Government of Rajasthan
Forest Department

UDAIPUR BIRD FESTIVAL

Udaipur Bird Festival

10th Edition

12th to 14th January, 2024

Souvenir

DEPUTY CONSERVATOR OF FORESTS (WILDLIFE), UDAIPUR

Photos © Sharad Agrawal

R.K. Jain IFS
Chief Conservator of Forests
Wildlife, Udaipur

ACKNOWLEDGEMENTS

Existence of mankind depends on existence of biodiversity of flora, fauna, hills, streams and other components of mother nature. Biodiversity, especially avian diversity also plays a vital role in survival of humanity. Southern Rajasthan is well known for its dense forest, IBAs, sanctuaries, wet lands, bird's diversity and conservation ethos.

Besides many lakes situated amidst Udaipur city, a large number of water bodies viz, Kishan Kareri, Badwai, Mangalwar etc. host large number of bird's life. The water bodies of Menar, Kheroda, Nagavali, Sei dam, Vallabhnagar etc,. that fall in Udaipur district are 40 to 80 kilometer away from Udaipur city. Jawai dam in Pali district is a very important water body where birds of desert and Aravallis can be seen together. Rajsamand, Udaisagar, Baghdarrah, Piladar, Ranakpur etc. are other important water bodies where diverse varieties of birds can be seen in good numbers. Various taxonomic groups of aquatic birds like Ducks, Goose, Rails, Waders etc. can be commonly seen in water bodies. The conservation of avifauna could be enhanced through participation of local people. In view of more and more local participation, Forest Department, Udaipur celebrates Bird Festival every year. Looking to rich avifaunal biodiversity, the Udaipur Forest Department started "Bird Fair" in 2014 with a serene involvement of local people, birders, WWF etc. This bird fair turned into Udaipur Bird Festival in 2016-17. This year, we are celebrating the "10th edition of Udaipur Bird Festival".

On this journey of decade, I take privilege to acknowledge here the sincere efforts put in by Udaipur city people, students, researchers, event partners, professionals, armed forces, electronic and print media, corporates, members of Eco-Development Committees and VFPMCs, specialized NGOs like WWF, BNHS and all VFPMC members who have contributed to organize "Udaipur Bird Festival" and to bring the souvenir in existence. This has led to recognize number of birders in Udaipur and other wetlands areas.

I congratulate the Udaipur Wildlife Division and organizing team for their efforts and wish this event a grand success.

R.K. Jain IFS

सत्यमेव जयते

भजन लाल शर्मा
मुख्य मंत्री
राजस्थान

MESSAGE

मुझे यह जानकर प्रसन्नता है कि उदयपुर में 10वें बर्ड फेस्टिवल 2024 का आयोजन किया जा रहा है। साथ ही स्मारिका का प्रकाशन भी किया जा रहा है।

पक्षी हमारे पर्यावरण का अभिन्न हिस्सा हैं। प्रातः और सायंकाल में इनके कलरव और आकर्षक रंगों के साथ उनकी उपस्थिति से हमारी आबोहवा सुकून भरी हो जाती है। लोग पक्षियों के अध्ययन के लिए प्रदेश में आने को प्रेरित हों, इस लिहाज से पक्षी महोत्सव का आयोजन महत्वपूर्ण है। इस प्रकार के आयोजनों से पक्षी प्रेमियों को विविध प्रजातियों के पक्षियों के बारे में जानने और उनके प्रति प्रेम भाव बनाए रखने का अवसर मिलता है। जलवायु परिवर्तन के पर्यावरणीय प्रभाव को कम करने और पक्षी संरक्षण को केंद्र में लाने में भी पक्षी महोत्सव का खास योगदान होता है।

इस अवसर पर प्रकाशित होने वाली स्मारिका जैव विविधता संरक्षण की विशेषताओं को आम जनता तक पहुंचाने के साथ प्रकृति प्रेमियों, शिक्षाविदों, विशेषज्ञों और क्षेत्र के पेशेवरों को एक साथ लाने के लक्ष्य से संकल्पित होती है। इस प्रकाशन में शामिल बर्ड फेस्टिवल की विभिन्न गतिविधियों के साथ वन्यजीवों से संबंधित विभिन्न पहलुओं, पर्यावरण की दृष्टि से उनके महत्व, पक्षी एवं उनके आवासों से संबंधित तकनीकी जानकारी युक्त आलेख और अन्य उपयोगी सामग्री रुचि के विभिन्न स्तरों को पूरा करने में मददगार होती है।

आशा है अनुभवों, विचारों और ज्ञान के आदान-प्रदान एवं साझाकरण के माध्यम से यह स्मारिका व्यापक आबादी में पक्षियों के महत्व और पारिस्थितिकी तंत्र में उनके महत्वपूर्ण योगदान के बारे में जागरूकता लाने में मददगार होगी। इससे नई पीढ़ी भी पर्यावरण प्रेमी के रूप में तैयार हो सकेगी।

मैं आयोजन और स्मारिका प्रकाशन की सफलता के लिए अपनी शुभकामनाएं प्रेषित करता हूँ।

(भजन लाल शर्मा)

सत्यमेव जयते

संजय शर्मा
राज्य मंत्री (स्वतंत्र प्रभार)
वन, पर्यावरण एवं जलवायु परिवर्तन विभाग
राजस्थान

MESSAGE

मुझे यह जानकर खुशी हुई कि गत वर्षो की भांति निरन्तर दसवें वर्ष भी वन विभाग उदयपुर झीलों की नगरी उदयपुर में वृहत् स्तर तीन दिवसीय **"उदयपुर पक्षी 2023-24"** का आयोजन कर रहा हैं। यह आयोजन उदयपुर शहर एवं आसपास के जल स्त्रोतों पर किये जाने से बडी संख्या में स्थानीय लोगों को भाग लेने का मौका मिलेगा। बड़ी संख्या में राज्य एवं देश के दूर-दराज के लोग भी इसमें भाग लेगें जिससे पक्षियों, उनके आवास एवं सम्पूर्ण प्रकृति के संरक्षण- संवर्धन की मुहिम को गति मिलेगी।

पक्षी अवलोकन से हमे न केवल मनोरजंन प्रदान करता है बल्कि हमें उस जिम्मेदारी का भी अहसास करवाता है कि पक्षियों के संरक्षण में आ रही बाधाओं को दूर करने में हम भागीदारी निभायें । परागण प्रकीर्णन, नाशक जीव नियन्त्रण, प्रकृति स्वच्छता आदि पक्षियों की ऐसी जैविक क्रियांए है जो हमें प्रत्यक्ष लाभ पहुचाती हैं तथा मानव जाति के अस्तित्व को बनाये रखने में मदद करती है। पक्षी मेलो एवं पर्वो के आयोजन से हमें पक्षियों के बारे में और भी अधिक जानने का अवसर मिलता है ।

पक्षी अवलोकन भलें ही एक हॉबी का रूप है लेकिन इस क्षेत्र में रोजगार के अवसर भी काफी है। पारिस्थितिकी पर्यटन को बढ़ावा देकर एवं उनसे पक्षी अवलोकन कार्यक्रम को जोडकर, रोजगार के अवसर बढ़ाये जा सकते है तथा अनेक युवाओं को रोजगार दिया जा सकता है ।

पक्षियों के बारे में आमजन में जागृति लाकर उदयपुर शहर एवं संभाग के जलाशयों के पक्षियों के संरक्षण की मुहिम को प्रभावी बनाया जा सकता है। इससे शहर की जिले जीवन्त हो सकेगी एवं अधिक संख्या में पक्षी प्रेमियों एवं पर्यटको का आगमन भी संभव हो सकेगा ऐसी आशा है ।

में इस आयोजन की परम सफलता की कामना करता हूँ एवं आशा करता हूँ कि यह आयोजन अपने उद्देश्यों में अवश्य ही सफल होगा।

(संजय शर्मा)

सत्यमेव जयते

SUDHANSH PANT IAS
Chief Secretary
Government of Rajasthan

MESSAGE

It is heartening to note that the **Udaipur Bird Festival,** a praiseworthy initiative of the Forest Department, has developed into a formidable Ornithology event and is getting stronger with its 10th consecutive edition being organized from January 12 to 14, 2024 at Udaipur.

This Bird Festival promises to offer an opportunity to amateur bird watchers and ornithology enthusiasts to appreciate avian fauna around Udaipur's fabulous lakes and to interact with the eminent ornithologists of the country.

An event like this, at this time of the year when a good number of popular and endangered avian species visit our lakes and our nation, not only helps stimulating young minds for environment and wildlife awareness but augments meaningful engagement of tourists too.

I hope the Souvenir which the Department proposes to release on this occasion, will further showcase the biodiversity of southern Rajasthan.

I extend my greetings to the organizers and wish the event a grand success.

Sudhansh Pant

(Sudhansh Pant IAS)

सत्यमेव जयते

SHIKHAR AGRAWAL IAS

Additional Chief Secretary
Department of Forest,
Environment & Climate Change
Government of Rajasthan

MESSAGE

I feel immense pleasure that the Rajasthan Forest Department is organizing the 10th edition of **Udaipur Bird Festival** in the city of lakes from January 12th to 14th January 2024. Udaipur has a long history of wildlife conservation and this event would add another milestone to Udaipur's conservation culture.

This year marks a Decade of Udaipur Bird Festival and therefore event this year assumes special significance.

I hope that the event creates an opportunity for school and college students to visit the wetlands in and around Udaipur and make them more sensitive towards conservation of lakes, birds and environment.

I wish this decadal celebration a grand success.

(Shikhar Agrawal IAS)

सत्यमेव जयते

M.K. GARG IFS
Principal Chief Conservator of Forests
Head of Forest Force, Rajasthan

MESSAGE

It gives me immense pleasure that the Forest Department, Rajasthan is organizing the 10th edition of **"Udaipur Bird Festival"** in the city of lakes, Udaipur.

Southern Rajasthan especially Udaipur, with all its green hills and water bodies is ideal place for organizing a festival dedicated to birds and their conservation. Many Protected Areas and Important Bird Areas are confined to southern Rajasthan. The bird life in hills, waters and in woods is remarkable in Udaipur area. Without help and co-operation from local public, we cannot conserve avian life and their habitat. Awareness about the birds and their habitat is the most important step for better conservation. Such birding events would definitely help to protect and conserve the avian-fauna and their habitat. So such events would be very fruitful to enhance ecotourism in the area.

I am happy to know that the Department is bringing out this souvenir on the occasion of this mega event to provide an insight of rich avian life of the area. The efforts being taken by the Udaipur circle to protect and conserve the birds are commendable.

I send my best wishes and greetings to the organizers and participants for their dedicated efforts. I wish this event a grand success.

(M.K. Garg IFS)

सत्यमेव जयते

ARINDAM TOMAR IFS

Principal Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan

MESSAGE

Birds are inalienable part of evolutionary process and intimate part of our ecosystems, providing aesthetic, cultural and ecosystem services. Being the tertiary consumers they are at the apex of food pyramid, thus the best indicators of health of the ecosystem. The spread of DDT in to the ecosystem was recognized through decline in American Bald Eagle. Similarly, spread of Diclofenac in Indian sub-continent was recognized through abrupt decline in vulture population. Birds are the friendliest wildlife in neighborhood available almost in all habitats. Birds inspired man to fly.

Awareness about the birds is the most important step in better conservation. Bird Fairs bring in experts to help the novice to pick up the skills to identify the migratory and rare birds. Udaipur Wildlife Circle has been pioneer in organizing and popularizing bird fairs in the state and developed a lot of enthusiasm amongst the school children, youth and adults. These bird festival are quite popular in the Mewar region and other districts have also started organizing their own bird fairs.

The Udaipur circle efforts are commendable and I appreciate the whole hearted support of the local administration, senior citizens and bird enthusiasts of Udaipur region. My best wishes for the event and wish that such bird fairs will continue to flourish.

(Arindam Tomar IFS)

RAVI SINGH
SG and CEO
WWF-India

MESSAGE

Udaipur Bird Festival (UBF) 2024 marks tenth anniversary of a pioneering initiative that has caught the imagination of diverse stakeholders not just from this city of lakes but also from across the State of Rajasthan and beyond. UBF in its ten-year journey has brought like-minded nature lovers, researchers and technical experts, organisations, policy makers and most importantly the youth for the cause of avian fauna and their habitats. I would like to congratulate the Government of Rajasthan, the Rajasthan Forest Department, the Udaipur Forest Division and all its partners for sustaining this unique initiative on nature education and for growing UBF in strength every year with passion, commitment and resources. It is my privilege and honour to be a part of the prestigious initiative since its inception.

Reflecting on our journey, from being a bird fair in 2014 to one of the biggest festivals celebrating avian bio-diversity, the Udaipur Bird Festival has come a long way to become a congregation of naturalists and bird-watchers and a platform for knowledge generation, knowledge exchange and dialogue. UBF has successfully showcased the rich biodiversity, enhanced knowledge as well as forged collaboration on conservation related issues and actions, connected local stakeholders to nature and inspired local champions.

Beyond sensitising hundreds and thousands of citizens and engaging them as wetland mitras, and being instrumental to the growing checklist of birds in many wetlands across the district, UBF has also inspired action on the ground. This is indeed exemplary and makes UBF unique. Let me give you three examples: First, take the case of a small wetland of Menar. Today, Menar wetland complex is popular as a model for community conservation and tourism all across our country. Besides winning an award from the Ministry of Tourism recently, Menar is also in the process of being designated as a Ramsar site—a wetland of international importance—placing it in the global map. Similarly, Udaipur—our own city of lakes has recently submitted an application to Ramsar for the Wetland City accreditation of the convention—which will be another crown for the exemplary work done by diverse stakeholders.

Stakeholders including community members has been the centre of this bird festival and this has inspired thousands of others to take up conservation of birds, wetlands and forests through community led initiatives. UBF certainly can play a key role in inspiring other states and contribute to the Save Wetlands Campaign launched by the Ministry of Environment, Forests and Climate Change, Government of India, which envisions people centric conservation of wetlands in our country. As we progress to the next decade of UBF, let us reimagine the Udaipur Bird Festival growing its stature and influence nationally and perhaps globally to inspire similar initiatives.

I wish to once again complement and congratulate the Government of Rajasthan, the Rajasthan Forest Department, the Udaipur Forest Division and its partners on the tenth anniversary of the UBF and extend our best wishes for the bird festival 2023-2024.

(Ravi Singh)

CONTENTS

A DECADE JOURNEY OF UDAIPUR BIRD FESTIVAL

R. K. Jain, IFS, CCF (Wildlife), Udaipur I Dr. Satish Kumar Sharma, RFS (Retd.)

Southern Rajasthan is known for birds, varied bird habitats and birding events. Small level birding events started by the Wildlife Wing, Udaipur during 2002 in the name of "Pakshi Darshan". First time, four sites were selected to organize Pakshi Darshan namely, Pichhola Lake (Udaipur district), Gaip Sagar (Dungarpur district), Rajasamand Lake (Rajasamand district) and Ranakpur Lake (Pali district); and event was organized at selected sites on January 5, 2002; January 12,2002; January 19,2002 and January 25,2002 respectively. But, a remarkable mega event " Bird Fair Dungarpur- 2013" organised on December 21 to 22, 2013 at the shore of Gaip Sagar water body. District Collector Sh. Vikram Singh Chauhan was instrumental to organize this mega event. This event initiated a new era of birding in Rajasthan as well as in Forest Department. Very next year during 2014, the Wildlife Wing, Udaipur of Forest Department, Rajasthan had a decision to celebrate a three days long bird fair in Udaipur city at national level scale. This year's festival, will be our 10th edition of this mega- event.

