal however, vulture tourism linking with other wildlife and cultural tourism has the ample opportunity to promote tourism and strengthen the community livelihood standards.

5.2.3 Conservation Breeding Program and Release

Nepal has made significant strides in vulture conservation through both in-situ and ex-situ programs, resulting in a partial recovery of the vulture population. However, further efforts are needed to intensify conservation practices. Creating vulture safe zones and safe feeding centers is crucial to address the challenges of low breeding capacity and food scarcity in the wild. GPS telemetry tagging aids in studying vultures for future conservation. Monitoring released and wild-tagged vultures in VSZ is essential. Scaling up tagging techniques enhances broader research for vulture conservation



Tourist watching vultures in safe feeding site, Photo: Kewal Pd. Chaudhary



Vulture Conservation Action Plan (2023-2027)

Egyptian vulture, Photo: Prem Bahadur Bamjan

6.1 Goal

Restore and maintain the viable wild population of vultures in Nepal

6.2 Objectives

Maintain viable wild populations of all the species of vultures through the provision of safe food and maintenance of suitable habitats.

6.2.1 Prevention of NSAIDs Poisoning and Control the Deliberate Poisoning of Cattle Carcass

Rationale

Ketoprofen, Aceclofenac, and Nimesulide have been found toxic but are still not banned from the country. Meloxicam and tolfenamic acid is the only known vulture-safe NSAID, yet there are other NSAIDs available potentially vulture toxic. There is still no regulatory mechanism that exists to ban NSAIDs shown to be vulture toxic. The poisoning of vulture food by NSAIDs continues to be a pressing problem for vulture conservation in the country.

Deliberate or unintentional poisoning on cattle carcasses also causes mortalities in vultures. Though occasional incidences are found now, it could become a serious problem for vulture conservation causing local extinction. Easily available the potent agricultural pesticides in the market is also one of the major problems in mortality.

Outputs

1. Ban on vulture toxic NSAIDs like Aceclofenac, Ketoprofen, Nimesulide, and other toxic compounds.
2. Vulture-safe NSAIDs like Meloxicam and Tolfenamic acid available on market.

S.N.	Actions
1	Advocate a ban on Aceclofenac, Ketoprofen and Nimesulide
2	Advocate on the efficient regulatory mechanism to ban other NSAIDs shown to vulture-toxic and carcass poisoning.
3	Effective monitoring of import and distribution of NSAIDs / toxic drug and monitoring of drug prescribers.
4	Safety testing of recently introduced and upcoming NSAIDs for vultures.

5	Research on Antimicrobial sensitivity tests to monitor the antibiotic resistance in vultures and access the impact on human health.
6	Engage agencies and organizations working in the Nepal-India border area to remove multi-dose vials of diclofenac.
7	Continue to raise awareness of the vulture-toxic, vulture-safe NSAIDs and Incidental poisoning.
8	Ensure sale of veterinary NSAIDs only on prescription and regulating the use of easily available potent agriculture pesticides.
9	Promote other NSAIDs proven to be vulture-safe and of good quality.
10	Collection of dead vultures and conduct post mortem examination to find the causes of mortality.
11	Awareness – Vets/Para vets and local vet practitioner (Restraining/ First aid/ Sample collection & dispatch to the laboratory.
12	Establishment of rescue Center at each Provincial level.
13	Strengthening of laboratory for diagnosis/ research of toxicological cases in vultures.
14	Creating Database of poisoning incidences
15	Development of field level diagnostic protocols for effective diagnosis of health problem

6.2.2 Promote Scientific Research to Enhance Knowledge

Rationale

Conservation actions need to be based on evidence and evaluate and adapted through monitoring. Knowledge of vulture biology and ecology is still limited and the findings from the research and monitoring are not always disseminated widely. Regular monitoring of the vulture populations needs to be continued every year to know the population trend and effectiveness of the conservation efforts.

Outputs

1. Science-based information system documented.
2. Central database on all vulture species available.

S.N.	Actions
1	Regular monitoring of vulture populations using road transect surveys.
2	Regular vulture count all over the country.
3	Nest monitoring for vulture population breeding success.
4	Monitor NSAID availability in veterinary pharmacies through open and undercover surveys.
5	Monitor NSAID prevalence in livestock and vulture carcasses.
6	Continue satellite tagging of all the captive-released vultures.
7	Capture and tag the wild vultures
8	Continue monitoring, tracking, and ground-truthing of tagged vultures, recover the corpses and establish the cause of death.
9	Expand knowledge on vulture biology and ecology.
10	Expand expertise in the field, lab, and desk-based science.
11	Assemble and maintain a central database.
12	Produce reports, articles, and other media for dissemination among a varied audience.
13	Engage and support communities in nesting sites and tree protection.
14	Include RHV, SBV, and WRV in the list of protected birds.
15	Secure long-term funding and sustainable practice for in-situ activities.

6.2.3 Release of Captive Vultures into the Safe Environment

Rationale

Captive vulture in the Vulture Conservation and Breeding Center will be reared, bred, and utilized for the reintroduction of vultures in the wild. Captive vulture from VCBC will be transferred to Pre-release aviary made in release site and encourage them to interact with the wild for not more than six months where the soft release will be done. Before the birds are released in the wild, it will be satellite tagged and ensured that the habitat from the release site is safe for the vulture. Assuming releases proceed and the environment remains sufficiently safe



Captive release White-rumped Vulture, Photo: Jyotendra Jyu Thakuri

for their survival, the remaining birds from the breeding centre will all be released by 2023 and the vulture centre will be closed or converted for other purposes thereafter.

Output

1. Successful survival of captive vulture around VSZ.

S.N.	Actions
1	Continue to release captive-bred vultures when less than 2 years old and also release other birds by maintaining best-breeding birds annually and finally release all the captive birds by 2023
2	Continue satellite tagging of all the captive-released vultures.
3	Develop VCBC into Vulture Research Center.
4	Create Emergency Fund for crisis management including disease outbreaks.
5	Periodic staff training and skill development
6	Secure long-term funding
7	Regular ground-truthing of the released vulture.
8	Safety and Hygiene evaluation of the release site

6.2.4 Promote Safe Food Supply to Vultures

Rationale

Vultures are free-ranging and find their food sighting from a long distance and consume a large mass of carcasses in a short interval. In the past decades due to the use of veterinary drugs diclofenac large mass of vulture's wake were suffered from visceral gout leads to their immediate death. Carcass disposal by burying could be one of the possible reasons for a localized shortage of food for vulture in the future. Furthermore, the cause of vulture decline ensues intentional and unintentional poisoning of vultures.

Output

1. Available of Safe food supply to vultures.

S.N.	Actions
1	Maintain all VSFS and other feeding sites.
2	Advocate on the efficient regulatory mechanism to ban other NSAIDs shown to vulture-toxic.

3	Expand VSZ initiatives into the eastern lowlands.
4	Proper management of carcass dumps.
5	Advocate to provide dead livestock carcass for vultures.
6	Management of wild animal carcasses in protected and non-protected areas

6.2.5 Habitat Conservation and Safeguarding from Power Infrastructures

Rationale

Among six resident vultures, EV, BV and HG habitually breed in the cliff, WRV, SBV, and RHV breed on tree. In Nepal, various natures of developmental activities are being undertaken as a result the natural habitat is severely disturbed and is forced to shift from their historic habitation to other best alternate locations. Road construction, mine excavation, tree felling, river exploitation, forest fire and other development activities nearby vulture colony are the major threats to vulture which has a direct impact on long-term survival so this issue should be seriously considered in future conservation endeavors.

