In The Eye of a Storm
The illegal monitor lizard-genitalia trade
The Gujarat government has done a remarkable job in nurturing the Asiatic lion thus far. The whole nation owes the people of Saurashtra a debt of gratitude. And these lions are paying us back by gifting us with water through rivers that sustain us all the way to Amreli. The worry is retaliation when human patience and tolerance runs out. It's not an easy problem to solve. Before the situation gets out of hand and the current peace between man and beast thins down, the lions must be given more secure, sizeable secluded areas and that process should start being implemented now. Turn to our photofeature on page 12, where every image provides us a stark reminder that conflict with humans is affecting all manner of wild species.

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ON THE COVER

A sting operation led by leading conservation organisations in India recently uncovered a bizarre online trade in monitor lizard genitalia. Possession and trade of the four species of monitor lizards found in India, including this Bengal monitor photographed in Maharashtra’s Tipeshwar Wildlife Sanctuary, is prohibited under the Wildlife (Protection) Act, 1972. The Wildlife Crime Control Bureau of India has begun a full-scale investigation into the trade, which is believed to be the cause of mortality of thousands of monitor lizards, and there are signs that the clampdown is helping tackle the trade.

Photographer: Saee Bhurke

NEWS


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CATWALK

None of the models that grace the catwalks of Paris, New York, or Milan come close to matching the grace of the felines that sashay elegantly through wild homes fashioned for them by nature. The catwalk you see here is a mile-long track in Uttar Pradesh’s terai, which the ancestors of the fishing cat *Prionailurus viverrinus* pair have been walking before we humans came on the scene.

Going back in time, we see that all cats large and small evolved from a common felid ancestor something like 10.8 million years ago. Around 6.2 million years ago, the smaller cats branched off to give rise to some of the stunning ‘lesser’ cats we still see in India such as the Asian leopard cat *Prionailurus bengalensis*, rusty-spotted cat *Prionailurus rubiginosus*, Pallas’s cat *Otocyon manul*, fishing cat, jungle cat *Felis chaus*, Indian Desert Cat *Felis silvestris ornata* and the familiar domestic cat *Felis catus* (which was delivered to us by nature some 3.4 million years ago; later hybridised).

At this point, I’m sure, most politicians, planners and economists have turned the page. They might have lingered longer if they knew how the fate of the millions who repose trust in them is linked to lessons hidden in the antiquity of these cats. *The Scientific American* explains why: “When sea levels were low, land bridges connected continents, allowing mammals to migrate to new domains. When sea levels rose again, animals on the continents were isolated once more.”

Slow climatic changes, unfolding over thousands of years, caused the isolation of animals that then evolved into new species through a process called speciation. Things are different today. By comparison, we humans are heating the planet in a relative wink of an eye… just a few hundred years. Consequently, between rising seas and climate oscillations, species are being denied the time to adapt to changing circumstances. This (coupled with our abysmal lack of planet-management) is what Elizabeth Kolbert, Pulitzer Prize-winning author of *The Sixth Extinction: An Unnatural History* identifies as the reason for Earth’s rapid loss of biodiversity. Take my word for it (then verify at leisure)... if Earth’s biodiversity goes...everything goes. Including the global economy, social stability, health, infrastructure, water...everything.

Bottom line? Stop pussyfooting around the climate issue. Let wild cats walk their catwalk... unhindered.
CHINA’S IVORY TOWN

An explosive investigation by the Environmental Investigation Agency has revealed how criminal gangs originating from an obscure town in southern China have come to dominate the smuggling of ivory tusks poached from African elephants.

Shuidong town is home to a network of ivory trafficking syndicates whose reach extends to East and West Africa, including the elephant poaching hotspots of Tanzania and Mozambique. Investigators from EIA infiltrated the syndicate over a period of three years and published their findings in a report titled *The Shuidong Connection: Exposing the global hub of the illegal ivory trade*. According to one member of the syndicate, the town is the destination for a staggering 80 per cent of all poached ivory that is smuggled into China from Africa.

Julian Newman, EIA Campaigns Director, said: “EIA has shared, in confidence, the detailed intelligence unearthed during the course of the Shuidong investigation with relevant government departments and enforcement agencies and looks to them to use it. Action is needed to end this huge criminal enterprise, which is devastating Africa’s elephant populations.”

PROTECTING BIRDS OF PARADISE

In a positive step towards the conservation of Papua’s famous, flamboyant and endemic Birds of Paradise, Papuan Governor Lukas Enembe has issued a circular prohibiting the use of the species in ornaments and souvenirs. This ban is a direct reaction to threats faced by these birds from poaching for this purpose, though it leaves room for the use of bird parts in sacred indigenous ceremonies.

“There’s no one allowed to use preserved Birds of Paradise, either as accessories or souvenirs in dance performances or as head decorations presented to officials or guests visiting Papua. These all must be stopped. As replacements, they can use artificial birds of paradise,” said Papua administration regional secretary Heri Dosinaen. Secretary Dosinaen also said that authorities would conduct raids and take necessary action against anyone found to be in contravention of the ban.

The Birds of Paradise comprise 42 different species belonging to 15 genera, and are famous for the elaborate and beautiful feathers and courting rituals of the male birds. Hunting and habitat loss are the major threats to these extraordinary avians.

SOUTH AFRICA EXPORTS LION SKELETONS

South Africa’s Department of Environmental Affairs has invited the ire of international conservation groups by approving the export of 800 lion skeletons to Asia this year.

While the 800 skeletons are from captive-bred lions, many of which languish in breeding farms in the country, conservationists believe the export will stimulate the demand for lion bones, thereby increasing threats to wild lions. The country’s captive predator breeding and canned shooting industry has been under the scanner for years, and in 2016, the World Conservation Congress passed a Resolution calling for the termination of the industry.

Earlier this year, Dr. Paul Funston, Senior Director of Panthera’s Lion Programme, condemned the export quota, saying: “It is confounding that a country whose iconic wild lions are such a source of national pride – not to mention tourist revenue – would take such risks to sustain a marginal captive breeding industry that is condemned globally for its shameful practices. The legal farming of lions for tourists to bottle-feed, pet, and ultimately hunt in tiny enclosures is a stain on South Africa’s reputation as stewards of Africa’s wildlife.”

PARROT DISCOVERY IN MEXICO

Researchers from the U.S., Mexico and Poland have described a new species of parrot from the Yucatan Peninsula in Mexico in the journal *PeerJ*. The bird was first discovered by ornithologist Dr. Miguel Gomez Garza in 2014, and was subsequently named *Amazona gomezgarzai*.

The bird, also known as the Blue-winged Amazon, has a call that is uniquely different from other parrots in central America and is the only one of the *Amazona* genus to have a green crown. According to the researchers, the parrot is found in a restricted area, none of which is protected. “Through the publication of this description, we are alerting government authorities, conservationists and local inhabitants that implementing conservation measures is imperative to provide refuge for a broad array of species found within the range of *Amazona gomezgarzai* including this unique new member of the genus *Amazona*,” they wrote.
POACHING RACKET EXPOSED IN PENCH

Officials of the Pench Tiger Reserve in Maharashtra believe they may have uncovered a large-scale poaching racket by arresting two tribals in possession of 12 kg. of tiger bones and 14 tiger nails. Residents of Usripaar village on the fringes of the reserve, they were also involved in illegal fishing in the Totladoh reservoir in contravention of a Supreme Court ban on fishing in the tiger reserve. Rishikesh Ranjan, Chief Conservator of Forest (CCF) and Field Director of Pench told the Times of India that the bones are suspected to be from three tigers poached inside the core area. If the four tigers known to have died in the reserve since January 2017, and this case, are taken into account, tiger numbers are expected to come down substantially from the last count of 44. "It seems there are more people involved, our team is still at work. Only a DNA analysis would reveal the number of tigers. We are also tallying the seized evidence with tigers that have not been sighted in the last three years annual estimation," said Ranjan. Sources added that the arrest was made based on information received about a racket supplying tiger parts from Usripaar.

NEW GUIDELINES FOR LINEAR PROJECTS

The Environment Ministry has approved ‘eco-friendly’ guidelines framed by Dehradun-based Wildlife Institute of India (WII) that entails safeguards for wildlife in proposed linear projects in wildernesses. The document prepared by WII in consultation with the National Tiger Conservation Authority (NTCA) will serve as a template for project proponents and the National Board for Wildlife that examines projects in over 660 wildlife areas in India. "The objective of the document is to help faster clearance and rigorous compliance of the road, railway and power transmission proposals for balancing biodiversity and developmental planning in wildlife habitats," said an official to the Hindustan Times. It is expected that the first project where these guidelines are most likely to be referred will be the Kandi road in Uttarakhand that aims to connect Garhwal and Kumaon region by minimising the distance to 90 km. from 162 km. and travel time by at least two hours (see page 92). Mitigation measures mentioned in the report include construction of overpasses, eco ducts or wildlife bridges passing above roads and railways for wildlife movement, canopy bridges, glider poles, viaducts, box culverts, pipe culverts and enhanced tree cover along linear infrastructure to reduce noise levels. But previous experiences with the Ministry of Environment, Forests and Climate Change confirms that ‘wish-list’ conditions are blissfully ignored.

Losing human-wildlife conflicts

According to a recent study authored by Dr. Krithi Karanth, conservation scientist with the Wildlife Conservation Society (WCS) and Sahila Kudalkar, research associate with the Centre for Wildlife Studies (CWS), there is a need to strengthen human-wildlife conflict management across India. The researchers are calling for the identification of effective prevention techniques, strengthening existing compensation schemes, and an open inclusive dialogue between local communities, governments, and conservationists. The study, designed to help inform better policies to mitigate human-wildlife conflict, examined the patterns of human-wildlife conflict and mitigation use by 5,196 families from 2011 to 2014 from 2,855 villages neighbouring 11 wildlife reserves across western, central, and southern India. Of the more than 5,000 households surveyed around 11 reserves in India, crops were lost by 71 per cent of households, livestock by 17 per cent, and human injury and death were reported by three per cent of households. Across wildlife reserves, people reported average crop losses amounting to Rs. 12,559 (US$194), and Rs. 2,883 (US$44) of livestock losses annually.

Editor’s Note: The Sanctuary Nature Foundation is working on one potential solution to mitigate human-animal conflict in the Umred-Karhandla Wildlife Sanctuary, Vidarbha, Maharashtra. Here, working with the local community of the Gothangaon village, failed and marginal farms that fringe the tiger habitat are being rewilded through Community Owned Community Operated Nature Conservancies (COCOON Conservancies) that will enhance the capital value of their land holdings, create sustainable livelihoods and offer collateral benefits including reduced human-animal conflict, enhanced biodiversity and more wilderness space for the gamut of lifeforms that share the tigers’ habitat. For more information, visit: www.sanctuaryasia.com
CLIMATE CHANGE LAWSUIT
A date for trial has been set for the landmark lawsuit Julian et al v. United States that was filed in 2015 by 21 children and young adults. The lawsuit takes on the U.S. government for its failure to contain its polluting fossil fuel sector and act on climate change. A federal judge set a date for the trial, which is to commence on February 5, 2018, in a federal district court in Eugene, Oregon, before U.S. District Court Judge Ann Aiken. The lawsuit challenges the federal government’s decision to advocate the development of the fossil fuel sector. The Department of Justice (DoJ) had earlier tried to have the case dismissed and had even intervened by petitioning the 9th U.S. Circuit Court of Appeals. The ruling in favour of the plaintiffs, the group of children, by granting a trial date, makes a powerful statement that the public will no longer be mute spectators to the inexcusable position of the federal government to encourage fossil fuels that are aggravating climate change. The young plaintiffs demand an end to the fossil fuel era. “Given our excellent panel of experts, and the ongoing problems created by the Trump administration, we believe the court will use the constitution and the laws to have the case dismissed and had even intervened by petitioning the 9th U.S. Circuit Court of Appeals. The ruling in favour of the plaintiffs, the group of children, by granting a trial date, makes a powerful statement that the public will no longer be mute spectators to the inexcusable position of the federal government to encourage fossil fuels that are aggravating climate change. The young plaintiffs demand an end to the fossil fuel era. "Given our excellent panel of experts, and the ongoing problems created by the Trump administration, we believe the court will use the constitution and the public trust doctrine to protect our climate from further serious damage,” said Philip Gregory, an attorney in the lawsuit, in a statement.

NORTHERN CHINA REELS UNDER ‘WORST’ Drought
As per officials in the region, northern China is suffering from the worst drought on record, with the northeastern and eastern parts of the Inner Mongolian Autonomous Region being hit especially hard by weather fluctuations. As per statistics from the municipal area of Hulunbuir, the economic loss incurred from the drought has been equivalent to $781 million. About 16 million acres of pasture land have borne the impact. Financial and human aid has been deployed to address the problem in the area. An abnormal shortage of rainfall since mid-April has left more than 1,200,000 people and thousands of livestock in a fix. Despite occasional, faint spells of rain, high temperatures have not allowed the drought to ease. Experts blame climate change, and President Xi Jinping has expressed the need to address this mounting problem. Chinese leaders have requested all countries to stand by the Paris Climate Agreement strongly, even if the largest carbon emitter in the world, the United States, has decided to step down.

PARIS CLIMATE DEAL: U.S.A. WEASELS OUT
U.S. President Donald Trump has finally achieved the dreaded by pulling out of the Paris Climate Agreement. Signed by 196 countries during the 21st Conference of the Parties (COP21) of the UNFCC in December 2015, the Agreement was a momentous step in the global effort to combat climate change. The goal of the Agreement is to curtail global temperatures from rising over 2°C from the temperature standards of the pre-industrial era. Efforts will be made to limit this to 1.5°C if possible, with signatory countries agreeing to reduce greenhouse gas emissions systematically to eventually become neutral emitters. The U.S.A. is one of the world’s largest greenhouse gas emitters, and the country’s withdrawal from the climate deal is a blow to global efforts to mitigate climate change. Trump’s real reason for pulling out of the climate deal, allege climate change activists, is to strengthen the U.S.A.’s coal and oil industries. Apart from the U.S., only Nicaragua and Syria are non-signatories to the Agreement. Unfortunately, the Agreement is not a legally-binding commitment, so the U.S. or any other country choosing to opt out by not agreeing to take measures to control carbon emissions cannot be put on trial.

SUNDARBAN IN TROUBLE
A study by the School of Oceanographic Studies, Jadavpur University, has made some startling revelations about the loss of mangrove forests in the Indian Sundarban. As per the publication, between 1986 to 2012, over 124 sq. km. of mangrove forest cover has been washed out. Based on remote sensing studies, the total forest cover in the Indian Sundarban in 1986 was approximately 2,246,839 sq. km. The forest area shrunk to 2,201,41 sq. km, in 1996; further down to 2,168,914 sq. km, in 2001; and the decline had left only 2,122,421 sq. km, of mangrove forest cover by 2012. Around 5.5 per cent of the Sundarban mangrove forest has been lost in little more than two decades, with 9,990 hectares lost in one decade alone. This is going to seriously hamper the Sundarban’s carbon sequestration capacity and the extremely crucial ecological services it provides. The study found that not less than 18 mangrove forest islands within the Indian Sundarban have undergone severe erosion between 1986 and 2012. Professor Hazra, Head of the School of Oceanographic Studies, Jadavpur University, has pointed out that climate change and rise in sea levels have been crucial contributors to the erosion of the mangrove forests, especially in the last few years.
The Indian Spectacled Cobra (Naja naja).

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CONSERVATION PHOTOGRAPHY

As a precursor to the Sanctuary Wildlife Photography Awards 2017, a reminder that a ‘picture can save a thousand lives’. Details at www.sanctuaryasia.com.

We were all born wild animals, which is why we respond viscerally to raw nature. Our urbanised existences may have greatly diminished our opportunities to connect with nature on a daily basis, but while that instinctive relationship may have diminished, it is never lost.

This is why Sanctuary purposefully uses images from some of the most talented nature photographers to remind us of our wild origins. Through such images, millions who have not been able to navigate that magic bridge between urbania and the wilderness are able to replenish purpose and inspiration.

Conservation photography is the active use of the photographic process and its products, within the parameters of photojournalism, to advocate for conservation outcomes. It seeks to use powerful static images and stirring words to give us pause to think and reconsider our direction in life. Not intended to be ‘pretty pictures’ we hope that photojournalism of this kind will boost our conservation advocacy objectives in ways that benefit both people and wildernesses. We hope more people take to conservation photography in the years ahead so that we are collectively encouraged to think and act in ways that nudge policies and human behaviour towards living in harmony with wild nature.

