



## POWER LINES KILL MANY THOUSANDS OF BIRDS

By the Editors of Conservation Times



*A trained falcon, equipped with a global positioning system and a very high frequency (VHF) tracker, gathers radar data that is helping scientists improve bird detection technologies at wind facilities. Source -- the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE).*

Habitat loss and fragmentation are the greatest impacts of wind farms on wildlife. Wind turbines, like many other human activities and buildings, also increase the death rate of avian creatures such as birds and bats.

A summary of the existing field studies, compiled in 2010 from the National Wind Coordinating Collaborative, identified fewer than 14 and typically fewer than four bird deaths per installed megawatt per year, but there was a wider variation in the number of bat deaths.

Like other investigations, it concluded that some species (e.g. migrating bats and songbirds) are known to be harmed more than others. However, many details, as well as the overall impact from the growing number of turbines, remain unclear.

4th Highest 'power': India has the fourth highest wind installed capacity in the world with total installed capacity of 35.6 GW (as on 31st March 2019) and has generated around 52.66 Billion Units during 2017-18.

Tamil Nadu has maximum total wind capacity at 8,631 MW. Gujarat houses the second largest capacity in the country, total at 6,044 MW.

Maharashtra houses the third-largest capacity at 4,789 MW. Karnataka houses the fourth-largest capacity at 4,584 MW. Rajasthan houses the fifth-largest capacity at 4,300 MW.

Wind power installations in India reached 2.07 GW during 2019-20, a 31% increase as compared to 1.58 GW during the previous year. Wind power represents 10.1% of the total installed power capacity in India during 2020.

The Wildlife Institute of India (WII) researchers have estimated the mortality rate of Great Indian Bustard (GIB) due to high voltage power distribution lines by picking up the carcasses from under the windmills and power lines to record meticulously the number and type of birds killed as a result of collisions.

A quarter million mortality: Based on such scientific data, it is extrapolated that nearly 1,20,000 birds are killed each year through collision with windmills and power distribution lines in Desert National Park and the areas surrounding it. Some wildlife conservationists have argued that the need of the hour is to underground the existing transmission lines, urgently and immediately, and that no new



transmission lines in critical GIB areas which have been identified should be permitted.

Double edged: This is a double-edged sword. On the one hand power is being generated, which is termed as clean as is without pollution, but on the other hand this green technology is playing havoc with bird populations. But no development comes without a cost. The need of the hour is to scientifically assess the issue of windmills and its impact on bird populations and to urgently find solutions which are compatible.

Bird Diverters: The Government has issued guidelines to windmill developers and operators to take risk mitigation by putting up bird diverters on the windmills and transmission lines and paint the vane tips of the windmills orange color to avoid bird hits. Researchers of the WII are working on the effect of bird flight diverters which, on the basis of data collected, appear to be effective to the extent of reducing bird deaths by about 20%.

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# ORAN (SACRED GROVE) BIODIVERSITY LOSS

By the Editors of Conservation Times



*The male GIB in display and a cow, a rare photo by Radhey Shyam Bishnoi, from Dholai village in the Thar Desert*

Temple bells ring throughout the day as devotees pay homage. Many resident and migratory bird species remain unmoved by recurring echo as they feed feverishly at the healthy water body located by the northern boundary of the rural shrine devoted to Goddess Durga. The temple has under its command a vast chunk of land described in popular parlance as “Oran” which is like a reserve-land meant for local folk to graze own livestock and procure natural resources for own use.

The Oran is 610 years old, declared as a Sacred Grove by Maharawal Shri Vaisi of Jaisalmer, to remain under administrative control of Degrai Mata Temple. Time was at a snail's pace till recently when villagers saw powerlines being stretched across the same area. Meaning thereby the designated land use was being compromised. Rural people were apprehensive that the sacred land would be usurped forever. Thereby causing consequent loss of biodiversity enjoyed by villages like Sanwta, Rasla, Achla, Bhimsar, Bhikasar, Bhopa, Molarna, Kanod, etc. They cited that trees have been felled and shrubs-bushes removed to

facilitate electric poles of high-tension lines erected through the arid woodland. Grassland, pasture, and grassland zone used as a pristine habitat for wild species where village livestock graze to offer milk economy to local folk is also disturbed.

Questioning as to why the Degrai Mata Oran is not fully categorized as “Oran” which means Sacred grove by the Government, the local people have agitated over it. They have handed over a representation to the Jaisalmer district administration and even carried out a protest march.

Devi Singh, Sumer Singh, Kalyan Singh, Durjan Singh and others voice the same sentiment – development is accorded priority against age old tradition of pasture conservation. They want the entire area to be notified the same way as it had enjoyed for long.

Degrai Mata Temple is dedicated to Goddess Durga. The temple has been redone. A new dome has come up with several rooms. New buildings have been raised to accommodate more than a hundred people staying at a time.

The Government appears in no mood to

## ENERGY'S NEGATIVE IMPACT

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The environmental impact of the energy industry is diverse. Energy has been harnessed by human beings for millennia. Initially it was with the use of fire for light, heat, cooking and for safety, and its use can be traced back at least 1.9 million years. In recent years there has been a trend towards the increased commercialization of various renewable energy sources.

Rapidly advancing technologies can potentially achieve a transition of energy generation, water and waste management, and food production. Technology can now enable better environmental and energy usage practices using methods of systems ecology and industrial ecology.

One measurement of greenhouse gas related and other externality comparisons between energy sources can be found in a study done by the Paul Scherrer Institute and the University of Stuttgart: hydroelectric electricity produces the lowest CO<sub>2</sub> emissions, wind produces the second-lowest, nuclear energy produces the third-lowest and solar photovoltaic produces the fourth-lowest. Human mind's developmental actions have created a variety of energy sources: Biofuel, Biodiesel, Firewood, Fossil fuel, Petroleum, Natural gas, Electricity generation, Reservoirs, Nuclear power, Wind power, Solar power, Geo-thermal power, etc. Numerous studies undertaken on all such sources provide comparative damage percentage. Sadly, each has its negative role barring wind and solar sources which are also receiving question marks.

This 4th issue of Conservation Times has tried to outline energy vs conservation issues hoping a new energy policy will be formulated to secure the ecological future of the habitats and wild species being impacted due to energy generation and distribution.

Wish you Merry X-Mas and A properous New Year.



*Birds flying near a wind farm*

change. The land settlement, carried out during the 1960s, allocated only about 20,000 bigha land as Sacred Groves. Officials considered that it would be sufficient for local livestock and people to enjoy the biodiversity benefits. The rest of it – about 40,000 bigha – was declared as 'Sivay Chak' (land for any purpose). The Fatehgarh Tehsildar, Ashok Kumar told Conservation Times: It is Government land and will be put to use for any objective like a school, college, setting up a new village, as to be decided by the Government of Rajasthan.

When asked –is there any way to become “Oran” again, he categorically said, no. He admitted that power lines were being laid through this land in question but added, it was as per Government procedure. The power companies were planting new saplings and supporting villagers in ways as necessary. The villagers deny it saying the power companies have bigger say than local folk – they have scant respect for Oran values.

Some critically endangered species reside in the cited area, like Great Indian Bustard. One GIB was found dead. While flying it hit against the electric wires. The carcass was photographed by Radheyshyam Bishnoi hailing from Dholai village,

about 20 km distance from this Oran.

Sumer Singh from Rasla said Jaisalmer district has about 120 “Orans” waiting for appropriate conservation. The Department of Forests has no legal control over such grazing land though its officials emphatically agree in favour of better management of such most productive land resource. Mal Singh now a Sarpanch (village head) of Jamda, makes no bones: power lines shall continue to pass through such areas, but villagers' demands are also genuine. Parth Jagani in Jaisalmer town feels sad over the silence maintained by authorities in this case.

Numerous studies have been undertaken on Oran centric aspects. Alwar based Aman Singh stands out as a healthy example. He is the Chief Coordinator, KRAPAVIS, i.e. Krishi Avam Parishthitiki Vikas Sansthan. His studies revealed, “1,100 major Orans spread out over an area of more than 1,00,000 hectares” (in Rajasthan State?). His paper cites, “According to Deep N. Pandey, now a Principal Chief Conservator of Forest in Rajasthan, the estimated number of Orans is 25,000 in Rajasthan.” (any more details Dr. Pandey?).