Electrocution and collision in power infrastructures has been one of the major threats globally to large birds of prey including vultures. Infrastructure growth in the power energy sector has been growing rapidly. Electrocution occurs when the bird is in contact with a live wire. The issue, therefore, needs to be addressed with proper guidelines, effective planning, design, and mitigation measures.

Outputs

1. Natural habitat of vultures maintained and restored.
2. Sensitivity maps developed to reduce electrocution.

S.N.	Actions
1	Prepare and implement site-specific management plans in identified priority areas.
2	Update information on previously known, current, and potential habitats.
3	Control cutting of the nesting and potential trees in their nesting habitat
4	Encourage and support local communities to manage and protect the habitat.

5	The awareness campaign, Sensitize and aware local forest user groups and other stakeholders
6	Protect the nesting site from all the possible disturbances
7	Information collection on the distribution of power lines in vulture habitat.
8	Sensitivity mapping of threatened vultures against hydropower and transmission lines
9	Employ mitigation measures to prevent electrocution and collision in areas where it occurs.

6.2.6 Sensitize Stakeholders and Build their Capacity

Rationale

Though the negative perception of vulture has changed to positive in most places still people have a negative attitude towards vultures and still do not know about the ecosystem services vulture provides. Many Vets/Para vets and local vet practitioners who use NSAIDs are still unaware of the problem caused to the vulture.

Outputs

1. All conservation stakeholders are sensitized to vulture conservation.
2. Vulture conservation issue integrated into the site-specific management plan.

S.N.	Actions
1	Continue to raise awareness of the diclofenac and other NSAIDs-problem.
2	Continue to raise awareness of vultures and the ecosystem service they provide.
3	Advocacy to Government Official/ Organization (Local Government, DFO, Animal and Livestock Institutions, National Park Staff, Transboundary)
4	Generating Citizen Scientist.
5	Establish Vulture Stewardship initiative at important nesting sites in the western and eastern lowlands.
6	Establish information centers at all VSFS, other feeding sites, and Vulture Stewardship Sites.



Stakeholder Interaction in Kawasoti, Nawalparasi

7	Advocate the integration of vulture conservation into community forest management.
8	Provide necessary knowledge, skills, and materials for vulture conservation to individuals and communities contributing to vulture conservation.
9	Recognize and reward communities and individuals for their effort in vulture conservation.
10	Outreach Material production and distribution

6.2.7 Build Partnership at Local, National, and International Level

Rationale

Since the vulture fly between India and Nepal and also some part of the VSZ lies in India, transboundary partnership is needed. Vulture conservation is largely funded by INGOs which may not be sustainable for a long run.

Outputs

1. The partnership among local, national and international organization was maintained.

S.N.	Actions
1	Secure 5% of the government budget for vulture conservation.
2	Maintain good relationships with INGOs that provide funds and/or expertise through meeting objectives and timely reporting.
3	Partner with national, regional, and/or international organisations to secure big funds
4	Transboundary collaboration especially with Indian partners working within 100km from Vulture Safe Zone in Nepal.
5	Participate in national, regional, and international meetings and workshops to build networks and expertise.

6.2.8 Strengthen the Vulture Safe Zone

Rationale

Vulture Safe Zone initiatives were pioneered in Nepal developed from the 'Diclofenac-free Zone' Concept.

Validating the VSZ which covers a 100km radius from the vulture release site and eight IBAs are lie within it. VSZ will achieve through regular monitoring of diclofenac and other toxic NSAIDs, good survival rate of the tagged vultures, ensuring a safe food supply, regular monitoring of breeding colony, awareness, empowering the community to monitor and develop a sustainable model of Vulture Safe Feeding Sites (VSFS). Nepal is now leading on the release of captive vultures which are fitted with telemetry tags along with some wild birds and they need to be monitor effectively to verify and expanded the VSZ area and its assessment. Community engagement and strengthening their capacity in managing VSZ are highly essential for the success and efficiency of the release programme. Since our VSZ overlaps with the territory of the neighboring country, transboundary collaboration is equally useful. Furthermore, support the local communities in capacity enhancement in monitoring and tourism promotion.

Output

1. Strengthening of World's first scientifically validated Vulture Safe Zone.

S.N.	Actions
1	Develop transboundary cooperative with organisations in India to extend VSZ conservation actions.
2	Partner with communities, vet professionals, Government agencies, and other conservation organisations for sustainability of VSZ
3	Monitoring NSAIDs use and effectiveness of ban of harmful NSAIDs around the Gandaki-Lumbini VSZ and other proposed VSZ
4	Community managed Vulture safe feeding sites and safe carcass disposal sites
5	Awareness, sensitization, and advocacy around VSZ
6	Strengthen communities for vulture safe zone management
7	Tagged vulture movement monitoring and its assessment for foraging and breeding site.
8	Monitoring the survival of all tagged birds and identify the causes for any mortalities
9	VSZ initiative expanded into the pVSZ and to eastern lowlands

Plan Implementation and Monitoring

7.1 Implementing Agency

DNPWC takes a lead role in coordinating the overall implementation of the VCAP starting with organizing the Nepal Vulture Recovery Committee (NVRC) meeting regularly. NVRC has been formed to facilitate the smooth implementation of VCAP and foster the regional and global collaboration in saving the Asian vultures. NVRC is comprised of twelve members:

1. Chairperson- Director General, DNPWC
2. Member-Deputy Director General, DNPWC
3. Member-Deputy Director General, DoFSC
4. Member-Deputy Director General, DoA
5. Member-Deputy Director General, DLS
6. Member- Deputy Director General, DDA
7. Member- Country Representative, IUCN-Nepal
8. Member- Country Representative, ZSL Nepal
9. Member- Country Representative, WWF Nepal
10. Member- Director, NTNC
11. Member- Chief Executive Officer, BCN
12. Member Secretary- Under Secretary, DNPWC

The key role of DNPWC is to support, facilitate and identify priority research, conservation, recovery, and monitoring projects and seek financial and technical support for the implementation and work as mentioned in the NVRC. DoFSC supports the VSFS, protection, and afforestation of vulture nesting trees and awareness-raising and play role in supporting the national vulture recovery committee. DDA play a key role to regulate the ban of the diclofenac and facilitate the use of alternative NSAIDs, regulate the import/illegal use and or ban of non-tested NSAIDs and support the enforcement of the ban on diclofenac and other toxic NSAIDs for veterinary use and help promote alternative safe NSAIDs (including meloxicam and tolafenamic acid) in Nepal. Department of Livestock Service will help enhance the capacity of technical manpower all over the country including

the vulture habitat and legal authority they possess, awareness of para veterinarians, investigation of the causes of mass mortality, preparedness plan of diseased like Avian Influenza, regulate the use of human multi-vial doses of diclofenac use in livestock, and facilitate and coordinate with District Livestock Service Offices to support and monitor the carcass sample collection to conduct NSAID test. Department of Agriculture plays the key role to monitor the use of agrochemicals impacting the vultures and raise awareness among the farmers to be part of the ecosystem management and conservation activities.