NIKIT SURVE Hunter Hunted: A carefully positioned ‘camera-trap’ vividly encapsulates the dilemma facing India... how can we reverse our onslaught on the natural world upon which we are totally dependent. The Indian leopard’s Panthera pardus fusca ability to adapt and tolerate humans is legend, but here in Mumbai we are pushing these cats to the brink by stealthily encroaching upon its wild domain in the Sanjay Gandhi National Park, a vital source of pure drinking water.

Location: Sanjay Gandhi National Park, Maharashtra
Details: Camera: Cuddeback 1200, Shutter speed: 1/400 sec., Aperture: f/2.7, ISO 100
Image taken: March 5, 2015; 5:46 p.m.
Plastic Fantastic?: The image of a rhesus macaque *Macaca mulatta* on the banks of the holy Ganga, would have been interesting enough without the plastic bag, but with it, a ‘pretty picture’ turned into an evocative plea for sanity. Gifted the most complicated brains in the world, we humans seem to have been denied the foresight to ward off the dire consequences of choking our biosphere with disposable plastics. Worshipped by millions, the declaration of the Ganga as a ‘living entity’ means little to the myriad lifeforms dependent on its flow if we are unable to escape the ‘have your river and pollute it too’ syndrome that outrageously defines India’s development today.

**Location:** Narora IBA-10, Ganga river, Bulandshahar, Uttar Pradesh

**Details:** Camera: Nikon D7100, Lens: 150-500 mm. f/5.0-6.3, Shutter speed: 1/1000 sec. Aperture: f/6.3, ISO 500, Focal length: 300 mm.

**Image takers:** March 8, 2015; 5:42 p.m.
TAPAN SHETH Living on the Edge: A desert fox *Vulpes vulpes pusilla* pup warily raises its head out of its den as a truck, possibly carrying materials that promise to destroy its fragile home, approaches. As India proceeds to emulate western countries in its race to ‘develop’, it seems to have forgotten lessons taught to us by our ancestors that the only way to a safe and happy existence is to live with and respect nature as a supreme force to whose imperatives we must bow... not the other way round.

**Location:** Little Rann of Kutch, Gujarat  
**Details:** Camera: Canon EOS 7D, Lens: Canon EF 500 mm. f/4L IS II USM, Shutter speed: 1/500 sec., Aperture: f/8, ISO 100, Focal length: 500 mm.  
**Image taken:** March 13, 2014; 3:03 p.m.

BHAHESH PATEL Wetlands or Wastelands?: Wetlands – rich and biodiverse ecosystems – store as much carbon as currently exists in our atmosphere, but they happen to be even more threatened than our forests. Bathed by beautiful golden light, these Great White Pelicans *Pelecanus onocrotalus* in Bhuj, Gujarat, are poignantly framed by the constructions that probably spell their doom as urbaniac engulfs wild wetlands, which are dismissed by municipalities and ‘developers’ across India as wastelands.

**Location:** Bhuj, Gujarat  
**Details:** Camera: Nikon D750, Lens: 150-600 mm. f/5.0-6.3, Shutter speed: 1/640 sec., Aperture: f/14, ISO 200, Focal length: 170 mm.  
**Image taken:** January 7, 2015; 8:31 a.m.
DIGANT DESAI The Big Fish: This is not an image of a whale shark trapped in nets. Cenderawasih Bay, West Papua, is referred to by divers as the Galapagos of Indonesia. Here, in the manner of seagulls that tail fishing boats, the world’s largest fish, the whale shark *Rhincodon typus*, has learned to take sustenance from the droppings of fish catch hauled in by local fisherfolk. Not harmed by the fishing community, what we see here is a demonstration of quasi worship with fishing boats putting out *ikan puri*, tiny fish food, as an offering to these gentle giants. The tradition dates back several generations, but was only recently ‘discovered’ by divers who frequent these waters to swim among dugongs and a diversity of marine life. Definitely a far cry from the carnage brutally unleashed by mechanised trawl fishing mafias across the globe.

**Location:** Cenderawasih Bay, Papua, Indonesia  
**Details:** Camera: Canon 7D (Nauticam Housing Twin Inon Z240 strobes at different settings, Large dome), Lens: 10-17 mm fisheye, Shutter speed: 1/60 sec.  
Aperture: f/18, ISO 100, Focal length 10 mm.  
**Image taken:** July 1, 2012, 7:12 am.
SAMYAK KANINDE Too Close for Comfort: While wildlife tourism is a vital conservation tool, the over-habituation of large carnivores such as this curious Bengal tiger Panthera tigris tigris photographed in the Umred-Karhandla Sanctuary (see Sanctuary Asia. Vol. XXXVI No. 2, February 2016), can lead to provocative situations in which even one panicked tourist could trigger an aggressive response. India needs to rethink its wildlife tourism priorities and undertake a massive orientation and education programme for forest staff, guides, locals and visitors to ensure that both humans and animals stay safe, even as every visitor is turned into an ambassador for wild nature.

Location: Umred-Karhandla Wildlife Sanctuary, Maharashtra Details: Camera: Canon EOS 7D, Lens: Canon EF 300 mm. f/4L IS USM, Shutter speed: 1/250 sec., Aperture: f/5.6, ISO 320, Focal length: 300 mm. Image taken: January 1, 2016; 8:34 a.m.

SANDEEP DHUMAL Oh, Rats!: This grim image is of a lesser bamboo rat Cannomys badius, probably hunted for food, which is critical to the ecotones in which it is found. Virtually all habitats next to which humans live are now retreating under the destructive attrition that has become the handmaiden of India’s development paradigm. Of course this is not the only creature facing the double-barrelled assault of habitat loss and hunting. It hardly helps that the illegal wildlife trade and an eroding respect for nature, that once typified Indian attitudes, are combining to turn Homo sapiens into the most potent agent of biodiversity annihilation since the dawn of life on Earth.

MANAS PARAN Cat Conflict: In Guwahati, Assam, people lived in harmony with their land for centuries. But as with so many other geographies, this city on the banks of the mighty Brahmaputra has altered its relationship with nature. Today, encroachments and pollution rule the day, stealing habitats from wild animals as diverse as elephants, river dolphins and this unfortunate Indian leopard *Panthera pardus fusca*, all of which are forced into conflict with their much more powerful neighbour, *Homo sapiens*. The incident was aggravated when an unruly crowd harassed the already traumatised leopard, which strayed into an urban human settlement. Cornered and harangued, the leopard attacked a man who had tried to chase it away with an iron rod as hundreds blocked its only escape route to freedom. It took the hard-pressed Forest Department almost 45 minutes to immobilise the cat, after spending three arduous hours trying to control the crowd that had gathered for apparent entertainment.

Location: Guwahati, Assam
Details: Camera: Nikon D300S, Lens: 18-55 mm, f/3.5-5.6, Shutter speed: 1/125 sec., Aperture: f/4.8, ISO 400, Focal length: 32 mm. Image taken: January 07, 2012, 1:18 p.m.
VIRAJ KHORJUWEKAR Territorial Warning: Sanctuary celebrates the fact that India is demonstrating to the world that we can and will shift our energy priorities away from carbon towards wind and solar, among other options. But that old cliché holds good… the way to hell is paved by good intentions. Establishing windfarms smack in the middle of vulnerable biodiversity hotspots amounts to throwing the baby out with the bathwater. These farms need approach roads and infrastructures that must be set up keeping in mind both wind speeds and the imperative of protecting ecosystems that sequester and store carbon and supply us with water.


TAPAN SHETH Deadly Crossing: One of the last remaining 500 odd Asiatic lions Panthera leo persica negotiates a dangerous railway track running through its primary abode, the Gir National Park, Saurashtra, Gujarat. Linear intrusions such as these railway tracks need to be realigned away from our biodiversity vaults, which are a vital water source that need to be recognised by planners as ‘infrastructures’ of great commercial value. These are carbon sinks, flood control and climate moderation devices, without which humans will be unable to negotiate survival in an age of galloping climate change.

Location: Sasan Gir, Gujarat. Details: Camera Canon EOS 5D mark III, Lens Canon EF 300 mm. f/2.8L IS USM. Shutter speed 1/320 sec., Aperture f/2.8, ISO 250, Focal length: 300 mm. Image taken: October 24, 2014; 7:28 a.m.
Karanpura Must Live

The story of a campaign to save a landscape
An unpolluted stretch of the upper Damodar river between McCluskiegunj and Bakumath. This well-watered valley was a wildlife corridor linking the Hazaribagh and Palamau jungles before the construction of the Piperwar mine.

COURTESY: SANSKRITI CENTRE, HAZARIBAGH
Sanctuary | Campaign

Bulu Imam knew, well before it was accepted by the world, that coal mining in biodiversity hotspots was not just unsustainable, but downright dangerous. He spoke of water shortages and climate effects long before scientists raised their global alarms. After a lifetime of battling the dismal ones, principally led by the World Bank and its camp followers, he has now dedicated his life to documenting the truth behind the subterfuge that allowed, indeed encouraged, profiteers to pillage India’s life-support infrastructures... lakes, aquifers, wetlands, rivers, grasslands and forests.

As I recall it was no less dramatic when I walked across the Bachhra open-cast coal mine between the quaint Anglo-Indian town of McCluskiegunj and Hendegir on the Damodar river in the shadow of the North Karanpura ranges with the elephant Tara and British travel writer, Mark Shand, at the end of the rainy season of 1987. Little did I know then that the North Karanpura Opencast Coalfields Project was going to be responsible for similar mines like this across my beloved valley of the Damodar river, where I had roamed since my boyhood days and later chased notorious rogue elephants.

One day as I was sitting in my office at my desk, my maternal uncle, Bishop George Saupin S. J., who was then Bishop of Hazaribagh and Daltongunj, tapped on my shoulder and said, “Laddie, have you heard about the North Karanpura open-cast coal mines project?” I had just started the INTACH Chapter in Hazaribagh that year (1987). I soon learnt how relatives of a Jesuit priest in Hazaribagh had obtained information regarding coal in the Damodar river valley and through intermediaries, had engineered a deal between an Australian mining company and the government of India.

The discovery of coal in the Damodar valley, which divides the plateau of Jharkhand from east to west with Ranchi in the south and Hazaribagh in the north goes back to early British days in the 18th century. The region is a Gondwanan rift valley formation, layered by trough faulting along the Narmada-Sone fault. It is also a region of India’s richest sal forests and wildlife with tigers, elephants, leopards, gaur, and large herds of sambar and chital. At one time, even lions and cheetahs (Sanctuary Asia, Vol. XXXV No. 2, April 2014) had roamed here in what

The Ashoka coal mine caused displacement of the Tana Bhagat sect of the Oraon tribe, some of whom are employed in the mines, while some are eking out a living by reclaiming land in the forests.
was South Bihar state before it was made the new tribal state of Jharkhand in 2000. Much earlier, 200 km. to the north, the lion capital of Ashoka had been erected near the capital of Patliputra. The area would reveal, after my subsequent searches, over one dozen painted rock shelters of the Meso-Chalcolithic period painted by prehistoric Protoaustric/Dravidian aborigines, who evolved into indigenous tribes living in the area today and who paint their mud-walled, tile-roofed houses with exactly the same animals and other designs as the sandstone painted rock-shelters. These people today are represented by the scheduled tribes Oraon, Munda, Santal, Birhor, Ganju, Turi and scheduled artisan castes such as potters (kumhar), carpenters (rana), basket-makers (turi), oil extractors (teili) and agriculturists and weavers (jolha). In this tribal heartland amidst the then lush forests, the first coal mines were opened in 1851 in Giridih in the east followed by the Ranigunj and Jharia coal mines in 1885.

MINING LIES

Estimated to contain 40 billion tonnes of coal the Damodar valley (now called North Karanpura after a small village, which gave its name to the mega-mining project) was targeted for massive coal exploitation from the beginning of the 20th century. By 1985, the high technology turnkey mechanised coal mining project envisioning scores of mines was started between the Indian and Australian governments, signed with Whyte Industries of Sydney. The initial vision was to open 25 large opencast coal mines, displacing over 200 villages. The first mine called Piperwar was located at the western end of the valley near the Satpahar ranges, today famed for their Mesolithic rock paintings. Other mines such as Magadh, Amrapalli, Keridari, Punkri Barwadih, and Rautpara were to be executed by the Central Coalfields Ltd. (CCL), a subsidiary of Coal India. They claimed the mining would be benign, and that there would be no damage to the landscape, forests and villages, which would be rebuilt on a larger and better scale. CCL promised also that the mined areas would be in-filled after mining and then reforested. I was then naive enough to actually believe them! There was a sacred grove at what is today the eastern end of the Piperwar OCP, now a 25 sq. km. mine of over 90 m. depth. I enquired whether this sacred sal grove with its 300-year-old trees would be spared and was assured it would. Today, the area surrounding this mine is more than 75 sq. km. of barren excavated man-made valleys where virtually no living thing is found, let alone a sacred grove!

The notorious Greenfield mining claim was that after the existing landscape and forests were machine-dug to a depth of 100–120 m., the entire area would be filled in again and replanted with trees! Along with this massive lie is the contamination of water sources, with no proper means to contain the chemical pollution coming out of the mines and flowing uncontrolled into the rivers. Technically, there are supposed to be sedimentation ponds known as 'tailing ponds' to check water pollution, but the scale of the operation is far too large to control, particularly in the monsoon. The topsoil of the mined area is also very precious and technically supposed to be protected and preserved for the filling in but in fact these precious natural reserves just erode in gullies into the various streams, ending up finally in the Damodar river. The river becomes a channel for the chemical refuse of the mines, carrying tonnes of zinc, cadmium, arsenic, and other toxic chemicals, all the way to the Bay of Bengal.
In the Piperwar mine, they fitted a kind of conveyor with
tubs carrying the coal up to the washery at Mangaldaha a few
kilometres away. We found a megalithic site in this place, one of
many to be found in due course, and the natural and man-made
arrangement was walled in to ‘protect’ its cultural heritage. This is
lip-service, while the villages of the descendants of these people
were being razed in the middle of the mining areas.

It was at about this time that I brought to light the six
beautiful painted rock shelters of the Satpahar range about
which so much has been written. They are the living forms of
animals at rest and flight painted by the hand of Mesolithic
man some dating as far back as ten thousand years according
to rock art experts! Strange bedfellows indeed the mines and
the rock art – but on second thought not so strange if we
consider the Pilbara rock art being destroyed by mining in the
Dampier archipelago in Western Australia! In 2005, Sacred
Sites International (Berkeley) listed the North Karanpura rock
art along with Pilbara as an endangered World Heritage Site. I
worked on this recognition with Malcolm Turnbull, who is now
the Prime Minister of Australia.

The coal washery of Mangaldaha near the river Damodar
is only one of 18 such coal washeries, which pollute this
river. When I had seen the Damodar in the 1960s as a young
man, it was as clear as a Kashmir trout stream with a sandy,
pebbled bed. Today, it is like a gorged black python of filth,
which flows out of Jharkhand down into Bengal. Its fortune
hangs heavy in my heart.

FIGHTING FOR THE DAMODAR VALLEY

After my uncle George’s warning about the Karanpura project, I
immediately organised a cycle rally of Young INTACH volunteers
to cycle from McCluskiegunj at the foot of the Ranchi plateaus
across the valley 60 km. to the Hazaribagh plateau. It is always
the youth that rally to a call to protect their heritage, what will
be theirs in the future? So, over a hundred of us set out from
McCluskiegunj on the western end of the valley on a February
morning in 1988. McCluskiegunj itself was in the eye of the storm
since it had been chosen by the mining authorities for a railway

The Damodar river has become a channel for chemical refuse of the mines, carrying tonnes of zinc, cadmium, arsenic and other dangerous chemicals ultimately down into the Bay of Bengal.

ROCK ART

The rock paintings found at the Karanpura valley
represent some of the oldest palaeo-archaeological
sites in the region. This means that the cave dwellers
who made the paintings belonged to autochthonous
societies living here before agriculture caused a shift to
the first primitive villages. Researchers from around the
world have visited the valley to study its ethnographic
and rock art heritage. The Indira Gandhi National Centre
for Arts (IGNCA) documented it with a high-resolution
video/photography for the List of World Rock Art in
2007 put together by Japan. One of the unique features
of the living traditions of the rock art is that even now
the Tana Bhagat sect of the Oraon tribe worship at
these sites. The sect has been impacted and displaced by
the coal mines of Piperwar and Ashoka and the railway
lines of the washeries and coal sidings. They have still
not been given the lands taken away by the British and
promised to be returned by the Indian government.
Some of them are employed in the mines but they have
lost their agricultural land and are eking out a living by
reclaiming land in the forests.
siding to handle washed coal from the Mangaldaha washery! This 24-km. rail line through forests and adivasi lands and villages drew vociferous protests from the Tana Bhagat (an Oraon sect) who live in the thangi, which is a centre of the Satpahar rock art. This tribe worships in the rock-art caves!