Oran is an ancient tradition of setting apart some village land to remain unexploited to let it recharge its

productive capacity even though local folk procure natural resources and manage it to sustain. Such areas in fact are delivering a lot to rural communities. They look nondescript. Hence the loss of values as being experienced now a days. Probably the first document on Oran dates back to 1897. It is attributed to the first Inspector General of Forests, D. Brandis, who wrote: “...very little has been published regarding sacred groves in India, but they are, or rather were, very numerous. I have found them in all provinces....”

## Oran Vegetation

What is so significant about an Oran (Sacred Grove) that such landscape has been seen as conservation nursery since time immemorial? What is the reason why rural folk want to ensure its in situ conservation and oppose any part of such land to be parceled off to any development work? The wealth of vegetation, answer is simple! A few inspections and literature study have brought forth Degrai Mata Oran possessing wild vegetation as follows.

Acacia Senegal and *Comiphora wightii* (on rocky area), *Prosopis cineraria*, *Capparis decidua*, *Salvadora oleoides*, *C. polygoinoides* (over sand dunes and inter-dunal space); *Aerva tomentosa*, *Tephrosia purpurea*, *Calotropis procera* (on sandy areas); *L. hirstus*, *Crotolaria burhia*, *Leptidenia pyrotechnica*, *Panicum turgidum*, *Indigofera cordifolia*, *Eleusine compressa*, *Cenchrus biflorus*, *Tibullus teristris*, *Zizyphus numularia*, *Thor* (*Euphorbia caducifolia*), etc.

GRASSES: *Dichanthium cencrus* and *annulum* (over salty areas), *L. sindicus* (most nutritious but less palatable after November), *Eleusine ciliaris* or *aristida*, *Cenchrus ciliaris* (most palatable), *Sporobolus marginatus* (over saline patches), etc.



*C. procera*

# GREEN ENERGY?

## Assessing the Impacts Of Wind Turbines On Birds In Thar Landscape

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Images showing wind turbines with associated power lines in the Thar Desert

Economic development to meet human needs and conservation of natural resources including the environment and biodiversity have often contradicted each other. Industrial development has resulted in mass destruction of the environment by excavating fossil fuels and polluting the environment. It neglected the natural capital – forests, rivers, lands that provide ecosystem services and sustain us. This environment vs. development debate has given rise to the modern concept of sustainable development/solutions. The use of renewable energies has been considered as a sustainable alternative to conventional energy production with lesser impact on the environment. The use of renewable energies is being promoted worldwide as an environmental-friendly measure or “green technology.” Hence there is a rising demand for renewable energy production worldwide. In India, new government projects have come up like Solar Alliance Project and Repowering Project for promoting renewable energy production.

The Thar Desert landscape has very high potential for wind power generation (5050 MW) because of

available lands and wind thermals. The wind park in Jaisalmer is the 2nd largest wind park in India contributing 1275 MW of current capacity (Anbarasan, 2017). Jaisalmer district has been identified for having highest wind speed in arid western Rajasthan (Chatterji 1992). Wind turbines started getting installed in this region since 1999 (Sangroya, 2015). Currently, there are about 900 wind turbines in this area.

However, recent studies done globally have raised concerns over the impact of wind turbines and their associated powerlines on biodiversity conservation, especially birds. These studies have shown that birds collide with wind turbine blades during flight and also collide or get electrocuted by the associated powerlines (Hötter, H, 2006, Zimmerling, 2013). Large soaring birds such as birds of prey are known to be particularly affected by these structures that are otherwise considered to be ecofriendly (Hötter, H, 2006).

This Thar Desert region is of high conservation value as it supports many migratory and threatened species. Total 272 species of birds which belong to 17

Orders and 55 Families (Sivaperuman et al. 2007) have been reported from this region including several endangered species. It also holds the single viable population of the Critically Endangered Great Indian Bustard *Ardeotisnigriceps*. The Desert (National Park) Wildlife Sanctuary has been established in 1981 here to protect these biodiversity values. Hence, we conducted a study to assess wind turbine induced bird mortality in this landscape. It is a publication of Wildlife Institute of India's Bustard Recovery Program, and the specific work was carried out by the team with Rajasthan Forest Department as partner.

We found total 43 bird carcasses belonging to 3 families during wind turbine surveys and none in control sites (that is the areas without wind turbines). Our finding includes carcasses of critically endangered White-rumped Vulture and endangered Egyptian Vulture, and Griffon Vulture, Tawny Eagle, Short-toed Snake Eagle, Pigeon, Dove, and Larks. We could not identify a few of the carcasses as they were very old and degraded/scavenged which made it difficult to identify the species.

Our results indicated adverse impacts of wind turbines on bird populations, with expected annual mortalities of 2,288 (SE 1158-3577) birds in the landscape due to collision with wind turbines and associated power lines (Roy, A., 2020). The habitat analysis showed that bird mortality rate is significantly higher in woodland landscape and lower in barren areas. This may be because woodland habitats support more birds than barren areas. This implies that wind turbines constructed in woodland habitats will cause more damage than those in barren areas. Large birds, particularly soaring raptors were vulnerable to wind turbines. This is a matter of concern since this group is already on decline for various other reasons.

This evidence calls for sensible



*White Rumped Vulture carcass found with collision marks in a wind turbine location during carcass surveys*

*Griffon Vulture carcass found with collision marks in a wind turbine location during carcass surveys*

planning of wind turbine installation such as avoiding high-priority conservation areas and mitigation of associated powerlines by burying and marking with diverters, to reduce the cumulative impact of wind energy on wildlife. Based on this study, we recommend more stringent assessments of wind turbine impacts before such turbines are sanctioned across wildlife habitats. However, the mortality rate at wind-turbines is substantially lower than that at powerlines in the same landscape (Uddin et al. 2020). Hence power lines are a bigger threat for the birds. Thus, proper measures should be taken for power lines associated with wind turbines. These overhead wires can be buried underground, or diverters can be installed on them to make them more visible to birds and reduce their collision rate.

This study leaves us with the question whether renewable energy like wind turbines is really good for the

environment. Is it really a “green technology”? We need to reconsider our concept and study the negative impacts of these energies.

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## LAY UNDERGROUND POWER LINES National Green Tribunal's Order

The National Green Tribunal on December 23, 2020, ordered that all power transmission lines should be underground for new renewable power projects in marked habitats of the Great Indian Bustard.

It also asked the Union Ministry of Environment, Forest and Climate Change (MoEF&CC) as well as concerned States to install Bird Diverters on “existing solar and wind power lines”, preferably within four months.

The tribunal, hearing a petition by non-

profit Centre for Wildlife and Environmental Litigation, directed the Ministry to ensure that environment impact assessments (EIA) of solar energy projects cover impacts on biological diversity. Green energy projects (wind, solar, etc) lie outside the purview of EIAs.

“They are considered green and their impact is not assessed, but they do impact biodiversity; especially, they lead to raptor mortality,” petitioner Bhanu Bansal said, welcoming the order.

Dehradun-based Wildlife Institute of India (WII) put forward the idea of subterranean transmission lines after its recommendations were sought by the NGT in September 2020.

It is learnt that such a proposal was, however, not received well by the Union Ministry of Power (MoP) and the Rajasthan Government. Also, the renewable energy did not agree with the WII's recommendation on barring new wind turbines and solar farms at the 13,000 square kilometer priority GIB habitat in Rajasthan and Gujarat.

# SMART PHONES AND SMART FOLK IN THE THAR DESERT

By Martin Goodman

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The jeep is racing along the desert track when it pulls up. A motorcyclist has flagged us down. He has the sighting of a poacher to report.

Radhey Shyam Bishnoi, the young man who is our guide, pulls out his phone and relays the sighting to others. Radhey oversees an area of the Thar Desert of 100km by 80km. That's vast for a lone volunteer in his early twenties. It's made possible by his phone. Camel herders, shepherds, labourers in the area all have their own phones in which Radhey's number is stored. If they see a poacher, Radhey is called. In turn he calls his colleagues and the poacher is hunted down.

Other reports come in too. Radhey clicks through his phone's gallery and shows me a short film of a Great Indian Bustard (GIB) beating its vast wings. It has been trapped in the barbed wire of a fence. Radhey came along and freed it.

Seven species of vulture share this desert habitat. In the early mornings, they gather around the carcasses of cattle left as food for them on the outskirts of a village. These carcasses are safer than

the cattle left on rail tracks after being hit by trains. When alerted to these, Radhey will pull the carcass off the tracks so vultures aren't struck by trains while feasting. And when he finds vultures sickened by eating poisoned carcasses, he injects them with atropine. In the last four years he's saved fifty to sixty birds in this way.