DoFSC will support the implementation through the relevant agency of the state government i.e. Ministry of Industry, Tourism, Forest, and Environment. Local government (Metropolitan City, Sub- metropolitan City, Municipality, and Rural Municipality) can consolidate the role of the line agencies, NGOs, and civil society to strengthen the vulture conservation.

Research Institutions and Academia collaborate with the NVRC for conducting and disseminating research and monitoring related to vulture conservation, status and recovery of vultures, and other areas prescribed in this plan. Civil society and the private sector help to disseminate information on the conservation of vultures and cross-check if veterinary practitioners are using diclofenac and other dangerous drugs for vultures in their areas, protect nesting colonies of vultures.

At the regional level, Regional Steering Committee (RSC) and Saving Asia's Vultures from Extinction (SAVE) will provide policy and technical advisory roles. International organizations such as RSPB, ZSL, SAVE will contribute technical and financial support. At the central level, NVRC will provide technical advisory roles, policy guidance, and coordination. At the mid-level, a vulture conservation core team will be formed to provide technical assistance

to implement VCAP. BCN and NTNC will support DNPWC for vulture conservation initiatives. At the local level, Project Implementation Committee will be formed as per need to ensure effective management and implementation of the specific project.

7.2 Financial Plan

The total estimated cost for the implementation of the action plan is NPR 148,005,000. The fund will be allocated from the government's regular budget and existing conservation partners such as RSPB, NTNC, IUCN Nepal, ZSL, WWF Nepal. Other national and international conservation organizations including local and provincial governments will be encouraged to generate additional funds for the implementation. Detail breakdown of the budget is presented in Appendix-4. The summary of the indicative budget is given below.



Slender-billed Vulture, Photo: Ankit Bilash Joshi

Objectives	Budget (NRP)
Objective 1: Prevention of NSAIDs poisoning and control the deliberate poisoning of cattle carcass	21350000
Objective 2: Promote Scientific Research to Enhance Knowledge	39000000
Objective 3: Release of captive vultures into the safe environment	27450000
Objective 4: Promote safe food supply to vultures	8400000
Objective 5: Habitat Conservation and safeguarding from power infrastructure	11300000
Objective 6: Sensitize Stakeholders and Build their Capacity	12050000
Objective 7: Build Partnership at Local, National, and International Level	5250000
Objective 8: Strengthen the Vulture Safe Zone (VSZ)	8250000
Monitoring, Mid-term and final review	1000000
Additional activities	500000
Administrative Cost	13455000
Total	148005000

7.3 Monitoring and Review of the Plan Implementation

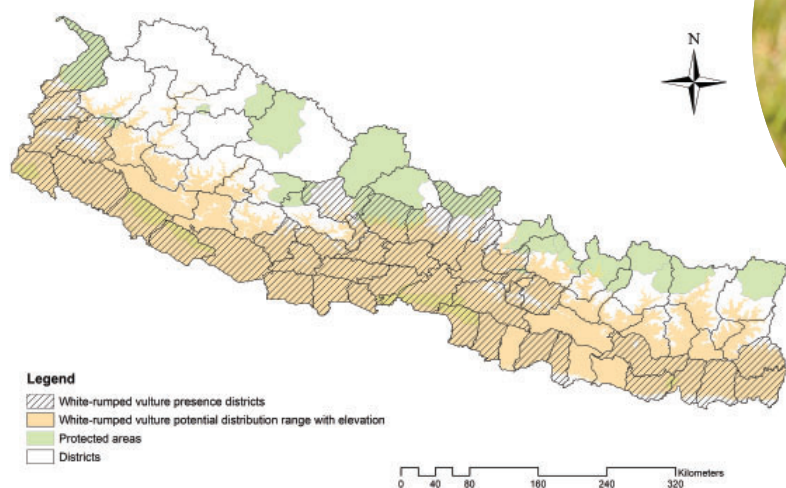
DNPWC, DoFSC, PA managers, DFOs, provincial governments, local government will implement and monitor the plan. A mid-term review will be conducted during the third year of the implementation and a Final review and update of the plan will be done during the 5th year of implementation which will be conducted by a team of independent consultants and will be shared during the review meetings.

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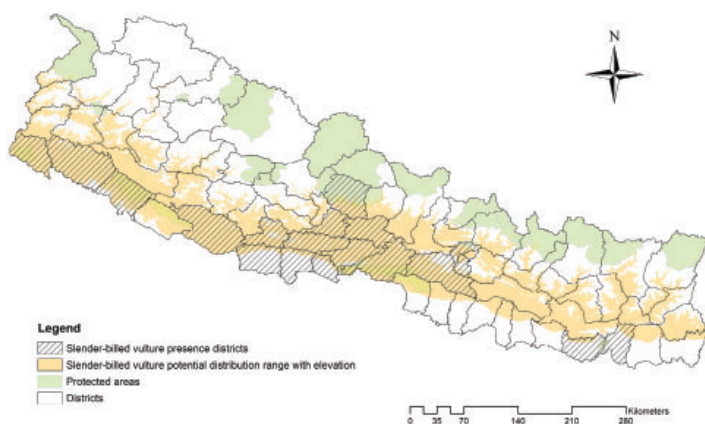
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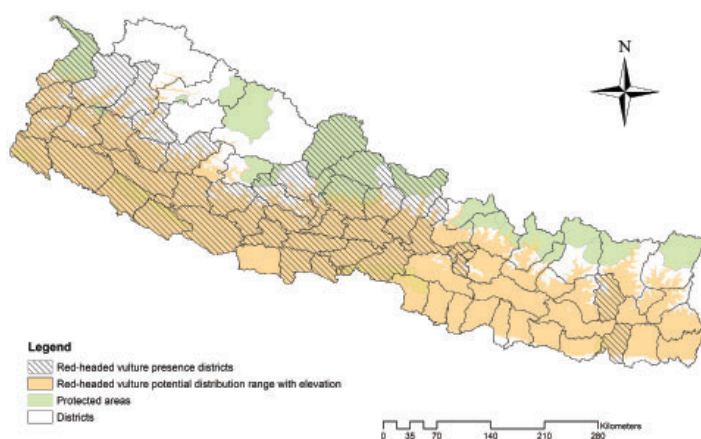
Appendix 1: Species Fact Sheet



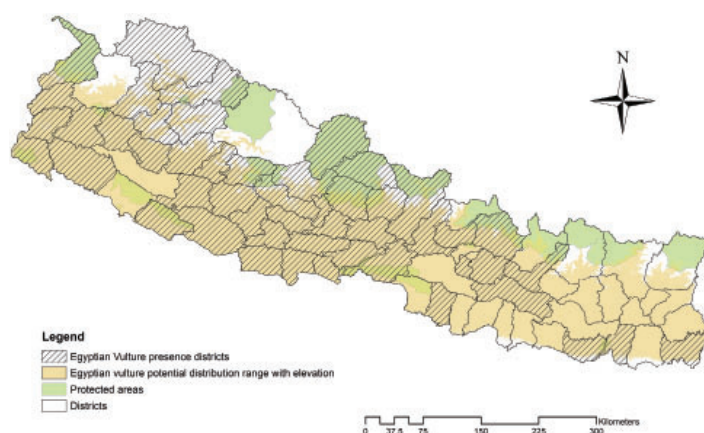
English Name	White-rumped Vulture
Nepali Name	डङ्गर गिद्ध
Scientific Name	<i>Gyps bengalensis</i>
Species Attribute	Resident
Altitude	Upper limit: 1800 m (-3100 m); lower limit: 75 m
Distribution in Nepal	Arghakhachi, Banke, Bardiya, Chitwan, Dang, Gorkha, Kailali, Kanchanpur, Kapilvastu, Kaski, Nawalparasi, Palpa, Pyuthan, Rupandehi, Saptari, Sarlahi, Sunsari, Syangja, Tanahu, Udyapur
Distribution in Protected area	Annapurna Conservation Area, Chitwan National Park, Banke National Park, Bardiya National Park, Koshi-tappu Wildlife Reserve, Shuklaphanta National Park, Parsa National Park
Global Distribution	Afghanistan, Bangladesh, Bhutan, Brunei, China (Mainland), India, Iraq, Iran, Laos, Malaysia, Myanmar, Nepal, Pakistan, Russia, Thailand, Vietnam
National Status	Critically Endangered
Global Status	Critically Endangered
National Population Status	<2000
Global Population Estimation	2500-9999 estimated
Threats	Disturbance, direct and secondary poisoning, electrocution and collision in powerlines, reduced food availability and habitat change, road construction, mine exploration, land excavation, use of vulture toxic NSAIDs



