



ORIGINAL ARTICLE

**Initiatives to Involve Local Public in Vulture Conservation Endeavors in
Tikamgarh, Madhya Pradesh**

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ABSTRACT

After the calamitous decline of the master scavengers' in India, various conservation initiatives are being undertaken by Government and Non-government organizations. The decline of vultures cannot be attributed to a single cause. It varies from region to region. The conservation inventiveness in any case should be based on the prevalent cause to decline in that particular region. Since last 8 years the vulture population in Tikamgarh district is being monitored by collaborative efforts of researchers and Forest department. It abodes a potential vulture population that need to be monitored and protected. The study is formulated to create awareness through workshops and awareness programmes regarding vulture population in Tikamgarh that will benefit wild population and have a significant conservation value. In this study area the respondents actively participated in the conservation efforts as they are well aware of the environmental services provided by vulture. The expected outcomes will lead to increased acceptance of vulture conservation and participatory activities as a means of achieving the maintenance of vulture population goals.

Keywords: Local Public, Vulture, Conservation Endeavors

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INTRODUCTION

In India the vultures (*Gyps* Species) started declining in 1960s in some places such as Kerala while Karnataka started losing the Nature's Cleaners in 1981 ((Dawidar *et al.*, 2002). Drastic vulture decline at the Keoladeo National Park at Bharatpur in Rajasthan in 1999 was noticed by the Bird watchers (Randheer Singh, Brijendra *pers comm.*, 2016). There are diverse reasons for vulture mortality, such as poisoning due to pesticides and veterinary drugs. In some places Aviation Authorities killed vultures to prevent aviation hazards while in other places habitat loss resulted in vulture decline. Some Scientists reported new strains of virus and other lethal pathogens to account for their population decline. Destruction of habitats and low food availability are also responsible for vulture decline in a number of places. Chick mortalities due to starvation have been reported in Pune (Satish *et al.*, 2015). The initiatives have been undertaken so as to involve the local people to monitor and conserve the natural breeding and roosting sites of vultures in Tikamgarh. This will help in *in-situ* conservation of the scavengers. Since last 8 years the vulture population in Tikamgarh district is being monitored by collaborative efforts of researchers and Forest department. It abodes a promising vulture population that need to be monitored and protected. The awareness created through workshops and awareness programmes regarding vulture population in Tikamgarh will benefit wild population and have a significant conservation value. At present an important aspect of vulture

conservation is that any valuable habitat remaining must be preserved if at all possible. This study will prove to be a stepping stone in this direction and will be established as one of the righteous eco-development programmes. Socio-economic factors (e.g., caste, gender, age, education, livestock holding, participation and benefits) have significant influence on conservation attitudes. The study has been formulated to form a milestone basis for the implementation of conservation programs in the community, with a more effective conservation of vulture colonies in Tikamgarh.. Local community plays a key role in conservation of any species. Community-based conservation (CBC), as a means of achieving integrated conservation and development, has emerged as the central exemplar among national and international organizations as well as NGOs. CBC is based on the concept of simultaneous interests of conservation and development (Berkes, 2004). The underlying principle behind CBC is to work together so as to achieve more than that the individuals or organizations can work single-handedly, and the involvement to people concerned will have improved and more adequate outcomes. The expected outcomes will lead to increased acceptance of vulture conservation and participatory activities as a means of achieving the maintenance of vulture population goals. There are various communities that are known for conservation of various species such as (Pathak, 2009):

1. Protection of sea turtle eggs, hatchlings and nesting sites by fisher folk communities is found at Kolavipaalam in Kerala, Galgibag and Morjim in Goa, and Rushikulya and Gokharkuda in Odisha.
2. Youth clubs from the villages around Loktak Lake (Manipur) have formed the Sangai Protection Forum to conserve the greatly endangered Brow-antlered deer, which is endemic to this wetland. They take part in the management of the Keibul Lamjao National Park, which forms the core of the Lake.
3. The Buddhist Morpa community in Sangti Valley in Arunachal has co-existed with the endangered black-necked cranes for generations, viewing them as a harbinger of better rice yields.
4. In Khichan village of Rajasthan, the local population provides refuge and food to a wintering population of up to ten thousand demoiselle cranes, ungrudgingly spending up to several hundred thousand rupees annually on food grains to feed them.
5. The Bishnoi community in Rajasthan, famous for its self-sacrificing defense of wildlife and trees, continues strong traditions of conservation. In neighbouring Punjab, lands belonging to the Bishnois have been declared as the Abohar Sanctuary in recognition to their respect for wildlife. At all the Bishnoi sites, blackbucks and chinkara are found in abundance.

