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गिद्ध सन्देश

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White-rumped Vulture by Prasan Shrestha

Foreword

Dear Readers,

Welcome to this edition of the Vulture Bulletin.

Vultures, often recognized as nature's essential scavengers, play a crucial role in sustaining healthy ecosystems by naturally removing animal carcasses and helping prevent the spread of disease. Yet, these remarkable birds continue to face severe challenges, including habitat degradation, poisoning, food shortage, unsafe veterinary drugs, and electrocution.

In this issue, we are pleased to present research findings from different regions of Nepal. Key highlights of this bulletin include the gradual rise in the populations of White-rumped Vulture, over the past seven years, based on the annual vulture count conducted on the first Saturday of September. The bulletin also features the first record of previously undocumented nesting colonies of White-rumped Vulture from Gulmi District and Dadeldhura District, newly discovered nesting colonies in the forested Lipeni area of Kaski District, and the successful rescue, rehabilitation, and release of an injured White-rumped Vulture from Pithauli.

Additionally, this bulletin underscores important findings such as the spatial coexistence of vultures and carnivores within the Trans-Himalayan Region, as well as records of a small breeding population of White-rumped Vulture from Koshi Tappu Wildlife Reserve and Baghmare Community Forest. Furthermore, the bulletin emphasizes Bandevi Dumping Site as a key habitat supporting the highest diversity and abundance of vultures, indicating the fact that food scarcity remains as one of the most pressing threats to their survival.

I extend my sincere gratitude to all authors who contributed articles and made Vulture Bulletin possible. I hope that this bulletin will serve as an important resource for researchers, students, conservation practitioners, and all those committed to vulture conservation.

Warm regards,

Ishana Thapa
Chief Executive Officer

Slender-billed Vulture by Ankit Bilash Joshi

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Population Trends of Vultures in Nepal Based on Synchronized Counts Conducted on International Vulture Awareness Day

Amrit Nepali[1]*, Deelip Chand Thakuri[1], Suraj Basnet[1], Bhupal Nepali[1], Hiru Lal Dangaura[1], Ishwari Prasad Chaudhary[1], Krishna Prasad Bhusal[2], Deu Bahadur Rana[2], Ankit Bilash Joshi[1]

Abstract

Vultures provide irreplaceable ecosystem services as natural scavengers, yet their populations remain vulnerable across South Asia. Understanding population trends of these threatened species is essential for effective conservation planning. A nationwide synchronized vulture count was conducted annually on the first Saturday of September from 2019 to 2025 across Nepal, covering nesting, roosting and foraging sites. Surveys were conducted in 65 of the 77 districts of Nepal and recorded eight of the nine vulture species found in the country. Although the total number of individuals and species recorded varied among years and showed slight increase in count over years but exhibited statistically non-significant population trend. These findings suggest that regulatory measures on veterinary diclofenac, along with integrated conservation initiatives such as the establishment of Vulture Safe Zones, have contributed to halting the population decline but not for significant population recovery in Nepal.

17th International Vulture Awareness Day celebrated at Gaidahawa (Vulture Safe Feeding Site)

Introduction

Vulture are the natural scavengers, which helps to balance ecosystem by feeding on carrion and prevents the spread of diseases like rabies, anthrax that would spread through decaying organic matter (Dhavala et al., 2008; Ogada et al., 2012). Their rapid digestion and highly acidic gastric environment effectively neutralize pathogens, rendering them a natural sanitation service values at billions annually in ecosystem services (Grilli et al., 2019). Despite their ecological and economic importance, vulture population especially White-rumped Vulture and Slender-billed Vulture experienced precipitous declines across South Asia during late 90s, primarily due to renal failure caused by diclofenac, a non-steroidal anti-inflammatory drug administered to livestock.

This catastrophic decline of vulture led to an explosion of feral dog population and consequent rise in rabies cases and increased instances of zoonotic diseases transmission to human (Dhavala et al., 2008). In response to this crisis, government of South Asia initiated conservation activities. To strengthen vulture conservation efforts in Nepal, Vulture Safe Zones (VSZs) were established through partnerships among local communities, veterinarians, conservation organizations and government agencies, with a key focus on preventing the sale and use of diclofenac in veterinary pharmacies and promoting safer alternatives (Bhusal, 2018). In 2021, Nepal declared the world's first genuinely safe VSZ after meeting strict criteria for eliminating diclofenac and other toxic veterinary drugs from livestock treatment systems (SAVE, 2021). The VSZ model represents an integrated conservation approach that includes advocacy, community education, monitoring, research, supplementary feeding through vulture restaurants and protection of key habitats. Evidence from recent monitoring suggests that some populations of Gyps vultures in Nepal are showing signs of recovery as a result of these coordinated conservation interventions (Bhusal et al., 2021; Bhusal, Joshi, et al., 2023; Galligan et al., 2020; McClure et al., 2021).Parallel to conservation action, awareness program has started across the globe to gather public support. Endangered Wildlife Trust (South Africa) and Hawk Conservancy Trust (UK) initiated local Vulture Awareness Day in 2006, which have now evolved as International Vulture Awareness Day (IVAD). IVAD has brought all the conservationists, conservation organizations and research institutions across five continents to celebrate vultures and draw attention to their situation.

Nepal has taken IVAD as an opportunity not only for public engagement but also for systematic population survey. A nationwide synchronized vulture count was initiated from 2019 annually, across Nepal (Bhusal & Rana, 2020). This study aims to synthesize data from vulture count on IVAD from 2019 to 2025, documenting population trends of vulture species of Nepal.

Methodology

Study Area

The study was done all over Nepal covering a total of 65 (34.5±10.5) districts from 2019 to 2025. The survey covered a broad elevational gradient from lowland Terai region to highland Himalayan region, covering diverse geographic zones that constitute suitable habitat of vulture. Survey covered different protected areas, community forests, Important Birds and Biodiversity Areas, ensuring representation of areas with low documentation (Figure 1).

Methods

Survey was done nationwide annually on first Saturday in September from 2019 to 2025. The vulture survey and count was done in key roosting, feeding, nesting sites identified through previous surveys and local knowledge (Bhusal & Rana, 2020). To capture peak activity of vulture, volunteers from conservation NGOs, local conservation groups and BCN staffs conducted surveys in morning from 8:00 am to 11:00 am and in the evening from 3:00 pm to 5:00 pm. Volunteers were trained about identification and monitoring of vultures in the annual partner meeting and ornithological trainings. At each observation site, species of vulture and its abundance was recorded. To minimize the risk of double counting individuals, surveys were conducted simultaneously across the country on the same day, primarily during the morning hours. The survey period coincides with the post-breeding season of resident vultures and precedes the arrival of most winter-migratory

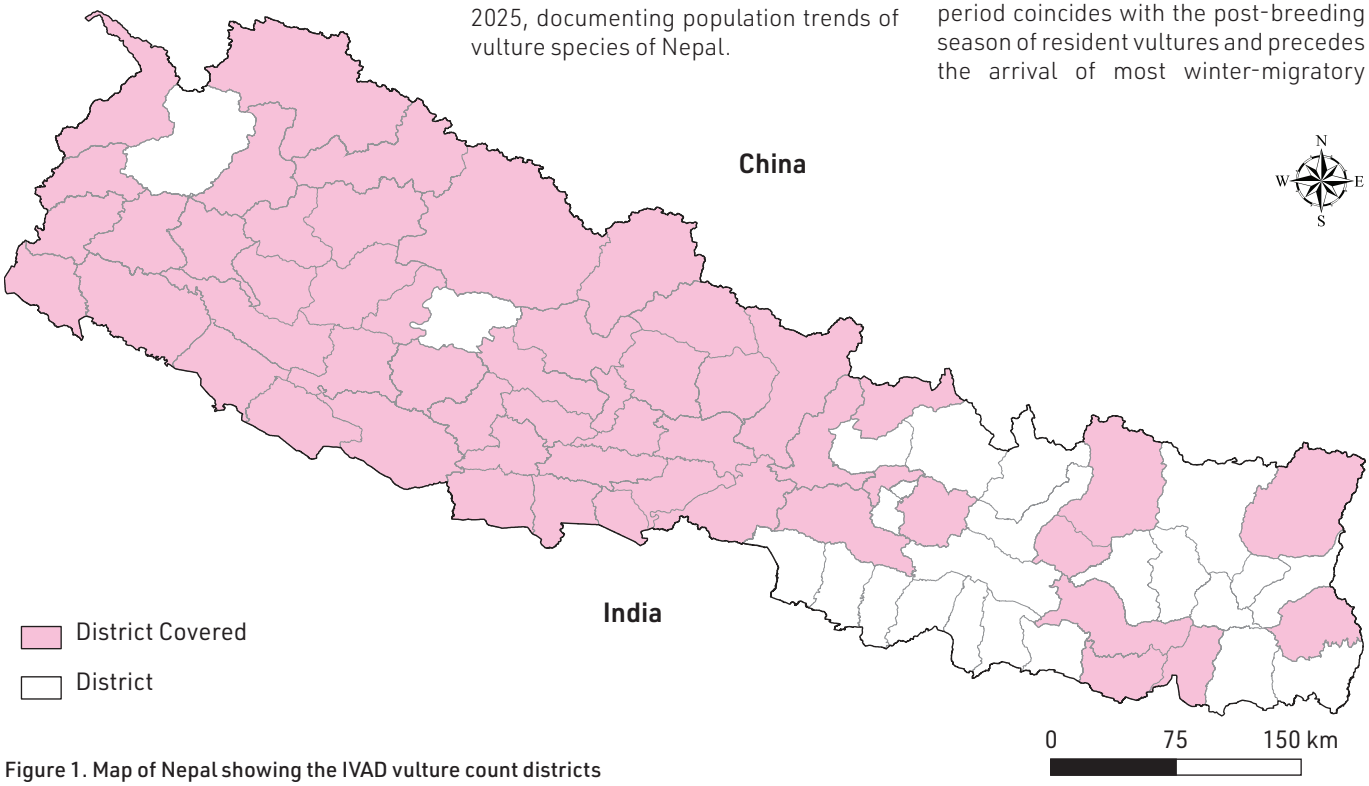

Figure 1. Map of Nepal showing the IVAD vulture count districts

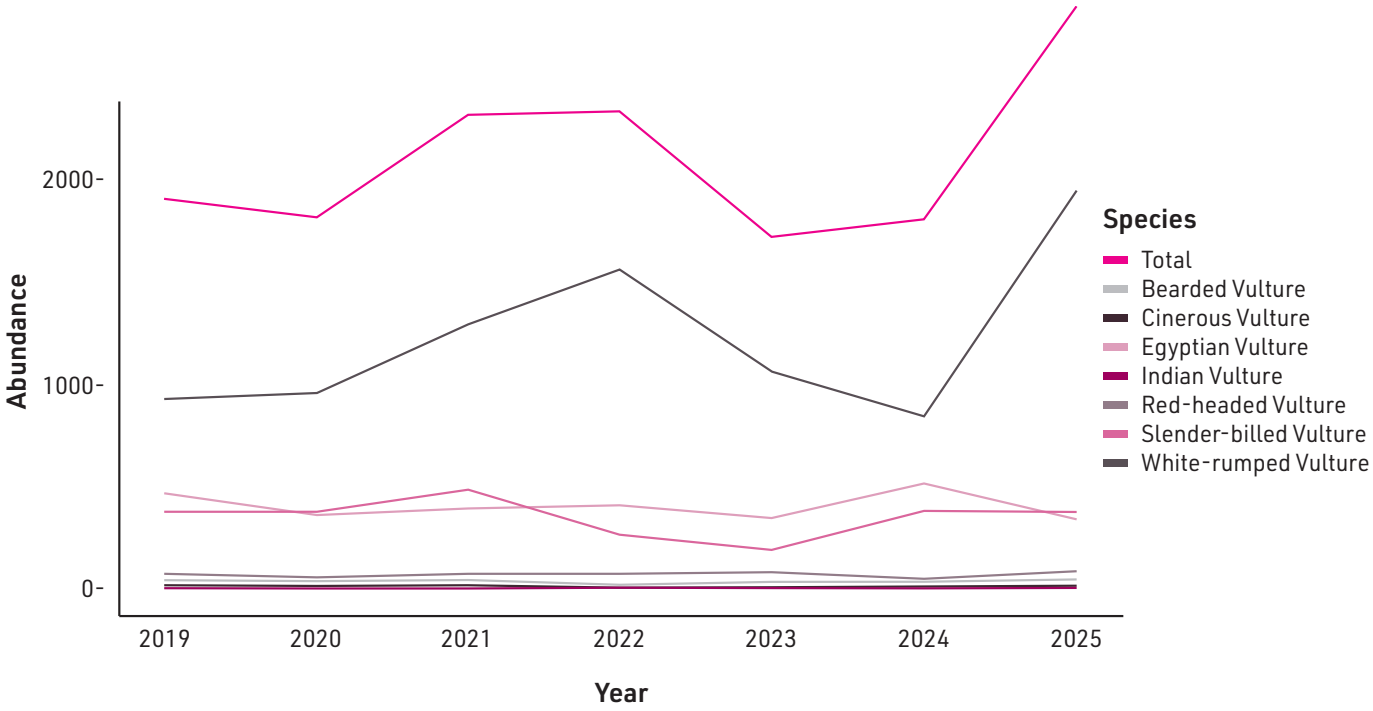

Figure 2. Trend of vulture population in nationwide survey (2019–2025)

species. Conducting the counts during this period provides a more reliable estimate for assessing long-term population trends of resident vulture species. Highest count was retained and lower counts were excluded.

Data Analysis

Graphical representation was done using ggplot2 package in R software. As vulture count data exhibited overdispersion, negative binomial Generalized Linear Model (GLM) was done using MASS package, to test significance of population trend over years. Vagrant species were excluded from GLM analysis and only resident were included.

Results

A total of 14,737 (mean ± SD = 2,105 ± 410 per year) individuals of vultures were counted from 2019 to 2025 all over Nepal. Eight, out of nine species of vultures of South Asia, were recorded during the survey, with Indian Vulture (*Gyps indicus*) (n = 1) recorded only in 2025 (Figure 2).

Total vulture counts fluctuated annually, ranging from 1,717 individuals in 2023 to 2,846 individuals in 2025 (Figure 2), with positive but statistically non-significant trend (β=0.0363, SE=0.0298, z=1.22, p=0.2225). At species level, White-rumped Vulture (β=0.0749, SE=0.0468, z=1.6, p=0.1099), Slender-billed Vulture (β=0.0231, SE=0.0755, z=0.31, p=0.7599) and Red-headed Vulture (β=0.0297, SE=0.0443, z=0.67, p=0.5022) exhibited weak positive yet statistically non-significant trend. While Egyptian Vulture (β= -0.0114, SE=0.0277, z= -0.41, p=0.6819) and Himalayan Griffon (β= -0.0271, SE=0.0508, z= -0.53, p=0.594) showed weak negative but non-significant trend. Bearded Vulture showed no trend (β=0.00, SE=0.065, z=0.00, p=1.00) indicating population at consistently low numbers (annual mean=33.4 individuals).

Discussion

This study presents synchronized vulture count data of seven years (2019–2025) across 65 districts of Nepal, which provides critical insights in vulture population from one of the most important vulture conservation landscapes. The findings showed consistent with weak fluctuating pattern; no vulture species showed statistically significant population trend.

15th International Vulture Awareness Day celebrated at Gurje Bhanjyang, Kathmandu

The White-rumped Vulture emerged as numerically dominant species, with counts doubling from 922 to 1943 individuals over study period, and showed weak positive that, although not statistically significant, aligns with recent regional analysis of long-term monitoring data indicating partial recovery of *Gyps* vultures in Nepal (Galligan et al., 2020). During the period of seven years, annual count of Slender-billed Vulture ranged from 13 individuals in 2024 to 65 individuals in 2025, with mean of 36.6 individuals per year, indicating a small and highly vulnerable population. Despite low counts of SBV, count of 2025 is nearly equal to estimated population of 50–75 individuals in Nepal (Inskipp et al., 2016). Similarly, Red-headed Vulture (*Sarcogyps calvus*) counts were relatively stable with 68 counts in 2019 to 78 individuals counted in 2025, with annual mean count of 58 individuals. Egyptian Vulture (*Neophron percnopterus*), a globally endangered species, showed no sustained increase, with counts oscillating between 339 and 511 individuals. Himalayan Griffon (*Gyps himalayensis*), high-altitude species, showed a notable decline from 2021 to 2023 followed by gradual increase in count in 2024–2025. Similarly, Bearded Vulture *(Gypaetus barbatus)* and Cinereous Vulture *(Aegypius monachus)*, were recorded in low number, consistent with their naturally sparse distribution and specialized ecological niches. The observed interannual variability in vulture count may partially reflect variation in observer effort, weather conditions, or detection probability rather than true population fluctuations.

The non-significant trend observed across all species are consistent with finding from other South Asian countries. In India, despite ban of diclofenac Gyps vulture population remained at low level with no sign of recovery (Prakash et al., 2024).The absence of significant positive trends despite 2006 diclofenac ban might be due to presence of other legal vulture toxic drugs like ketoprofen, flunixin, deliberate and accidental poisoning (from pesticides and baits set for predator control), electrocution from poorly designed power infrastructure, habitat degradation and reduced food availability from changing livestock management practices (Bhusal et al., 2023; Mallord et al., 2025). In addition vulture slow life histories; delayed sexual maturity, small clutch size (single egg per breeding attempt) have contributed for slow population growth and consequently, even small reductions in adult survival due to poisoning or electrocution can suppress population growth.

Conclusion

The synchronized vulture counts from 2019 to 2025 in Nepal showed weak positive but non-significant population trend. While White-rumped Vulture counts shows sign of increase in population, other vulture species count remains at low number.

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We are sincerely grateful to Bird Conservation Nepal for coordinating vulture count all over Nepal. We are equally thankful to entire volunteer team and partner conservation organizations for their invaluable contributions and unwavering efforts to making International Vulture Awareness Day possible and successful.

[1]*Bird Conservation Nepal, Lazimpat, Kathmandu*
[2]*Biodiversity Research Institute (CSIC–University of Oviedo–Principality of Asturias), 33600 Mieres, Spain*
**for author correspondence,*
e-mail: amrit@birdlifenepal.org

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Telemetry Tracking Reveals Previously Unknown Nesting Colonies of the White-rumped Vulture *(Gyps bengalensis)* in Nepal

Deelip Chand Thakuri[1]*, Amrit Nepali[1], Ishwari Prasad Chaudhary[1], Hiru Lal Dangaura[1], Krishna Prasad Bhusal[2], Deu Bahadur Rana[2], Ankit Bilash Joshi[1]

Abstract

The White-rumped Vulture, once widespread across South Asia, underwent a rapid population decline in the late 1990s due to veterinary use of diclofenac. In Nepal, however, populations have shown signs of recovery following sustained conservation interventions. Between 2017 and 2023, a total of 162 captive-released and wild White-rumped Vultures were fitted with GPS telemetry devices to investigate their movement ecology, survival, and habitat use. Analysis of telemetry data, combined with targeted ground verification, resulted in the identification of eight previously undocumented nesting colonies. These findings highlight that telemetry is not only valuable for understanding movement patterns but also an effective approach for locating hidden nesting sites, identifying key foraging areas, and mapping movement corridors. The study demonstrates the importance of integrating telemetry with field surveys to improve conservation planning for this Critically Endangered species.

Introduction

The White-rumped Vulture (*Gyps bengalensis*), an Old World vulture species, is characterized by its long lifespan, delayed maturity, and low reproductive rate. This tree-nesting, absolute scavenger feeds almost exclusively on the dead carcasses of various animals. Found in seven South Asian countries, including Nepal (BirdLife International 2021), the species is globally and nationally classified as "Critically Endangered" due to the continuing decline of mature individuals throughout its range (Inskipp et al., 2016; BirdLife International, 2021). The continuous decline of the species was due to the NSAID called diclofenac, used in the treatment of cattle (Green et al. 2004).

White-rumped Vultures have already become extinct in China and Malaysia and is possibly extinct in Afghanistan, the Islamic Republic of Iran, Lao

Vulture's nest recorded at *Bombax ceiba* tree by Sanjay Chaudhary

People's Democratic Republic, Thailand, and Vietnam (BirdLife International, 2025). However, conservation efforts over the past two decades have reduced the decline rate of this species in Nepal (Galligan et al., 2020, Bhusal et al., 2023). In Nepal, the species population trend and breeding productivity has been closely monitored across various regions of the Terai and mid-hills (Rana et al., 2019; Galligan et al., 2020). The use of telemetry tagging for both captive and wild vultures has significantly enhanced the monitoring of vulture populations in the country (Mallord et al. 2024). Satellite telemetry has proven to be an effective tool for studying movement ecology of various raptor species, including vultures. Satellite telemetry provides valuable insights into their home ranges and movements throughout Nepal (Davis 2021). GPS tracking offers precise data on birds' home ranges, dispersal patterns, and migration routes. This technology helps identify foraging areas and discover unknown roosting and nesting sites (Holland et al., 2017; Ram et al., 2022). Therefore, this study aims to demonstrate how telemetry tagging facilitates the identification of unknown nesting colony.