First two events were named as "Udaipur Bird Fair" but, seeing its massiveness at national level, "Udaipur bird fair" became "Udaipur Bird Festival" during 2016-17.

Winter season is the best season for birding in Rajasthan as winter migrants can be seen in and around the waterbodies besides resident birds. The year wise detail of past nine bird fairs and festivals is as follows:

Sr. No. of Bird fair/ festival	Financial year	Dates of celebration	Number of published articles and photos		
			Articles in English	Articles in Hindi	Photos
I	2014-15	20-22 December, 2014	11	0	43
II	2015-16	22-24 January, 2016	9	0	66
III	2016-17	24-26 December, 2016	12	3	50
IV	2017-18	23-25 December, 2017	13	5	86
V	2018-19	18-20 January, 2019	19	2	98
VI	2019-20	10-12 January, 2020	18	3	87
VII	2020-21	22-24 January, 2021	19	3	127
VIII	2021-22	21-23 January, 2022	9	1	37
IX	2022-23	20-22 January, 2023	10	2	38
X	2023-24	12-13 January, 2024	*	*	*
		Total	**120**	**19**	**632**

* Under publication

Above table indicates that during last nine year as many as 139 articles are published in English and Hindi and more than 600 colored photographs of birds and related issues were published in the souvenirs. Now a substantial bulk of scientific literature related to birds of southern Rajasthan is available publicly.

A three days **"Udaipur Bird Festival"** has became a regular National level event. **First day,** birding is organized at the southern shore of **Pichola Lake** near Jungle Safari Park. A big number of citizens, officials, students, scholars, scientists, birders, tourists and NGOs participate in the event. Many extension and outreach activities are performed during the first day. Few of them are : birding, bird quiz, bird painting, photography competition, on spot photography competition, photography workshop, philately exhibition, butterfly life cycle presentation, bird tattoo, Pakshi Mitra (Bird friend) training, lecture by senior scientists etc. Every year bird - centric literature is also prepared and distributed to participants. Among them, souvenir and bird identification pocket booklet are worth mentioning.

Second day, birders move to reach to selected waterbodies in early morning with local guides and ascorts. Menar, Badwai, Kishan Karei, Mangalwad, Nagawali, Jawai Dam, Rajyawas, Rajasamand etc. are favorite destinations which are prefferd by the bird watchers for birding. Every year, any five or six waterbodies are selected for the birding. People have option

to opt any one water body of their choice to visit. Local 'spotters- cum- guides' help guest birders to watch the birds at respective waterbodies. They also count the birds and make a technical report to present the same on third day.

Third day, all parties present their technical reports which were prepared on second day. A literature festival is also organized third day. Minimum three prominent ornithologist/ conservationist of the country are invited to tell their own story to motivate the new generation to do something for conservation of nature and birds vis-a-vis to develop themselves as a 'figure' in the field of natural sciences.

During forth bird festival in 2017-18, a new event "bird race" was introduced which is being organized every year, just one day before the main three days birding festival. During this event, 5 to 6 teams of the participants move in the field upto a pre-decided distance to count the birds. The team, who encounters maximum number of spieces, is declaired as a winner team.

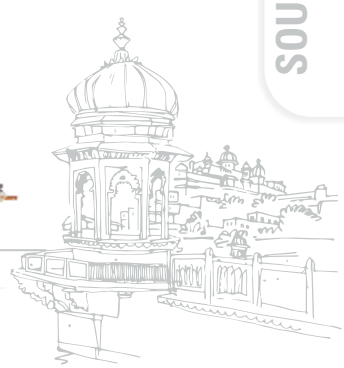
Impact of Udaipur bird festival:

Udaipur bird festival impacted a lot during last one decade. Mass awareness is seen in many sectors, especially in 'wetland villages' and small towns. People started to come forward to protect and conserve the birds and their habitats, especially of aquatic birds. It is not easy to asses and quantify the impact of bird festival towards movement of bird conservation. However, few visible and notable indicators visualized after 2014 are as follows:

- Menar and Jawai waterbodies became new Important Bird Area (IBA) sites during 2016.
- Menar, Badwai, Kishan Kareri, Mangalwad, Nagawali, Jawai Dam, Rajyawas, Jaisamand, Peeladar Talab, Bagdharrah, Sei Dam, Sareri Dam, Chawandiya etc. became popular birding destination.
- Menar village awarded "Best Tourism Village 2023" in silver category by the Ministry of Tourism, Government of India.
- Audience award given to a film "Wings of Hope: A Bustling Village and Their Bird Friends" by 2023 UN World Wildlife Day Film Showcase. This film is related to the wetland and bird conservation legacy of Menar village.
- Mangalwad Talab, Kishan Kareri Talab, Badwai Lake, Gambhiri Dam, Sabela Talab, Rajyawas Talab, Raghav Sagar, Menar Talab wetland complex, Chanwandiya Talab and Kesariyawad waterbodies of Chittorgarh, Dungarpur, Rajasamnd, Udaipur, Bhilwara and Pratapgarh districts have been declared as notified wetlands.
- More than two dozen persons have started writings on birds, habitat, activities etc. in journals, newsletters, newspapers and social media.
- More than 200 persons started photography on birds. Now some are leading bird photographers of the state as well as of the country.
- A photographic club of enthusiastic bird photographers came into being known as 'talons'.
- More than 8 Lacs nature related photos were uploaded on the social media, among them bird and their habitat-centric photos were more than 4 lacs, which is a great contribution to understand the avian heritage of southern Rajasthan.
- More than one dozen nature friendly / bird friendly groups are active on social media. They area playing a vital role for conservation of birds and their habitats besides awareness and education of the society.
- Increasing trend of participation of locals in **birding activities and bird festival.**
- Weekly trekking and birding programme for locals with guides is a regular activity.

Government Departments, local media, universities, organizations like BNHS, WWF and many other NGOs have also helped to intensify the impact of bird festival in Rajasthan in general and southern Rajasthan in special.

At this juncuture, Forest Department deeply appreciates one and all who directly and indirectly supported this one decade journey with **" the journey of a thousand miles begins with one step"**. But at the same time keeping in memory **" we have miles to go before we sleep"**.



DON' T BUY TROUBLE

Words and Images by Abrar Ahmed - BNHS, Mumbai
Email: abrar_bird@hotmail.com

Sitting in our living rooms, we get more news from the distant corners of the world rather than of what is happening right next door. This is also true of issues related to wildlife trade. Discussions on poaching and illicit trade in threatened wildlife often turn into party time conversation, relegating the real issues to the backroom. What we forget is every wildlife species has a biological value, providing priceless vital ecosystem services to mankind. Despite the ecologically important role that most wildlife species provide, they are viciously targeted by the illegal wildlife trade and often end up as pets, used in medicines on the global market or consumed for food.

Several wildlife species are highly sought after on illegal markets having high monetary value. According to INTERPOL, the illegal wildlife trade is a severe criminal industry estimated to be worth globally more than $20 billion a year on the black market - where goods are exchanged illegally - threatening both wildlife and people. Some main feature of illegal wildlife trade is increase in corruption, money laundering, armed violence, and several other forms of organized crime syndicates. The recent outbreak of COVID-19 is a sobering reminder that trafficking of wildlife is a human threat with relation to zoonotic diseases.

What actually is the illegal wildlife trade?

"Wildlife trade" refers to the sale and exchange of animal and plant resources which are found "wild in nature". The illegal wildlife trade involves hunting, gathering and trading - either dead or alive. Wildlife crime today is an organized transnational crime with an overlap with other forms of organized syndicates. The world's most endangered species are also under threat from an unexpected new source - the internet. According to WWF-International, "Advances in technology and connectivity across the world, combined with rising buying power and demand for illegal wildlife products, have increased the ease of exchange from poacher to consumer. As a result, an unregulated online market allows criminals to sell illegally obtained wildlife products across the globe."

How much biodiversity is threatened by wildlife trade?

The wildlife trade internationally is thought to involve the use and trade of more than 5,200 animal species according to various statics suggested by International Union for the Conservation of Nature (IUCN), that publishes the 'Red List of Threatened Species'. Wildlife trade includes oriental medicine ingredients, exotic pets, jewellery, accessories, furs and trophies, food products, leather goods, musical instruments, timber and curios. Hence, wildlife trade encompasses birds, mammals, insects, amphibians, reptiles, fish, flowering plants and many other species that may necessarily not be even covered by national or international laws and are locally exploited.

Overview of Wildlife trade Laws in India

In our country most wildlife trade is within national borders, but there is a large volume of international trade as well. Wildlife trade in India is multi-faceted and encompasses many dimensions and scales. We need to understand that our country is one of the primary sources for wildlife trade product in the world. There are several well known and unknown wildlife markets in India. Several tribes and communities spread all across India are synonymous with wildlife trade and poaching.

The Government of India in 1990-91, imposed a complete ban on domestic trade and export of wild (native) birds and animals under the Indian Wildlife (Protection) Act, 1972. With nearly three decades of ban, the hunting and trade of wild-caught bird and animals seems to be more or less underground. More recently, the Indian Government has included CITES in Wildlife (Protection) Act. CITES stands for the 'Convention on International Trade in Endangered Species of Wild Fauna and Flora', is a global agreement among governments to regulate or ban international trade in species under threat.

Thick Internationally, Act Locally - an exemplary example!

For the last many years, working in collaboration with Udaipur Forest Department has been an extremely rich experience for me. The brigade of old and new forest officers along with local experts, and NGOs has been instrumental in bringing a lot of noteworthy conservation changes over the recent years. Whether it is championing for cause of village wetlands in and around Udaipur, or declaring reserve forest patches in the district as sanctuaries, or simply creating awareness through the 'decade long' Udaipur Bird Festival held each year, or even timely rescue of leopards in man-animal conflict areas to prevent 'poaching' are noticeable achievements.

A few months back during an informal discussion with Shri R.K. Jain, Chief Conservator of Forest, Udaipur, I was fortunate to make a presentation on "Overview of Wildlife trade in India" at his office. While highlighting some of the key challenges related to wildlife crimes, and top traded wildlife species in Rajasthan, we talked and emphasized what can be done at Udaipur level to prevent such activities.

We need to firstly understand that in Rajasthan, particularly the *Jogi-naths, Kalbeliyas, Kathodi, Sahariya, Bhil, Kanjars,* along with visiting *Pardis* and *Baheliyas* from neighbouring states are some of the tribes known to engage in wildlife trade and trapping. Our consensus reached to the point that the most openly traded wildlife in Udaipur is for pet and occasionally food. The main target species clandestinely traded

through the mushrooming pet shops are the Stat Tortoise, Alexandrine Parakeet, Rose-ringed Parakeet and Plum-headed Parakeet. Among the animals and birds traded at village level for food are the Grey Francolin and the Black-napped Hare, apart from a variety of other animals such as Indian Porcupine. Among reptiles are the Bengal Monitor and Spiny-tailed lizards are the main targets. In the tribal belt of Rajasthan, these are animals that are regularly poached for sustenance, if not organised trade.

Formerly a lot of hunting was for fur trade, a market that is now almost diminished. *Hathajodi,* the male Varanus hemipenes is still traded as a religious charm, falsely claimed to be of plant origin. A chunk of paint and shaving brushes may be mongoose hair. A prominent demand for black magic and sorcery spells a doom for horned owls especially around Diwali. Recently, a week prior to Diwali in 2023, an Indian Eagle-owl was rescued from poachers around Udaipur Forest, which later succumbed to death from injuries and raw treatment.

When small action can lead to big results!

R. K. Jain sir, soon after my presentation, did a prodigious effort to curb wildlife trade in a simple way at local level. To stop demand, as he understood from my talk and to raise awareness among the local consumers, he initiated a media campaign with a modest appeal to locals for surrendering their wild pets, till a specified date, without booking any offence towards them. To everyone's surprise, a total of not less that 100 parakeets of three species, a dozen munia and several Star Tortoise were surrendered in amnesty to Forest Department, fearing any offence on them in future under the Wildlife (Protection) Act. This not only created an overall wave of fear towards wildlife crime, but also informed the ignorant public to understand law and refrain from buying any illegal wild animal as pet in future. I must put on record that the Udaipur media reports were so widely circulated amid several pet keeping groups countrywide fearing prosecution in their respective states on owning illegal native species like Star Tortoise. This carry home message of "Don't Buy Trouble" by Udaipur Forest Department can be a model for other forest officials to practise in their jurisdictions.

Tackling the trade in Indian wildlife

Most conservation circles in India rightly emphasize and focus on the need to save natural landscapes and ecosystems, along with carrying out ecological studies on the wildlife. Even though wildlife conservation in India dates back more than 2,000 years, the fact that India, as one of the mega diverse countries of the world, plays an important global role in trade of wildlife was not generally known till even two or three decades ago. What is needed is to minimize the negative impact on wildlife trafficking and risks under-estimating the impact of animal smuggling on wider social concerns and associated zoonotic diseases. Multiple roles are required to contribute to this war effort and most importantly, informed public opinion must rise in support of such issues including forensic science as a major wing.

TRAFFIC India / WWF-India / Wildlife Trust of India and other organisation have been campaigning the cause of preventing wildlife trade throughout India. BNHS, in an endeavour to highlight the alarming trade in wildlife species of India brought a special issue of Hornbill which has informative articles by some of India's best known wildlife trade experts who share their lifetime experiences of investigations into various forms of wildlife trade, which is freely available for downloaded at https://www.bnhs.org /public/hornbill_pdf/1576660424.pdf.

We also need to highlight the hindrances in control of wildlife crime and disease due to lack of general awareness on Wildlife (Protection) Act, and with the recent implementation of CITES in India. Further lack of resources and technical knowledge in species identification, their global conservation status along with negligible coordination among enforcement agencies and low capacities of Forest and other departments in regards to native and non-native species needs to be addressed. In case you have any information on wildlife crime taking place, please contact your local forest office or report to **Wildlife Crime Control Bureau.** IInd Floor, Trikoot-I, Bhikajicama Place, New Delhi - 110066, Ph: +91-11-26182484; Fax: +91-11-26160751; E-mail: addldir-wccb@gov.in

Grey francolin for sale

Hathajodi

Indian crested porcupine trapped for meat

Painting Brushes

SOUVENIR

PRESENT VULTURE ECOLOGY, CONSERVATION AND MANAGEMENT PRACTICES WITH SPECIAL REFERENCE TO THE HUMAN LANDSCAPE OF RAJASTHAN

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The raptors make up the large order Falconfirmes, with nearly 300 species. Most species of raptors subsist mainly on live prey, which they generally capture on the ground, in trees and sometimes in the air, except for most of the vulture species, which are scavengers and feed solely on dead carcasses. Nine species of old world vultures found in India viz., the Long-billed vulture *(Gyps indicus)*, Slender-billed vultures *(Gyps tenuirostris)*, White-rumped vulture *(Gyps bengalensis)*, Red-headed vulture *(Sarcogyps calvus)*, Cinereous vulture *(Aegypius monachus)*, Bearded vulture *(Gypaetus barbatus)*, Egyptian vulture *(Neophron percnopterus)*, Eurasian griffon *(Gyps fulvus)* and Himalayan griffon *(Gyps himalayensis)*. Out of these, the Six species, Red-headed vulture, Long-billed vultures, White-rumped vulture and Egyptian vulture are resident and breed in different parts of India. The Eurasian griffon, Himalayan griffon and Cinereous vulture are winter visitor to different parts of india, and seen in and around large city dumping grounds. They visit this area from October onwards to the month of March (some time up to middle of April) coming from Southern Europe, Central Asia, China, Tibet and Northern India. Long-billed vulture, Slender-billed vultures and White-rumped vultures are listed in Schedule-I of Wildlife (Protection) Act 1972 and in IUCN list as "Critically Endangered".