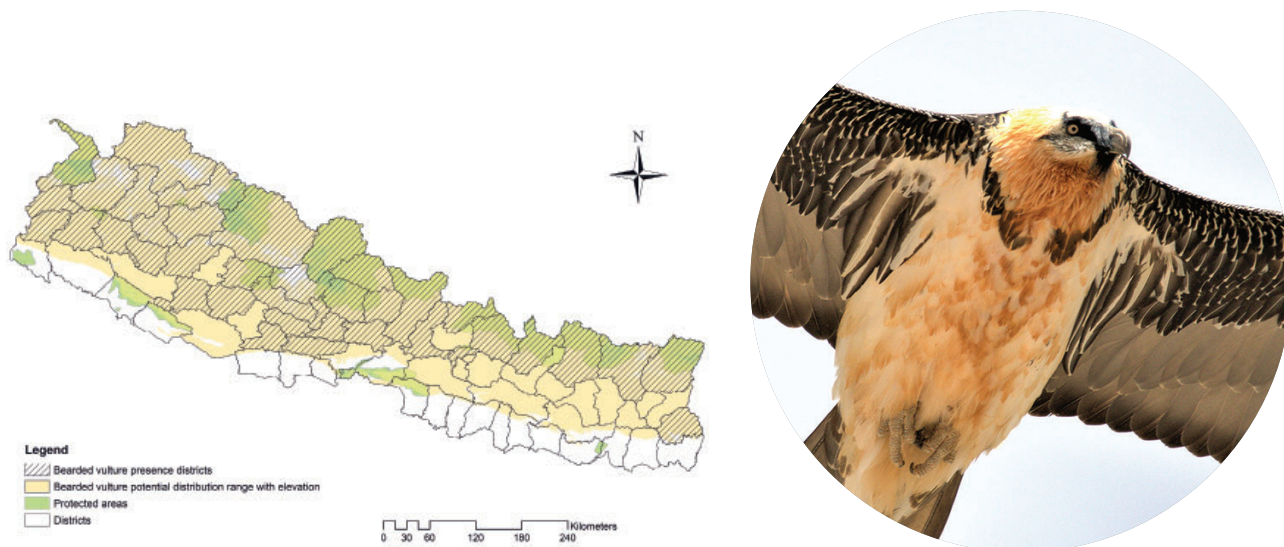
English Name	Slender-billed Vulture
Nepali Name	सानो खैरो गिद्ध
Scientific Name	<i>Gyps tenuirostris</i>
Species Attribute	Resident
Altitude	Upper limit: 1800 m (-3100 m); lower limit: 75 m
Distribution in Nepal	Arghakhachi, Dang, Kailali, Kanchanpur, Kapilvastu, Kaski, Nawalparasi, Palpa, Rupandehi, Sarlahi, Syangja, Tanahu
Distribution in Protected area	Chitwan National Park, Shuklaphanta National Park
Global Distribution	Bangladesh, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam
National Status	Critically Endangered
Global Status	Critically Endangered
National Population Status	50-75
Global Population Estimation	1000-2499 estimated
Threats	Intentional or unintentional effects-persecution/control, poisoning, electrocution and collision in powerlines, reduced food availability and habitat change, use of vulture toxic NSAIDs



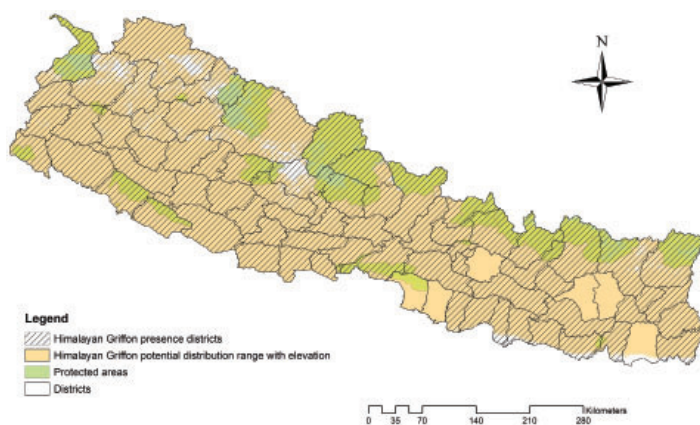
English Name	Red-headed Vulture
Nepali Name	सुन गिद्ध
Scientific Name	<i>Sarcogyps calvus</i>
Species Attribute	Resident
Altitude	Upper limit: 2000 m (-3050 m); lower limit: 75 m
Distribution in Nepal	Aacham, Arghakhachi, Bajura, Chitwan, Dadeldhura, Dailekh, Dang, Darchula, Doti, Gorkha, Gulmi, Jajarkot, Kailali, Kalikot, Kanchanpur, Kapilvastu, Kaski, Lalitpur, Myagdi, Nawalparasi, Palpa, Parbat, Pyuthan, Rolpa, Rupandehi, Salyan, Syangja, Tanahu
Distribution in Protected area	Annapurna Conservation Area, Banke National Park, Chitwan National Park, Shuklaphanta National Park, Shivapuri-Nagarjun National Park, Shuklaphanta National Park
Global Distribution	Bangladesh, Bhutan, Cambodia, China, India, Laos, Malaysia, Myanmar, Nepal, Pakistan, Thailand, Vietnam
National Status	Critically Endangered
Global Status	Critically Endangered
National Population Status	200-400
Global Population Estimation	2500-9999 estimated
Threats	Disturbance, lead poisoning (from ammunition used in hunting game), direct and secondary poisoning, electrocution and collision in powerlines, reduced food availability and habitat change, use of vulture toxic NSAIDs