Methods

Study Area and Tagging

From 2017 to 2023, a total of 162 White-rumped Vulture including both captive-breed (released as part of conservation breeding program) and wild individuals were tagged with GPS telemetry devices. Wild vultures were captured using walk-in traps baited with safe carcasses. Captive-bred vultures were tagged before release following standard protocol. All tagging procedures were carried out by trained BCN staffs. Vultures were fitted with solar-powered GPS-GSM telemetry (Ornitrack-30), attached using Teflon harnesses in backpack (Orr-Ewing et al., 2020).

Telemetry Data Monitoring and Nest Detection

Telemetry data were monitored during the breeding seasons to identify potential nesting locations. The following behavioral patterns were used to infer nesting sites: repeated and consistent visits to specific locations over multiple days or weeks and prolonged stationary behavior with limited movement away from a single location, indicative of incubation or chick-rearing.

These movement-based criteria were applied systematically to generate a list of probable nesting sites for subsequent field verification.

Field Verification

All the probable nesting sites identified through telemetry were visited by field teams during the breeding season. Ground surveys involved direct visual observation of nests using binoculars (10×42) and identification of the tagged bird.

Results

Analysis of telemetry data from 162 tagged White-rumped Vultures, combined with field verification, led to the identification of eight previously undocumented nesting colonies across Nepal. These colonies were distributed across both lowland and mid-hill regions, indicating a broader breeding distribution than previously recognized.

1. Barkulpur, Kapilvastu District: A nesting colony was identified in Barkulpur where 31 active nests were recorded. Nests were primarily located on *Terminalia tomentosa*, with some on *Shorea robusta*. The site lies within Buddhabhumi Municipality and represents an important breeding area in the western lowlands.
2. Bela, Dang District: In the Bela/Khardariya area of Dang District, a colony comprising 31 active nests was documented. This colony was located following repeated movements of a captive-released tagged individual during the breeding season.
3. Ghiring Sundhara, Tanahun: In Tanahun, a colony of 10 active White-rumped Vulture nests was recorded during the 2023/24 breeding season.
4. (Biruwa/Banaskhadi/Sinhale) Tanahun District: A large colony comprising 35 active nests was identified in Tanahun District during the 2023/24 breeding season. This represents the largest colony recorded in this study and was detected through frequent movements of tagged wild individuals.
5. Resunga, Gulmi District: A previously undocumented nesting colony was confirmed in the Resunga area of Gulmi District following repeated use of the site by a tagged wild vulture. This represents the first documented breeding record for the species in this district. During this a total of five nests of White-rumped vulture were identified in the area.
6. Dadeldhura District: A new nesting colony was identified in Dadeldhura District after telemetry data revealed consistent use of the area by a tagged individual during the breeding season. This confirms breeding presence in this hilly region.
7. Chhatradev, Arghakhanchi District: In Chhatradev Rural Municipality, 21 active nests were recorded, primarily on *Pinus roxburghii*. This colony was discovered during ground verification of a tagged wild individual.
8. Archale, Syangja District: A site in Syangja District, supported 10 active nests along with one Bearded Vulture nest during the 2023/24 breeding season.

Overall, colony sizes ranged from small groups of fewer than 10 nests to large aggregations exceeding 30 nests. The colonies were distributed across a variety of habitats, including lowland sal forests and mid-hill pine-dominated landscapes.

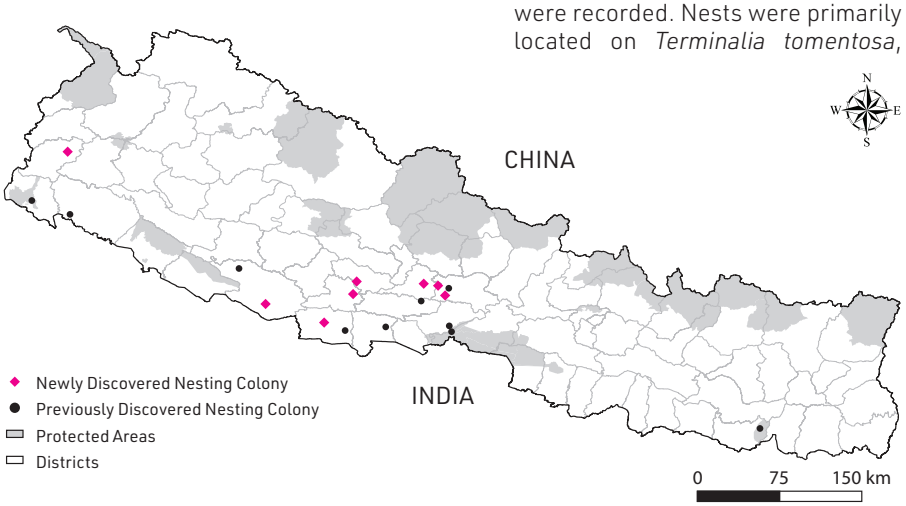

Figure 1. Distribution of explored and previously known nesting colony of White-rumped Vulture in Nepal

Discussion

The identification of eight new nesting colonies in Nepal (Figure 1) highlights

how crucial telemetry tagging can be in vulture conservation. While GPS tracking is often used to understand movement patterns, in this case it also helped reveal previously unknown breeding sites. Similar benefits of telemetry in locating important habitats have been reported in other vulture studies, where tracking data has guided researchers to key roosting and nesting areas that were otherwise difficult to detect (Holland et al. 2017; Ram et al. 2022).

Table 1. Location of new nesting colonies

SN	Colony Location	District	Year Discovered	Active Nest (First Count)
1	Borkulpur	Kapilvastu	2022	31
2	Bela/Khardariya	Dang	2022	31
3	Ghiring Sundhara	Tanahun	2024	10
4	Biruwa/Banaskhadi/Sinhale	Tanahun	2024	35
5	Resunga	Gulmi	2024	5
6	Syaaule	Dadeldhura	2024	3
7	Chhatrdev	Arghakhanchi	2018	21
8	Archale	Syangja	2024	10

The newly recorded colonies varied in size, ranging from small groups of just a few nests to larger colonies with over 30 active nests (Table 1). This variation suggests that White-rumped Vultures are using a range of habitats and may still be in the process of re-establishing breeding populations in different parts of the country. The presence of colonies in mid-hill districts such as Syangja, Tanahun, Gulmi, and Dadeldhura is particularly noteworthy, as these areas have historically received less survey attention compared to the lowlands. This indicates that the species may be more widely distributed than previously documented.

Habitat characteristics also play an important role in colony selection. For instance, the use of tree species like *Terminalia tomentosa* in Borkulpur suggests that the availability of suitable nesting trees remains a key factor influencing breeding behavior of vultures as suggested by earlier studies.

Despite these encouraging findings, the newly identified colonies may still face several threats. Habitat disturbance, infrastructure development, and the lingering risk of NSAID contamination particularly from other toxic drugs than diclofenac-remain concerns vulture populations across South Asia (Galligan et al., 2020;Mallord et al., 2024). Regular monitoring of these sites will therefore be important to ensure their long-term protection.

Overall, this study demonstrates that telemetry tagging is not only valuable for tracking individual birds but also serves as a practical tool for identifying important breeding areas. Combining this technology with field verification and local knowledge can greatly improve our understanding of vulture distribution and support more effective conservation planning in Nepal.

Conclusion

This study demonstrates that telemetry tagging is a practical and effective tool for vulture conservation in Nepal. Tracking the movements of the White-rumped Vulture enabled the identification of previously undocumented nesting colonies, highlighting the value of movement ecology in locating critical breeding habitats. In addition to nest detection, satellite-derived location data provide insights into nest-site fidelity, territory size, foraging ranges and movement corridor. These findings improve our understanding of the species' distribution and indicate that breeding populations may be more widespread than previously reported. The study also underscores the importance of integrating modern tracking technologies with field verification and local knowledge to effectively locate and monitor important nesting habitats. Continued monitoring and collaborative conservation efforts will be crucial to safeguard these newly identified colonies from persistent threats, including habitat disturbance and the use of harmful veterinary drugs.

[1]*Bird Conservation Nepal, Lazimpat, Kathmandu*
[2]*Biodiversity Research Institute (CSIC–University of Oviedo–Principality of Asturias), 33600 Mieres, Spain*
**for author correspondence, e-mail: deelipchand@birdlifenepal.org*

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White-rumped Vulture (BCN Archive)

The Spatial Co-occurrence of Vultures and Carnivores (Himalayan Wolf and Snow Leopard) in Trans-Himalayan Landscape of Nepal

Deu Bahadur Rana[1*], Krishna Prasad Bhusal[1], Ankit Bilash Joshi[2] and Ishwari Prasad Chaudhary[2]

Abstract

Animals sharing habitats adapt different foraging strategies to reduce competition. Top scavengers, such as vultures, and large mammalian predators, like the Himalayan Wolf and Snow Leopard, are key consumers of carcasses in the Trans-Himalayan region of Nepal. We investigated the spatial co-occurrence between vulture nesting territories and the presence of mammalian predators to understand patterns of habitat sharing and potential competition. Locations of 23 Himalayan Griffon nesting colony and Bearded Vulture nests and 49 carnivore presence points were recorded using GPS and analyzed using distance-based models. The mean distance between vulture nests and carnivore presence was significantly higher than expected by chance (Snow Leopard: 4324.59 ± 506.49 m; 3754.76 ± 345.31 m; $p < 0.05$), indicating spatial segregation pattern. Vultures and carnivores showed spatial overlap in areas with high carcass availability, suggesting coexistence is facilitated by resource distribution. The study provide insights into scavenger-predator interactions and may inform conservation and management strategies for both vultures and large carnivores in the Trans-Himalayan region of Nepal.

Himalayan Griffon by Som G.C.

Keywords

co-occurrence, ecology, predatory, spatial, scavenging

Introduction

Biodiversity is the aggregate of a variety of life on Earth which involves the number of different species of plants, animals and microorganisms. Each species in the biodiversity plays an important role and stimulus to get balance in the ecological environment. The major ecological niche theory describes; the niche segregation reduces exploitative competition and allows coexistence (Pianka, 1996). Coexistence among species is facilitated by ecological differences, including variation in the size of predators (Rosenzweig, 1966), prey species (Schmidt *et al.,* 2009), prey sizes (Gittleman, 1985 and Gliwicz, 2008), activity patterns (Fedriani *et al.,* 1999), habitat preferences (Fedriani *et al.,* 1999), and spatial use (Durant, 1988). However, in ecological communities, several predatory species are present and in some cases predator may even consume another (Castellianos, 2005). Predator-prey interaction is far from reality, which includes more complex situation such as the interaction of two predators and their prey (Boarbosa and Castellianos, 2005). Mammalian and avian predators often compete strongly for food, therefore affecting the diet niche overlap between them.

The sympatric relationship between interspecific and intraspecific has been one of the emerging topics in the ecology. They interact, compete or share the same habitat for their survival in the existing resources. In an ecosystem where carcasses are radially available the ranges of scavengers overlap more and facultative scavengers use carrion more, which leads to the high diversity of scavengers and intense interspecific competition. At present, understanding the factors that enable species coexistence in such diverse guilds is an important concern in the ecological community. Predators play an important role in influencing prey population size, as well as modifying whole ecological communities (Holt and Huxel, 2007), however the density and distribution of predators depend on the availability and abundance of their prey (Goszczyński, 1977; Jędrzejewska and Jędrzejewski, 2013).

Vultures are the topmost scavenging bird species of family Accipitridae. Nepal inhabits the home range of nine species of vultures wherein two resident species; Himalayan Griffon (*Gyps himalayensis*) and Bearded Vulture (*Gypaetus barbatus*) dwells in the Himalayan landscape. These areas are equally used by the predators like Snow Leopard *Panthera uncia* (SL), Himalayan Wolf *Canis lupus chanco* (HW), Red Fox (*Vulpes vulpes*), Lynx (*lynx lynx*), Pallas' Cat (*Otocolobus manul*) (Ale *et al.,* 2014 and Lama *et al.,* 2018). The study aims to investigate the co-occurrence of the avian and other carnivores for food in the Trans-Himalayan region of Nepal.

Methodology

Study Area

The Annapurna Conservation Area, ACA is one of the largest protected areas in Nepal with an area of 7,626 sq. km in the Annapurna range of the Himalayas extended from Trans-Himalayan region to the Mid-hills. The elevation ranges from 790 m towards the Mid-hill to the peak of Annapurna I at 8,091 m with an unmated destination of Trans-Himalayan region. The major occupation of the local inhabitants is livestock herding followed by tourism. The study was carried in Upper Mustang, ACA which is one of the key tourist destinations and holds the most domineering habitat of many threatened flora and fauna (Figure 1).

Spatial Co-occurrence

Co-occurrence of species indicates that they share habitats and may interact while foraging within the study area. The study was carried in different years of interval (i.e.2014, 2015, 2018) opportunistically and nesting location of vultures, presence location of HW and SL was recorded throughout the study sites. To monitor the vulture nest, we used binoculars and telescope whereas the presence of carnivores was assimilated through sign surveys (scat, pugmark, scratches) and sighting confirmed by a researcher and local herders. The nesting location and the carnivore presence points were recorded using a GPS device (Garmin GPS 64S). Based on the species presence locations, we calculated the neighboring distance assuming vulture nesting territory as an independent variable. We performed best fit of the model in 95% confidence level and tested the significance of their co-occurrence within the areas.

To investigate the spatial co-occurrence between vulture species (Himalayan Griffon and Bearded Vulture) and predatory mammals (HW and SL), the distance between vulture nests and carnivore presence was compared to the distances between vulture nests and randomly selected points of the carnivore. If vultures' nest and carnivores presence were distributed independently (and vice versa), there

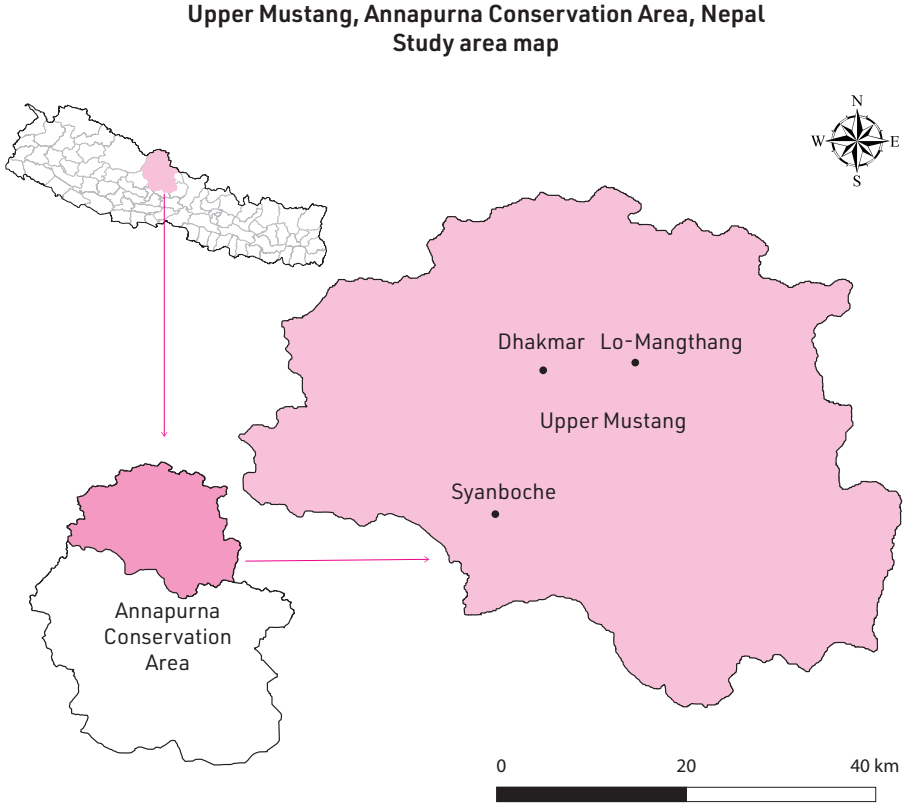

Figure 1. Map showing study area

would be no difference between distances from vulture nests to carnivore presence locations and distance to randomly selected points. Only an individual carnivore presence whose vicinity was within 100 m was considered as a single species and included in the analysis. For meaningful values of HW/SL ($p < 0.05$), H_0 is rejected and to prove normality of distribution, the value of HW and SL must not be significant ($p < 0.05$). When the data were not normally distributed, they were transformed by the function log (x+1) (Fowler & Cohen 1992). Results with $p < 0.05$ [α 5%] were considered significant of scavenging vulture nesting territory and predatory Himalayan wolf and Snow leopard. We calculated a statistical linear regression model in MS Excel.

Results

A total of 72 recorded locations; vulture nest (23), Himalayan Wolf (34) and Snow Leopard (15) were studied. Using ArcGIS 10.3 Software, circular buffers of 250 m radius were created around 23 nests. As a control, we also created 49 points randomly Himalayan Wolf (34) and Snow Leopard (15) virtual presence within circular buffers, assuming that the carnivore presence and vulture nests were in the cliff. It was then set up in a scatter plot with the vulture nest location and Himalayan Wolf and Snow Leopard presence locations distance.

The mean distance between vulture nests and the presence locations of Himalayan Wolf and Snow Leopard was significantly higher i.e. HW [n 34; mean 3754.76 ± 345.31 m (mean ± SE)] and SL [n 15; mean 4324.59 ± 506.49 m] than expected by chance i.e. HW [n 34; mean 2717.94 ± 267.11 m] and SL [n 15; mean 2788.55 ± 451.77 m] respectively. Statistically there was a deliberate positive correlation between the carnivore presence and the vulture nesting territory, thus indicating a huge overlap between vulture nesting territory and the area of carnivores particularly Himalayan Wolf and Snow Leopard presence in Trans-Himalayan region of Nepal [r 0.417; n 34; p 0.0139 (ANOVA, df 1; F 6.76; $p < 0.05$)] and [r 0.711, n 15; p 0.002 (ANOVA, df 1; F 14.36; $p < 0.05$)] respectively (Figure 2, Figure 3).

Discussion and Conclusion

Our study revealed that vultures, specifically Himalayan Griffon and Bearded Vulture, coexist with large mammalian predators such as Himalayan Wolf and Snow Leopard within the Trans-Himalayan region. The higher mean distances between vulture nests and predator presence compared to random points indicate a non-random spatial relationship, suggesting that vultures might select nesting sites in a way that direct encounters with these carnivores is minimal. This pattern aligns with previous studies showing species coexistence is often facilitated by spatial, temporal and dietary segregation to reduce competition and predation risk (Rosenzweig, 1966).

A positive correlation was observed between vulture nesting territories and the presence locations of Himalayan Wolf and Snow Leopard. This indicates a spatial overlap, which may be driven by the distribution of carrion, the primary food for vultures. In ecosystems where carcasses are patchily available, scavengers such as Himalayan Griffon and Bearded Vulture may tolerate proximity to mammalian predators to access food (Holt and Huxel, 2007). Similar observations have been reported in other high-altitude ecosystems, where scavenging birds and carnivores share foraging grounds, with vultures using cliffs and elevated nesting sites to reduce predation risk (Ale et al., 2014; Lama et al., 2018).