The vultures are heavy (2.3-10.5 kg.) and large (60-110 cm.) scavenging raptor, endemic to the Indian subcontinent. Vultures forage in a large area and they move for food for long distances in a day from their resident areas. All vultures feed almost exclusively on carrion, mostly livestock carcasses in and around human landscape and wild animal carcasses in and around protected areas. Vultures were observed roosting on "communal roosts" and many times more than one species of vulture roosts together at same roosting site. Roosting sites are steep and safe cliffs of mountains, large trees, old buildings, forts and even on high electric poles. Generally most of the vulture populations of different species were observed in the areas with good livestock and wildlife population, permanent water bodies and also observed near Municipal Carcass Dumping Grounds of villages, town and cities. It is therefore important to identify the suitable habitats with food and water to understand feeding ecology of vultures in different parts of Rajasthan. The religious sentiments (non beef eating habit) and history of "Gaushalas" (cattle shelter where fodder, feed and care is extended free of cost) and village institutions like *'Gauchars'* (village pastures), 'Orans' (village forests), 'Nadis' (village water bodies) and such other human landscape areas owned by the community have been supporting vultures of decades. These 'village institutions' are hotspots of biodiversity and supports large human population, livestock and wild animals of the area. The same areas have become the favorable vulture habitats where, food, water and suitable nesting and roosting sites are available.

A total of 1330 long-billed vultures (LBV) and 463 White-rumped vultures (WRV) were observed in all geographical regions of Rajasthan like Thar Desert, Aravalli hills of Mewar and Hadoti region. The highest numbers 192 were observed in and around Chambal river area of Kota district of Rajasthan. A total population of 123 Red headed vulture was observed in the study area. A total of 1451 migratory vultures were observed in the study area of Rajasthan. This includes 394 Himalayan griffon *(Gyps hymalayensis)*, 793 Eurasian griffon (Gyps fulvus) and 264 Cinereous vulture *(Aegypius monachus)*. About 74% of vultures of different species were observed feeding on the cow carcasses, 12% on buffalos and 8% on wild animal which includes chinkara, black buck, blue bull, chital, hare, etc. The remaining 6% were comprised of camel, goat, sheep, donkey, horses, dogs, pigs, etc. (n=450). A total of 44 breeding colonies (size 2-154 nests) of long-billed vultures, 17 breeding colonies (size 2-12 nests) of White-rumped vultures, 9 breeding sites of Red-headed vultures and 13 breeding sites of Egyptian vultures were observed in different parts of study area respectively during this study period. Long-billed vultures usually nests on cliffs or steep rocks but out of 552 nests 9 nests were observed on Khejari, Prosopis cineraria, Babul *(Acaua nilotica)* and Rohida, *Tecomella undulata* trees. A total of 85 nests of White-rumped vultures observed all on trees in 16 breeding colonies. As many as 20 Red-headed vulture nests were observed at 9 locations during the survey, making them the rarest among all the vulture species seen.

There were many threats observed to these vultures other then "diclofenac" like climate change and ENSO, habitat loss, predation, human disturbance, kite flying, scarcity of food and water, miss fledgling, change in land use practices, road accidents, electrocution, etc. A holistic approach of *in situ* and *ex situ* conservation steps in a well scientific and systematic way under the capable umbrella urgently needed. Similarly area and vulture species specific *in-situ* conservation models

needs to be developed for the better conservation and management of threatened *Gyps* vulture species. Without this, all the present efforts for vulture conservation in India are not enough and results remain uncertain. Therefore, a rigorous effort for *in-situ* conservation of Long-billed vulture and White-rumped vulture in these protected area are needed on priority. The areas other than protected area's with significant vulture population should be declared as vulture protected areas or vulture sanctuaries. Most of the White-rumped vulture populations were observed outside protected areas in association with human habitation, farmlands, agriculture and horticulture areas, gardens, etc. The important feeding sites like Keru (Jodhpur), Jorbeer (Bikaner), Kota, Udaipur, Rajsamand, etc. need to be protected from predators particularly feral dogs. There is an urgent need of regular monitoring and survey of important vulture population sites (feeding, roosting and nesting), so that the population trend could be understood at local land and more importantly any sick, weak and nest fallen vulture can be rescued before it dies or becomes victim of predators. As evident in the present study that the successful rescue and care of 44 vultures do suggests that there is an urgent need of rescue centers and care centers in all the important regions of Rajasthan like, Jodhpur, Bikaner, Sawai Madhopur, Bundi, Udaipur and Kota. Even the existing facilities with the State Forest and Wildlife Departments or at Zoos should be improved with care and treatment facilities to save as many of the vultures as possible. Habitat improvement in the different vulture sites as a long-term strategy is called for. This includes regular management of food supply and water, eradication of *Prosopis juliflora* from nesting sites and protection of nesting sites including ban of hunting. A Special Cell be constituted at divisional level or State Level, which can coordinate the vulture conservation and monitoring, sample collection, permission for care and rescue, veterinary facilities, etc. All existing Zoos in the Rajasthan may play an important role in rescue and care of injured and nest fall vulture chicks. They must given backup support to initiate with small facility and veterinary care for vultures. If needed, training and workshops may organized to educate the existing Zoos and forest field staff for the rescue, captive care and monitoring of vultures. This can be a good conservation and management model to replicate in other parts of the country with good vulture population. I strongly feel that there is an urgent need of a genetic study of vultures as early as possible to know the existing genetic diversity or any threat as a result of genetic aberrations.

JOURNEY OF MAHSEER CONSERVATION IN UDAIPUR RAJASTHAN

Rahul Bhatnagar
IFS (Retd.)
Chief Conservator of Forests (Retd.)

Ismile Ali Durga
Dy. Director, Department of Fishries
Udaipur (Retd.)

Introduction and Backgroud :

It is a well-known fact that in the present day situation, the catchment area of most water bodies, viz., lakes, tanks, reservoirs, etc have been intercepted by several anicuts and other water storing structures. This has led to irreversible damage to spawning and breeding grounds of many fish species. This situation has resulted in disappearance of several fish species.

Mahseer, also known as 'Tiger of Rivers', is a sport fish and is generally found in rivers having clean water. Mahseer is also found in some lakes too where water quality is good and the lake catchment has rich forest and vegetative cover.

Earlier Mahseer was in abundance in Chambal and Banas rivers but with increasing water pollution in these rivers, the presence of this fish has reduced remarkably.

It is reported that Mahseer was found in large numbers in the lakes of Udaipur but here also due to water pollution and biotic interference, now Mahseer is present only in lake Badi. The sole reason behind this is that lake Badi water is clean and hardly any pollution is there. This is because that the lake is surrounded by Sajjangarh sanctuary and Kaler Reserve Forest Block.

Lake Badi contains sufficient water during summers. It is a positive sign that Badi Lake harbors an adequately fair size of Mahseer population. But unfortunately, their breeding process has been hampered due to human intervention and construction of anicuts in the catchment area. Hence it is necessary that Mahseer seeds should be produced ex-situ or in-situ to maintain the size of its population for future. Keeping this motive in mind, the Forest Department (Wildlife Wing, Udaipur) in the year 2012, started the program of producing 'Mahseer seeds' and creating a gene pool of this mighty fish.

Mahseer Conservation in Udaipur, Rajasthan :

A novel step for conservation of Mahseer fish was started during the tenure of first author when he was Dy. Conservator

of Forests, Wildlife, Udaipur. At that time one hatchery unit, one nursery pond and two stocking ponds were constructed near Sajjangarh wildlife sanctuary for starting breeding of Mahseer fish, under technical guidance of Shri Ismail Ali Durga (Retd. Dy. Director Fisheries, Govt. of Rajasthan).

Fish-seeds (fry of size 20-25 mm, 1500 in numbers) of Mahseer (T. khudri) were brought from Mahseer hatchery of Tata Power Company, Lonavla in the month of December 2012. The 'young seeds' were kept in a pucca nursery pond, situated in the campus of Sajjangarh Biological Park for rearing and raising them to brooder size.

A continuous monitoring of growth and health status of the stock was observed during the course of rearing. Periodical nettings were done for checking the growth and health condition of Mahseer babies. They were given rice bran and oil cake as food. Sometimes live daphnias were also given.

An eminent Mahseer researcher, Dr. V. R. Desai, the Ex-Principal Scientist of Central Inland Fisheries Research Institute, Barrackpore visited fishponds at Sajjangarh on 6-8 August 2014 and inspected the Mahseer fish, stocked for rearing there.

He was very impressed by seeing the health and growth status of Mahseer in captivity in the Nursery Pond. He then wrote a paper on the work being done on Mahseer at Udaipur and the paper appeared in the renowned National Journal "Fishing Chimes" Volume 35 No. 1 & 2 /April & May 2015 issue under the title ***"Development of Mahseer Fishery for Sport Fishing at Udaipur (Rajasthan), Pp. 28-31".***

Dr. Desai expressed his view regarding maturity of fish that Mahseer generally start breeding in three years of age in nature but here these fish may have longer time because they were kept in captivity under artificial conditions. He stated that "attainment of maturity, in the present situation of controlled condition of cement cisterns, is rather doubtful." However, he expressed his wish for the success of the program. He also suggested to take advice from Mahseer breeding expert Shri S. N. Ogale.

The renowned Mahseer expert Sh. S. N. Ogale was also consulted and invited to make a visit. Shri Ogale visited the Sajjangarh Nursery at Udaipur on 30th October 2015. He inspected Mahseer brooders for maturity status. He observed that male brooders were in oozing stage, but females were not fully matured. In his opinion females might become matured in next breeding season.

The maturity of Mahseer fish was expected in the year 2015 (when it was 3+ years of age) but probably due to confined space fish could not attain maturity in third year. But next year in 2016 fish was successfully bred in the Hatchery.

In the month of October 2016, Mahseer was successfully bred in the Sajjangarh hatchery. Thus, produced offsprings were raised to advanced fry in an aquarium of 24"x12"x15" size, developed at Range Officer Sajjangarh office premises, for 123 days. These advanced fries were then transferred to the nursery pond for further development of fingerling size. The grown up seeds of Mahseer were finally transferred to Piladar lake,(Jaisamand Wildlife Sanctuary) situated nearly 35 Kms from Udaipur, where their future generation may be ascertained.

Dr. Mark Everard, Associate Professor of Ecosystem Services, University of the West of England (UWE Bristol), who is an authority on Mahseer, visited Udaipur in June 2017 and visited Bari Lake for collection of Mahseer sample for DNA

Fish seed transportation

Fish pond at sajjangarh

Advanced fingerlings trapped in netting for health & growth monitoring

Dr. V. R. Desai and Dr. V. S. Durve visiting fishponds at Sajjangarh on 6-8 August 2014.

Sh. S. N. Ogale inspecting Mahseer brooders at Sajjangarh fishponds for maturity status.

identification. He collected samples from Mahseer present in Bari Lake and these samples were sent to Indian Institute of Science, Education and Research laboratory in Pune. The results obtained showed that DNA maps to Tor putitora , the Golden Mahseer. This fish do not betray any influence of hybrid stocked fish with some unique characteristics deserving of conservation.

Looking to the above facts, it was of great importance to conserve this vulnerable species from extinction / mutation and also to preserve its DNA.

Lake Bari was under the administrative control of Irrigation Department and State Fisheries Department was issuing fishing contracts in this lake. The contractor was releasing fish seed of common carps in lake Bari for maximizing his returns.

This was all against Mahseer conservation.

Also, the District administration and Political bosses in Udaipur wanted to start various water sports activities in this lake for tourism promotion.

These all activities would have resulted in polluting the fresh water of Bari Lake and thus could lead to extinction of Mahseer in Bari Lake.

The only remedy left was to approach Honorable High Court of Rajasthan and Forest Department officials took this lead and as a result, Honorable High Court issued an order dated 4th April 2023, banning all commercial activities in Lake Bari and directed the State Government to take all measures to conserve Mahseer in Lake Bari.

The Wildlife wing of Forest Department in Udaipur prepared a proposal in the year 2017 for declaring Lake Bari and its catchment area as a Mahseer Conservation reserve under Wildlife (Protection) Act, 1972 and submitted the proposal to the department .After much delay and objections ,finally on 7th October 2023 , State Government of Rajasthan issued a notification declaring Bari Lake and its catchment (206.035 Hectares) as Bari Lake Mahseer Conservation Reserve and Forest Department was entrusted with the administration of this Conservation Reserve.

These measures may prove to be of great help in conserving Mahseer in Lake Bari.

OF BIRDS, PARKS AND A FAIR

Harsh Vardhan
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What relationship do birds possess with their habitat: land, water or forest? Understanding this natural chain is essential as authorities declare a water body as a new Wetland. What exercises had been undertaken as prelude to it? Usually number of birds and their diversity are considered as salient criteria. Is it all?

A long term perspective probably remains dormant. The same Wetland may not have same number and diversity of birds in future. Natural features start altering as newly baptized development measures assume shape in neighbourhood. Water flow gets choked leading to the wetland remaining parched for most part of the year. Eventually birds skip it.

What is needed: What a Wetland ought to possess within itself? Firstly, its ecosystem be reckoned. An ecosystem can be visualised as a functional unit of nature, where living organisms interact among themselves and also with the surrounding physical environment. It can range from a small pond to a large forest. Forest, grassland and desert are some examples of terrestrial ecosystems. Pond, lake, wetland, river and estuary are some examples of aquatic ecosystems. Ecosystem is nature's gift. Therefore, it is paramount duty of authorities to sustain such spaces. Simple way of doing it by tree plantation initiatives is an example but not end in itself. Be recalled.

Aquatic ecosystem consists of water in which living beings interact with various physical and chemical components. Such spaces are living organisms. Their needs for food, shelter, reproduction, etc., depend solely on the presence of water.

Water, key factor: The many physico-chemical properties of sediment determine its quality. It functions as a trophic level and as a fuel source in the aquatic environment. Algae , corals, etc., make up the majority of the vegetation. Fish, frogs, etc., play the most meaningful role at the trophic level. Once they assume life, birds, dragonflies, damselflies, butterflies, etc., are lured at such Wetlands to consume the production generated.

The species abundance and diversity shall remain incessant, till water availability is ensured. Water helps aquatic vegetation to grow which helps generate micro organisms like zoo planktons, phyto planktons, etc. They are basic feed for most ducks, resident or migratory. Fish becomes feed for some large size birds. As fish consume micro organisms, they become competitor to birds. Invisible rivalry continues. It strengthens biodiversity of the Wetland.

KNPark: Keoladeo National Park, Bharatpur, is a glaring example. When construction of Panchana dam was started

(late 80s), a notice was served by this writer to authorities that the upcoming dam would ultimately suffocate KNPark. It finally happened. Alternatives lasted for some time. Goverdhan Drain became the lone source of 'flowing water' to this park of international repute, a UNESCO Site and a Ramsar Site.

The very aquatic ecology of this park is undergoing cataclysmic changes over recent years: survival on sewage water from this Drain. The impact ironically remains unnoticed . It cannot be observed by casual observations. Indian Softshell Turtles were visible mortality there during start of winter 2023. Stench pervades all around after the Drain water is received. It lasts for months. Visitors and forest personnel are compelled to breathe foul air. Birds flock there owing to aquatic vegetation and fish. An invasive species, Mangur caused havoc for aquatic ecology of this reserve. Tilapiya, another fish, cannot go down birds' throats easily. Wild species suffer. Visitors smile and photograph not able to realize the pathetic woes all around. Menar is in process of being recommended as a Ramsar Site. It is a convincing site though total bird count may not fit the bill. Lack of fish diversity is a cause of concern for storks, ibises, egrets, cormorants, herons, etc. Lack of trees (over earthen mounds) probably does not inspire birds to nest there in number. Some allied inputs need to be inserted across this scenic water body. Its surroundings throb with rural activities. Some local bird watchers are happily graduating as new stake holder experts.