While these concepts are not new, their application has increased dramatically in the last 10 years (Forgie *et al.*, 2001). There are community based conservation efforts for vultures in Nepal but no such efforts have been undertaken in India.

In Tikamgarh, Orchha has been an important place from the perspective of vultures. The importance of Orchha as a stronghold of vultures has been linked with the Archaeological monuments. The crisis of vulture population decline in the country came to lime-light in early 1990s. Even after that, Orchha had good vulture diversity. Orchha is endowed with 2 species of resident *Gyps* vultures (*Gyps bengalensis* and *Gyps indicus*), 2 species of migratory *Gyps* vultures (i.e., *Gyps fulvus*, *Gyps himalayensis*) and 2 species each of the genera *Neophron* and *Sarco Gyps*. Thus, even with the problem of vulture population decline, vulture species (Fig.1) richness is high in Orchha (it has 6 out of total 9 vulture species of India). The migratory species *Gyps fulvus* and *Gyps himalayensis* have been sighted in Mador, Kari Pader Area and on the Cenotaphs in Orchha (Fig.2). The study was thus drafted to involve people from all fields in Tikamgarh to take the initiatives in vulture conservation.

OBJECTIVES OF THE STUDY

The objectives undertaken will support community participation in the protection and conservation of vultures in Tikamgarh district:

1. To promote the conservation of vultures and their habitats outside core protected areas by establishing Vulture Management Areas (VMAs).
2. If food supply stopped due to some reason, carcasses will be supplied in an artificial way to ensure the roost subsistence with the help of herders, villagers and cattle owners.
3. To transfer the management of VMAs to local communities and to ensure that local communities obtain substantial and tangible benefits from vulture conservation.
4. Intensive education and awareness campaign will be launched with the main aim of targeting occupational and ethnic groups because they play a significant role in carcasses management. Considering the potentiality and enthusiasm of the youths in the study area they should be mobilized in a conservation endeavor.



Fig. 1: *Gyps fulvus*, *Gyps indicus* and *Gyps bengalensis* roosting on a tree in Orchha



Fig. 2: Breeding colony of *Gyps indicus* in Cenotaphs, Orchha

STUDY AREA

The Tikamgarh District encompassing an area of 5048 Km Co-ordinates of 24° 73' 38 North Latitudes and 78° 82' 71 East Longitudes. Tikamgarh district is situated in the northern part of Madhya Pradesh. It is bounded in the north and west by the Jhansi and Lalitpur of Uttar Pradesh, in east by the Chhatarpur district and separated by River Dhasan. The District has been divided into six Thesils and Blocks (Fig-3). There are 865 Villages and 13 Towns in the District.



Fig. 3: Map of Tikamgarh

The Climate of Tikamgarh district, M.P. characterized by a hot summer and general dryness except during the southwest monsoon season. The year may be divided into four seasons. The cold season, December to February is followed by the hot season from March to about the middle of June. The period from the middle of June to September is the southwest monsoon. October and November form the post monsoon or transition period. The normal annual rainfall of Tikamgarh district is 1057.1 mm.

METHODOLOGY

The initiatives undertaken started with Group discussions with people, organization and individuals. The areas were selected on the basis of vultures breeding sites or vultures seen feeding, roosting or flying. Intensive field visit in the villages and interaction with experienced persons of the locality who understand different aspects related to vulture conservation and its ecological values. Awareness programmes were organized in schools of Tikamgarh and Workshops were conducted for people from all fields. For

Spreading out the message of vulture conservation, awareness material in Hindi and English was used. To disseminate the initiatives being undertaken for vulture conservation, Press media was involved.