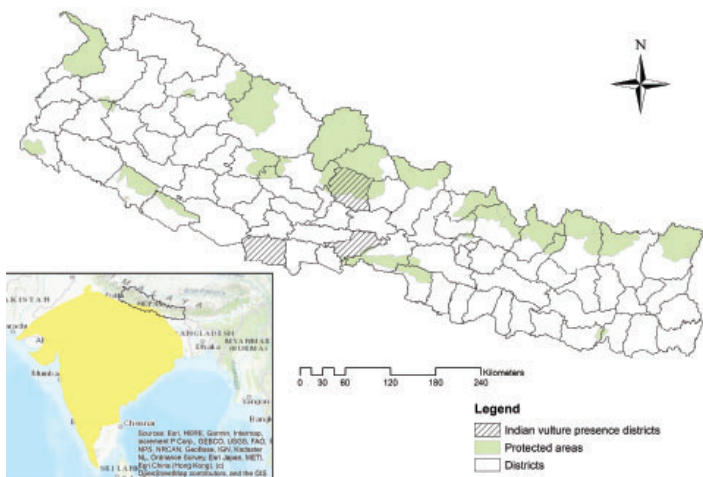
English Name	Egyptian Vulture
Nepali Name	सेतो गिद्ध, गोब्रे गिद्ध
Scientific Name	<i>Neophron percnopterus</i>
Species Attribute	Resident
Altitude	Upper limit: 2900 m (-3810 m); lower limit: 75 m
Distribution in Nepal	Arghakhachi, Baglung, Bajura, Banke, Dailekh, Dang, Darchula, Dhadhing, Gorkha, Gulmi, Jajarkot, Kanchanpur, Kapilvastu, Kaski, Myagdi, Nawalparasi, Nuwakot, Palpa, Parbat, Pyuthan, Ramechhap, Rolpa, Rukum, Rupandehi, Salyan, Syangja, Tanahu
Distribution in Protected area	Annapurna Conservation Area, Chitwan National Park, Rara National Park, Dhorpatan Hunting Reserve, Bardiya National Park, Shuklaphanta National Park, Shivapuri-Nagarjun National Park, Parsa National Park, Langtang National Park, Api Nampa National Park, Banke National Park
Global Distribution	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Bangladesh, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, China (Mainland), Congo, Croatia, Cyprus, Czechia, Denmark, Djibouti, Egypt, Eritrea, Estonia, Ethiopia, Finland, France, Gambia, Georgia, Ghana, Gibraltar, Greece, Guinea-Bissau, Hungary, India, Iran, Iraq, Israel, Italy, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Lebanon, Lesotho, Libya, Mali, Malta, Mauritania, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, North Macedonia, Norway, Oman, Pakistan, Palestine, Poland, Portugal, Qatar, Romania, Russia, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia, Somalia, South Africa, South Sudan, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, Tajikistan, Tanzania, Togo, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, Uzbekistan, Western Sahara, Yemen, Zimbabwe
National Status	Vulnerable
Global Status	Endangered
National Population Status	300-1000
Global Population Estimation	12000-38000 estimated
Threats	Disturbance, direct and secondary poisoning, electrocution and collision in powerlines, reduced food availability and habitat change, use of vulture toxic NSAIDs



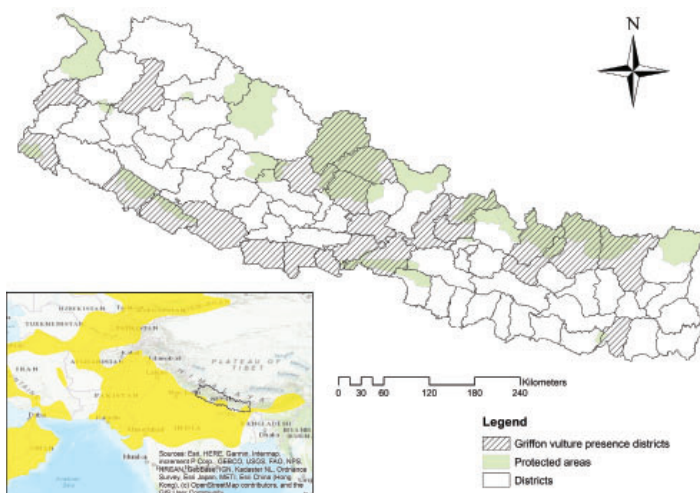
English Name	Bearded Vulture
Nepali Name	हाडफोर गिद्ध
Scientific Name	<i>Gypaetus barbatus</i>
Altitude	Upper limit: 5600 m (-7500 m); lower limit: 250 m
Distribution in Nepal	Arghakhachi, Baglung, , Baitadi, Bajura, Dadeldhura, Dailekh, Darchula, Dolpa, Gorkha, Gulmi, Jajarkot, Kaski, Manang, Mugu, Mustang, Myagdi, Palpa, Parbat, Pyuthan, Ramechhap, Rasuwa, Rolpa, Salyan, Sankhuwasabha, Solukhumbu, Syangja, Tanahu
Distribution in Protected area	Annapurna Conservation Area, Api Nampa National Park, Dhorpatan Hunting Reserve, Kanchanjunga Conservation Area, Langtang National Park, Makalu Barun National Park, Manaslu Conservation Area, Rara National Park, Sagarmatha National Park
Global Distribution	Afghanistan, Albania, Algeria, Andorra, Armenia, Austria, Azerbaijan, Bhutan, Bosnia, Bulgaria, China, Croatia, Cyprus, Czechia, Djibouti, Egypt, Eritrea, Estonia, Ethiopia, France, Georgia, Germany, Greece, India, Iran, Iraq, Israel, Italy, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Lesotho, Liechtenstein, Mauritania, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nepal, North Korea, North Macedonia, Pakistan, Palestine, Portugal, Romania, Russia, Saudi Arabia, Serbia, Somalia, South Africa, Spain, Sudan, Switzerland, Syria, Tajikistan, Tanzania, Turkey, Turkmenistan, Uganda, Uzbekistan, Yamen, Zimbabwe
National Status	Vulnerable
Global Status	Near Threatened
National Population Status	<500
Global Population Estimation	1300-6700 estimated
Threats	Direct persecution, habitat degradation, disturbance of breeding birds, inadequate food availability use of vulture toxic NSAIDs



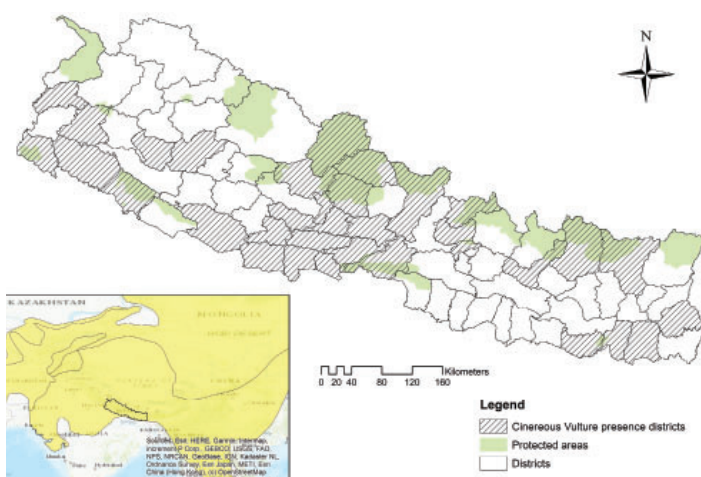
English Name	Himalayan Griffon
Nepali Name	हिमाली गिद्ध
Scientific Name	<i>Gyps himalayensis</i>
Species Attribute	Resident
Altitude	Upper limit: 6100 m; lower limit: 75 m
Distribution in Nepal	Aacham, Arghakhachi, Baglung, Baitadi, Bajhang, Bajura, Banke, Bardiya, Bhaktapur, Chitwan, Dadeldhura, Dailekh, Darchula, Dadhing, Dhankuta, Dhanusa, Dolpa, Doti, Gorkha, Gulmi, Humla, Jajarkot, Jhapa, Jumla, Kalikot, Kailali, Kanchanpur, Kapilvastu, Kaski, Kathmandu, Lalitpur, Lamjung, Manang, Mugu, Mustang, Myagdi, Nawalparasi, Nuwakot, Okhaldhunga, Palpa, Parbat, Pyuthan, Ramechhap, Rasuwa, Rautahat, Rolpa, Rukum, Rupandehi, Salyan, Sankhuwasabha, Saptari, Sarlahi, Sindhupalchowk, Siraha, Solukhumbu, Sunsari, Surkhet, Syangja, Tanahu, Taplejung, Udyapur
Distribution in Protected area	Annapurna Conservation Area, Chitwan National Park, Rara National Park, Dhorpatan Hunting Reserve, Bardiya National Park, Shuklaphanta National Park, Shivapuri-Nagarjun National Park, Parsa National Park, Langtang National Park, Api Nampa National Park, Banke National Park, Koshi-Tappu Wildlife Reserve, Manaslu Conservation Area, Gaurisankhar Conservation Area, Makalu-Barun National Park, Sagarmatha National Park, Kanchanjunga Conservation Area
Global Distribution	Afghanistan, Bangladesh, Bhutan, Cambodia, China (mainland), India, Kazakhstan, Kyrgyzstan, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Singapore, Tajikistan, Thailand, United Arab Emirates, Uzbekistan
National Status	Vulnerable
Global Status	Near Threatened
National Population Status	<10000
Global Population Estimation	66000-334000 estimated
Threats	Disturbance, direct and secondary poisoning, electrocution and collision in powerlines, mining, reduced food availability and habitat change, use of vulture toxic NSAIDs