This study provides evidence of spatial coexistence between vultures (Himalayan Griffon and Bearded Vulture) and large mammalian predators (Himalayan Wolf and Snow Leopard) in the Trans-Himalayan region of Nepal. Although vultures maintain greater distances from predator locations, a significant spatial overlap exists which

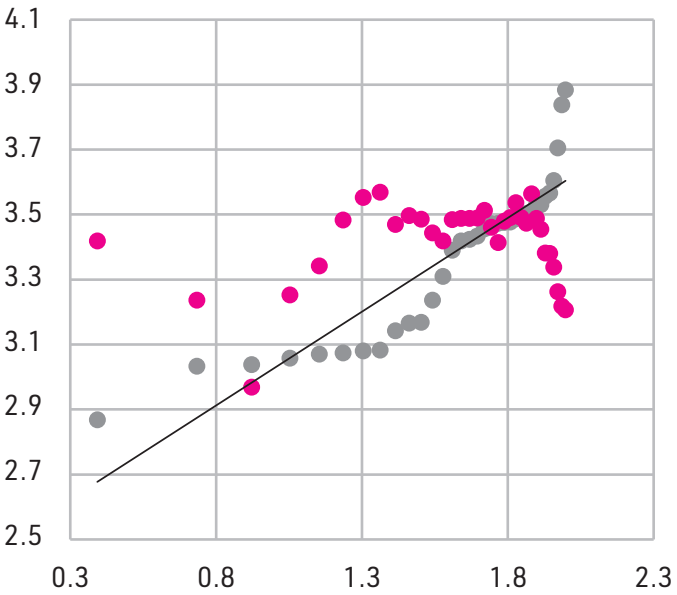

Figure 2. Distance between vulture nesting territory and Himalayan Wolf presence vs. distance between virtual Himalayan wolf location within 250 m circular buffers around vulture nesting territory

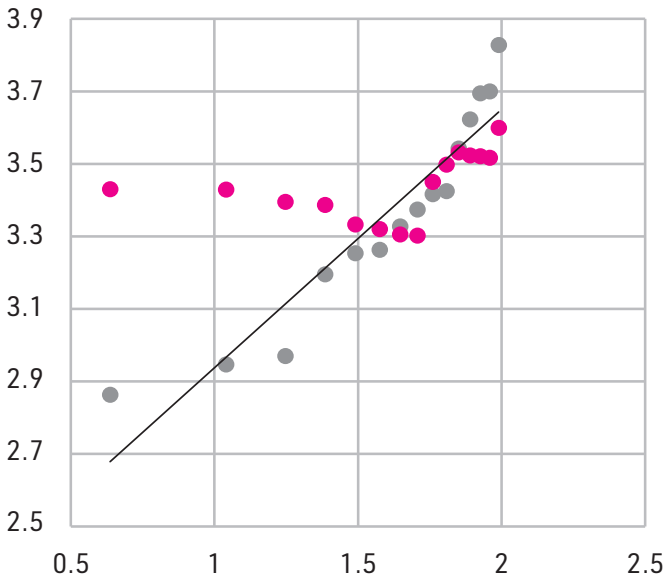

Figure 3. Distance between vulture nesting territory and Snow Leopard presence vs. distance between virtual Snow Leopard location within 250 m circular buffers around vulture nesting territory

Himalayan Griffon by Pooja Lama

is likely due to shared dependence on carrion. The findings suggest that vultures employ habitat selection strategies, such as cliff nesting to reduce predation risk while accessing shared food resources. The results highlights the importance of conserving both predator and scavenger populations and their habitats, as their interactions are integral to maintaining ecosystem function in the Trans-Himalayan landscape.

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[1]*Biodiversity Research Institute (CSIC-University of Oviedo- CSIC-Principality of Asturias), 33600 Mieres, Spain*
[2]*Bird Conservation Nepal, Lazimpat, Kathmandu*
**for author correspondence, e-mail: deurana045@gmail.com*

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An Assessment of the Population Estimate, Distribution and Conservation Threats to Vultures in the Koshi Tappu Wildlife Reserve

Pramisha Khanal[1]*, Basudev Pokhrel[1]

Abstract

The study was carried out in the Koshi Tappu Wildlife Reserve (KTWR) and its buffer zone. The study estimated the population status of the White-rumped Vulture and identified threats to the vulture species. Primary data was collected by conducting survey along a 4 km length transect for nest count and absolute count. Key informant interviews, household survey, focused group discussion and direct observation was used for assessing threats to vultures. The study reported an estimate of 72 individuals of White-rumped Vulture using absolute count method and food shortage as a major threat to vultures followed by electrocution, habitat destruction, poisoning and veterinary drugs. The study concludes that KTWR is a prime habitat crucial for both residential and migratory vulture species. The study recommends to conduct awareness campaigns which will aid in vulture conservation and incorporate key aspects of vulture conservation action plan while preparing KTWR management plan in the future.

White-rumped Vulture chick on nest by Ishwari Prasad Chaudhary

Introduction

Nepal has a rich bird diversity, supporting 9.3% of the world's birds (IUCN, 2014). This richness is largely attributed to its position at the intersection of the Palearctic and Oriental biogeographic realms (Udvardy, 1975), coupled with pronounced gradients in altitude, topography, and associated variation in vegetation and microhabitats. A total of 902 species of birds are recorded from Nepal, of which 48 are globally threatened and 172 are nationally threatened (DNPWC and BCN, 2025). Vultures represent the avian family Accipitridae and the order Accipitriformes, the largest flying raptors in Nepal. They contribute significantly to ecosystem services by ensuring that there are no animal carcasses present. Among nine species of vulture recorded from Nepal, six species are resident; Egyptian Vulture *Neophron percnopterus* (EV), Bearded Vulture *Gypaetus barbatus* (BV), Red-headed Vulture *Sarcogyps calvus* (RHV) Himalayan Griffon *Gyps himalayensis* (HG), Slender-billed Vulture *Gyps tenuirostris* (SBV), White-rumped Vulture *Gyps bengalensis* (WRV), two species are migratory; Cinereous Vulture *Aegypius monachus* (CV), Griffon Vulture *Gyps fulvus* (GV) and one species occurs as vagrant; Indian Vulture *Gyps indicus* (IV) (DNPWC and BCN, 2025). Of nine vulture species, five species are considered globally threatened and seven species are considered nationally threatened (DNPWC and DoFSC (2023).

According to surveys conducted across India, WRV are experiencing population declines at a rate of 48% per year, while IV and SBV are experiencing declines of about 22% per year (Prakash et al., 2007). Similar rates of population decline has been observed in Pakistan, where observation of birds at breeding colonies shows annual rates of decrease of 50% for WRV and 25% for IV (Gilbert et al., 2006; Murn et al., 2008). Diclofenac, a non-steroidal anti-inflammatory drug (NSAID) used by veterinarians, has been identified as the primary factor contributing to the population decline of three Gyps vulture species native to South Asia (Oaks, 2004; Das et al., 2010). However, other factors such as habitat destruction, human persecution, electrocution, accidental poisoning, food shortages, and pesticide use may have caused a gradual decline in vulture population in the region (BirdLife International, 2001).

The KTWR is the first Ramsar site in Nepal declared in 1987 primarily for supporting more than 20,000 waterbird species and 200 species of fish (www.ramsar.org accessed on Nov. 15, 2016). It has been a hub for migratory birds for many years as the highest number of globally threatened bird species has been recorded in this reserve (Baral, 2016). Despite the ban of veterinary diclofenac production in 2006, the introduction of meloxicam as a safe alternative (Chaudhary et al., 2011), and various conservation measures, the population of vulture species continue to decline across India, Pakistan, and Nepal. The average annual rate of population decline is still high in all three countries. The vulture population in the lowland of Nepal revealed a decline of higher than 90% between 1995 and 2011 (Chaudhary et al., 2012). Small population size makes vulture species more vulnerable, therefore the study of their population status and threats is essential, especially in pioneer habitats of the lowlands of Nepal. The objective of our study was to estimate the population size and identify threats to vultures in the study area.

Materials and Methods

Study Area

KTWR is named after the largest River, Koshi, of Nepal. The head office of the reserve lies in Koshi Rural Municipality - 3, Sunsari. It is located within 86°55'15"-87°05'02" E longitude and 26°33'57"-26°43'40"N latitude. Initially, KTWR was declared covering 65 sq. km. area east of Koshi River in Sunsari District in 1976 (2033). In 1978 (2036) it was extended to 175 sq. km. by including the Koshi River alluvial floodplain of the west of Koshi River as well covering part of Sunsari, Saptari, and Udayapur districts. The reserve is almost rectangular in shape measuring 17.5 km north south and 10 km east west. Its buffer zone was declared in 2004 (2061) covering 173 sq. km. within 86°53'41"-87°06'32" E longitude and

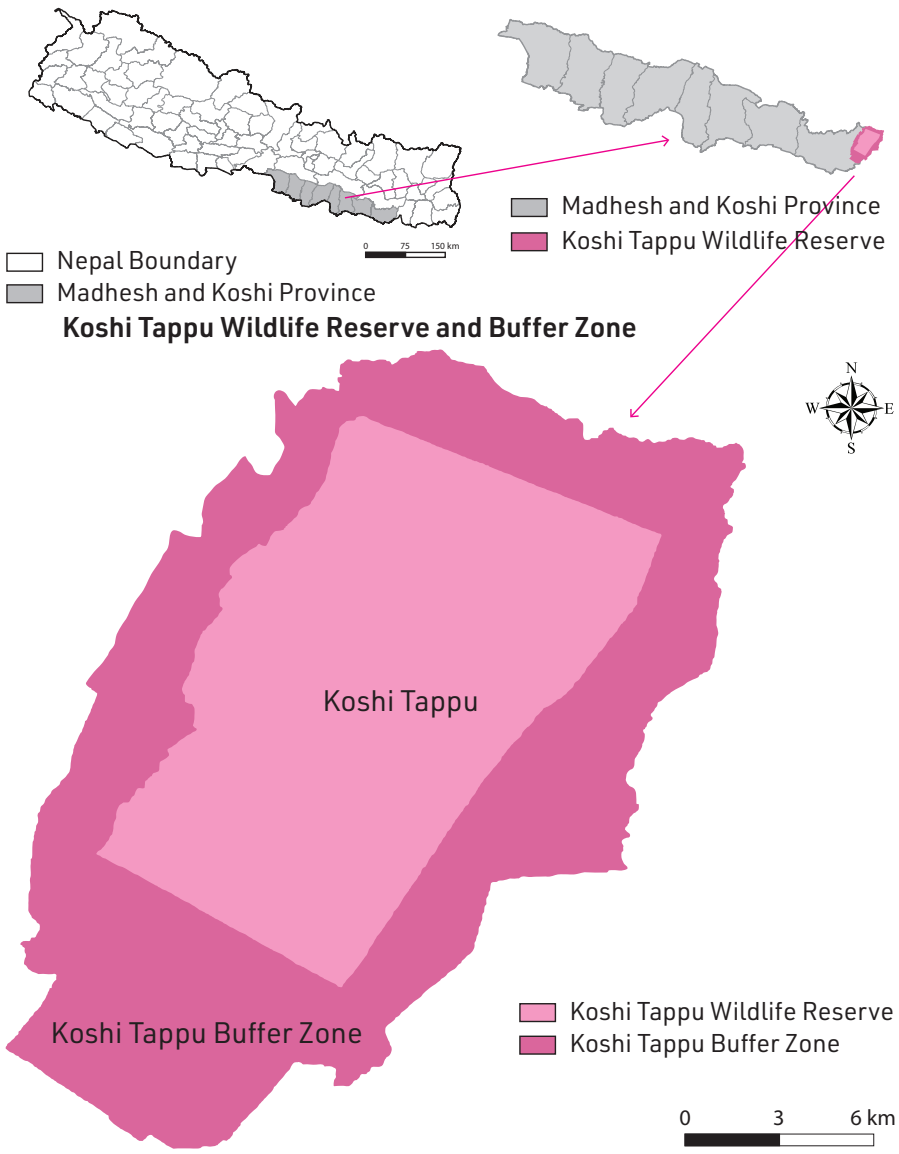

Figure 1. Map showing Koshi Tappu Wildlife Reserve and its Buffer zone

26°33'58"-26°43'42"N latitude (Figure 1). At present, it incorporates two municipalities in the Saptari District, one municipality in the Udayapur District, and one municipal and one rural municipality in the Sunsari District. A total of 526 bird species, including residents and migrants, have been listed, which represents 63 bird families in the world (Baral, 2016).

Sampling Design

A single transect line of 4 km length was designed to collect the biophysical data from the field so that the transect line represents the biophysical characteristics of whole area. For socio-cultural data collection, a simple random sampling of the intensity of 10% was taken to select households for questionnaire survey and conducted in Lauki Kusaha Buffer zone Community Forest, Koshi and Sunsari Rural Municipality.

Data Collection
Primary Data

- Preliminary Survey: The preliminary survey was carried out in the study area to find out the potential habitat of vultures and to build trust with the respondents so that they could complement the interview process in a participatory manner.
- Transect Survey: A transect line of 4 km length along with 250 m left and right side of the transect was surveyed. The number of individuals of vulture and their species were noted during the survey.
- Nest Count: The nests of the vultures within the transect line were recorded, counted and noted on the basis of the presence of nesting birds or fresh white dropping on the nest rim and nesting ledge, or fresh dropping on the rock cliffs underneath the nesting sites. The geographic position of nests were also recorded from the nearest accessible point.
- Absolute Count: The absolute count of vultures was done in their nesting and roosting sites, and the maximum number obtained was noted. All the roosting and nesting vultures were monitored in the morning from 7:00 am to 10:00 am. The potential roosting and nesting sites were visited during the daytime.
- Direct Observation: The different activities (bio-physical and socio-cultural) were directly observed from various sites particularly; the respondent's home, farm, and surroundings. A nearest vulture abundant site was visited to understand the potential threats to vultures and observations were also made on the nesting colonies to understand the condition of their habitat.
- Questionnaire Survey: Both structured and semi-structured questionnaire survey was carried out among the visitors and buffer zone community forest user group members. A total of 75 households were questioned during the study period. Semi-structured questionnaire prepared for household surveys was divided into two general parts: characteristics of respondents and perceptions towards vulture and threat to vulture conservation.
- Key Informant Interviews: Key informant interview was conducted with reserve staff to gather information on threats to vulture conservation. Similarly, teachers, local leaders, army personnel, committee members of Community Forest User Group (CFUG), innovative farmers, the elderly, bird experts and conservationists were also interviewed to identify conservation threats and determine ecologically important sites.
- Focused Group Discussion (FGD): FGD, CFUG discussion was conducted in separate strata with the buffer zone CFUG and farmer to determine if any conservation initiatives have been taken place for vulture conservation, understand their attitudes towards vultures and threats to vultures.

Secondary Data

Bird Conservation Nepal and Birdlife International were also contacted for consultation and guidance. Simultaneously, previous literatures on people's roles and their level of awareness of vulture conservation were also reviewed before conducting the study.

Data Interpretation and Analysis

Data were analysed both qualitatively and quantitatively. Data collected during the field survey was thoroughly analysed using appropriate statistical tools, mainly Statistical Package for Social Science (SPSS) and Ms-Excel, depending upon the nature of the data. The data collected from the field was categorized into different variables. The data was logically interpreted and analyzed using SPSS and Ms-Excel, along with simple charts, tables, and graphs. The population size of vultures was determined by using the Jacknife Technique (Rodgers, 1991). This method assumes that with repeated counts, theoretically, there is a probability of counting all the animals in the area at one time. This method requires at least five repeated absolute counts and uses the difference between the highest count (n_{max}) and the second highest count (n_{max-1}) to calculate population size (N). The estimated total number is;

$$N=2n_{max}- n_{max-1}$$ (At no immigration or emigration)

Results

Population Estimation of WRV

Our study recorded a maximum and minimum number of 65 and 33 individuals of WRV respectively (Table 1). Based on Jackknife technique, the estimated population of WRV was 72 during the study period (n_{max}=65, n_{max-1}=57).

पशु उपचारमा डाइक्लोफेनेक (Diclofenac), एसिक्लोफेनेक (Aceclofenac), किटोप्रोफेन (Ketoprofen), निमेसुलाइड (Nimesulide), फ्लुनिक्सिन (Flunixin) र कारप्रोफेन (Carprofen) जस्ता हानिकारक औषधीमा रोक लगाउने, अग्ला तथा गिद्धका वासस्थानका लागि उपयुक्त रुख कटान बन्देज गर्ने, कालगतिले मरेका, बिषादि मुक्त सिनो, गिद्धको वासस्थान भएको खुला क्षेत्रमा फाल्न सहयोग गर्ने तथा गिद्ध संरक्षणसम्बन्धी जनचेतना फैलाउने कार्यमा सहयोग गरी

गिद्ध संरक्षणमा हातेमालो गरौँ।

Table 1. Number of vultures observed in the study area

S.N.	Date of Observation	Vulture species	No. of mature	No of immature	Total
1	25-Nov-20	WRV	31	6	37
2	26-Nov-20	WRV	33	0	33
3	29-Nov-20	WRV	47	10	57
4	1-Dec-20	WRV	53	12	65
5	2-Dec-20	WRV	47	0	47

Altogether, fifteen nests of WRV were reported from different sites, with highest numbers of nests (n=5) in Moriyadhar Khola and least (n=1) in Pipari, Saptari (Table 2).

Table 2. Number of nest of WRV

S.N.	No. of nest	WRV nest recorded sites
1	2	Near Dharampur, Saptari
2	1	Pipari, Saptari
3	3	Pipari, Saptari
4	2	North to Hawamahal, Sunsari
5	2	Hawamahal, Sunsari
6	5	Moriyadhar Khola

Perception of People towards Vulture Population Trend in Last Five Years

Highest percentage of respondents (66.67 percent) believed vulture population has decreased, only 30.67 percent believed vulture population has increased in the last five years while 2.67% of total respondents had no idea about it (Figure 2).

Major Contributing Factors of Increased Vulture Population

Out of total households surveyed, majority of respondents (38.46%) stated increase in population of wild animals such as Arna and Wild boar inside the reserve has resulted in carcass availability within the reserve thus contributing to increase in vulture population in the last five years. On the other hand, 30.67% believed that ban on diclofenac has significantly contributed in increase in vulture population in the past 5 years. Only 15.38% of respondents agreed habitat conservation and conservation awareness among the local people has resulted to increase in vulture population (Figure 3).

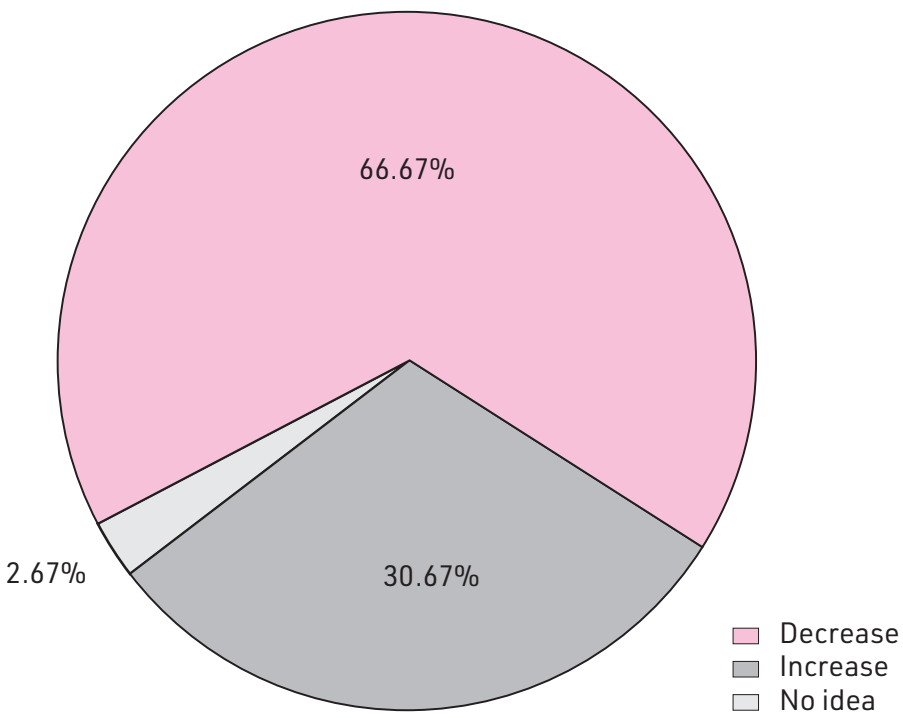

Figure 2. Pie-chart showing responses to the trend in vulture population of last five years

Himalayan Griffon by Ankit Bilash Joshi

नेपाल पन्छी संरक्षण संघको सदस्य बनी पन्छी तथा जैविक विविधता संरक्षणमा सहयोग गरौँ।

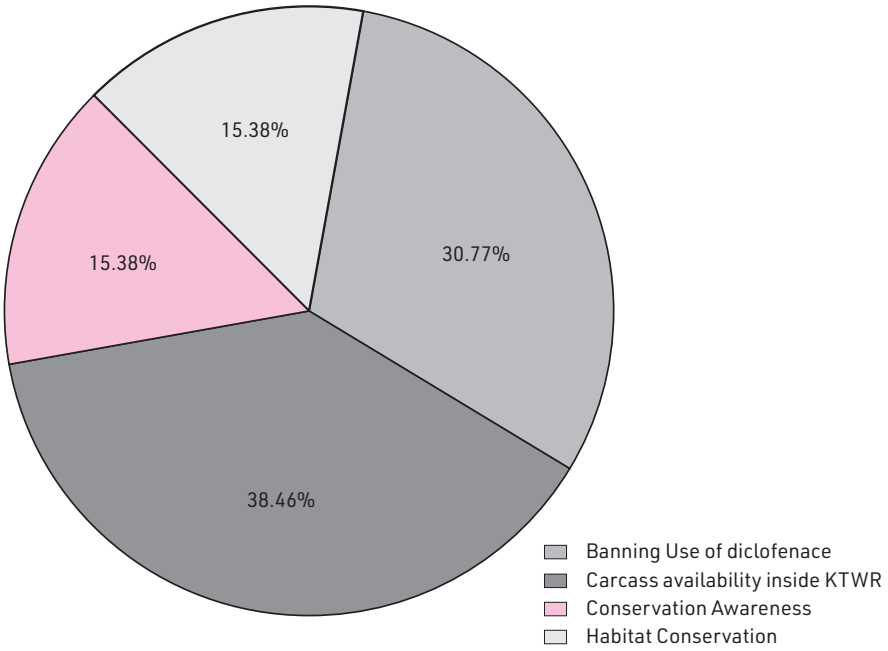

Figure 3. Pie-chart showing responses on major contributing factors of increased vulture population

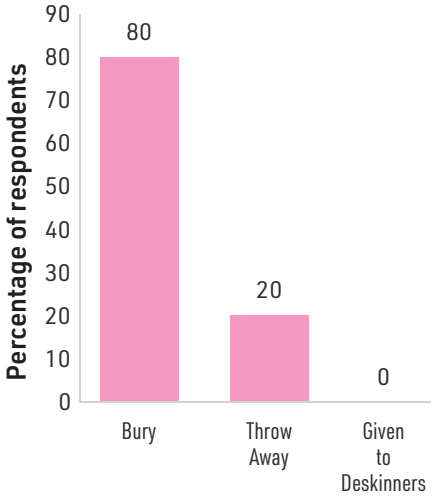

Figure 5. Responses to carcass disposal mechanism

Major Threats to Vultures

Highest proportion of respondents (28.51%) agreed that the major threat to vultures is scarcity of carcass, followed by electrocution (23.83%). About 20% of total respondents agreed habitat destruction as one of the threats to vultures. Contrary to this, only 13.33% agreed use of toxic veterinary drugs for livestock treatment is threat to vultures (Figure 4).

