A SOCIO-ECOLOGICAL APPROACH TO IMPROVE LIVESTOCK CARCASS DISPOSAL FOR EGYPTIAN VULTURE CONSERVATION IN INDIA

Project Update Report

February - September 2025

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WCB RESEARCH FOUNDATION

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Project ID: 45557-1

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Livestock carcasses form an important but often overlooked component of ecosystems, providing food for a wide variety of scavengers. In natural settings, scavengers play a vital role in nutrient recycling, disease control, and maintaining ecological balance. However, in human-dominated landscapes, changes in livestock management and carcass disposal practices have altered the natural dynamics of scavenging. The unregulated dumping of carcasses around villages and Panjarapols (animal shelters) has created predictable food sources that attract multiple scavenger species, including dogs, crows, and vultures. This has led to increasing competition among species, particularly affecting vultures, which are specialized scavengers highly sensitive to human-induced changes and toxic veterinary drugs. Understanding these dynamics is crucial for designing better carcass management practices and ensuring the long-term survival of vultures.

The present project, supported by the 1st Rufford Small Grant, aims to study vertebrate scavenging on livestock carcasses with special emphasis on the Egyptian vulture (*Neophron percnopterus*), an endangered species. The project integrates ecological monitoring through camera trapping with social research to understand local people's knowledge, perceptions, and carcass disposal practices. The combined approach is intended to generate scientific insights into scavenger interactions while fostering community involvement in vulture conservation.

The study is being carried out in Banaskantha District, North Gujarat, a region known for its significant wintering population of Egyptian vultures. Several Panjarapol-managed dumping sites and nearby villages in this landscape provide a unique setting to observe scavenging patterns and understand the human dimensions of carcass management. Local communities, particularly livestock owners and carcass handlers, play a key role in shaping the food environment for scavengers, making their participation essential for sustainable conservation outcomes.

Since its commencement in, the project has advanced steadily in both research and outreach components. Camera trapping has been used to monitor scavenger activity and feeding behaviour at livestock carcasses, while interviews with community members have shed light on people's awareness and perceptions about scavengers. In addition, public engagement activities have been initiated to promote awareness about the ecological importance of vultures. The celebration of International Vulture Awareness Day (IVAD) 2025 served as a major outreach event, drawing attention to vulture conservation and strengthening ties with local communities and institutions.

Progress

1. Understanding vertebrate scavenger feeding on livestock carcasses, with special emphasis on Egyptian vultures

So far, passive infrared camera traps have been deployed at 31 freshly dumped livestock carcasses at dumping site (Fig 1), of which 22 carcasses were successfully monitored throughout the entire decomposition process. This resulted in 76,436 time-stamped images documenting scavenger activity.

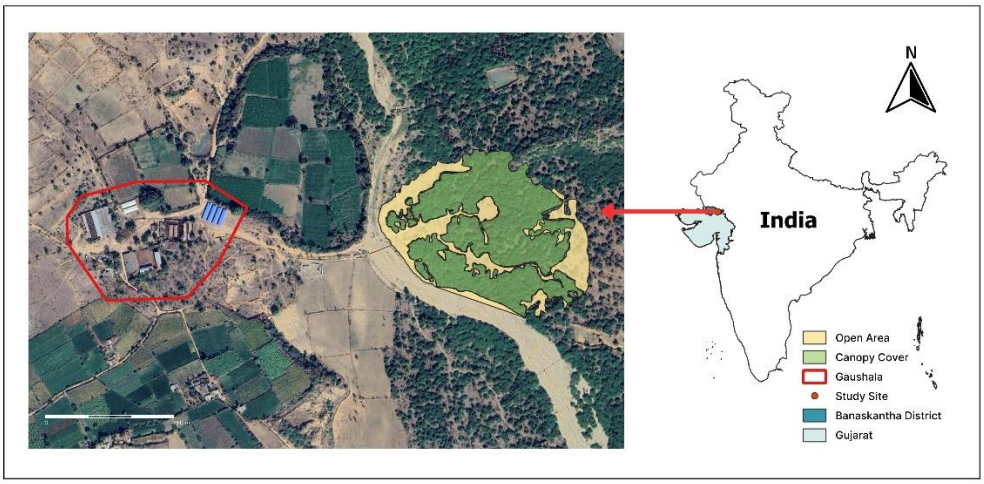

Figure 1 Livestock carcass dumping site (study site) associated with Gaushala situated in Banaskantha district, Gujarat, India

Figure 2 Camera traps deployment to monitor scavenging of livestock carcasses

Data entry for 7 carcasses has been completed, resulting in 16,537 individual feeding events. A total of 16 vertebrate species were identified utilizing carcasses either directly or indirectly through feeding on invertebrates associated with the carcass. These included one obligate scavenger—the Egyptian vulture—and 15 facultative scavengers, comprising five mammals, ten birds, and one reptile (Fig 3; 4).

