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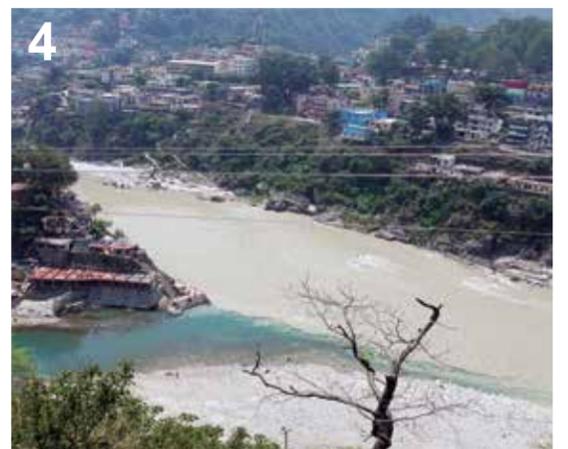
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Why do some people continue to admire and glorify Jim Corbett so much; after all he was merely a hunter? **A.J.T. Johnsingh, G.S. Rawat, and Vishal Ohri** present some instances of his writings and life experiences that highlight his fine qualities, not only as a hunter, but also a man with a golden heart.



A Wild Affair

Spotting a tiger in the wild is a priceless memory for any wildlife enthusiast. For **Shalini Gopalakrishnan**, her wild affair with the Royal Bengal Tiger began after she had a mere glimpse of its tail during an outing. Since then, she has visited the tiger in its natural habitat several times, and yearns for more sightings of it.

PHOTO FEATURE

The Flowers of Kaas

The mesmerizing Kaas landscape transforms into a riot of colours after the onset of the south-west monsoon each year, when a diverse array of wildflowers burst into bloom. **Asif N. Khan** takes us on a visual journey through this botanical wonderland nestled in the heart of the Western Ghats.



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Editorial...

Social Media and Nature Conservation

At no time in the past has there been so much awareness on the need to protect nature, and the credit for this goes to the emergence of social media, which has become a powerful tool for raising awareness about nature conservation; the number of interest groups on the internet vouch for it. You name it and there is a group on nature for that topic. Social media fosters the creation of online communities dedicated to nature conservation. These communities provide space for like-minded individuals to exchange ideas, share experiences, and collaborate on conservation projects. Personally, I have benefitted immensely for my interest in butterflies, from my interactions with people on these groups. Besides India, I now have friends in neighbouring countries like Pakistan, Bangladesh, Bhutan, and Sri Lanka, and also in the butterfly groups of Singapore, Thailand, and Hong Kong. There is so much flow of information among these groups. And as an unwritten rule, we never discuss politics. We are at peace with each other.

These groups often play a pivotal role in the global effort to protect our planet's fragile ecosystems and biodiversity. This digital revolution has enabled individuals, organizations, and activists to reach unprecedented audiences, fostering a sense of collective responsibility and mobilizing action for the preservation of nature. The immense global reach that these platforms offer helps in allowing amateurs, as well as serious conservationists, to connect with people from all corners of the world. It enables rapid sharing of information about endangered species, habitat destruction, and environmental issues on a scale that was unimaginable.

It has become so convenient to conduct online workshops, discussions, and presentations. We, in the Butterfly Groups, organize Butterfly Meets every year for the group members and even involve forest officials to make partnerships work towards nature conservation, which has resulted in very fruitful interactions. Such meets also allow us to step out from the virtual social media domain to interact in person. It helps in encouraging the younger audience when elders meet and endorse their work. Such meets are generally held in places where one would not have gone otherwise, and met people in the remote corners of India. This has been possible only because of social media.

The most delightful aspect among these groups is sharing of photos and videos. Stunning images of endangered animals, pristine landscapes, and the devastating effects of pollution can evoke powerful emotions, driving the viewer to support conservation efforts or change his or her behaviour. Such platforms provide space for compelling storytelling. Conservationists can share narratives about the struggles of endangered species, successful rehabilitation efforts, and their tireless work on the ground. These stories create empathy and engagement among followers.

Be it for crowdfunding campaigns or donations for conservation, social media is the best way to reach people. Some platforms allow individuals and organizations to raise funds for specific conservation initiatives, making it easier for people to contribute for the cause they care about.



Indian Sunbeam (male)

Another important impact of social media is that it serves as an educational resource. Informative posts, infographics, and articles increase public knowledge about environmental issues and help in understanding the importance of biodiversity, ecosystems, and the interconnectedness of all living beings.

Even advocacy campaigns on social media have an effective reach. They facilitate organization of grassroots movements, enabling conservationists to use hashtags, file petitions, and hold online events to mobilize support for policy changes, and to raise awareness about pressing environmental issues.

The best part is that social media allows for real-time updates on environmental crises, such as wildfires, oil spills, or deforestation. This enables rapid response and coordinated efforts among the affected, and can bring help more quickly. Even for researchers, social media is truly a blessing as it is an easy access to reference material and experts.

Many influencers use their platforms to promote environmental causes. Collaborating with such influencers, who have a large and engaged following, can exponentially increase the reach and impact of conservation campaigns. Governments and corporations could be held accountable for their environmental policies and practices. Public pressure generated on social media can influence decision-makers to adopt more sustainable policies.

However, it is important to note that while social media offers numerous benefits for nature conservation, it has its own challenges including the spread of misinformation, “clicktivism” (superficial engagement without real action), and potential for information overload. Therefore, it is crucial to use social media strategically, with well-researched and accurate content, to ensure that efforts translate into meaningful action and positive change for the environment.

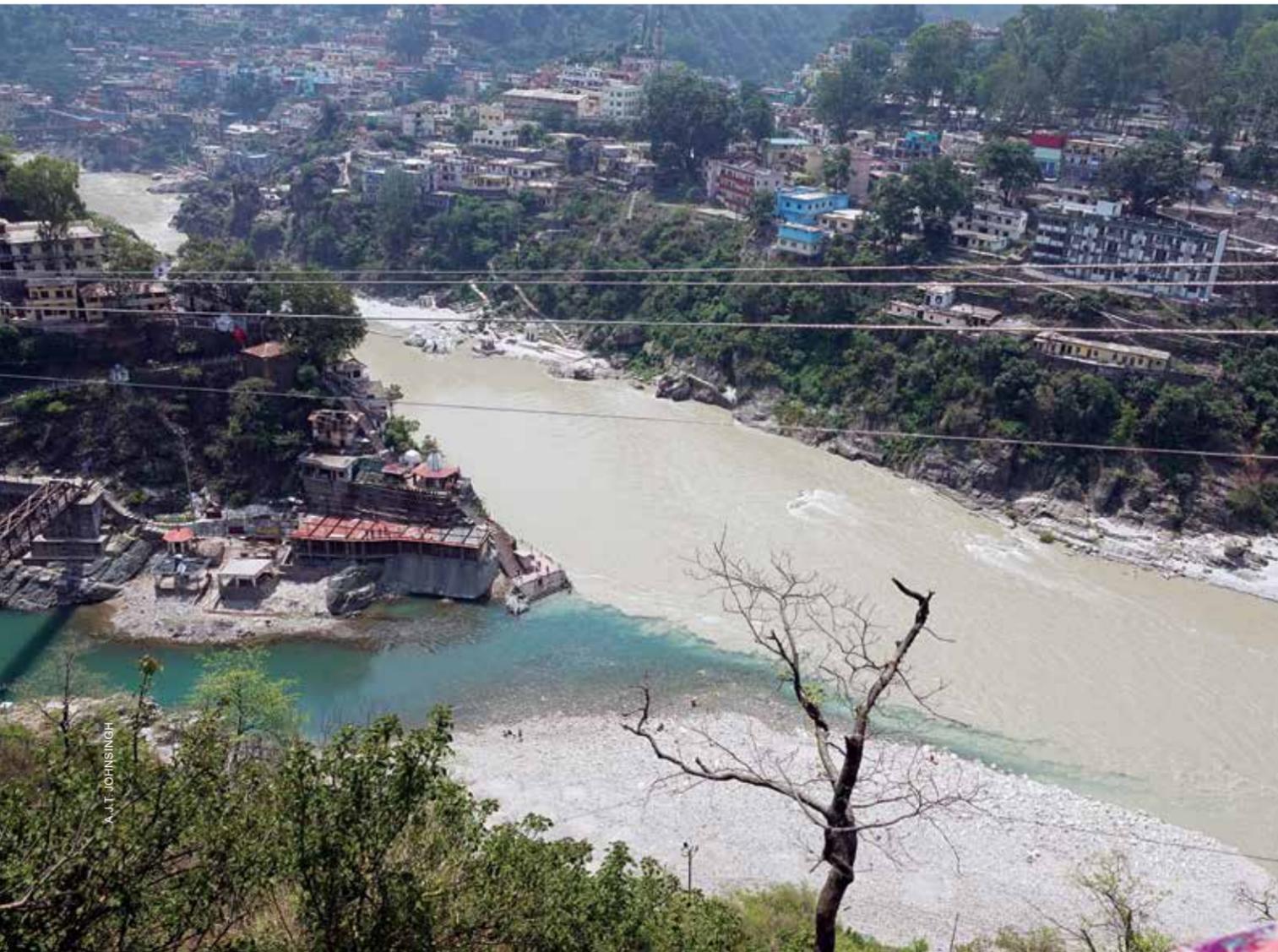
Isaac Kehimkar

The Legacy of Jim Corbett

Text: A.J.T. Johnsingh, G.S. Rawat, and Vishal Ohri

Numerous fans of Jim Corbett across India, the United States of America, Great Britain, Canada, New Zealand, Australia, and many other countries, admire him for his personal traits which made him the perfect gentleman that he was, and for his achievements. Even 68 years after his death in 1955, he lives in the hearts of the local people in much of Kumaon and parts of Garhwal. Bhairab Budlakoti, a 90 year old resident of village Chandnichowk near Kaladhungi, remembers Corbett as a kind-hearted

The calm blue Mandakini river joins the turbulent Alaknanda at Rudraprayag, where Jim Corbett caught two 30 pound mahseer



A.J.T. JOHNSINGH

‘Sahib’ who could mix with a villager as well as a Viceroy with equal ease. About Jim Corbett, Sir Malcolm Hailey, then Governor of the United Provinces, wrote, “As kindly and generous as he was fearless, he gave freely of himself and asked for nothing in return. ... I think that in the olden days he would have been one of the small band of Europeans whose memory has been worshipped by Indians as that of men who were in some measure gods.”

For those who have neither read Corbett literature, nor walked along his man-eater hunting trails, he may seem an ordinary hunter of the colonial period. However, his writings and life experiences tell us of his great qualities, not only as a hunter of man-eating leopards and tigers, but also as a man with a heart of gold, one who really cared for the poor of India and for humanity in general. Here we provide a few of the many instances that reflect the compassionate, fearless, and empathetic nature of Jim Corbett, with the hope that these would benefit the younger generation and other readers.

Concern for Indian soldiers

Corbett’s book *MAN-EATERS OF KUMAON* was dedicated to the gallant soldiers, sailors, and airmen of the United Nations, who during the World War had lost their sight in the service of their country. Further, he had directed that the royalties on the first edition of *MAN-EATERS OF KUMAON* should be sent to St Dunstan’s Hostel, for the rehabilitation of Indian soldiers who had been blinded in the war that was still being fought.