English Name	Indian Vulture
Nepali Name	लामोठुँडे गिद्ध
Scientific Name	<i>Gyps indicus</i>
Species Attribute	Vagrant
Altitude	Upper limit:800m, lower limit:75 m
Distribution in Nepal	Nawalpur, Kapilvastu, Pokhara
Distribution in Protected area	Chitwan National Park
Global Distribution	Afghanistan, India, Nepal Pakistan
National Status	Critically Endangered
Global Status	Critically Endangered
National Population Status	-
Global Population Estimation	30000 estimated
Threats	Disturbance, direct and secondary poisoning, electrocution and collision in powerlines, reduced food availability and habitat change, use of vulture toxic NSAIDs



English Name	Griffon Vulture
Nepali Name	खैरो गिद्ध
Scientific Name	<i>Gyps fulvus</i>
Species Attribute	Passage Migrant
Altitude	Upper limit: uncertain, at least 2000 m; lower limit: 75 m
Distribution in Nepal	Baitadi, Bajura, Kanchanpur, Kapilvastu, Kaski, Myagdi, Nawalparasi, Ramechhap, Rupandehi, Sunsari
Distribution in Protected area	Annapurna Conservation Area, Chitwan National Park, Rara National Park, Shuklaphanta National Park
Global Distribution	Afghanistan, Albania, Algeria, Armenia, Austria, Azerbaijan, Bangladesh, Belarus, Belgium, Bhutan, Bosnia and Bulgaria, China (Mainland), Croatia, Cyprus, Czechia, Denmark, Djibouti, Egypt, Eritrea, Estonia, Ethiopia, Finland, France, Georgia, Gibraltar (to UK), Greece, Hungary, India, Iran, Iraq, Israel, Italy, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Latvia, Lebanon, Mali, Malta, Mauritania, Mongolia, Montenegro, Morocco, Nepal, Netherlands, Niger, North Macedonia, Oman, Pakistan, Palestine, Poland, Portugal, Romania, Russia, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia, Somalia, Spain, Sudan, Switzerland, Syria, Tajikistan, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, United Arab Emirates, Uzbekistan, Western Sahara, Yemen
National Status	Least Concerned
Global Status	Least Concerned
National Population Status	-
Global Population Estimation	500000-999999 estimated
Threats	Disturbance, lead poisoning (from ammunition used in hunting game), direct and secondary poisoning, electrocution and collision in powerlines, collisions with wind turbines, reduced food availability and habitat change, use of vulture toxic NSAIDs



English Name	Cinereous Vulture
Nepali Name	राज गिद्ध
Scientific Name	<i>Aegypius monachus</i>
Species Attribute	Passage Migrant
Altitude	Upper limit: 2900 m (-3810 m); lower limit: 75 m
Distribution in Nepal	Arghakhachi Baglung, Baitadi, Bardiya, Chitwan, Dailekh, Dang, Gorkha, Jajarkot, Kailali, Kanchanpur, Kapilvastu, Kaski, Lalitpur, Manang, Mustang, Morang, Myagdi, Nawalparasi, Palpa, Parbat, Ramechhap, Rupandehi, Saptari, Syangja, Tanahu
Distribution in Protected area	Annapurna Conservation Area, Chitwan National Park, Banke National Park, Rara National Park, Dhorpatan Hunting Reserve, Bardiya National Park, Shuklaphanta National Park, Shivapuri-Nagarjun National Park
Global Distribution	Afghanistan, Albania, Armenia, Austria, Azerbaijan, Bangladesh, Belgium, Benin, Bosnia and Herzegovina, Botswana, Belarus, Bhutan, Bosnia, Bulgaria, Cambodia, China (Mainland), Croatia, Cyprus, Czechia, Egypt, France, Georgia, Germany, Gibraltar (to UK), Greece, Hungary, India, Iran, Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Latvia, , Lebanon, Malaysia, Moldova, Mongolia, Montenegro, Morocco, Myanmar, Nepal, Netherlands, North Korea, North Macedonia, Oman, Pakistan, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, South Korea, Spain, Sudan, Switzerland, Syria, Taiwan, Tajikistan, Thailand, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Vietnam, Yemen
National Status	Endangered
Global Status	Near Threatened
National Population Status	60-100
Global Population Estimation	15600-21000 estimated
Threats	Disturbance, lead poisoning (from ammunition used in hunting game), direct and secondary poisoning, electrocution and collision in powerlines, collisions with wind turbines, reduced food availability and habitat change, use of vulture toxic NSAIDs

Appendix 2: Logical Framework

Hierarchy of Objectives	Objectively Verifiable Indicators	Means of Verification	Risks/Assumptions
Goal: Restore and maintain viable wild populations in Nepal			
Objective: Ensure viable wild populations of all the species of vultures through provision of safe food and maintenance of suitable habitat.	<ul style="list-style-type: none"> All species of vulture's population and nesting sites increased. No vulture dies from NSAID and poisoning. Scientifically proven VSZs 	Vulture population survey report Vulture Post mortem report Satellite tagged vulture report SAVE repor	
Objective 1: Prevention of NSAIDs poisoning and control the deliberate poisoning of cattle carcass			
Output 1.1 Ban on vulture toxic NSAIDs like Aceclofenac, Ketoprofen, Nimesulide and other toxic compounds. 1.2 Vulture safe NSAIDs like Meloxicam and Tolfenamic acid available on market.	<ul style="list-style-type: none"> An enforce ban on veterinary and multi-dose of Aceclofenac, Ketoprofen and Nimesulide Regulatory mechanism to ban other NSAIDs shown to be vulture-toxic. Ensure the sale of Veterinary NSAIDs on prescription and the treatment of livestock is done only under the supervision of a qualified veterinarian Setting up drug safety testing facility and safety test new NSAID molecules on vultures Modalities ensuring the only animals that died without getting any treatment should be sent to carcass dumps. Ensuring the guidelines for the use and sale of Agricultural pesticides/insecticides/herbicide 	DDA/DLS directives Pharmacy survey report Vulture release report Vulture post mortem report SAVE Report	
Objective 2: Promote scientific research to enhance knowledge			
Outputs 1.1 Science based information system documented. 1.2 Central database on all vulture species available.	<ul style="list-style-type: none"> Annual Vulture population and nesting survey following same methods as done during previous surveys. Annual Pharmacies survey. Identifying the foraging site, survival and causes of death of wild and captive released vultures with telemetry data. Central database maintains. Compile, analyze data and publish results in good scientific journal. 	Vulture population and nesting survey report Pharmacies survey report Vulture release report Central database SAVE report	