RESULTS AND DISCUSSION

The work started with the previous data regarding the occurrence of vultures in Tikamgarh district. To achieve the targets interaction was started with people from different fields such as Herders, Farmers, Tourist guides, Archaeological guards, Gaushala owners, Priests, forest officials, teachers and so on (Table 1). People from all fields are directly or indirectly related to the conservation issues and can play an important role in achieving the target of vulture conservation through community involvement.

Table 1: Interaction with people from various fields

Teachers	<ul style="list-style-type: none">• By teaching the students
Archaeological guards	<ul style="list-style-type: none">• Preventing disturbance to the breeding vultures
Tourist guards	<ul style="list-style-type: none">• By promoting eco-tourism and avoiding disturbance by the tourists
Forest guards	<ul style="list-style-type: none">• To monitor the vulture breeding sites
Herders	<ul style="list-style-type: none">• To protect big trees which can be used for nest construction by vultures
Cattle owners	<ul style="list-style-type: none">• To avoid use of harmful drugs for cattle treatment• to ensure dead cattle are thrown at a particular place
Gaushala owners	<ul style="list-style-type: none">• To avoid use of harmful drugs for cattle treatment• to ensure dead cattle are thrown at a particular place
Priests	<ul style="list-style-type: none">• To teach people to have concern for other living creatures

The school teachers were approached because they are vital in taking the message to the future generation. The teachers play an important role in moulding the minds of the students. The impact is long lasting and helps the students to know about various aspects of vultures at a wider platform. This is important because educated people show a greater positive approach towards vulture conservation. It is important to aware the younger generation about the plight of vultures and to make them understand the ecological and environmental value of vulture species. For this it is utmost imperative to make contact with the teachers. Youths can be one of the important inputs for the biodiversity conservation. They have sufficient potential and enthusiasm that need to be mobilized for

conservation and sustainable livelihood. Enrollment of educated youths can be innovative in improving the life conditions leading to sustainable and compatible development. These innovations besides being environmentally sustainable generate employment among the youth thereby improving their quality of life. The youth need to be educated about their surrounding Nature, its biodiversity, role of flora and fauna, importance of habitats and the need to conserve them. Education helps to recognize that ecosystems are dynamic, that humans are an integral part of ecosystems, and that human activity has both positive and negative consequences.

Conservation education focused on youth is imperative to developing a stewardship ethic, an understanding and connection to natural resources, and, ultimately, to conservation of the Nation's natural resources.
.....Dale Bosworth, 2005

The communication with people from all areas will help in the conservation of breeding, roosting and feeding sites of vultures. The herders often ignorant about the nesting behaviour of vultures' species destroy the nesting trees. White-backed vultures, King Vultures and Egyptian vultures nest on trees such as Arjun (*Terminalia arjuna*), Kawa, Peepal (*Ficus religiosa*), semal, Kem (*Mitragyna parvifolia*), Mothi Gunj Coral-wood tree (*Adenanthera pavonia*) etc. The nests of *Gyps bengalensis* were on the Arjun trees (*Terminalia arjuna*) in Kothigulenda in 2012. The trees were chopped off by the villagers of Digwaar, situated at a distance of 3-4 kms from the nesting site. Once disturbed the vultures do not reconstruct their nests at those sites. The nests on peepal trees in the village are also deserted or occupied by other raptors such as Short-toed snake eagle (*Circaetus gallicus*). The herders are not aware of the consequences of cutting the tree branches for the livestock. The chopped branches are not suitable for the massive nests constructed by the vultures. Therefore to avoid such situations in future, the herders were involved in the vulture conservation initiatives.



Fig. 4: Interaction with herders

The Tourist guides and Archaeological guards have important role to play in the conservation of vultures in Orchha. Since Orchha is a tourist place, it is a hub for local and foreign visitors. The vultures have breeding sites in the monuments such as Chhaturbhuj Temple, Jahagir Mahal and Cenotaphs. The visitors while visiting the monuments cause

disturbance to the breeding vultures. The local people often throw stones at the nests just for fun. The foreign tourists make the vultures fly by loud clapping so as to take good photographs of flying vultures. To avoid all these disturbances, flyers have been prepared in English and Hindi for the foreign tourists and the local visitors (5a). Besides this boards have been inserted in Cenotaphs and Jahagir Mahal with important information regarding vultures (Fig.5b). The foreign tourists have also been approached and requested to maintain silence in the vulture prone zones. The Tourist guides and Archaeological guards keep the flyers with them and provide the visitors so that they know about the vultures.