Concern for the poor

In 1915, Jim purchased a deserted village called Chhoti Haldwani (Kaladhungi). He worked hard to bring it back to life by building new houses, repairing old ones, fencing it for protection from wild ungulates and building a pucca furrow so that water could reach the farthest points in the village. He brought banana plants and maize seeds from Tanzania to improve productivity in the fields of Chhoti Haldwani. Corbett bade farewell to his tenants in Chhoti Haldwani with the promise that they will be free from rent; he continued to pay the taxes on the 40 holdings even after he emigrated to Africa at the end of March in 1947, until his death in 1955. People from far and near came to Corbett’s family in Kaladhungi to receive treatment and medicines for various ailments, as related in “Notes and Biographical sketches” by his sister Margaret (Maggie) Corbett, cited by Preetum Gheerawo. The house of his friend Moti Singh and a *chaupal* (village square), both constructed by Corbett, still stand today.



G.S. RAWAT

Moti Singh's house at Chhoti Haldwani

A powerful plea for saving the tiger

In his book *MAN-EATERS OF KUMAON*, Corbett made a powerful and eloquent plea for saving the tiger. He wrote, “There is, however one point on which I am convinced that all sportsmen – no matter whether their viewpoint has been a platform on a tree, the back of an elephant or their own feet – would agree with me, and that is, that a tiger is a large-hearted gentleman with boundless courage and that when he is exterminated – as exterminated he will be unless public opinion rallies to his support – India will be the poorer, having lost the finest of her fauna.”

Keen observer of animal behaviour

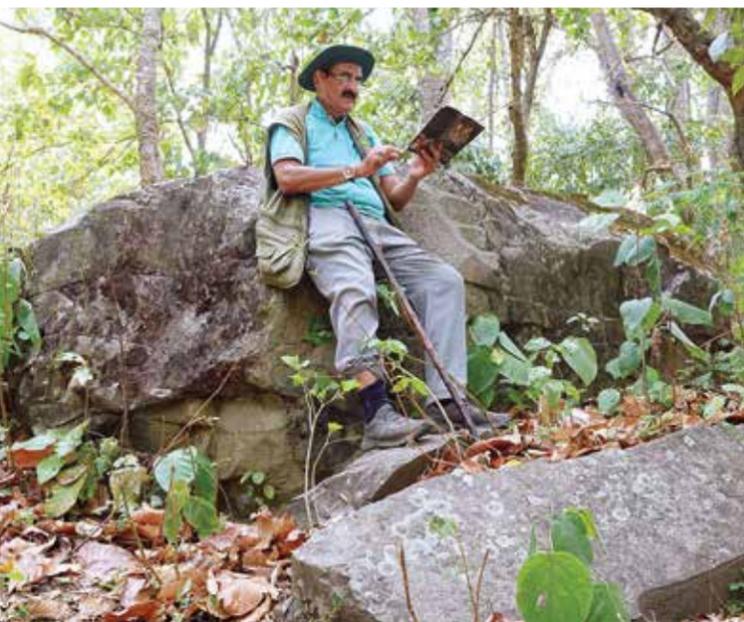
Corbett was a keen observer of wildlife in general, and the big cats in particular. For instance, his conclusions on man-eating leopards and tigers still hold good. He rightly held that a leopard, even when it becomes a man-eater, never loses his fear of humans; so killing a human being for food is carried out in the cover of darkness. A tiger on the contrary, on becoming a man-eater, loses all fear of humans and can kill even in broad daylight.

Exemplary courage, and ability to take grave risks

Although Jim Corbett admired the tiger, he did his best to eliminate man-eating tigers (and leopards) immediately, so that the simple jungle folk could return to their deserted hamlets and resume normal life, cultivating their hillside fields from which they barely managed to eke out a living. In his pursuit of man-eating tigers on foot (Champawat, Mukteshwar, Kanda, Mohan, Chowgarh,

Bachelor of Powalgarh, Pipal Pani, Thak, Chuka, Talla Des, and the Temple tiger) and man-eating leopards (Panar and Rudraprayag), he often took grave risks. It was only providence that saved him, for he was never wanting in courage in facing danger.

Although with fear and a prayer in his heart, Corbett tracked man-eating tigers on foot, he showed exemplary courage while shooting them. He believed that it is best for a hunter to track tigers on foot, as then, the hunter would be extremely cautious and would not make mistakes; additionally, the shot would be deadly. The mortally wounded Champawat man-eater collapsed at a distance of 20 feet from him. He called up and shot the



Vishal Ohri reading the Thak tigress story, sitting on the rock he believes is the one from which Corbett shot at the man-eater

Thak tigress in the gathering darkness from very close quarters. Again, he shot the Chowgarh man-eater as she lay eight feet away, and in his own words, "... on her face was a smile, similar to that one sees on the face of a dog welcoming his master home after a long absence." As he had nightjar eggs in his left hand at that moment, he had to shoot the tigress while holding his .275 rifle in his right hand, slowly swinging it around three-quarters of a circle to bring it to bear on the tigress. It is remarkable how he accomplished this near impossible feat, given that the tigress was watching his every move intently. Incidentally, A.J.T. Johnsingh got an opportunity to examine this rifle when it was brought to Ramnagar by its current owner in February 2017. We visited all these places where Corbett had been, interacted with elderly people there, and were

happy to see that the events that took place so long ago were still a part of the local lore.

First person to film tigers in the wild

In all likelihood, Corbett was the first person to expose a 600-ft film on six full grown wild tigers (four males, two of which were over 10 ft, and two females, one of which was a white tigress). All the felines were filmed around dawn, at distances varying from 10 to 60 ft, along the Boar river near his winter home, Kaladhungi. According to him, the whole proceedings from start to finish took four and a half months. This was accomplished in the winter of 1938, when Corbett was 63. He was inordinately proud of this, as the films are a living record of six full-grown tigers together. During the countless hours he lay near a small stream and the miniature waterfalls he had created, not even one of the tigers ever saw him. In his own words, "The stalking to within a few feet of six tigers in daylight would have been an impossible feat, so they were stalked in the very early hours of the morning, before night had gone and daylight come – the heavy winter dew making this possible – and were filmed as light, and opportunity, offered." According to Preetum Gheerawo (in his book *BEHIND JIM CORBETT'S STORIES*), what remains of the original film is kept at the British National Film Archive, London.

An embodiment of honesty

Jim Corbett was honest to the core. In the chapter 'Loyalty' in *MY INDIA*, he relates an incident when he tried to quietly 'return' Rs 200/- (a small fortune those days) to the Railways because it did not belong to him, and he didn't know how to account for it as it had remained with him on account of 15 unknown cartmen having been erroneously underpaid, based on a wrong estimate submitted by themselves.

Contributions to military services

Jim Corbett contributed immensely to military services during the First World War (1914–18) by raising a labour force of 500 Kumaonis whom he took to France, and brought all of them back safely (except one who died of sea-sickness). Many tales are told of the unquestioning faith with which the hill-men followed his leadership in the unfamiliar world to which he led them. During the Second World War (1939–1945), he helped to train the troops who were to take part in the campaign in Burma. During his war effort, he suffered from tick typhus. He, however, worked hard on his constitution so as not to

become a cripple. In September 1945, after the war, he returned home to Maggie, weakened by malaria.

Compassion and kindness

In the chapter 'Loyalty' in *MY INDIA*, he has narrated an incident when 12 of his headmen decided not to come for work as they had not been paid. Despite Corbett's best efforts, the Railway office at Gorakhpur was delaying sending money, and as a result he was unable to make any payment to the headmen. However, when the headmen saw him eating one chapatti and a little dal for dinner, they realized that he was not living a comfortable and luxurious life. Rather, he himself was in the same boat as they were. They were so touched by his condition that they changed their mind and decided to come back to work, but requested Corbett to send a final and firm message to Gorakhpur, requesting them to send the money immediately. Corbett complied with their suggestion, and the response from Gorakhpur was prompt and positive.

Jim Corbett reportedly took pleasure in wearing his favourite weather-beaten hunting coat, which no doubt made the poor feel comfortable. Dressed simply and with a good command over the local language, Corbett was able to connect with the poor easily.

A gifted writer

Corbett is known for his graceful writing style and lucid accounts. The authenticity of the contents, and the

precise expression of every detail, have given his prose an eternal quality. The narrative, no matter how many times one reads it, is as fresh as ever. The concluding lines of many of Corbett's stories are captivating and touching. For example, in the 'Muktesar Man-eater' he writes about Putli, a young girl of about eight years, going alone on the road with Kalwa, an unwilling bullock, to be taken to her uncle's home as he needed a bullock for ploughing because one of his pair had been killed by the man-eating tigress. Just before that, Corbett had seen a party of 12 Europeans walking on the road carrying service rifles. The sergeant of the team had told Corbett that they were keeping together because of the man-eater, which by that time had killed 24 people. It was surprising for Corbett to see brave little Putli walking alone where even armed men went about in groups. After killing the man-eater, Corbett wrote, "Shooting of a man-eater gives one a feeling of satisfaction. Satisfaction at having done a job that badly needed doing. Satisfaction at having outmanoeuvred, on his own ground, a very worthy antagonist. And, greatest satisfaction of all, at having made a small portion of the earth safe for a brave little girl to walk on."

All those interested in angling would love reading the "Fishing Interlude" story in the *MAN-EATING LEOPARD OF RUDRAPRAYAG*. In this anecdote, two brothers help Corbett to land two mahseer weighing over 30 pounds each, from the Mandakini River. While the elder boy goes home taking one fish, the younger boy tells Corbett, "If you



Mark Newton from Rigby, UK and A.J.T. Johnsingh with Jim Corbett's legendary Rigby-Mauser .275, with which he shot the Chowgarh and Talla Des tigers and the leopards of Rudraprayag

will let me carry both the fish and the rod, and will walk a little distance behind me, Sahib, all the people who see me on the road, and in the bazaar, will think that I have caught this great fish, the like of which they have never seen." Recollecting his own boyhood angling trips with his elder brother, Corbett gladdened the heart of the little boy by allowing him to carry the fish and the rod while he himself trailed behind.

Corbett's books have been immensely popular, especially *MAN-EATERS OF KUMAON*. The book has been translated into at least 15 languages, and 11 regional languages within India, and has never been out of print since it was first published in 1944. By 1980, the book had sold over four million copies worldwide.

An epitome of physical and mental fitness

Young men would be most envious of Jim Corbett for his remarkable fitness. Having been born in Nainital and grown up in the mountains, Corbett was as fit as any hill man could be. This comes to light in his narration of hunting man-eating leopards and man-eating tigers. While trying to track the Chowgarh tigress, he had to spend three nights on a tree, and go without food for 60 hours. After he carried the skin of a grown-up cub (that he had shot by

mistake), he wrote, "If the skin, plus the head and the paws, which I carried for 15 miles that day weighed 40 pounds at the start, I would have taken my oath it weighed 200 pounds before I reached my destination." He had skinned the cub with his pen-knife, in fading light, and all the time he had the feeling the mother tigress was watching him!

Corbett's fitness becomes much more evident when, at the age of 63, he hunted the Thak man-eater. Between 27th October and 31st November, 1938, while his body yearned for sleep and rest, he walked uphill to Thak several times, a distance of a little over three kilometers, with every likelihood of having the teeth of the tigress meet in his throat. While on this chase, he also had to spend three nights up in an 'almond' tree braving the November cold and even rain on one occasion. At the end of the Thak story he wrote, "There have been occasions when life has hung by a thread and others when a light purse and disease resulting from exposure and strain have made the going difficult, but for all these occasions I am amply rewarded if my hunting has resulted in saving one human life."