Veterinary Use of Diclofenac

Majority of respondents (43%) agreed with the statement that veterinary drugs used for livestock treatment caused the vulture population decline, while 25% of respondents showed a neutral response and 32% of total respondents showed a negative response to this statement (Figure 6).

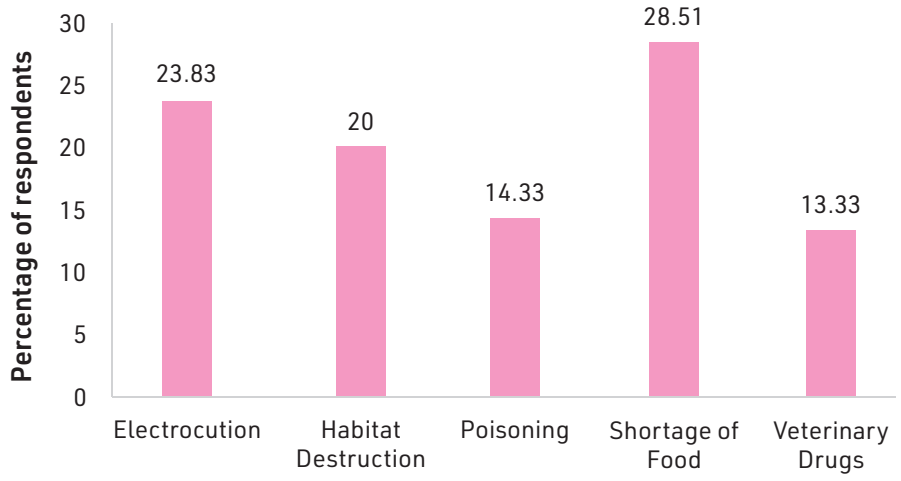

Figure 4. Responses on threats to vulture

Carcass Disposal Mechanism

Out of total respondents, 80% said tha they bury their livestock after death whil 20% practice throwing dead livestock i an open field. The result also suggeste dead livestock carcasses have not bee given to deskinners (Figure 5).

White-rumped Vulture by Prasan Shrestha

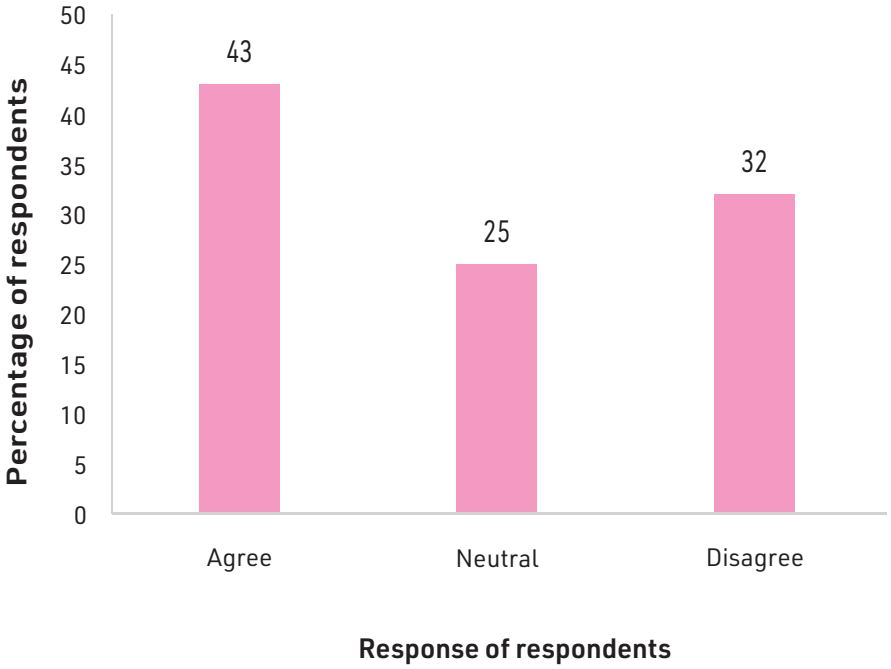

Figure 6. Responses to vulture population decline due to veterinary drugs

Livestock Types and Holdings

Before five years, the average number of cattle held per household was 30, with a maximum of up to 60 livestock and a minimum of up to 3, while the average number of cattle held per household now is 15, with a maximum of 45 cattle and a minimum of only 2.

Shortage of Food

Of the total respondents, 80% agreed that vulture population has declined due to food shortage, 8% showed neutral response, while 12% of the respondents disagreed with the statement (Figure 7).

Poisoning

Majority of the respondents i.e. 54.46% agreed the main cause of decline in vulture population is poisoning, 16.54% had no idea about it and responded as neutral, and the remaining 29% disagreed with the statement (Figure 8).

Indian Vulture by Ankit Bilash Joshi

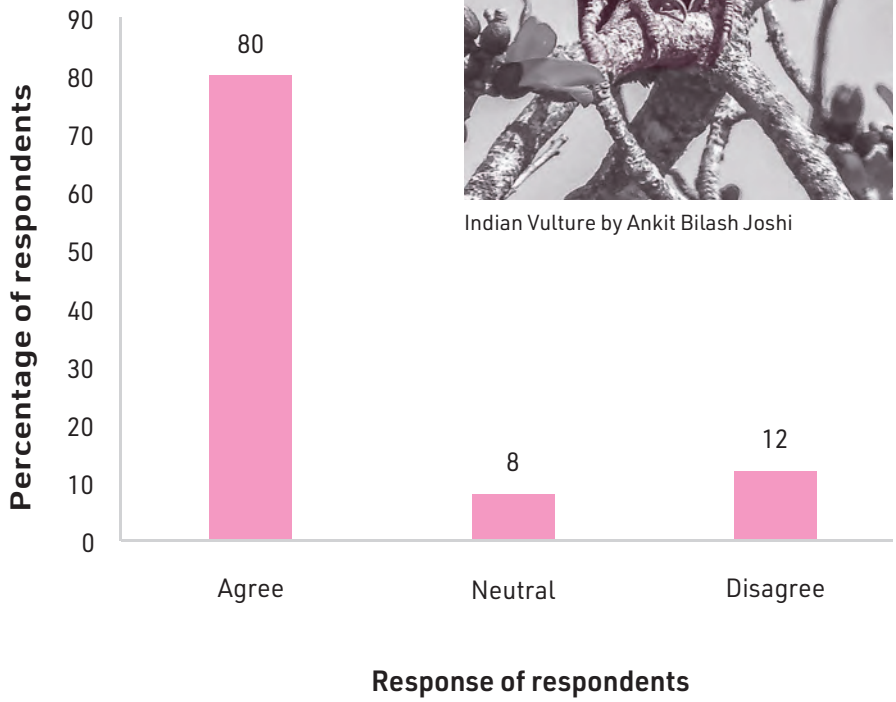

Figure 7. Responses to vulture population decline due to food shortage

Dead vulture found in electric pole by Ankit Bilash Joshi

Electrocution

Majority of respondents (65.33%) agreed with the statement that electrocution is a threat to vultures. Similarly, 24% of the respondents indicated their neutral response, and the remaining 10.67% of the respondents disagreed with the statement (Figure 9).

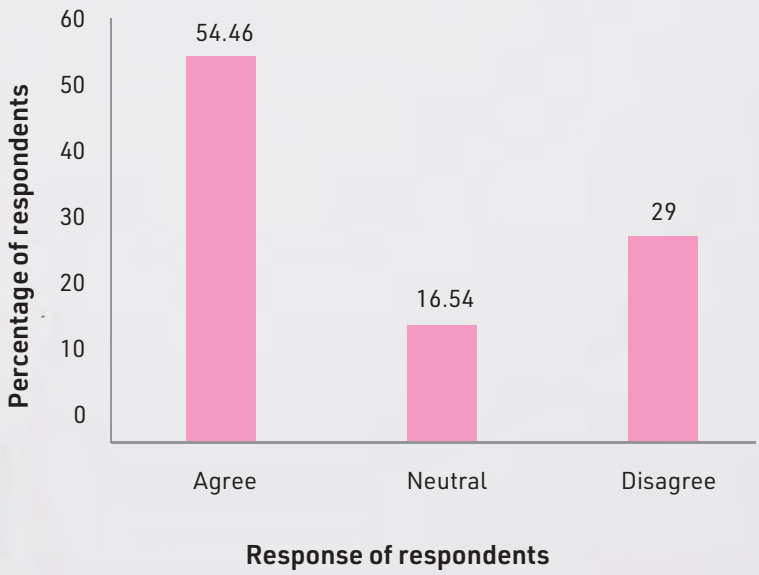

Figure 8. Responses to vulture population decline due to poisoning

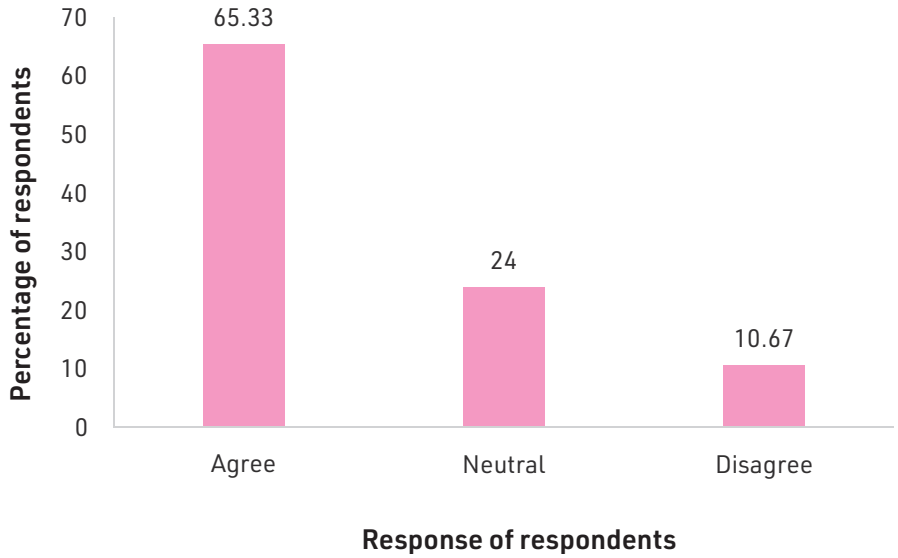

Figure 9. Responses on vulture population decline due to electrocution

Habitat Destruction

Majority of the respondents (60%) agreed habitat destruction is a threat to vulture population, 22% remained neutral to this statement whereas 18% completely disagreed to this statement (Figure 10).

Egyptian Vulture recorded at dumping site by Ankit Bilash Joshi

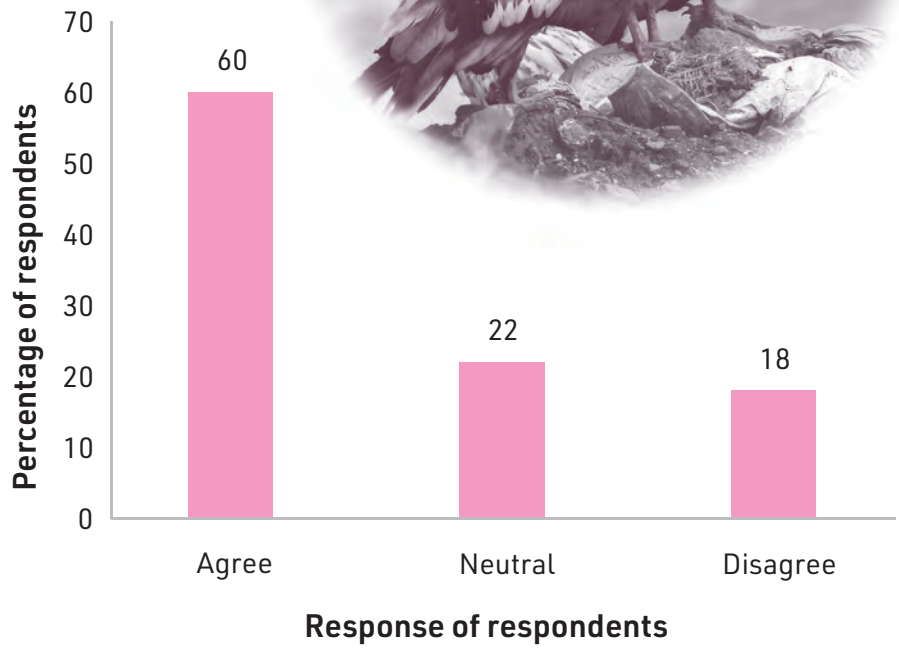

Figure 10. Responses to vulture population decline due to habitat destruction

Ways to Conserve Vulture Population

Majority of responses suggest increasing food available for vultures (29.79%) and conservation program on potential roosting and nesting sites of vultures (23.3%) could be highly effective in conserving vulture population whereas plantation of Simal patches could be least effective in conserving vulture population (6%) (Figure 11).

Discussion

Population Estimation of WRV

The estimated population of WRV in the study area (72 individuals) indicates the persistence of a small but locally important population. The proximity of this estimate to the maximum observed count (65 individuals) suggests that a substantial proportion of the local population was detected during surveys. Similar small, localized populations have been reported elsewhere in Nepal, reflecting gradual recovery following severe declines across South Asia (BirdLife International, 2021; Prakash et al., 2012).

The presence of 15 nests, with clustering in Moriyadhar Khola, confirms active breeding and highlights the importance of specific nesting habitats. Colonial nesting and site fidelity in WRV have been widely documented, with breeding success closely linked to habitat security and minimal disturbance (Shultz et al., 2004).

Perception of People towards Vulture Population Trend in Last Five Years

Although some respondents perceived population increases, the majority reported a decline over the past five years, indicating possible differences between short-term local observations and long-term population trends. Respondents suggested population increases primarily due to improved carcass availability from wild ungulates and the ban on diclofenac. Our result is consistent with regional evidence showing population stabilization following the restriction of diclofenac, previously identified as the principal driver of vulture declines (Oaks et al., 2004; Prakash et al., 2012).

Threats to Vultures

Food scarcity emerged as the key threat,

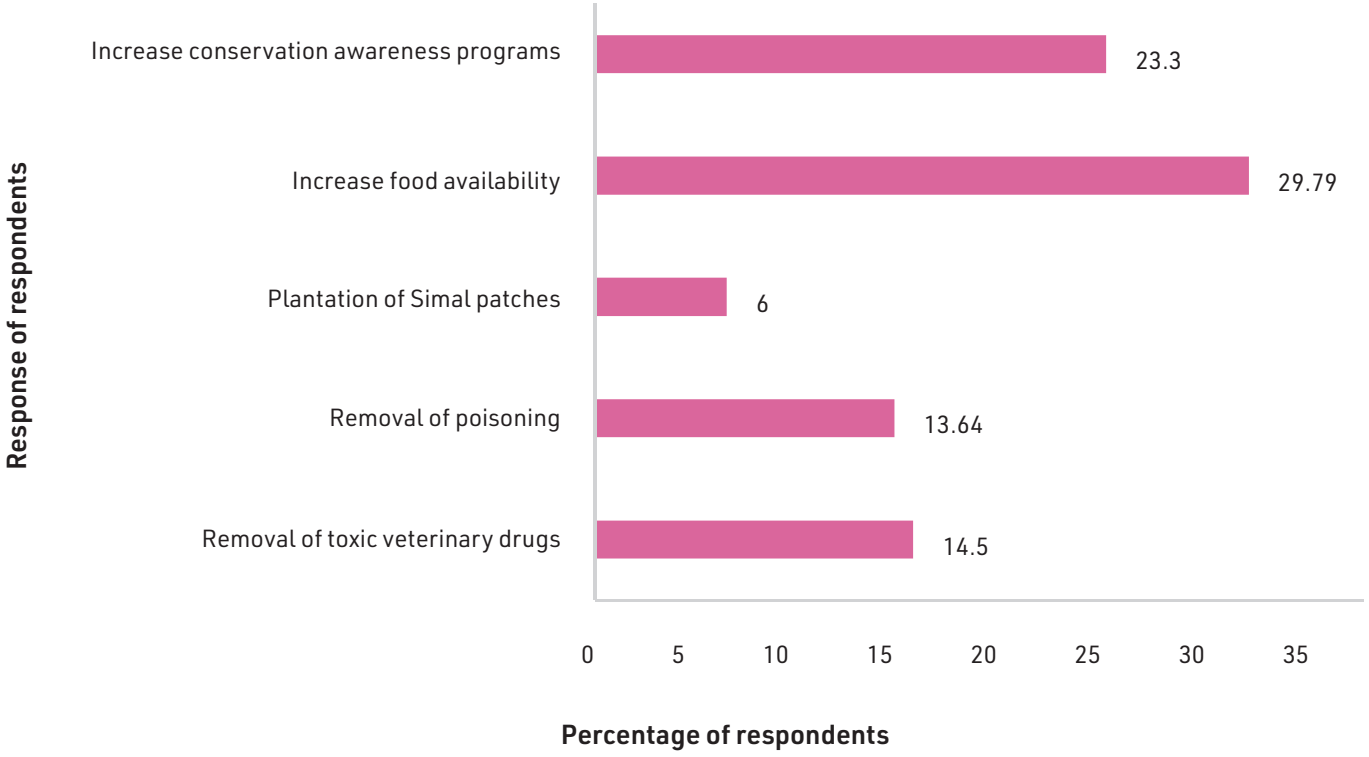

Figure 11. Responses on ways for vulture conservation

supported by widespread carcass burial practices (80%) and declining livestock holdings. Reduced food availability has been recognized as a key limiting factor for vulture recovery (Zuberogoitia et al., 2010). Electrocution and habitat destruction were also identified as significant threats, reflecting increasing infrastructure development and land-use change in lowland Nepal. Additionally, poisoning of carcasses remains a concern, consistent with reports from other regions where secondary poisoning affects scavenger populations (Ogada et al., 2012).

Ways to Conserve Vulture Population

Despite lower perceived importance of role of veterinary drugs such as diclofenac among respondents, mixed level of awareness highlights the continued need for outreach on safe alternatives. Conservation measures recommended by respondents particularly improving food availability and protecting nesting/roosting sites, align with established interventions such as vulture safe feeding sites and habitat management.