Objective 3: Release of Captive vulture in to the safe environment			
Output 1.1 Successful survival of captive vulture around VSZ.	<ul style="list-style-type: none"> · Aviary maintenance and hygiene maintain. · Captive WRV successfully released in VSZs. · Continue tracking and monitoring of the released and wild vultures with telemetry data. · No death of captive released and wild vulture with any poisoning. 	VCBC report DNPWC/CNP report SAVE report	
Objective 4: Promote Safe Food supply to vulture			
Output 1.1 Available of Safe food supply to vultures.	<ul style="list-style-type: none"> · Ensuring the guidelines for the use and sale of Agricultural pesticides/insecticides/herbicides · Database of all the incidence of the poisoning. · Ensure the sale of Veterinary NSAIDs on prescription and the treatment of livestock is done only under the supervision of a qualified veterinarian 	DDA/DLS directives Pharmacy survey report Vulture release report SAVE report	
Objective 5: Habitat Conservation and safeguarding from power infrastructures			
Outputs 1.1 Natural Habitat of vultures maintained and restored. 1.2 Sensitivity maps developed to reduce electrocution.	<p>More sightings of vulture's/ vulture population increased More nesting site recorded. Site-specific management plan developed. Sensitivity mapping developed Mitigation measures to replace the existing electric poles with insulators and bird friendly poles</p>	Survey report Scientific article Management plan Media articles	
Objective 6: Sensitize stakeholders and build their capacity			
Outputs 1.1 All conservation stakeholders sensitized on vulture conservation. 1.2 Vulture conservation issue integrated in site specific management plan.	<ul style="list-style-type: none"> · Stakeholders initiate monitoring and habitat conservation · All protected Areas, bufferzones, community forest and other conservation agencies mainstream vulture conservation in their respective management/work plans 	Management /work plans Media articles Research reports	

Objective 7: Build Partnership at local, national and international level			
Outputs			
1.1 Partnership among national and international organization maintained.	<ul style="list-style-type: none"> Government contribution on vulture conservation Regular funding support from the partner organization both nationally and internationally. 	Annual report Government reports MoUs/ contracts Partners report SAVE Report	
Objective 8: Strengthen the vulture safe zone			
Output			
1.1 Strengthening of World's first scientifically validated Vulture Safe Zone.	<ul style="list-style-type: none"> Findings of survival and causes of death of wild and captive vulture with satellite tags in VSZs. Awareness and strong advocacy with local, stakeholders and decision makers. Evaluating remaining pVSZ for scientifically proven and approved VSZs Vulture population within the VSZ is stable or increasing. VSZ initiative expanded into the eastern lowlands 	Research report Scientific article Media article SAVE report	

Appendix 3: Five Year Budget for Vulture Conservation Action Plan

S.N.	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total (NPR)
Objective 1: Prevention of NSAIDs poisoning and control the deliberate poisoning of cattle carcass							
1.1	Advocate a ban on Accelclofenac, Ketoprofen and Nemusulide.	150,000	150,000	150,000	150,000	150,000	750,000
1.2	Advocate on efficient regulatory mechanism to ban other NSAIDs shown to vulture-toxic and carcass poisoning.	200,000	200,000	100,000	100,000	200,000	800,000
1.3	Effective monitoring of import and distribution of NSAIDs / toxic drug and monitoring of drug prescribers.	100,000	100,000	100,000	100,000	100,000	500,000
1.4	Safety testing of recently introduced or so-called toxic for vultures.	500,000	300,000	300,000	300,000	300,000	1,700,000

1.5	Research on Antimicrobial sensitivity test to monitor the antibiotic resistance in vultures and assess the impact on human health.	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000
1.6	Engage agencies and organizations working in Nepal-India border area to remove multi-dose vials of diclofenac.	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
1.7	Continue to raise awareness of the vulture-toxic and vulture-safe NSAIDs and Incidental poisoning.	350,000	250,000	250,000	350,000	250,000	250,000	1,450,000
1.8	Ensure sale of veterinary NSAIDs only on prescription and regulating the use of easily available of potent agriculture pesticides.	100,000	100,000	100,000	100,000	100,000	100,000	500,000
1.9	Promote other NSAIDs proven to be vulture-safe and of good quality.	150,000	150,000	150,000	150,000	150,000	150,000	750,000
1.10	Collection of dead vultures and conduct post mortem examination to find the causes of its mortality.	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000
1.11	Awareness – Vets/Para vets and local vet practitioner (Restraining/ First aid/ Sample collection & dispatch to laboratory.	400,000	400,000	400,000	400,000	400,000	400,000	2,000,000
1.12	Establishment of rescue Center at each Provincial level.	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000
1.13	Strengthening of laboratory for diagnosis/research of toxicological cases in vultures.	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000
1.14	Creating Database of poisoning incidences	50,000	50,000	50,000	50,000	50,000	50,000	250,000
1.15	Development of field level diagnostic protocols for effective diagnosis of health problem	100,000	-	50,000	-	-	-	150,000
Objective 2: Promote Scientific Research to Enhance Knowledge								
2.1	Regular monitoring of vulture populations using road transect surveys.	350,000	350,000	350,000	350,000	350,000	350,000	1,750,000
2.2	Regular vulture count all over the country.	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000

2.3	Nest monitoring vulture population breeding success.	400,000	400,000	400,000	400,000	400,000	400,000	2,000,000
2.4	Monitor NSAID availability in veterinary pharmacies through open and undercover surveys.	350,000	350,000	350,000	350,000	350,000	350,000	1,750,000
2.5	Monitor NSAID prevalence in livestock and vulture carcasses.	400,000	400,000	400,000	400,000	400,000	400,000	2,000,000
2.6	Continue satellite tagging of all the captive released vultures.	3,000,000	3,000,000	3,000,000	3,000,000	-	-	9,000,000
2.7	Capture and tag the wild vultures	4,000,000	3,000,000	3,000,000	-	3,000,000	-	10,000,000
2.8	Continue monitoring, tracking and ground truthing of tagged vultures, recover the corpses and establish cause of death.	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
2.9	Expand knowledge on vulture biology and ecology.	300,000	400,000	400,000	400,000	500,000	500,000	2,100,000
2.10	Expand expertise in field, lab and desk-based science.	300,000	400,000	400,000	400,000	500,000	500,000	2,100,000
2.11	Assemble and maintain a central database.		400,000			400,000		800,000
2.12	Produce reports, articles and other media for dissemination among a varied audience.	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000
2.13	Engage and support communities in nesting site and tree protection.	400,000	400,000	400,000	400,000	400,000	400,000	2,000,000
2.14	Include RHV, SBV and WRV in the list of protected bird.	-	300,000	-	-	-	-	300,000
2.15	Secure long-term funding and sustainable practice for in-situ activities.	-	200,000	-	-	-	-	200,000
Objective 3: Release of captive vulture in to the safe environment								
3.1	Maintain captive population in good health. Produce as many fledging's as possible by natural methods.	5,000,000	5,000,000	5,000,000	5,000,000	4,000,000	-	19,000,000
3.2	Continue bio-security, regular health screening and veterinary care at VCBC.	300,000	300,000	300,000	300,000	300,000	-	1,200,000
3.3	Continue to determine the sexes of captive population using genetic techniques.	500,000	200,000	100,000	-	-	-	800,000