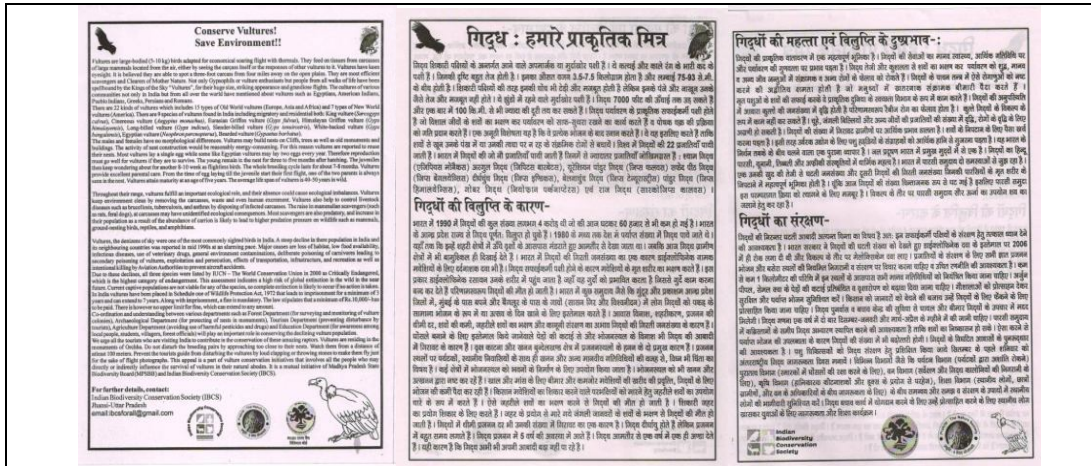


Fig. 5a: Awareness material in English and Hindi



Fig. 5b: Information Boards in Hindi and English for Local and Foreign Visitors

The farmers and Gausghala (Cow Ranch) owners have an important role in maintaining the availability of safe and adequate food supply to the vultures residing in Tikamgarh district (Fig. 6). These people were approached and instructed not to use banned drugs for the treatment of sick cattle. Moreover they were requested to throw the dead cattle at a particular place so that vultures get used to these feeding sites which will provide them safe food. In many places it was seen that the dead cattle are left in the open but they are not de-skinned due to this vulture are not able to feed on the carcasses. The dominating dog population also prevents the vultures to feed on the dead cattle. The cultures of various communities not only in India but from all over the world have mentioned about vultures such as Egyptians, American Indians, Pueblo Indians, Greeks, Persians and Romans. Our ancestors valued them and utilized their scavenging nature to dispose off the dead (humans as well as animals) and keep the surroundings healthy. Therefore the priests of various temples were interacted so that they remind the people

about the importance of vultures in the environment (Fig.7). Orchha is famous for Raja Ram Mandir. In the epic Ramayana, Jatayu, a vulture king or Giddhraj is believed to have informed Lord Rama the direction in which his wife, Sita had been abducted by Ravana, a demon (Griffith, 1870). Besides this, Sampati (Jatayu's elder brother) helped in searching Mother Sita by telling Hanumanji, Angada and Jambuvana who were leading the group of monkeys in search of Sampati had superios vision and 100 yojans was not a big distance for him. The bird is attributed with a keen eyesight with long and high flights in the epic Ramayana. The devotees should help in the conservation of vulture "Giddhraj" who sacrificed his life to save Mother Sita.



Fig. 6: Communication and involvement of Gausala owners



Fig. 7: Interaction and involvement of priests in Tikamgarh

Firstline forest officials were also involved in the vulture conservation initiatives (Fig.8). The Forest Department has always been active in the vulture conservation in Tikamgarh district. The Forest Guards being local to the area were involved in this initiative. They have been helpful in regularly monitoring the vulture sites and also helped in identifying new vulture nests in the protected areas.