Example: Bird Fairs are incredible events. Udaipur has earned a niche status in the country. The annual event enters double digits during 2023-24. Congratulations to all those responsible for dressing it up.

POTENTIAL OF LAKE RAJSAMAND (RAJASTHAN, INDIA) TO BE IDENTIFIED AS IBA

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India has 467 Important Bird Areas (IBAs) (Rahmani *et al.*, 2016) marked under the Global Program of BirdLife International to identify the priority sites for conservation of avifauna. In the first phase of the IBA Program, Twenty-four sites were identified in Rajasthan as IBAs (Islam & Rahmani, 2004) whereas seven sites were added in the second phase with the total thirty-one IBAs (Rahmani *et al.*, 2016). There are many sites in the State which have the international importance and need to be protected under the IBA Program. Among such sites, 'Lake Rajsamand' has its unique importance due to its multi-fold values.

Owing to the location and the historical importance, Rajsamand, also known as *Rajsamudra*, has a great potential to be identified as a heritage site for conservation of birds. Due to lack of advocacy for the site, it remained unnoticed. The present investigation highlights the importance of the avifaunal composition of the site and advocates for conserving this heritage site.

Historical Value: The erstwhile rulers of the Mewar were the great visionaries in terms of the natural resource conservation and management especially when it was concerned with the Green or Blue Spaces. Every fort and the associated habitation had the great connection with the surrounding forests and the water harvesting structures in the Aravallis. This might be due to the geography and the topographical features such as hilly terrains serving as barrier against water sources, vast stretches of forests, seasonal streams, natural depressions, and open pains for agriculture practices (Bhadani, 2012) offering much largesse to the erstwhile rulers. Due to such diverse resources, the rulers also wisely utilized the resources for the development of the well-knit water harvesting structures which not only served the purpose of the humans but also provided aquatic habitats for the other forms of life. It was over a decadal work from 1662 to 1676 when the then Ruler of Mewar, Maharana Raj Singh initiated the excavation and construction of the *'Rajsamudra'* which later on known as Raj Samand (Bhadani, 2012). It was fed by the three rivers, viz. Gomti, Tal and Kelwa along with the seasonal streamlets. The bow-shape damming of these flows is one of the longest dams in Mewar with a length of near about five kms. With a capacity of 22 MCFt, it lies amidst Aravallis giving the glimpses of sea within the rocky terrain (Jugnu, 2018).

Location: It is located in the Rajsamand District of Rajasthan at 25 04 28.44 N and 73 53 09.89 E, the north of Udaipur at a distance of about 60 kms in the vicinity of Kankroli with an elevation ranging from 500 to 600 msl,.

Avifaunal Composition: Along with the aquatic habitats in the form of the satellite wetlands, agriculture fields and surrounding terrestrial habitats, a great variety of the avifaunal diversity harbours in the area. The adjoining habitats covered in this investigation include aerial distance of 50 kms from the central axis of the main wetland site. The first

avifaunal checklist was given by Hume (1878) for the Rajsamand considered as *Kunkrowlee* Lake. More than fifty bird species were reported in this short study. The most important feature was the congregation of the flamingos followed by the ducks and geese. Other important aspects were presence of the globally important species such as Indian Skimmer, River Tern, Darter, etc. With a gap of over hundred years, the lake was hardly ever studied. In first decade of 21st century, Mehra (2012) studied the avifaunal diversity of the area for five years (2006 - 2010). Total 213 bird species are reported from the area which included 94 wetland or wetland dependent species (Mehra, 2012, Mehra *et al.* 2011). Further, Mehra et al. (2012) explored the wetland birds of Rajsamand Lake. With the involvement of the common mass the frequency of the reporting increased. Now-a-days, local mass visualizes everyday and maintain the record. Thus, the present observations as per the local groups of birders, the latest reporting is near about 300 species, one-third of which are aquatic species (Team Raj-Parindey - Pankaj Sharma 'Sufi', Himanshu Singh, Narendra Paliwal, per comm. 2021).

The noticeable species of the site are the congregation of flamingos in thousands along with waterfowls. The number of individuals in the flock of Sarus Crane varies from few tens to over hundreds which is the largest congregation at particular site in Southern Rajasthan. Besides, permanent presence of Vulnerable species River Tern and the Near-threatened heronry species make the global significance of the site. The adjoining areas with habitat diversity also harbour globally important species of terrestrial habitats.

Criteria of IBA which fits for Rajsamand and its adjoining habitats: A large congregation of the aquatic bird species especially those which are enlisted in the IUCN Red Data makes it an important site for priority conservation. The adjoining habitats considered under investigation include the satellite wetlands, woody forests, agriculture fields, etc. The adjoining habitats harbour the vulnerable Green Avadavat *Amandava formosa* (Sugarcane and other agriculture fields in close proximity to Kumbhalgarh WLS) which are not included in the main list. Thus, the site is covered under A1, A3, A4 criteria.

Sr. No.	Species	Scientific Name	IUCN Status	Habitat & Abundance* (R, C, N)
1	White-rumped Vulture	*Gyps bengalensis*	CR	Surrounding hills, R
2	Long-billed Vulture or Indian Vulture	*Gyps indicus*	CR	Surrounding hills, R
3	Red-headed Vulture	*Sarcogyps calvus*	CR	Surrounding hills, R
4	Egyptian Vulture	*Neophron percnopterus*	EN	Surrounding hills, C
5	Steppe Eagle	*Aquila nipalensis*	EN	Adjoining habitats, C
6	Black-bellied Tern	*Sterna acuticauda*	EN	Main wetland, C
7	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	EN	Adjoining habitats, R
8	Indian Skimmer	*Rynchops albicollis*	EN	Main wetland (Hume 1878), R
9	Common Pochard	*Aythya ferina*	VU	Main wetland, C
10	Lesser White-fronted Goose	*Anser erythropus*	VU	Main wetland, R (R Tehsin, in litt.)
11	Sarus Crane	*Antigone antigone*	VU	Main wetland, A
12	River Tern	*Sterna aurantia*	VU	Main wetland, A
13	Tawny Eagle	*Aquila rapax*	VU	Adjoining habitats, C
14	Eastern Imperial Eagle	*Aquila heliaca*	VU	Adjoining habitats, R
15	White-naped Tit	*Parus nuchalis*	VU	Adjoining habitats, C
16	Ferruginous Duck	*Aythya nyroca*	NT	Main wetland, A
17	Lesser Flamingo	*Phoeniconaias minor*	NT	Main wetland, C
18	Painted Stork	*Mycteria leucocephala*	NT	Main wetland, C
19	Woolly-necked Stork	*Ciconia episcopus*	NT	Main wetland, C
20	Black-necked Stork	*Ephippiorhynchus asiaticus*	NT	Main wetland, C
21	Black-headed Ibis	*Threskiornis melanocephalus*	NT	Main wetland, A
22	Dalmatian Pelican	*Pelecanus crispus*	NT	Main wetland, C
23	Oriental Darter	*Anhinga melanogaster*	NT	Main wetland, A
24	Great Thick-knee	*Esacus recurvirostris*	NT	Adjoining habitats, C
25	Eurasian Curlew	*Numenius arquata*	NT	Main wetland, R
26	Bar-tailed Godwit	*Limosa lapponica*	NT	Main wetland, C
27	Black-tailed Godwit	*Limosa limosa*	NT	Main wetland, C
28	Pallid Harrier	*Circus macrourus*	NT	Main wetland, R

*Abundance means Rare (R): Sighting 5 times in a year, Common (C): Sighting >5 times in a year or in a migratory season, Abundant (A): Regular sighting at any time of a year

Threats and Conservation Issues

The reservoir area is being prepared for the water sports activities. Paragliding project will affect the flying guests as well as residential waterfowls especially cranes, storks, pelicans, etc. The clearing of the nesting trees available for the local breeding aquatic birds as well as flattening of the mid-islands providing nesting ground for species like terns are important issues need immediate attention. Plantation of the exotic species or such species which are not the preferred plant for nesting will affect the heronry. Further, the mining waste water get mixed with the main reservoir water affecting the natural characteristics of water quality.

Acknowledgement

The present investigation is a result of the team effort which includes earlier works of Dr. Sarita Mehra along with the successive observations of the Raj-Parindey Nature Club Members which includes - Pankaj Sharma 'Sufi', Himanshu Singh Chandrawat, Adv. Neelesh Paliwal, Narendra Paliwal, Kailsah Sanchihar, Dr. Hemlata Lohar, Vinay Dave and many more to be acknowledged for their contributions.

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THE AVIAN CONSERVATION POTENTIAL OF RELIGIOUS SITES IN UDAIPUR DISTRICT, RAJASTHAN

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Sacred sites play an essential role in biodiversity conservation by acting as sanctuaries for a wide array of plant and animal species. These unique pockets of protected forests are often left undisturbed due to their cultural and spiritual significance, creating invaluable habitats that support rich biodiversity. Within sacred sites, rare and endangered flora and fauna find safe havens to thrive, while unique ecosystems develop and persist. These sites also contribute to genetic diversity by serving as reservoirs for indigenous plant varieties and wildlife populations. Moreover, they function as essential corridors, facilitating the movement of species between fragmented landscapes, thus aiding in the preservation of genetic diversity and overall ecosystem health. In this way, sacred sites exemplify the harmonious coexistence of cultural heritage and biodiversity conservation, highlighting their crucial role in sustaining our planet's biological diversity.

Udaipur district is located in the world's oldest Aravalli range and hold the state's highest forest cover. The area is also culturally distinguish from other regions of the state as well as of the country. Historically, this land has been under the dominion of the Rajputs or Maharanas, a warrior community

whose rule dates back to the thirteenth century. This region is also commonly known as the Mewar region, and its predominant tribal communities include Meena, Bhil, and Kathodi, deeply interwoven with nature within their culture, customs and taboos.

In this preliminary study we highlighted the potential of Udaipur district's sacred sites in bird conservation. The study was made at 60 sacred sites in Udaipur district during winter season (November 2022 to February, 2023). Name of few sites are Sonar mata ji, Amrakh Mahadev, Dhuni Mata ji, Neemach Mata ji, Ubeshwar ji Mahadev, Taneshwar Mahadev, Bijasan Mataji, etc.These sites were identified before starting the present study. A fixed-radius (50 m) point count of 30 minutes at each site was conducted between 0600 and 0900 hrs when birds are found most active. Species of birds identified with the help of Rasmussen and Anderton (2005), Ali and Ripley (2007), and Grimmett et al. (2011). Species were further classified by feeding habits (such as carnivore, frugivore, granivore, herbivore, insectivore, piscivore, nectarivore, omnivore and molluscivore) and migratory status (such as resident and migratory).

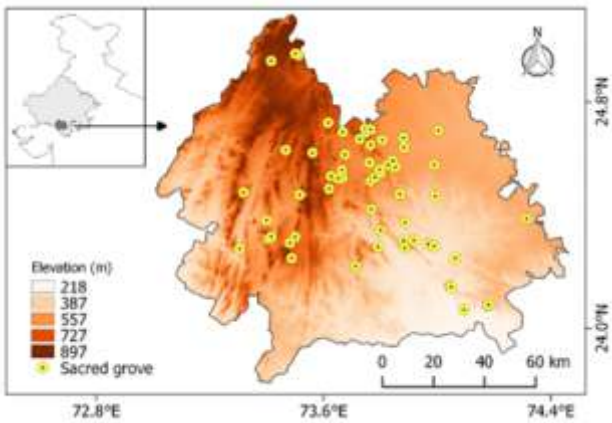

Figure 1. Location of sacred sites in the Udaipur district used in the present study.

A total of 147 species of bird (mean 25.25 ± 10.99 species/site; range 10-53) belonging to 10 orders and 56 families was recorded. The species included 107 resident and 40 migratory species. As per IUCN, the majority of species were Least Concern (n = 141), four species were Near Threatened (Indian Yellow Tit, Black-headed Ibis, Painted Stork and Asian Woolly-necked Stork), and two were Vulnerable (White-naped Tit and River Tern). A total of 6327 bird individuals were counted (abundance; mean 105.5 ± 68.87 birds/site; range 25-437). Feeding guild wise majority species were insectivore (n = 59; 40.13%) followed by omnivore (n = 25; 17%), carnivore (n = 24; 16.32%), herbivore (n = 12; 8.16%), granivore (n = 10; 6.80%), fruigivore (n = 8; 5.44%), piscivore (n = 7; 4.76%), nectarivore (n = 1; 0.68%) and molluscivore (n = 1; 0.68%) subsequently.

The present study is the first to document the status of bird species richness and abundance in sacred sites found across the undulating terrain of the semi-arid Aravalli mountain range. Our research found that these sites support a sound number of bird species richness (n = 147) in the area. This bird species richness was found to be higher than in nearby protected areas such as Todgarh-raoli wildlife sanctuary (WLS; n = 142; Koli 2014) and Sajjangarh WLS (n = 129; Bhatnagar et al. 2011), but found lower than in Kumbhalgarh WLS (n = 201) and Sitamata WLS (n = 235; Yaseen et al. 2011). Our list also includes six species of global conservation significance (four Near Threatened and two Vulnerable), accounting for 4.08% of all recorded species. Two of them, Indian Yellow-tit Machlolophus aplonotus and White-naped tit Machlolophus nuchalis, are endemic to the Indian subcontinent. We strongly advise that these sites be included in future State conservation action plans, with a strong emphasis on local communities. Many studies have also found that sacred sites are extremely important for water availability and watershed protection. Hence, the survival of these scared sites in the semi-arid southern Aravalli ecosystem is critical for long-term conservation efforts.

Acknowledgements:

We thank to Kanishka Mehta and Dr. K S Gopi Sundar for their help in species identification.

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IMPACT OF ROADSIDE STREET LIGHTS ON BIRD COMMUNITY

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Udaipur, a city widely acknowledged as the "City of Lakes," is a notable destination in India known for its wide historical background, remarkable architectural structures and the peaceful attractiveness of its numerous lakes. Udaipur is known for its abundant avian species, which contribute to the city's natural attraction, particularly in vicinity of its lakes. However, the rapid process of urbanisation and the escalating presence of light pollution within urban areas provide a significant threat to the indigenous avian population and their associated ecosystems.

Sunlight regulates the biological and behavioural patterns of organisms on our planet. It is widely recognized that the majority of organisms on Earth depend on the sun for their daily sustenance. From an evolutionary perspective, certain species have developed adaptations that have led to diurnal activity patterns, whereas others have become nocturnal. Some animals engage in their regular activities during the transitional period between daylight and darkness, commonly referred to as crepuscullar (Foster and Kreitzmann, 2004).

To maximize efficiency and hence adapt to their environment, organisms must ensure that they are active at the appropriate times throughout the day in order to find food and reduce the risk of predation. Indeed, there is a strong convergence between daily cycles of light and darkness and the activity patterns of animals, with birds being among the best examples (Aschoff and von Goetz, 1989). However, there has been a surge in interest in the ecological consequences of light pollution over the last decade (Rich and Longcore, 2006 ? Gaston et al., 2013). Implementation of artificial lighting has a profound impact on the environment during night-time, influencing not only human existence but also the interconnected ecosystems we inhabit. Roadside lighting is an essential component of modern infrastructure. It serves various important functions, including improving road safety, assisting people with nocturnal navigation and illuminating the metropolitan landscape. However, these advantages can have a significant adverse impact on bird communities. The increasing use of artificial light during nighttime, along with the extension of illuminated regions and increased light intensity, leads to a reduction in darkness, the consequences of which on biodiversity, ecosystems and ecological and evolutionary processes remain unexplored. (Rich and Longcore, 2006; Holkar et al., 2010).