In that same time span, he's saved between five hundred and six hundred chinkara, the small gazelle that are endemic to this desert area of North West Rajasthan. These are victims of poachers and game hunters but also feral dogs. In saving these chinkara, Radhey is keeping close to the traditions of his Bishnoi community. Since the 15th century the Bishnoi religion has seen its followers strict in the belief that the lives of trees and animals in their community are as valuable as their own lives. Women suckle orphaned chinkara, communities run rescue centres, and men lose their lives in fighting off hunters.

Would Radhey go so far?



*Habitat impacted*



*Tradition vs modernity*

I soon learn my answer. Most Bishnois live in the countryside near Jodhpur. Radhey's community is a day's drive west in the Dholia village, close to the town of Jaisalmer in Rajasthan state in India. That sees him inside the terrain of the GIB. Till a visit to the Indian Bird Fair six years ago he was busy protecting chinkara. That annual Fair in Jaipur wakes school students to the concept of bird conservation, and Radhey's life swung around. The GIB is the State Bird of Rajasthan and faces extinction. Radhey has dedicated his life to its survival.

We drive beneath high-tension wires strung between pylons. This pathway for vehicles is a flyway for birds as they move between their feeding grounds and water supplies. With its eyes set on the sides of its head the GIB is adapted to a desert's far horizons and can scan wide for dangers. It is also the world's largest flying bird. Its flight is heavy, and so its flight is low, at about the height of the power lines. Its eyes leave it blind to the danger ahead. The world population of GIB is about 150. Between 10 and 15 birds are killed by collisions with wires each year. That is a fast race toward extinction.

One GIB was killed by these wires above us. Radhey found the bird and called in his friends. Report such a death and the authorities would send along some minor official to bury the body. Radhey demanded more. The friends protected the GIB's dead body while Radhey climbed to the top of a pylon. Fix reflectors to the wires, Radhey demanded from on high, or he would jump to his death.



*Radhey Shyam Bishnoi with a Cinereous Vulture at Bhadaria Dump Site*

Officials came, heard him and believed him. The reflectors were promised and delivered. Fitted to the wires, they flash sunlight by day and store solar energy to emit LED signals at night. They bring a 50% reduction in bird deaths. That is one technological solution to the huge problem these high wires have brought to this region. We'll revisit that, but first let's complete this current journey.

Radhey is using his eyes. He pulls the car to a halt, swings open its door, and has me climb out and crouch low. There, over there, can't I see them? I train my binoculars to where Radhey points, see nothing but desert, and then the birds come into my sight. In areas where they feel threatened, GIB tend to travel alone. Lately those watching the birds in this district have seen flocks of up to eleven. Here I am graced with the sight of five, all males, coursing between the khejri trees and bending long necks to pluck insects out of the grass-dusted earth.

A few years ago there were just two or three GIB in this area. Now there are thirty. A rise in the bird population here has mirrored a decline in the official Park's conservation area on the far side of the city of Jaisalmer. Have conservation patrols of folk with phones made all the difference? I head out to the Park's headquarters in the town of Sam, just inside the Desert National Park, to find out.

6 AM. When I arrive some of the team of scientists in the research station are still cocooned in sleeping bags. Tea rouses them, revives me, and four join

me in a jeep. We head away from the National Park's official boundary, for the GIB roam areas shared with humans. Veering off-road we startle a herd of nilgai, known as blue bulls, large antelopes that charge toward the sunrise in a cloud of kicked-up desert sand. We're being guided in by PTT - a platform transmitter terminal fitted to one of the flock to send us its location. We climb a mugarra, a rocky outcrop about forty feet high, for its view.

I'm graced with my second viewing of the birds, three GIB this time, early February and the one male is already inflating his chest in display. They are exploring grassland beneath a wind turbine. That turbine's powerlines stretched above them.

Dr Sutirtha Dutta first came to the Thar Desert from his native Calcutta, researching the spiny-tailed lizard for his Masters. He stayed on to complete a PhD on the GIB and now leads this research programme for the Wildlife Institute of India. "The GIB inhabits grassland and deserts, which are not considered ecologically or conservation-wise important," he tells me. "They are viewed as unproductive land - the term used is 'wasteland.' The dominant discourse is on how to change these lands to agricultural use more productive for human life. This philosophy has persisted till now. The current plan is to adapt the land for renewable energy." He looks out from our small peak, seeing wonders that others are blind to. "The landscape can seem monotonous to some people but it's thrilling to have visibility up to the horizon. The GIB is iconic, a good

rallying point for other species that are here."

In 2016-17 Dr Dutta and a colleague performed a continuous survey of 100km of these power lines, collecting bird carcasses before they could decompose. They retrieved five carcasses per kilometre per month, so judged that 100,000 birds per year die in a 4,000 square km area. The 2017 report has yet to provoke any significant action; one common lament I hear in India is of 'tragic, rigid bureaucracy'.

In Gujarat, power companies have buried new powerlines to protect flyways of flamingos. In this GIB territory, Sanctuary Nature Foundation has been pleading with power companies to mitigate 500 km out of 6,000 km of powerlines, in areas that most threaten extinction of the GIB--to little avail so far. There are legal directives for companies, but implementation is moving at a slow rate.

Undergrounding the cables and installing diverters in the areas of keenest need would cost around £30m. It seems very little to save the largest flying bird on our planet.

The team of scientists have a new study: collecting bird carcasses from beneath the blades of the wind turbines. I ask Dr Dutta about the boost in GIB numbers in the area patrolled by Radhey. His answer is somewhat competitive. "People weren't looking a few years back," he said, and felt that the adjacent military zone leaves an undisturbed area for the bustard. However, "The vigilance network is absolutely amazing and worth replicating."

The scientists have devised a separate mission. An entomologist, for example, combs ground recently foraged by the GIB to map the spider species in this area. They need to know the birds' preferred diet. Why? They are losing hope that the species will survive till land now regarded as wasteland is appreciated as unique and valuable habitat and therefore protected. Their recent success has been in hatching nine eggs taken from the wild. A captive bird population is being developed that might restore birds to the habitat when the fourth or fifth generations from this captive breeding colony are released. As Dr Dutta says, "The philosophy is to buy time."

The scientists use camera traps to reveal the predators of the GIB's eggs: foxes, mongoose and feral dogs. Back in the Dholia village, Radhey's mentor Kamlesh Bishnoi works with ears and eyes. Employed by the forestry department, Kamlesh is in his forties, small, sturdy, dark complexioned, a woolly hat with '76 on his head when we meet before dawn. We sit on the mattress-free cot bed in his room and he brings us tea there. His room is empty of possessions; Kamlesh uses his salary to pay rewards to their network of informants and buy them such gifts as a torch. The official position also allows him to carry a gun and be near the protected GIB eggs. GIB has a slow reproductive rate of just one egg a year. Each egg is laid on open ground. 40% of chicks make it to one year; in captivity, safe from overhead wires, they can live to 28 years. The birds themselves are elusive so the eggs are hard to find, but when Kamlesh does spot one he sets up a tent at a respectful



*Radhey Shyam Bishnoi with a GIB carcass near Nachna*

distance and moves in. Through the 28 days of incubation Kamlesh is there watching. At night he reckons the bird is safe, and so between 9 and 4 heads home to sleep. The hatched chick will hide beneath the apron of its mother's feathers, and Kamlesh will then let them be.

Young scientists, volunteer patrolmen, forest guards, camel herders with their smartphones—different degrees of technology are involved in battles for conservation, but at their heart is always an exquisite degree of human care and attention.

# RADHEY BISHNOI

## Exemplary Volunteer

*By the Editors of Conservation Times*

The local people need electricity, and in fact its supply lines have transformed a large part of the Desert in India. Yet the manner in which lines are drawn, often through age old, respected pastureland, and not along the roads, has caused people and scientists to raise their eyebrows.

The Wildlife Institute of India (WII) succeeded during 2019-20 with ex situ conservation breeding of the Great Indian Bustard in Desert National Park. It happened after long wait of nearly four decades. Its experts have voiced serious concern over power lines causing widespread mortality to birds. GIB are losing numbers due to hitting live-wires. Villagers have lent a helping hand to WII teams to convey about accidents, and they have even rescued birds.