Conclusion

The study confirms the persistence of a small but breeding population of WRV, with an estimated 72 individuals and 15 nests, indicating localized stability and potential recovery. Nest clustering highlights the importance of suitable nesting habitats. Moreover, the population remains vulnerable to multiple threats. Food scarcity, driven by carcass burial practices and declining livestock holdings has emerged as the key limiting factor. Other major threats

White-rumped Vulture by Ankit Bilash Joshi

include electrocution, habitat destruction, and poisoning. Although the ban on diclofenac has aided population stabilization, limited public awareness suggests the need for continued outreach on safe alternatives. Local perceptions support effective conservation measures, particularly improving food availability and protecting nesting and roosting sites. Targeted interventions such as vulture safe feeding sites, electrocution mitigation, habitat protection, and community awareness are therefore essential. Overall, while signs of persistence and breeding are encouraging, sustained and integrated conservation efforts are crucial for long-term population recovery.

[1]*Faculty of Forestry, Agriculture and Forestry University, Hetauda, Nepal*
[*]*for author correspondence, e-mail: khanalpramisha45@gmail.com*

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Seasonal Variation in Population, Distribution, Threats and Local Perceptions of Vultures in Tansen Municipality, Palpa District, Nepal

Sangita Bashyal[1,2*], Aastha Bhattarai[2], Jhamak Bahadur Karki[2]

Abstract

Vultures play a vital ecological role as obligate scavengers, yet their populations have declined drastically across South Asia due to multiple anthropogenic pressures. This study assessed the population size, seasonal variation, species distribution, threats, and local community perceptions of vultures in Tansen Municipality, Palpa District, Nepal, from January to June 2020. Field surveys were conducted using transect walks and vantage point observations across winter, spring, and summer seasons, complemented by household questionnaires (n=120). Population estimates were calculated using the Jackknife method. A total of seven vulture species were recorded: Himalayan Griffon, White-rumped Vulture, Cinerous Vulture, Red-headed Vulture, Egyptian Vulture, Bearded Vulture and Griffon Vulture. The estimated population size was highest in winter (64 individuals), followed by spring (57 individuals), and lowest in summer (17 individuals). Species richness peaked in spring, with six species recorded, while only two species were observed in winter. The Bandevi dumping site emerged as a key habitat supporting the highest diversity and abundance of vultures. Major threats identified were food scarcity (49%), use of veterinary drugs such as diclofenac (28%), electrocution (12%), and habitat loss (11%). Despite prevailing cultural misconception, over half of the respondents recognized the ecological importance of vultures and expressed positive attitudes toward their conservation. The study highlights the importance of seasonal dynamics and anthropogenic factors in shaping vulture populations. Conservation efforts should prioritize ensuring safe food availability, regulating harmful veterinary drugs, and protecting critical habitats to support the recovery of vulture populations in the region.

Himalayan Griffon and Cinerous Vulture roosting at Palpa District by Sangita Bashyal

Introduction

Vultures are the most important species among the avifauna. Vultures feed totally on the carcasses of dead animals and are found on every continent except Antarctica and Oceania (Del Hoyo et al 1994). Vultures are categorized into two groups; 'Old World' and 'New World' vultures. An Old World vultures are found in Africa, Asia and Europe and the New World Vultures are found in North and South America. There are seven species of new world vultures and 16 species of old world vulture. Vultures are the scavengers whose diet consists of various size. They do not kill the prey but they feed on large carrion and occupy a special ecological niche, which classifies them as raptor. Vultures are large, short tailed, solitary birds of prey (Ward et al., 2008), belonging to family Accipitridae and order Accipitriformes (BirdLife International, 2014).

Nepal supports nine species of vultures (Phuyal 2012) that include five species of Gyps vulture i.e. White-rumped Vulture *Gyps bengalensis* (WRV), Slender billed Vulture *Gyps tenuirostris* (SBV), Himalayan Griffon *Gyps himalayensis* (HG), Indian Vulture *Gyps indicus* (IV), and Griffon Vulture *Gyps fulvus* (WRV). Other vulture species include Bearded Vulture *Gypaetus barbatus* (BV), Egyptian Vulture *Neophron percnopterus* (EV), Red-headed Vulture *Sarcogyps calvus* (RHV), and Cinerous Vulture *Aegypius monachus* (CV). The Cinerous Vulture is winter visitor whereas White-rumped Vulture, Slender- billed Vulture, Himalayan Griffon, Red-headed Vulture, Egyptian Vulture and Bearded Vulture are resident breeders (DNPWC and DoFSC, 2023).

There has been catastrophic decline in the populations of three Gyps vulture species endemic to South Asia including White-rumped Vulture, Indian Vulture and Slender-billed Vulture due to the veterinary use of the non-steroidal anti-inflammatory drug (NSAID) diclofenac. Gyps vultures are exposed to diclofenac through consumption of the contaminated carcasses of livestock (Das et al., 2011). Besides diclofenac, other causes of vulture population decline are habitat destruction and scarcity of food. The increasing practice of burying carcasses in order to prevent spread of diseases (Baral & Gautam 2007) results in less availability of food to the vultures (Joshi et al. 2015). Feeding on deliberately poisoned carcasses placed to kill other animals like dogs and rats, felling of nesting trees, direct persecution and hunting of vultures for medicinal purposes are also the causes of decline of their population (Pain et al. 2003; DNPWC, 2015). Although different conservation measures are taken along with the ban of veterinary drug diclofenac, population of vulture is continuously declining in India, Pakistan and Nepal. The conservation measures have not been much effective in halting the population decline. Vulture's population is declining day by day with the increasing human population. Different anthropogenic activities are responsible for the loss of vultures and their habitat.

According to the annual report published by BCN in 2012–2013, five species of vulture namely White-rumped Vulture, Slender-billed Vulture, Cinereous Vulture, Red-headed Vulture, Egyptian Vulture along with first nest of Red-headed Vulture was recorded at Tansen-12, Salghari, Palpa. Similarly two active nests of Red-headed Vulture on *Adina cordifoila* tree was confirmed at Tansen Municipality 12, Dharampani and on Pinus tree at Baugha Pokharathok 6, Luhung (BCN, 2016). Our study aims to estimate the population size and distribution of vulture species in Tansen Municipality in two different seasons and determine the threats and attitudes of local people towards conservation of vultures.

Materials and Methods

Study Area

Topographically, Palpa District entails 27° 34' to 27°57' latitude and 83 °15' to 84°22' longitude. The district is surrounded by Arghakhanchi and Gulmi Districts within the west, Nawalparasi District within the east, Rupandehi and Nawalparasi Districts within the south and Syangja, Tanahu and Gulmi District within the north. The Palpa District represents different agro-climate zone comprising of valley, flat land to middle hills and high hills. It covers an area of 1,366 square kilometer. The district expands about 70 km from east to west and about 20 km north to south. The climatic condition of district ranges from sub-tropical to alpine. Tansen lies within the south-west of Nepal about 370 km road distance from Kathmandu and at an elevation of 1,201 m asl (Figure 1).

Field Surveys

The survey was carried out in Madanpokhara, Bandipokhara, Bandevi dumping site and Bhairavsthan from January 2020 to June 2020. Surveys began at 8:00 hour and ended at 16:00 hour. Transects along the walking trails used by local people was laid in winter season and same transect was followed in spring and summer season. All vulture species recorded within 500 m on each

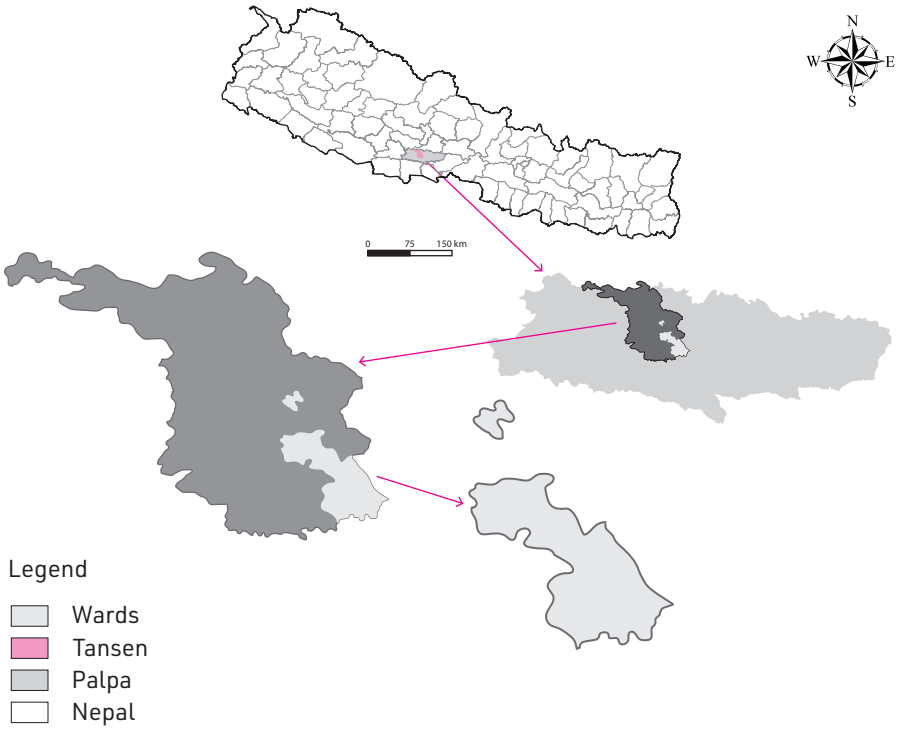

Figure 1. Map of study area

side of the transect line were noted. Total three transects; first transect of 3 km from Bandevi dumping site to Dhungakhani, second transect of 3 km from Mission to Gorkhekot and third transect of 4 km on Bandipokhara. The duration of survey was kept consistent both in winter and spring season.

Vantage point survey was also conducted in Bandevi dumping site, Madan Pokhara view tower and Bhairavsthan temple of Tansen Municipality and vultures were counted from 7–11 am and 3–5 pm (their peak movement time in search of food). The geographic location of vulture sighted point was recorded by using GPS and habitat type was also noted. Observations were carried out with the help of binoculars (Carl Zeiss, Dialyt 8×30B) and identification of vultures was done with the help of book named Vultures of Nepal. Camera (Canon 70D) was used for photographing the vultures. Surveys were avoided in harsh weather conditions, heavy rainfall and cloudy day due to low detection probability.

We conducted questionnaire survey with 120 households selected randomly from voter name list collected from the Ward Office to identify the threats to vultures and local people's attitude towards vulture conservation.

Data Analysis

The population size of Himalayan Griffon, Egyptian Vulture, Bearded Vulture, White-rumped Vulture and Red-headed Vulture was determined using Jackknife technique (Rodgers, 1991). This method assumes that with repeated counts theoretically, there is the probability of counting all the animals in the area at one time. This method requires at least five repeated absolute counts and uses the difference between the highest count 'nmax' and the second highest count 'nmax-1', to calculate population size (N).

The estimated total number,

$$N=2n_{max} - n_{max-1}$$ (At no immigration or emigration)

Collected data were analyzed both qualitatively and quantitatively. Questionnaire data was analyzed with the help of SPSS and MS Excel. Furthermore, ArcGIS was used to prepare the map.

Results

Population Size in Winter Season

The population size of vultures was found to be 64 individuals in winter season. Among them, estimated population size of HG was 61 and that of WRV was three. A minimum of 13 vultures and a maximum of 59 individuals of vulture were recorded in winter season. The average flock size of vulture species recorded was 40.25 ± 13.12 (Table 1).

White-rumped Vulture feeding on carcass by Ankit Bilash Joshi

Table 1. Flock size of vultures in winter season

S.N.	Date of Observation	No. of individuals of vultures observed	Average flock size	Standard Deviation (S.D)
1	26 January	33		
2	27 January	45		
3	28 January	51		
4	29 January	21		
5	31 January	36	40.25	13.12
6	1 February	40		
7	2 February	56		
8	3 February	13		
9	4 February	35		
10	5 February	57		
11	6 February	45		
12	7 February	48		
13	8 February	31		
14	10 February	50		
15	11 February	59		
16	12 February	29		
Total		**644**	**40.25**	**13.12**

Population Size in Spring Season

The population size of vultures was found to be 57 individuals in spring season. Among them estimated population size of HG, CV, RHV, EV, WRV and BV was 34, 4, 3, 9, 3 and 4 respectively. A minimum of 10 vultures and a maximum of 31 Vultures were recorded in spring season. The average flock size of vulture species recorded was 20.6 ± 6.94 (Table 2).

Table 2. Flock size of vultures in spring season

S.N.	Date of Observation	No. of individuals of vultures observed	Average flock size	Standard Deviation (S.D)
1	14 March	10	20.6	6.94
2	15 March	18		
3	16 March	31		
4	17 March	27		
5	18 March	17		
6	19 March	23		
7	20 March	13		
8	21 March	23		
9	22 March	14		
10	23 March	30		
Total		**206**	**20.6**	**6.94**

Population Size in Summer Season

The population size of vultures was found to be 17 individuals in winter season. Among them, estimated population size of HG and RHV was three and that of GV was nine. A minimum of one vulture and a maximum of 10 individuals of vultures were recorded in winter season. The average flock size of vulture species recorded was 6.75 ± 3.49 (Table 3).

Table 3. Flock size of vultures in summer season

S.N.	Date of Observation	No. of individuals of vultures observed	Average flock size	Standard deviation (S.D)
1	9 June	1	6.75	3.49
2	10 June	9		
3	11 June	10		
4	12 June	7		
5	13 June	0		
Total		**27**	**6.75**	**3.49**

Vulture Species Observed in Winter Season

Only two species of vultures; Himalayan Griffon and White-rumped Vulture were recorded in winter season with highest number of HG recorded on 11 Feb, 2020 and least number of HG recorded on 3 Feb, 2020. Similarly, highest number of WRV was recorded on 31 Jan, 2020 (Figure 2).

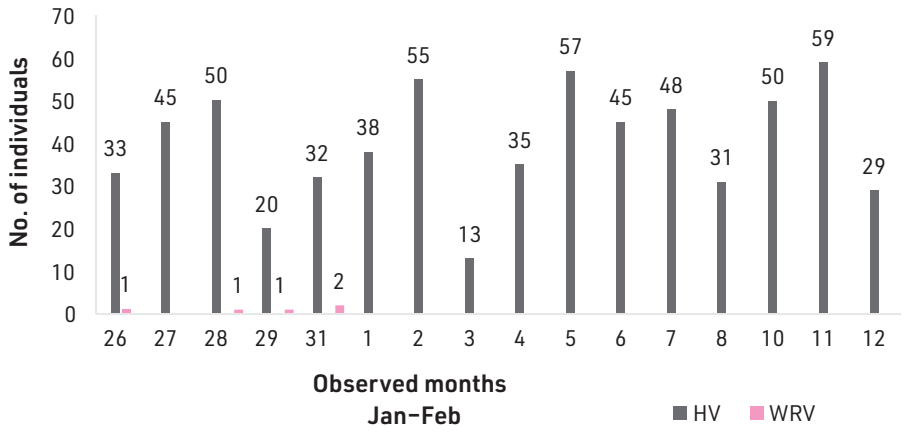

Figure 2. Species of vulture observed in winter season survey

Vulture Species Observed in Spring Season

Six species of vultures; Himalayan Griffon, Cinerous Vulture, Red-headed Vulture, Egyptian Vulture, White-rumped Vulture and Bearded vulture were recorded in spring season with highest number of HG recorded on 23 March, 2020 and least number of HG recorded on 14 March, 2020. Similarly, highest number of BV, CV, WRV and RHV was recorded between 17 and 19 March, 2020 (Figure 3).

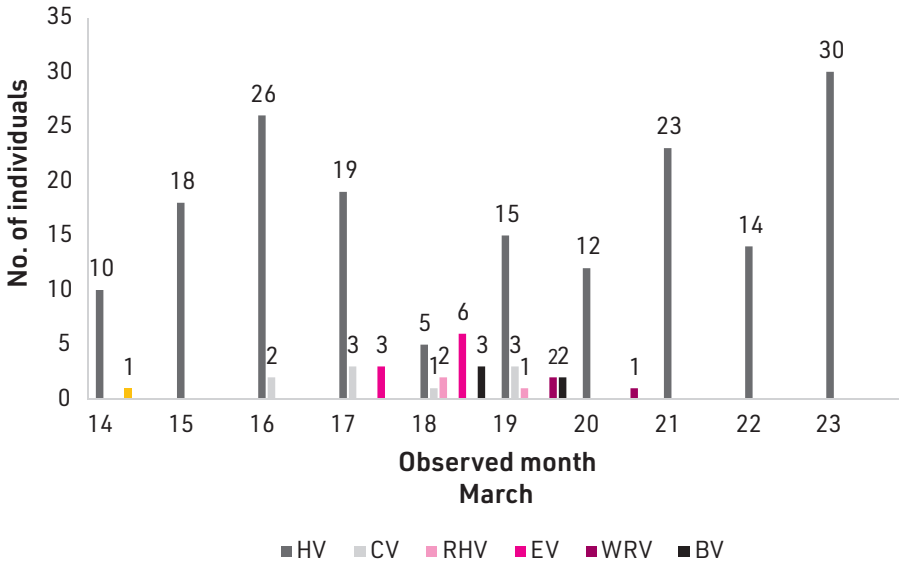

Figure 3. Species of vulture observed in spring season survey

Vulture Species Observed in Summer Season

Three species of vultures were recorded including Himalayan Griffon, Red-headed Vulture and Griffon Vulture with highest number of HG, RHV and GV recorded on 10 June, 2020 and 11 June, 2020 (Figure 4).

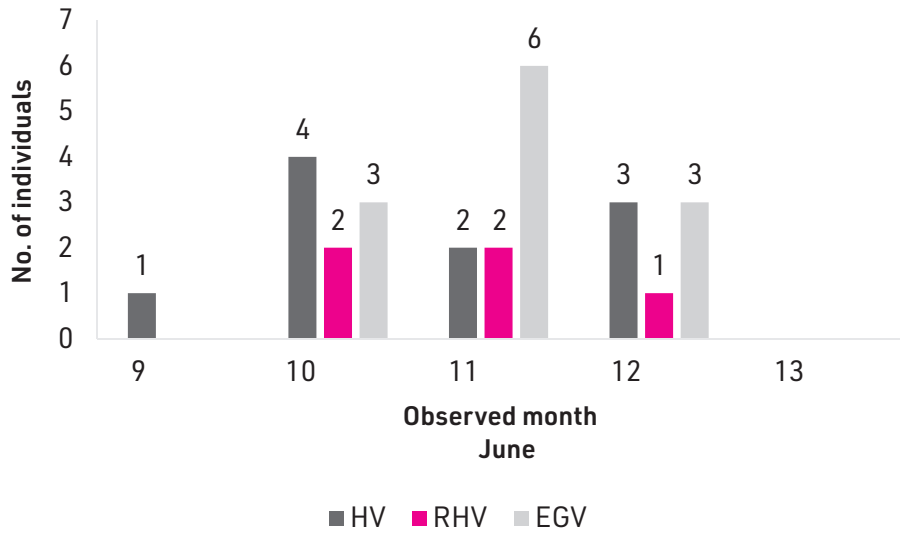

Figure 4. Species of vulture observed in summer season survey

Distribution

Seven species of vultures were recorded in Tansen Municipality. In Madanpokhara, RHV, HG and GV were recorded. Only HG was recorded in Mission-Gorkhekot transect and Bandipokhara. Study showed that, Bandevi dumping site is the suitable habitat for vultures as maximum number of vulture species were reported from the site. Five species of vulture including HG, CV, BV, GV and WRV were recorded in Bandevi dumping site. Four species of vulture including GV, HG, RHV and WRV were recorded in Bhairavsthan.

Threats

Respondents were questioned if there has been changes in vulture population in the study area. Of which 80% of the respondents mentioned that vulture population is in decreasing trend, 8% suggested vulture population is increasing whereas 12% had no idea about the population trend in vultures. Most of the respondents stated major cause of vulture decline was food scarcity (49%) followed by use of diclofenac or other veterinary drugs (28%), electrocution (12%) and habitat loss (11%). Hunting (2%) for medicinal purpose was assumed to be least contributing factor leading to population decline of vultures.

Perception of People towards Vulture

Among all respondents, 35% respondents stated vultures as ugly birds, 48% did not believe vultures are ugly while 17% had no idea about it. Similarly, 49% respondents believed that vultures are not bad omen, 31 % respondents believed that they are bad omen and 20% had no idea about it. Highest percentage of respondents (51%) said that vultures play a crucial ecological role in the environment while 19% respondents said they are not useful and 30% responded that they have no idea about the role of vultures in the environment.