His vision for India as a land of hope

In the chapter 'Life at Mokameh Ghat' in *MY INDIA*, Corbett writes, "When I hear of the labour unrest, strikes,



G.S. RAWAT

An old Indian laurel tree at Thak, most likely the one in which Corbett spent 24 hours at age 63. He calls it an almond tree



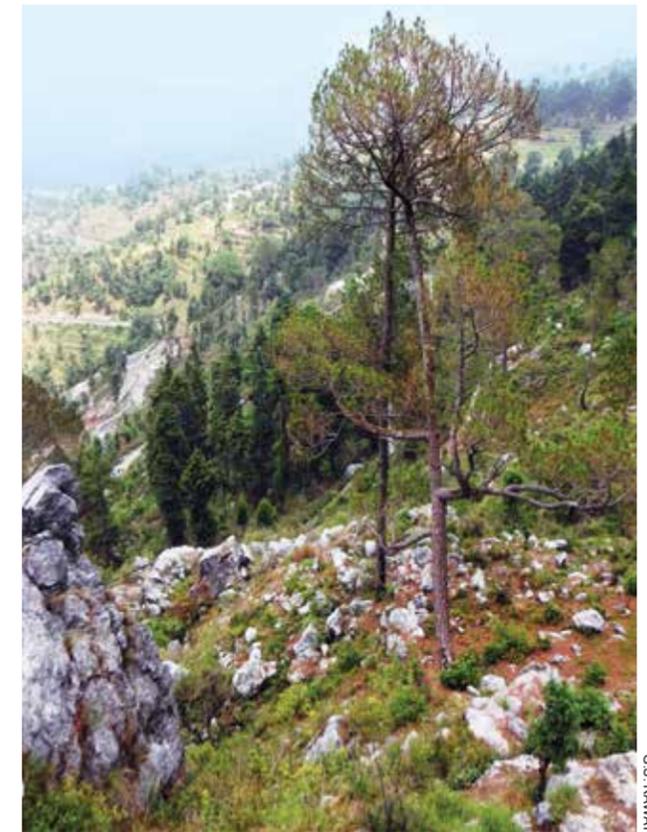
A.J.T. JOHNSINGH

The mango tree from which Jim Corbett shot the man-eating leopard of Rudraprayag, on May 2, 1926, after spending 10 nights up in the tree



A.J.T. JOHNSINGH

Kaphal fruits, which black bear are very fond of feeding on



G.S. RAWAT

Terrain of Kala Agar where Corbett tracked Chowgarh tigers closely on foot

and communal disorders that are rife today, I am thankful that my men and I served India at a time when the interest of one was the interest of all, and when Hindu, Mohammedan, Depressed Class, and Christian could live, work, and play together in perfect harmony. As could be done today if agitators were eliminated, for the poor of India have no enmity against each other."

In the Epilogue to *THE MAN-EATING LEOPARD OF RUDRAPRAYAG*, Corbett wrote about meeting a grievously wounded young soldier, who was keen to go and tell his father, not about his own brave deeds in the battlefield, but that he had seen with his own eyes the sahib who had

shot the man-eating leopard. He says, "A cripple, on the threshold of manhood, returning from the wars with a broken body, with no thought of telling of brave deeds done, but only eager to tell his father that with his own eyes he had seen the man who years ago he had not had the opportunity of seeing." And about himself, Corbett says that he was "a man whose only claim to remembrance was that he had fired one accurate shot".

He concluded, "It is these big-hearted sons of the soil, no matter what their caste or creed, who will one day weld the contending factions into a composite whole, and make of India a great nation." 



A.J.T. Johnsingh is a long-time admirer of Jim Corbett and an associate of WWF-India and The Corbett Foundation.



G.S. Rawat is former Senior Professor and Dean, Wildlife Institute of India, Dehradun.



Vishal S. Ohri is a passionate nature lover, a keen photographer, and an avid reader of wildlife literature, especially related to Jim Corbett.



T: Indian Peafowl, L: Common Kingfisher, R: Brown Fish-owl

A Wild Affair

Text and Photographs: **Shalini Gopalakrishnan**

Ranthambore, Kanha, and Pench – our national animal had eluded me in all these places, so I decided to head to Bandhavgarh, a beautiful land of tigers! Winter in India is one of the best times to visit and experience the forests. And so, I arrived in Bandhavgarh on a cold December morning, and braved

the chill of Central India for the next couple of days. Our first evening safari did not result in any tiger sightings. But we spotted quite a few birds: a pair of cosily nestled Indian scops-owl, a common kingfisher – its attention focussed on a small water body, an Indian peafowl walking in the afternoon sun, and a brown fish-owl peacefully resting on a branch.

Nevertheless, a new day brought new hope, and we embarked on our next morning safari with renewed vigour. Just minutes into the park, a barking deer crossed our path and then, nothing could have primed us for the show that lay ahead. Completely hidden by the dry brown foliage was a young male tiger, resting peacefully. Had it not been for the keen vision of one of us, the tiger would have completely escaped our sight. As our jeep retraced a few paces, he raised his head and stared at us. After a few moments, as if our hearts were not already full, we got another prodigious surprise – the tiger’s young sister emerged from the tall grasses beyond, to investigate what had disturbed her brother’s peace. This magnificent beauty walked towards us, sat at the edge of the road, and looked directly at the source of disturbance on such a pleasant morning.

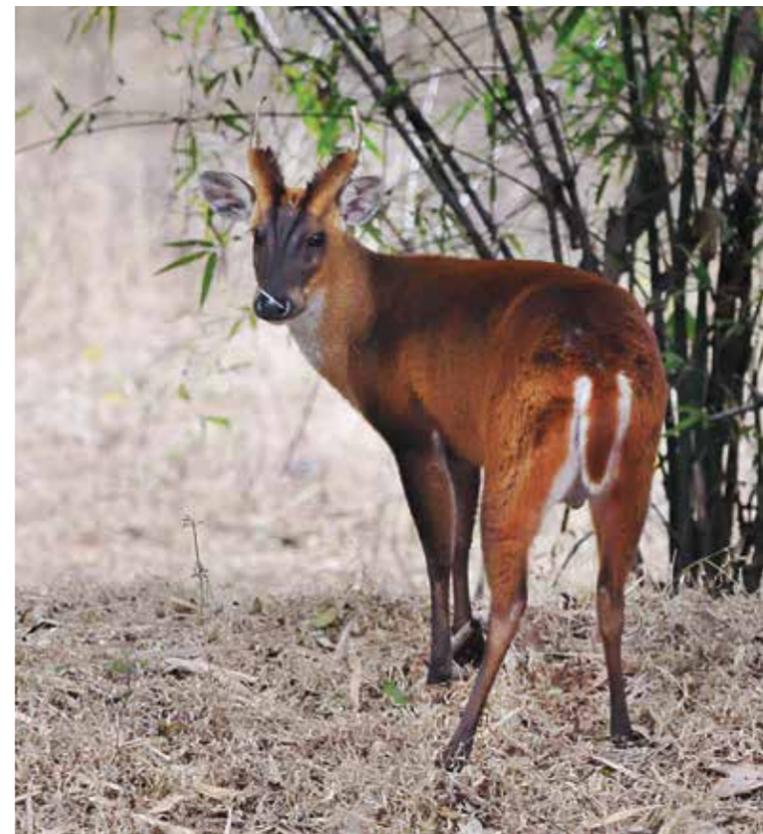
A 150–500 mm black camera lens that looked rather like a fat and long gun held her stare for some seconds. We were thrilled to watch her head sway slightly, but quickly enough, from one excited face to another, checking for a possible predator. And for these few wonderful moments, it seemed as if time came to a standstill. Oblivious of our surroundings, all of us stood mesmerized. And I concluded that it is humanly impossible to not fall in love with such a majestic creature that nature had bestowed the forests with!

After the tigress realized that the visitors were not a threat to her or her brother, she stood up and strode ahead on the road. She was now interested in a domesticated elephant that had come from the opposite direction with its mahout. It was stripping trees of their leaves and creating a din. By this time, more jeeps had reached the spot and aligned themselves behind ours. On understanding that none of the gathered lot meant any harm, she crossed to the other side of the path and disappeared.

Our attention then shifted to her rather lazy brother who was, until that moment, lying on the grass. Unable to sight his sister, he stood up and, in a few strides, seated himself in a cat-like fashion at the top of a flat rock, to possibly view the events occurring on the road below and to look for signs of his missing sister. But he



Indian Scops-owl



Barking Deer



did not have to wait long. Just as she had vanished, she appeared suddenly from behind the bushes and much to our excitement, leapt to the top of the rock.

The brother was calm, but the sister seemed restless. She cleaned herself, stood up, walked a few paces down and then few steps up the rock, scratched and stretched herself, and finally settled down. And so there they lay in front of us – the siblings (cubs of the Banbei female – also called the Wakeeta tigress), seated at the opposite ends of a small rock, looking down at the congregation.

It was a sight that any wildlife photographer always dreams of. In the limited time of the sighting, all cameras and lenses were focused on the tiger pair and every soul was keen to capture the moment in their memories or onto their cameras.

A scintillating yawn by the female cub showed her firm set of canines, which will in some days make her the most ferocious predator. After what seemed a lifetime's worth of a sighting for us, she rose again and this time she was followed by her brother. Both crossed the road

Top: The young male tiger hidden behind the foliage
Bottom: The restless sister stood up, walked a few paces before settling down



Sighting a tiger in its natural habitat creates priceless memories for wildlife enthusiasts

ahead of us. We thought that they intended to walk down the road. But they stopped mid-way and gazed intently at something that had caught their attention in the green beyond. There was a third kind of intruder now (first being us and the second being elephants). Forest guards with long sticks were walking towards the pair.

Having had enough interference from humans, the tiger cubs decided to leave this part of the forest and find a safe abode elsewhere. They bounded right into the dense foliage, and did not come back again, at least that morning. They may have possibly gone straight in search of their mother to tell her about their morning rendezvous.

For us, this hour-long affair will be cherished for a lifetime! The whole scene had left us spellbound. What a majestic animal and what a splendid sighting! Spotting a tiger in the wild, for those blissful seconds or in luckier circumstances, minutes, is a priceless memory for any wildlife enthusiast. The natural charm, power, glistening pelt, and royal aura that accompanies the animal makes it

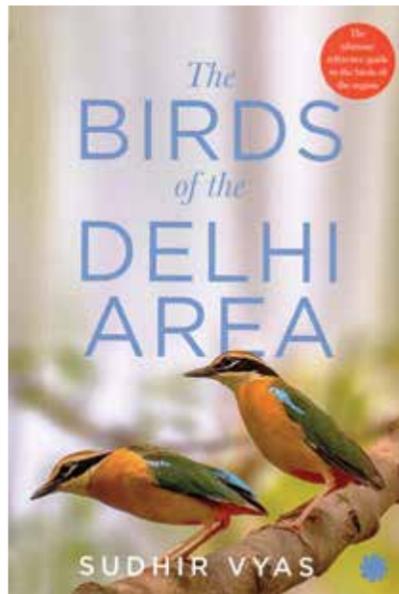
stunningly attractive. A striking exemplar of both beauty and the beast in one, a tiger sighted in its natural habitat is always magical, and even for the umpteenth time, you will crave for such a sight.

And unless a mere glimpse of its tail or foreleg is considered a sighting, that was my first real sighting of a Royal Bengal Tiger in her kingdom – a sighting that marked the beginning of a long and strong wild affair.