Radhey Shyam Bishnoi is a credible as well as incredible example. He is based at Dholia, that dots the national

h i g h w a y , connecting Jodhpur with Jaisalmer. Being a Bishnoi means he not only respects wildlife conservation but is anxious, nay a bit impatient, to rescue any injured animal or bird. He has been f o u n d a l w a y s rushing first if there was mortality to use his cellphone and c o n v e y t o authorities to seek next actions.

He comes from an agriculturist family, having several cows and buffalos. So, milk production and its sale are mainstay. Observing WII experts in action and having rubbed shoulders with some non-government experts, he developed a new calf-love. He bought a high-grade camera and tele-lens, and he now is seen photographing what he sees new in that region. In the process not only has he amassed a wealth of photo documentation, but he also started recognizing wild species by names.

From the animal dump site, west of



*Shri Degarai Mata Temple Committee members who defend the Oran Sacred Grove land in Jaisalmer region. Photo courtesy Devi Singh Bhati*

Bhadaria, to Nachna, passing through the Indian army's field firing range, moving across the Degarai Mata Temple's Oran, often going beyond the city of Jaisalmer in the far west, and being along the Indira Gandhi Canal, Radhey uses a jeep. He now recognizes most of the ranges. His helping caliber is acknowledged by Martin Goodman in his piece in this issue of Conservation Times (pages 6, 7 & 8). We wish that such volunteers were available all around the wildlife regimes. We congratulate Radhey for his selfless services.

# OUR CONNECTION WITH THE MOTHER EARTH

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The first edition of Conservation Time included an article “*Appreciating the Earth*” by Nishant Shukla. It emphasized the “*Observation of Local Surroundings and Making Connections*” for true appreciation of Mother Earth. The author identified a few key activities, such as *Bird Watching, Planting Trees, Watching Butterflies, Wildlife Photography, and Nature Journaling* that one can start for observing and appreciating the elements of nature around us. Passively, I might have been associated with these recommended activities. However, as walking is the first step in exploring the surroundings, I have developed great fondness for walking. I have walked many thousands of miles in different places, e.g., rural wilderness, forests, cities, pilgrimages, countries, and on different continents -- Asia, Europe, Australia, and North America. Many intimate conversations with close family and friends have enriched my life through all these years during these walks and walking alone has prepared me for a solitude life.

In walking alone, I generally try to remember my associations with family and friends and try to understand the basis of these life time associations. Over the years, I have been able to

categorize these various associations into five major categories. These categories are almost parallel to Maslow's hierarchy of needs. We could refer to this as a “Relationship Hierarchy” depicted in the diagram on the left.

**Necessity:** Extremely superficial connections where we only care if some of our need are being met and no emotional connection is created;

**Convenience:** Professional peer connections where it is convenient to have these associations of mutual give and take and the main connection is over as soon as we lose connection with the connecting entity;

**Awareness:** One-way connection to various leaders, persons of fame, and historical figures from whom we may develop some of our identity and/or value system;

**Affinity:** Our love and hate relationships, which consume most of our emotional being and a major part of our life is spent around these relations; and

**Respect:** I consider this as the highest emotional one-way category, where we are emotionally connected with this being with reverence. Idol worship is an example here where we go through

all kinds of efforts and hardships to just have a vision/glimpse of our deities. The question is: Could we take our connection to the Mother Earth to the highest level (Respect) in the Relationship Hierarchy?

The paradigm of choice lies in the following paragraph.

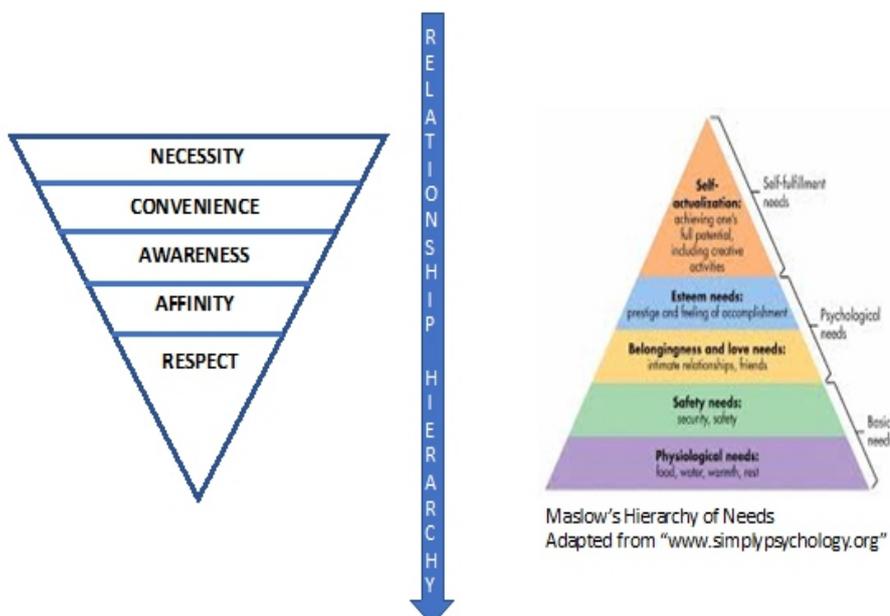
*The historical context* for exploration of earth frequently includes aggressive connotations with words like conquest, expedition, victory, and reign. Many such references refer to special regions like Kurukshetra, Kalinga, Haldighati, Plassey, Sri Lanka, Pearl Harbor, etc. This way of connection to the Earth is for possession and human arrogance.

*Scriptures of every religion* have promoted an idea of pilgrimage (walking to specific places of worship and/or a circular route that provides people an opportunity to connect with different places on this prescribed path referred to as “*Parikrama*”). On pilgrimages, people leave their secured homes to explore the serenity/security that is available outside their homes through group travel.

During such pilgrimages people can benefit by observing what has been left behind by the earlier generations. Even using the word “Mother” in addressing Earth is a symbolic mark of respect. Continuity of life on the Earth for millions of years is reflected through “*Anthem for Earth*.”

A few stanzas from Bhoomi Sukta from the Atharva Veda (included in the first edition of Conservation Times) start with “*Salutations to Mother Earth*”, providing the answer to the question, I posed above.

The *Stanza 5* reminds us as to how “*In Her, our forefathers lived and performed (their activities) in earlier times; in Her, the Devas (the good forces) overturned the Asuras (the evil forces) (since earlier times); in Her, lived the Cows, Horses, Birds (and other animals in earlier times); May She, the Mother Earth, bestow on us Prosperity and Splendour*”.





*Golden Eagle in Finland*

# Conservation Through **WILDLIFE PHOTOGRAPHY**

*Graham Jones, Email: [grahamcorfieldjones@gmail.com](mailto:grahamcorfieldjones@gmail.com)*

It was very early, dark and bitterly cold when we six photographers loaded cameras into our minibus. I was in Finland, working with Finnature, a wildlife company run by award winning photographers Jari Peltomaki, and his wife Kaisa. My quest was to photograph Golden Eagles in snow. I was there with my wife plus four photographers who had travelled from as far as Latvia, Germany, Holland, and Kuwait.

We set off along iced roads and snow-covered lanes and tracks. Rounding bends, the minibus headlamps caught trees coated in frosted snow illuminating a wonderland of silver. We drove deep into the Finnish forest, the taiga, an ancient spruce forest that marches across the border into Russia and stretches to the Pacific Ocean.

The bus stopped, a sledge was found and quickly filled with expensive cameras. Our driver became our guide, leading us silently through the powder snow. Head torches in front gave glimpses of a low building, our hide. Inside, were comfortable office chairs

and a warm stove. We fitted long lenses to cameras and cameras to tripods. Hot chocolate was drunk as we looked through a one-way window and waited for dawn and the Golden Eagles to come.

The sun rose over a forest clearing highlighting a small mound of snow in front of the hide. Our intrepid guide had uncovered a dead hare. It was road kill placed there to draw in the eagles. She returned and told us the rules; keep quiet, do not move too much as the birds see shadows through the glass. We were told to wait for her to tell us when we could photograph. If an eagle landed, we were not to fire off motor-drives. Once the bird had settled, we could press the shutters.

Nature is fickle. There are no guarantees. Despite the huge amounts of money photographers spend on camera equipment, travel, accommodation, and fees, the creatures may never turn up. You need to concentrate and not let your mind wander. You know that the moment you lose concentration an eagle will fly in

and out! That might be your only chance for days. I knew from past experience to stay on guard at all times. Pretty soon, however, my mind started to stray. I was thinking why was it necessary for me, and the other photographers, to travel to Finland to get the photos we wanted? What was Finland doing right in conservation and what did the UK (and any other country for that matter) have to do to match it?