The cycle rally/padyatra over three days and 60 km. led to a direct confrontation between myself, as INTACH Convener, and the Managers of the various CCL coal mines we passed through and where we lodged our protests. The matter gained the attention of the press and a great deal of notoriety. Atleast our voice was being heard!

Nalini D. Jayal, a former secretary of the Ministry of Environment, was then the Director of INTACH’s Natural Heritage Cell. In Tehri, Uttarakhand, the protests of Chipko against the Tehri dam led by Sunderlal Bahuguna was similar to ours. He visited Hazaribagh and the Valley twice and offered his support and was a great source of inspiration. Along with Nalini Jayal, Prodipto Roy of Council for Social Development (CSD) and INTACH organised the first seminar (of the many that would follow) titled ‘Environmental and Social Impact of Indian Coal Sector – North Karanpura Project’ at the India International Centre, New Delhi. Sunderlal Bahuguna formally launched Chipko in my home ‘Sanskriti’ in Hazaribagh in October 1989. In the same year, my mother Yvonne died and the void in my life was to be filled by two decades of steady campaigning. The flagship North Karanpura Campaign.org started in those years has now grown to include a staggering number of NGOs and non-profit organisations along the Damodar river fighting to protect it today! The then Australian Prime Minister had heard about our campaign and Mr. Keating conveyed his desire for a meeting with me through his ambassador in Delhi. I also met with First Secretary Dr. Mark Thomson whose help would be invaluable in setting up our now world famous Tribal Women Artists Cooperative, which was the figurehead of our campaign in 1993.

The tempo had already started building up in the campaign. Though I was inexperienced to understand such a large issue in all its complexities, I enjoyed the challenge. I was always a keen horseman and I knew “a horse must be given its head”. I was riding a thing that I hoped would lead to a successful conclusion without falling off! Amidst a rush of reports, interviews, seminars, television documentary films, and interactions with influential people such as Maneka Gandhi, our then Environment minister (who stopped the Tandwa TPS in the 1990s) taking interest, the unimaginable happened.

THE PAST RESCUES THE FUTURE

In 1991, my old Jesuit friend Tony Herbert of the Australian mission in Hazaribagh was setting up his now famous night schools in the Barkagaon valley. He informed me about an Australian friend visiting the village Isco (i.e. actually ays in Sanskrit means a metal copper/iron and in Mundaric kho means a mine or cave) near an abandoned old iron/copper ore mine in the extreme eastern end of the valley in what was marked as the Rautpara Opencast Coal Project) who had spoken about a cave with strange painted signs in red haematite (or liquid iron ore). I had in my many interactions with the Australian engineers at Piperwar discussed the close resemblance of our brown village “pie” dogs, which I was then researching and comparing with the Australian dingo. This dog would become famous as the ‘Santal hound’ after a documentary film made by National Geographic (In Search of the First Dog) featured it. The film won

Dated between 4000 BP to 9000 BP, the rock art at Isco established the origin of man in India during the paleolithic period in the valley.
the Explorer Club’s Award in 2005 in New York. I was talking of the possible connection between our tribals and Australian aborigines! My friends told me that similar research had proved the aborigines’ indigenous status on their lands and been of great advantage for establishing their land rights! The time was right as the drafting of the United Nations Declaration on the Rights of Indigenous Peoples had just begun in 1982 (though it would only be completed two decades later). I suddenly realised I was riding a tiger!

Tony Herbert’s information completely transformed our focus. I first visited Isco in the spring of 1991 with my wife Philomena Tirkey, an Oraon tribal. I remember writing at that
time, “My wife bent down to pick up some thing and handed me a civilisation.” The first man whom we met on that wild and rugged range of the Sati Hills in Isco was Khaita Munda, who for several years would be my guard at the Isco rock-art site. His ashes are, as I write, buried beneath a thorny bair tree in my garden. Khaita was a tall, heavily built, wild-looking man. He did not speak much, taking us up a long scarp of stony surface, which was the rising of the Isco stream with its little pools of water and the descent into the cave of forgotten dreams named locally Marwateri. From this eerily haunted place where we picked up the first tools of Early Man in the sand pool in the cave, we walked up and out of the underground cave through a series of openings, into the sunlit shelter of a great sandstone overhang painted with rock art that left all of us speechless. This was the final destination – we had found the adivasi’s indigenous title to their lands and which would open up a world we knew little of far from the confines of little Hazaribagh. Immediately after this, I formed a firm friendship with Julian Burger, the Director General of the United Nations Human Rights Centre in Geneva.

Later, professional archaeologists and rock-art experts and academics would come to certify that this finding was of the foremost palaeo-archaeological and rock-art site of Eastern India! After 30 years of research and filming and writing, we still have not completed the discovery of Isco. It has given Jharkhand the complete stone tool calendar of Early Man from the palaeolithic to the present (fortunately now preserved in my Sanskriti Museum in Hazaribagh). After cutting my son Justin’s 18th birthday cake in the Marwateri grotto, the visitors began to come. It was immediately visited by S. B. Ota, Director of the Archaeological Survey of India in 1993, followed by the great Austrian rock-art expert Erwin Neumayer of Vienna. Then an extensive list of national and international experts followed suit. Isco established the origin of man in India during the palaeolithic period in the Valley. The rock art was dated to the Meso (9000 BP) Chalcolithic (4000 BP).

**WILDLIFE CORRIDORS AND PAINTED HOUSES**

The Damodar river receives over 40 tributary streams in its wide forested valley interspersed with a dozen hill ranges such as the Sati, Aswa, Mahudi, Satpahar, Bundu and Hazaribagh. In the midst of these are the densely forested sal corridors, which have provided conduits of food and water to elephants and tigers to traverse a hundred kilometres from east to west without being obstructed by human habitation. In 1985, a nefarious open cast coal mining project called the North Karanpura Coalfields Project provided mechanised turnkey technology to create several dozen open cast coal mines, destroying several dozen villages and wiping out agriculture in a region known as the ‘rice bowl’. Displacement of tribals has also led to the destruction of their artisan culture, agriculture and rock art in the hills and palaeo-archaeology sites, which affirm the presence of their ancient ancestors and give them indigenous status under the United Nations Declaration of Rights of Indigenous Peoples. Their houses are often painted with images of forests and wildlife, perhaps a continuation of the prehistoric rock art in the hills.

The indigenous tribes living in the forest corridors of North Karanpura paint their mud-walled, tile-roofed houses (left) with the same animals and designs on the sandstone rock-shelters as did the prehistoric Protoaustric/Dravidian aborigines. Tragically many must earn a livelihood today by making and selling coking coal.
Our world is utterly magical. Everything fits. Clearly our planet conspires to help life forms such as this desert fox along. All it asks is that we do not pile damage upon it.
I had my coordinates fixed. The rest was a matter of strategy. Like the Biblical David’s, my weapon was tiny, but it would prove to be good enough to take on the coal mining giants we faced. Most important was the moral argument of our activism about human rights, but I had another thing – or things – on my mind. Such as wildlife corridors, mandatory Environmental and Archaeological clearance, and of all things, climate change. The latter part of my campaign was tied to the mining of coal for industrial use. That we had our rights clearly established with proof of the indigenous status of the adivasis helped not a little by the finding of numerous Megalithic sites set up by the ancestors of the tribes and most likely of Ha and Munda origin. Their title to the land was in rock paintings, stone tools, megaliths... and it was a title recognised in the Declaration of Rights of Indigenous Peoples of the UN to which India was a signatory!

I had about this time also come to understand the true nature of coal as the prime cause of global warming and the threat of climate change through my friend Edward Goldsmith’s environmental journal *The Ecologist*. It was a strange turn of events, which came about with the help of friends such as Rachel Carson and Satish Kumar of Resurgence, John Papworth of *Fourth World Review* and Edward Goldsmith’s late son-in-law Mark Shand. The latter travelled with his elephant Tara to realise the true importance of the Valley as a corridor for wildlife including elephants and tigers. If the big opencast coal mines came in, it would mean the disruption of wildlife corridors of big mammals already on the Endangered Species List. I had, apart from the World Wildlife Fund, also the support of the IUCN (International Union for the Conservation of Nature).

Edward Goldsmith, to those who knew him, was not only a treasure trove of information but a friend to be trusted to his last breath. And I had his support. He immediately understood my request for a ground survey of elephant migratory corridors passing through the North Karanpura valley from Betla in Palamau in the west through Hazaribagh’s jungles to Bengal in the east, between Bokaro and Dalma Elephant Sanctuary. Divisional Forest Officer West Division Hazaribagh was my old friend Ehtisham Kazmi, IFS (He would later be the Director of the Betla Project Tiger National Park mentioned in Palamau). Ehtisham stood by my claim that the proposed Karanpura project opencast mines would destroy the elephant (and tiger) corridor with Palamau. He stood by his guns despite official harassment and I am proud to note that last year he received the Sanctuary Lifetime Achievement Award). The study would be done by my son Justin, which would later set the format for the recognition of similar elephant corridors by the Wildlife Trust of India (around 90 to date!). These years were the mid-1990s and the funding of Rs. 5,000 (then a grand sum) was through the kind offices of Edward Goldsmith sent by the U.K. Ecological Foundation whose Patron was Queen Elizabeth.

**A CHANGE FOR THE EVEN BETTER**

1996. Enters my Hazaribagh home, a tall Englishman of Quaker heritage, an expert whitewater canoeing and open sea kayaking expert, whose principal interest was the tiger corridors between North Karanpura and Bundelkhand in Madhya Pradesh, with special regard to a large World Bank loan to Coal India. He had an agenda and he was writing for major Canadian environmental journals like *Borealis*. His expertise and logic lay with his acute understanding (and unraveling of World Bank loans and Coal India’s habits, i.e. using resettlement and rehabilitation funds for mining extensions, in this case into the heart of Madhya Pradesh in Singrauli). You can imagine my canvas: Rock art and palaeoarchaeology, indigenous rights, wildlife corridors, tribal art... It was a heady mix!

Justin and I, in the company of well-known geologist and sociologist Kuntala Lahiri-Dutt, placed on December 15, 1995, the first elephant wildlife corridors study in India before the First World Mining Environment Congress at La Meridien, New Delhi, chaired by Shri. Kamal Nath, then Union Minister for Environment who was already an admirer of our fledgling work. In the presence of national and international delegates he immediately ordered a comprehensive multi-disciplinary study of the Elephant Migratory Corridors of the North Karanpura valley! CISMHE (Centre for...
Interdisciplinary Studies of Mountain and Hill Environments). Delhi University was commissioned to do the study. This major report, which took a couple years to complete was shredded by a subsequent government but not before someone had smuggled out a xerox copy. It brought out the truth and though it never became the law, it paved the way for over 90 elephant corridor studies by the Wildlife Trust of India!

The key to the North Karanpura campaign entered the lock of political decision-making in a very strange way. Philomena and I were leaving with our artists and family for Sydney for a one-month tribal art painting project commissioned by the Australian Museum. President Bill Clinton was going to visit Ranthambhore Tiger Sanctuary. Tiger-man Valmik Thapar of TIGER-LINK (of which I was a member) would hand him a letter when he was guiding him round Ranthambhore on March 19th. Thus emerged the famous letter to President Clinton drafted by others including Phil Carter and Bittu Sahgal with regard to the World Bank Funding to Coal India, which was abetting destruction of wild tiger and elephant corridors in North Karanpura! It was signed by among others Bittu Sahgal, Jamshed Godrej (President WWF-I), Debi Goenka (Bombay Environmental Action Group), Daphne Wysham (Institute for Policy Studies, Washington DC), Andrea Durbin (Friends of the Earth, USA), Dana Clark (Center for International Environmental Law, USA), Bill Hare (Greenpeace, Netherlands), Peter Jackson (Chairman, Cat Specialist Group, World Conservation Union –IUCN), Peter Richardson, Environmental Investigation Agency, U.K.), Edward Goldsmith, The Ecologist), Richard Harkinson (Minewatch Collective, U.K.), and James Arvanitakis, AID-WATCH –Australia. All hell was about to break loose. And it did.

James Wolfensohn was then the President of the World Bank. He was a friend of Teddy Goldsmith but he did not write to me solely because of that. His sympathy lay in a fact which later arose when Daphne Wysham steered the North Karanpura Campaign into the U.S. Senate through her Institute for Policy Studies in Washington DC. The World Bank Loan to Coal India was cancelled and thousands of employees received what I was told is called “the golden handshake” which means premature retirement!

On our return from Australia in the summer of 2000, Philomena and our eldest daughter Juliet presented a Statement before the Special Rapporteur on behalf of TWAC and our indigenous people on the North Karanpura mining displacement at the 19th and 20th Sessions of the UNWGIP (United Nations Working Group on Indigenous Peoples) in July 2001 and 2002 at Geneva. This was followed by my son Justin’s intervention at the same forum in the next session, when he was representing DOCIP (Documentation Centre for Indigenous Peoples, Geneva). Note was taken of our claim for the application of the (draft) Declaration on the Rights of Indigenous Peoples, which would only be finalised later.

Later I would make an appeal for the North Karanpura ranges and valley of the Damodar to be declared a Biosphere Reserve by UNESCO, but by then rampant mining had begun. Mandatory Archaeological and Environment clearance was accepted but in fact not ever implemented. The Tribal Women Artists Cooperative (TWAC) carried the banner of our campaign to 17 important art exhibitions in Australia. In 2000, I had televised interviews regarding mining at major talk shows in Sydney and I am grateful to John Kirkman of the Australian Museum for his help in making the Tribal Art a campaign module. Later we would hold over 37 art exhibitions in major galleries in Europe and England (Rebecca Hossack Gallery - London, SOAS-Brunei Gallery - London) and state museums (Pigorini Museum, Rome, five State Museums in Australia, Canada, Sweden and the U.K.), which would make Karanpura a household name in many small villages such as in Austria where I started with help from FIAN the Danube to Damodar Campaign, which is still alive! So, in this way the struggle goes on even as we now learn that the present government is putting a stop to coal mining and turning to renewables for energy. The Greenpeace report ‘Coal Mines Trashing Tigerland’ which was based on my campaign in North Karanpura, however met the axe from the government. Whichever way I look at it the time spent and the ties made across the world through this unique ‘art for environment’ campaign have proved successful and a model for future campaigns.

With the present government putting a stop to coal mining and turning to renewables for energy, the author and his wife Philomena (right) hope that the western North Karanpura valley will look as it once did before mining interests pillaged it.
Meet Erik Solheim
Environmental champion, politician, climate and peace negotiator

Currently the Global Head, United Nations Environment Programme (UNEP), Erik Solheim is one of the world’s most visionary politicians, having served for 12 years as a Member of Parliament in Norway. He also served as Minister of International Development between 2005 and 2007 and held the combined portfolio of Norway’s Minister of the Environment and International Development between 2007 and 2012. In January 2013, he took charge of the OECD Development Assistance Committee (DAC), a position to which he was unanimously elected. A special UN envoy for environment, conflict and disasters, he has received recognitions too numerous to list, including UNEP’s ‘Champion of the Earth’ award. He met Bittu Sahgal in Mumbai earlier this year when the Sanctuary Nature Foundation and UNEP jointly organised a discussion on economics, biodiversity and climate change, and shared his vision, work and determination to leave our children a better world with the million-strong Sanctuary network.
FACING PAGE. Seen here in El Salvador, Erik Solheim currently serves as the Global Head of the United Nations Environment Programme (UNEP).

ABOVE. A special UN envoy for environment, conflict and disasters. Solheim is a recipient of UNEP’s ‘Champion of the Earth’ award.

TOP. Solheim interacts with operators atop the Eirik Raude drilling platform, one of the largest of its kind, in Ghana.

ERIK, WE KNOW A FAIR DEAL ABOUT YOUR WORK LIFE, BUT WHAT WAS YOUR CHILDHOOD LIKE? WHERE DID YOU GROW UP AND HOW DID NATURE SO TOTALLLY INFUSE YOUR LIFE WITH PURPOSE?

I had a very normal, sheltered childhood in Oslo, where I grew up playing soccer and doing all the other things that European children do. But even way back then, around the age of 15, I began to develop an interest in politics. I think it started with a massive exhibition on poverty that was held in Oslo that opened my eyes to the state of the human condition beyond my own protected life. Nature? That is part of every Norwegian child’s life. There is almost nowhere you can go in Norway that does not infuse you with awe and respect for wild nature. Between the wildlife of the sea and the mountains, to which our family would inevitably escape during the holidays, my life choices were virtually predestined.

CLEARLY, CHILDHOOD EXPERIENCES ARE CRITICAL TO WHO WE BECOME.

YOU SHEPHERDED NORWAY’S INCREDIBLE NATURE DIVERSITY ACT THAT CHANGED THE COURSE OF THE NATION’S DEVELOPMENT STRATEGIES. HOW WAS THAT RECEIVED?