Fig. 8: Participation of Firstline Forest Officials

AWARENESS PROGRAMMES IN SCHOOLS

To create awareness amongst the school children various awareness programmes were organized in the schools of Orchha and Mador. A painting competition was organized in Shaskiye Madhyamik Shala Mador on 20th February 2016. School Principal, Shri Devendra Singh Yadav and the school staff (Shri Ram Kishan Ahirwar, Shri Ved Prakash Mishra, Shri Mahesh Kumar Dave, Shri Hari Shankar Kaushik, Shri Nand Kumar Prajapati, Shri Mangal Singh Yadav, Shri Brijesh Yadav, Shri Rohit Yadav and Shri Harish Ahirwar) co-operated in the event with appreciable zeal. The students were provided with colours and different types of vulture sketches that they coloured after knowing about the different types of vulture species. The students were felicitated for their efforts by the Gram Pradhan, Shri Suraj Yadav (Fig.9). The students also participated in the plantation of trees on which the vultures construct nests such as Peepal. The students were asked to observe the vultures in their area and not to disturb any vulture while feeding on carcasses near the village. The purpose was to make the students know about vultures in Mador and involve them in their conservation. Education is a fundamental part of vulture conservation. Using many tools to raise awareness, education and communication play a significant role in bettering understanding among the students about the importance of conserving vultures “the best Scavengers” and their habitat.

WORKSHOP IN ORCHHA, TIKAMGARH

People participation is most vital for the success of any conservation initiative. On 28th March 2016, a workshop was organized for the local people in Shaskiya Madhyamik Shala, Orchha (Fig.10). People from different fields participated in the workshop. The purpose of the workshop was to create awareness and develop a sense of responsibility towards the management of the vulture population in Orchha and Mador. The people were stimulated to fulfill their duties and to avoid the mistakes that could lead to the loss of the vulture population. People from different fields were instructed about the dos and don'ts about vulture conservation. The people though aware about the dwindling population of vulture, didn't know what they could do to help these scavengers thrive in Tikamgarh. The local people were trained how to monitor the vulture population particularly when the fledglings learn to fly during the hot summer months of May and June. They were asked to inform the volunteers in case they found any injured/dehydrated/sick vulture. It is easy to help the vultures recover with little care after consulting the veterinary doctors. The public was stimulated to be passionate towards the Cleaners of the Nature. Besides being a tourist place, Orchha has received wide publicity in media due to the residing

vulture population. The concept of community involvement in vulture conservation will further boost up the media hype. The public was kindled through discussions, picture presentations, and lectures. Suggestions were invited by them to further improve the conservation efforts. Vulture Management Committees (VMC) with 12-15 members will be formed in Orchha, Mador and other areas in Tikamgarh. The VMC will be formed under the Headship of Gram Pradhan and will fulfill the duties and responsibilities for vulture conservation and management.

Besides organizing awareness programme and workshop, initiatives were taken to reach out each and every person regarding conservation of vultures. To achieve this wall posters of three types are prepared (Fig. 11a). These wall posters have been pasted on house walls, schools, shops, ticket counters, temples, forest areas and other local and public places (Fig. 11b) with the help of volunteers (Mr.Saleem, Abhishek Ahirwar, Pappu). The text on these wall posters is in Hindi so that maximum people read and learn about these wonderful scavengers. The information on wall posters include the economic and ecological values of vultures, measures to conserve them and a public appeal to be a part of this community involvement endeavor to save the disappearing vultures.

The discussions and activities that were undertaken in the awareness programme and workshop were further shared with the public through Press Media (Fig. 12). Press Media plays an important role in taking the message to a wider audience. The newspapers in local language are all the more important in sharing the outputs undertaken for conservation.

The work undertaken demonstrates similar results to the Rampur survey in Nepal and demonstrates that society, education, socio-economic status, participation and benefits are significant factors that are responsible was conservational approaches (Shumsher and Timilsina, 2013). There are a higher proportion of young educated respondents than the adult respondents. These realities indicate that an environmental education program for all the local people is crucial to involve them in conservation initiatives. Education can affect conservation attitudes, usually for the high degree of positive attitudes (Emtage 2004).