My thoughts turned to how to change. Academic Change Theory agrees that to get effective change you have to make things happen at three distinct levels. First is the moral, strategic, and political level. Beneath that is the structural, institutional, and economic level. Finally, there is a popular practical level, one where people will buy into the changes made. To be successful, change should take place within each level and be joined through the levels from top to bottom.

To improve conservation an argument has to be won at a strategic level, that is, it has to be accepted that conservation is a good thing. Conservation might win a



*Golden Eagle in Finland*

moral argument but throughout the world not everyone agrees, and politicians are not guaranteed to back something they do not see as carrying lots of votes. Even if with unanimous support for conservation then the second tier requires change within the structural or institutional agencies, many who have vested interests in maintaining farming practices or shooting estates, or their own business interests. Laws might need changing or be properly enforced and many might face threats to businesses and livelihoods. And finally, the ordinary person on the street has also to see advantages. If that means people could lose jobs or it could be more expensive to farm land or produce food, then the change might not happen. Change can expose huge conflicts of interest not only within each level but between levels. The secret is to find a driver for change that will unite the levels.

In the United Kingdom there is an increasing population of Golden Eagles. Conservationists and ornithologists have been working steadfastly for years using, ringing schemes, satellite tagged birds, nest protection, relocating young wild birds to new areas, re-wilding former shooting estates, and buying up large tracts of suitable habitat. There is no shortage of initiatives for protecting wild birds. Along with many other people I pay into at least five ornithological associations that support conservation issues. Despite all this I was in Finland trying to photograph this species. In UK too many birds of prey, including Golden Eagles, go missing over moorland used for shooting driven game. Despite laws, ornithological research, local awareness, and much publicity this continues to happen. The shooting lobby is very well established and is supported by wealthy and influential people who use economic arguments. Shooting is even supported at government level through national bodies that grant shooting licenses for endangered species. And despite very good evidence, very few arrests are made when laws are broken. At the third level, ordinary people, including ornithologists and wildlife photographers do not have their voices heard or worse their arguments are split and not unified.

Yet, worldwide, the number of people who are interested in nature is huge. National Geographic, for example, is a

massive organisation not only producing magazines and films but also providing wildlife trips and expeditions. In the UK, nature films by the BBC, such as those by David Attenborough, are watched by millions and exported worldwide. Viewing figures for wildlife and nature programmes on British TV are regularly higher than the most popular Soaps but their success is rarely reported. Awareness of nature and wildlife is extremely high, but the interest is not coordinated.

Still pondering, I thought of the six photographers carrying thousands of pounds of equipment who had paid a great deal of money to travel to Finland to photograph eagles. Worldwide wildlife photographers are a significant economic driver. Inside the hide the photographer from Kuwait was providing a continual live update to his blog via his mobile phone. And another phenomenon is that everyone is becoming a photographer because of mobile phones and digital cameras. Birdwatchers often carry cameras rather than binoculars. Ornithologists and conservationists and most scientists all use digital cameras to provide records of sightings. Mobile phones have increasingly good cameras and are being used to photograph everything and anything. Such photos are uploaded on to social media like Facebook and Twitter while photographs are posted to Instagram and other photographic sites. Using Facebook, I am in touch with bird photographers and birdwatchers all over the world.

There is huge worldwide interest in wildlife and there is a way of sharing that interest through photography. Could this be the driver that changes the state of conservation throughout the world?

Who is better placed than those who use photography to note the decline of species? The very fact that I was in Finland to get good photographs of eagles and not Scotland or England, demonstrated the difference between the state of conservation in these countries. What would happen, I thought, if anyone remotely interested in wildlife photography not only shared their photographs but also provided a narrative about the photograph?



*Golden Eagle in Finland*

I find many people are interested in how photographs are gained and many documentaries on TV have dedicated sections often called “Behind the Lens”. These tell the story behind the pictures. What if all photographers, on every site tried to link the photographs to the state of conservation in a country?

We could praise Finland or explain how difficult it is to find Golden Eagles in UK because so many go missing over moors where grouse are shot. We could praise and raise awareness of conservation measures like the tigers in India or the identification of new species of birds. If every picture were linked to words, we would be raising awareness. If all nature films and documentaries mentioned the need for protecting the subjects they photographed, then maybe things might change.

Conservation voices could be pointing out successes as well as areas of concern. There would be more companies like Finnature and more publicity for all the remarkable conservation stories around the world.

In this way photography could become a consistent, positive driver of change at every level and through every tier. Politicians could be influenced. Organisations and institutions would see the positive benefits of attracting wildlife tourists, wildlife photographers, and protecting habitats. The huge interest in wildlife could be harnessed.

Out of the corner of my eye, I saw a small black speck rise over the treetops and vanish. I switched on the camera and pre-focused on the hare. The black smudge came again and grew bigger. Our guide warned the others and with hardly a wing beat the huge bird glided down and thumped onto the dead hare. We waited for it to settle then pressed the shutters.

# Human-elephant Conflict Mitigation Project

## BEE FENCES



David Kabambo, Director of Peace for Conservation, Email: [dkabambo@hotmail.com](mailto:dkabambo@hotmail.com)

The elephant is perhaps the most iconic migratory land mammal in the world. Rising incidents of human-elephant conflict are occurring where elephants are exploring old migratory routes.

In many cases, they are either being blocked by new development or break into farmland plots to take advantage of nutritional agricultural produce. Lacking more effective methods, farmers confronting elephants in the dark, are often left with no choice but to throw stones and firecrackers to chase them away. In this situation, some elephants will charge and attack. These negative incidents often lead to terrible

injuries or death of both people and elephants.

Peace for Conservation (PFC) is a Tanzanian non-governmental organization (NGO). It operates at both the grassroots and national levels. PFC aspires to conserve wildlife and wild places, improve community health and alleviate poverty at the grassroots level. PFC recognizes that community engagement on conservation creates a positive dynamic change of conservation and diplomacy towards achieving peace and conservation, due to equal sharing of accrued benefits from conservation through advocacy

that leads to common understanding.

### Elephants Avoid Bees

Research conducted in Kenya with elephants in Samburu and Buffalo Springs National Reserve by Dr. Luck King, has revealed that broadcasts of disturbed bee recordings cause elephants to run. Additionally, when they do run away, the elephants emit a unique low frequency “bee alarm rumble” vocalization. This sound warns neighboring elephants to retreat as well. Anecdotes from local people, who have witnessed elephants being stung by swarms of bees, tell us that bees can sting elephants around the



Staff from Peace for Conservation installed beehives in form of a “beehive fence”



eyes and in the thinner skin behind the ears. These stings must be painful enough to make elephants try to avoid future encounters.

With assistance from Peace for Conservation, farmers affected by crop raids have been receiving training to install beehive fences. Rural farmers are using the knowledge of beehives to

protect their fields from elephant crop-raids. Through support from different donors, PFC has provided 210 beehives which were installed along farm boundaries.

#### **Benefits of Beehive Fences**

Reduce human-elephant conflicts. Beehive fences control elephant crop raids and reduce dangerous conflicts

between elephants, farmers, and park managers.

Provide a source of income. Profits are generated through selling honey. The living standard of local families will improve as money earned from honey production can fund activities such as construction of better housing and paying school fees for children and siblings.

# BIRDS MAIN VICTIMS

*Study by Scott R. Loss, Tom Will, and Peter P. Marra.*

Collisions and electrocutions of birds at power lines have long represented a major conservation issue, and the current proliferation of electrical infrastructure is increasing this threat. Globally, collisions with power lines may cause more than one billion annual bird deaths. Between 10 and 41 million birds are likely killed each year by power line collisions in Canada. In the United States, rough estimates of annual mortality range from hundreds of thousands to 175 million collisions, and from tens to hundreds of thousands of electrocutions.

This amount of mortality would rank power lines above other structures that kill birds, including wind turbines and communication towers. Furthermore, mortality at power lines may contribute to population declines for some species, as evidenced by studies documenting that power line-caused mortality can cause a large percentage of total mortality for species from several avian orders.