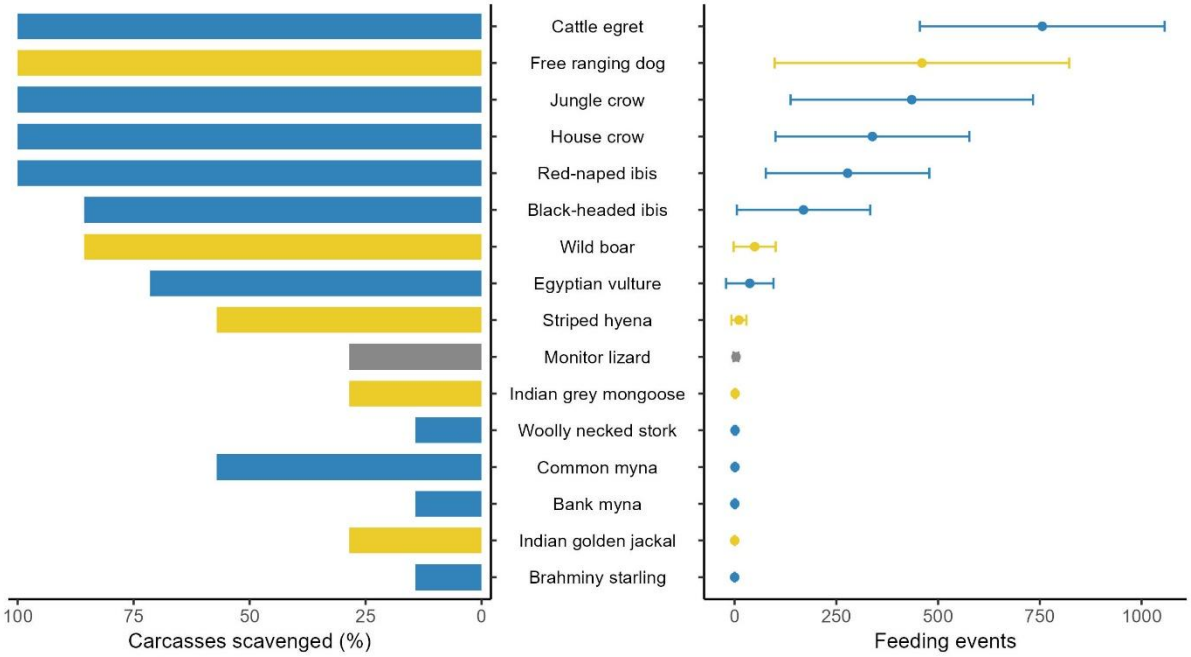

Figure 3 *Various vertebrate species recorded utilizing livestock carcasses. Left shows percentage of carcasses utilized by each species and right shows feeding events per carcass. Blue indicated birds, yellow mammals, and grey reptile.*

Preliminary analysis indicates that free-ranging dogs and cattle egrets occurred at all monitored carcasses (100%), showing the highest feeding frequency and intensity. Egyptian vultures were recorded feeding at 71% of carcasses, with an average of 37.4 ± 78.9 feeding events per carcass. The mean carcass depletion time was 63.5 ± 21.3 hours, showing that livestock carcasses are rapidly utilized and cleaned by scavengers.

Figure 4 *Vertebrate species captured utilizing livestock carcasses. a) Striped hyena; b) Wild boar; c) Indian golden jackal; d) Free-ranging dog; e) Egyptian vulture; f) Black-headed ibis; g) Indian grey mongoose; h) Monitor lizard*

2. Understanding local knowledge and perception towards scavengers and carcass disposal practices

The social component began with the design and testing of a semi-structured questionnaire to assess local communities' knowledge, perception of scavengers, and carcass disposal practices. The initial questionnaire was pilot-tested and refined for clarity and cultural relevance.

Figure 5 Field assistant Jessica Katara interviewing locals to understand their perception and knowledge about vertebrate scavengers, aswell as their carcass disposal pracitises

After finalizing the questionnaire, personal interviews were conducted in villages near major Egyptian vulture habitats and carcass dumping sites. Each interview lasted 20–40 minutes, conducted in Gujarati, and later translated into English for data entry.

By the end of September 2025, around 80 detailed interviews had been completed. Respondents mainly included livestock owners and a few skinners. These interviews focused on demographic information, disposal methods, and attitudes towards scavengers.

3. Education, Outreach, and Awareness

To strengthen community outreach, awareness materials are being developed in the Gujarati language. A leaflet is under design to explain the ecological role of scavengers and their importance in maintaining ecosystem balance. A poster series is also being prepared, focusing on Egyptian vultures, to highlight their conservation status, ecological importance, and the threats they face. These materials will be used for both print and digital dissemination.

As part of the outreach efforts, International Vulture Awareness Day (IVAD) was celebrated with Vulture Watch on 6 September 2025. The event was jointly organized by the WCB Research Foundation and the Centre of Excellence for Wildlife & Conservation Studies, with support from the Gujarat Forest Department and the Rufford Foundation. The program was held at the Girnar Wildlife Sanctuary and involved local participants from various backgrounds. Activities included a vulture watch, expert sessions on vulture ecology and conservation, and interactive discussions.

To expand participation, an online quiz on vultures was also conducted, which received responses from over 380 participants across India. This helped spread awareness about vultures and their conservation needs among a wider audience.

Difficulties faced

During the carcass monitoring, camera traps (03) were stolen which hindered data collection and forced temporary suspension of fieldwork. The project also faced challenges in data management, as the large number of camera trap images required detailed sorting and annotation. Similarly, the in-depth nature of interviews demanded more time per respondent than anticipated. Both tasks are labour-intensive and have slowed progress.

To address this, we plan to hire an additional field assistant to help with data entry, image sorting, and interview transcription. An application for an additional grant amount is being prepared to support the hiring of this assistant, purchase of new camera traps to ensure timely completion of the upcoming phases.

Future Work Plan

- Continue carcass monitoring and gather detailed data on scavenger activity.
- Complete interviews in the remaining villages.
- Launch community-level awareness campaigns using the developed educational materials.
- Begin quantitative analysis of camera trap data focusing on species interactions and feeding overlap.
- Prepare a scientific manuscript from participatory feeding of vertebrate scavengers.