The eyes of the tiger had cast a spell, and I were bound for life!



Shalini Gopalakrishnan is an IT Professional and a wildlife enthusiast. A photographer by passion, she documents the natural world through words and pictures.



The Birds of the Delhi Area

Author: Sudhir Vyas
Published by Juggernaut Books,
New Delhi, 2023
Size: 21 cm × 14.5 cm
Pages: 320
Price: ₹ 1,299/-
Hardbound

Reviewed by: **Asad R. Rahmani**

Thanks to the vast improvement in digital photography, all bird books are pleasing to the eye, but if a book is written by a veteran birdwatcher such as Sudhir Vyas, the delight is manifold. First, a bit about my personal acquaintance with Mr Vyas. After a 12-year stint with BNHS (1980–1992), I started teaching at the Centre of Wildlife, Aligarh Muslim University, when I received a paper on birds for review from the editor of the *Journal of the Bombay Natural History Society (JBNHS)* in 1995. As it was a double-blind review, the author's name was not included in the paper. After an initial screening, I was amazed at the quality of the

paper, such that there were hardly any corrections. I immediately wrote to the editor to accept the paper, which was subsequently published in two parts in *JBNHS*. The paper proved the importance of non-professionals in promoting ornithology. And having read that brilliantly written piece, my curiosity to know the author compelled me to request Mr J.C. Daniel, the Executive Editor of the *Journal*, to reveal the author's name. He wrote back to say that the author was a senior Indian Foreign Service officer with an interest in birds. I later had the opportunity of spending some time with Mr Vyas during the UP Bird Fair, and during our brief interaction, his knowledge of birds amazed me. If you do not believe me, read this book.

I have read Usha Ganguli's *A GUIDE TO THE BIRDS OF THE DELHI AREA*, published in 1975, and later Nikhil Devasar and Bill Harvey's book, *ATLAS OF THE BIRDS OF DELHI AND HARYANA*, published in 2006. Both books, 30 years apart, along with many research papers written by Dr Abdul Jamil Urfi, Nikhil Devasar, Bill Harvey, Dr Surya Prakash, Sudhir Vyas, and others, added much to our knowledge of the birds of Delhi. *THE BIRDS OF THE DELHI AREA* by Sudhir Vyas combines all the available literature on birds in Delhi with the vast knowledge of the writer. To add to this, the excellent images enhance the value and beauty of the book.

I provide a few examples of how this book has set an example of excellence in ornithological literature. In 2019, Vyas published 'The Birds of the Delhi Area: An annotated checklist' in *Indian Birds*, a highly popular Indian bird journal.

The author and Juggernaut need to be complimented that the annotated checklist did not remain confined to a journal but has been presented in the form of an acclaimed book.

In the Introduction (p. 5), the author writes, "This is not a field guide as several excellent resources are already available. It has a dual objective: first, for a growing community of Delhi's birdwatchers, it attempts to provide insights into some deeper and broader aspects of the birds they see around them – beyond simple identification – to touch upon other facets and to contextualize the presence of a bird species in the Delhi area within its overall range and movements in the hope that it will encourage them to explore some of these fascinating aspects in as much detail as may catch their fancy. As a second objective, it establishes an updated, thoroughly researched and annotated checklist of the birds of the Delhi area...". The checklist is annotated up to March 31, 2023.

The best part of this book is that it is for everyone – amateurs, serious birdwatchers, professionals, senior ornithologists, and decision makers, as well as photographers, who can learn some photography tips from Amit Sharma, the principal photographer of the book. Every image is sharp, distinctly showing most of the morphological characteristics of a species. Even warblers (mockingly called 'little brown birds' by frustrated birdwatchers due to the difficulty in their identification) are photographed well.

Bringing out region, area, habitat, district, or state-wise bird books is a welcome development, but most

such books do not add value to science. However, Vyas bridges this gap by capturing all updates related to bird occurrence and providing a lot of new information on the birds in Delhi. For example, he says that the Striated Grassbird *Megalurus palustris* was unknown to Delhi before the mid-1970s, but is now resident and quite widespread in suitable habitats in the Yamuna floodplains of Wazirabad and Okhla, canal marshes, Ganga *khadar* at Hastinapur, and some large waterbodies. He provides records of the historical breeding of Pallas's Fish-eagle in Delhi through data and references. Similarly, he mentions that the Lesser Fish-eagle has not been historically recorded from the area, but presents the first report from Okhla, and many more records in recent years.

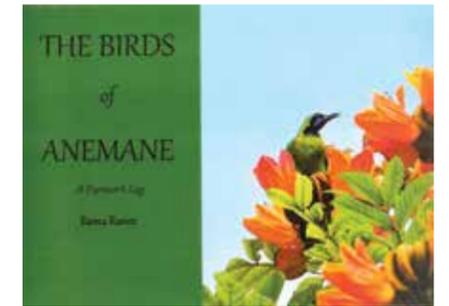
The author's personal observations are equally important. For instance, he writes about the Streaked Weaver (p. 262), "Locally common in the area. Both Streaked- and Black-breasted Weavers may breed in close proximity to each other as at Okhla or Basai, but the former also occupies another, rather different ecological niche, smaller channels and ponds with overhanging grass and reeds rather than expanses of such habitat." Such statements prove that the author is a keen observer of details. There are

hundreds of such examples in the book, and I am almost certain that the book will improve my ornithology.

I have seen hundreds of bird checklists, and have had the unfortunate experience of reviewing some of them. Most present only common and scientific names, IUCN status, Wild Life Protection Act (1972) status, food preference, and sometimes habitat (forests, wetlands, grasslands) of birds – in short, they do not add any scientific value to ornithology. For that reason, I prefer annotated checklists that add new information to every species, and Sudhir Vyas's book is just that. *JBNHS* was famous worldwide for publishing annotated checklists. It was these checklists and books that helped Dr Sálím Ali in compiling his *HANDBOOK*, and I am sure, if he was alive, he would have been delighted to read this book. Mr Sudhir Vyas's book has set the gold standard of how to write a popular book with good new scientific information, and I hope future ornithologist-writers will follow him. 🙏

A small box item (p. 28) "Definitions of Abundance", explains Vyas's use of such terms as common, fairly common, scarce, and rare. This is a welcome and in itself rare addition for any publication on biodiversity.

– Eds



The Birds of Anemane, A Farmer's Log

Author: Rama Rane
Published by: Author
Size: 20 × 30.5 cm
Pages: 170
Paperback
Price: Not mentioned

Reviewed by: **Kishor Rithe**

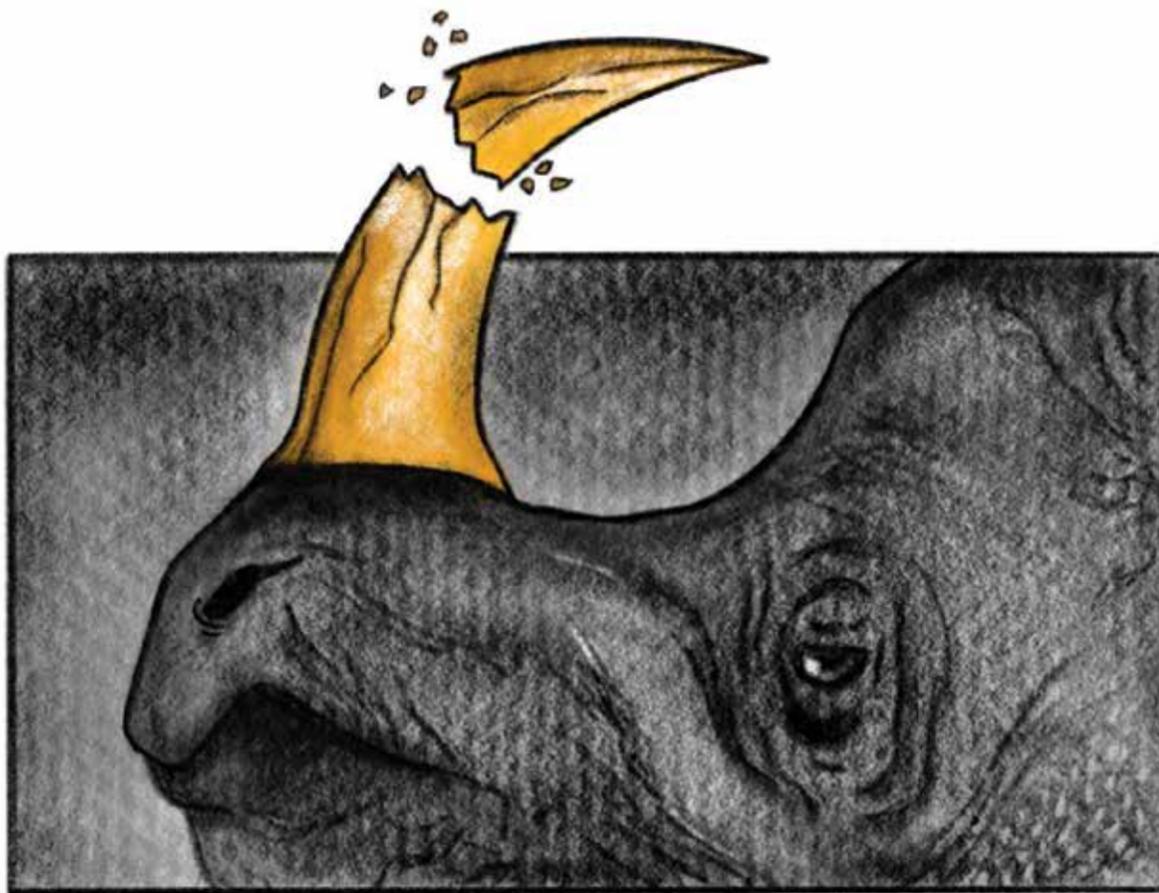
At a time when the entire world is focusing on eco-restoration, this book actually depicts how the arduous task of bringing back biodiversity to a denuded and degraded land was performed. The book, a pictorial delight with several photographs of the birds found in the Anemane Farms, displays the author's love and passion for nature in an agricultural setting. Each picture selected in this book has a special niche, and I am sure that the readers will develop a love for birds and their habitat after seeing the colourful bird pictures. I truly believe that this living example of a restored piece of land, the resurrection of its biodiversity, will inspire readers to follow the path. 🙏

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Courtship behaviour of Rose-ringed Parakeet

Rose-ringed parakeets are resident birds in India, and among the most commonly distributed across the country. We have always enjoyed watching them curiously checking out new objects or playfully hanging on wires, chattering and calling to others of their species!

In January 2023, we saw a pair of parakeets courting near my residence in Rajkot, Gujarat. This behaviour is also known as pair-bonding. The male and female were perched on an angle-iron. The male, with one foot raised in the air, swayed continuously from side to side in front of the female, and gave an impression that it was dancing! After some time, it started caressing the female and they locked their beaks together. This continued for at least five minutes.