Power line collisions occur when birds fly into wires; electrocutions occur at poles when a bird completes a circuit by touching two energized parts or an energized and grounded part. Correlates of mortality rates include: (1) biological factors (e.g., bird age, size, and wing span for both threats; maneuverability, flocking behavior, and vision for collision); (2) environmental factors (e.g.,



*That is how birds lose their lives, happening all over the world.*

topography, vegetation, and prey abundance for both threats); and (3) structure-related factors (e.g. line orientation and distance between wires for both threats; exposure of and distance between energized and grounded parts for electrocution).

Whereas electrocutions occur primarily at distribution lines—small power lines with voltages between 2.4 and 60 kilovolts (kV)—collisions occur at both distribution lines and transmission lines—large power lines with voltages >60 kV. However, relatively few collision studies have been conducted at distribution lines; those that have suggest that there is little difference in collision rates between line types. Both sources of mortality are reducible with the use of retrofitting measures or with implementation of bird-safe standards at new construction.

Despite an increasing number of studies that employ rigorous a priori study designs, much of the research published to date about bird mortality at power lines has consisted of qualitative reviews and assessments of opportunistically collected data. Further more, nationwide estimates of mortality at U.S. power lines are speculative or based on extrapolation from a single European study.

Policy and management for reduction of wildlife mortality should ideally be based on evidence from scientific studies that implement randomized and replicated sampling schemes. In addition, national-scale estimates of mortality and comparisons among mortality threats are likely to be used for prioritizing policy and management strategies and for identifying major research needs.

The U.S. Fish and Wildlife Service is especially concerned about growing impacts to some 836 species of migratory birds currently protected under the Migratory Bird Treaty Act of 1918. Communication towers may kill from 4-50 million birds per year.

Collisions with power transmission and distribution lines may kill anywhere from hundreds of thousands to 175 million birds annually, and power lines electrocute tens to hundreds of thousands more birds annually.

# WII TEAM LOOKS FOR A VIABLE FOREST AREA TO HARBOR CHEETAH

Seema Sharma

Email: [seema.atri@gmail.com](mailto:seema.atri@gmail.com)

The survey to find potential habitat to relocate the African Cheetah in India has begun. M.K. Ranjitsinh, former Director of Wildlife Preservation of India, said that a team of researchers under the guidance of the Wildlife Institute of India (WII) has started the survey of protected forests to harbor Cheetah.

Ranjitsinh is part of a three-member expert committee which was formed at the directive of the Indian Supreme Court. The directive was issued on January 28 this year to guide the National Tiger Conservation Authority (NTCA) in its efforts to supervise the Cheetah relocation process. NTCA must submit a report in this regard to the SC every four months. The other two members of the committee are Dhananjai Mohan, Director WII; and Deputy Inspector General (Wildlife), Ministry of Environment, Forest, & Climate Change.

Cheetahs inhabited India's grasslands till the 1950s before they were hunted to extinction. Iran is the only country in Asia presently having Asiatic Cheetah (*Acinonyx jubatus venaticus*). However, it refused to share the species with India. The population of this species in Iran has come down from around 100 individuals in 2007 to 43 in 2016. The global population of cheetahs was estimated at nearly 7,100 individuals in 2016. After Iran's refusal, the only option left to India is to bring the felines from Africa.

The cheetah has been classified as vulnerable by the International Union of Conservation of Nature. It is listed under Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). It is also in Appendix I of the Convention on



*The Cheetas in Namibia, all looking that side, photo courtesy: CCF*

International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Endangered Species Act lists the cheetah as endangered.

“Though we have submitted our report to SC, it got delayed due to COVID-19 pandemic. The survey too got procrastinated as the people avoided going into the field because of the virus scare,” Ranjitsinh said.

A sum of Rs 2.5 crore has been sanctioned to WII by the Ministry of Environment, Forest, and Climate for Cheetah project.

Senior scientist associated with Wildlife Institute of India and big cat expert Y. V. Jhala and Ranjitsinh in their combined report analysed probability of cheetah relocation in protected forests. Forests examined were Sanjay National Park, Dubri Wildlife Sanctuary and Guru Ghasidas National Park in Chhatisgarh; Kuno Palpur Wildlife Sanctuary and Nauradehi Wildlife Sanctuary in Madhya Pradesh; Kaimur Wildlife Sanctuary, Uttar Pradesh and Bagdara Wildlife Sanctuary, Madhya Pradesh as a continuous habitat; the Shahgarh landscape; and Rajasthan Desert National Park in Jaisalmer, Rajasthan.

They recommended Kuno-Palpur and Nauradehi Wildlife Sanctuary in Madhya Pradesh and Shahgarh Landscape in Jaisalmer for Cheetah translocation. They added that all the three sites require preparation and resource investments to commence an introduction program. Long-term commitment of political will, resources and personnel is required from the Central and State Governments to implement this project successfully the experts stressed.

According to the report, Kuno Palpur Wildlife Sanctuary is a part of the Sheopur-Shivpuri forested landscape. It has the second largest area 6,800 km<sup>2</sup> amongst the surveyed sites.

It was Sanjay National Park, Dubri Wildlife Sanctuary and Guru Ghasidas National Park which were the largest, covering over 12,500 km<sup>2</sup> where cheetah continued to survive till after India's Independence. But, it was not front runner in the reckoning due to problems like low prey densities, probably due to poaching by tribal communities that reside within the protected areas.

Contrary to this, Kuno-Palpur topped the chart, because a lot of restorative investment has already been made here for introducing the Asiatic lions, something which has hit the roadblock since 2013. This protected area is estimated to have a current capacity to sustain 27 cheetahs, which could be enhanced to over 32 individuals by amalgamating adjoining forested areas (120 km<sup>2</sup>) to the Kuno WLS and managing the surrounding 3,000 km<sup>2</sup> forested habitat as a buffer to the sanctuary. The location can hold cheetah dispersal over 70 individuals.

Nauradehi Wildlife Sanctuary (1197 km<sup>2</sup>) in Madhya Pradesh which is part of a contiguous forested landscape of 5,500 km<sup>2</sup> has reasonable prey densities, and the area could support 25 cheetahs. Authors of the report also recommended the designation of 750 km<sup>2</sup> as a core area of the sanctuary and relocation of about 23 human settlements from the core with generous and adequate compensation. This would enable the site to support over 50 cheetahs as a source population, while the whole Nauradehi



(right to left) Sheera Yashprey, Laurie Marker, Peter Kaestner, Kimberley Kaestner, and Harsh Vardhan, at a conservation dinner in Jaipur in February 2020, hosted by Peter, the 2nd top ranking birder in the world

landscape could accommodate over 70 individuals.

SK Mandal, Principal Chief Conservator of Forests in Madhya Pradesh beamed with joy saying that it would be a matter of pride for MP for having Cheetah in the state. This is true, particularly as the Kuno WLS has already been upgraded as a viable habitat for lions' translocation with the shifting of all the villagers from it and expansion of grassland.

Ranjitsinh allayed any apprehension with regard to lion and cheetah living together with some tigers too in the landscape. He said that this situation won't pose any conflict among the big cats.

The WII report found Shahgarh landscape on the international border in Jaisalmer district of Rajasthan also

suitable for introducing cheetahs. The area does not pose any conflict from tigers. Owing to the reason that it is fenced along the international border, authors gave advice to fence it off by constructing another 140 km long chain-link fence, so as to encompass about 4000 km<sup>2</sup> of the habitat. Relocation of local people from 80 seasonally used human settlements was also recommended. Despite the fact that the region has less prey species diversity, the area could currently support about 15 cheetah and had the potential to sustain 40 cheetahs with further habitat management, they mentioned.

Arindam Tomar, former Chief Wildlife Warden of Rajasthan expressed his concern saying, "Shahgarh landscape has become vulnerable due to escalating tension between India and

Pakistan as it is just situated on the international border of both the countries. The experts need to see if Cheetah can be brought here amid such volatile situation. There are issues also with regard to less prey density which also requires to be tackled."

Ranjitsinh said, "If it requires, we will make all the efforts to make the selected habitat as the most suitable for Cheetah survival and growth of its population in India. This flagship species will play a vital role in conservation of its habitat which is grassland and scrubland ecosystem which is highly neglected in the country."

NTCA had sought permission for the introduction of the African cheetah from Namibia last year as the court is monitoring the government's ambitious project.

Founded in 1990, in Namibia, Africa, the Cheetah Conservation Fund (CCF) is celebrating its 30th anniversary in 2020. Thus, it is the longest running and one of the most successful cheetah conservation organisations in the world. Laurie Marker, founder and Executive Director of the Fund, is also taking a keen interest in Cheetah translocation. "CCF has offered to assist the committee of conservation experts appointed by the Supreme Court of India on a pilot programme to introduce the African cheetah to the landscape of India," she said.

**Note: Seema Sharma is a Chandigarh based independent journalist who writes on environmental, social and gender issues.**



Photographer and cheetah

### ***Cheetah Conservation Fund (CCF)***

*Mission Statement "To be the internationally recognized centre of excellence in the conservation of Cheetahs and their ecosystems. CCF will work with all stakeholders to develop best practices in research, education and land use to benefit all species, including people."*

# THAI KITE MIGRATES TO MUMBAI

Chaiyan Kasorndorkbua, Kasetsart Laboratory of Raptor Research and Conservation Medicine



The tagged Black Kite in Thailand, photo courtesy Chaiyan

Post-fledging Movement of Black Kite *M. m. govinda* (R 96), 16 May – 14 Oct 2020



You may have heard about Naga, a juvenile Black Kite fledged in central Thailand in April 2020 and tagged with a GPS tracker. It then traveled to Bangladesh in June 2020.

Its been 6 months and just today (October 17, 2020) Naga resided for a week near the Ulhas River in Maharashtra, India (south of Mumbai).

It covered about 5,000 km in its journey from Thailand.

Adult Kites will be tracked this upcoming breeding season to see if this amazing yet previously unknown East-West route is the norm of the Thai population.

This Kite tracking project is run by the Kasetsart Raptor Research and

Conservation Medicine program that I oversee.

It is supported by Raptor Research Fund for Conservation, Faculty of Veterinary Medicine, Kasetsart University, Thailand.

Wish such experiments are carried out all over the world to strengthen conservation, using science.

## TEACHERS' and YOUTH LEADERS' CORNER

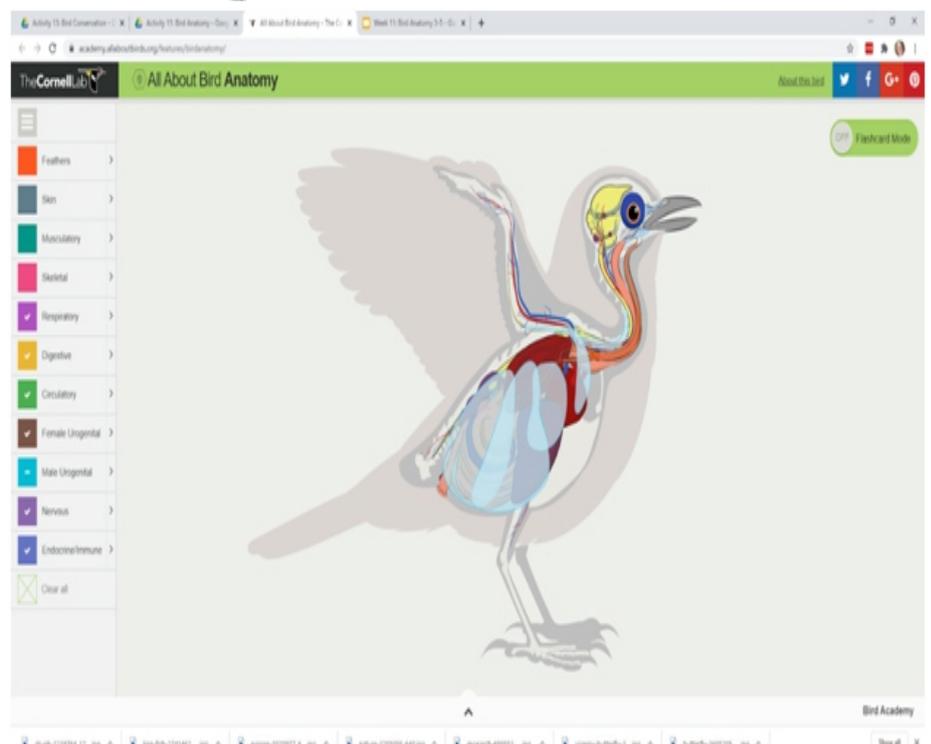
### The Cornell Lab of Ornithology

You can take advantage of a lesson on birds by the Cornell Laboratory of Ornithology by clicking on the link below or cutting and pasting it into your browser. While the material is written for teachers in the United States, it can easily be adapted to any country—birds are everywhere!

<https://docs.google.com/document/d/1z8X78wP5ss6Lt4MtndYEU59GX2hPUCpqNqI8WNbnkDE/edit>

Amazing Anatomy!

Birds can do incredible things! They can climb trees using just their toes, spot prey from a mile away, and fly higher than Mount Everest. But how do they do it? The secret lies in their bodies. In the latest, hands-on Cooped Up Kids activities, kids will explore the amazing anatomy of birds, and discover how their adaptations help them thrive. The material contains interactive diagrams of bird anatomy and a slide show about bird's adaptations—all online.



# INDIA AND EUROPE WILL LEAD A RENEWABLES SURGE IN 2021

International Energy Agency: <https://www.iea.org/reports/renewables-2020>

**Renewable capacity additions are on track for a record expansion of nearly 10% in 2021.**

Two factors should drive the acceleration, leading to the fastest growth since 2015. First, the commissioning of delayed projects in markets where construction and supply chains were disrupted. Prompt government measures in key markets – the United States, India and some European countries – have authorised developers to complete projects several months after policy or auction deadlines that originally fell at the end of 2020. Second, growth is set to continue in 2021 in some markets – such as the United States, the Middle East and Latin America – where the pre-COVID-19 project pipeline was robust thanks to continued cost

declines and uninterrupted policy support.

India is expected to be the largest contributor to the renewables upswing in 2021, with the country's annual additions almost doubling from 2020. A large number of auctioned wind and solar PV projects are expected to become operational following delays due not only to Covid-19 but also to contract negotiations and land acquisition challenges.

Energy demand in India is growing rapidly with major implications for the global energy market. The Government of India has made remarkable progress in providing access to electricity and clean cooking while implementing a range of energy market reforms and integrating a high share of renewable energy sources into the grid.

# A NEW LANGUR CONFIRMED



The hanuman or grey langur of India has a new distant cousin in Myanmar.

And now a new Langur Phayrei's langur (*Trachypithecus phayrei*) subspecies has been elevated to the species level, and described as a new species from central Myanmar.

This langur is one of the most widespread members of the genus, but details on its actual distribution and intraspecific taxonomy are limited and controversial.

So 41 mitochondrial genomes were sequenced from georeferenced fecal samples and museum specimens.

Courtesy: Christian Roos, et al.

<http://www.zoores.ac.cn/en/article/doi/10.24272/j.issn.2095-8137.2020.254>

# ALTERNATIVE WELLBEING: FILMS

Welcome to watch 3 films on Alternative Wellbeing curated by Vikalp Sangam and to send your response to the directors on [www.bit.ly/VikalpScreening](http://www.bit.ly/VikalpScreening).

## 1. “Rivers for Life” directed by Vandana Menon -

<https://youtu.be/BpR7ZfQ7Y80>.

Even as massive infrastructure interventions destroy natural habitats and livelihoods across India, several communities directly affected are resisting. The forested hills by the River Rongyung in Dzongu, Sikkim form a sacred reserve of the indigenous Lepcha People. The Lepchas believe that in the afterlife, their shamans help guide their souls to the final resting places in the caves beyond the mountains through the river. But now, a mega hydel project threatens the sanctity of the river. “Rivers for Life” chronicles the 12-year long campaign by the Affected Citizens of Teesta against the authorities to save their biodiversity rich habitat.

## 2. “Thengapalli” directed by Vandana Menon, Vivek Sangwan, and Debashish Nandi -

<https://youtu.be/ZRKKxJMoXyU>.

Gunduribari is a tribal village nestled in the forests of the Nayagarh District of Odisha. Traditionally, the indigenous communities were the keepers of the forests and storehouses of conservation practices and knowledge systems. Over the centuries these communities began to be considered as “encroachers”. The Forest Rights Act (FRA), for the first time in 2006, recognises the rights of tribal communities to govern and sustainably use their surrounding forest areas. “Thengapalli” is a story of how, harassed by the timber mafia for decades, the women in the village decide to take matters into their own hands to save their forests.

## 3. “A Pastoral Story” directed by Sanjal Barnela

<https://youtu.be/sNfp5-inxSw>.