3.4	Construct necessary infrastructure for reintroductions and maintenance.	-	100,000	-	100,000	-	200,000
3.5	Transfer captive-reared birds along with captive-bred chicks of previous year to pre-release facility.	200,000	200,000	200,000	-	-	600,000
3.6	Continue satellite tagging of all the captive released vultures.	-	-	-	-	-	-
3.7	Continue to release captive-bred vultures and also release other birds by maintaining best-breeding birds annually and finally release all the captive birds by 2023.	200,000	200,000	200,000	-	-	600,000
3.8	Develop VCBC into Vulture Research Center.	-	-	-	500,000	500,000	1,000,000
3.9	Create Emergency Fund for crisis management including disease outbreaks.	-	1,000,000	-	-	-	1,000,000
3.10	Periodic staff training and skill development.	-	300,000	-	300,000	-	600,000
3.11	Secure long-term funding.	-	250,000	-	-	-	250,000
3.12	Regular ground truthing of the released vulture.	300,000	300,000	400,000	400,000	400,000	1,800,000
3.13	Safety and Hygiene evaluation of the release site.	-	200,000	-	200,000	-	400,000
Objective 4: Promote safe food supply to vultures							
4.1	Maintain all VSFS and other feeding sites in the western lowlands.	500,000	500,000	500,000	500,000	500,000	2,500,000
4.2	Advocate on efficient regulatory mechanism to ban other NSAIDs shown to vulture-toxic.	200,000	100,000	100,000	100,000	100,000	600,000
4.3	Expand VSZ initiatives into the eastern lowlands.	-	300,000	500,000	500,000	-	1,300,000
4.4	Proper management of carcass dumps.	600,000	600,000	600,000	600,000	600,000	3,000,000
4.5	Advocate to provide dead livestock carcass for vultures.	100,000	100,000	100,000	100,000	100,000	500,000
4.6	Management of wild animal carcasses in protected and non-protected areas.	100,000	100,000	100,000	100,000	100,000	500,000

Objective 5: Habitat Conservation and safeguarding from power infrastructure									
5.1	Prepare and implement site-specific management plan in identified priority areas.	500,000	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000
5.2	Update information on previously known, current and potential habitat.	100,000	100,000	100,000	100,000	100,000	100,000	100,000	500,000
5.3	Control cutting of the nesting trees in their nesting habitat.	-	50,000	-	50,000	-	50,000	-	100,000
5.4	Encourage and support local communities to manage and protect the habitat.	200,000	100,000	100,000	100,000	200,000	200,000	200,000	800,000
5.5	Awareness campaign, Sensitize and aware local forest user groups and other stakeholders.	200,000	300,000	200,000	200,000	300,000	200,000	200,000	1,200,000
5.6	Protect the nesting site with all the possible disturbances.	200,000	-	200,000	200,000	-	100,000	100,000	500,000
5.7	Information collection on the distribution of power lines in vulture habitat.	300,000	100,000	100,000	100,000	100,000	200,000	200,000	800,000
5.8	Sensitivity mapping of threatened vultures against hydropower and transmission lines.	300,000	300,000	300,000	300,000	3,000,000	300,000	300,000	4,200,000
5.9	Employ mitigation measures to prevent electrocution in areas where it occurs.	-	300,000	100,000	100,000	300,000	-	700,000	
Objective 6: Sensitize Stakeholders and Build their Capacity									
6.1	Continue to raise awareness of the diclofenac and other NSAIDs-problem.	150,000	150,000	150,000	150,000	150,000	150,000	150,000	750,000
6.2	Continue to raise awareness of vultures and the ecosystem service they provide.	150,000	150,000	150,000	150,000	150,000	150,000	150,000	750,000
6.3	Advocacy to Government Official/ Organization (Local Government, DFO, Animal and Livestock Institutions, National Park staff, Trans boundary).	-	200,000	-	200,000	200,000	-	400,000	
6.4	Generating Citizen Scientist.	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000

6.5	Establish Vulture Stewardship initiative at important nesting sites in the western and eastern lowlands.	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000
6.6	Establish information centers at all VSFS, other feeding sites and Vulture Stewardship Sites.	300,000	300,000	200,000	300,000	300,000	300,000	1,400,000
6.7	Advocate the integration of vulture conservation into community forest management.	400,000	400,000	400,000	400,000	400,000	400,000	2,000,000
6.8	Provide necessary knowledge, skills and materials for vulture conservation to individuals and communities contributing to vulture conservation.	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000
6.9	Recognize and reward communities and individuals for their effort in vulture conservation.	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
6.10	Outreach Material production and distribution.	350,000	350,000	350,000	350,000	350,000	350,000	1,750,000
Objective 7: Build Partnership at Local, National and International Level								
7.1	Secure 5% of the government budget for vulture conservation.	-	250,000	-	-	-	-	250,000
7.2	Maintain good relationships with INGOs that provide funds and/or expertise through meeting objectives and timely reporting.	100,000	100,000	100,000	100,000	100,000	100,000	500,000
7.3	Partner with national, regional and/or international organisations to secure big funds.	100,000	100,000	100,000	100,000	100,000	100,000	500,000
7.4	Transboundary collaboration especially with Indian partners working within 100km from potential release sites in Nepal.	500,000	-	500,000	-	-	500,000	1,500,000
7.5	Participate in national, regional and international meetings and workshops to build networks and expertise.	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000

Objective 8: Strengthen the Vulture Safe Zone (VSZ) Network									
8.1	Develop trans-boundary cooperative with organisation in India to extend VSZ conservation actions.	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
8.2	Partnering with communities, vet professionals, Government agencies and other conservation organisations.	100,000	100,000	100,000	100,000	100,000	100,000	100,000	500,000
8.3	Monitoring NSAIDs use and effectiveness of ban of harmful NSAIDs around the proposed VSZ.	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
8.4	Community managed Vulture safe feeding sites and safe carcass disposal sites.	300,000	300,000	300,000	300,000	300,000	300,000	300,000	1,500,000
8.5	Awareness, sensitization and advocacy.	200,000	100,000	100,000	100,000	200,000	200,000	100,000	700,000
8.6	Strengthen communities for vulture safe zone management.	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
8.7	Tagged vulture movement monitoring and its assessment for foraging and breeding site.	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
8.8	Monitoring the survival of all tagged birds and find the causes for any mortalities.	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000
8.9	VSZ initiative expanded into the pVSZ and to eastern lowlands.	-	-	-	50,000	500,000	-	-	550,000



The Vulture Conservation Action Plan (2023-2027) has been prepared in collaboration with:

