

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Milan Baral
<b>Project Title</b>	Endangered Egyptian vulture (Linnaeus, 1758): Biology, threats and conservation in Pokhara valley of Central- west Nepal.
<b>Application ID</b>	39814-1
<b>Date of this Report</b>	May 2024

**1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
<p>To study the breeding biology, breeding success and breeding season diet of Egyptian Vulture.</p>				<p>The breeding period of vulture was categorised into four stages: nest building, incubation, chick rearing and fledging. Different stages were monitored in different time scales. To study the nest building activities of Egyptian vulture, we surveyed the study area at the end of March and early April to explore the active breeding territory, as per the nest building time suggested from the European studies. We found 16 active nesting territories of Egyptian vulture. Unfortunately, we could monitor nest building activities of only five nesting pairs; all others built nests earlier and were already incubating. So, we planned to extend the days of monitoring to 7-8 days at each nest. The sample nest size was not satisfactory as planned but extending the study days somehow compensated the data quality. Male vultures were found contributing more to collecting and bringing nesting materials to nest while mostly female vultures contributed on construction, repair, and maintenance of nest. Dead twigs, cloth, cotton, bark of wood, dung and dried grass were the major nesting materials of the</p>

			<p>Egyptian vulture. We studied the incubation period as planned. One nest (Nest 6) failed after building the nest, one male and two females were using the same nest. The female that contributed on nest construction had a broken beak. The male copulated with both females, but none laid eggs and incubated in the nest. So, we had to choose another nest for the incubation study. Female contribution on incubating the eggs was found to be slightly higher than the males on all the monitored nests. Regarding the chick-rearing period, we were able to collect data from only six nests. As all other explored active nests (10) failed soon after hatching of eggs. The male contributed highly on bringing food to the nest while the female contributed more on feeding the brought food to chicks on all monitored nests except Nest 9, where both contributed equally on bringing as feeding chicks. Nest 9 had two chicks which might have influenced the activities of parents. Fledging was successful from five nests only as the chick from Nest 4 fell off the nest and was rescued later. Breeding success of the Egyptian vulture was found to be lower than other studies. A high amount of rainfall during the early incubation period (late March and April) as well as closure of</p>
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				<p>permanent food source to Egyptian vulture (landfill site) might have affected the breeding of the vultures. Chicken and mammals were the main food of the chicks.</p>
<p>Identify nest predators and anthropogenic disturbances as well develop conservation plan.</p>				<p>Nest predators and anthropogenic threats were directly observed during the breeding behaviour study. We found Rhesus monkeys on every nesting territory while gray langurs were also present around three nests (Nests 9, 10 and 11). Those monkeys were trying to reach the nest but were chased away by the vultures. Yellow-throated martins tried to enter Nest 5 during the chick rearing period. Rock eagle owls were another probable predator recorded during the study period. Fishing, farming activities, grazing livestock, construction works, mining activities and morning walks within the nesting territory were the major anthropogenic threats found during the breeding season of vulture. On average, maximum distance with alert reaction was found to be 41.57 m while minimum distance without alert reaction was found to be 94 m.</p>
<p>To quantify the threats of Egyptian vulture (EV) in the study area</p>				<p>A structured questionnaire was conducted among the people (focusing on farmers) residing around the nesting sites of Egyptian vulture. The</p>

			<p>questionnaire was developed in consultation with experts. Questions related to perception of people towards vultures, probable threats, secondary poisoning, presence of Egyptian vulture nesting sites and so on were put to local people. 20 questionnaires on 10 nesting sites each showed that 87% of respondents have seen Egyptian vulture either in farmland, riverside or forests. Likewise, 66% of respondent have seen Egyptian vulture nests, and all of them were on cliffs. A lack of carcasses and felling of Simal tree were quantified as main threats to Egyptian vulture in the study area. There was no secondary poisoning in the area. On the other hand, structured and semi-structured questions were asked with owners of 40 veterinary shops to quantify the usage of NSAIDs in cattle. Survey found no usage of toxic NSAIDs (nimesulide, aceclofenac, ketoprofen and diclofenac) but only Meloxicam.</p>
<p>To initiate the conservation and awareness program in the study area.</p>			<p>Training for undergraduates was scheduled on the first day of International Vulture Awareness Week- 2023, to make the programme fruitful to the students and impactful to the conservationists. In the training, basic identification techniques for raptors (focusing of vultures),</p>

			<p>ecology of raptors, research techniques (methods, data analysis, research design) and scientific writing techniques (proposal development and report writing) were discussed. All together 45 undergraduate students participated in the programme. 24 community awareness programmes were conducted in the study area. Altogether, 593 farmers and local people were involved in the programme. Likewise, 20 school teaching programmes were conducted around 10 nesting territories of Egyptian vulture, where 1179 students were benefitted. Population, conservation status, importance, threats, and human role to conserve vulture were discussed in the conservation and awareness programmes. News showcasing our research result was published in The Annapurna Post, a renowned newspaper of Nepal. A radio programme will be done soon.</p>
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**2. Describe the three most important outcomes of your project.**

**a. Objective one**

This is the first attempt to study the breeding biology of Egyptian vulture in Nepal. Direct observation from a safe spot (average 52 m from the nest), using powerful spotting scopes and super zooming camera was found highly effective to obtain more precise data. During the nest building stage, male Egyptian vulture contributed more on bringing nesting materials as compared to female vultures. Contribution ratio (male and female respectively) was 55.10% and 44.89% in Nest 4, 57.57% and 42.42% in Nest 5, 100% and 0% in Nest 6, 55.88% and 44.11% in Nest 7 and 55.88% and 44.11%

in Nest 8. However, the female contributed more to construction, maintenance and repair of nests as compared to males. Dead twigs, cloths, cotton, mud, dung and papers were the major materials used for building nests. The female used to excavate small holes on the middle of the nest and put cloths, cotton, mud, and dung within the hole surrounded by the twigs so as to stabilise the eggs on the nests. Likewise, females (60%) were found to be incubating more than males (40%) in all monitored nest. The pair performed incubation by exchanging themselves; male and female incubate alternatively. After changing incubating role, the non-incubator used to fly away from the nesting territory and return to the nest only after feeding, which can be seen through the larger crop size. The Egyptian vulture used to repair nests during the incubation stage; the pair used to bring nesting materials, mostly twigs, a week before hatching of eggs. Male vultures had an active role in bringing the food while female feed the brought food to chicks. But, in a nest having two chicks, both male and female contribute actively and have an equal role in bringing and feeding food to chicks. Leftovers of chickens and mammals were the major food fed to chicks. Three times, the food item brought to the nest could not be identified. The most preferred times to bring food were 8 am to 12pm, 1pm to 2 pm and 3pm to 4pm while feeding (mostly by the female) the brought food to chicks occurred throughout the day (6 am to 5 pm).

Fledging was successful for only five out of 16 active nests (two nests were detected later). One chick fell off the nest before fledging and was rescued and handed over to Divisional Forest Office together with rescue team of Pokhara Bird Society (PBS).



*Figure: Egyptian Vulture (male) carrying nesting materials to nest (left); female Egyptian vulture incubating (right).*





*Figure: Male Egyptian vulture carrying diet to nest (left); Female Egyptian Vulture feeding food to chicks (right).*

#### **b. Objective two**

We found presence of both natural predators and anthropogenic activities as threats to breeding Egyptian vultures. The nest predators and anthropogenic threats were identified and quantified while studying the breeding biology of Egyptian vultures. Yellow-throated martin, rhesus monkey and langur monkey tried to enter the nests of Egyptian vulture during the incubation and chick-rearing stages. But those predators were chased from nest by the vultures. Large owls were found to be another probable nest predator which was detected near the Nest 9. Construction works, mining industries, agricultural works, forest fires near the nests were the major anthropogenic threats disturbing the nesting pairs. The average maximum distance with alert reaction was found to be 41.57 m while the average minimum distance without alert reaction was found to be 94 m. The alert distance was calculated during the chick-rearing period of the Egyptian vulture.





*Figure: Egyptian Vulture threatening intruder (left); intruder Langur on the nesting cliff (right).*

### **c. Objective three**

87.56% of surveyed people have seen Egyptian vulture either on riverside, farmland, or forest areas while 85.07% people believe the frequency of sighting of Egyptian vulture has decreased. 43.5% of farmers think a lack of carcasses is main threat to Egyptian vulture while 38.5% thought deforestation of tall trees is major threat. Likewise, 43.28% of farmers liked to have Egyptian vulture in their farm while 24.88% stayed neutral. The survey found that there is not any prevalence of secondary poisoning in the study area.



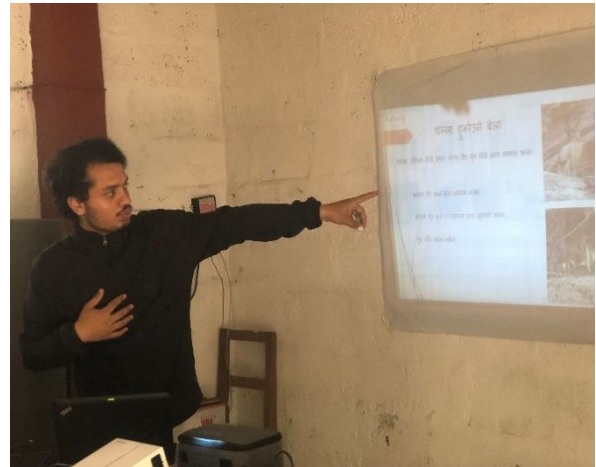
*Figure: Team leader Milan Baral asking questions to farmers (left); volunteer Bipin Adhikari showing photos of Egyptian to local people during questionnaire survey (right).*

#### **d. Objective four**

Community awareness and school teaching programmes were conducted in 24 farmers groups and 20 schools, respectively. Community people (farmers) were familiarised with the population, conservation status, importance and threats faced by the vultures of Nepal, focusing more on Egyptian vulture. Results from the breeding biology study of Egyptian vulture were also shared. They were excited to know new things about the vulture and showed commitment to conserve the smallest vulture in future. Several natural threats (monkeys and martins) and anthropogenic threats (developmental works, mining industries, agricultural works, grazing activities, etc.) that were present around the nesting site of Egyptian vulture during their breeding season were shared with the local people. They were asked to chase monkeys away from the cliffs; farmers agree on that. The concept of a buffer zone was also shared with them. They pledged to reduce the disturbance they are responsible for around the nests of Egyptian vulture from next breeding season. Farmers asked us to request governmental bodies to minimise developmental activities during the breeding season of the vulture. Differences on the responses of the farmers before and after the training showed change on the perception towards positive side to conserve the smallest vulture of Nepal.

Sensitisation of the students near nesting sites of Egyptian vultures has generated young and aware minds. Students were familiarised with the status of vultures, their importance in ecosystem, threats faced by vulture and student's role in conservation of vulture. Every student agreed not to use catapult to harm birds, not to disturb nesting birds and share the knowledge and ideas gained through the teaching with their parents and community. This will create a web by which the knowledge and ideas will reach to more people. After the teaching, students were asked to sketch different plumages of Egyptian vulture in the sketch book where every student participated. After the completion of the programme, most of the students were asking for an address to contact if they see some vulture nests or some vultures/ birds on problem. That showed the change of mind from using catapult to kill birds to contacting concerned person to help bird conservation. Surely, school teaching has changed the perception of students towards vultures and directed the young minds towards wildlife conservation.





*Figure: Local people reading conservation material (left); team leader Milan Baral delivering (right) during community awareness program.*

The research training to undergraduate was conducted in the DEAN Hall of Institute of Forestry, Pokhara in collaboration with the student union (ANNFSU) of the campus. The student union facilitated the selection of trainee as well as coordination of the training hall. The training was scheduled on the first day of International Vulture Awareness Week- 2023, to make the program fruitful to the students and impactful to the conservationists. In the training, basic identification techniques on raptors, ecology of raptors, research techniques (methods, data analysis, research design) and scientific writing techniques (proposal development and report writing) were discussed. In the section on raptors, the session was more focused on the vultures; their identifying characteristics on different plumages and stages (juvenile, sub- adult, and adult). All together 45 undergraduate students were present in the programme. Considering the feedback, the session was successful on imprinting the knowledge of raptors, bird research techniques and scientific writing skills to the trainees.



*Figure: Team leader Milan Baral delivering his presentation during Research training to undergraduates (Left) and school teaching (right).*

A stakeholder meeting was conducted in collaboration with Pokhara Metropolitan City's officials. The result of our study was discussed with the stakeholders present in the meeting. Construction works during breeding season of Egyptian vulture, mining industries near nesting sites, the problem faced by Egyptian vulture due to stoppage of landfill site and other anthropogenic threats to vulture were discussed in the meeting. Stakeholders were requested to minimise the construction works during the breeding season of Egyptian vulture, try to maintain buffer zone areas around nests and management of landfill sites needed for vultures. Mining industries also showed some concern to the breeding of Egyptian vulture in their areas. Officials were positive with our request and showed commitment to work on those issues in near future.

Table 1: Name of Farmer Groups where awareness programme was conducted.

S.N.	Name of Farmer Group	Address	Participants
1	Bhadrabisaune Lakhapatla Samudayek Ban Upabhokta Samuha	Pokhara 13	32
2	Fedipatan Samudayek Ban Upabhokta Samuha	Pokhara 21	36
3	Chandeshwori Sahakari	Pokhara 11	26
4	Losepakha Samudayek Ban Upabhokta Samuha	Annapurna 3	28
5	Banpale Samudayek Ban Upabhokta Samuha	Pokhara 21	33
6	Kaskikot Ama Sumaha	Pokhara 24	26
7	Suryemukhi Ama Samuha	Lahachowk	32
8	Sajha Jimire Tole Bikash Sanstha	Pokhara 13	24
9	Bhatteni Samudayek Ban Upabhokta Samuha	Astham	27
10	Chanithan Deurali Jura Samudayek Ban Upabhokta Samuha	Pokhara 16	19

11	Dhungeshaun Sitapaila Ama Samuha	Pokhara 15	22
12	Paurakhe Kalimati Samudayek Ban Upabhokta Samuha	Pokhara 31	24
13	Chainpur Samudayek Ban Upabhokta Samuha	Pokhara 30	20
14	Gurashe Bhume Ama Samuha	Ghachowk	22
15	Pumdi-Bhumdi Sahakari	Pokhara 17	21
16	Bhirpani Samudayek Ban Upabhokta Samuha	Pokhara 23	24
17	Ratanpandey Sahakari	Pokhara 13	18
18	Ardhanareshwor Tole Bikash Sanstha	Pokhara 13	25
19	Maidipakha Samudayek Ban Upabhokta Samuha	Pokhara 26	18
20	Namuna Prangan Krishi Samuha	Pokhara 15	26
21	JyotiMahela Ama Samuha	Pokhara 13	27
22	Nageshwor Sahakari	Pokhara 14	23
23	Bandi Samudayek Ban Upabhokta Samuha	Pokhara 23	19
24	Pachavaiya Samudayek Ban Upabhokta Samuha	Pokhara 31	21

Table 2: Name of school where awareness program was conducted.

S.N.	Name of School	Class	Number of Students
1	Lila Nimabi	6,7,8	48
2	Tarakunj Higher Secondary School	8,9	56

3	Bhadrakali Higher Secondary School	7,8,9	68
4	Sitaladevi Higher Secondary School	8,9	55
5	Amarsingh Higher Secondary School	8,9	62
6	Prativa Higher Secondary School	8,9	58
7	3 Angels Mission School	8,9	51
8	Rainbow Secondary School	9,10	55
9	Ratanpandey Secondary School	7,8,9	49
10	Chorepatan Secondary School	8,9,10	66
11	Viewpoint Secondary School	8,9	68
12	Sagarmatha Higher Secondary School	7,8	57
13	Jyotikunj Secondary School	8,9	68
14	Golden Future Boarding School	9,10	71
15	Alpha Boarding School	7,9	62
16	Bal Kalyan High School	7,8,9	66
17	Bal Prabhat Boarding School	8,9	61
18	Balodaya Secondary School	9,10	57
19	Bishnupaduka Secondary School	9,10	46
20	Dhungesanghu Boarding School	7,8	58



### 3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

#### a. Objective one

Nest site exploration started from 9<sup>th</sup> March 2023. While surveying the past nesting sites as well as probable nesting territories, we found only five active nests up to 18<sup>th</sup> March 2023. Pairs were either at the pre-laying stage or incubating. But in other nesting territories, there were no active nests at that time. We thoroughly surveyed the territory to check if the pair had shifted nests, but no active nests were found around those territories too. After 21<sup>st</sup> April 2023, we again surveyed the previously located breeding territories. During that time, we stayed in the breeding territory until we saw a breeding pair or for at least 4 hours. Nest building activities started from 23<sup>rd</sup> March on the other five nests. So, we were able to study the nest building period of only five nests. To compensate, we extended the study time-period to from 4-5 to 7-8 days. The extension of study days maintained the quality of data we expected.

Likewise, soon after the nest- building stage, Nest 6 failed. The nest was used by two females and one male Egyptian vulture; the male copulated with both females. The female vulture which helped in building nest (managing materials) had a broken beak. But we couldn't identify the reason behind the failure of the nest. So, we chose another nest (Nest 11) to meet the sample size (10 nests) for studying the incubation stage of Egyptian vulture.



*Figure: Pair of Egyptian Vulture on 'Nest 6' (left); female with broken beak being chased by flock of Jungle Crow (right).*

After the incubation period, 11 out of 16 nests (two were detected later) failed. During the early stage of incubation, there was heavy rainfall during the end of March and early April 2023. Higher rainfall during the early incubation stage made difficulties for

vulture to forage food on time and maintain temperature on eggs. A long time foraging for food was also accompanied by the stoppage of landfill site which used to be the main source of food for Egyptian vulture. We also noticed that many times incubating vultures left the nest uncovered due to late return of non-incubators. These might be the reasons behind the failure of 68.75% of nests. So, we increased the study days to from 4 to 5 to 7 to 8 days. The increment on the days helped us to maintain the sample size.



*Figure: 'Nest 7' (left) and 'Nest 1' (right) failed after hatching of eggs.*

We had planned to install cameras on some of the Egyptian vulture nests. But due to extreme number of nest failures we were afraid to disturb other active nests, even if the installation would not have resulted on nest failure. So, we cancelled the nest camera installation plan for the breeding season.

#### **b. Objective two**

Nest predators and anthropogenic threats during the study hours (6am to 6pm) were detected properly. Although we had a smaller number of nests to study during the chick-rearing period, increasing the study days helped to generate robust data on threats too.

#### **c. Objective three**

As all the questions were designed under the surveillance of experts, there were no difficulties faced.

#### **d. Objective four**

Difficulty was faced with the planned time-period for the community awareness programme. The planned time coincided with the festival time as well as farming time-period, so we had to postpone the dates for the conservation and awareness

programme. The same happened with the school teaching too; we tried to conduct the programme at the proposed time, but the school administration denied due to upcoming examinations on the schools. So, we had to wait for longer time to conduct awareness activities. Besides that, there was not any difficulty on conducting school teaching programmes. Regarding the community awareness programme, there were a lot of complications on convincing local people to participate. As our goal was to educate farmers who depend on labour works or agricultural works for their livelihood. They were expecting something on return (money) to compensate the time they would give us. That made a problem in accumulating large numbers of local people for the programme as expected. So, we collaborated with Division Forest Office- Kaski, Local Clubs and used some personal relations to gather people for our programme. We sometime had to support some capitals to Forest Users Group for their presence. On the other hand, to meet the expected number of local people on the programme, we increased the number of community teaching programme to 24.

#### **4. Describe the involvement of local communities and how they have benefitted from the project.**

Support from the local people was important to achieve objectives three and four. They shared information on their perception about vultures, status of Egyptian vulture in their localities, threats faced by Egyptian vulture as well as information on nesting sites and secondary poisoning. The information provided by the local people during the questionnaire survey helped us to develop and plan conservation and awareness accordingly. Communities were involved directly later during conservation and awareness programmes. Chairs and Secretary of Forest User Groups as well as President of Local Clubs helped a lot to gather local people for the awareness programs.

Local people were enlightened on the importance of the Egyptian vulture for maintaining the balance on the ecosystem. After the awareness activities, farmers believed that Egyptian vulture help us strengthen our livelihood by increasing flow of tourists to watch nesting and feeding of Egyptian vulture in their areas. They were also conscious about the breeding biology of Egyptian vultures. The project benefitted the local people by improving their knowledge on vultures. At end of every community awareness programmes, people thanked us for taking such educational programmes to their localities which has increased the level of understanding regarding vultures. Students were also aware about the Egyptian vultures, their role in our ecosystem and their breeding biology, after the completion of school teaching programmes. From using the catapult to kill birds to know not to harm them, their level of awareness has increased.





*Figure: Local people asking questions about vultures to presenter.*

## **5. Are there any plans to continue this work?**

Of course, yes. We have planned to continue working on the Egyptian vulture in the future. The following are some of the activities that are of utmost importance to be conducted with the help of RSG.

### **a. Exploration and monitoring of nests with increased monitoring sites**

We have found some of the active nests of Egyptian vulture during the mid point of the breeding season. We might have missed some probable territories where they might breed. That's why we plan to explore all the probable nesting areas of Egyptian vulture by extending the study area to whole Kaski district. This will generate a more robust sample size to study breeding performance of Egyptian vulture in larger areas as well as predict the population trend if studied for several years.

**b. Installation of cameras on the nests**

Installation of camera traps on nests will provide robust data on the clutch size, date of egg laying, day of hatching, siblicides, food item fed to chicks, fledging dates, night nest predators and so on. This can be cheaper approach to get accurate data on the breeding biology of Egyptian vulture.

**c. Diet analysis on laboratory**

In this project, we only quantified the food fed to chicks. But we do not have laboratory data about the diet of the Egyptian vulture adults, either during the breeding or non-breeding season. A study on the diet of Egyptian vulture through pellet or excretion will provide accurate information and will help in formulating management decisions regarding food source.

**d. Incorporating more farmers together with health camps**

We faced a lot of difficulties in gathering farmers from around the nesting sites of Egyptian vulture during the project, as we did not have provision to directly benefit the local people this time. We thought helping farmers with free health camps like eye check-up, dental check-up, sugar level check-up will encourage local people to participate in such programmes, where they can get direct as well as indirect benefits. On the other hand, what we realised is, conservation and awareness programme should not be confined within the nesting territories only but also be conducted on the roosting, feeding and foraging areas of the Egyptian vulture as well. This will result more enlightened people on the distributional range of Egyptian vulture, which consequently support wildlife conservation.

**e. Citizen scientists**

Citizen scientists are playing a crucial role in developing concrete data from larger geographical range. They remain close to the breeding territory for entire year even in our absence. This will help to generate data with minimal cost as well as year-round conservation of breeding territories of Egyptian vultures. So, we plan to coordinate with local clubs, select some youths and give special training to familiarise them with vultures and develop them as citizen scientists.

**6. How do you plan to share the results of your work with others?**

We have shared our results through different medium.

**a. Nepal Owl Festival**

A research poster was presented on the Nepal Owl Festival 2024, organised by Friends of Nature (FON), Nepal at Lopre, Parbhat on 1<sup>st</sup> and 2<sup>nd</sup> February 2024.

Local people, students from schools, governmental stakeholders, students from Institute of Forestry, students from Zoology background, media and so on visited the stalls having research poster. We have presented the breeding success along with breeding biology of Egyptian vulture through the flex.



*Figure: Team leader Milan Baral showcasing results of the project in Nepal Owl Festival- 2024 to local people (left) and Forest Minister of Gandaki Province (right).*

#### **b. Conservation Posters and Brochures**

Conservation posters and brochures were the major platform to showcase our research results. All the photos and writings of the conservation materials were briefly described before handing over to community people and students. The posters were distributed to schools and community halls where we conducted conservation and awareness programmes as well as to public libraries, local government offices, veterinary hospitals, government offices and environment related institutions while brochures were circulated to school students, community people, forest user groups, libraries, and environment related institutions.





Figure: Team leader Milan Baral handing over the conservation material (posters and brochures) to local government officials (left); student reading the brochure kept in library of Institute of Forestry (right).

### **c. Research Training to Undergraduates**

Research findings were shared with the undergraduates during the research training programme.



Figure: Trainee of Research training to undergraduate asking more about the results of the project that we shared in the session.

**d. Community awareness programs and school teaching programmes**

After giving thorough information on the status, importance, and threats of vultures. We showcased our project's result to the community people through the presentation slides.



*Figure: Team leader Milan Baral sharing about the Buffer zone concept around the Egyptian Vulture's nests to local people.*

**e. News media**

We had published our findings in the front page of The Annapurna Post, a renowned and highly read newspaper of Nepal.

News Link:

[https://annapurnapost.com/story/457416/?fbclid=IwZXh0bgNhZW0CMTEAR13Ib44YMFpGacmsAQscYhMfeGuEBY9B6NLJDwGrsmUssikkjk-Z9jzgs\\_aem\\_AS03hOcJic-dteY8XEIC2QXpuz5yYCAzzApsMnd3SeYBrYsWkoDRW6o41-HuPTHvOk7RuwMU7YmpvBPLyi7nzdQc](https://annapurnapost.com/story/457416/?fbclid=IwZXh0bgNhZW0CMTEAR13Ib44YMFpGacmsAQscYhMfeGuEBY9B6NLJDwGrsmUssikkjk-Z9jzgs_aem_AS03hOcJic-dteY8XEIC2QXpuz5yYCAzzApsMnd3SeYBrYsWkoDRW6o41-HuPTHvOk7RuwMU7YmpvBPLyi7nzdQc)

We are planning to broadcast our result on different media platforms like 3 Angles Radio and so on. Likewise, our research result has been sent to several other English newspapers for its publication.

**f. Conference and articles**

Results of the project will be presented at the conference related to vulture and conservation. We are also planning to develop a manuscript to publish the results in an international journal too.

**g. Report distribution**

The final report will be submitted to The Rufford Foundation, Ministry of Industry, Tourism, and Environment (MoIFTE), Department of Forest (DoF), Pokhara Metropolitan City's Office, Division Forest Office (DFO) Kaski, Department of National Parks and Wildlife Conservation (DNPWC), National Trust for Nature Conservation (NTNC), Zoological Society of London (ZSL) Nepal, Institute of Forestry (IOF), Pokhara Bird Society (PBS), BCN Pokhara Branch and Prithivi Narayan Campus (PNC).

**7. Looking ahead, what do you feel are the important next steps?**

The project was based on the direct observation of the breeding biology of Egyptian vulture in and around Pokhara valley. The next key step would be extending the study area as well as use of cameras on the nests. Extending the study area will help to monitor larger nests, which in turn facilitate to monitor breeding success of larger sample of nests. If continued for several years, we can predict the population trend of the Egyptian vulture in Kaski district of Nepal. Use of cameras on nest will generate more accurate data on the clutch size, egg laying dates, fledging dates, food items fed to chicks, nest predators during night and so on which will help to develop and implement conservation plan more effectively. Another major step would be studying the diet of Egyptian vulture through laboratory. Here in Pokhara valley, the permanent food source to Egyptian vulture (landfill site) has been closed, which has created scarcity of food for the vulture. So, studying the diet through pellet or excretion would give insight on the main diet of Egyptian vulture and will obviously help in formulation management plans related to food availability. On the other hand, replication of the same project (only breeding success if biology is not feasible), all over the distributional range of Egyptian vulture is of utmost importance to predict the population of Egyptian vulture in Nepal.



**8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

The Rufford Foundation logo was used in presentation and certificates on Research Training to Undergraduates, brochure and posters published during project, all the flex printed for research training as well as conservation and awareness programs as well as research poster presented on Nepal Owl Festival 2024.

The Rufford Foundation will be acknowledged in articles as well as our manuscript when it will be submitted to newspapers and peer reviewed journals, respectively.



Figure: Brochure used for the conservation and awareness program (left) and Banner of Research Training to Undergraduates (right).

**9. Provide a full list of all the members of your team and their role in the project.**

**Milan Baral** (Team Leader): He was involved from the start to end of the project. He was responsible for designing the project, collecting data, analysing data, drafting and finalizing report, coordinating with local stakeholders, schools, and farmer groups, designing conservation materials, leading Research Training to Undergraduates, conducting conservation and awareness programs and writing news articles.

**Sandesh Gurung** (Researcher): He was involved in the study from the beginning of the project. He has facilitated during the nest site exploration and nest building stages of Egyptian vulture. He also contributed on reviewing conservation materials.

**Dheeraj Chaudhary** (Researcher): He was also involved from the beginning of the project. But due to change in our schedule of study, he was not directly involved in field works. However, he continuously provided technical support to the project.

**Anisha Neupane** (Research Assistant): She was engaged in the study throughout the project. She assisted in designing the project, collecting data, analysing data, reviewing reports, and developing questionnaires and conservation materials.

**Manish Pandey** (Volunteer): He was connected to the project from the very beginning. He assisted in nest monitoring (nest exploration, nest building, incubation, chick rearing and fledging), questionnaire survey as well as conservation and awareness programs.

**Sandesh Neupane and Jyoti Sharma** (Volunteers): Assisted during the breeding biology study and questionnaire survey.

**Divya Acharya** (Volunteer): She assisted on designing and finalizing conservation materials.

**Binita Timilsina and Mohan Buccha** (Volunteers): They assisted during the nest-monitoring period (incubation).

**Bipin Adhikari** and his friends from Institute of Forestry (Volunteers): Assisted during the questionnaire survey to community people.

**Prabesh Pandey** (Volunteer): Assisted during the questionnaire survey to veterinary shops.

**Sulav Rai** (Rock Climber): He assisted us with nest climbing. He was ready to volunteer our project to install camera traps on the nests. But the plan was changed later.

#### **10. Any other comments?**

Our team would like to express our gratitude to The Rufford Foundation for funding the project. I deeply appreciate your understanding on our problem and extending our research time period as requested.



*Figure: Pair of Egyptian vulture guarding nest (left) and male Egyptian vulture carrying nesting material (cloth) to nest (right) during the nest building stage.*



*Figure: Team Members searching nest (left) and snatching catapult from children (right) during nest- site exploration.*





*Figure: Team leader Milan Baral (left) and volunteer Mohan Buccha (right) monitoring nest during incubation.*



*Figure: Pair of Egyptian Vulture exchanging their role (left); male about to leave nest unguarded as female did not return for long time-period (right).*



*Figure: Team leader Milan Baral (left) and volunteer Manish Pandey (right) monitoring nest during chick-rearing stages.*





*Figure: Chick on the nest before fledging (left); adult feeding food to chick (right)*



*Figure: Fledged Egyptian Vulture's juvenile*

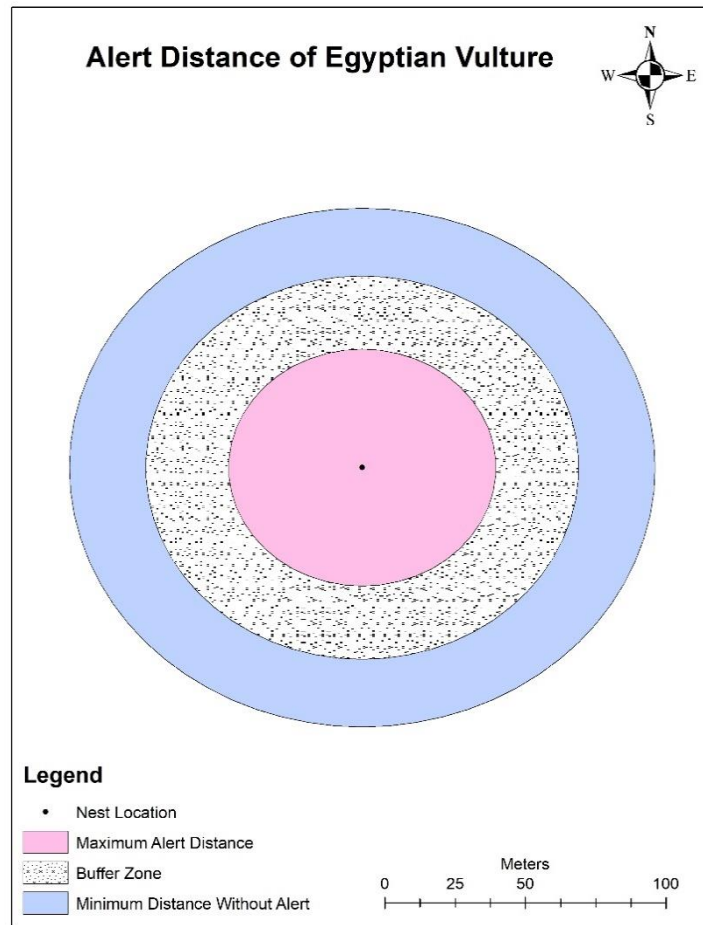


Figure: Buffer zone around the nest of Egyptian Vulture.

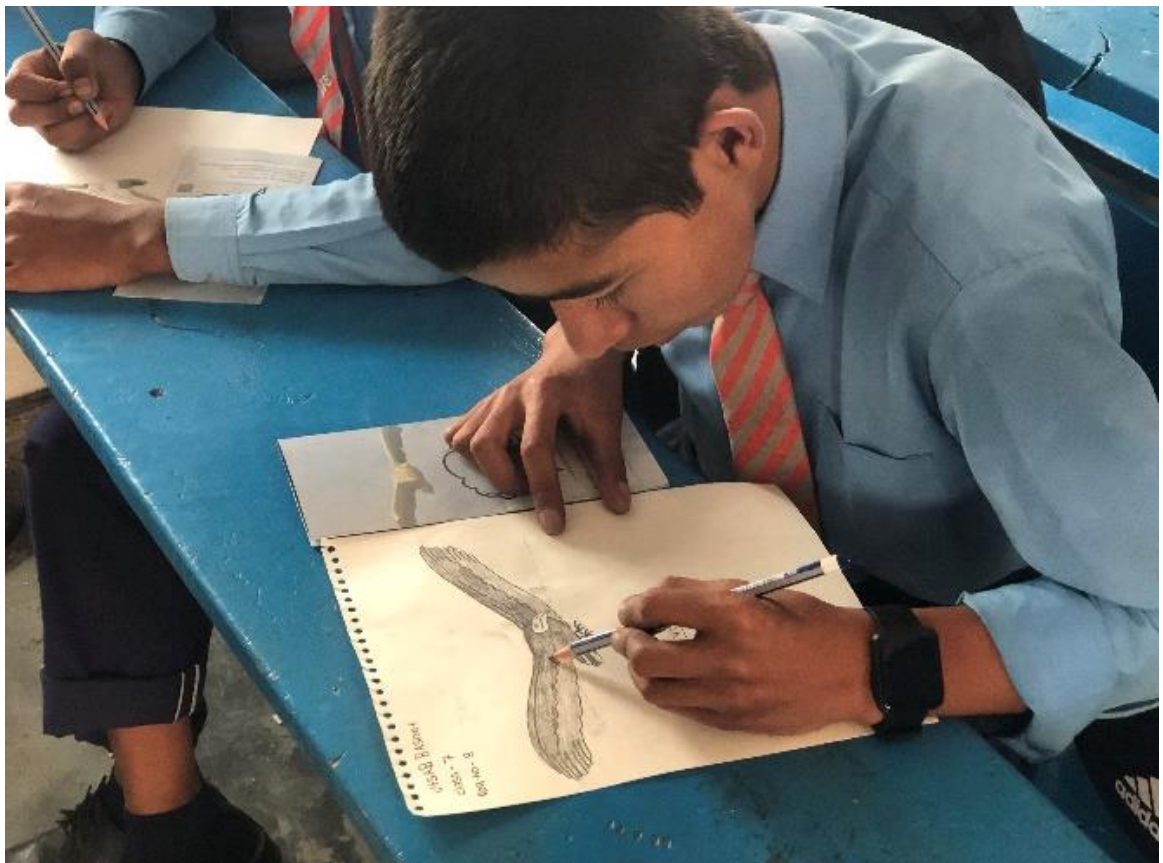


Figure: Anthropogenic threat (Mining industry) near nest of Egyptian Vulture (left); presence of Large Owl- Rock Eagle Owl on the nesting cliff of Egyptian vulture (right).





*Figure: Volunteers Sandesh Neupane and Ram Banjade (left); team leader Milan Baral (right) with farmers during the questionnaire survey.*



*Figure: Student during sketch competition.*



Figure: Student asking questions after the presentation (left); volunteer Manish Pandey distributing brochure to students (right).



Figure: Sketches of Egyptian vulture made by students.





Figure: Group photo after school teaching (left); students reading the conservation materials- brochure (right).



Figure: Volunteers Manish Pandey delivering during school teaching (left); Prabesh Pandey asking questions during questionnaire on veterinary shops (right).





Figure: Group photo after community awareness program.





*Figure: Trainee Ashish Pariyar giving feedback to the presentation of Research training to Undergraduate (left); Trainer awarding prize to trainee with correct answers on quiz.*



*Figure: Group photo after Research Training to Undergraduates at Institute of Forestry, Pokhara.*



Figure: Team leader giving presentation on raptor identification and research training (focusing on Egyptian Vulture) to students of PN campus.





Figure: Team leader Milan Baral handing over conservation materials to secretary of Ministry of Industry, Tourism, Forest, and Environment- Gandaki Province (left); Divisional Forest Officer of Kaski (right).



Figure: Team leader Milan Baral handing over conservation materials to Campus Chief of Institute of Forestry- Pokhara (left); chairman of Pokhara Metropolitan City, ward number 15 reading conservation materials (right).



Figure: Team leader Milan Baral handing over conservation posters to Dr. Pawan Pandey in the veterinary hospital (left) and school vice-principal (right).



Figure: Conservation materials handed over to head of school (left) and chairman of community group (right).



*Figure: Brochure placed in the library of Institute of Forestry.*



# अन्नपूर्ण पोस्ट

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बुध १३ असार १३ पुस १० | काठमाडौं, नेपाल २१ वैशाख २०८१ | बैशाख शुक्रवाङ्क पछि, नेपाल समू ११४४ | MONDAY, MAY 13, 2024 | काठमाडौं, टुइटी, बुद्धले र बीकानेरबाट प्रकाशित प्रकाशित | पृष्ठ : २, १०

## कमर स्टोरी

### विकल पौडेल : हर्ता पनि आफैं, कर्ता पनि आफैं

सेक्युरिटी प्रिन्टिड प्रेस खरिदमा ४० करोड ७५ लाख हानि, अख्तियारद्वारा मुद्दा दर्ता



**पौडेलले ज्याक्स इन्टरनेसनललाई विभिन्न मितिमा भुक्तानी दिएको रकम**

क्र.सं.	मिति	गो.भा.नं.	भक्तानी रकम	वीडियो
१	२०७७/०१/०२	१	₹ ५,३०,०००	वीडियो
२	२०७७/०१/०७	२	₹ ५,३०,०००	वीडियो
३	२०७७/०१/१६	३	₹ १४,४०,०००	वीडियो
४	२०७७/०२/२३	४	₹ ५,३०,०००	वीडियो
५	२०७७/०२/२३	५	₹ ५,३०,०००	वीडियो
६	२०७७/०२/२३	६	₹ ५,३०,०००	वीडियो
७	२०७७/०२/२४	७	₹ ५,३०,०००	वीडियो
रकम			₹ ५१,२२,५००/-	

**विशेष गौरव** | कस्यलाई  
को रिपोर्ट

**समाचार फुट**

जम्मा भुक्तानी रकम र खाता नम्बर

खातावाचको नाम र खाता नम्बर

वीडियो नाम र टाइटिल

- ₹ ५,३०,००० डलर रकम
- ₹ ५,३०,००० डलर रकम
- ₹ ५,३०,००० डलर रकम
- ₹ ५,३०,००० डलर रकम

### देश अनिर्णयको बन्दी हुनुहुँदैन

**विमल पोखरेल**

**इजलासा**

मुख्य अतिथि बन्न नेपाली कांग्रेसको महाधिवेशनको तयारीमा अगाडि निस्किएका विमल पोखरेलले देश अनिर्णयको बन्दी हुनुहुँदैन भन्ने बताएका छन्। उनले देश अनिर्णयको बन्दी हुनुहुँदैन भन्ने बताएका छन्। उनले देश अनिर्णयको बन्दी हुनुहुँदैन भन्ने बताएका छन्।

### मधेसको सम्बन्ध विच्छेदपछि सरकार छाड्दै यादव

**राजकर्मण्य भट्टेल** | कस्यलाई

मधेसको सम्बन्ध विच्छेदपछि सरकार छाड्दै यादव

मधेसको सम्बन्ध विच्छेदपछि सरकार छाड्दै यादव

### सुँगुरको मिर्गौला प्रत्यारोपण गरेका पहिलो व्यक्तिको निधन

**कविन्द्र** | एएफपी/रासस

सुँगुरको मिर्गौला प्रत्यारोपण गरेका पहिलो व्यक्तिको निधन

देश अनिर्णयको बन्दी हुनुहुँदैन भन्ने बताएका छन्। उनले देश अनिर्णयको बन्दी हुनुहुँदैन भन्ने बताएका छन्। उनले देश अनिर्णयको बन्दी हुनुहुँदैन भन्ने बताएका छन्।

### संकटको डिलमा सेतो गिद्ध

**कृष्णमणि बस्नेत** | रासस

संकटको डिलमा सेतो गिद्ध

संकटको डिलमा सेतो गिद्ध

सुँगुरको मिर्गौला प्रत्यारोपण गरेका पहिलो व्यक्तिको निधन

सुँगुरको मिर्गौला प्रत्यारोपण गरेका पहिलो व्यक्तिको निधन



पौखरेलको फेसबुक फिडको छविमा सेतो गिद्धको चित्रण। सेतो गिद्धको संख्या घट्दै गएको छ।



*Figure: News published in front page of The Annapurna Post.*

## प्रकृतिको कुचिकार: संकटापन्न सेतो गिद्ध र यसको वासस्थान संरक्षणमा हातेमालो गरौं।

Let's unite to conserve Endangered **Egyptian Vulture** *Neophron percnopterus* and its habitat.



Poison



Diclofenac



Meloxicam



### सेतो गिद्धका केहि तथ्यहरु:

- चट्टानका भिर-पहरा र अग्ला रुखहरुमा गुँड लगाउछन्।
- एक वर्षमा १ देखि २ वटा अण्डा पार्दछन्।
- प्रजननको समयमा अनुहारको पहेलो रङ्ग सुन्तला रङ्गमा परिवर्तन हुन्छ।
- बच्चाहरु काला रङ्गका हुन्छन् भने वयस्क सेता हुन्छन्।
- यिनीहरु आँखाले देखेर आफ्नो आहारा पत्ता लगाउँछन्।
- आहारको लागि अधिकांश समय फोहर फालेको ठाउँमा बिताउँछन्।
- यि चराहरु चिडियाखानामा राख्दा ३७ वर्ष सम्म बाँचेका छन्।

दक्षिण एसियामा पाइने गिद्धहरु मध्ये सानो र नेपालको आवासिय सेतो गिद्ध मुख्यतया वासस्थान विनाश, आहाराको कमी, विषादीको प्रयोग, विजुलीका तारमा करेन्ट लाग्ने जस्ता कारणले लोप हुने अवस्थामा छन्। यिनको संरक्षणमा सहकार्य गरौं।



Figure: Conservation Poster

वासस्थान विनाश, आहाराको कमी, विषादीको प्रयोग, विजुलीका तारमा करेन्ट लाग्ने आदि कारणले लोप हुने खतरामा छन्।

**थप जानकारीको लागि:**



**सेतो गिद्धको संरक्षणमा हाम्रो दायित्व**

**“सेतो गिद्धको संरक्षणमा हातेमालो गरौं।”**

नेपाल पन्छीविद संघ, लाजिम्पाट, काठमाडौं।  
वेबसाइट: [www.birdsofnepal.org](http://www.birdsofnepal.org)  
सम्पर्क ईमेल ठेगाना: [info@birdsofnepal.org](mailto:info@birdsofnepal.org)  
तयार गर्ने: मिलन बराल, [milanforrapportors03@gmail.com](mailto:milanforrapportors03@gmail.com)



**परिचय**

नेपाली नाम: सेतो गिद्ध  
अंग्रेजी नाम: Egyptian Vulture  
वैज्ञानिक नाम: *Neophron percnopterus*  
लम्बाई: ६०-७० से.मि.  
बच्चा: वर्षमा १-२ ओटा  
आयु: २१-३० वर्ष, चिडियाखानामा ३७ वर्ष  
विचरण क्षेत्र: समुन्द्री सतह देखि ७५-२९०० मि.  
वासस्थान: पश्चिम र मध्यपश्चिमका साना देखि ठुला पहरामा गुँड बनाउँछन् र अग्ला रुखहरूमा सामुहिक रूपमा बसेको भेटिन्छन्।  
मुख्य आहारा: सबैजसो मरेका जनावरको सिनो र फालेको मासुजन्य फोहर नेपालमा बसाई अवस्था: आवासीय (बच्चा कोरल्ने)



**संरक्षण स्थिति:**

विश्वव्यापी: संकटापन्न  
राष्ट्रिय: संवेदनशील  
नेपालमा अनुमानित संख्या: ३००-१०००



**सेतो गिद्धको महत्व:**

१. प्रकृतिको कुचिकार मरेका जनावरको सिनो र फालेको मासुजन्य पदार्थलाई खाएर वातावरण प्रदूषण र दुर्गन्ध मुक्त बनाउँछन्।  
२. पारिस्थितिकिय प्रणालीको सन्तुलनमा महत्वपूर्ण योगदान गर्दछन्।





**सेतो गिद्धका मुख्य चुनौतिहरू:**

१. घरपालुवा पशुहरूमा ज्वरो आएको र दुखेको निको पार्न सेवन गराइने डाइक्लोफेनेक, एसेस्लोफेनेक, निम्सुलाइड, फिटोप्रोफेन र गिद्धका लागि हानिकारक अन्य औषधिहरूको प्रयोग,
२. गिद्धलाई गुँड बनाउन उपयुक्त पहराहरू तथा अग्ला सिमलका रुखहरूको विनाश,
३. अव्यवस्थित विजुलीका तारहरू,
४. आहाराको अभाव।



**गिद्ध संरक्षणमा मानिसको भूमिका?**

१. डाइक्लोफेनेक, एसेस्लोफेनेक, निम्सुलाइड, फिटोप्रोफेन र गिद्धलाई असर गर्ने अन्य दुखाई कम गर्ने औषधिको सट्टा सुरक्षित मेलोक्सिक्यामको प्रयोग गर्ने,
२. विकासका परियोजनाहरूको संचालन गर्दा जोखिम न्यूनीकरणका उचित उपायहरू प्रयोग गर्ने,
३. प्राकृतिक स्रोतहरूको अत्यधिक दोहन रोक्ने,
४. संरक्षण रणनीतिहरू निर्माण एवम् कार्यन्वयन गर्ने,
५. गिद्धले गुँड बनाउन उपयुक्त पहराहरू तथा अग्ला र ठुला रुखहरूको संरक्षण र रेखदेख गर्ने,
६. विजुली प्रसारणका संरचनाहरू चरामैत्री बनाउने,
७. गिद्धहरूलाई विषादी मुक्त आहाराको व्यवस्थापनमा सहयोग गर्ने,
८. गिद्धको महत्वका बारेमा जनचेतना फैलाउने।

**पोखरा किन सेतो गिद्धको संरक्षणका लागि महत्वपूर्ण छ?**



१. नेपालका अरु क्षेत्रहरूको तुलनामा पोखरा सेतो गिद्धका लागि उपयुक्त र महत्वपूर्ण क्षेत्र हो।
२. पोखरा सेतो गिद्धको संख्याको हिसाबले मुख्य क्षेत्र (हटस्पट) मानिन्छ।
३. पोखरामा सेतो गिद्धका गुँडहरू र गुँड लगाउन उपयुक्त पहराहरू प्रशस्त रूपमा भेटिन्छन्।
४. सेतो गिद्ध बसोबास गर्ने तथा विश्राम गर्ने स्थानहरू प्रचुर मात्रामा पाइन्छन्।
५. सेतो गिद्धका लागि आवश्यक आहार पाइने मुख्य क्षेत्र (ल्याण्डफिल साइट) र अन्य आहार भेटिने स्थानहरू पनि उपलब्ध छन्।





*Figure: Brochure used in conservation and awareness program of the project.*