Discussion

Population Size and Distribution

We recorded 100 Himalayan Griffon over 31 days from 26 January to 13 June, 2020. Gurung et al. recorded 233 Himalayan Griffon over 44 days between 23 October and 5 December, 2003 at Dhikur Phokhari, 10 km south of Annapurna Range and Virani et al.

recorded 1307 Himalayan Griffon over 109 days from November 2001 to May 2006 in Annapurna Conservation Area, Mustang. Inskipp et al. (2016) reported the estimated national population of Red-headed Vulture, Egyptian Vulture, Bearded Vulture and Himalayan Griffon to be 400, 1000, 500 and 10,000 respectively. Similarly, we recorded 6 Red-headed Vulture, 18 Egyptian Vulture, 4 Bearded Vulture and 100 Himalayan Griffon in our study. Population of Red-headed Vulture, Egyptian Vulture and Himalayan Griffon is more or less similar compared to that of the national ratio. Our study reported two vulture species in winter and summer season while six vulture species in spring season which is similar to finding by Gurung (2012), who recorded six vulture species in spring season in Tanahun District. On the contrary, Dhakal (2011) recorded seven vulture species in spring season and five vulture species in summer season in Rupandehi and Dang Districts, which suggests that more vulture species was recorded in spring than in summer, indicating finding similar to our study. Our study reported large number of vultures searching for carcass on Bandevi dumping site, which might be due to lack of carcass availability. Moreover, limited people rear livestock, which decreases the possibility of getting enough food in the settlement area, resulting in seeking for food in other areas.

Threats

Our study indicated food security (49%) as the major cause of decline in vulture population followed by diclofenac (28%), electric shock (12%) and habitat loss (11%) which is similar to previous studies by Maming and Xu (2015) in China and Oaks et al. (2004) in Chitwan-Annapurna Landscape. Our result suggests that lack of enough safe food (carcass) due to change in carcass management method could be one of the plausible reasons for decline in vulture population.

Although habitat loss was not recorded as a significant threat to vultures, road was being constructed near the nesting site of Red-headed Vulture in Bandipokhara and felling of trees was done to build buspark near Bandevi dumping site. This might create disturbance to the vultures leading to nest abandonment or leaving the habitat as study suggests that a distance up to 500 m should be maintained between source of disturbance and breeding colony (Margalida et al., 2010; Chomba and M' Simuko, 2013).

Perception of People towards Vulture

Generally, vultures are considered as an unattractive bird and bearer of bad luck in Nepalese society (Baral et al. 2007). People's attitude are influenced by physical and behavioral characteristics of the species. People prefer to conserve familiar and charismatic species having utilitarian benefits thus ignoring unfamiliar, rare and uncharismatic species, despite their ecological significance (Serpell 2004; Martín-López et al. 2007; Reimer et al. 2013).

Despite these beliefs, half of the respondents showed positive attitude towards vulture conservation, few respondents had neutral attitude and very few respondents had negative attitude towards vulture conservation. KC and Bikram (2013) indicated that age, education, gender are significant factors influencing conservation attitude. Our study also reported majority of educated people had positive attitude towards vulture and wanted to conserve vulture. Similar result was recorded in the previous studies in Rupandehi and Ramechhap (Chettri, 2014; Phuyal, 2012).

Conclusion

Total seven species of vultures including Himalayan Griffon, Cinerous Vulture, Bearded Vulture, Griffon Vulture, Egyptian Vulture, Red-headed Vulture and White-rumped Vulture were recorded during our study. Among them Himalayan Griffon was recorded in abundant number. Highest species of vultures were recorded in Bandevi dumping site in spring season. Our study revealed maximum respondents showed positive attitudes towards vulture and were aware of the importance of vultures in the environment. Carcass scarcity, use of diclofenac or other NSAIDs, electrocution and habitat loss were threats to vultures.

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[1]*Institute of Forestry, Pokhara Campus, Pokhara, Nepal*
[2]*Kathmandu Forestry College*
**for author correspondence, e-mail: sangitabashyal3@gmail.com*

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Explored new nesting site of White-rumped Vulture *(Gyps bengalensis)* in Madi River Corridor, Kaski, Nepal

Milan Baral[1*], Kushal Neupane[1] and Anisha Neupane[1]

Abstract

The White-rumped Vulture *Gyps bengalensis*, a critically endangered species native to South and Southeast Asia, has experienced severe population decline primarily due to diclofenac poisoning. In Nepal, the species is a resident breeder with key populations concentrated in Terai Arc Landscape, with few colonies reported outside the landscape particularly Kaski, Tanahun, Syangja, Palpa, Argakhanchi and Koshi. In this study, we report a new breeding colony from the Lipeni area of Kaski District within the Madi River corridor. Field surveys conducted between October 2020 and April 2021 confirmed three nests positioned at 22-42 m of nesting trees of which two successfully produced juveniles, indicating breeding success of 66.66%. Our study reported anthropogenic disturbances such as pipeline construction and felling of trees during the incubation period, which might have likely contributed to nest failure.

White-rumped Vulture on nest by Ishwari Prasad Chaudhary

Introduction

The White-rumped Vulture (WRV) is native to South and Southeast Asia and is listed as Critically Endangered due to rapid population decline driven by the use of veterinary drug; diclofenac in Nepal. The species is globally distributed in Afghanistan, Bangladesh, Bhutan, Brunei, China (Mainland), India, Iraq, Iran, Laos, Malaysia, Myanmar, Pakistan, Russia, Thailand, Vietnam and Nepal. In Nepal, the species distribution occurs in Argakhanchi, Banke, Bardia, Chitwan, Dang, Gorkha, Kailali, Kanchanpur, Kapilvastu, Kaski, Nawalparasi, Palpa, Pyuthan, Rupandehi, Saptari, Sarlahi, Sunsari, Syangja, Tanahu and Udayapur.

Pokhara Valley reports the occurrence of all nine species of vultures found in Nepal and is important nesting and foraging site of globally threatened vulture species such as: White-rumped Vulture, Slender-billed Vulture, Red-headed Vulture and Egyptian Vulture (Ghimire et. al, 2020). Previously, seven occupied nests of White- rumped Vulture were found in Kattuwa of Nirmal Pokhari from 2006 to 2007 (Baral & Gautam 2007). Moreover, few nesting sites of White-rumped Vulture was reported from Phedipatan, Kattuwa, Kristi and Deepang area of Pokhara Valley between 2009 and 2014 (Gautam & Baral 2014). The species occurs between 75–1800 m and generally builds nest using sticks, twigs and green leaves on top of large trees and nests colonially at equally traditional sites (Grimmett et al. 2016, Rana et al. 2019). The exploration of nesting sites is crucial for the conservationists and policymakers in order to prioritize the site-specific conservation initiatives for the critically endangered species (Bhusal et al. 2020).

Materials and Methods

Field observations were conducted in the forest of Lipeni area of Kaski District (28.209191° N and 84.142273° E) within the Madi River corridor, which lies at an altitude of 739 m asl of Nepal (Figure 1). During a preliminary survey on 24 October 2020, an individual of White-rumped Vulture was observed perching at the top of a large, old *Garuga pinnata* tree, indicating nesting behavior as some twigs were gathered on the trunk. Similarly, on the same day another individual of WRV approaching the tree was chased by individual present on the tree, exhibiting territorial behavior.

Follow-up survey on 25 December 2020 confirmed three active nests of White-rumped Vulture in the same site on *Garuga pinnata* (Dabdabe), *Bombax ceiba* (Simal) and *Schima wallichii* (Chilaune) trees respectively, with individuals incubating eggs.

Monitoring of the active nests of WRV on 15 April 2021 recorded two juveniles in two respective nests, while one nest failed.

White-rumped Vulture by Ankit Bilash Joshi

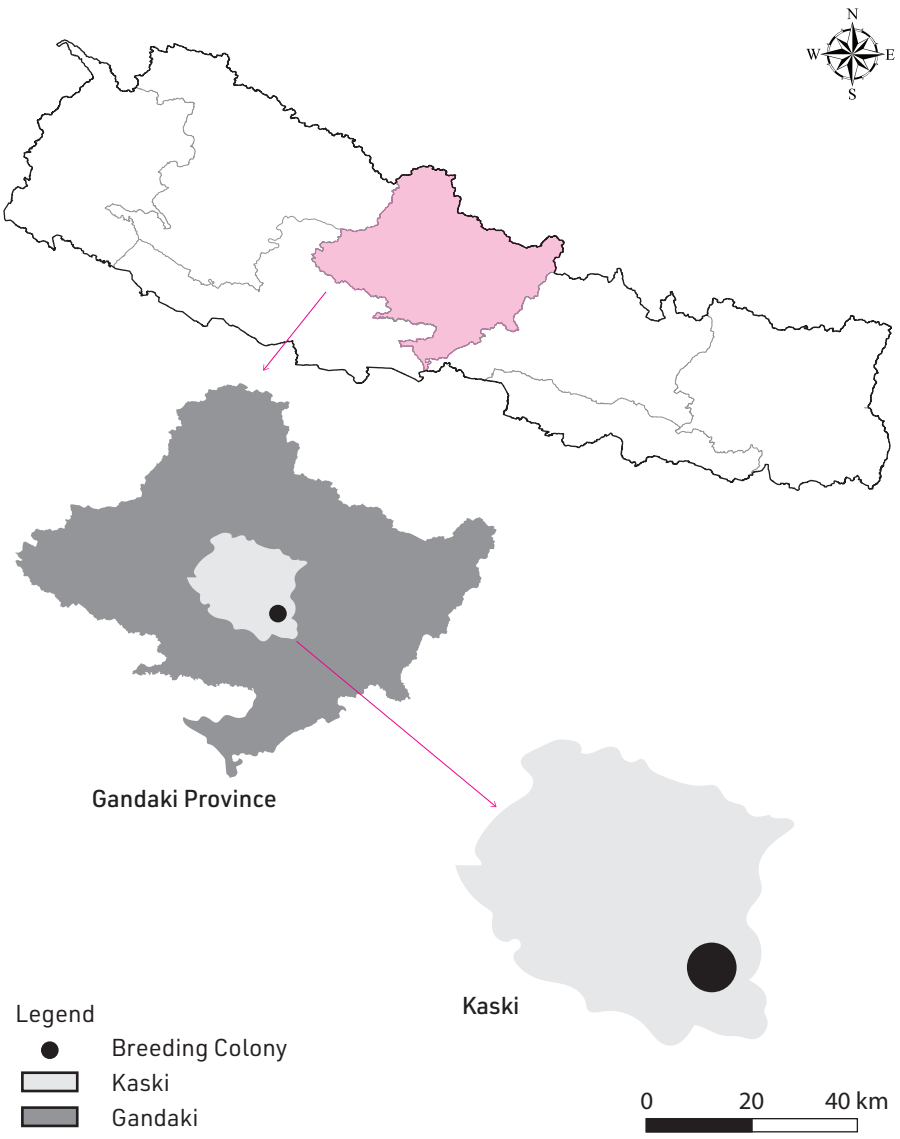

Figure 1. Map of study area indicating breeding colony of WRV

Results and Discussion

The nesting colony was located at mean distances of 264 m from the river, 305 m from human settlement and 10 m from road. The height of the nesting trees ranged from 30–52 m, with nests positioned at 22–42 m, which is consistent with study conducted by Rana et al. (2019) which reported the average height of the nesting tree and nest height as 32.07 m and 26.80 m respectively.

The observed breeding success of White-rumped Vulture was 66.66%. Failure of nest was likely associated with anthropogenic disturbances, including pipeline construction and felling of large trees during the incubation period.

This record of breeding colony of White-rumped Vulture from Madi corridor represents a new breeding site outside the core Terai Arc Landscape and may indicate a range extension of the species in Nepal. However, ongoing habitat degradation, including deforestation near nesting trees, poses a significant threat to WRV.

Conclusion

The discovery of a breeding colony of WRV in the Madi River corridor underscores the conservation value of the area. Immediate measures, including habitat protection and awareness programs, are recommended to safeguard nesting sites and support species recovery.

[1]*Tribhuvan University, Institute of Forestry, Pokhara Campus, Pokhara, Nepal*
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White-rumped Vulture by Sagar Giri

Nesting Ecology, Habitat Use and Community Perception of White-rumped Vulture in Koshi Tappu Wildlife Reserve and Adjacent Areas, Nepal

Simran Dhakal[1*], Manoj Ayer[2], Birendra Gautam[3], Jhamak Bahadur Karki

Abstract

The White-rumped Vulture (*Gyps bengalensis*), a Critically Endangered species, has experienced severe population declines across South Asia, primarily due to veterinary drug toxicity and habitat degradation. This study assesses the nesting ecology, habitat use, threats, and community perceptions of White-rumped Vultures in and around Koshi Tappu Wildlife Reserve (KTWR), Nepal. Field surveys recorded a total of 21 nests across four active nesting sites, with the highest number observed in Kamalpur. The majority of nests (85.72%) were located on *Bombax ceiba*, indicating a strong preference for this tree species. The average nesting tree height and girth were 30.70 m and 2.77 m, respectively. Social surveys (n=70) revealed that while most respondents recognized the ecological importance of vultures, awareness regarding veterinary drug toxicity remained low. Major threats identified include felling of *Bombax ceiba* for elephant fodder, and habitat disturbance. Although diclofenac use was not reported, other non-steroidal anti-inflammatory drugs (NSAIDs) such as nimesulide and piroxicam were present, posing potential risks to vultures. The findings highlight the importance of nesting tree conservation, regulation of anthropogenic disturbances, and community-based conservation initiatives for the long-term survival of White-rumped Vultures in the region.

Nest recorded in *Garuga pinnata* tree by Milan Baral

Introduction

Vultures are obligatory scavengers that perform essential ecosystem services by removing animal carcasses and reducing the spread of infectious diseases (Buechley & Sekercioglu, 2016; Rana et al., 2019). Their ecological role also includes regulating populations of facultative scavengers such as feral dogs and rodents, thereby contributing to improved public health and ecosystem stability.

Populations of Gyps vultures in the Indian subcontinent have declined dramatically since the 1990s. The White-rumped Vulture, once one of the most abundant raptors in the region, has experienced declines exceeding 95% and is currently listed as Critically Endangered (BirdLife International 2021). The primary driver of this decline has been the veterinary use of the non-steroidal anti-inflammatory drug diclofenac, which causes renal failure in vultures (Oaks et al. 2004; Cuthbert et al. 2007). In response, diclofenac was banned for veterinary use in Nepal, India, and Pakistan, and safer alternatives such as Meloxicam have been promoted (Swan et al. 2006).

Following these conservation interventions, the rate of population decline has slowed, and some localized stabilisation has been reported (Prakash et al. 2012; Galligan et al. 2020). Nevertheless, vultures continue to face multiple threats, including habitat degradation, reduced availability of safe food, and continued exposure to other NSAIDs of uncertain toxicity (Margalida et al. 2014; Rana et al. 2019). The availability of suitable nesting trees remains a key factor influencing breeding success and colony persistence.

Nepal supports important remnant populations of White-rumped Vultures, particularly in lowland areas. The Koshi Tappu Wildlife Reserve and surrounding landscapes provide a mosaic of riverine forests, grasslands, and agricultural habitats that are suitable for nesting and foraging. Previous studies have documented nesting colonies both within and outside the reserve, with variation in tree species preference and colony distribution over time (Baral et al. 2001; Baral et al. 2003). However, ongoing habitat changes and anthropogenic pressures demand updated assessments of nesting ecology and threats.

In addition to ecological factors, local community perceptions play an important role in vulture conservation. Carcass disposal practices can directly influence food availability, while awareness of veterinary drug impacts affects the level of risk posed to scavenging birds (Karki et al. 2019; Dhakal et al. 2022). Understanding these socio-ecological interactions is therefore essential for effective conservation planning. The present study aims to document the nesting ecology and habitat preference of White-rumped Vultures, identify key threats affecting their populations, and assess local perceptions relevant to their conservation in and around Koshi Tappu Wildlife Reserve.

White-rumped Vulture by Chungba Sherpa

Materials and Methods

Study Area

The study was conducted in the core area as well as in the buffer zone (BZ) of Koshi Tappu Wildlife Reserve (KTWR) and the surrounding area - Ramdhuni Forest, which is an important habitat of White-rumped Vulture. A small river Sunkoshi Khola flows in the middle of the Ramdhuni Forest (Baral et al., 2004). It includes part of the Sunsari, Saptari, and Udayapur Districts (Limbu & Subba, 2013). The BZ of KTWR incorporates two municipalities of Sunsari District, one municipality of Sunsari District, and one municipality of Udayapur District (Figure 1).

Data Collection

Direct observation was made in the roosting and nesting sites from 6-10 am in the morning and 3-6 pm in the afternoon in two different seasons; November-January (hatching or breeding period) and March-May (fledging period). Different existing networks of the highway, gravel roads, fire lines, and footpaths/trails were used to search for the nest (Baral, 2005). About 5 km of each route was explored and 500 m distance was adjusted between two routes.

The geographic position of tree species in which WRV was found roosting or nesting was recorded with the help of a GPS device. The tree species, its height, and DBH were noted. A continuous path was followed to minimize the repetition of noting same tree species and each nest recorded tree was marked with a separate number in the tree. Potential nesting sites and nests colonies were also explored based on the formal and informal discussions with local people and KTWR officials.

Social Survey

A total of 70 key informants having long experience in biodiversity conservation and familiar with the changing environment of Koshi Tappu Wildlife Reserve were selected randomly for questionnaire survey. Among selected respondents, 10 were veterinarian, 5 were bird watchers with great knowledge of birds of Koshi and working on different projects like Himalayan Nature, Koshi Bird Observatory, and Koshi learning grounds, 30 were community people whose livelihood depend on agriculture and livestock rearing, and 25 belonging from tribal or indigenous community.

Results

Nesting Ecology and Habitat Use

A total of 21 nests were recorded, of which highest number of nests (n=8) were active with adults incubating eggs and juvenile. Out of seven potential nesting sites explored, only 4 sites recorded WRV nests. Kamalpur recorded maximum number of nests (n=13), whereas Pathri recorded least number of nests (n=1). On the other hand, Kusaha, Madhuban and Prakashpur recorded no nests of WRV (Table 1).

Highest frequency (85.72%) of WRV nests were found in the Simal tree (*Bombax ceiba*) while only 14.28% were found in Haldu tree (*Adina cortifolia*). The average height of the nesting tree was found to be 30.70 m and the average girth 2.77 m.

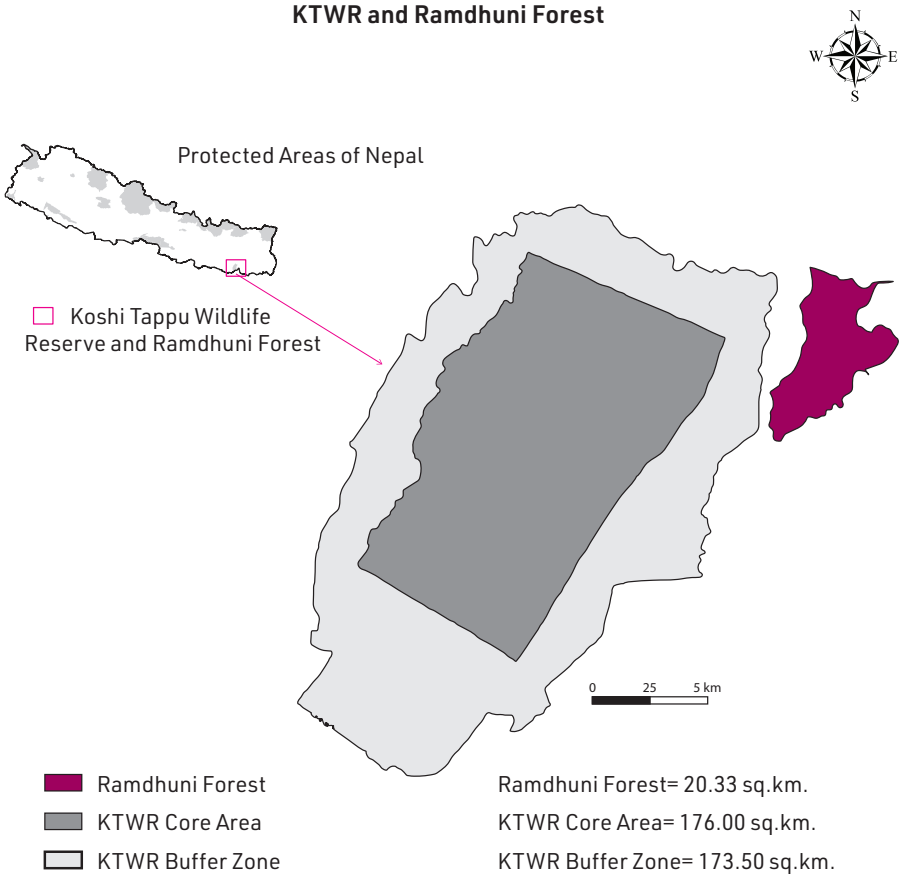
Table 1. Number and different categories of nests of WRV recorded from different sites

Location	Active Nests	Unoccupied Nests	Occupied Nests	Total Nests
Ramdhuni Forest	3	0	2	5
Kamalpur	4	6	3	13
Badgama	0	1	1	2
Pathri	1	0	0	1
Kusaha	0	0	0	0
Madhuban	0	0	0	0
Prakashpur	0	0	0	0
Total	8	7	6	21

Community Perception

Half of the respondents believed that vultures play a major ecological role by cleaning the environment and preventing the spread of diseases. 33.33% articulated that vultures are considered inauspicious that brings misfortune, 15 % stated vulture as beautiful bird while 1.67 % stated vulture as an ugly bird. About 78 % of respondents reported they have seen vultures whereas 22% said they have not seen vultures and have zero knowledge about vultures.