Overall, the response from the public was very positive, particularly among young people. Norway’s Parliament passed it with an overwhelming majority, which speaks volumes for the nation’s priorities. But, expectedly, some were unhappy. Some were opposed to realigning roads away from ecologically-sensitive and biodiverse areas, many of which were declared as protected National Parks.

YOU ALSO LED PEACE NEGOTIATIONS IN VIOLENT HOTSPOTS INCLUDING SRI LANKA, BURUNDI, MYANMAR, SUDAN AND NEPAL. WHAT’S THE CONNECTION BETWEEN FIGHTING FOR PEACE AND FIGHTING FOR THE PLANET?

These two issues go hand-in-hand. All wars lead to environmental destruction and human fatalities, and the reverse is also true. For example, the ISIS set oil fields on fire in Iraq with unimaginable environmental destruction and damage to livelihoods. That destruction will make lasting peace even more difficult to achieve. Al Shabab in Somalia raise funds by burning huge swatches of forest trees for charcoal. If we look at issues like the illegal wildlife trade, it’s clearly connected to organised crime and networks that undermine stable governments. We’ve seen armed groups even set up unholy alliances with illegal mercury, gold and diamond mining interests. The consequences on the environment are direct and disastrous.

AND THE UNFOLDING SYRIAN TRAGEDY?

This has everything to do with Earth’s changing climate patterns. There is a strong argument suggesting that four years of consecutive droughts triggered desertification in what was once Mesopotamia’s Fertile Crescent. Coupled with massive environmental destruction, this pushed millions of
farming families over the brink and into one of the world’s most vicious wars. Syria should be a wake-up call for nations, which take peace for granted and which are allowing their life-support infrastructures and climate to be degraded by those who do not have anyone’s public interest at heart, and certainly not that of future generations.

YOU ARE ONE OF THE WORLD’S MOST RESPECTED AUTHORITIES ON THE VEXED ISSUES OF ‘ENVIRONMENT AND DEVELOPMENT’. ANY ADVICE FOR U.S. PRESIDENT DONALD TRUMP? One key message is that environmental protection and climate action is not a burden or a cost, but a huge opportunity. President Trump campaigned on increasing jobs and reducing the healthcare burden. Investing in renewables and cutting pollution are two ways to achieve these goals. The fact is that the United States of America is typified by its championing of national parks, an example that has been emulated by the entire world. Beyond recreation and tourism, these protected parks and their biodiverse plant and animal life are vital to global solutions to bringing atmospheric carbon back to Earth. It may sound counter-intuitive, but protecting our biodiversity also ends up fighting terrorism!

JOE CREATION? FIGHTING TERRORISM? DO ELUCIDATE? Absolutely yes. In time I believe President Trump will completely change his perspective on job creation through global climate investments and actions. The green sector has five times more jobs in solar than coal, and this ratio is growing. The same holds true for new jobs and livelihoods created by green agriculture and industry. It’s an old-fashioned idea that more jobs can be created by environmental destruction than protection.

On the terrorism front, as mentioned earlier, a dark nexus exists between the operatives working for the mining, arms, narcotics and wildlife trades. Also human trafficking, which goes hand in hand with forced migration. Everything is linked. Environmental destruction weakens states. These weak states become fragile states. That’s where terrorism and organised crime flourish.

SOCIALISM, COMMUNISM, DEMOCRACY OR MONARCHY? WHAT IS GOING TO WORK BEST FOR A PLANET IN TROUBLE? What works best, plain and simple, is political action. As a young man I spent a lot of time with Marxist groups, shouting Marxist slogans. I remember a friend and mentor reminding me that what the people want are concrete things – things like healthcare, jobs, housing. So the focus needs to be on leadership and action. Such leadership must be non-corrupt, be committed to development for the people (not just the elite) and it must recognise that it is impossible to improve the lot of people through the destruction of the environment. This needs to be done irrespective of the rationale and justifications put forward by advisors, who often work at the behest of special interests with an eye on profit, not the security and well-being of planet Earth.
OVERCOME THE OUTDOORS WITH CINTHOL CONFIDENCE+

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AND WHICH COUNTRIES DO YOU FEEL ARE KEY TO OUR CLIMATE FUTURE?
At this point in history, I would say both India and China.

NOT THE UNITED STATES?
Well every country is key, but if India and China take the right steps it will not only secure the lives of their own citizens, but set a global example for other nations, including the G7 countries, to emulate. After all, Mohandas Karamchand Gandhi won freedom for India by setting the right example: non-violence and self-reliance. Prime Minister Modi also sent a clear signal to the world and in particular to President Trump: “It is mandatory to implement the consensus reached at the Paris Agreement. India will implement the Agreement in letter and spirit.”

WELL YOU CERTAINLY KNOW INDIA BETTER THAN MOST.
I’ve been a frequent visitor to India for over two decades, and I’ve seen a huge shift in attitudes. In the early 1990s, virtually all sections of society posited the nation’s options as ‘environmental protection or job creation’. Today, notwithstanding the very visible battles that are intrinsic to democracies, the dominant public view, particularly among the young, is ‘we want jobs, but we also want to protect our environment and protect the planet’. Maharashtra, in particular, seems to be setting the pace for higher biodiversity protection standards, if its efforts on the tiger front are anything to go by. The Community Owned and Operated Conservancy (COCOON Conservancy) initiative underway at Gothangaon, Nagpur district, next to the Umred-Karhandla Wildlife Sanctuary (Sanctuary Vol. XXXVI No. 1, February 2016) certainly holds out hope for replicable community sustainability, biodiversity enhancement and climate action. Most importantly, this idea touches on the key issue of poverty. Why must farmers who feed the world be forced to confront poverty? No one alive on this planet should ever need to worry about the next day’s food, education or health. We have it in our power to guarantee this. Whether we have the wisdom and determination... only time will tell.

I HEAR YOU, ERIK. I HEAR YOU. TELL ME... ARE YOU AN OPTIMIST, OR A PESSIMIST?
Undoubtedly an optimist. It may sound counter-intuitive to the young, but we are living at the best time in human history. Poverty is still widespread, but it is probably at its lowest ever. Life expectancy has risen to 70.... up from 46 half-a-century ago. Polio has been eradicated from India. Still, the world is very different depending on whether you are from Shanghai, Mumbai or Aleppo.

HOW WOULD YOU LIKE TO BE REMEMBERED? AND IF YOU HAD A MAGIC WAND WHAT WOULD YOU DO FOR GENERATIONS UNBORNE?
Not just because I have four wonderful children, but because of all the children of the world, I would like to be remembered most as one who tried to lift people from poverty and who spent his life working to leave this a better, safer planet.
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Scent of a Killer

An Eucharitid wasp may have a harmless bejewelled appearance, but it carries the instinct of an assassin. When the wasp larva emerges from its egg, it latches onto an unsuspecting foraging ant and is carried back to the ant colony. Here, it finds a way to attach itself to the host ant larva. The wasp larva will limit its feeding until the ant larva pupates, at which point it will gorge itself on the doomed ant. Interestingly, once the wasp larva pupates and the wasp emerges, the members of the ant colony will groom and feed it as if it were part of the brood. Why? Because Eucharitid wasps acquire the scent of their host species when they first enter the colony, and thus avoid detection as parasitic infiltrators.

Photographer: Rijan Biswas
Location: Coochbehar, West Bengal
Image taken: October 21, 2016, 11:40 a.m.
Bats
in the land of Hornbills

Text and photographs by Rohit Chakravarty
“Bamboo bat!”

My eyes glistened when I heard that and I rushed for the bats, which were hanging in cloth bags. I gently rubbed my fingers on the outside of each bag and picked the one with the smallest bat. I delicately removed the flying mammal, holding it with just the tips of my first three fingers. This was no ordinary bat. Its head was flat as if slammed with a shoe! It also had suction pads on its thumb and toes to help it cling to and sleep inside thin, hollow bamboo culms. The bat in my hand was an evolutionary marvel. The lesser bamboo bat *Tylonycteris pachypus* marked the beginning of a successful night. After it, eight other species flew into our nets in quick succession.

Borneo was beginning to justify itself as a chiropterologist’s dream destination.

In August 2015, I was in Sarawak to attend the 3rd Southeast Asian Bat Conference organised by Universiti Malaysia (UNIMAS), Sarawak, and Southeast Asian Bat Conservation Research Unit (SEABCRU). After four intense days of talks, discussions and workshops with the most renowned bat biologists of the world, we were off on a bat lover’s ultimate pilgrimage – Gunung Mulu National Park.

Southeast Asia is one of the top biodiversity hotspots in the world. And Borneo – the third largest island in the world – is undoubtedly the jewel in its crown. The World Wide Fund for Nature (WWF) estimates that more than 220 species of mammals, 420 species of birds, 200 reptiles and amphibians, and close to 400 species of fish are found in Borneo. A part of this staggering diversity comprises iconic, threatened species like the Bornean orangutan, Bornean pygmy elephant, proboscis monkey and Hose’s palm civet, all found nowhere else on Earth. Eight species of hornbills occur here and it is after them that the state of Sarawak in Malaysian Borneo derives its apt title – Bumi Kenyalang – The Land of the Hornbills. However, unbeknown to many, the major contributors to the mammalian diversity of this incredible island are bats. With roughly 90 species, bats make up about 40 per cent of all the mammals found in Borneo. Once you set foot in Gunung Mulu National Park, you understand why.

**A BAT PARADISE**

Gunung Mulu National Park, a UNESCO World Heritage Site, is the most spectacular landscape that I have seen. Around 20 million years ago, this stunning forest was an underwater mountain. Five million years ago, tectonic activity brought the mountain above water. Today, this has metamorphosed into a lush-green rainforest criss-crossed by rain-fed rivers through which emerge jagged limestone mountains that give Mulu its unique prehistoric setting. When rainwater touches limestone it dissolves the rock to form caves. Undulating limestone hills and heavy rainfall are therefore characteristic of Mulu, which is blessed with countless cave systems. Such is the vastness of this pristine and rugged limestone forest that it took 15 months and 115 scientists of the Royal Geographic Society, U.K., just to map its topography in 1977-78!

We arrived in Mulu in the afternoon of August 18, 2015, to assist student-researchers from UNIMAS in their study of Mulu’s bats. On arrival, Ellen McArthur, a masters student working on the bats, greeted us with the delightful news that she had found something special for us during her routine morning reconnaissance. I whiled away my time watching birds and a hungry Prevost’s squirrel gorging on leaves at the canopy until it was time to go bat hunting. Ellen led us to the nature trail and after walking barely a kilometre, she stopped abruptly in front of a wild turmeric plant. Neatly hidden inside a young, rolled-up leaf was a tiny bat. High on my wishlist –
Sanctuary Asia, August 2017

Wrinkle-lipped bats emerge en masse from Deer Cave in the Gunung Mulu National Park. The largest cave chamber in the world, it is home to an estimated three million bats.

The diminutive Hardwicke’s woolly bat *Kerivoula hardwickii* weighs barely three or four grams. Its body is densely covered with sooty-black, woolly hair. What makes this bat *sui generis* is its recently-discovered symbiotic association with a carnivorous pitcher plant *Nepenthes hemsleyana*. In the nutrient-poor peat swamp forests of Borneo, the pitcher has evolved to attract these bats, but the plant does not kill them. Instead, the plant provides lodging and the bat pays its rent by feeding the plant with its nitrogen-rich droppings! Hardwicke’s woolly bats are also the supreme sopranos of the animal world. Their ultrasonic calls start at 250 kHz – that’s 12 times higher than humans can hear!

The following evening, I had a date with a glorious natural phenomenon; one that I had, hitherto, only seen on television. At 3.30 p.m., a crowd assembled at the ‘Bat Observatory’ outside Deer Cave. The largest cave chamber in the world, Deer Cave is home to an estimated three million wrinkle-lipped bats *Chaerephon plicatus*. As dusk approached, the anticipation built up at the observatory. I saw a handsome Bat Hawk perched on a vantage point, its eyes fixed on the mouth of the cave. Suddenly a cheer rose from the audience; the bats had begun to emerge en masse. One after the other, clouds of bats flew out of the cave in perfect synchrony like a flock of starlings. Each group formed a different pattern in the sky – ribbons, waves, ‘S’ and even a moustache! It was time for the Bat Hawk to launch its first strike (a success) right in the middle of the bat cloud. At the mouth of the cave, I also briefly saw a large eagle, probably a Wallace’s Hawk Eagle trying to intercept emerging bats. Watching the phenomenon on television was breathtaking enough even before I got interested in bats, but seeing the drama unfold before my eyes was a dream come true.

On our last night in Mulu, we doubled our efforts to catch bats. A mist-net (a thin nylon net used to catch birds and bats for research) was spread on a bridge over a river. An ingenious trap called a ‘harp trap’ was set up along a forest trail. This trap has metal frames with fine plastic strings stretched to full tension and placed in parallel rows as in a harp (hence the name). The frame sits on four legs and a collection bag is placed at its base to allow a safe landing for bats that hit the strings. The bats are then picked up from the bag to be identified. Harp traps are particularly effective for strictly forest-dwelling bats that often detect mist-nets by ultrasound. One of us was also deployed, so tiny that when Tiggia Kingston – a leading bat biologist – passed it on to me, she said, “Be careful, you’ll have to hold it like a grain of salt!” A strict inhabitant of primary forests, habitat destruction, unfortunately, has put *Kerivoula minuta* in the threatened category.

On the flight back to Kuching, I reflected on the immensely thrilling and educative days spent in Mulu. Looking out of the window, I saw a bald patch of primary forest in the middle of the verdant rainforest. There are several such threats that bats face globally. Deforestation impacts forest-dwelling bats. Granite and limestone mining affects cave-roosting species. Recent studies suggest that windmills kill more bats annually than almost any other man-made device. Clearly more research will come up with grimmer results. Our own personal attitudes that stem from superstitious beliefs and myths prevent us from appreciating the crucial role that bats play in maintaining natural ecosystems. In Southeast Asia, hunting and destruction of vast swathes of prime rainforest are undoubtedly the single largest threat to bats. In recent years, ever-increasing logging and oil palm plantations have...
BATS OF INDIA
With more than 120 species, bats are the largest group of mammals in India. Naturally, when there are so many species, there is a great and amusing diversity of shapes and sizes. There are bats that look like foxes, some that look like mice and others that have bizarre noses. Two main types of bats are found in India – one that eats fruits and the other that eats insects. There are also false vampire bats, which are carnivorous and hunt small animals. Bats find their way by producing ultrasound. The frequencies at which different species call can be recorded using an ultrasound recorder called a ‘bat detector’, which can help in species identification. Fruit bats act as gardeners by pollinating flowers and dispersing seeds of several tropical trees. Insectivorous bats, on the other hand, are voracious eaters and efficiently control many nocturnal agricultural pests.

ravaged the magnificent Southeast Asian rainforests with catastrophic impacts on orangutans, elephants, bats and even its indigenous tribes.

Should this be of concern only to anthropologists and ecologists? With the world running out of time and climate change hovering over our collective heads like the sword of Damocles, it would be mankind’s greatest cataclysm to allow 140-million-year-old rainforests and other equally miraculous natural ecosystems to be imperilled by little more than our lifestyle choices and by political ignorance.

TOP Gentle and docile, the wrinkle-lipped bat resides in large cave colonies.
CENTRE The Diadem’s leaf-nosed bat is a large bat that typically hawks insects in forest clearings. Its body is a rich beige or orange with characteristic white patches on the flanks.
BOTTOM The large-eared horseshoe bat is a dense forest species, with large leaf-shaped ears and a peculiar nose that emerges like a unicorn’s horn.
Like a Moth to a flame!
By Pritha Dey

Going back to our school textbooks, the most prominent example of Darwin's theory of natural selection was that of the peppered moth *Biston betularia*, which evolved a new black morph in the 1800s during the Industrial Revolution in the United Kingdom. It wiped out the original morph by the end of the 19th century. This was one of the earliest examples of human impact on wildlife and how some species evolve to survive adversity.

But how do we perceive moths now? To most people who are not moth aficionados, moths are perhaps ‘dark creatures’ from Hollywood thrillers (the symbolic Death’s-head hawkmoth in *Silence of the Lambs*), or drab insects hovering around lights! Yes, they are also known for their suicidal flight towards fire and as the less-appealing cousins of butterflies. Honestly, when I started out as a moth ecologist, I was more thrilled at the prospect of an ‘all expenses paid trip’ to explore the Himalaya, than studying moths. It has been a journey of three years since, and an adventure that has left me more and more intrigued by one of the ‘little things that run the world’!