Nocturnal avian species are particularly vulnerable to effects of artificial lights. Instead of depending on natural cues like as starlight, moonlight and the Earth's magnetic field for navigation, they are attracted to, and then confused by, the brightness of artificial light. Artificial lighting disrupts birds' natural activities, impacting feeding, mating and nesting activities. For example, some birds may feel forced to sing at night as a result of artificial illumination, incurring an energetic cost and upsetting their circadian rhythms. Chronic stress and decreased reproductive success can often be the result. Light pollution can have negative effects on the environment, such as disturbing migration patterns, disrupting sleep and interfering with natural courting and territorial behaviours.

The lakes in Udaipur play a significant role in defining the city's character and are crucial for the overall welfare of its avian populations. A wide variety of bird species, including migratory birds that come to the city throughout specific seasons, use these bodies of water as food, shelter, and nesting sites. The natural cycles of these birds and their ecosystems can be disturbed by light pollution from streets, shops, and residential areas.

The primary focus of smart city development should be focusing on the goal of achieving a peaceful cohabitation between urban life and the natural environment. Installing motion-activated lights and timers is critical for reducing continuous illumination when not required. This practise reduces nighttime light pollution and disturbance, allowing birds to continue their natural habits. Policies that reduce lighting during non-peak hours, such as lowering the intensity or shutting off lights during peak bird migration seasons, can be implemented. It is critical to educate the public about the necessity of reducing light pollution and its effects on birds.

By applying innovative measures aimed at minimising the impact of light pollution on avian species, urban areas can be transformed into smart, environmentally sustainable and ecologically responsible cities. These efforts not only produce benefits for bird populations but also make significant contributions to the overall well-being and equilibrium of urban ecosystems. By doing so, Udaipur has the potential to serve as a model, illustrating the manner in which a smart city may effectively represent principles of sustainability, ecological management and being welcoming to both its human and avian inhabitants.

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PESTICIDE TOXICITY IN AVIAN FAUNA : A THREAT TO LIFE IN THE AIR

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Organic substances that are persistent, bioaccumulative and possess toxic characteristics which are likely to cause adverse effects on human health and environment are called PBTs (Persistent, Bioaccumulative, Toxic substances). Depending on their mobility in the environment, PBTs could be of local, regional or of global concern. Subclass of PBTs, so called as POPs (Persistent Organic Pollutants) is group of compounds, which are prone to long-range atmospheric transport and deposition. Organochlorine pesticides (OCPs) belong to the category of POPs and are extremely and extensively persistent and toxic compounds. Pesticides can be defined as any substance or mixture of substances deliberately added to the environment and intended for preventing, destroying, repelling, or mitigating pests.The large-scale use of OCPs in modern agriculture has caused serious concern because of their residual presence in the environment. OCPs are the main culprits of the environmental pollution because of their long persistence in the environment and their ability to become concentrated along the food chain reaching higher concentration at higher trophic level. t. Being lipophilic in nature, they may accumulate in the fat rich tissues and fluids of humans and animals. A number of OCPs used in different national programmes seem to be accessible to the whole fauna on the earth through different routes of exposure, with digestive tract being the main. After the absorption, OCPs are circulated in the blood and then distributed to different organs and tissues where they get accumulated in accordance to the fat content of the tissues. More frightening studies have indicated that we have largely over looked the darker side of these chemicals as OCPs are reported to be carcinogenic, mutagenic teratogenic, immunosuppressive, create endocrine dysfunction such as hypothyroidism or high estrogenic activity, disturb reproductive processes, growth depressants induces several psychogenic and neurogenic abnormalities in adult stages and are associated with abortions, premature deliveries, still births and infants with low birth weights .OCPs have been in use in India nearly for a half century now. Even after having clear cut evidence suggesting that these chemicals have the ability to eliminate entire species from the planet, the annual consumption of pesticides in India is about 85,000 tonnes of which OCPs comprise the bulk .Therefore, today OCPs are perhaps the most ubiquitous of the potentially harmful chemicals encountered in the environment and are still widely detected in all fauna despite the considerable decline in environmental concentrations. Many kinds of wild birds inhabit the various agroecosystems spreaded around the human lanscape and forest regions where pesticides are applied frequently get equally exposed to pesticides. Birds may either inhale the air contaminated with pesticides or be exposed dermally via skin or during and after the spray application of pesticides. Contact with pesticide deposits on crops and weeds via the feathers may result in the oral uptake of pesticides by preening. Since crops, weeds, and insects are the general food for birds, the oral uptake of pesticide residues therein is most probable. When pesticides are applied as a seed dressing, birds may be exposed to pesticides at a higher concentration by ingesting the treated seeds. In the case of a granule formulation, birds mistake the granules for seeds or ingest them as grit. By taking account of these possible routes of exposure and the feeding habit of birds, the toxicological impact of pesticides should be assessed based on their intrinsic toxicity via direct administration. Oral uptake is generally the main route of exposure, based on the use pattern of pesticide formulations and avian feeding habits. In the first-tier avian risk assessment of pesticides, acute oral toxicity becomes preferable to short-term dietary toxicity based on its convenience and a more conservative estimation of toxicity. The acute oral toxicity of pesticide varies widely among avian species, depending on body size, feeding habits, and the activity of metabolic enzymes. Furthermore, several field studies have indicated the importance of dermal toxicity for more precise risk assessment of pesticides in the field. From these viewpoints, not only the species-sensitivity distribution approach to acute oral LD50 but also the contribution of acute dermal toxicity had better be considered for refining the avian risk assessment of pesticides exhibiting high toxicity.

ETHNO-ORNITHOLOGICAL NOTES FROM SOUTHERN RAJASTHAN

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Bhil, Bhil Mina, Damor (Damaria), Garasiya and Kathodi (Kathodia, Katkari) are important tribes of southern Rajasthan. High concentration of tribal population is seen in hilly forested tracts of Aravallis (Joshi, 1995). Since their dependency on forests, grasslands and wetlands is more, hence their intimacy is also more with nature. Therefore, they have good knowledge of insects, fishes, reptiles, birds, mammals and plants. Their knowledge about birds and intricacy with their culture, traditions, beliefs and customs is remarkable. They have their own nomenclature for birds too. Some interesting aspects of tribal and bird relationship seen in southern Rajasthan are highlighted below.

Use of feathers of peafowl:

Tail feathers are shade in winter season by the male peafowl (Pavo cristatus) which are collected by the tribals. These feathers are used to make the brooms of 'Deoras' (religious places). These brooms are also used to perform the folk dance 'Gavri' by the Bhils. Attractive cattle ornaments called 'Morika' are made by the tribals and same are used to adorn the cows and bullocks on the occasion of Dipawali and Khekhra festivals.

Tribal farmers make a simple apparatus 'Ghunku', to produce the frightening sound in the agricultural fields during night time to drive away the nocturnal crop raiding herbivorous wild animals (Fig. 1). Ghunku is a friction idiophone made with the help of locally available material like Ged (earthen pitcher), long tail feather of the male Peafowl and piece of the skin of a goat. A hole is made in the centre of the skin and feather is inserted in it; then a knot is made at the lower end of the feather. Now the goat skin piece is tied at the mouth of the Ged like a parchment with the help of a string (Sharma, 2016).

While operating, a man sits on the ground and keeps his both legs fully stretched. Ghunku is placed between both the feet and then a massage like action is made on the feather with the help of the thumb and first finger using both the hands, from 'feet to body' direction. To avoid burning sensation, few drops of mustard or mahuwa oil is applied on the feather. When Ghunku is operated, it produces loud calls like Ghunku-Ghunku-Ghunku which helps to frighten the crop raiders (Sharma 1998, 2007 & 2016).

Fig. 1: Ghunku: A simple device made by locally available material to protect the agricultural crops.

Use of feathers of vultures:

During past time, vultures (Gyps indicus & Gyps bengalensis) were used to be killed by the tribals when they were found busy feeding on some carcass. Bow and arrows were used for this purpose. After killing a vulture, big sized feathers of tail and wings are uprooted from the body. The tip and basal part of the feather are removed using a sharp knife. Rest part of each feather is split along the rachis and their 6.0 to 8.0cm long pieces are made. Four such pieces are tied firmly towards the posterior end of the arrow as stabilizers (Fig. 2). As many as 40-50 years ago, vulture feathers were sold locally. If vulture feathers are not available, naturally molted wing feathers of peafowl are also used to make the stabilizers.

Fig. 2: Stabilizers made of vulture feathers tied on arrows

Duchki procession:

Indian Robin (Saxicoloides fulicatus or Copsychus fulicatus) is considered a sacred bird by the Bhils and Garasiyas. Male and female birds are called Duchka and Duchki respectively in local dialect. On the occasion of Makar Sakarnti (14 January), an Indian Robin, preferably a female is captured and taken over door to door in a procession to beg money and eatables. Bhils keep the bird in hands while Garasiyas keep in a hollow fruit of Lagenaria siceraria, equipped with a window and many holes. Since Duchki procession is performed in January, tribals call this month "Duchki- ka- mahina i.e. month of the Indian Robin.During the procession, bird is taken door to door. A loud call is given infront of each door-" Duchki marun, Khichdo Khau" i.e. either give some money or food grains to eat Khichdi or we will kill the Duchki infront of your house. Killing a Duchki is considred sin in the tribal belt. To 'save' the Duchki some money or grains are given by the onwer of the house to the callers. In this way, money and grains are collected by the crowd for community feast. After the end of procession , the Duchki is released in the presence of whole community. If it perches on some green branch, it is considered as an auspicious sign and it is forecasted that the current year would be a good rain year. If the bird sits on some rock or on a dry branch, it is announced that the year would be a subnormal rain year.

Weather forecasting:

The wage work, minor forest produce collection, agriculture and animal husbandry are four major livelihood options among the tribal population. Approach to the surface water sources is relatively more easy then underground water sources, hence tribals much like surface water sources to meet out their drinking, irrigation and other needs. To keep the water source year-round perennial, good rains are a must. Traditionally tribals weather forecasting system for rains is based on various phenomenon of plants, birds, termites, ants etc. Some of bird - based rain forecastings are as follow:

S. No.	Name of species	Observation	Forecasting	Tribes
1.	Red- wattled Lapwing (*Venellus indicus*)	Nest is seen on elevated site of upland	Very good rain year	Bhil and Garasia (forecast is made by the village head man i.e. *Gameti* based on his first encounter of the nest of the breeding season)
2.	Red- wattled Lapwing (*Venellus indicus*)	Nest is seen at low - lying area	Drought year	---Do---
3.	Indian Paradise Flycatcher (*Terpsiphone paradisi*)	Number of elongated tail feathers	If two tail- streamers are present, heavy rain is expected for two months. If one tail- streamer is present, heavy rain is expected for one month	---Do---
4.	Jacobin cuckoo (*Clamator jacobinus*) or Common Hawk – cuckoo (*Hierococcyx varius*)	If bird is repeatedly calling	Rain follows	Bhil and Garasiya
5.	Sarus crane (*Grus antigone*)	If flying high and making the calls	Rain follows	Bhil and Garasiya

Dehri making custom:

When a family head dies, his final ceremony is performed on the nearest agriculture field. A samadhi (shrine) called Dehri is constructed at the place of final ceremony after completing all the cost death rituals . Entrance of the Dehri is faced towards the eastern side. A marble made symbolic statue (locally called hoora) of deceased man is brought from Ambaji town of Gujarat state and placed at the Samadhi on 12th day of death of the man. Two types of Dehris are seen in the area, like a platform and like a room. Sometimes a metallic peacock is installed on the top of the roomed samadhi, which moves with the thrust of wind. A white flag is hoisted at the back of the shrine. An epitaph, containing name of the deceased man and date of death is written in colored letters on one of the face of the shrine, preferably on front face. Dehri custom is very common in Mamer and surrounding area. Mamer is situated towards South- western edge of Phulwari - ki- Nal Wildlife Sanctuary.

Colorful painting made on the walls of the Dehri are as shown below:

S. no.	Name of bird	Habit	Preference	Tribe
1.	Indian Peafowl (Male)	Wild	**Most preferred**	Bhil
2.	Cattle Egret	Wild	**Less preferred**	Bhil
3.	Rose -ringed Parakeet	Wild	**Moderately preferred**	Bhil
4.	Ducks	Wild	**Less preferred**	Bhil
5.	Domestic fowl	Domestic	**Moderately preferred**	Bhil

"Rakit" custom:

Many birds and animals are considered "Rakit" in the tribal community and all the "Rakit" animals are socially protected. "Rakit" is derived from Sanskrit word "Rakshit" i.e. protected. Wild mammals and birds like Sarus crane, Black drongo, Peafowl, Indian robin, Jungle babbler, House sparrow, Rock pigeon, Five- striped Palm squirrel, House cat, Hanuman Monkey, Rhesus macaque, Cobra, Indian python, Flying fox etc. are considered "Rakit" by Bhils, Bhil Minas, Damors and Garasiyas. Baya weaver (Ploceus philippinus) is considered sacred by the Kathodis. Killing of "Rakit" animals is considered a sin by the tribals. If killing is a must for some unavoidable use, first of all, the animal is worshiped and then only killing is performed.

Protection of Saras crane:

Sarus crane (Grus antigone) is a highly protected bird. There is a belief among the tribals of southern Rajasthan that killing a Saras crane is the most severe sin. They have a belief that who so ever will kill a Saras crane, a lame son will be born in the family of the sinner.

Conversion of a "murderer bird" in to a "Saint bird":

Tribals are of opinion that carnivorous Shikra (Accipiter badius) kills other birds and small mammals for eight months of summer and winter but during rainy season, it becomes a "saint bird" and stops killing of other animals. Not only this, they believe, Shikra changes its body color and vocalization also. Actually, during monsoon season the Common Hawk Cuckoos (Hierococyx varius) which are partial migrant, reach in southern Rajasthan which look like Shikras. Tribals think that Cuckoo is modified form of Shikra. They think, this status of Shikras will last upto October i.e. upto departure of the monsoon rains. Actually, after departure of rains, Cuckoos start their return migration and they become invisible in the area. Now tribals think that the "Sant Shikras" again have become the "murderer Shikras".

Erection of bird perches in agriculture fields:

Bamboo sticks, wild date palm leaf - rachises and other similar structures are erected amidst the wheat field and other crops to provide perching facilities to the insect - eating birds like chat, drongos etc. and rat -eating owls during night time. As many as nine types of bird perchas are made and erected in the fields by the tribals of southern Rajasthan to protect their crops (Sharma, 2007).

Relationship of tribals with birds is remarkable. The intricacy of tribals and birds should be studied and their best practices and pro- conservation ethos should be conserved and adopted for protection of birds as well as agriculture crops.

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THE MYTH OF HOUSE SPARROW DISAPPEARANCE AND SAVING BIRDS BY FEEDING

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As human beings, we may not empathise with our own species but it is important that we do not miss a chance to sympathise with birds and animals. Right before summer starts, we see a lot of people sharing pictures and quotes requesting others to keep food and water for birds in their balconies and terraces because we do not want them to suffer in the harsh weather. Here, it is assumed that birds like house sparrows are dying and need our aid in the form of food and water to survive.

The truth, however, is an irony in itself as we humans are the biggest reason behind their decreasing population. I would like to say they are not declining but rather shifting.I live in the outskirts of Jaipur, and I observe more than hundreds of sparrows every day. House sparrows are small birds that mainly feed on insects and grains and thrown cooked food that is easy to eat and digest. Shifting the focus from urban areas to villages, we can see where they get their actual sustenance from, namely food which is suitable for them: raw seeds, wheat, maize, corn, unlike what we give them that makes them sick and is hard for them to digest. Our filtered water with missing minerals does not help either.