Subsequently, we saw the pair every day. Initially they would sit on different perches and play with other parakeets. But eventually, they would return to the same angle-iron perch and continue pair-bonding. We noticed that they came to the perch at the same time in the morning and evening. Seldom did they visit the perch during the day, except on rare occasions when it was cloudy. Their nearest roosting site was in a garden, nearly 500 m from their pair-bonding perch. As their preferred spot did not have any trees or bird feeders, it appeared to us that the



pair visited this perch solely for pair-bonding and to play with other parakeets. We wonder if rose-ringed parakeets demonstrate site fidelity even for pair-bonding? 📧

– Krunal Trivedi and Akshay Trivedi
Rajkot, Gujarat

ABOUT THE POSTER

Whip scorpions or vinegaroons are lesser-known relatives of spiders and scorpions. They belong to the order Thelyphonida (also called Uropygi), which has about 110 species. These arachnids look like a scorpion in most regards, except for the long whip-like tail. When threatened or cornered, in defence they spray a liquid from the tip of the whip-like tail, which contains acetic acid, i.e. vinegar, from which they get their common name. Predatory in nature, they use specialized teeth to crush their prey, which includes insects, millipedes, and other arachnids. Like scorpions, the mother whip scorpion carries her babies on her back till they are able to defend themselves. In the image, a *Uroproctus assamensis* raised its whip-like tail when I approached it with my camera in Jampui hills on the Tripura-Mizoram border. This species is common across north-east India,



Whip Scorpion *Uroproctus assamensis*

especially at about 600 m elevation. Of the 16 known genera, India is home to four. This is one of the least studied arachnid groups in the country. ■

Whip Scorpion *Uroproctus assamensis*



The Flowers of Kaas

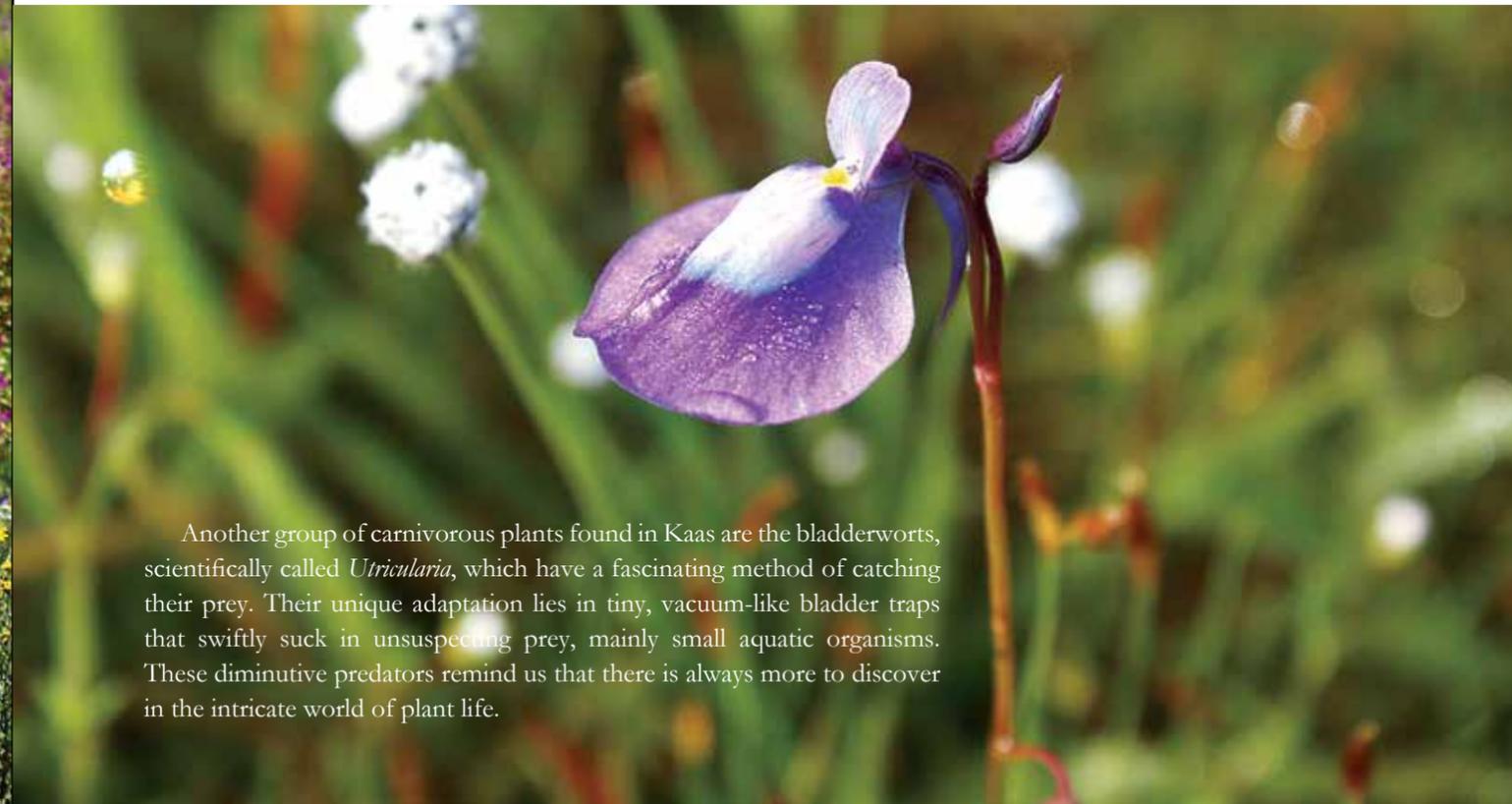
Text and Photographs: **Asif N. Khan**

Nestled in the heart of the Western Ghats in peninsular India, Kaas plateau is a mesmerizing landscape that transforms into a riot of colours after the onset of the south-west monsoon each year, when a diverse array of wildflowers burst into bloom. Popularly known as Maharashtra's Valley of Flowers, this UNESCO Natural World Heritage Site is equally rich in floral diversity as Uttarakhand's meadows of endemic alpine flowers.

Kaas plateau is mainly formed of basalt rock, covered with a thin layer of acidic soil, not more than an inch thick. The entire plateau is uneven, which causes some parts to be dry where water runs off, and some parts where water accumulates, forming water-logged areas. These features constitute a unique habitat with a nutrient-deficient soil. The thin soil layer does not allow large shrubs and trees to grow, creating a habitat that appears dry and barren through most of the year, but gives rise to abundant seasonal blooms during the monsoon. This article takes you on a visual journey through Kaas plateau – a botanical wonderland – showcasing the delicate beauty of its indigenous flora, from the vibrant carpets of blossoms to the enchanting carnivorous plants that call this plateau home.



Droseras are enigmatic carnivorous plants that fascinate botanists and nature enthusiasts alike. Commonly known as sundews, they are usually found in nutrient-poor soils where they employ a unique survival strategy. Glistening, sticky droplets on their tentacle-like structures lure unsuspecting insects, trapping them for food. This remarkable adaptation showcases nature's ingenuity, as these plants have evolved into predators to thrive in harsh environments. Kaas has two species of sundew, the Indian sundew *Drosera indica* (left) and Burmese sundew *Drosera burmannii* (right).



Another group of carnivorous plants found in Kaas are the bladderworts, scientifically called *Utricularia*, which have a fascinating method of catching their prey. Their unique adaptation lies in tiny, vacuum-like bladder traps that swiftly suck in unsuspecting prey, mainly small aquatic organisms. These diminutive predators remind us that there is always more to discover in the intricate world of plant life.



Smithia, or the Mickey Mouse flower, forms the yellow carpet typical of Kaas images. These flowers thrive in rugged landscapes and have adapted to the arid conditions of the non-monsoon season by developing a unique survival strategy. The seeds possess a tough, protective coat, allowing them to endure the harsh summer and germinate when conditions are favourable. Another peculiar species in Kaas is the hairy smithia or *Smithia hirsuta*, called so due to the yellowish glandular-based hairs on the stem. This species is characterized by red spots on the flowers.



Plants belonging to the genus *Ceropegia* are known for their unique flowers and peculiar pollination methods. The flowers release a scent to attract flies, but instead of feeding on them like the carnivorous plants, they trick the insects into pollinating them. With a unique shape and hairy filaments at the opening, the corolla forms a cage, and the insects are trapped inside, where in struggling to escape, they brush against the anthers and pollinate the flower.



Zombi pea or elephant trunk flower, affectionately called Ganpati flower *Vigna vexillata*, also exhibits a unique pollination method. The flower has two horizontal and two vertical petals and one half-moon-shaped petal in the centre, with a bright yellow spot. As soon as an insect lands on the central petal, an elephant trunk-like projection emerges, bathing the insect with pollen. Uniquely, this mechanism is triggered only by a certain weight, and so lighter insects landing on the flower do not get showered with pollen.



Satara lace plant, locally known as pantura or y-tura, *Aponogeton satarensis* is a rare aquatic botanical marvel native to the Western Ghats. Its slender, translucent leaves and delicate white flowers make it a captivating addition to freshwater ecosystems. However, habitat loss and water pollution threaten its existence, earning it a place on the IUCN Red List as Vulnerable. Conservation efforts are vital to safeguard this aquatic gem, ensuring that it continues to grace our waters with its elegant presence, fulfilling its role in maintaining ecological balance.

Long-tailed habeneria *Habenaria longicorniculata*, a rare and captivating orchid species found in the Western Ghats, is a botanical gem. Its distinct long, thread-like spur and intricate white flowers make it a sight to behold. Presently, habitat degradation and deforestation pose serious threats to its survival, rendering it locally Vulnerable. Conservation efforts are imperative to protect the unique ecosystems where it can thrive and continue to enchant nature enthusiasts and researchers alike.



The Rock dipcadi *Dipcadi saxorum* thrives in harsh rocky habitats of the Western Ghats, showcasing nature's resilience. It has the most beautiful slender stems, with clusters of bell-shaped, cream-coloured flowers. However, habitat loss and over collection pose significant threats to its survival, leading to its Vulnerable status on the IUCN Red List.

Deccan pogostemon *Pogostemon deccanensis*, a fascinating plant native to the Deccan Plateau in the Indian peninsula, is known for its aromatic properties. This herb emits a pleasant fragrance when crushed, making it a valued ingredient in traditional medicine and perfumery. It also plays a vital role in ecology, providing habitat and sustenance for various insect species. However, like many endemic plants, it faces habitat destruction. This plant needs conservation efforts to ensure its continued contribution to both traditional and ecological realms.



Water snowflakes *Nymphoides indica* are fast-growing aquatic plants that can be seen growing on the Kaas lake surface. Colonies of these flowers in bloom on the water surface appear as freshly fallen snow, giving them their common name. They are also called floating hearts, due to their heart-shaped green leaves.



The uniqueness of Kaas is also the cause of its decline over the years as the metamorphic landscape of Kaas has gained popularity and is visited by thousands of tourists. Of the more than 850 species of flowering plants found in Kaas, 624 species are threatened. Balancing tourism with preservation, implementing stricter regulations, and actively engaging in habitat restoration are vital steps toward safeguarding Kaas's fragile ecosystems. The future of the Kaas plateau depends on our collective commitment to sustainable practices and the preservation of its unparalleled beauty. 🌿



Asif N. Khan has been working as Programmes Officer with BNHS for over 13 years. He holds a keen interest in birds. He enjoys writing and is interested in photography, which brought him to Kaas.



Grey Hypocolius
at Greater Rann of
Kachchh, Gujarat, India

The Rakhals of Kachchh, Gujarat

Text: Asad R. Rahmani

I first heard the term *rakhal* in the mid-1980s during one of my visits to Kachchh in search of the great Indian bustard. My visits to Kachchh district were incomplete without first meeting, in Bhuj, M.K. Himmatsinhji, brother of the former Maharaja of Kachchh, and an expert on the wildlife of the area. He suggested that we should visit the *rakhals* located on the way to Koteswar, as some of them still had grasslands

and good natural thorn forest. I was with Ms Usha Lachungpa, Taej Mundkur, and his friend, conducting wildlife surveys, particularly of great Indian bustard and lesser florican. We found many *rakhals*, some well protected, some not so well, but all of them had Maldhari graziers with their majestic Kankrej cattle.

Rakhals are somewhat like sacred groves, or protected areas where restricted resource use

is allowed, but land use changes are forbidden. *Rakhals* are mostly community-owned or government-owned. Earlier many *rakhals* were developed, protected, and owned by the royals, but now the Government has taken over most of them. Similar to *rakhals* are *orans* in neighbouring Rajasthan, and both serve various purposes, such as catchment area for water sources, fuel for local communities, grazing land. Formerly, the *rakhals* of Kachchh also served as hunting reserves for the royals.

Kachchh (anglicized by the British to Kutch) is the largest district in India, with a total area of 45,674 sq. km. It covers 23% of the total geographical area of Gujarat State. The rulers of Kachchh State had developed 44 *rakhals* for forest conservation, hunting, and livestock grazing. These were strictly maintained by the erstwhile rulers, but as happened with private forests, once they were taken over by the government, many disappeared and others deteriorated due to unrestricted grazing and tree lopping, as well as encroachment, which is another threat to many of these protected areas.

One of those that survived is Chadva *rakhal*, a gently undulating area covering 52 sq. km, 17 km from Bhuj, that harbours natural thorn forests and invasive gando bawal *Prosopis juliflora*. What adds value to this *rakhal* are four major waterbodies and ten smaller ones. These waterbodies collect water during the sparse rainfall (360 mm annual rainfall) and retain it through small dams built on the streams and rivers. The biggest waterbody is Pragsar lake (100 acres) that was constructed in 1870 by the late ruler Maharao Pragmulji II. Near the lake, he developed a shaded garden with tall fruiting trees. Now a beautiful temple stands majestically facing the lake. These waterbodies serve as a magnet for the local wildlife as well as domestic animals. Some of the larger waterbodies in Kachchh are also used for drinking water and irrigation.

Like many good *rakhals*, Chadva is a biodiversity oasis in the vast arid district of Kachchh. It was zealously protected as a hunting reserve of the ruling family. The famous ornithologist Dr Sálím Ali visited this *rakhal* during his surveys in 1943–44 and mentioned it in his book BIRDS OF KUTCH. In recent years, studies by the Gujarat Institute of Desert Ecology (GUIDE) found 253 plant species, including more than 70 medicinal varieties, such as the mukul myrrh tree *Commiphora wightii*, that yields a resin locally called *gugal* or *guggul*. The resin is used in ayurvedic medicine and also in the incense industry. Due to over-exploitation, *Commiphora wightii* is considered Endangered by the IUCN. It survives in small numbers in Chadva *rakhal*. According to Jugal Kishor Tiwari,

foremost naturalist and conservationist of Kachchh, gum *Acacia senegal*, babul *A. nilotica*, safed babul or keekar *A. leucophloea*, umbrella-thorn acacia *A. tortilis*, khejri *Prosopis cineraria*, and desert date *Balanites aegyptiaca* are some important trees found in these *rakhals*. Bushes such as meswak *Salvadora persica*, bada peelu *S. oleoides*, and rohida *Tecomella undulata* also grow in many of these *rakhals*.

GUIDE scientists found 28 species of reptiles and amphibians, nearly 240 bird and 26 mammal species. The most famous reptile is the mugger *Crocodylus palustris*, having a population of nearly 100 in Pragsar lake and other water bodies. We saw one basking in the setting sun on November 25, 2022, during a visit arranged by the Corbett Foundation. I was told that even the elusive syahgosh *Caracal* is found in the *rakhals*. Jugal Kishor Tiwari, who has been working in Kachchh since early 1990s, found evidence of caracal in Ratipal, Mindhiari, Dhinodhar, Gugriana, and Jathavira *rakhals*.



Chadva Rakhal in Kachchh

Besides their biological values, *rakhals* have socio-economic value for the local communities, as hundreds of their livestock graze in the area, providing income from their milk, meat, and hides. For many decades, the *rakhals* have been used by local Maldhari community as grazing land (Hindi: gauchar). Therefore, these graziers have the biggest stake in protecting the landscape from the creeping industrialization that is invading Kachchh district, particularly after the tragic earthquake of January 26, 2001.



Small Minivet females

ASAD R. RAHMANI

Similar to the entire Kachchh district (and elsewhere in India), many *rakbals* are infested by the invasive *Prosopis juliflora*, deprecatingly called “*gando babool*” or “*gando bawal*”, monikers given to this terrible invasive when it started spreading in the famous Banni grasslands in the 1970s and 1980s. Newspapers delight in calling it the ‘Gujarat mad tree’. As too much has already been written on this infamous tree, I will not write more about it.

In Chadva *rakhal*, chinkara still survives in small numbers, but we could not sight this species during our short visit. Piles of dung, technically termed midden, of nilgai were frequently seen, indicating its presence. A sounder of wild pigs delighted some of the guests of The Corbett Foundation, notwithstanding the pigs grunting their annoyance at them. Indian hare and grey mongoose were other creatures that made a sudden appearance only to disappear into the thickets. Leopard is the largest carnivore of the area, but we did not spot any. Other species reported from the *rakbals* are desert cat, jungle cat, rusty-spotted cat, two species of hedgehog, ratel, small Indian civet, hare, and Indian star tortoise.

To answer my question of how the marsh crocodile or mugger that lives in fresh water is found in scattered waterbodies in this vast arid district, Dr M.K. Ranjitsinh, one of India’s foremost conservationists with his legendary elephantine memory, told me crocodiles were and still are present in all substantive sweet-water bodies of Kachchh, mainly in Vijaysagar lake, the largest water body in Kachchh, and in Chadva and elsewhere.

Off the Nakhatrana coast is the island on which stands the famous shrine of Narayansarovar, below which is a sizeable freshwater lake, in which he has seen a crocodile. This is the only instance he knows of where a freshwater crocodile has crossed a strip of sea water to occupy a freshwater lake, unless someone introduced them in the lake.

Dr Ranjitsingh has a suspicion that the muggers of Kachchh, or bhagu in Kachchhi – the local language, are a separate subspecies, similar to the Sri Lanka *Crocodylus palustris kimbula*. He adds, 30 years ago, there were repeated famines in Kachchh and the lakes dried up. The Forest Department transported a large number of the crocs from Chadva lake to Sasan, where they got mixed with the local ones from the Hiran dam. The mixed group was brought back to the lake once it got refilled! So now, even a DNA analysis may not show a difference in taxa.

Jugal Kishor Tiwari says, ‘Many anthropogenic pressures are affecting the existence of these scrub forest areas of Kachchh. Charcoal making, illegal cutting of wood for fuel, agricultural expansion, windmills, lopping of trees for feeding cattle, and cutting bushes for making fences for agriculture areas are some examples.’ The original thorn forest of Kachchh that survives in some of these *rakbals* provides good habitat for the Vulnerable white-naped tit *Machlolophus nuchalis*, one of the bucket-list birds for foreign birders, as this bird is endemic to India and undergoing a rapid decline due to loss of its thorn forest habitat. Other birds found in the *Acacia senegal*-dominated thorn forests are white-bellied minivet *Pericrocotus erythropylus*, white-tailed iora (=Marshall’s iora) *Aegithina nigrolutea*, Sykes’s warbler *Iduna rama*, yellow-crowned woodpecker *Leiopicus mabrittensis*, and sirkeer malkoha *Phaenicophaeus leschenaultii*.

In 2018, the Hon’ble Supreme Court of India gave a judgement that *orans* are to be classified as deemed forests and cannot be used for any other purposes. Similar strict legal protection should also be bestowed to the *rakbals* of Gujarat. 🐦



Asad R. Rahmani is a renowned ornithologist, and former Director of BNHS. He is now a member of the BNHS Governing Council.

I vividly remember my first meeting with the late Mr Dilip Dharamsey Khatau in April 2009 at his office in Mumbai. His love and concern for wildlife was quite evident through his anecdotes on his journey in wildlife conservation. Particularly, he spoke passionately about The Corbett Foundation, a non-profit charitable organization that he and his wife Mrs Rina D. Khatau founded on April 22, 1994, and supported thereafter.

Mr Dilip D. Khatau was born on March 18, 1942, in the famous Khatau family that hailed from Kachchh, Gujarat, and was among the pioneers of the textile industry in India. As an industrialist, Mr Khatau was instrumental in diversifying the family business into shipping, footwear, cement, cables, chemicals, and tourism. To fulfil this endeavour, he spent almost two decades in Kenya and Southeast Asia, where his interest in wildlife and conservation blossomed. He was impressed by the popularity of wildlife tourism in East Africa and envisioned similar ventures in India. Subsequently, he became one of the pioneers of the concept of luxurious wildlife resorts in India, with the first resort named Infinity Resorts Corbett established in 1991 on the fringes of the Corbett Tiger Reserve. Subsequently, more resorts were added to the chain of Infinity Resorts in Kachchh, and on the outskirts of Bandhavgarh, Kanha, and Kaziranga tiger reserves.

In 1994, Mr and Mrs Khatau realized the need for an organization that could act as a bridge between the Forest Department and the villagers, who lived along the periphery of various tiger reserves and shared the natural habitats with wildlife. They envisioned that both these entities could work closely to help the villagers, and in turn, solicit their support in conservation efforts. This led to the foundation of The Corbett Foundation, which eventually expanded its operations to important conservation landscapes in six states of India – Uttarakhand, Gujarat, Madhya Pradesh, Assam, Manipur, and Maharashtra.

Mr Khatau strongly believed in involving the local communities in grassroots conservation work. Through The Corbett Foundation, he initiated the Rural Medical Outreach Programme, veterinary care programme, and sustainable livelihoods programme that reached out to the forest-dependent communities to improve their health, well-being, and economic status. In 1995, The Corbett Foundation pioneered the interim cattle compensation programme in the Corbett landscape that was fully funded and implemented by a non-governmental entity.



Dilip Dharamsey Khatau
March 18, 1942– March 09, 2023

This intervention immensely helped mitigate the retaliatory killings of tigers and leopards that were common in the early 1990s. This programme is still operational in the Corbett landscape with the partnership of WWF-India.

The grassroots work undertaken by The Corbett Foundation since the past three decades has positioned the organization as one that not only acts as an intermediary for human-wildlife coexistence but also advocates the protection and

conservation of India’s threatened species and habitats at the national and international levels.

In July 2009, I became a part of The Corbett Foundation family, and the past 14 years of my association with Mr Khatau and the Foundation has been an exceptional learning experience as he guided me (and all our team members) to address conservation challenges, while keeping in mind the welfare and much-needed support of the local communities. Mr Khatau was an ardent supporter of BNHS. He was a Life Member for almost four decades and his company Conservation Corporation of India Pvt. Ltd. has been a Corporate Member for over two decades. He worked very closely with Dr Asad R. Rahmani, former Director of BNHS and present Scientific Advisor to The Corbett Foundation, for conserving the grasslands and the great Indian bustard in Kachchh. Mr Khatau served on India’s National Board for Wildlife, and on the Board of Uttar Pradesh Tourism Development Corporation. In 2017, Mr Khatau was presented with the ‘Gallery of Legends’ award at the East India Travel Awards for his immense contribution to wildlife conservation and responsible tourism.