Kangra District in Himachal Pradesh is home to semi nomadic pastoralists known as Gaddis. Over the years, development, encroachment, and official conservation practices have resulted in their livelihood sources dwindling. “A Pastoral Story” focuses on the Gaddi herders who have used political influence to circumvent bureaucratic policies of exclusion. The Gaddis also have organised to argue that there is no scientific evidence to support the notion that their grazing leads to land degradation.

Vikalp Sangam is a platform for collaborating on, documenting, and enhancing viable alternatives to India's unequal and ecologically destructive development paradigm. **Know more at [www.vikalpsangam.org](http://www.vikalpsangam.org).**

-Editors

*The three films are on uses of Nature and are set in different rural backdrops, a contrast to what urban people practice natural resources.*

# MAMMALS OF THE WORLD CHECKLIST

Edited by Connor J. Burgin, et al <https://www.nhbs.com/illustrated-checklist-of-the-mammals-of-the-world-2-volume-set-book>

# ORIENTAL BIRDING GROUP, END OF IT!

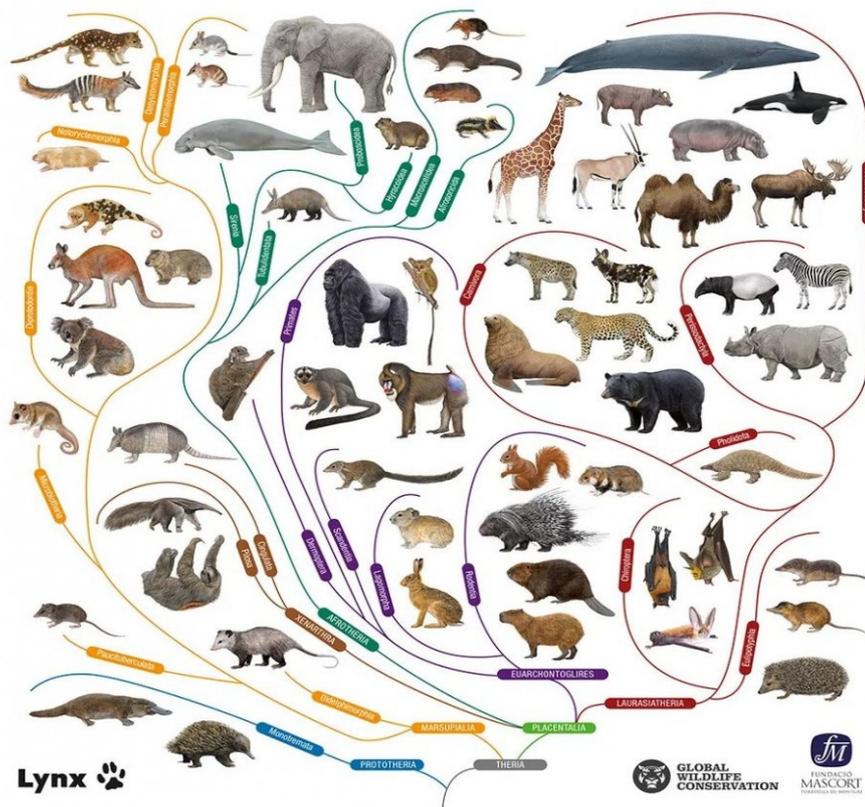


*Krys Kazmierczak smiles despite it, photo courtesy Krys*

## Illustrated Checklist of the Mammals of the World

Connor J. Burgin, Don E. Wilson, Russell A. Mittermeier, Anthony B. Rylands, Thomas E. Lacher & Wes Sechrest  
Foreword by Razan Al Mubarak

SET OF 2 VOLUMES



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It took several years to produce the entire series of the Handbook of the Mammals of the World (HMW), and we are now happy to provide a new, comprehensive Illustrated Checklist of the Mammals of the World. This latest work updates the taxonomy of each currently recognized species of mammal, providing a complete checklist in a set of two volumes.

The new illustrated checklist incorporates all recently published revisions in new, brief species accounts for each species. In addition to the updated scientific name of each species, each account includes common names in English, French, German and Spanish, and the IUCN Red List Conservation Category. Taxonomic notes incorporate recent

changes, and updated distributions are also included. If subspecies are recognized, they are updated along with their current distributions. Accompanying each species account is a scientific illustration in full color, adapted from the earlier volumes, along with a revised distribution map.

If you own the entire set of HMW, you will want to add this latest set of volumes to provide up-to-date coverage of all currently recognized species, including recently described forms.

The Illustrated Checklist of the Mammals of the World also works well as a complete, stand-alone summary of the current taxonomy and distribution of every currently recognized species of mammal.

Krys Kazmierczak wrote to all members of the Oriental Birding Group: As some of you may know, Yahoo Groups closed down on 15th December 2020 because it has seen a steady decline in usage over the last several years.

It is therefore with some sadness and regret that I have decided to allow the OB group to close on 15th December along with the Yahoo service. Krys is the owner of the Oriental Birding Group ([krys@krys.net](mailto:krys@krys.net)). It has been a beautiful collection of Bird photographs. This Database was created to bring together photographs of as many bird species from the Oriental Region as possible.

All images in this Database were provided by the photographers free-of-charge.

Over 300 Oriental bird species are considered by BirdLife International as threatened by forest destruction, wetland drainage, hunting and trade. Conservation of these species is often hampered by a lack of knowledge. Oriental Bird Club, which operates out of United Kingdom, supports conservation work in the Oriental region by encouraging studies of birds and their habitats.

Through the generous support of members and corporate sponsors, the OBC conservation fund has supported hundreds of projects throughout Asia, primarily run by local people. More than £250,000 has been invested in conservation in the region since 1984.

The Oriental Bird Club is entirely run by a team of dedicated volunteers-and it is always looking for an extra pair of hands. Interested? To find out more, email: [mail@orientalbirdclub.org](mailto:mail@orientalbirdclub.org)



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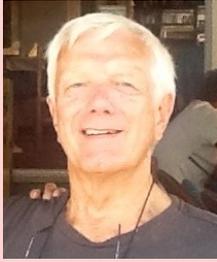
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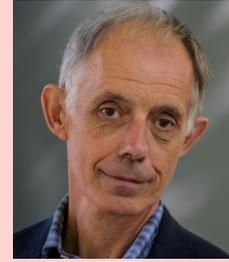
Hartley Anderson is a Sydney, Australia resident who, after more than fifty years in sales and marketing roles, has decided it was time to pursue leisure activities.

His recent and new activity which is relevant to conservation is beekeeping. He has a strong interest in India.



**Binita Pandey**

Binita Pandey is a researcher in entomology with a keen interest in insect taxonomy, behavior, conservation, and plant preference of pests. She has conducted a Bumblebee research project in Nepal. She is the founder and manager of the Nepal Pollinator Network.



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Martin Goodman is an award-winning writer and publisher based in the UK. His book *Client Earth* told the tale of eco-lawyers on their global battle to save the planet from environmental collapse. He is Emeritus Professor of Creative Writing at the University of Hull.



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Chairman of Editorial Board

Ed McCrea is President of Environmental Education and Conservation Global, a US nonprofit conservation organization. Over the last fifty 50 years, he has worked in environmental education and biodiversity conservation at the local, state, national, and international levels.



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Authored 11 books on forest, wildlife management and biodiversity, specialized in ethnobotany and ethnozoology, did PhDs on Plant life of Weaver Birds (1991) and Study of Biodiversity and Ethnobiology of Phulwari WL Sanctuary (2007), former Forest Officer, based at Udaipur.



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Seema Sharma is an independent journalist based in Chandigarh. She was formerly with the Tribune and the Times of India. She writes on wildlife conservation and environment and is a fellow of CMS-IHCAP fellowship on impact of climate change in Trans Himalayas.



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Rosamma Thomas is a freelance journalist based in Maharashtra, India. She has worked in radio and print journalism. She has only ever lived in cities, despite being a wild creature at heart. She has supported by writing on a unique cause like House Sparrow ex situ breeding initiatives.



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(Editorial Coordinator)

Wildlife conservationist and writer, served for Bustards, Siberian Cranes, started the Indian Birding Fair, held annually at Jaipur's Man Sagar lake, worked with US Fish & Wildlife Service, International Crane Foundation, EEGC, and is Honorary Secretary of TWSI, based at Jaipur.

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Note: It is the fourth e-newsletter for free circulation aiming at education and awareness on conservation.

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