I think it is pertinent to clear all doubts about the extinction of this particular species. People living in urban areas assume that the absence of sparrows is due to their death but in reality, these little birds are moving to villages because the drains in our cities are covered now. In villages, people still live with open drains and the remains of rice and lentils being washed from utensils flow out into these drains. Sparrows feed on this soggy food making it easy to eat and ideal for them to digest. Also, in Rural areas they get nest material easily, they're using the roof of huts to build a nest.

The act of feeding birds without proper knowledge of their diet leads to an un-natural increase in population of other birds-like pigeons-that can digest varied food due to their larger size.

I am therefore highlighting certain facts that explain why we should not feed birds around us and how it is the biggest reason behind their declining population. Birds take a balanced diet, like insects, nectar, seed or fruit. People feeding birds the wrong food which changes the natural composition of their diet and can negatively impact their health. Feeding birds can also increase aggression and stress in birds as too many of them try to feed together, which is not natural.

Feeding can increase the quantity of non-native birds, non-native rats and cockroaches as the more food they get, the more they breed. Unnatural feeding can change the balance of species in the wild as well as of native species as it can increase the presence of some species which, in turn, decreases others. The pigeon, for example, has taken great advantage of this unnatural feeding, and has all but eliminated sparrows from our urban areas. Pigeons (also knows as pest bird) are well known to carry a range of diseases and are hosts to other insect pests. Uncontrollable population of pigeons can lead to Hypersensitive Pneumonitis (HP) or Bird Fancier's Lung, an inflammatory lung condition in humans caused by bird droppings that are highly allergenic. Cryptococcosis, Histoplasmosis and Psittacosis are other diseases associated with pigeon droppings. Even doctors in India are suggesting to keep pigeon away to the people with breathing issues, COPD or Asthma.

Feeding can also spread diseases through a concentration of food and birds in large numbers in one place. We hear every now and then that everything should be done within limits, and yet we still act against nature, especially while feeding animals and birds. Seeds left out for birds rot due to damp conditions, causing mould to grow, leading to diseases in the birds eating them. Rats and mice also attract towards left out food and sometimes become threat to human health.

I want to invite viewers to reflect: why are we encouraged to step out and go to our workplaces, find hobbies and stay active, instead of being told to stay home, chill and spend our parents money?

Because that is an easy life with no hard work and no reason for us to make an effort. This is not a good life, and obviously very harmful for our mental and physical health. Doing this will make us lazy and scrubbed human beings.

We can extend this to how feeding birds can cause sickness and deformities in young ones. High quantities of salt, fat and phosphorus, coupled with low levels of calcium present in processed foods can make them with dietary imbalances and severe deficiencies. Feeding encourages birds to become dependent on humans for their survival. They can lose the ability to find food for themselves, particularly so if they are juveniles who should be learning to find their natural food.

Artificial feeding is not necessary. Native birds do not need extra food as they are well adapted to their environment and will be healthier and happier if left to find and eat their normal diet.

To actually help them, we need to stop poking our nose in the cycle of nature, and let it take its most organic course. If we do want these species in our environment, we should find ways to stop destroying their habitats and stop doing things that lead to a decrease in their population.

DRINKING HABITS OF INDIAN HARE (LEPUS NIGRICOLLIS) AND MATING CALLS OF BLUE BULL (BOSELAPHUS TRAGOCAMELUS) FROM SOUTHERN RAJASTHAN

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Drinking Habits of Indian Hare:

The villagers of Mewar region of the Rajasthan state of India believe that hare seldom drinks water because it always feeds on green fodder. I too have a long experience of the jungles of Mewar along with its denizens and scores of time I have sat over the water holes all through the night. Once I had witnessed a hare sitting in water but I had never seen it drinking water before my last trip to the Pali district.

A major part of the Pali district of Rajasthan comprises of semi-arid zone. On July 4, 1996 we took up our position in a hide near a water hole in the jungles of Ghanerao, a township of Pali. At 8.18 pm, an Indian Hare (Lepus nigricollis) approached the water hole carelessly and started lapping water. The light was dim. We took a shot of it with a video camera. To my surprise, it remained over the water for nineteen minutes. What was more surprising about its behaviour was that it wouldn't cast its eye around as a lookout for predators. This jungle harbours leopards (Panthera pardus) and several other small carnivores that are regular visitors to this hole.

In the same jungle on four consecutive nights I sat on four different water holes. On all the four water holes Hares turned up and displayed the same behaviour as that of the first hare. On all these four water holes they came between 8.45pm to 9pm. They remained at the water hole for 19, 24, 13 and 10 minutes respectively. Such careless long stays over water holes during the summer month by such small defenceless mammals, with surrounding jungles full of predators, was most surprising.

Mating Calls of Blue Bull:

Sumer is a hamlet situated at the edge of Kumbhalgarh Wildlife Sanctuary. About a kilometre from the village there are high hills covered with thick forests running east to west. The remaining three sides of the village are plains mostly converted into agricultural fields. I used to visit this place for the observation and study of fauna. I stayed there from 29 May 1994 to 6 May 1994 during that visit. The place was teeming with wild animals especially wild pigs (Sus scrofa) and blue bulls, which were in plenty. Pugmarks of five leopards (Panthera pardus), two males and three females, were a regular feature at four waterholes high in the adjoining hills.

Due to excessive heat, most of the water pools in the nullahs of the hills had dried up. On 1st June 1994, I took up my position at about 6.30 pm in a hide near a waterhole. This waterhole was situated in a nullah and the place was in a secluded corner of the jungle, quite high in the hills. Three people from the Sumer village who had accompanied me up to the water hole left and took up their position about 150m downstream from me at another waterhole.

At about quarter to nine in the evening, I heard a strange grunt about 50m away from the hill slope in front of me. Immediately, it was answered by another grunt, a little bit feeble in resonance, about 200m to my right. I was puzzled by these sounds. I had never heard such a grunt prior to this and was unable to decipher the source. The grunts were repeated every half a minute or so and the animals making the sound drew nearer and nearer. After a lapse of 15 minutes, the grunts died down.

At about 11 pm, when I left the waterhole and rejoined my companions, I enquired about the grunts. They told me that it was the mating calls of blue bulls. The male was calling from my direction and the female from downstream. The pair quenched its thirst from the waterhole where my companions were sitting. They seemed to be familiar with these mating calls.

I have encountered thousands of blue bulls but never heard such a typical mating calls. Due to severe heat and scarcity of fodder, these animals have retreated into dense forests on steep hill slopes. The favoured habitat of blue bull is comparatively open, flat or undulating country. Owing to poor visibility and constant fear of leopards, the blue bulls remain scattered in this inhospitable environment. So they have adopted this type of communication for courtship and mating.

CULTURE AND CONSERVATION ETHOS OF MENAR

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Menar is a historically, naturally and culturally rich village, located 45 km away from the city on the Udaipur-Chittorgarh highway, the city of lakes famous for tourism.

The naturally scenic Menar village is situated on a hill in the form of a crown, with two huge reservoirs on either side, which are symbols of the foresight of the ancestors here. On the banks of both the reservoirs, clusters of hundreds of huge trees provide shade, relaxation to the mind as well as shelter to the birds, on which thousands of fruit bats camp. The sight of them flying and drinking water from the reservoir in the evening is extremely charming.

Here, two days after the festival of Holi, Jamarabeej, the festival of chivalry; the only victory festival of its kind in the whole of India, is celebrated. On that night, a live scene of war is witnessed with cannons, guns as well as swords, which is witnessed by thousands of people from all over the country and abroad gather near these wetlands of Menar named Brahma Sagar and Dhand Lake.

This festival is celebrated to commemorate the victory over the Mughals nearly 450 years ago. The then Maharana of Mewar also gave Menar the title of 17th Umrao.

Cultural significance of Menar lakes

Brahma Sagar and Dhandh Pond, both the reservoirs located in Menar, have traditionally been an integral part of the local culture. The rituals from birth to death are performed in the water or on the banks of these reservoirs. From this point of view, the people of Menar have always protected these reservoirs and their water considering them sacred.

At the time of birth, during Nakshatra Puja, holy water from the lakes is brought and the father and child are bathed. The Gata performed on the eleventh day after death is performed on the banks of ponds only.When one goes on pilgrimage to Chardham, in the presence of relatives and pundits, puja is performed at the 'Patwaris', these are also situated on the banks of the pond. Temples of Mahadev Ji, Hanuman Ji and Amba Mata are situated on the banks of these ponds too. The "Jawara Visarjan" done on the ninth day of Navratri, the holy festival of Goddess Durga, take place in these reservoirs.

When the village feast is held and sweets are prepared for the "Jeeman", the first thing people do is to go to the waters of these lakes and offer invitation which is called "Sarwar Nutna" in the local language.In the month of Kartik, unmarried girls observe a fast which is called Kartik Snan and after completion of the fast, they light earthen lamps in the water of these ponds. Thus, Menar lakes are culturally sacred for the residents and they are concerned about the protection and conservation of them.

The residents of Menar have been protecting their wetlands and birds in them since ages. The following travelogue or story best represent the fact.

Story of conservation of birds in Menar one and a half century ago -

A French writer named Louis Rousselet has written in his travelogue how he reached Menar with his group of 50 people on March 6, 1866 and camped under the trees on the bank of the pond. And when he started shooting the wild ducks sitting on the lotus leaves in the pond for breakfast. The flocks of birds flew as if the sun had hidden behind the clouds. Which shows the lake used to provide shelter to thousands of birds hundreds of years ago too. But this hunting became costly for him when a big strong Brahmin came and threatened him that Menar is a "sahsun" a sacred land and hunting is completely prohibited.

The traveler said that he had Maharana's written permission to stay anywhere and hunt for food but the Brahmin was not satisfied. Even the head of the village, in the evening, became furious and refused to obey the "Parwana" which could have angered the king of Mewad. Yet they risked for the lakes and its birds. The Head agreed to provide milk and other provisions for dinner but not ducks. Finally the traveller had to leave the next day for Magarwara (The land of crocodiles). It is the solid proof of conservation of lakes and protection of birds culturally.

Avian diversity in Menar lakes

It shows thousands of Migratory birds find shelter in the lakes of Menar for hundreds of years.

One can witness above 200 species of birds in and around the Brahma Sagar and Dhandh Talab. They feel secure as much that once a migratory bird Great Crested Grebe have been breeding here for many years and have also populated nearby wetlands.

Many endangered and vulnurable species are seen here. Menar has been listed as notified wetland too. Ministry of Tourism, Government of India has awarded Silver Medal conferring Menar as one of the Best Tourism Village in India 2023.

All the people of Menar and Birding fraternity are of the opinion that Menar should be declared as Ramsar Site.

CALLING PETTERN OF THREE-STRIPED PALM SQUIRREL IN THE PRESENCE OF A RAPTOR AND ITS SIGNIFICANCE FOR OTHER CO-INHABITANTS

Devendra Mistry

The Three-striped palm squirrel (Funambulus palmarun) is present in the forested areas of Pratapgarh district in southern Rajasthan. It is less visible in the sylvan ecosystem but heard easily. It has different calls than that of the Five-striped palm squirrel. Five-striped palm squirrel calls like “Taadikk, Taadikk” and squeals of quick and sharp kwee-kwee-kwee-kwee (like electronic TV's cheekikiki sound). But, the Three-striped palm pquirrel sounds like a mournful short whistle like “kwahiyyoo kyuyoo kyuyoo” slightly matching like that of White-breasted king fisher's voice when it is calling with short tones.

The vocalization of the Three-striped palm squirrel vary from solo to collective calls. But, sometimes usual “kyuiyuu kyuiyuhuuuoo….” turns into rapid alarm calls. Now sound used to come just from near by but they remain invisible. Sometimes is create confusion that animal is probably calling among the foliage or behined the thick branch. Continous observation revealed that they are calling from some burl or hole nests or knot hole in the trees and sometimes in a "V" like fork a tree. I observed this behaviour several times whenever there was a raptor like the Crested hawk eagle, Crested serpent eagle, Bonelli's eagle, Shikra, Eurasian sparrow hawk, Brown fish owl, or Jungle owlet was close by. From their refuse site, they utter kwahi kwahi……or rapid kyuihh kuihh khyuih kyuyoo. These calls go on in all directions.

When the alarm calls of a squirrel with is perceiving the danger, are heard by the conspecies squirrels, they also become vocal and a "chain reaction of calls" appears in the forest as all other squirrels in vicinity start repeating the same behaviour. In responce of these calls, White -breasted kingfisher, Rufous treepie, Woodpeckers , Stork -billed kingfisher and Common kingfishers also start calling. Probably this calling behaviour helps to warn other animal against the danger. When in agitated state, squirrels keep their heads just on the periphery or rims of the burls to assess the situation and keep on calling.

Hence the pattern of alarm is like a “Voice Relay Race”. In one case, I observed involment of at least 23 squirrels. This “Voice Relay Race” travels in all directions and hence, saves other fellow members, other birds and small mammals in case of the attack of predators.

Figure 1: A hole used by the Three-striped palm squirrel for calling during the presence of raptor

AVIAN DIVERSITY AT MAHARANA PRATAP AIRPORT, UDAIPUR : A COMPREHENSIVE STUDY OF BIRD SPECIES AND AVIATION SAFETY

Sharad Agrawal **Hemant Joshi**

Situated amidst diverse natural habitats, Maharana Pratap Airport hosts an extensive range of bird species. This study, a collaboration between the Centre for Studies on Wildlife Management and Health and the Airports Authority of India, aims to document this diversity and assess the associated risks to aviation.

The airport's location near wetlands and other natural habitats attracts a variety of bird species, each presenting unique challenges to aviation safety. Understanding the species' diversity, behavior, and flight patterns is critical for effective risk mitigation.

The study covered the airport and its surrounding areas across different seasons. The methodology included visual surveys with binoculars and cameras, focusing on species identification, abundance, and behavior. Two surveys, pre-monsoon and post-monsoon were condected to know the bird spectrum of the area. A total of 521 birds, encompassing 63 species, were observed during the pre-monsoon study, including:

- Anseriformes: Lesser Whistling-Duck, Indian Spot-billed Duck
- Galliformes: Indian Peafowl, Gray Francolin, Painted Francolin
- Columbiformes: Rock Pigeon, Eurasian Collared-Dove, Laughing Dove, Spotted Dove
- Cuculiformes: Common Hawk-Cuckoo
- Apodiformes: Little Swift
- Gruiformes: White-breasted Waterhen
- Charadriiformes: Red-wattled Lapwing, River Tern
- Pelecaniformes: Intermediate Egret, Little Egret, Cattle Egret, Indian Pond-Heron
- Accipitriformes: Black-winged Kite, Shikra
- Coraciiformes: White-throated Kingfisher
- Passeriformes: Black Drongo, House Crow, Red-vented Bulbul, Indian Silverbill
- Caprimulgiformes: Savanna Nightjar
- Burhiniformes: Indian Thick-knee

Fig. 1: The presence of an Indian roller perched on a reflector suggests that the existing measures in place to deter birds at the runway area are insufficient.

The post-monsoon survey, focusing on the winter migratory season, recorded 319 birds from 55 species, including:

- Rock Eagle-Owl, Dusky Crag-Martin (Day 1)
- Siberian Stonechat, European Roller (Day 2)
- Common Kestrel, Bluethroat (Day 3)
- Additional species: Red-wattled Lapwing, Shikra, Rock Pigeon, Eurasian Collared-Dove, Indian Nightjar, Savanna Nightjar, White-throated Kingfisher, House Crow, Common Myna, Cattle Egret, Black-winged Kite, Egyptian Vulture.