I have been working in the Nanda Devi Biosphere Reserve, trying to understand the diversity of moths using morphology and genetics. The steep rugged landscapes of the Nanda Devi National Park and the gentle rolling meadows of the Valley of Flowers National Park, both World Heritage Sites, have not been the subject of too much study. A transition zone between the Zanskar Range and the great Himalaya, this region is a mosaic of habitats and landscapes, which is responsible for its unique wildlife. The area is well-protected because of its inaccessibility, but
threatened by natural disasters such as landslides and forest fires. It was hit by a devastating flash flood in 2013, causing immense destruction to the forests and the people. It is also fragmented by development projects, ever-increasing human settlements, and resource extraction from the forests.

THE WORLD OF MOTHS

I studied moths using ‘light trapping’ at night, in the forest, well aware that a black bear or a leopard often lurked close by. My field assistants Dipu and Anoop bhaiyya – inquisitive and hardworking locals – would keep a lookout while I would search for moths. One night, Dipu and I heard a bear call within about 20 m. from the light trapping site. We hurriedly wrapped up everything and ran downhill until the calls became faint! Apart from guarding me, Dipu and Anoop bhaiyya shared my excitement at the discovery of every new moth. Anoop bhaiyya still calls me up to ask, “Koi naya species mila kya?” (Have you found any new species?). One of my rarest finds was Brahmaea wallichii or the Brahmin moth, which flew into my face and startled me with its enormous size. It has beautiful golden markings on its dark brown body. There are only two species of this genus known from India, the other one being B. hearseyi.

Despite what most people believe, moths are not found only at night. There are some day-flying moths, like the beautiful Burnet moth, which mimics butterflies with bright warning colouration, and the hummingbird hawk-moth, which hovers around flowers with a faint humming noise. Often in the daytime in Joshimath, near my basecamp, I would spot one hovering around and feeding on Calendula flowers. Moths are tiny powerhouses of a secret nocturnal world. Several moth species pollinate and feed on flowers, which reflect UV light (most night-blooming flowers). In 1907, scientists found that the moth Xanthopan morganii praedicta, which has an absurdly long proboscis, is the only pollinator of the African orchid Angraecum sesquipedale, which sports an unusually long nectary. It was named the Darwin’s moth, as he had predicted the existence of a then-unknown species of insect based on the size of the flower.

Moths are also major prey for nocturnal animals such as bats. Adult saturnids (silk moths), for example, don’t feed, they just mate and get eaten by bats! The battle between the tiger moth species Bertholdia trigona and the big brown bat Eptesicus fuscus is conspicuous evidence of ‘sonar-jamming’ in nature. This tiger moth produces ultrasonic clicks to ‘confuse’ bats. Overtime, in the

ABOVE The author used ‘light trapping’ at night to study what she likes to call the ‘little things that run the world!’
FACING PAGE Popularly known as the poor cousins of butterflies, moths have been largely ignored in scientific studies.
prey-predator arms race, both have evolved interesting acoustic weapons. Some moths adopt mimicry to avoid predation. These include moths of the Family Sesiidae and hornet moths, which mimic wasps. In moths from the genus *Phalaera* (Family Notodontidae), the head looks like the cut end of a tree branch. Owlet moths have eye-spots on their wings, resembling an owl’s eye effectively enough to scare away predators.

For eons, moths have evolved to orient their flight to celestial lights, but they now face challenges from our artificial lights.

Fundamental to terrestrial ecosystems and a potential ‘conservation tool’, moths have been largely ignored in scientific studies. Moth taxonomy in India is shrouded in much uncertainty. Only fragmentary taxonomic records (*Fauna of British India* series by Hampson in the 1800s!) exist for moths from different parts of the country. So, how do we conserve them without understanding even a small fraction of their complex life histories, species interactions or populations?

During my time in the reserve, I interacted with the local Bhotiya people. Women, who mostly went into the forests to collect fuelwood or to graze cattle, live a simple life. They weave their own clothes, grow their own food and suffer little interference from the outside world. Once in Lata village, the woman of the house where I stayed invited me to a local version of a ‘ladies night out’, where only women would cook, sing, dance and get high on the local liquor (homemade from wheat)! What a night that was!

They took a keen interest in my work. When I tried to explain the purpose of my study to them, they wondered “*sirf raat ko kyu?” (Why only at night?)! The children were also curious and concluded, “*Arre, yeh toh raat wali titli hai!” (Oh! They are the butterflies of the night). They would show me the moths that were attracted to the lights at their home and let me know how beautiful they think those are!

Adding to my ‘mothing’ experiences, I had some memorable encounters with other ‘non-moth’ wildlife. In my first year, I found a Royle’s pika burrow behind the tiny Forest Department hut in Auli at around 3,000 m. altitude. The little rodent was quite oblivious to human activities and would greet me every morning! On another day, I saw the mighty Himalayan Griffon feeding on a cow carcass within 10 m. of the same hut. My first sighting of the Himalayan goral was on a steep mountain on the other side of the river in the village Tolma. As my assistants and I were having a ‘throw-a-stone-across-the-river’ contest, I suddenly saw something moving on the cliff and there they were, a large herd – camouflaged and happily grazing. Once some local boys from Lata pointed out a Himalayan black bear on the opposite bank of the river in a forest near the village! Blue sheep and Himalayan tahrs were the usual sightings. Many ‘missed sightings’ happened too, usually...

**STUDYING MOTHS FROM THE HIMALAYA TO THE ANDES**

In January 2017, I was in Chile, South America, catching, watching and learning about the moths found in the foothills of the longest mountain range in the world. Packed between the Andes and the Pacific, Chile is a land of endemics. We worked on the peninsula of Hualpén, in the coastal sclerophyllous forest of central Chile, and in the mountainous temperate forests of Cordillera de Chilán (Las Trancas) in southern Chile. On the first night, while putting up the light traps, I saw black thorny caterpillars almost everywhere on the ground. They were the caterpillars of the Saturniidae moth genus *Ormiscodes*, which feeds exclusively on the *Nothofagus* tree, which is a Gondwana relict species found in this region. The endemic day-flying moth *Castnia eudesmia*, belonging to the family Castniidae, the only lepidoptera species with a vulnerable status in Chile, perched on my colleague’s arm during our day-long hike to our second field site! It was a short but enthralling experience for a moth ecologist like me. Learning about global diversity contrasts from experts enriched me and gave me an impetus to work harder towards moth conservation.
Moths are important indicators of forest health. Research on moth species from unexplored areas under dynamic and challenging conditions might provide much needed insight into extant diversity and past evolutionary scenarios.

A BIODIVERSE GROUP

Moths are hyperdiverse in that there are roughly 10,000 species known from India. So knowing all of them is tough (I am still at it!). Some common groups, which are almost everywhere at lower elevations and lowlands include:

**Tigers:** bold yellow and black stripes in their abdomen for most of the species, though the abdomen is not visible in their sitting posture.

**Emeralds:** unmistakable completely green wings.

**Slender burnished brass moths:** a stunning gold patch at the end of their forewings, and if you touch them gently you will be left with gold dust on your fingers.

**Magpies:** yellow abdomens, but the wings have patterns of black, white and yellow.

Some species, which are restricted to higher elevations include:

**Carpets:** small body with intricate wing markings resembling a carpet.

**Pugs:** I really don’t have a clue why the name! They are just tiny and brown.

**Brimstones:** Light, bright yellow body, sometimes can be seen during the day. It has a temperate distribution.

Larger-bodied moths like hawkmoths (they fly like hawks they say, and are the stoutest moth species, with a head shape resembling that of a hawk’s beak) and saturnids (with unmistakeable beautiful wings) are usually late night fliers but very common. The most common saturnids are the atlas and Indian moon moth.

When I would be recording vegetation data in the forest. While I tediously counted the herb and shrub species, Dipu would spot a barking deer or a leopard cat and even a Himalayan Monal just behind me, which would vanish as soon as I would turn around! Among birds, the Black-headed Jay, the Blue Whistling Thrush, the Yellow-billed Blue Magpie, the Common Rosefinch, the Great Barbet and the Verditer Flycatcher were common daily sightings.

Through my study I have realised that moths are an important invertebrate group comprising fascinating overlooked diversity. If forests die, moths die. They are important indicators of forest health. Research on moth species from unexplored areas under dynamic and challenging conditions might provide much needed insight into extant diversity and past evolutionary scenarios.

We know so little about the world around us and even less about creatures of the night that are active when we are passive! I for one know what my calling is and moths are a huge part of that passion. 🦋
The Secret Lives of Himalayan Wolves

Tracking an elusive top predator in the Trans-Himalaya

Text and photographs by Salvador Lyngdoh

“Chanku is like the wind,” said Tsering, referring to the wolf as it is called in Spiti.

At 5,000 m. above mean sea level, the wind slaps you in the face, and the sun chars your appearance. Initial days may be slow but as you get used to the thin air, you get in the groove and bother less about your tanned face and more about catching your breath. I have been studying wolves in this wondrous landscape for some years now. No doubt, it has been both majestic and challenging, searching for them. Judging from what the La Yul Mis (people of the Land of God) say, they were once more common.

We had chalked out our plan to trek through Kibber, once the highest village in the world, and also part of a wildlife sanctuary by the same name. Tsering has been up and down these mountains many times. He tells me his ancestry lies in Tibet. When he was young, he fell in love and finally settled in Spiti. As he describes his journey through the forbidden kingdom, I can only wonder how vast the Trans-Himalaya really is and what it would have felt like walking amongst the clouds. He has managed to live well by guiding travellers along these hazardous routes for years. He has crossed paths with wolves a few times; they are shy of humans, and prefer to come uninvited, generally away from sight, he says.

Nomadic pastoralism has lasted here in the high valley for over a millennium. The Trans has always been a place for pastoralists from the lower hills and mountain mystics alike. I pride myself with a similar quest, not for peace or tranquility, but for a glimpse into the secret life of an intelligent creature, one living near man and yet wild and free.

OUR STUDY SITE

The Spiti catchment area is dominated by agro-pastoralists, who have for centuries lived in harmony with nature. After scouring through miles of never-
I looked around for spoor the next morning and found pugmarks on a definitive trail. But sheep dogs here were large too and I had to consider whether we were barking up the wrong tree. We decided to proceed to higher ground, where wolves might be denning.

WHERE WOLVES ROAM

We reached Dogsa, a seasonal pasture roughly 4,000 m. above Mane, situated on flat ground surrounded by rocky hill tops laden with Caragana versicolor, a keystone shrub. A dozen huts made from these same rocks served as summertime accommodation for locals, who spent most of their time making ghee (clarified butter) from milk and collecting dung cakes for fuel. The area was blessed with ample water and grass, so their domestic animals had plentiful sustenance. With luck, I knew, fossils could be found here on mountains that were once part of the Tethys sea. Most common among them are ammonites, a now-extinct group of marine molluscs. For geologists, Spiti in its entirety is a history book stratified with signs of prehistoric life including squid-like creatures called belemnites and huge, primitive centipedes that probably crawled about 500 to 600 million years ago. Treasures that speak of the history of our planet, these ancient relics are sold as cheap souvenirs and I wished visitors would at least pause to marvel at the miracles they held in their hands.

On a more positive note, I noticed several wolf tracks and scats along my two-hour hike up from the village.

CAMPING IN WOLF-LAND

We offloaded our contraptions and set up tents. Chai bubbled over the fireplace as villagers headed back with their cattle and sacks of firewood. Before dark, we set out traps on strategic key trails to maximise our chances of an encounter. The tried and tested traps were rubber-padded to avoid injury and prevent trauma from limb-freezing. Researchers trap animals to obtain blood samples and check on the health of subjects. We dug, embedded, camouflage'ed and anchored our traps; hoping wolves might be lured by the sound of cattle, sheep and goat. We tried not to leave our scent or traces of human presence as wolves are justifiably suspicious of Homo sapiens and even a hint of doubt would detract these cursorial predators.

As the night extended, pre-recorded howls were sounded to alert our wolves using a low-cost soundbox I acquired in Kaza. The young monk who sold the box had pointed out it was equipped with ‘bluetooth’ and could be remotely controlled.

We retreated to our tents, and prayed for good news.
Cradled between two mountains, the picturesque Mane village nestles just below a hill, with fields on both sides and a crystal river flowing through.

STUDYING THE WORLD’S HIGHEST WOLVES

In the context of an animal’s use of an area, knowledge of its movement provides a ‘live’ point of contact between ecology and evolution. Thus, to even begin to understand why wolves move in space is to be able to answer why wolves use a resource at given times and extents. This helps protect a species in its chosen habitat. GPS-enabled radio collars have

Until recently, wolves were the second-most widely distributed terrestrial animals in the world. Wolves evolved in Asia and radiated from Eurasia to North America around 500,000 years ago. Early ancestors of present-day wolves are dated back to the Miocene. The famous Dire wolves from Game of Thrones, if you watch the show, were the bigger relatives of the present-day grey wolf Canis lupus. They coexisted for about 100,000 years. Competition with Canis lupus, anthropogenic pressure and extinction of other large mammals till about 12,000 years wiped out the species.

Despite their large range, they have disappeared from nearly one-third of their former distribution. In the Indian Trans-Himalaya, it is estimated that roughly 350-400 adult wolves exist. The Himalayan wolf is known to be a unique and ancestral lineage of extant grey wolves; it has been argued that these wolves be placed as a separate species altogether. Worldwide, there are three species of wolves recognised currently, the grey wolf Canis lupus, the red wolf Canis rufus and the Ethiopian wolf Canis simensis. Recently, a revision through molecular phylogenetic studies suggests 13 subspecies of the grey wolf exist. Two geographically isolated populations and allopatric (meaning occurring in separate non-overlapping geographical areas) races exist in the Indian subcontinent. These wolves, due to their isolation, may have existed since ancient evolutionary times and which is why they may have played no role in domestication. Himalayan wolves thus may be a ‘Yeti of Sorts’ in evolutionary terms.

Sure enough, there it was... a large, buff, healthy and exceedingly beautiful wolf. We moved a few metres closer to the animal and saw it was a female. Alarmed by our presence, she howled. Actually, it sounded more like a deep, long bark. Her paws were large and firm and she was big and strong. Her foot was firmly held by the rubber jaws of the leg-hold spring, enabling Sanath, our vet, to shoot a tranquilising dart that immobilised her within minutes.

Though the tents took a little getting used to, there is nothing like a good sleep under clear, star-studded skies. Very early the next morning, we awoke to the chatter of Himalayan Snowcocks. Some villagers said they saw bharal or blue sheep, around the hill tops. I hurriedly grabbed my binoculars, when I heard a faint clanking sound. Climbing higher, the sound become more pronounced. Wolf! I whispered to myself, quickly waking the others.

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Despite their large range, they have disappeared from nearly one-third of their former distribution. In the Indian Trans-Himalaya, it is estimated that roughly 350-400 adult wolves exist. The Himalayan wolf is known to be a unique and ancestral lineage of extant grey wolves; it has been argued that these wolves be placed as a separate species altogether. Worldwide, there are three species of wolves recognised currently, the grey wolf Canis lupus, the red wolf Canis rufus and the Ethiopian wolf Canis simensis. Recently, a revision through molecular phylogenetic studies suggests 13 subspecies of the grey wolf exist. Two geographically isolated populations and allopatric (meaning occurring in separate non-overlapping geographical areas) races exist in the Indian subcontinent. These wolves, due to their isolation, may have existed since ancient evolutionary times and which is why they may have played no role in domestication. Himalayan wolves thus may be a ‘Yeti of Sorts’ in evolutionary terms.
come a long way in helping researchers understand such movements, ranging from migrations to micro-movements. We chose to attach a ‘prefixed’ Globalstar satellite collar onto the neck of Kunzum – our she-wolf subject. The strength of a wolf is in its pack, and we hoped this wolf would reveal details of not only her life, but that of her associates as well.

The collaring operation was smooth and lasted just 15 minutes. Our beautiful Kunzum was about two or three years old and weighed about 35 kg. As the antidote did its work and began to wear off, she rose, staring balefully at us for a few seconds, before heading for the hills. Some distance away, she stopped momentarily, turned her head to look at us and then disappeared into the mountainous, cold, arid trans-Himalayan desert. She was only the second wolf to be collared in the Spiti Valley and the first to be tracked remotely in the Himalaya.

Mongolian wolves are the closest relatives of their Himalayan/Tibetan cousins. Recent genetic studies have even suggested that all these three races of wolves are of the same lineage. Studies from Mongolia suggested that one such female had a 20-month ‘resident’ period during which she inhabited an area of 1,275 sq. km, plus a nine-month ‘extension’ period where she enlarged its range to an astounding 6,634 sq. km. Our experience provided us an insight into the lives of ‘our’ wolves and we believe their range hovers around 2,000 sq. km, with the average daily range of a pack being about 20 km.

BUT, WHY TRACK THEM AT ALL?