Fig. 9: Some photographs of Awareness Programme



Fig. 10: Some photographs of Workshop

Socioeconomic status, as measured by education, represents a primary factor that affects the attitude towards vulture conservation (Shumsher and Timilsina, 2013). Furthermore, this study has found positive attitude among younger and male respondents. The people are well aware of the vulture decline as they had good access to education and aware of the benefits of vulture to the ecosystem and human health. Besides, people who are involved in NGOs have a more favorable attitude towards vulture conservation. The involvement of youths to conserve the biodiversity around them is very effective. They are able to monitor the sites regularly. Monitoring is important to keep a record of negative and positive changes of human activities in any area. Once the youth of a particular region is educated, he reaches a broad range of students and formal and non-formal educators in rural, urban, traditional, and underserved populations; he is capable to employ best educational practices based on science and technology research and established educational guidelines. These youths need to be mobilized in conservation endeavours considering their potentiality and enthusiasm in conservation. Youth Clubs can be a good and efficient local level institution that can sensitize their communities (Shumsher and Timilsina, 2013).

Subsistence agriculture and livestock rearing are the mainstay occupation of people in the study area followed by tourism in Orchha. People usually have low productive type of livestock as compared to the productive ones due the drought that has resulted in cattle keeping pattern. The practice of carcasses disposal differ significantly. Local people usually bury the carcasses or throw them in open fields. There are no dumping sites as use to be in the past. The practice of calling a tanner to skin a carcass is very low. People believe and agree that the vultures are highly beneficial species to human societies because of the ecological services rendered by vultures in making a hygienic and high-

quality environment by disposing off the carcasses. They have high regards to vultures on cultural grounds as orchha is a religious place for Hindus.

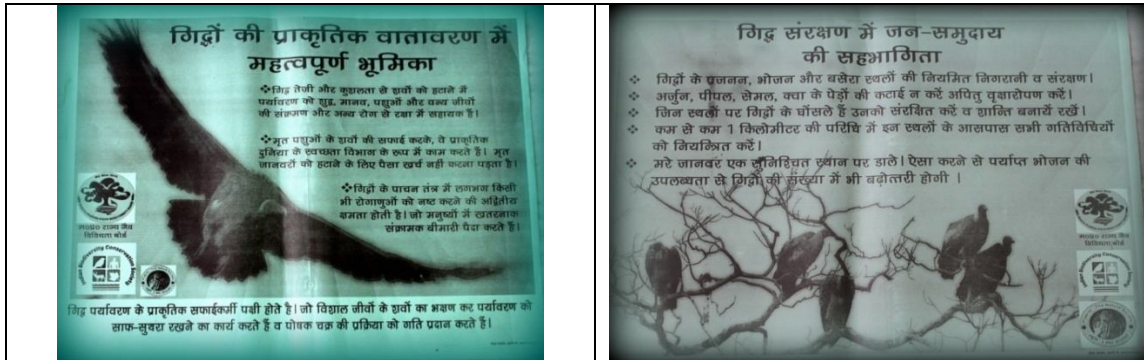


Fig. 11 a: Wall posters in Local Language Hindi



Fig. 11 b: Wall posters pasted for public awareness



Fig. 12: Involvement of Press Media

Therefore, the community involvement is a positive approach to control the pruning of nesting trees of vultures, to prevent the disturbance by tourists and local visitors, and to promote the dumping of carcasses at a particular place. These measures undertaken by

the involvement of local people will arrest the situation and conserve the remaining vulture population in near future.

CONCLUSION

The most intelligent species on this earth "*Homo sapiens*" are living a life that is self-centred and severely affecting the survival of other species. In the fast developing technological world man is moving away from Nature, exploiting and destructing it. A consequence of man's act is the diminishing vulture population. It is distressing to make them realize the importance of each and every species on the Earth. Man is not ready to do anything until and unless they get monetary benefits. This study however concludes that the people in the study area still have an overall positive attitude towards vulture conservation. The people realize the uncommonness of vultures in present and their critically endangered status, yet they do not take the conservation initiatives seriously. During the study it has been concluded that there is an urgent need of Vulture Management Committees (VMCs) that will work altruistically for the conservation of vultures. The co-ordination between the members of VMCs will be crucial and decide the success of these initiatives.

In this study area few respondents actively participated in the conservation efforts as they are well aware of the environmental services provided by vulture. Considering the potentiality and eagerness of the students in the study area they will be activated in conservation ventures of vultures. These efforts will form the milestone basis for the achievement of management programs by the community, with more effectual conservation of vulture in Tikamgarh district.

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