On March 09, 2023, Mr Khatau left for his heavenly abode, and India lost a great philanthropist, industrialist, and wildlife lover. He loved the myriad species that inhabited the Indian landscape, and did everything in his capacity to conserve them till his very last breath. We, at The Corbett Foundation, mourn his passing away but celebrate his life, which was dedicated to the cause of nature conservation. Personally, I will dearly miss him and so will everyone who has had the pleasure and the privilege to know him and work with him.

I am sure his spirit remains in the beautiful forests of Corbett Tiger Reserve, along the banks of Kosi River scanning the Shivalik Hills and smiling at the sight of a tiger.

Rest in peace, Sir. ■

– Kedar Gore
Director, The Corbett Foundation

Bar-tailed Godwit

Marathon Flier

Text: P. Sathiyaselvam

Bar-tailed godwit *Limosa lapponica* is a large migratory wader, with distinctive red breeding plumage, long legs, and a long, upturned bill. This kind of bill helps it to scoop up its food, mainly bristleworms, shellfish, and small invertebrates, from its slushy coastal mudflat habitat. A member of family Scolopacidae, this godwit undertakes the avian world's most extraordinary non-stop migratory journey of more than 12,900 km! Like all birds, it has hollow bones that have evolved to reduce body weight to enable flight. But, being a migratory bird in particular, by eating clams, worms, seeds, and berries it deposits more fat than other species on its body to fuel long journeys, allowing it to fly its non-stop marathon.

It is well-known that to compensate for the fat weight added before it takes off on its migration journey, the godwit shrinks most of its major organs, such as the digestive tract, to reduce its overall body weight for flying such long distances. A bar-tailed godwit does not even stop to eat, drink, or rest during its flight across seas and oceans. At most, it sleeps, bird-style, by shutting down one side of the brain at a time, using the other half to negotiate the hazards of its marathon journey.

Over a round-trip migration, a bar-tailed godwit covers 29,000 km, including lateral movements and the distance covered while foraging at stopover sites. In the migratory season of 2022, a four-month-old bar-tailed godwit set a new world record



Map reproduced from:
 • Riegen, Adrian C. (1999): Movements of banded Arctic waders to and from New Zealand. *Notornis* 46: 123-142.
 • <https://explorersweb.com/bird-sets-record-nonstop-13560km-flight/>



HIREN KHAMBHATYA

by completing a non-stop 11-day (plus one hour) migration of 13,560 km (8,430 miles) from Alaska to Tasmania in Australia, making it the longest documented non-stop flight by any bird! In the course of this journey, it flew more than 11,000 km over the Pacific Ocean.

The bar-tailed godwit shown in the picture, with tag no. J49, was ringed on February 11, 2018, near Khijadiya Bird Sanctuary in Jamnagar, Gujarat. Subsequently, it has been resighted 19 times and photographed by various birdwatchers and photographers at the same site every year. The resighting information reported to BNHS helped in confirming that the bird regularly arrives at this location every season, demonstrating its loyalty (scientifically termed site fidelity) towards the sanctuary. The latest sighting of this tagged godwit was on March 17, 2023.

Be a responsible citizen:

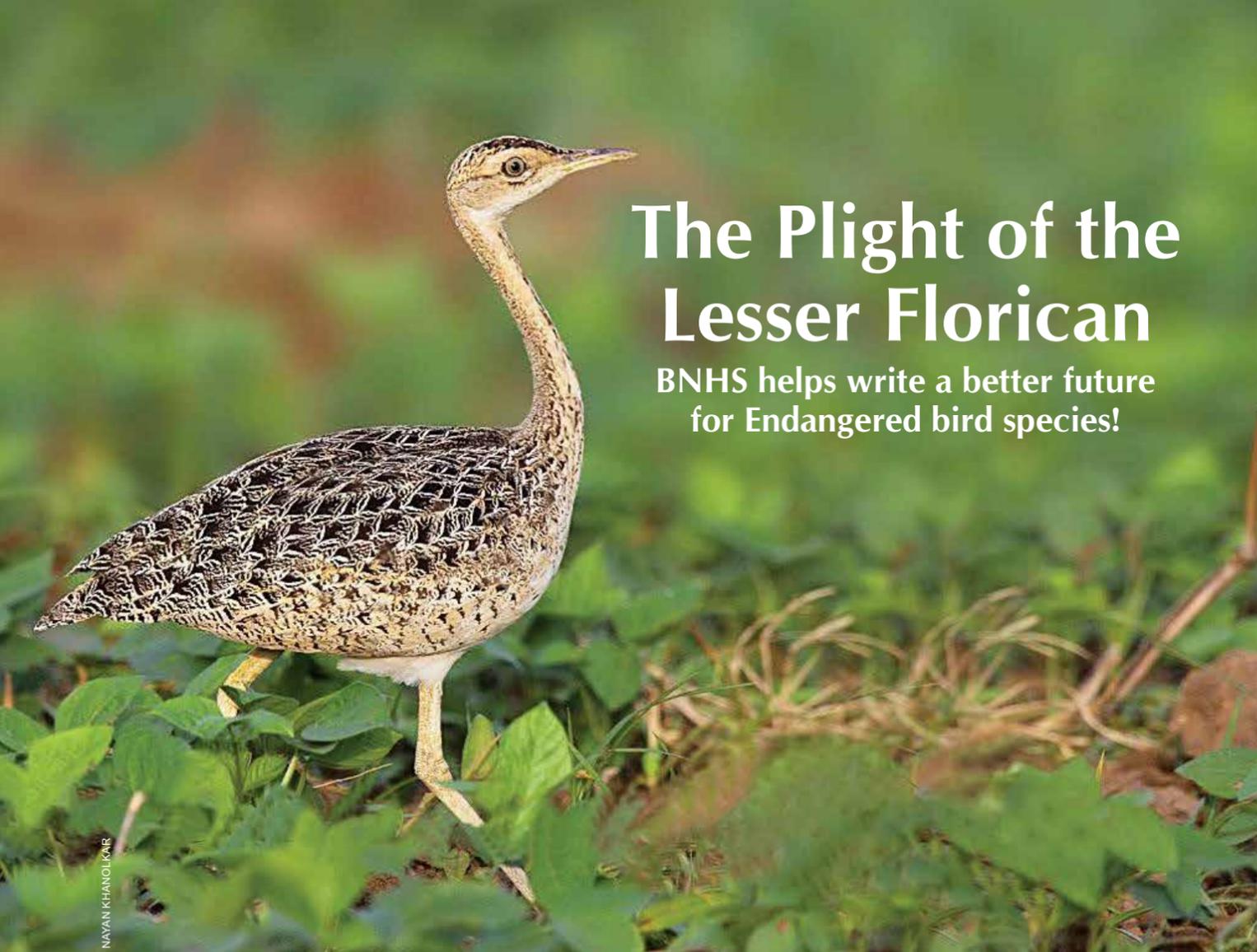
Join our Citizen Science Programme

Are you interested in birds and bird migration studies? With BNHS you can enhance your knowledge of bird migration. Through a process called bird banding or bird ringing, BNHS marks migratory birds with colour bands (also called rings) or colour flags that can be sighted by enthusiastic birdwatchers and photographers, who can then report such bird resightings

through the Citizen Science initiatives of BNHS. In the last five years, more than 2,000 resightings have been reported by birders and photographers across India and from destinations across the globe along the migration paths. This immense contribution in field data is helping to enrich our knowledge on bird movement patterns. The number of such reports is increasing every year and we are receiving an overwhelming response from birders, from across the country and beyond the Indian region. If you happen to come across any such birds, please send the information including photographs, the colour and position of the band, ring or flag, and the writing on them, to us by email at bands@bnhs.org. We will be glad to provide you with an update about when and where it was ringed. 🐦



P. Sathiyaselvam, Deputy Director, BNHS, is trained in satellite tracking, and has been involved in Bird Migration Studies since 2002.



The Plight of the Lesser Florican

BNHS helps write a better future for Endangered bird species!

Text: Kishor Rithe

BNHS published several posters in 2022 on the Threatened Birds of India that included the Critically Endangered lesser florican *Sypheotides indicus*, an endemic to the Indian subcontinent that is now virtually limited to 600 individuals. The population data on these posters immediately attracted my attention.

BNHS is a research-based nature conservation NGO with a cumulative data bank from its research projects that can provide the basis to take the most essential conservation actions. The BNHS Library has several reports and publications on lesser florican (LF). But according to the scientists who authored these publications, the future of this species is grim, because of the rapid changes in social, economic, and infrastructure development in grassland ecosystems, which are the species' habitat. The ground situation is changing rapidly, making it difficult to implement the recommendations made in these publications.

This dilemma is applicable to most endangered species like the great Indian bustard (GIB), Finn's weaver, green

avadavat, and Gyps vultures, besides the lesser florican. After much introspection, I realised that the traditional, routine scientific approach may not result in a success story! So, what can we do to protect this beautiful bird? My leads for an innovative approach were hidden in two eye-opening articles by Nigel Collar of Birdlife International, and recipient of the BNHS-Salim Ali Award for Nature Conservation-2009. The first was published in 2021 in *Birding ASIA*, 'What can save the Lesser Florican?' and the second, in *Sanctuary Asia* December 2021, 'The Last Stand of the Little Florican'.

In his articles, based on reports of surveys conducted in 2017 and 2018 by the Wildlife Institute of India (WII), in collaboration with BNHS, The Corbett Foundation (TCF), and the Forest Department (FD), to assess the status of floricans during the monsoon across India, Nigel Collar describes the status of LF areas at known locations like Shokaliya and other agro-pastoral landscapes (mainly in traditional crop fields) of Ajmer-Kekri, Velavadar, and other grasslands in Gujarat; Sailana, Sardarpur, and other

grasslands in Madhya Pradesh; and small grassland areas, where I spent good birding time, in Akola and Chandrapur in Maharashtra. He has highlighted the future of LF in grasslands versus croplands. Nigel writes that in 2018, a team from WII under the leadership of Sutirth Datta, produced a blueprint for the conservation of the LF in a groundbreaking report titled 'Status of the Lesser Florican *Sypheotides indicus* and implications for its conservation'. This paper (Dutta *et al.* 2018) gives a site-by-site review of the species, with recommendations for each site, which were never implemented by the government. Nigel Collar wonders why! But I would say, we should be optimistic and act fast to implement the recommendations in the research reports published so far.

The lesser florican, categorised as Critically Endangered in the 2021 IUCN Red List, is significant in the Species Recovery Plan of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt of India. Its breeding range is restricted to the following sites:

- Rajasthan: a) Shokaliya Florican landscape, Ajmer-Kekri, Rajasthan; b) Adjoining areas of Bhilwara, Tonk, Jalore, and Pratapgarh districts
- Gujarat: a) Velavadar Blackbuck National Park (NP) and adjoining areas of Bhavnagar; b) a few sites in Surendranagar, Amreli, Rajkot, and Junagadh of Gujarat
- Madhya Pradesh: a) Sailana Wildlife Sanctuary (WLS), Ratlam; b) Sardarpur WLS, Dhar; c) Petlawad, Jhabua; d) Jiran, Neemuch
- Telangana: Unconfirmed reports in some areas near Hyderabad
- Andhra Pradesh: Rollapadu WLS
- Maharashtra: Akola and Washim districts
- Karnataka: Bidar district and adjoining sites (Koppal, Gadag, and surrounding areas are non-breeding sites).