If we want to protect them, we must know where they are, where they move to and why. In remote landscapes, wolf movements are a mix of complex factors including human pressures and a host of other environmental variables. Studies have shown that wolf occurrence depends largely on human pressure, prey availability, and landscape integrity. Simply put, wolves need habitat connectivity and access to food and water. In Spiti, our results have thus far revealed that wolves rely on domestic and wild prey such as bharal and ibex. Local attitudes, systems of life and tradition have allowed wolves to co-exist with humans for millennia. By tracking them we can understand wolf diet and this in turn can help reduce human-animal conflict.

IS THERE A FUTURE FOR WOLVES?

Frankly, they are treading on thin ice. Feral dogs, disease and prey depletion could result in their complete extermination from the area we surveyed. Possible mating with feral dogs puts them at risk of genetic swamping. While the world cycles on, our lives are dedicated to the proposition that our meticulous observations of wolf behaviour and their relationship with humans and other wild species will one day help us to understand and protect the ecological landscape of Canis lupus. The significant events in the lives of wolves, their evolution and the manner in which they have adapted to the larger Himalayan system is interesting enough, but I believe our work could be critical to their survival when future conservation strategies are implemented.

Our day ended with joyous celebration and dances that village folk treated us to because they were just as thrilled as we were with our successful endeavour. A call placed to my colleague Dr. Bilal back at the Wildlife Institute of India (WII), located in far away Dehradun, confirmed our radio-collared wolf was on the move and was not too far away.

ABOUT THE STUDY

The study is part of a team effort involving scientists and officers from the Wildlife Institute of India and the Himachal Pradesh Forest Department, including Dr. Bilal Habib, Dr. Y. V. Jhala and the author. Special thanks to Dr. P. Nigam, Dr. S. P. Goyal, Dr. S. Krishna, R. Sharma, DFO, D. Chauhan, RFO, Yarphel, Namgial Gompo, Namtak, Sushil, Kesang, Takpa, Nishi and all the people of Mane.

Interestingly, Spiti folks do not have an equivalent word for the wild. Maybe here, the original association with nature existed without such conceptual boundaries. The wolf may be a manifestation of such an association. It represents our deepest fear and our false triumph over nature. The wolf is a friend, not a foe. It would be difficult to imagine life without the greatest gift of the wolf to mankind; i.e. the latter’s best friend. Living among the hardy people of Spiti, I realised that their cultural acceptance of the wolf’s right to exist is the essence of its survival, as is its legendary resilience.
The ‘Pale’ Wild One

When Nilanjan Ray caught a glimpse of a striped predator, little did he know he would soon be feted across the globe for discovering a much paler tiger than has been seen in recent times.

Driving past a location, that must remain undisclosed, within the vast Nilgiri Biosphere Reserve last month, between bouts of rainy showers, he suddenly spotted the individual seen on this page walking across the road to climb up the hillside. The few images he managed to shoot were posted on the 1,40,000-strong Sanctuary Facebook Group Page and almost instantly received a volley of criticism since people presumed he had claimed to see a ‘white’ tiger, which as we all know is only to be found in zoos. It hardly helped that media reports speciously used the word ‘white’ to describe the cat instead of ‘pale’, which is what Nilanjan had insisted upon.

“It is the palest tiger I have ever seen on record or heard about in literature,” wrote Belinda Wright, founder of the Wildlife Protection Society of India. She added, “You occasionally see lighter-coloured tigers, but they’re nothing compared to this one. There are also some pale tigers in captivity, particularly in the U.S., but these are ‘cocktail’ tigers that are bred that way, with genes from white tigers.”

Belinda also stated that she had herself seen a very pale tiger decades ago in Ranthambhore, but not quite as pale as this one.

Dr. Parvish Pandya, Associate Professor in Zoology at Bhavan’s College and Head, Photography and Science for Sanctuary Asia, was quick to correct the press reports stating that: “Skin colour and the fur of mammals is controlled by multiple genes. Random mating, varied genetic recombinations and mutations may result in several grades of colour and pattern being inherited in natural populations. One such rare find is the pale-coloured tiger we see on this page.”
The Great Himalayan National Park

By Anuranjan Roy
Located in the Kullu region of Himachal Pradesh, the Great Himalayan National Park is a UNESCO World Heritage Site.
A Great Rosefinch fluttered right by my nose and perched on a shrub. The red side of my reversible jacket had piqued his curiosity. All of yesterday, up at Nara Thach, camera in hand, I had stalked one of his cousins with zero success. Now, noting the absence of any optical weaponry in my hands, he plonked himself within cuddling distance of me, in all of his ‘Angry Birds’ grade redness. Inspecting me thoroughly and fully convinced that I wasn’t competition, the most photoworthy expression of my life flew away.

Oh, well. That was that then. Evening was closing in on Shankha Thach and I had come as far as I would on this trip to the Great Himalayan National Park (GHNP). If I hadn’t been crowned Mr. Landslide 2017, destroying softened trail edges and fresh rain-fed vegetation with methodical precision in my often shaky understanding with gravity, I would have continued. It was only early June but the incessant unseasonal rains had put paid to my plans to hike to Tirath Glacier... and to my toughest pair of khaki cargos. Tomorrow morning, I would start my three-day journey back towards Rolla Camp.

The cave we had captured for our night halt at Shankha Thach was nice and toasty by now. The cooking fire was being tended to by Dileep with Maggi noodles on the boil; Ishwar had run out to fetch some water from the Tirthan raging alongside, doing his goral-moves on co-operative rocks; Basant Singh sat joking in Pahadi – after 33+ years of guiding in this wild country, there was nothing he couldn’t laugh about.

June, he said, was a good time to stay in this cave. If it were the winter months, the resident landlord, a sheim (Himalayan brown bear), might have objected.

UP CLOSE AND PERSONAL

Basant looked dead serious as he motioned me to look towards a group of seven visitors from Jalandhar who were a flurry of activity in the firepit hut structure in front of us. It was a large group, unlike our compact quartet of Basant, the dynamic cook porter duo of Dileep and Ishwar, and me. It was late afternoon, we had just entered GHNP and set up at Rolla. I gave him a quizzical look to which I got an exasperated one in return. “Unkey pichey (behind them),” he silently mouthed. And so I looked again.

The firepit hut stood on the edge of a steep descent to the Tirthan, the river being about 15 m. of violent water wide at this point. Beyond the river, the sheer slopes were clothed with kail pines and wild walnut trees. And on that slope, in full eye-level view of the Jalandhar seven, had they turned around, was a magnificent goral. I had always imagined

Inhabiting steep mountainous areas, the Himalayan goral feeds on grassy ridges and rocky slopes.
that my first sighting of this tautly pulsed, grey, beautiful goat-antelope would be through binoculars on some distant cliff. Apparently not.

GHNP sent many more such moments our way. We pretty much walked into a group of four goral on our descent down Nara Thach’s eastern side, which bounded away in a riveting display of speed but not before a warning ‘sneeze’. A red and ochre Siberian weasel with its distinctive little white face sought an opening under the stream side rocks quite unconcerned as we watched from the rickety wooden bridge at Challocha Hut. We had already had our heart’s content of majesty as we watched a Golden Eagle soar above pine tops for several minutes. Then as we reluctantly got going, a giant shadow on the trail forced us to look up again. Maybe only six metres above us, cruising on its massive wings, was a Lammergeier.

A SPECIAL WILDERNESS

Basant just knows. About practical baatein (things). About kharab (bad) points on the trails, slippery logs, treacherous rocks – wherever non-mountain feet would need an extension of his axe handle for support. Other times, he lets you be, staying just out of visual range, while you dwell in awe of these forests, its butterflies, dragonflies and wildflowers. You have brushed up your theory and feel excited as you notice the main trees change from the mysterious gnarly baan (white oak) to the moru (green oak) to the very brown kharsu (brown oak) groves rising around the high altitude thaches (meadows) as the trail ascends. Yet, he will always be there to gently correct you as you mix up the kail (blue pine) and tush (silver fir) for the nth time.

He and his people knew long before UNESCO agreed, that this was a World Heritage Site, a living landscape peopled with massive devtaa trees and stories from the Mahabharata, and to them, protectors against the vagaries of nature. For nothing is to be taken for granted. I had watched as a goral stumbled after an ambitious leap onto a rocky ledge and fell, never to get up again. Locked by the Pin Parvati range on the east, its north and south also protected by near impassable snow-covered ranges as three rivers, the Tirthan, the Sainj and the Jiwa Nal course through it, the GHNP is a wilderness both precious and serious.

Basant told me that I just had to make the strenuous climb to Nara Thach for a particular realisation. When I did, the mysterious El Kapitan like rocky massif of Pakni and the overpowering calm of the snow-clad mountains, which encircled our little hut on a meadow greeted me. The evening campfire had roared for a while after the sun’s last rays had stopped illuminating the snows of Majhauni Top in the east as four humans stood silently around it, jungle all around as far as the mind could think and the ears could hear.

That night I dreamt of a snow leopard stalking blue sheep, not that fictional a dream it must be said, as this extraordinary national park covers terrain from sub-tropical to permanent snows. I realised that I had to agree with Basant. They had not prefixed the ‘Great’ just for the sake of it.

Anurangan Roy is a writer and serial misadventurer based in Kolkata. He confesses @virtual-inksanity.blogspot.in
The Battle for Tost’s Snow Leopards

It takes nothing short of eternal vigilance. And you never lose until you give up.

By Bayarjargal Agvaantseren

One morning in December 2009, we got an urgent call from the rarely-used satellite phone at our remote field research station in South Gobi, near Mongolia’s border with China. A snow leopard wearing a GPS collar had been found dead in the Tost Mountains, the site of our long-term study – in fact, the most comprehensive and long-term study on snow leopards being conducted anywhere in the world. It was shocking to hear the news. We knew it was Bayartai, the second of the 23 snow leopards we have so far collared as part of our study, which we had started in 2008. It was hard news to swallow, especially because we had known Bayartai for a long time. He had a name and he had character. We knew
his daily activities through our satellite tracking system, so he was like a dear friend to us. We suspected that he may have been killed in response to a livestock attack. Such incidents are a big threat to the snow leopard’s survival. A few days later, an investigation revealed that a local herder had indeed shot Bayartai inside his livestock holding pen, in a desperate attempt to save his herd.

Soon after the incident, we travelled to the field to discuss with local people ways to prevent these kinds of incidents in the future. The herder who shot Bayartai did not do so out of greed or malice, but rather out of desperation, to protect his livelihood. To help herders like him bear livestock losses, we developed a community-driven livestock insurance programme that had previously been successfully implemented by our colleagues in India. This intervention could

ABOVE A file picture of Sumbee with two snow leopard cubs in the Tost Mountains. He dedicated his life’s work to secure their and other snow leopards’ future.

FACING PAGE A collared snow leopard individual known as M9 or Kulu patrols its lair among the Tost mountains in Mongolia.
not bring Bayartai back – but it might help other snow leopards avoid a similar fate.

NOT THE ONLY THREAT

While developing the programme, we learned that retaliatory killings were not the only threat we had to deal with: we discovered that almost the entire snow leopard habitat of Tost had been designated for large-scale mining! At this time, our research had yielded information that this particular area had a healthy, breeding population of snow leopards. It was also home to hundreds of local livestock herders, who for generations have depended on these pastures for their livelihood and culture. We needed to do something to protect this precious habitat.

Dealing with mining was a new experience for our small team. Luckily, in 2010, Sumbee, a brilliant young Mongolian researcher, joined us as research station manager and field biologist. His enthusiasm and passion for the snow leopard, but also for the people living alongside it, was inspiring – and his leadership would prove critical.

The local community of Tost understood how mining was not just threatening the snow leopard, but their entire way of life – and how protecting the ecosystem could protect their livelihoods, culture, and social systems. Through our previous work with them, we had been able to build trust, and now it was paying off. Herders and local government officials enthusiastically picked up the cause and took it forward. After months of joint effort by us, the local community, and the local government, the Mineral Resources Authority of Mongolia finally accepted the local government’s application to declare the Tost Mountains a locally Protected Area in October 2010.

This still allowed mining companies to continue all ongoing activities within the area, but no new mining licenses would be issued at least for some time. A few companies who held mining licenses in Tost had already begun digging for minerals, but most had not. Some of their
licenses were set to expire soon, so we were hopeful. However, while we were monitoring the licenses’ expiration dates, we noticed something strange: it looked like new licenses were popping up. What was happening was that the companies would illegally sell their expiring licenses to each other, which automatically extended their validity! This showed us that a local Protected Area status was not enough to save Tost.

RISING UP TO NEW CHALLENGES

We would now have to convince the authorities to turn the area into a State Nature Reserve. This was the start of a very intensive journey. As soon as we started working on the task, we learned that every single step we took would be challenged. By law, we had to follow a step-by-step application process, moving through the Soum (county level), provincial and central governments, and finally, the Parliament of Mongolia. Each level required us to campaign and to meet and create awareness among decision makers. We organised media-awareness events with the involvement of local people, and pro-conservation media got on board in a national campaign. We eventually sent two separate applications through the law of Mongolian Protected Areas, which was a signifi cant milestone for a challenging process. While grieving for our friend, we got back to work.

Once we learned that the Cabinet of Mongolia was not going to approve our application, we started working with like-minded individuals and Parliament members to propose the case directly to the Parliament of Mongolia, skipping the Cabinet procedure, and working through the law of Mongolian Protected Areas instead. Two women Parliament Members, Oyungerel Tsedevdamba and Erdenechimeg Luvsan, took up the case and developed a draft resolution to submit directly to a Parliament Meeting. While they were working in Parliament, we organised an even stronger nation-wide campaign with local people’s support and involvement. Thousands of letters were sent, petitions were signed, and nationwide media discussions followed. Finally, we were able to convince the President of Mongolia, Mr. Elbegdorj, to lend his voice to the cause. In December 2015, he convened a Presidential Civil Hall Meeting, which was a significant milestone for a favourable decision.

All of this work and effort of course brought international attention and support. The Snow Leopard Network and Snow Leopard Trust had been supporting us in the process from the beginning, and now more international organisations got behind us to help highlight the significance of this globally important snow leopard habitat.

Finally, after six years of concerted struggle, on April 14, 2016, the Parliament of Mongolia approved the designation of Tost Mountain as a State Nature Reserve spread over 7430.58 sq. km., dedicated to snow leopards. It is the first offi cial Protected Area specifically dedicated to snow leopards anywhere in the world. On March 17, 2017, the reserve’s offi cial boundaries were identified and recognised by the Cabinet of Mongolia, fi nalising the creation of this new and important snow leopard stronghold.

Over the years, we’ve gotten to know many of Tost’s snow leopards. We know that there is a healthy, stable population of about a dozen adult snow leopards in these mountains. It makes me happy and proud that their home is no longer threatened by mining. This would not have been possible without the immense effort made by local people to save their land and their wildlife. And it certainly would not have been possible without the incredible work Sumbee did during the time he was with us.

We may never learn why and how Sumbee really died. His loss is tragic to us and to conservation. But whatever the reasons behind his death may really have been, he did not die in vain. Instead, he leaves a wonderful legacy: a safe haven for the cats he loved.

Bayarjargal (Bayara) Agvaantseren is the Executive Director of Mongolia’s Snow Leopard Conservation Foundation and the Country Program Director of the Snow Leopard Trust.
One of the most constraining issues in conservation is the widespread feeling among scientific experts, organised NGOs, and well-meaning amateurs alike, that they have to work in isolation. Indeed, during my travels over 18 years of exploring many parts of India, working with locals to address specific issues of river conservation, I often hear a complaint that 'nobody understands what I feel about the environment, there is no way to make real change'.

Clearly, addressing habitat viability is the baseline of species conservation, and this involves a wide range of interests, whatever the habitat type. Occasionally, these interests may conflict, which only adds to the need
for a consensual approach. A head-in-sand mindset helps nobody, least of all the threatened wildlife.

LONAVLA CONFERENCE

In the eight months leading to January 2017, I was part of the Mahseer Trust team that worked with Tata Power to find a way forward for conserving the hump-backed mahseer of the Cauvery (Kaveri) river. We had previously agreed that an urgent plan was needed due to the extraordinary pressures currently faced by this iconic fish species. Both parties agreed that a strict focus on the fish would be at best a sticking plaster, and at worst a total failure. To enact real conservation for the fish, and indeed the entire river, a holistic approach was needed, and fast.

Colleagues of the Mahseer Trust had identified one short section of the Moyar river in Tamil Nadu, a tributary of the Bhavani river, and both part of the wider Cauvery river basin, which held a small, but robust and reproducing population of hump-backed mahseer. Contrast this with prior to 2005, when records show the fish was widely spread in the main river (see Icon of the Cauvery, Sanctuary Asia, Vol. XXXV No. 10, October 2015) and an important source of tourism revenue thanks to visitors to angling camps for catch-and-release sport fishing.