This comprehensive survey illustrates the significant avian biodiversity at the airport, emphasizing the variety of species and their potential risks to aviation. The presence of migratory species during the post-monsoon period further complicates the wildlife management strategies required.

Recommendations for Wildlife Management

- Adaptive habitat management to deter species posing high risks.
- Implementation of bird deterrent systems and continuous monitoring.
- Regular staff training and collaboration with ornithological experts.

Fig. 2: The survey team

ROLL OF INDIAN PHILATELY TO PROMOTE AWARENESS FOR CONSERVATION OF RAPTORS

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It is not an exaggeration to state that our country is a land of birds. Apart of being one of the largest and densely populated countries in the world India has a rich, stunning and magnificent avifaunal diversity in the world. In this context, along the length and breadth of our country one can see a large number of species of birds belonging to various families and residing in varied niches. Among them some are resident, while others are vagrant, partially vagrant and local migrants etc. It is also worth to note that during winter season, millions of migratory birds also visit every nook and corner of our country from Central Europe, Siberian Plains, East Africa, Mongolia etc which spend their winter season in our country creating a magnificent view to its possessors.

Among various groups of birds found in our country, **Birds of Prey** or **Raptors** holds a special place to the ornithologists and birdwatchers alike. This group includes vultures, owls, hawks, kites, harriers, eagles, buzzards, falcans etc. They are predatory hunter birds having powerful beaks and taloons. From the time immemorial the beauty, diversity and uniqueness of raptors have inflicted a deep impact in Indian culture and many species of raptors have carved their importance in numerous literatures, folklore and in mythology in equal parameters. The Postal Department of India is also not an exception, and in this regard has issued Postage Stamps, First Day Covers (FDC), Special Covers (SC) and Pictorial Post Cards (PPC) on raptors on different occasions to create wide spectrum awareness towards these beautiful and highly notable birds.

Postage Stamps on Indian Raptors

Considering the necessity of conservation of raptors found in the Indian sub-continent, the Postal Department of India has shown its remarkable importance and in turn has issued postage stamps time to time on various occasions. As for instance, in the year 1992 postage stamps along with a First Day Cover (FDC) and an informative brochure on migratory raptors were issued depicting **Osprey** *(Pandion haliateus)*, **Peregrine Falcon** *(Falco peregrines)*, **Bearded Vulture** *(Gypoetus barbatus)* and **Golden Eagle** *(Aquila chrysaetas)* which gained wide spectrum applause from the bird lovers of the country(Fig.1).

Fig. 1

Owls are important birds of prey which are mostly active at night. Perhaps this is the reason that sometimes they are also sobriquated as **"Knight of the Nights"**. Owls are friend of farmers and help them by eating harmful rodents which are menace to the humanity. On an average a single owl eats at least 2-3 mice in a single night thus checking and balancing the population of rodents. On the eve of golden jubilee of Defense Services Staff College, the Postal Department of India issued postage stamp having denomination of rupees six in the year 1998 depicting an unidentified species of owl sitting on the arsenal (Fig.2).

Fig. 2

Our earth is the only planet which is teemed with countless biodiversity which in one way or other helps in sustaining life. On the eve of International Day of Biodiversity a set of two se-tenant stamps was issued in the year 2010 depicting **Indian Eagle Owl** *(Bubo benghalensis)* to recognize its importance in the nature (Fig.3).

Fig. 3

Raptors on FDC and SC

The Postal Department of India has also issued Firs First Day Covers (FDC) and Special Covers (SC) on raptors on various occasions to remind their importance in our natural world. As for instance in the year 2010 a First Day Cover (FDC) on joint issue of India and Mexico was released showcasing California Condor *(Gymnogyps californianus)* and the national bird of India i.e. Indian Peafowl *Pavo cristatus* (Fig.4). In the year 2021 during Karnataka Bird Festival a Special Cover (SC) was released on 05.01.2021 from BRT Tiger Reserve so as to sensitize people towards bird conservation and bird watching as a hobby. The cover depicted Rufous-bellied Eagle *(Lophotriorchis kienerii)* (Fig.5). In the year 2012 another special cover was issued on Sultanpur Bird Sanctuary, on the occasion of Parindey 2012: Third Haryana State Level Philatelic Exhibition from Gurgaon depicting Common Kestrel *(Falco tinnunculus)* sitting on a tree among other birds (Fig.6).A special cover was issued from Saharanpur (UP) on Haiderpur Wetland: Heaven for migratory birds and Endangered Swamp Deer depicting Greater Spotted Eagle *(Clanga clanga)* (Fig.7).

Fig. 4

Fig. 5

Fig. 6

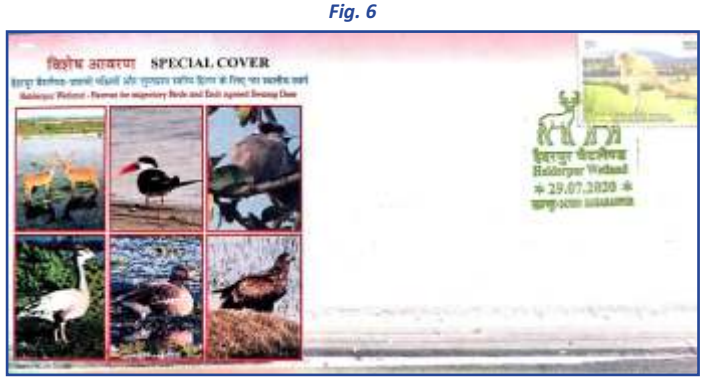

Fig. 7

In this perspective Indian Postal Department has done a marvelous job in creating wide awareness towards the conservation of raptors by showcasing them through various means like postage stamps, covers and picture cards. Though, in comparison to the wealth of avian diversity found in our country, only a handful of raptors have been depicted in philatelic medium so far. Nevertheless, it is hoped that the Postal Department of India will showcase many more species in future for mass awareness among all sects of the society.

MALAH AS A SATELLITE WETLAND OF KEOLADEO NATIONAL PARK

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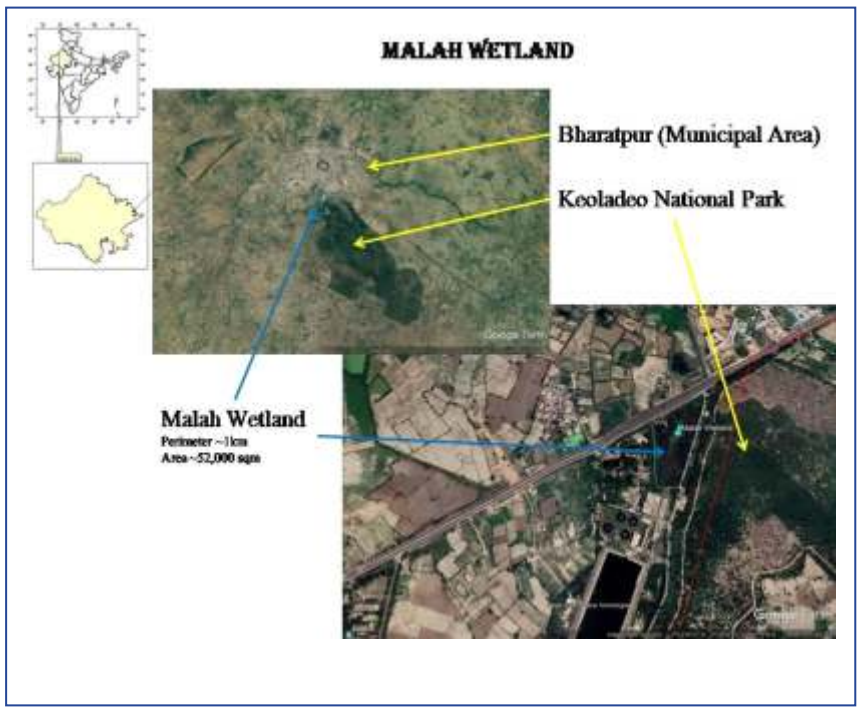
Keoladev National Park (KNP) is an important wetland of Rajasthan, situated in Bharatpur district in eastern part of the state. Many satellite wetlands are present around KNP; Malah is one of them. Malah wetland is situated near the highway at Village Malah (Panchi ka Nagla), approx. 2.3 km southwest from the urban Bharatpur, surrounded by peri-urban and rural human habitation, between 27°11'49.0"N - 77°29'44.9"E (Plate 1).



Before 2010, the terrestrial birds and the local residential water birds were commonly observed for the short period in the pocket whereas the decade of 2011-2020 gave an opportunity for the development of the wetland habitat and invited the heronry species to nest. The minimum disturbances during the lockdown (year 2020) somewhere provided a base for the small sized local water birds to nest which further encouraged the large sized birds to nest in year 2021. Table 1 & 2 enlists the wetland and wetland dependent birds recorded from the newly developed Heronry Site beyond KNP. The counts are average of the periodic three counts made during the nesting months. Due to inaccessibility and hidden nesting pockets densely meshed, the number in 2021 might be more then the counts.

Table 1: List of the Heronry Species of Malah Wetland
[N - Approx. Number of Nests; T - Approx. Number of Individuals]

Sr. No.	Common Name (Scientific Name)	2019		2020		2021 *	
		N	T	N	T	N	T
1.	Little Cormorant *(Phalacrocorax niger)*	11	20	15	31	5	12
2.	Indian Shag *(Phalacrocorax fuscicollis)*	4	12	8	10	9	15
3.	Great Cormorant *(Phalacrocorax carbo)*	0	4	0	10	0	12
4.	Darter *(Anhinga melanogaster)*	2	6	10	16	17	30
5.	Little Egret *(Egretta garzetta)*	10	35	45	100	33	60
6.	Grey Heron *(Ardea cinerea)*	0	0	2	5	6	10
7.	Purple Heron *(Ardea purpurea)*	0	0	1	2	3	5
8.	Great Egret *(Casmerodius albus)*	5	13	10	27	12	35
9.	Intermediate Egret *(Mesophoyx intermedia)*	3	10	5	14	8	21
10.	Indian Pond-Heron *(Ardeola grayii)*	25	30	20	32	23	35
11.	Black-crowned Night-Heron *(Nycticorax nycticorax)*	5	12	5	15	10	25
12.	Painted Stork *(Mycteria leucocephala)*	0	10	2	15	0	5
13.	Asian Openbill *(Anastomus oscitans)*	0	12	5	10	0	2
14.	Black-headed Ibis *(Threskiornis melanocephalus)*	0	19	10	22	123	240
15.	Eurasian Spoonbill *(Platalea leucorodia)*	0	21	12	37	32	60
		65	**204**	**150**	**356**	**281**	**567**

Table 2: Summary of the Heronry Species, Nests and Individuals

Year	Number of Heronry Species	Number of Nests	Number of Individuals
2019	13	65	204
2020	15	150	356
2021	15	281	567

Protection and conservation of satellite wetlands is also important to support the spill over population of big sized wetlands. Malah and other satellite wetlands which are present around the KNP should be protected for better managment of avifauna of Keoladeo National Park.

Photo 1: A view of Malah water body

KUMBHALGARH : BIODIVERSITY AND ECO-TOURISUM

Anil Rodgers

Kumbhalgarh is waiting to become a Tiger Reserve in near future. Kumbhalgarh is located in the Golden Triangle Tourism Circuit of Rajasthan. It has direct connectivity with the cities like Udaipur, Rajsamand, Ajmer, Pali, Sirohi and Jodhpur. Safaris are already operational in Kumbhalgarh. When tiger-centric tourism will start, it will give an economic boost to the tourism sector.

Sloth Bear, Leopard, Hyena, Sambar, Chausingha, Wild pig, Indian Grey wolf, Golden jackal, Indian fox, Blue bull, Pangolin, Porcupine, etc are important mammalian species of the area. It is one of the most suitable habitat for Caracal too.

Grey jungle fowl, Red spurfowl, Chestnut sandgrouse, Painted sandgrouse, Green avadavat, Brown-headed barbet, Indian scops owl, Jungle owlet, Rock eagle owl, Dusky eagle owl, Brown fish owl, Mottled wood owl, Indian vulture, King vulture, White-rumped vulture ,Egyptian vulture, White-naped tit, Crested hawk eagle, Crested serpent eagle etc. are important avian species. Indian rock python and Marsh crocodile are important big- sized reptiles of the sanctuary.

There are some ferns like Adiantum incisum and Actiniopteris radiata which are seen in the moist localities. Few terrestrial Habenaria spp. orchids are also seen in Kumbhalgarh area during rainy season. Kumbhalgarh is well connected with Phulwari sanctuary which is situated towards southern side at Gujarat State border.

Boswellia serrata, Butea monosperma, Terminalia arjuna, Sterculia urens, Wrightia tinctoria, Madhuca indica and many other tree species are common in Kumbhalgarh Wildlife Sanctuary. The undulating terrain of the santuary is mesmerizing. Kumbhalgarh Fort, which is an important tourist destination is registered under the UNESCO World Heritage site. As many as 36 km long historic fort wall is present around the fort which is considered as one of the largest walls in the country. It is said that it is the second largest wall of the world after China wall.

Many historic Shikar Audhi are present here and there in the limits of Kumbhalgarh santuary. Todgarh-Raoli Wildlife Santuary is present in continuation of Kumbhalgarh towards northern side. Bheel Beri is the highest waterfall of the Aravallis which is present in the deeper zones of Todgarh-Raoli santuary. Goram Ghat, a forest bound small railway station on Mavli-Marwad railway route, which is situated inside Todgarh-Raoli santuary, becomes popular destination for tourists during monsoon season. Kamlighat, Fulad, Thandi Beri, Mahudi Khet etc are fevourite sites of the tourists in twin santuaries, the Kumbhalgarh and Todgarh- Raoli.

SNAKES NEED PROTECTION ON ROADS

Manas Dixit

Richa Mistry

Ophidiophobic situation is seen in all sects of the society, including literate ones. Fear of snakes is deeply ingrained in human psychology, leading to unnecessary killings and negative encounters. Contrary to popular belief, most snakes prefer to avoid human contact and will only attack when they feel threatened. By taking a moment to understand their behavior and giving them some space, we can coexist peacefully with these fascinating creatures.

Not only Venomous but non-venomous snakes are ruthless killed whenever seen by the people out of fear and unawarness. Snakes, even venomous ones, are more likely to retreat than attack if given the chance to escape. Rather than reacting with fear, it is essential to recognize their role in maintaining the ecological balance.

Snakes play a vital role in our ecosystem, particularly in controlling the population of disease-carrying rats. While snake bites may be a concern, the number of deaths attributed to them pales in comparison to the casualties caused by diseases transmitted by rats like leptospirosis. By keeping the rat population in check, snakes contribute significantly to human health and well-being of the human society.

In everyday lives, the prevalent issue of road facilities resulting from reckless driving has become alarmingly evident. This dangerous behavior not only endangers human lives but also poses a significant threat to various wildlife species. The

unfortunate consequence of vehicular collisions with animals has led to an alarming surge in roadkill incidents, a phenomenon that impacts diverse species on a daily basis. Remarkably, among the many victims of these tragic encounters, snakes emerge as one of the most frequently affected groups. Being cold blooded, they move towards roads during night and stay for sometime to get the warmth of the road imbibed by it during the day time. This situation make the serpents prone to tramplling on the road by some vehicle.

Efforts to mitigate the impact of roadkill on snake populations involve raising awareness about responsible driving practices. Encouraging adherence to speed limits, particularly in areas known for wildlife presence, and promoting the construction of eco-friendly infrastructure are essential steps toward reducing the frequency of these tragic incidents. Additionally, implementing wildlife corridors and protective measures, such as snake fencing along vulnerable stretches of roads, can provide a safer passage for these creatures.