Velavadar National Park in Gujarat

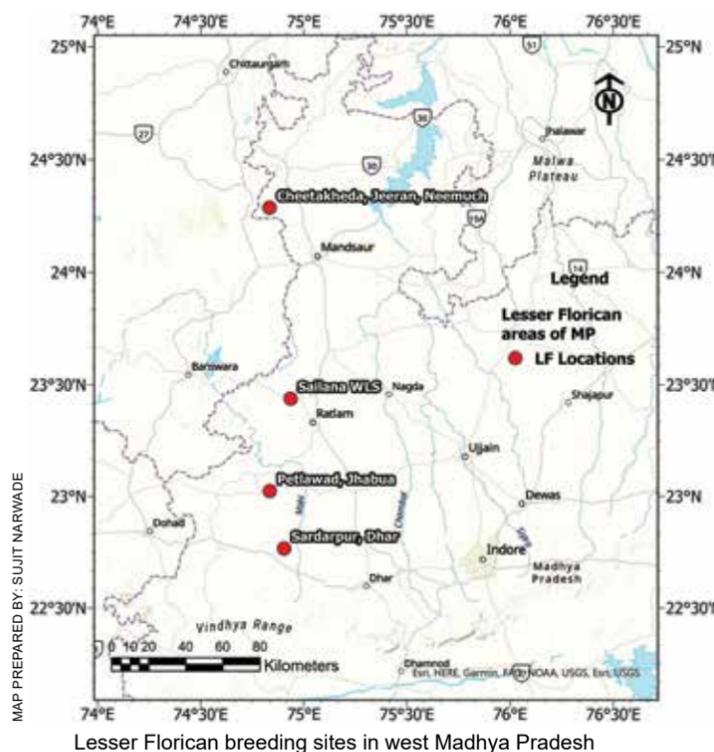
Velavadar NP is identified in the Dutta *et al.* (2018) report as the best LF breeding site in the world, where the florican breeds in considerable numbers; they report around 60 displaying males. It is evident that the Velavadar population needs a careful management intervention to increase its numbers. The Park offers protection to the blackbuck, an IUCN Least Concern species with good populations across India. The pertinent question is: Should the management plan for the NP address concerns facing the florican and minimise the numbers and productivity of the blackbuck? I believe the Forest Department must be flexible on changing its course in this respect, as one

such action might help to save the LF from extinction. Attempts may also be needed from the FD at Velavadar to undertake some small changes in the management of LF to see if the florican responds. If it does, perhaps it will become easier to continue and make further changes. The scale and speed of conservation efforts of the government of Gujarat definitely need to be expedited to help the species.

Karnataka

BNHS teams conducted landscape surveys to assess the status of the GIB, LF, and other grassland species in the Deccan region of Maharashtra (Solapur, Dharashiv, Latur) and Karnataka (Bidar, Kalaburgi, Yadigir, Vijayapura, Koppal, Gadag, and Bagalkot) between July and October 2022.

BNHS scientist Dr Sujit Narwade and his team surveyed Bidar, Karnataka (Deccan non-breeding range) intensively to study the population, distribution, and threats to the florican and its habitat. Based on the surveys conducted during winter 2021, summer 2022, and monsoon 2022, BNHS teams have prepared strategies for LF conservation in these areas and submitted their recommendations to the Karnataka Forest Department. BNHS also conducted a case study on a plot of the Karnataka Industrial Area Development Board (KIADB), Bidar to explore the possibility of LF presence.





The Lesser Florican is a grassland species, but due to the loss of this habitat to agriculture, it has to occupy cropland

Madhya Pradesh

Except for a lone male sighting in August 2011 in Kuno WLS in Sheopur (Sivakumar *et al.* 2017) the known distribution of LF in Madhya Pradesh is restricted to Ratlam and Neemuch districts of Ujjain Forest Circle, and Dhar and Jhabua Forest Divisions (Petlawad area) of Indore Forest Circle. MP has two exclusive lesser florican sanctuaries: Sailana in Ratlam district and Sardarpur in Dhar district, established following a visit by the renowned ornithologist Dr Sálím Ali to this region in 1983. Sailana WLS in Ratlam district (1,296 ha) has Shikarwadi area (~350 ha) and Amba area (~1,000 ha) and Sardarpur WLS in Dhar district constitutes a 34,800 ha area which is under rationalisation of boundaries to exclude settlements and private lands to retain around 1,000 ha under the core area of the Sanctuary.

During BNHS surveys in collaboration with WII, TCF, and FD to understand the status of LF during the monsoon (LF breeding period) in Madhya Pradesh, the teams did not see any birds in 2017, but in 2018 counted 11 birds, 2 in Sailana WLS, 4 in Sardarpur, 3 in Jiran area of Neemuch, and 2 in Petlawad.

Grasslands vs Agricultural lands

LF has a population of *c.* 250–300 males worldwide. The females are incredibly elusive, making the count of their population challenging. Therefore, population estimates are conducted in monsoon, the breeding period, when displaying males can be counted, and it is scientifically logical to assume that there is at least one female in the vicinity. Females lay up to 6 eggs per

breeding season. This indicates that females expect to produce good numbers of offspring per year, and hence they must have a good food source to rear many chicks.

The LF is a grassland species, but due to the loss of this habitat to agriculture in Rajasthan, it exclusively occupies cropland, where Nigel Collar feels there is no hope for its survival. According to him, LF being a grassland species subsists on grasshoppers, especially young birds. Grasshoppers are in rich supply in natural grasslands, but in cropland, there will be virtually none because of ploughing and spraying of pesticides. Consequently, breeding productivity in LF will be too low to replace natural losses of adult birds.

The BNHS study also supports these observations. According to BNHS observers, croplands are temporary shelters, and LF can only survive in a matrix of extensive grasslands, or grasslands interspersed with croplands. So, we need to identify every piece of grassland habitat irrespective of its size and ownership, and provide protection. These grassland patches (termed “wastelands” by the British, a perception which continues even officially), have become vulnerable to encroachments for agriculture as well as developmental activities, including new renewable energy infrastructure in Rajasthan.

The distribution of LF seems heavily dependent on the rainfall pattern, with the bird visiting areas during the peak monsoon from July to September. Hence, we must continue our efforts to safeguard this species through traditional natural farming practices with the support of concerned agencies. BNHS’s efforts are centred on preserving LF in the semi-arid regions of Ajmer-Kekri in

Rajasthan and parts of the Deccan plateau in Karnataka and Maharashtra. BNHS has launched a project to promote “florican-friendly” agricultural practices in Ajmer-Kekri. A survey of farmers in the florican distribution site area is carried out and resources are mobilised to implement strategies that will conserve the florican population and ensure its survival outside PAs, with the assistance of the State FDs and BirdLife International (through the Preventing Extinctions Programme). BNHS scientists monitor the birds and gather data for practical conservation efforts, by establishing a group of skilled young individuals from LF inhabited villages.

In 2020, the Government of Rajasthan collaborated with BNHS and the National Green Tribunal to prohibit mining in significant florican breeding locations in the Ajmer-Kekri region (Narwade *et al.* 2021). They also initiated the identification of Community Conserved Areas (CCAs). In March 2023, a Conservation Reserve covering an area of 893 ha was established in the Arwar-Goyala-Kheeriya villages of Ajmer-Kekri. BNHS has also suggested creating an LF Community or Conservation Reserve (LFCR) in Ajmer to safeguard the species. The area currently has limited protected forests, which puts the birds at risk. We use Google Earth imagery to find suitable locations for establishing LFCR and conduct field surveys based on sighting records. We are also gathering information about reserve forests, potential florican habitats, and any threats in the surrounding areas, to determine the feasibility for LFCRs. The BNHS team also met villagers to establish community reserves in Shokaliya Gram Panchayat, to create a model to replicate elsewhere and to create a Conservation Reserve in reserve forests in Arwad, Goyala, and Kheeriya villages of Sarwar tehsil.

Threats

The lesser florican is losing habitat due to intensification of agriculture, changes in crop pattern, encroachment on grasslands, inappropriate grassland management, and rapid development. These birds prefer traditional crops, e.g., jowar, moong, and urad, which grow 50–100 cm tall. However, in historical LF areas, the farmers have become marginal land holders and have adopted other cash crops. Major threats to breeding birds in the croplands is disturbance from mechanical farming, and rampant use of chemical fertilizers and pesticides. LF is also mainly seen in croplands, as its traditional pasture lands habitat got invaded by the exotic mesquite *Prosopis juliflora*. In the remaining grasslands, overgrazing leads to trampling of florican eggs. BNHS is raising funds to convert croplands into grasslands in Rajasthan. BNHS has also identified some degraded LF habitats to restore them by developing grasslands in breeding and non-breeding sites, which can aid conservation efforts.

Land use changes and mining in grassland habitats are serious threats to LF. In Rajasthan, mining operations have been stopped by the Rajasthan FD to protect LF habitats, based on BNHS reports. These areas include the tehsils of Nasirabad, Bhinai, Sarwad, Tantoti, and Kekri in Ajmer district, as well as Shahpura and Gulabpura tehsils in Bhilwara district.

Afforestation in grasslands is also causing a big threat. The grasslands in revenue areas, which do not have forest status, are often considered as wasteland and have been diverted for afforestation projects, like compensatory plantations in lieu of forest lost or submerged for some infrastructure projects, improvement of forest cover, and development of fuel wood or medicinal plant plots. This



The greatest threat to the Lesser Florican is habitat loss and degradation; further, the use of tractors and pesticides for maximizing yields is pushing the bird to extinction



Power lines are prevalent across the Lesser Florican breeding sites

not only occupies space in grasslands but also fragments the landscape, and forms a visual intrusion for the bustards, in addition to loss of prime habitats crucial for breeding.

The BNHS team also deals with the threat to LF and other birds from electrocution by high-tension transmission powerlines (HTTP) in breeding and non-breeding sites. BNHS has been closely monitoring the GIB population in the Thar landscape and LF in Ajmer-Kekri. GIBs are particularly vulnerable to powerlines, as are migratory species like the florican. Even if the repurposing of Velavadar would greatly increase the population of LF, the expanding network of powerlines across India will drive their numbers down. We may not have time to learn enough about the florican's movements to minimise the damage that powerlines will cause to its small remaining populations. However, there is certainly a feeble effort being made to gather this information.

BNHS is also working with agencies to shift some HTTLs underground in sensitive areas in Rajasthan, based on avian sensitivity mapping. BNHS mapped the reported locations of GIB mortality (and other species like cranes, vultures, etc.) due to collision with HTTLs since 2018 in the Pokharan Field Firing Range (PFFR). Our study shows that 220 KV lines, running from Chacha to Dholiya (18.2 km) and Odhaniya to Dholiya (17.7 km), interfere with the flight paths of GIB and put them at risk. The Chief Wildlife Warden (CWLW), Rajasthan, has endorsed our proposal to shift these lines underground, and the office of the Chief Minister, Rajasthan, has responded positively.

Innovative approach

BNHS recognises the need to go beyond the few PAs designated for LF and the croplands that it presently inhabits; only an innovative approach can save the species. While our efforts are currently focussed on Rajasthan, we are also keeping an eye on Madhya Pradesh, Karnataka, and Maharashtra to map every potential grassland and work with the state governments to protect the LF. To address habitat fragmentation and degradation, we have identified potential areas in Rajasthan and plan to purchase these croplands and convert them into ideal LF/GIB habitats. We hope to expand land acquisition by at least 100 ha every year. Captive breeding of LF and GIB may be challenging, but is essential. But that also means that we need to put more efforts to preserve their natural grassland habitats, so that the captive-bred birds can be released into these safe areas.

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