If, as seemed likely, this was the only breeding population left, then it would be incredibly vulnerable to a pollution event that could wipe them all out. Equally, the local tribal village continues to harvest the fish for religious purposes, which could be sustainable if carefully managed, but at present is not controlled at all.

The Mahseer Trust and Tata Power called a two-day conference in Lonavla, with invitees representing some major conservation bodies, including WWF-India and Bombay Natural History Society, as well as influential players from each of the three states of the wider river basin: Karnataka, Kerala, and Tamil Nadu. After laying out the range of issues facing the huge fish of this heavily-disputed water course, it was hoped that a solid action plan could be formulated.

Vivek Talwar, Chief Sustainability Officer for Tata Power, gave the example of his work in a project on the conservation of the whale shark in Gujarat when he was with Tata Chemicals. This project, in partnership with the Wildlife Trust of India, involved a spiritual thought leader, Morarji Bapu, who is revered by the fishing community as a legend, to spread the message of conservation. This turned the tide of whale shark slaughter, which was mainly as by-catch, and for only a tiny percentage of the whole fish. Giving the powerful analogy of a daughter returning to the family home to give birth, the fishermen accepted that the whale sharks using their coastline as a breeding ground was akin to a daughter returning to her mother’s house to give birth to a child.

My address at the workshop centred around my years of interaction in Coorg (Kodagu district, Karnataka), at the upper end of the Cauvery river, where I have spent time exploring the various tributaries that feed the main river. Living in local homestays, and visiting villages way up in the hills, has allowed me to understand a little about the importance of tradition to the Kodava people, while also seeing first-hand how freshwater shapes the entire ecosystem.

Yet in all these years, and having seen and photographed thousands of mahseer of the Tor khudree species, I have not personally seen a hump-backed mahseer. This fact has helped to crystallise in my mind how imperilled the fish are, and the potential impacts their extinction would have upon the river.

To begin a fresh conservation plan, I offered the opinion that the hump-backed mahseer should be seen as the offspring of the Goddess Kaveri. My idea was that this would not only raise their status among those who view the river as a manifestation of the Goddess, but also elevate the fish to its rightful place as a key indicator of the health of the river. Coining the phrase Kaveri Mission, I outlined that the input of all those who had influence upon, or depended upon the river habitat would need to be consulted and brought into this broad-based coalition for change. Given the major role that forces of nature, especially freshwater, have played in shaping all of the world’s religions, it is high time humanity repaid the debt.
The Supreme Court has upheld that the constitutional right to a clean environment is higher than the right to earn a living. Still, we need to find ways for local communities to live good lives, and enhance the quality of their lives, but not at the expense of the entire life-giving infrastructure.

SPREADING THE MISSION

At the upstream end of the main river, the Coorg Wildlife Society (CWS) has a 30-year plus record of protecting both the forests and the river, as interdependent, symbiotic, life-givers. Going back to Kaveri Purana, the region was called Matsyadesha (fish country), and the huge hump-backed mahseer has been a source of pride for the Society. Capture of a hump-backed mahseer weighing in excess of 60 kg. in 2011 confirmed that this area still has the potential to produce such ‘hopeful monsters’.

Following on from Lonavla, Adrian Pinder and I met with CWS, and asked them to join the Kaveri Mission. We felt it was a vital step to securing the fragile higher reaches of the main river and its many tributaries. CWS has already partnered with Mahseer Trust in small-scale studies of the fish populations, and has also allowed monitoring of otter populations through the Nityata Foundation project and Nature Conservation Foundation. This last study aimed to investigate how otters share their space with commercial fishery interests and sand mining operations.

Clearly every aspect of this study has an impact upon the wider remit of the Kaveri Mission.

During my presentations to various bodies, ranging from small-scale NGOs, right up to government departments and ministers, I am keen to use examples of good conservation models, and to stress the implementation of existing laws and the constitution. Recently, a politician from south Coorg has been calling for greater exploitation of the forests for poor people. Appachu Ranjan (BJP Legislator), from Virajpet has called-out CWS as “pseudo-environmentalist naturalists” who have exploited the forests for their own gain and now deny any further exploitation. It strikes me that there is a need to move away from bipolar thinking. Two alleged wrongs definitely do not make a right.

My presentations always state the constitutional “duty of every citizen of India to protect and improve the natural environment (Article 51A – (Clause g)).” Also, the Supreme Court has upheld that the constitutional right to a clean environment is higher than the right to earn a living. Still, we need to find ways for local communities to live good lives, and enhance the quality of their lives, but not at the expense of the entire life-giving infrastructure.

It is heartening to see that since our meetings, CWS is now calling for greater awareness of the issues facing the forests and rivers of Coorg, and the impact this will have on those who live downstream. Indeed, K. A. Machaiah of CWS recently said that this “is a life and death question for people of Kodagu and (the) Cauvery delta”.

In Bengaluru, Wildlife Association of South India (WASI) similarly has a history of working for both rivers and forests within the central part of the Cauvery river. Adrian and I continued from Coorg to meet with the committee and press home our messages about the Kaveri Mission.

WASI members were already conducting site visits to establish the current extent of hump-backed mahseer populations, and as a side study, were collecting details of all fish, plants and large animals spotted during the visits. Not only this, they were also using depth-sounding technology to map the Moyar river; this should provide valuable data about how the fish use this highly-compressed distribution range. They were keen to bring these projects under the Kaveri Mission.

We also visited some privately-owned stretches of the Cauvery around Mysuru and Srirangapatnam to discuss how they can be used for recreational angling. The income from this activity can be used to fund constant anti-poaching patrols. An added bonus is that my 30-year experience of river conservation in the U.K. has shown that more people on the bank will allow for early notification of pollution, and help to reduce nefarious activity.

During a brief meeting with Dr. Darshan K. T. (Assistant Director of Fisheries Grade 2, Madikeri), she offered to use the hatchery facility at Harangi Reservoir to study the possibility of rearing hump-backed mahseer, if the correct broodstock could be identified in
Coorg. We believe this should be taken a step further, to allow in-river breeding. This will give better survival rates (if the drastic step of re-introductions is needed) and is considered more sustainable.

My reservation is that there are questions surrounding previous fish releases, as these have not been done in response to serious studies of fish populations, nor have they been subject to any monitoring regime to assess the impacts. If restocking is to be considered in the future, it must be done by following the International Union for Conservation of Nature (IUCN) guidelines, in exactly the same way that any other release into the wild would be subject to the highest levels of scrutiny.

I am still keen to bring more partners on-board, especially those with experience of working in remote communities, and those who already work on issues of river habitat protection and rehabilitation. This will give scope for diverse steps in the future. From concerned individuals who can offer a few hours, to large NGOs, each new face brings fresh insight and demonstrates the spread of the Kaveri Mission. Given how many small businesses in Karnataka use ‘Kaveri’ in their name or for publicity, it should be possible to harness ready-made advertising hoardings and adapt them to the Mission.

SHARING THE BENEFITS

Raising public awareness about the plight of the fish and the ongoing deterioration of the river habitat is an urgent need, if wide-ranging support is to be garnered. Following the model of the Sawai Madhopur railway station art project (see Art On Track, Sanctuary Asia, Vol. XXXIV No. 1, February 2016), I recently proposed to WWF-India that they help build a multi-faceted project to employ adivasi artists from each of the three states of the river basin to collaborate on an art installation for Bengaluru central station. To add to this, I further proposed that schools along the railway lines close to any major tributary or the main river can enter a competition to have their local station decorated, and a collage of the best be included at Bengaluru.

By filming the art in progress, both at the station, and in local villages, a saleable product would be created, either for online monetisation, or for sale through tourism outlets. This project would not only raise public awareness, it would also give job opportunities to adivasis, demonstrate collaboration among the states of the disputed river basin, involve all age groups, and by decorating many stations, would encourage tourism in remote areas. It is the teacher in me that has to search for multi-curricular outcomes!

Of course, improvements in the health of the river will not only benefit the hump-backed mahseer that is ‘the face’ of the Kaveri Mission, they will also bring the ecosystem services back to those who live and depend upon freshwater. In 2007, I introduced Dr. Mark Everard to India. He is a world-renowned expert on freshwater ecosystems, and he is now consulted across many states to advise on river management. His mission is to demonstrate that good water flows, abundant forest cover and functioning biodiversity will improve the health of those living along the river, as well as offering a draw for those who want to experience, or study, a clean environment. It is a model we should all strive for.

It has been demonstrated many times (most recently in Human-Made Drought in South India, (Sanctuary Asia, Vol. XXXVII No. 4, April 2017) that excessive building...
If restocking is to be considered in future, it must be done by following IUCN guidelines, in exactly the same way that any other release into the wild would be subject to the highest levels of scrutiny.

Play Your Part
The Kaveri Mission partners are looking for a logo and have put out a call for submissions. The winning entry will receive the plaudits and will take part in publicity for the Kaveri Mission. They will also win Rs. 8,000 from the Mahseer Trust. Entry is only open to those who reside in one of the three states of the Cauvery basin: Karnataka, Kerala, or Tamil Nadu. For more details, see www.mahseertrust.org/kaveri-mission. Closing date: September 1, 2017

cover, with the knock-on effect of stabilising freshwater availability. I always make it a point to try and visit or stay at such places when travelling around the region. If more of this can be encouraged, and maybe even some larger bodies allowed to develop and manage forest resorts for tourism, then perhaps some of the yearly seep into the rivers and tributaries can be increased. Examples of tourism opportunities may include privately-grown mixed plantations that run alongside off-road biking and camping facilities. Such a scheme, if planned carefully to include ‘wild’ areas, or to create new sacred groves, would help with climate change mitigation, act as dispersal corridors, bring employment to local communities, as well as the much-needed increased capacity for freshwater storage. Indeed, why not include a paying ‘plant-a-tree’ offer as another funding stream?

I know from the experience of being stuck in Cauvery dispute protests in 2007 that the river stirs up strong feelings. All these revolve around the fact that water flows are diminishing. More water in the river will bring different management issues, but stronger flows will be a headache worth investing in. And, if the river flows can be better managed, perhaps tensions in this volatile region can be lowered?

A tributary of the Cauvery, the Lakshmanthirtha embodies a river in good health.

on flood plains, grasslands and other sensitive areas in and around Bengaluru is contributing to a major loss of water flow to the rivers of the region. Halting this decline, while still allowing economic growth, will take careful planning and cooperation between all those in a position to bring about change, not just legislators, but also smaller, local-interest players. This is the kind of issue that lies at the heart of the Kaveri Mission.

There are many examples throughout south India of local, small-scale interventions increasing forest
Help save our tigers, our forests, our water - and ourselves.

Half of the world’s wild tigers live in the forests of India. Despite roaming over vast areas of Asia a century ago, today habitat destruction and poaching are pushing our national animal to the brink. Global wildlife poaching represents the largest illegal trade in the world after arms and narcotics.

With climate change threatening human societies across the globe and in India, forests such as Kanha, Corbett, Mudumalai and Pench, the home of the tiger, are invaluable. They sequester carbon and store water, providing invaluable services to human society. In return, we need to protect them.

The Ashok Piramal Group is committed to saving the environment for the benefit of future generations.

Photo: Harsh Piramal.

Brought to you in the interest of wildlife protection by the Ashok Piramal Group.
Many years ago in a flat in central Delhi I spent an evening with the Malayalee master of magic realism, O. V. Vijayan. OV was in his eighties and suffering from a host of ailments. His *Legends of Khasak* had sparked a million minds with shades of Marquez and Neruda, but his own mind was disturbed. "I too am fascinated with wildlife, Menon," he said suddenly, leaning towards me conspiratorially. I had not seen nature featured in his works prominently and I told him so. "Spiders, Menon, spiders!" his eyes widened in anaphylactic shock at the memory. "I wake up in the night and see spiders! Can’t sleep. That’s when I write my novels. Magic realism they say. But in reality it is a dread of spiders!"

If I had any of Vijayan’s arachnophobia, I should not have gone to Cocobolo. A private nature reserve bought by Michael, a British man of Goan descent, the forests of Cocobolo are at the most strategic point of the Americas. The narrowest point of the continental divide, I was told, and a mere 95 km. between the Caribbean and the Pacific blues. In these forests live jaguars and jaguarundis, ocelots and tamarins, howlers and spider monkeys. There are also several hundred species of birds. But what I was not told was that the person showing me around on two perfect
mid-monsoon days in July was an entomologist with a passion for spiders and ants. "Spiders? Two more legs than an entomologist should be looking at, eh?" I joked, brushing the shed skin of a blonde tarantula the size of a small frog away from my morning coffee. And then I remembered that I was an ornithologist who wrote books about mammals and did not pursue the conversation.

"The reserve has a number of orb weaving spiders and you must see all of them," Stephane said excitedly. As we squelched through the wet secondary forests, silken webs brushed our faces repeatedly. The machete Stephane was carrying was used more for cutting away three hours of the work of spiders than lopping a path through the forest. Some of them had thorns on their backs, others lived in neatly rolled up cigars of vegetation. I saw that a third had weighted its web cleverly with a tropical berry. "Watch out for the bullet ants. If they bite you it feels like a bullet has gone through you," Stephane said as I crouched close to a spider web to get a photo. I had not seen the line of the five-centimetre-long black monsters at my feet. Even as he warned me, they were swarming around me. I moved away quickly but bang into a second line of red army ants. These were smaller and more difficult to avoid. They got into my socks in the tens and as we brushed them off my legs, a few were already on my neck. Three minutes and three insects had climbed 1.8 m. of me through my clothing and bitten me with ferocity. "Keep off these girls, they are vicious," Stephane knew the gender clearly. Most of these ants were sterile females. The queens were underground and the males were few and far between. The ones that were most easy to photograph were the leaf-cutter ants as they formed long lines carrying tiny green fragments of the forest into their subterranean warrens. With a leaf in their mandibles, they could not bite you as you crouched down to eye-level to get a shot.

WRIGGLING ON A PIN

As I watched Stephane, a Belgian cartographer, engineer, entomologist and the man who once found a lost city in Cambodia, crouch among the Panamanian bugs my mind flipped 30 years or more to my student days in Punjab. "If you find any insect that you don't know, pin it on a board and bring it to me," my teacher of biology had a simple rule with all bugs. After a few hundred mutilations, I learned to pin insects correctly and collect them for the classroom. They were hurriedly identified and thrown into closets never to be looked at again. The experience put me off entomology. Students were not taught to get down to the level of bugs but rather sweep them up in nets and canisters and pin them up like little trophies from the bush. And that is probably why there is hardly any serious conservation initiative in India that involves insects. Let's leave butterflies and dragonflies out of the mix and the field looks so vacant.

Some years ago at a Wildlife Trust of India board meeting we resolved to move the organisation away from being a Mammals Trust of India. Since then, projects on the

FACING PAGE Research studies on insects and arachnids have been limited in India, with most students only being encouraged to pin them on boards for identification.

ABOVE The Panama blonde Psalmopoeus pulcher is an arboreal species of tarantula that possesses a shimmery golden carapace and legs that contrast with its black abdomen.

Amur Falcon, Sarus Crane and Cheer Pheasant have seen an avian surge and those on the gharial and whale shark have taken in other classes of animals into the conservation net. But have we been able to get even one project on conserving a species or the habitat of insects or spiders? Should the tarantulas of the Nilgiris or the termites of our deciduous forests not deserve a conservation project?

"Don't forget the fireflies," Stephane reminded me as we relaxed after climbing a hilltop, lying flat on the grasslands watching dusk roll in with a glittering veil of fireflies drawn across its visage. "Look at that one, its pulse is twice that of the one on our left. It is a different species," he pronounced. "Oh! So it isn't just a beetle with more testosterone than the rest?" I joked. But what he told me made me feel more ignorant than ever. "The ones in the skies are the males, the ones in the grass the females. But sometimes, like over there, a male sits in the grass and pretends to be a female. If another male comes down, he does the simplest thing to get rid of the competition. He just eats him!"

I digested that piece of information while the beetle digested his rival. What if Vijayan had come face to face with the male munching firefly? What magic realism would Indian literature have been bestowed with? "Don't forget the 90 per cent of life," Stephane reiterated, as I brushed the last few ants off my Panama and returned home with a million small ideas on conservation.

The author is Executive Director, Wildlife Trust of India and Senior Advisor to the President, IFAW.
Of Folded Hands and Forked Penises

In June this year, a joint undercover operation conducted by the Wildlife Crime Control Bureau (WCCB), Wildlife Trust of India (WTI), and International Fund for Animal Welfare (IFAW) blew the lid off the illegal trade in hatha jodi, a ‘sacred plant root’ that is, well, something else entirely. Jose Louies and Prerna Panwar, members of the investigative team, present this cocktail of superstition, cruelty and barefaced fakery, served with a side order of just deserts.
When our undercover team first visited Acharya Kalki Krishna’s office in Noida, Uttar Pradesh, in late June, the former customs official was busy with another customer. Preeti (not her real name), a WTI investigator posing as an aspiring astrologer, and her companion, an undercover WCCB constable, were directed to the Acharya’s wife.