Majority of respondents (98%) suggested that they have not used body parts of vultures for medicinal purpose directly or indirectly so far while 2 % of respondents stated that feather of vulture has been used as some tribal people believed the feather of vulture is used in witchcrafts to help cure sick people. About 68 % of respondents stated that they have seen vulture's nest in *Bombax ceiba* and 32 % replied they have not seen vulture's nest.



Source: Maptiler, DNPWC 2078

Figure 1. Map showing KTWR, its Buffer Zone and Ramdhuni Forest

Only least proportion (13%) of respondents who were birders, have heard about NSAIDs. Maximum percent (87%) of respondents were either illiterate or had only received the primary level of education. Moreover, about 77.8 % of veterinary personnel did not sell any NSAID drugs, 11.1 % sold both nimesulide and piroxicam, and remaining 11.1 % sold nimesulide.

Conservation Threats

Collection of seeds of *Bombax ceiba* nearby nests of WRVs by villagers in Kamalpur was found to be one of the major threats to vultures as WRV were found to use *Bombax ceiba* for nesting purpose. Moreover, exploitation of natural resource particularly felling of *Bombax ceiba*, in large quantities by local people in the buffer zone area was found to be significant threat to WRV. Additionally, branches and leaves of *Bombax ceiba*, important for nesting by WRV was found to be collected for fodder for captive elephants in Kusaha.

Discussion

Nesting Ecology and Habitat Use

Our study recorded a total of 21 nests of WRV in and around KTWR, which is considerably lower than earlier study conducted during 2000–2001 that documented 67 nests, of which six were located inside the reserve and majority were outside the reserve (Baral et al., 2001). This decline may indicate changes in habitat suitability and availability of nesting trees over time. The clustering of nests in limited sites, particularly Kamalpur, further indicates that suitable nesting habitats may now be restricted.

Our study reported *Bombax ceiba* as highly preferred (85.72%) by WRV as a nesting tree. Similar finding have

been reported in Rampur Valley (Baral et al., 2013). However, findings from our study contrasts with earlier study in KTWR which resulted Saj trees (*Terminalia tomentosa*) and *Shorea robusta* as dominant nesting trees (Baral et al., 2003). The apparent shift towards *Bombax ceiba* as the dominant nesting tree in KTWR may be associated with the decline of *Terminalia tomentosa* in the study area.

Community Perception

Community perceptions play a crucial role in conservation outcomes. While a majority of respondents recognized the ecological importance of vultures, awareness regarding NSAIDs and their impacts was low. Similar gaps in awareness have also been reported in other parts of Nepal (Karki et al., 2019).

Conservation Threats

A notable finding is the absence of nests in Kusaha and Madhuban forests, where nests had previously been recorded (Himalayan Nature, 2013; 2015). Field observation suggest that anthropogenic disturbances, particularly the cutting of *Bombax ceiba* branches for fodder for captive elephants, and seed collection practice may be contributing factors that limit nest distribution of WRV in the study location. Moreover, natural factors such as seasonal flooding could also be a limiting factor for nesting by WRV as Kusaha and Madhuban Forests are riverine and highly prone to seasonal flooding, which periodically alters habitat structure and may destroy nesting trees. The combined effects of anthropogenic disturbance and natural events might likely contribute to the current absence of nests in these areas.

Our study suggests that the loss of nesting trees and anthropogenic disturbances could be attributing factor to influencing WRV population in KTWR. The continued presence of veterinary drugs poses another conservation concern. Although diclofenac; the

White-rumped Vulture by Khadananda Paudel

primary cause of vulture declines in South Asia (Oaks et al., 2004; Cuthbert et al., 2007) was not detected in this study, other NSAIDs such as nimesulide and piroxicam were reported in use. Recent studies have shown that nimesulide is toxic to vultures, raising concerns about its widespread availability (Galligan et al., 2022; Mathesh et al., 2023). This highlights the need for stricter regulation and promotion of safe alternatives such as meloxicam (Swan et al., 2006). Conservation strategies should therefore prioritize habitat protection, particularly of key nesting tree species, alongside community engagement in vulture conservation through education and outreach programs.

Conclusion

This study confirms the reduced number of nests and restricted distribution, highlighting ongoing conservation challenges. The strong dependence on *Bombax ceiba* for nesting underscores the importance of protecting this species in and around KTWR. Although the absence of diclofenac is a positive outcome, the continued use of other potentially harmful NSAIDs may act as an emerging threat. Habitat degradation and natural disturbances such as flooding may limit population recovery of WRV in KTWR. Therefore, protection of nesting habitats, strict regulation of veterinary drugs, and increased awareness among local communities will be essential for ensuring the long-term survival of this critically endangered species.

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[1]*Kathmandu Forestry College*
[2]*Department of National Parks and Wildlife Conservation*
[3]*National Trust for Nature Conservation*
**for author correspondence, e-mail: simran.dhakaliam@gmail.com*

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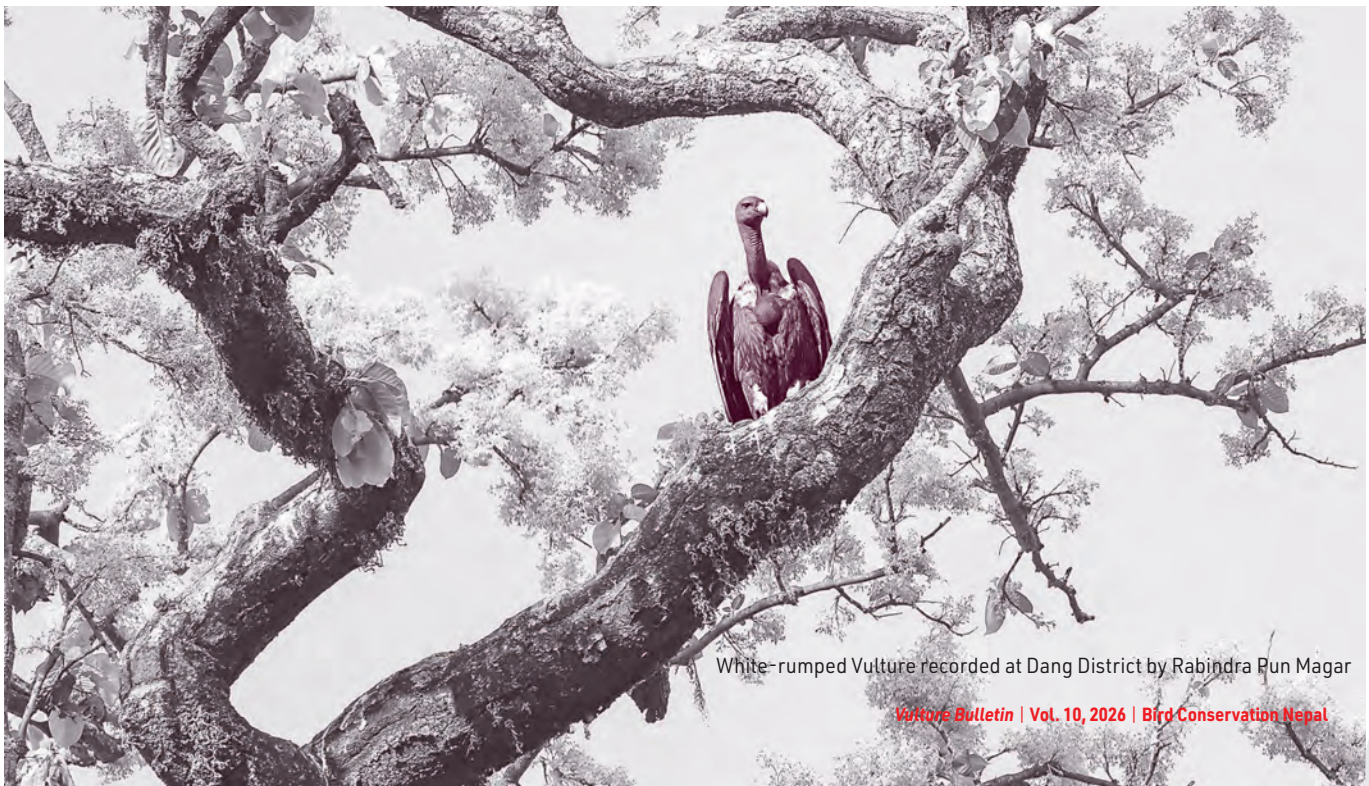
Population Estimation, Nest Distribution and Threats to Critically Endangered White-rumped Vulture *(Gyps bengalensis)* in Baghmare Community Forest, Dang District, Nepal

Rabindra Pun Magar[1*], Pramod Ghimire[1], Khadananda Paudel[2]

Abstract

Vultures are valued for their ecological, social, and cultural significance. Vulture has been a key species in promoting ecotourism in Nepal through the establishment of community-managed vulture-safe feeding sites (VSFS). In Baghmare Community Forest, we repeated the absolute count in 4.1 km transect line for five times in a week gap to estimate the current population of White-rumped Vultures and their nests. A total of 77 semi-structured questionnaire survey was conducted to assess present carcass disposal practices and determine threats to vulture conservation. The study found 34.6± 6.94 (mean± standard deviation) individuals of White-rumped Vultures. Six active nests were reported out of 12 nests recorded in the study area. Ground burial of livestock was found to be most commonly practiced carcass disposal method among the respondents, thus resulting in reduction of available food for vultures. Poisoning on food carcasses was found to be a major threat to vultures followed by habitat destruction, veterinary drugs use, shortage of food, and electrocution. We suggest prioritizing local awareness for the conservation of vultures in Baghmare Community Forest as the study area holds the potential of vulture-based eco-tourism destination that could aid in promoting local livelihood and also foster vulture conservation in the future.



White-rumped Vulture recorded at Dang District by Rabindra Pun Magar

Introduction

Nepal has exceptionally rich bird diversity, supporting 9.3% of world birds (IUCN, 2014) because of its position which lies between the meeting point of two large zoogeographical realms namely; The Palearctic and Oriental (Udvardy, 1975), and the great variation in altitude, topography, vegetation and microenvironments. In Nepal, 902 bird species have been recorded, of which Nepal holds 48 globally threatened bird species (DNPWC and BCN, 2025). Nine species of vultures have been recorded from Nepal (BCN & DNPWC, 2018). Six species are resident breeders, White-rumped Vulture *Gyps bengalensis* (WRV), Slender-billed Vulture *Gyps tenuirostris* (SBV), Red-headed Vulture *Sarcogyps calvus* (RHV), Egyptian Vulture *Neophron percnopterus* (EV), Bearded Vulture *Gypaetus barbatus* (BV), and Himalayan Griffon *Gyps himalayensis* (HG). Cinereous Vulture *Aegypius monachus* (CV) and Griffon Vulture *Gyps fulvus* (GV) are winter visitors and Indian Vulture *Gyps indicus* (IV) is a vagrant species (BCN & DNPWC, 2018). Out of nine vulture species, four species namely; WRV, SBV, RHV, and IV are listed as Critically Endangered, EV listed as Endangered, CV, HG, and BV as Near Threatened, and one species GV as Least Concern (Baral & Inskipp, 2020).

Raptors particularly vultures have been used as one of the principal indicators of habitat quality (Newton 1979; Taylor 1984; Rodríguez-Estrella et al., 2008). These indicator species are also centre of attraction for bird-based tourism in both protected areas and outside protected areas of Nepal (Acharya & Halpenny, 2013; K.C., 2017). Vultures play a critical ecological function by consuming animal carcasses. Vultures hold a crucial cultural significance in the consumption of human dead bodies in the form of sky burials within Nepal and Tibet (Bhusal et al., 2020, DNPWC and DoFSC 2023).

During the late 1980s, the populations of several vulture species in the Indian subcontinent were regarded to be quite numerous (Watson et al., 2004; Das et al., 2011). However, vulture populations declined substantially in Nepal, Pakistan, and India during the 1990s (Prakash, 1999). The population of White-rumped Vulture is declining at a rate of 48 percent each year, according to road transect studies conducted across India (Prakash et al., 2007). In Pakistan, the population of White-rumped Vulture is declining at a similar pace of 50% every year (Gilbert et al., 2006; Murn et al., 2008). Between 1995 and 2011, number of vultures in Nepal's lowland areas decreased by 91 % for White-rumped Vulture and 96 % for Slender-billed Vulture (Chaudhary et al., 2012). Vulture population in Nepal was reported to be 25% less in 2009 than its record in 2002 (Acharya et al., 2010). However, recent studies reveal that the population of White-rumped Vulture has risen by 22% (Galligan et al., 2019), with the majority of the growth occurring in west-central to far western regions of Nepal (Ghimire et al., 2020).

Vultures of various species exhibit local seasonal changes, and their numbers and activity may change throughout the day or a season (Newton, 1979; Saran, 2017). Vulture populations have plummeted in many regions of their former territories due to food shortages and habitat destruction (Pain et al., 2003; Baral et al., 2005; Bhusal, 2018; Bhusal, et al., 2021). These threats may differ depending on the area. Understanding such challenges is critical for both sustaining a viable population and promoting eco-tourism activities. Moreover, despite community forests being a hotspot for globally important wildlife and birds, only handful of structured status assessments have been conducted. The objective of our study was to estimate population, nesting status, and locally existing threats to WRV in the Baghmare Community Forest of Dang District, Nepal.

Materials and Methods

Study Area

The study was carried out in the Baghmare Community Forest (CF) which covers an area of 409.20 ha and is situated in Shantinagar Rural Municipality, 02, Baghmare, north-western part of Dang. Baghmare Community Forest is Sal (*Shorea robusta*) dominated broad-leaf natural forest that extends elevation ranging from 610 msl to 740 msl. The scientific forest management activities have been implemented in this community forest as prescribed in the operational plan which has recently been retracted by the government of Nepal. A vulture restaurant at Bijauri, about 25 km east of Baghmare CF attracts a number of local visitors as well as researchers and aid in generating local revenue through bird-based tourism (Figure 1).

Sampling Procedure and Data Collection

- Absolute Count: The absolute count of the vulture was done in their nesting and roosting sites along a 4.1 km long transect. The absolute count was carried out with the help of binoculars and unaided eye in the early morning 7:00 am to 10:00 am during the field study. Each transect was repeatedly surveyed for five times in one week gap. The survey

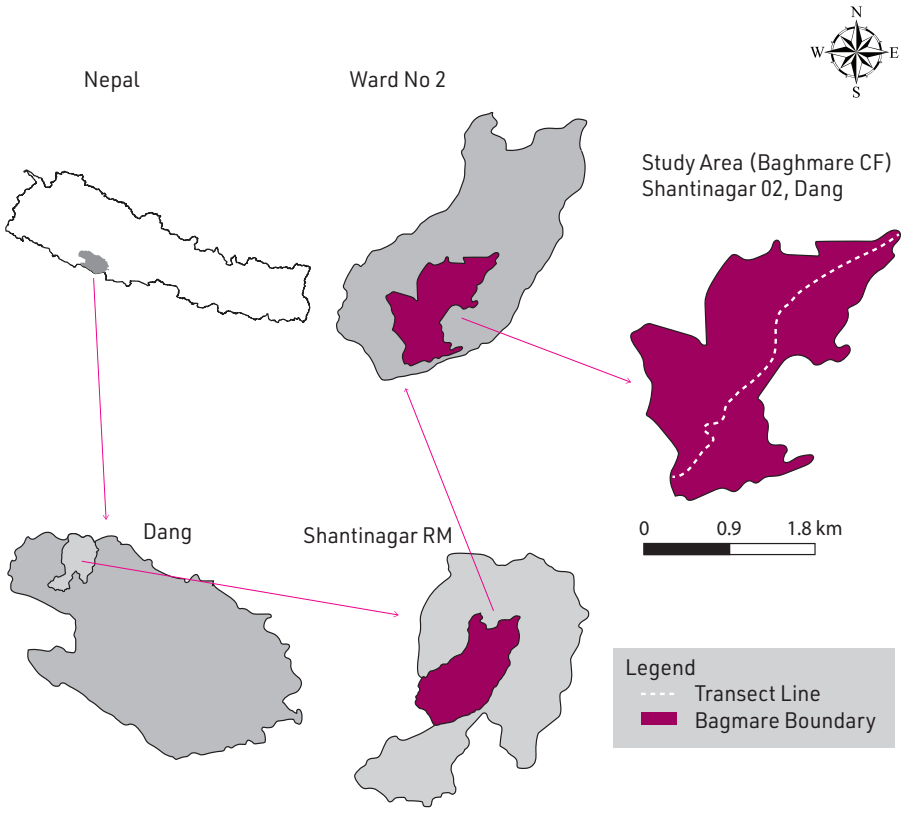


Figure 1. Map of Baghmare CF, Shantinagar-02, Dang District

was conducted from April to May 2019.

- Nest Count: Nests observed during the survey were counted. The recorded nests were classified as; an active nest if eggs had been laid; an occupied nest if eggs have not been laid but some nest-building activity have taken place and a successful or productive nest if a chick fledged from the nest (Postupalsky, 1974). The nesting tree species and geographic position of nests were recorded with the help of GPS from the nearest accessible point.
- Questionnaire Survey: Purposive sampling was done among 77 selected households for semi-structured questionnaire survey. The households were selected based on the distance of household from community forest.

Results

Population Status

We recorded 34.6±6.94 (mean± standard deviation) individuals of White-rumped Vulture with a minimum of 25 and maximum of 44 individuals during five repeated counts (Figure 2). Among which, 6.6±1.85 were immature (juvenile) with 5 to 9 individuals of White-rumped Vulture counted on the nest.

Nest Status

We recorded 12 nests of White-rumped Vulture within the community forest of which six were active (Table 1). The tree species most commonly used by WRV for active nests was Sal (*Shorea robusta*) (n=10) whereas least used tree species for nesting was Saj (*Terminalia tomentosa*).

The nests of WRV were found to be concentrated only at elevation range from 690 m to 725 elevation range and northeast aspect of the Baghmare CF (Figure 3).