Protection and conservation of snakes is much needed for the ecological balance of various ecosystems. By adopt practices and programmes for mass awarness we can educate our public and vehicle drivers and users. We can save a large number of snakes by developing a proper rescue and rehablitation programme in the state.

(A trampled Barred Wolf Snake on the road)

मेनार में पक्षी संरक्षण का गौरवशाली अतीत

उमेश मेनारिया
ग्राम एवं पोस्ट - मेनार

उदयपुर-चितौड़गढ़ राष्ट्रिय राजमार्ग पर स्थित मेनार गाँव को अपनी अनूठी विशेषताओं के लिए जाना जाता है। यहां सवा चार सौ साल पहले मुग़लों से युद्ध की शौर्य गाथाओं से परिपूर्ण गौरवशाली कहानी तो सभी जानते हैं लेकिन इससे हटकर एक नई रोचक कहानी जो हमें शौर्य का अहसास कराती हैं, जो जानने लायक है। पक्षियों के लिए आश्रय स्थल के रूप में विश्व विख्यात हुए बर्ड विलेज मेनार में पक्षियों के सरक्षंण की कहानी एक दशक ही नही बल्कि कई सदियों पुरानी है। यहां के ब्राह्मणों ने एक अंग्रेज द्वारा एक पक्षी का शिकार पर उनका ''हुक्का-पानी'' तक बन्द कर दिया था । उक्त घटना का उल्लेख कई वर्षों पहले तत्कालीन महाराणा से स्वी.ति के बाद अधि.त यात्रा के रूप में एक अंग्रेज यात्री द्वारा मेनार विजिट के बाद लिखी पुस्तक में किया गया है। पुस्तक में लिखी घटना से मालूम होता है कि हाल ही में जो 'बर्ड विलेज' नाम से मशहूर मेनार जो वर्तमान में देशी विदेशी पर्यटकों का पसंदीदा हहट डेस्टिनेशन बन चुका है, वहाँ स्थानीय ग्रामवासियों द्वारा पक्षी संरक्षण की मिसाल वर्तमान नहीं बल्कि सैकड़ों वर्षों पूर्व अंग्रेजों व राजा-महाराजाओ के शासनकाल के समय से चली आ रही है। अंग्रेजी शासन काल में प्रकाशित एक पुस्तक से इसके प्रमाण सामने आये हैं। आज से करीब १६० वर्ष पूर्व भारत यात्रा पर आये एक अंग्रेज यायावर ने मेवाड़ यात्रा के दौरान दल के साथ मेनार यात्रा में अपने साथ घटित वाकये को अपनी पुस्तक "पिक्चरेस्क सीनरी इन इंडिया" में उल्लेखित करते हुए मेनार के ब्राह्मण समुदाय को इंगित करते हुए अपनी यात्रा का विस्तृत उल्लेख किया है।

अंग्रेज ने अपनी पुस्तक में लिखा की..... ६ मार्च १८६६ को ढलती शाम के समय वह लवाजमे के साथ मेनार पहुँचा ही था की आस-पास के गाँवो के मुखिया प्रतिनिधि के तौर पर सलाम करते हुए मुझसे मिलने आये। राणा के खर्चे पर १२ मील की यात्रा के बाद हम मेनार पहुँचे ही थे । यहां पहुचने के बाद नौकर ने सुंदर झील (ब्रम्ह सागर) के किनारे विशाल पेड़ो से आच्छादित जगह पर हमारा टेंट लगाया गया । इस दौरान मेने देखा सामने पानी और दलदली भाग में बड़े बड़े पत्तो पर बत्तखें बैठी हुई थी मेने तत्काल उस दिशा में अपनी बंदूक उठाई और पहले ही निशाने मे बत्तख को मार गिराया। मैनें अपना शिकार कर लिया और धमाके से दूसरे पक्षी इस तरह हवा में उड़े जैसे घने बादल सूर्य को अपने आगोश में ले लेते हैं। शिकार के बाद मैं अपने आप को सर्वेश्रेष्ठ महसूस कर रहा था। मैनें अपने नौकरों से शिकार किये पक्षी को नाश्ते के लिए अपने शिविर में मंगवा लिया।

आगे की पंक्तियों में यात्री ने लिखा..... पक्षी के शिकार की खबर आग की तरह पूरे गांव में फैल गयी थी। मैनें बमुश्किल अपना नाश्ता किया ही था की एक तगड़ा ब्राम्हण (पोषाक देख वर्णन) मेरे शिविर में आया जिससे मेरा सामना हुआ। उसके हाव-भाव काफी हिसंक थे । आते ही उसने चेतावनी भरे लहजे में कहा इस तालाब पर शिकार करना हमारे नियमों के सख्त खिलाफ है। यह गांव एक पवित्र स्थल की तरह था जंहा शिकार करना पूर्णतया वर्जित था । मैनें ब्राह्मण से कहा, अज्ञानता वश मुझसे गलती हुई लेकिन मेरे पास महाराणा की लिखित अनुमति है की किसी भी प्रतिबंधित क्षेत्र में जाकर मैं शिकार कर सकता हूँ। लेकिन ब्राह्मण इन बातों से सन्तुष्ठ नहीं हुआ। मैनें उसे वहां से जाने को कहा.. पूरा दिन अन्य घटनाक्रम में गुजर गया। शाम को राणा का हल्कारा आया। उसने कहा की यहाँ के लोगों ने परवाने का पालन करने से मना कर दिया है ओर मुझे सजा देना चाहते हैं। मैनें हलकारे के माध्यम से उन्हें समझाने की कोशिश की लेकिन वह भी निर्थक साबित हुई। हम ५० लोग भूखे थे। अब हमने गांव के मुखिया के घर कि तरफ जाने का फैसला किया। गांव का मुखिया भी अक्खड स्वभाव का था, लेकिन मैनें बहस करने की असफल कोशिश की, लेकिन उसने भी हमारी एक बात नहीं मानी और आदेश कि तरह कहा की तुम्हारा शिविर गांव से ३ मील दूर ले जाओगे तो में थोड़ा बहुत खाना भेजने के बारे में सोचूंगा। मैनें उसकी इस .ढ़ता से उत्प्रेरित होकर उसकी शिकायत राणा से करने की बात कही तो वह ब्राह्मण मुखिया आग बबूला हो गया और उसके हाथ में नुकीले लोहे की वस्तु जो बांस की लड़की से बनी थी, उसे मेरे सिर पर लहराने लगा और दोनों में धक्का मुक्की और झड़प भी हुई । इसके कुछ देर बाद मामला शांत हुआ। आटा-अनाज और दूध के जग से भरे लड्डे कैम्प पहुँचे । शाम को व्यक्ति ने अपने व्यवहार के लिए खेद जताया । इसके बाद हम ७ मार्च को १५ मील दूर मगरवाड़ा (मंगलवाड़) की यात्रा के लिए निकल गए ।

अंग्रेज ने मेनार को दैवीय भूमि बताया

मेनार यात्रा के दौरान अंग्रेज यात्री ने मेनार की खूबसूरती के बारे में भी लिखा हैं। उन्होंने लिखा की जिस ग्रामीण क्षेत्र की हम यात्रा कर रहे थे उस पर प्र.ति पूरी तरह से मेहरबान थी। दूर से ही पहाड़ी पर गांव को देखा जा सकता है। यहां के घर-बगीचे, पेड़-पौधोंए फूलों से आच्छादित थे। एक तरह से ये गांव समृद्ध लग रहा था। पहाड़ी पर सुंदर मन्दिर और ताजनुमा घर दिख रहे थे। घरों का विस्तार पानी के किनारे तक था। साथ ही जहन ने अपनी यात्रा के दौरान लिखा की मेनार एक दैवीय जगह है। यहां के पुजारी मानते है की ये भूमि राजा मान्धाता के द्वारा दान की गई हुई है जो विक्रमादित्य से पहले के थे।

पक्षियों की खाद्य श्रृंखला में जंगल जलेबी

मुकेश पंवार

प्रत्येक जीव का अस्तित्व पर्यावरण एवं आवास की अनुकूलता पर निर्भर करता है जिसमे उस जीव के जीवन यापन हेतु आदर्श तापमान, हवा में उपयुक्त आर्द्रता तथा भोजन की उपलब्धता सहज रूप से हो। किसी पारिस्थितिकी तंत्र का स्थायित्व वहां की स्थानीय जैव विविधता पर निर्भर है। स्थानीय वनस्पतियां जैव विविधता या समृद्धता का मूल हैं। इनसे ही खाद्य श्रृंखलाओं का निर्माण होता है। प्रत्येक शाकाहारी व मांसाहारी जीव प्रत्यक्ष - अप्रत्यक्ष रूप से वनस्पतियों पर ही निर्भर है। स्थानीय पौधे अद्भुत खाद्य बैंक की तरह हैं, जो कई जीवों का पोषण करते हैं।

यदि हम सिर्फ लेपिडोप्टेरा गण (तितली एवं शलभ) की बात करें तो उनमें प्रत्येक प्रजाति के लारवा हेतु भोज्य पौधे एवं प्रोढों हेतु मकरंद प्रदाता पौधे पूर्व निर्धारित व अलग-अलग हैं। इनके लार्वा या इल्लियों व वयस्कों के अनेक परभक्षी हैं, जैसे - पक्षी, मेंटिस, छिपकलियां, मकडियां, मांसाहारी ततैया आदि। स्थलीय मांसाहारी पक्षी जिनका भक्षण करते हैं वे सभी जीव वनस्पतियों से ही जुड़े हुए हैं, अतः पक्षियों के संरक्षण हेतु हमें उनके पसंदीदा जीवों को संरक्षित करना चाहिए। वे तभी बचेंगे जब स्थानीय वनस्पतियों की विविधता बनी रहेगी।

प्रत्येक स्थानीय वनस्पति का जैव विविधता में अद्भुत एवं अद्वितीय योगदान होता है, यथा - जंगल जलेबी की बात करें तो इस पर कहमन ग्रास यलो, ब्लैक राजा, तथा टेललेस लाइनब्लू नामक तीन तितली प्रजातियों के लार्वा तथा शलभ वर्ग के अहर्वास्का सबनोटाटा, एंटोमोग्रामा प्रजाति, अर्टाक्सा गुटाटा, बामरा प्रजाति, ट्रामिंडा मंडिसिमा, चिआस्मा एमरसेरिया, चिआस्मा हेबेसाटा आदि सहित बहुत सी अन्य प्रजातियों के शलभों को प्रजनन करते देखा जा सकता है। इन प्रजातियों के लार्वा जंगल जलेबी के पत्तों को खाकर पूर्ण विकसित होकर अपना जीवन चक्र पूर्ण करते हैं। जब तक जंगल जलेबी के छोटे पौधे व वृक्ष हमारे आस-पास या जंगलों में रहेंगे तब तक हम उक्त तितलियों व शलभों को आसानी से देख पाएंगे, तथा उनकी उपस्थिति से उनके परभक्षी पक्षियों को भी हम आसानी से देख पाएंगे। उदाहरण स्वरूप स्महल मिनिवेट पक्षी को जंगल जलेबी (च्पजीमबमससवइपनउ कनसबम) के वृक्षों पर ब्लैक राजा तितली के केटरपिलर को खाते हुए देखा जा सकता है। इसी तरह विभिन्न पौधों के विशिष्ट उपयोगकर्त्ता तितलियों व शलभों को तथा उनको खाने वाले पक्षियों को भोज्य पौधों के आस-पास देखा जा सकता है।

फोटो : ब्लैक राजा तितली के लार्वा को खाते हुए स्मॉल मिनीवेट

ECO-TRAILS : A KEY ACTIVITY OF UDAIPUR BIRD FESTIVAL

Arun Soni
Officer-In-Charge, WWF-India, Udaipur Division

Eco-trail is a joint initiative of **WWF-India Udaipur Divisional Office and Wildlife Division, Forest Department, Udaipur** to explore nature's secrets, beauty and legacy to connect the budding nature enthusiasts of all age groups with nature. Students, school teachers, doctors, administrative officers, NGOs, research scholars, villagers, army personals, corporate staff, college professors, scouts, NSS, NCC cadets etc are. actively participate in the nature trail outings to experience the nature at close quarters. Participants of all taste like bird watchers, butterfly watchers, tree spotters and landscape lovers come together to enjoy the event.

During the Eco-trails, nature is admired in totality. All the taxa like mammals, birds, reptiles, batracho-fauna, fishes, butterflies, moths, dragonflies, damselflies, molluscs, spiders and all other life forms including plants are observed and photographed by the hobbyists and participants. Subject experts always led the groups to share their knowledge, experience and information

they have.

The programme aims not only to create awareness but it provides a platform to get solutions not just as an individual but together as a community too. It is a magical journey to understand the complex intricacy of eco-systems confined to the nature.

Udaipur Bird Festival 2024, the 10th edition of the event:

This year, Udaipur is celebrating the 10th edition of bird festival. Thus, during the current year, we are completing a journey of long one decade. Udaipur Bird Festival (UBF) is a one of the biggest festivals of India and has a repute at international level too. During the span of nine years (1st to 9th UBF) as many as 45 trails were conducted and 15 wetlands were visited. Eco-trail is not only a bird festival- centric activity, but it is conducted through out the year, especially on Sundays so that more and more people could participate in the event. Not only wetlands but other habitats like, grasslands, scrublands, woodlands, dense forest, agriculture zone etc. are regularly visited.

Impact of Eco-trails:

This is the platform where not only the budding birders refine themselves but mature and establish birders also participants to train the new buds. Children of age group five to the old persons more than 80 years age join the eco-trail outings. Initially, a few people only used to attend the trails, but now sometimes group size crosses more than hundred participants.

During first day of the UBF, more than 1500 people of all sect of the society participate in the event. A substantial number of participants register themselves for various competitions. A glimpse of the competitions and number of participants involved 2014 to 2023 is depicted in table given below:

Particulars	Period	Number of		No. of bird species seen
		Events	Participants	
Eco-trail and Wetland visits	2014 to 2023	45	2025	155
Eco-trails conducted on Sundays and various environmental days	2017 to 2023	101	5015	170

Photography and Awareness:

Nature possess all time beauty and everybody wants to capture it in the eye of the cameras. Most of participants join eco-trails come equipped with cameras. Participants not only take photographs of the nature but they take countless selfies with rivers, rocks, landscapes etc. they are seen quit eager and hasty to upload their photos on social media. Many social groups are seen active on the whatsApp and Instagram. Thus, trail participants are helping to create awareness enmass.

Experience Nature in its Purest Form:

The Eco-trail at the Udaipur Bird Festival is more than a walk in the woods. It is a chance to reconnect with nature and inmates of the nature. We have three prominent seasons in ours area mainly, winter, summer and rains. The beauty of a place is different in all three seasons. Similarly, the bird spectrum of a place is also different in three seasons. During winters, migratory birds are seen in and around wetlands and other habitats. During summers, summer migrants are seen here and there. During rainy season, seasonal plants and tuberous plant species become visible. This is a best time to observe them. No doubt, every place of the nature has different scenes at different times.

Mental Health Benefits of Our Eco-trails:

Due to high presences of green plants, oxygen level remains high in the forest area. Inhaling air from the forest, increases oxygen level in the blood and freshness in the mind. Wandering in the forest area not only increases our knowledge but help to improve our mental health also. Today's life is tough and tense; hence, a sylvan environment like outing in eco-tails always pays.

Flower Valley Eco Trail

Gulabbagh and Bird Park Eco Trail

Maharana Pratap Eco Trail, Sajjangarh

Mewar Biodiversity Park Eco Trail

Nela Talab Eco Trail

Roop Sagar Eco Trail

Cloud Nine, Sajjangarh

Jungle Safari Park Eco Trail

Van Hanuman Eco Trail

SOUVENIR

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