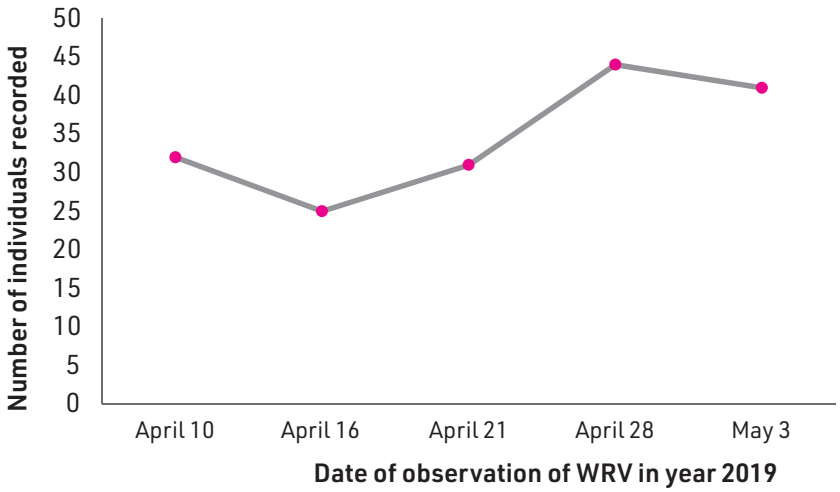


Figure 2. Count of WRV recorded on different survey dates

Table 1. Nesting tree species and nest status of recorded WRV nests

S.N.	Nesting Tree Species	Status
1	Sal *(Shorea robusta)*	No activity
2	Sal *(Shorea robusta)*	One Chick
3	Saj *(Terminalia tomentosa)*	No activity
4	Sal *(Shorea robusta)*	No activity
5	Sal *(Shorea robusta)*	One Chick
6	Sal *(Shorea robusta)*	One Chick
7	Sal *(Shorea robusta)*	No activity
8	Saj *(Terminalia tomentosa)*	No activity
9	Sal *(Shorea robusta)*	No activity
10	Sal *(Shorea robusta)*	One Chick
11	Sal *(Shorea robusta)*	One Chick
12	Sal *(Shorea robusta)*	One Chick

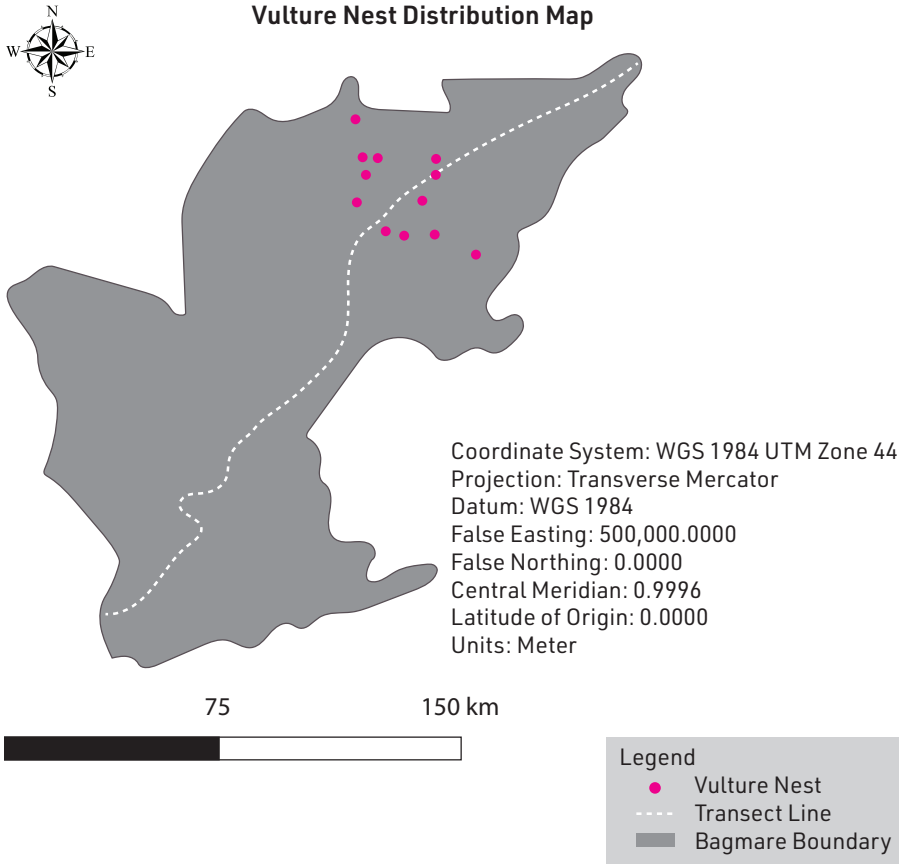


Figure 3. Distribution of nests of WRV in Baghmare CF

Livestock Carcass Disposal Practices

Majority of respondents (58.44%) said that they bury their livestock after death while 36.36% practiced leaving dead animals to open areas. However, only 5.19% of respondents provide dead animals to the vulture restaurant. No respondents have given the dead livestock carcasses to the deskinner (Figure 4).

Threats

Highest frequency (24%) of respondents believed carcass poisoning was a major threat to the existing vulture population in the Baghmare CF followed by habitat destruction (23 %) veterinary drug use (20%) and shortage of food (18%). Only 15% of total respondents suggested electrocution as one of the prominent threats to vultures (Figure 5).

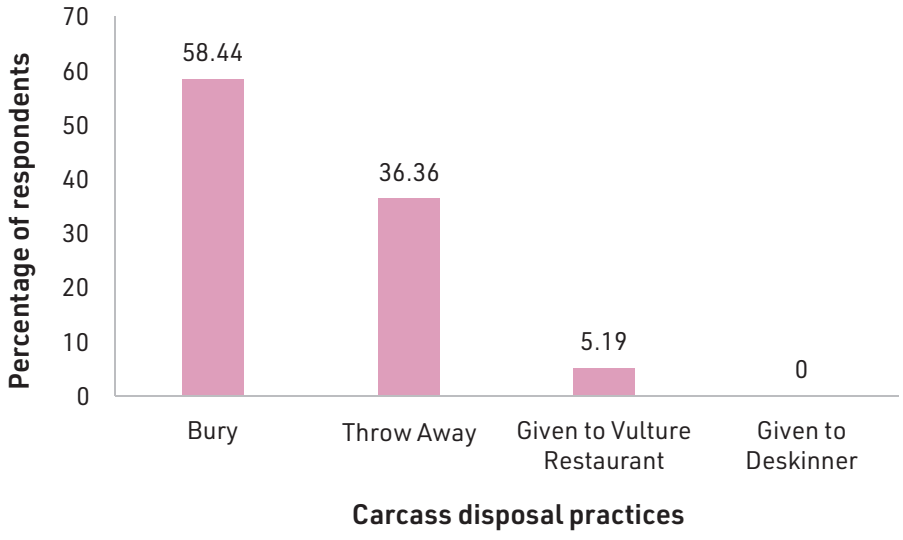


Figure 4. Disposal practices of livestock carcass

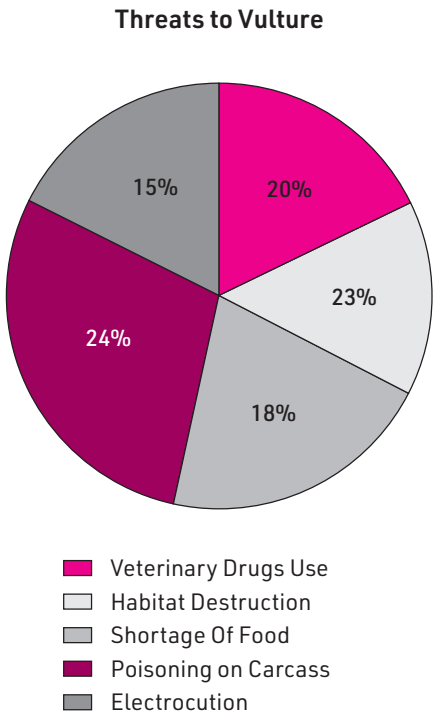


Figure 5. Pie-chart showing response of respondents towards threats to WRV (in percentage)

Discussion

Population Status

The present study recorded an average of 34.6±6.94 individuals of WRV within Baghmare CF, indicating the continued existence of a little yet significant local population. This finding aligns with studies by Galligan, et al., (2019) and Ghimire et al., (2020) that suggests a gradual recovery of WRV in Nepal following catastrophic decline in the past decades and increasing trends in vulture observations across Nepal. Similarly, comparable counts (n=44) reported by Shrestha & Devkota (2011) in Dang District suggests that the population observed in Baghmare CF falls within the range of other known sites, though it remains relatively small and localized.

Nest Status

The presence of active nests (n=6) and breeding individuals during the study period (April-May) confirms that Baghmare CF serves as a breeding habitat. Nesting was predominantly observed in Sal *(Shorea robusta)* trees, highlighting their importance as critical nesting substrates. The strong preference for Sal may be attributed to their height, canopy structure, and availability within the forest. In contrast, minimal use of Saj *(Terminalia tomentosa)* suggests selective nesting behavior, consistent with earlier

ecological observations of the species.

The spatial clustering of nests within a narrow elevation range (690–725 m) and northeast-facing slopes indicates specific habitat preferences. Such microhabitat selection may be influenced by factors such as thermal conditions, wind patterns, and proximity to human settlements. Previous study by Samson & Ramakrishnan (2020) have also noted that White-rumped Vulture prefer nesting colonies located near human-dominated landscapes (average of 1.92 km).

Livestock Carcass Disposal Practices and Threats

Livestock carcass disposal practices observed in the study area reveal a limited availability of safe food resources. The majority of respondents bury carcasses (58.44%), while only a small proportion contribute to vulture restaurants (5.19%), which are critical for providing uncontaminated food. The practice of open carcass disposal (36.36%), although beneficial for scavengers, is often accompanied by poison application to ward off scavenging mammals, posing a severe risk to vultures. This aligns with respondents' perception, where carcass poisoning (24%) was identified as the most significant threat.

Other major threats identified include habitat destruction (23%), veterinary drug use (20%), and food scarcity (18%). Despite the ban on Diclofenac, its continued or residual presence in livestock carcasses remains a critical concern, as highlighted by Botha et al., (2017) and Dhakal et al., (2022). Additionally, the gradual decline in livestock holdings reduces carcass availability, further intensifying food limitations. Electrocution was perceived as a relatively minor threat (15%), likely due to the absence of high-tension transmission lines within the forest.

Vulture's nest recorded at Dang District photo by Rabindra Pun Magar

The study also highlights the potential for community-based conservation and ecotourism. Given the presence of Critically Endangered WRV breeding population, Baghmare CF could serve as a focal site for vulture-based ecotourism, which may enhance local livelihood while promoting conservation awareness. Protecting nesting and roosting tree species, ensuring safe food supply, and engaging local communities and regular monitoring are essential strategies for long-term conservation of WRV.

Vultures at Koshi Tappu Wildlife Reserve by Sanjay Chaudhary

Conclusion

The study confirms that Baghmare Community Forest supports a small but breeding population of WRV, with active nests and juveniles. The species shows clear preferences for Sal-dominated habitats, specific elevation ranges and proximity to human settlements. The population remains highly vulnerable due to limited food availability, unsafe carcass disposal practices and threats such as poisoning and veterinary drug contamination. The low participation in vulture restaurant programs further underscores the need for improved awareness and community engagement. Therefore, targeted conservation interventions combined with local community involvement can play a crucial role in sustaining and potentially enhancing this vulnerable population.

Acknowledgements

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[1]*Faculty of Forestry, Agriculture and Forestry University, Hetauda, Nepal*
[2]*Bird Conservation Nepal, Lazimpat, Kathmandu*
**for author correspondence, e-mail: rabindramagar47@gmail.com*

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Wing Fracture Management in White-rumped Vulture: Utilizing External Coaptation

Ishwari Prasad Chaudhary[1], Deu Bahadur Rana[2], Ankit Bilash Joshi[1], John W Mallord[3], Bikalpa Karki[4], Deelip Chand Thakuri[1*]

Fixation of applicator splints in the broken leg

Abstract

This short communication details the successful management of a wing fracture in a White-rumped Vulture *(Gyps bengalensis)* using an external coaptation technique. The treatment involved the use of bamboo splints and cotton gauze for immobilization, along with the administration of analgesics and antibiotics. After 62 days of observation, the vulture was successfully released back into the wild. This case demonstrates the effectiveness of external coaptation for treating avian fractures, particularly in large birds like the White-rumped Vulture, ensuring minimal restraint and facilitating post-treatment rehabilitation.

Introduction

The White-rumped Vulture *(Gyps bengalensis)* (henceforth WRV) is a large bird belonging to family Acciptridae and found in Asia (Inskipp et al., 2016). This communication presents a successful approach to managing a wing fracture in a WRV using an external coaptation technique. This method is straightforward, cost-effective and proven effective for managing metacarpal fractures. External coaptation, involves the use of bandages and splints, which offers a rapid and cost-effective means of limiting movement of bone ends (Bennett & Kuzma, 1992; Carrasco,

2019). While bone fractures are common occurrences in both wild and captive birds, there is limited documentation regarding fracture management specifically in birds like the WRV (Bennett & Kuzma, 1992). Avian bones, including those in the limbs, are thin and fragile, often prone to fragmentation due to various natural events such as midair collisions or fights with other birds (Dar et al., 2015). When treating wild birds with fractures, several considerations come into play, including the bird's size, post-treatment rehabilitation, methods of restraint, and the associated stress (Meredith & Keeble, 2011). Given these factors, the external coaptation technique proves suitable, requiring minimal physical restraint for captive wild birds, particularly those where flight and foraging during post-treatment rehabilitation are not significant factors (Scheelings, 2014; Kayikci et al., 2019).

Case History and Observation

A single captive-reared and released adult WRV, with a fitted satellite tag (220207-OrniTrack-30) and Leg ring N27, was found injured and rescued at Dibyanagar, within the buffer zone of Chitwan National Park. The injured vulture was rescued by a team from Bird Conservation Nepal (BCN) and transferred to the vulture release site at Pithauli (a vulture safe feeding site) on 11th March 2023. On examination, the vulture was found weak and emaciated. The vulture had an empty crop with marked dehydrated skin. The vulture was dropping its wing. On palpation, a crack was felt on the radius-ulna bone of the right wing. There were also bluish patches on the chest muscles resembling some traumatic injury. 15 ml of RL saline subcutaneously and analgesics (Meloxicam @ 0.4ml) intramuscularly were administered. Since the vulture could not fly, the team brought the vulture to the rescue center, near to the release site. At the site, the radiographic examination was performed. The result from x-ray showed fracture in the middle part of radius-ulna bone.

Treatment and Management

Considering the site of fracture, it was decided to go for an external coaptation technique for treatment. Application of plaster of paris could not be performed as we had to defeather the affected area of wings and the feather has a great role in flight (Terrill & Shultz, 2023). Therefore, the traditional method of fixation of bone was considered a suitable process. An applicator splint of 5cm length and 1cm width was prepared by using bamboo stick. Both the ends of the stick were made smooth so that it does not affect the wing. Four pieces of bamboos were used to make the applicator splint (Figure 2). Local anesthesia (2% xylocaine) was injected near the site. After five minutes, the bone was retracted and brought together. Four prepared bamboo sticks were used (one on each side) for complete fixation. The sticks were wrapped with cotton gauze for immobilization. A crepe bandage was applied over the cotton gauze. Another crepe bandage was applied over the whole wing to make the wing stable. Once the broken wing was fixed with coaptation, the bird was kept in the rescue aviary to limit its movement. Analgesics (Meloxicam @ 0.4ml) and antibiotics (Enrofloxacin @ 10mg/kg body weight) were administered for five days. About 250-300 gm of chopped meat mixed with RL saline was provided daily for six days. After six days, the bird was provided with

Radiographic examination of the wing

plain meat and a clean drinking water in another pot. Throughout the treatment period, food intake and activity of bird was observed to monitor improvements. After 20 days of coaptation, radiography revealed significant callus formation at the fractured site, indicating slow healing. The wing wrap was removed on 20th day of coaptation and the bird was kept in the same aviary for observation. After 37 days, the bird was shifted to pre-release aviary where the flight and feeding of the bird was observed for 62 days. After confirming the bird was doing well, it was released back into the wild with a newly fitted satellite tag to track its movement.

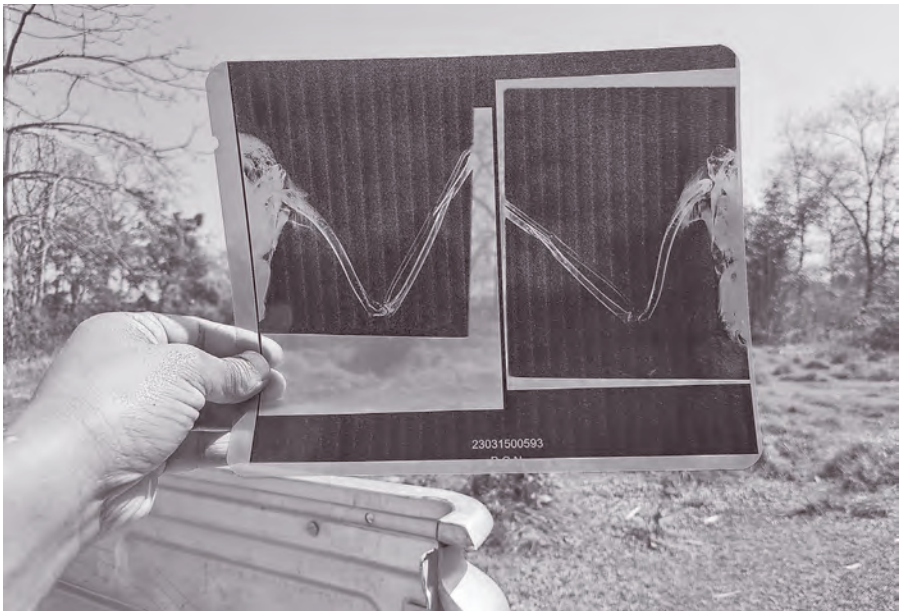
Discussion

Avian bones contain more minerals, making them prone to open, comminuted fractures with multiple sharp fragments that can harm soft tissue (Darrow & Bennett, 2021; McFadden, 2016). The choice of fracture repair method depends on various factors, such as the bird's future mobility and functionality (Bennett & Kuzma, 1992). Treatment and outcomes may vary between captive birds, which don't necessarily need to fly or hunt for food, and wild birds, which rely on flight and hunting to thrive in their natural habitat (Bennett & Kuzma, 1992; Bewig & Mitchell, 2009).

In this case, the bird underwent treatment following cautious physical restraint. When the bone requires minimal manipulation, splints can be applied using physical restraint, although using general anesthesia provides greater muscle relaxation and pain prevention. Fractures of the carpometacarpal can be effectively stabilized using a fracture bandage.

In this case, significant callus formation was observed within 20 days. Avian bones typically heal more rapidly compared to mammalian bones (Bennett & Kuzma, 1992; Nunamaker, 1998). External coaptation serves as a swift and cost-effective approach to enhance comfort for avian patients by reducing movement of bone ends and offering minimal stabilization of fractures (Bennett & Kuzma, 1992). This method is favored over alternative treatments as it enables fracture reduction with minimal to no damage to bone vascularity and surrounding soft tissue (Bennett & Kuzma, 1992; Tully, 2002).

After looking at the information, we decided to use external coaptation treatment for the WRV. Bandages and splints should be made from light materials, with just enough padding to handle any swelling in the injured tissue.



X-ray showing fracture of the bone radius-ulna

Conclusion

This communication reports the successful management of right wing fracture of adult WRV with the light-weight bamboo splint as external coaptation technique. The bird was successfully treated and released back to the wild with a fitted satellite tag for further monitoring.

[1]*Bird Conservation Nepal, Lazimpat, Kathmandu*
[2]*Biodiversity Research Institute (CSIC-University of Oviedo-Principality of Asturias), 33600 Mieres, Spain*
[3]*Royal Society for Protection of Birds (RSPB)*
[4]*National Trust for Nature Conservation (NTNC) Lalitpur, Nepal*
**for author correspondence, e-mail: deelipchand@birdlifenepal.org*

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नेपाल पन्छी संरक्षण संघ चरा र चराको वासस्थानको संरक्षणमा काम गर्ने अग्रणी गैर सरकारी संस्था हो। सन् १९८२ मा स्थापित यस संस्थाको जनसाधारणमा चराह(रुका बारेमा ज्ञान अभिबृद्धि गर्ने, चराहरुको विविधता तथा जीवनचक्रबारे अनुसन्धान गर्ने, चराहरुलाई पर्ने प्रमुख खतरा पत्ता लगाउने, तिनीहरुको वासस्थान संरक्षण गर्ने र विभिन्न समुदायको जीविकोपार्जनमा पनि टेवा दिने मूल सिद्धान्त रहेको छ। यस संस्थाले विगतका वर्षहरुमा जैविक विविधता संरक्षणका साथै नेपालका 36 पन्छी संरक्षणका लागि आवश्यक पर्ने अन्तर्राष्ट्रिय स्तरको महत्वपूर्ण चरा तथा जैविक विविधता क्षेत्रहरु (IBAs) घोषणा गरी कार्यक्रम गर्दै आइरहेको छ।

नेपाल पन्छी संरक्षण संघ यसका संस्थापक, संरक्षकहरु, कार्यसमिति सदस्यहरु, अध्यक्ष, आजीवन सदस्यहरु, संघका शुभचिन्तकहरु तथा क्रियाशील समर्थकहरु रहेका संस्था हो।

यो संघ अन्तर्राष्ट्रिय संस्था बर्डलाइफ इन्टरनेशनलका १२२ सदस्य देशहरु मध्येमा यस संस्था पनि साझेदार संस्था हो र हाल यसले एसियाकै सकङ्टापन्न गिद्ध (जटायू) संरक्षणमा देशभरी विभिन्न कार्यक्रमहरु कार्यान्वयन गरिरहेको छ।

नेपाल पन्छी संरक्षण संघ
पोष्ट बक्स १२४६५, काठमाण्डौं, नेपाल
फोन ४५१६८०५, ४५२०२१३
इमेल bcn@birdlifenepal.org
वेबसाइट www.birdlifenepal.org

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