The Acharya’s occult business was clearly buzzing. Scattered around his office were several telecallers fervently working the phones, processing orders. There were a few young people on computers as well, keeping the self-styled spiritualist’s website purring, pushing the online sales of various tantric items.

Mrs. Krishna offered to examine Preeti’s kundli (birth chart) until her husband was free, but Preeti was all business. She was only there, she told the lady firmly, to evaluate the quality of the hatha jodi, siyar singhi and indrajaal – powerful charms and totems that any occultist-in-training would want in her arsenal.

A short while later the Acharya himself obliged, taking Preeti and the constable up to his warehouse on the third floor, revealing his treasure trove of ‘miracle products’. He also showed off his aura machine – a piece of electronic chicanery with two L-shaped arms that rotate through 180 degrees if one’s aura is charged. He demonstrated how Preeti’s depleted aura was enhanced to its maximum once she was handed the hatha jodi he was peddling. Finally, bringing his knowledge as a former customs officer to the fore, he told her how the products on sale should be shipped, which courier companies should be preferred and what she should write on the packages to allay suspicion.

Twenty-four hours later, the Acharya’s own aura went decidedly limp. A team of officials from the Uttar Pradesh Forest Department raided his office and arrested him. There were pieces of hatha jodi, siyar singhi, indrajaal and several other banned wildlife items in his office at the time. Documents indicating serious tax and identity fraud were also recovered.

THE SACRED AND THE PROFANE

Is life getting you down? Do you have problems with your spouse? Has career success eluded you? Are you caught up in a court case?

The occult has all the answers.

Magical items like siyar singhi (jackal horn, a boney protruberence that can occasionally sprout on the skulls of golden jackals) and indrajaal (variously described as a ‘sea fan’ or a ‘rare treeroot’), when purified and spiritually charged by a qualified tantric practitioner, can ward off the evil eye, activate the flow of positive energy, and bring you success and abundance and prosperity. (Or so the credulous believe.)

And then there’s hatha jodi. Also known as hath jor, literally translating to ‘clasped hands’, this is a rare plant root, a truly powerful and sacred totem resembling two hands clasped together in prayer.

Except none of that is true. Well, hatha jodi can resemble clasped hands the way a cloud can resemble a fluffy bunny, but it has no magical powers whatsoever, and it certainly isn’t the root of a plant.

It’s the uprooted penis of a lizard. The forked penis, also known as a hemipenis, of any of four monitor lizard species found in India, to be precise.

The team first heard about hatha jodi over a year ago. One of Jose’s informants, a seasoned covert operative, pushed a strange forked object across the table during one of their meetings.

“Do you know what this is?” he asked. Jose suspected it to be an animal product, but gave up after multiple wrong guesses.

“It’s the dried penis of a monitor lizard,” the informant said casually. “Type hatha jodi into your browser and search for it.”

That’s how we learned that the trade in this banned wildlife product is rampant across the country and internationally. Later investigations would reveal that in its guise as a rare root, hatha jodi was being sold openly on prominent e-commerce websites such as Amazon, Flipkart, Snapdeal, IndiaMart and Locanto. There were also (and still are) several websites set up with the express purpose of peddling
Items seized during the raid on Acharya Kalki Krishna’s office in late June. Several illegal wildlife products including hatha jodi and siyaar singhi were found in this well-established tantric practitioner’s possession.

this ‘miracle product’, some of them providing intricate descriptions of rituals and mantras required to ‘energise’ it so that it will have its full magical effect. There are still numerous YouTube videos that feature so-called holy men eulogising hatha jodi, doubtless leading desperate buyers to purchase it, unaware of its true nature.

So how does hatha jodi come to be? The informant told Jose that both male and female monitors are picked up indiscriminately from the wild – both sexes are useful for their meat, fat and skin after all – even though the males’ hemipenises are the sought after items.

Hunters seek out the lizards in jungles, where they trap them in their burrows or chase them into the hands of others waiting with nets, spears or traps. The monitors are usually not killed at capture; they are immobilised, their legs tied tightly together, their claws removed and their long tails entwined, noose-like, around their necks. They are then dumped in gunny bags.

Later, once the male lizards have been separated, they are picked up one at a time. The area around the hemipenis is burned while the monitor is still alive so that the organ protrudes further. The penis is excised with a sharp knife, cleaned and sun-dried.

The dealers know exactly what they are receiving from their supply chain; the creative spin that turns a hemipenis into a sacred root is entirely for the customer’s benefit. For this is not an item that is being consumed to boost libido, like tiger penis or rhino horn. It is intended to be a sacred object of worship.

It bears consideration: would people still buy hatha jodi if they knew that what they were placing in their shrines and worshipping was a lizard penis? Would they believe that the product of such cruelty, torture and pain could ever bring good fortune to its possessor?

TAMING THE TRADE

Monitor lizards are protected under Schedule – I of the Indian Wild Life (Protection) Act, 1972, and their trade is restricted under Appendix I of CITES (the Convention on International Trade in Endangered Species.)

The fact that hatha jodi is a monitor lizard hemipenis is now beyond dispute. The WCCB had samples tested by the Centre for Cellular & Molecular Biology (CCMB) in Hyderabad for confirmation. Once the results were in, we presented them to WCCB Additional Director Tilotama Varma. She was quick to respond: “Since the product in question is derived from monitor lizards, we should crack down on the trade immediately.”

Now the game was a foot. A WCCB inspector (name suppressed) was appointed to lead the team. Together we began exploring the various websites that were selling hatha jodi and other ‘miraculous’ wildlife items. As we got down to identifying the major dealers, it became clear that we were looking at a well-established market based around the occult, animal cruelty and deception.

Getting some face-time with these dealers was proving difficult though. The responses were standard: “Buy the product online, we’ll ship it to your doorstep. If you’re not satisfied we’ll initiate a refund.” No one was ready to meet in person.
Jain, a young man probably in his late 20s, tattoos running up both arms, was sitting on the floor when we arrived, browsing Facebook on an iPhone smuggled in from China. (Bought for just Rs. 3,000 he boasted, promising Preeti a similar deal.) A framed photograph of his grandfather with an indrajaal smiled down from the wall above him, amidst similarly benevolent images of various gods. Packages with tantric items ready to be shipped across the country and to international markets took up most of the space in the shop.

“I can't show so many hatha jodis here; let's go to the car,” Jain said nervously. Preeti was having none of it: “Have them brought here,” she said; “I’m not going to run around in this heat.”

“One of my major suppliers from Madhya Pradesh was arrested a few days back for selling hatha jodi and he is still in custody,” Jain confessed. “This item is banned in some countries and some enforcement people have created problems in the recent past.”

Of course, the team knew exactly which ‘enforcement people’ had created problems for Jain's supplier. “I am not here to waste time,” Preeti declared, feigning impatience.

Reluctantly, Jain signalled to another young man standing near the door. He disappeared, returning a few minutes later with a small box. Inside were 25 to 30 hatha jodis.

Jain carefully placed them on the table: “Madam, see, this one is straight, with a nice shape at the head level and bigger in size. My products are genuine you see, and they are of the best quality.”

‘Genuine sacred roots’ indeed. The team could barely keep a straight face at his sales pitch.

“You should send them by post, declaring them as gift items,” Jain continued confidently as the conversation turned to shipping. “Cover them in vermillion powder with camphor mixed in it. This will ensure that no one will touch them. Many of these westerners are very fearful about tantric products, they don’t want to do any close examination. If someone is carrying them in person, just keep them in multiple bags and no one will look twice. I have customers all over the world and I’ve been sending these items to them for a long time.”
The team fixed a date for delivery and left the shop with the promise that a boy would be sent to collect the goods soon. An hour later, we were sitting across the Divisional Forest Officer, briefing him about the product and the trader.

Our work done, we visited the Ajmer Sharif Dargah, seeking blessings for our crackdown on the unscrupulous trade in occult items sourced from animal products.

Everyone, you see, has something to pray for.

THE END GAME

Following our investigation, the WCCB issued a national level alert to all Chief Wildlife Wardens and state Forest Departments across India. Several seizures have resulted and the Union Minister for Environment has taken cognisance, asking the WCCB to provide regular updates on the hatha jodi trade.

There is, however, an urgent need to forge a closer collaboration between law enforcement agencies and prominent e-commerce and social media platforms to ensure that prolific and repeat offenders are targeted in a coordinated and effective manner. As things stand the consistent and wide-scale monitoring of illegal activity on such websites is largely absent and remains a challenge for law enforcement.

Given the scale of this problem at an international level, IFAW and WTI encourage a dedicated forum at a global and regional level with social networking bodies, e-commerce websites, governments, intergovernmental bodies and NGO partners. This would serve as a platform where specific issues and solutions concerning the regulation of the illegal wildlife trade currently being conducted through such avenues could be considered, including how efforts by different parties can be strengthened and synchronised.

For now, while well-known e-commerce platforms in India have acted by taking down and blocking the offending listings, a simple Google search will reveal that there are still several websites openly touting the miracles of hatha jodi, claiming that it is a plant-based product. The very nature of the trade, unorganised and hydra-headed, makes it difficult to stamp out entirely.

Until we effectively throttle the demand and educate people as to the true nature of hatha jodi and similar products, the supply lines will not be severed. The desperate will continue to be preyed upon by the duplicitous, and monitor lizards will continue to be tortured and killed.

Jose Louies is the Chief of WTI’s Wildlife Crime Control Division. Prerna Panwar is a Programme Officer with the division.
Mimicry is a sublime art. And some spider species have it down pat! On the following pages, you will be introduced to a few species of spiders belonging to four families that have evolved to mimic ants, from among the 12 families and nearly 300 ant-mimicking spider species known to science! Dr. Deepak Deshpande’s fascination for these little mimic-artists led him to observe, photograph and document the ant-mimicking spiders of his hometown in northwestern Karnataka at length.

Spiders and ants both belong to phylum Arthropoda. But the similarity between the two groups end at jointed appendages and chitinous skeletons. While spiders belong to the order Araneae in class Arachnida (joint-legged invertebrates with eight legs), ants belong to the family Formicidae in order Hymenoptera under class Insecta. Simply put, ants are insects, spiders are not!

WHY AND HOW DO THEY MIMIC ANTS?

These special arachnids employ a highly specific type of mimicry called myrmecomorphy (myrmex = ants, morph = appearance). Arthropods that mimic ants are called myrmecophiles and they prefer to live (temporarily or permanently) in and around ant nests, where they feed on ant larvae and pupae. They live and hunt on ground or low vegetation and do not use webs. While some spiders pirate insects captured by their hosts, some are even groomed by the host ants! The advantage of mimicking ants is two-fold:

a) Aggressive mimicry: Some (e.g. in the genus Myrmarachne and Amyciae) use ant-mimicry to hunt ants. Like a wolf in sheep’s clothing, these spiders will move around ant colonies, making a meal of one every once in a while!

b) Defensive mimicry (Batesian mimicry): This helps to gain protection from predators such as birds, wasps and ants, by resembling the aggressive and unpalatable ants morphologically and behaviourally.

All spider myrmecomorphs are morphological mimics, which is to say, they develop a variety of colour and body-form modifications to resemble a particular ant. Most are also behavioural mimics. Sometimes, the male and female of the same spider species may mimic a different ‘model’. Some spiders have several morphs, each mimicking a different morph of the model ant species, or different ant species.

Several spiders undergo transformational mimicry. For instance, tiny spiderlings mimic smaller ant species while adults copy larger ant species. The degree of resemblance varies in different spiders. Some are near-perfect mimics, while others somewhat resemble ants, but not a particular specific model species (imperfect or inaccurate mimics). Sometimes one species of ant maybe mimicked by two or more species of spiders.
Some of the ant-mimicking spiders’ morphological and behavioural adaptations include:
1. Appearance of having three body segments instead of two.
2. Body may be covered with reflective hairs to simulate the shiny bodies of ants.
3. Mimic ant parts like mandibles (by modifications in chelicerae), compound eyes (by having coloured patches around their simple eyes or eye spots on their head or abdomen) and stings (by special positioning of spinnerets).
4. Usually raise and wave their first or second pair of legs to fake ant antennae, and use six legs to walk. Also their limbs resemble long, narrow legs like that of ants instead of shorter, robust ones.
6. Ants identify kin and colony mates through a specific scent that specific chemicals impart. Any organism, even an ant of the same species, that enters a colony without a matching scent will be attacked. Many myrmecophile spiders fool the ants by acquiring cuticular chemicals similar or identical to those of their hosts (chemical mimicry).
7. Myrmecomorphic salticid spiders (salticids are jumping spiders) hunt prey by suddenly grabbing it in contrast to the method of non-mimetic salticids that usually leap on it, thus maintaining their disguise even when hunting.

Though in the larger context, this mimicry may be useful to the spider, it may also have to make some rather large compromises, such as a reduced number of eggs per egg sac on account of a more elongated cephalo-thorax, and a narrower waist as compared to other non-mimicking spiders of the same size. But they possibly make up for this by laying eggs more often within their lifetimes.

ANT OR SPIDER?
In the field, apart from anatomical differences, behavioural characteristics often help in differentiation. Ants, when disturbed, tend to respond aggressively to the threat, whereas spiders abandon their ant-like gait and tend to dodge the threat, hiding beneath a leaf or in a crevice or dropping down from the leaf with a silk drag line. If the creature turns to face and stare at you, it is an ant. Spiders often take refuge under a fine, temporary silk hide on a leaf surface.
This five to eight millimetre long spider mimics the ant *Oecophylla smaragdina* through colouration and dark eyespots on its abdomen. It also assumes the alarm posture of its model (abdomen and ‘antennae’ raised). The spider grabs its ant prey by inflicting a venomous bite and escapes getting caught by falling off the leaf with a silk safety line. Some use the body of their dead prey as a shield, holding it up between themselves and any other challenging ants, tricking them into believing that the spider is just another ant carrying a dead nest-mate.

*Myrmarachne plataleoides* mimics *O. smaragdina* in morphology and behaviour. While females morphologically look almost exactly like the model, males look like they are carrying a minor worker ant due to their elongated, forward-projecting chelicerae. Their heads have two black patches that mimic the large compound eyes of weaver ants. They weave a thin web on leaves and hide under to ambush their prey.

Of the 24 known species from India, some species in this genus mimic varieties of arboreal ants such as *Polyrhachis* sp. (right), *Tetraponera* sp. and *Oecophylla smaragdina* or ground-dwelling ones like *Harpegnathos saltator*.
The rather aggressive bicoloured arboreal ant *Tetraponera rufonigra* that nests within wood cavities is more convincingly mimicked by females of the *Myrmarachne* sp. than the male counterparts.

Many of these ant-mimicking spider species live in and around the nest of its prey ants. Since they do not quite resemble their models of the respective ant prey species morphologically, they rely on more sophisticated behavioural mimicry to dupe the ants.

Several species in *Castianeira* genus mimic daytime-hunting ants and are usually found beneath rocks and in leaf litter. The ones the author observed were found to be living among and mimicking the *Camponotus* sp. Some species are also believed to mimic mutillid wasps.
The Sanctuary Wildlife Awards were instituted in the year 2000 to recognise and draw national attention to the contribution of individuals working for the protection of wildlife and natural habitats in India. We invite nominations and entries from Sanctuary readers, which should be sent to reach us no later than **October 15, 2017**. Send entries to: Sanctuary Wildlife Awards 2017, 145/146, Pragati Industrial Estate, N. M. Joshi Marg, Lower Parel, Mumbai 400 011 or E-mail admin@sanctuaryasia.com

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**Lifetime Service Award**

**Criteria:** An individual whose life has been devoted to the protection of wildlife species or their habitats on the Indian subcontinent.

**Award:** Rs. **1,50,000**

We are in search of a true hero; someone whose life's purpose and respect for nature can be held out as an inspiration to the youth of India.

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**Wildlife Service Award**

**Criteria:** Individuals currently working in the field who have displayed extraordinary courage, dedication and determination in the arena of wildlife conservation.

**Five Awards:** Rs. **50,000 each**

We are in search of inspired wildlifers, forest employees, researchers, villagers or anyone currently involved in nature conservation in the field who have set personal standards for others to follow.

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**Nomination Form**

**Lifetime Service Award**

| Name of candidate: | | |
|-------------------|-------------------|
| Sex: M/F | Age: | Occupation: |
| Place of work: | |
| Address: | |
| City: | State: | Pin: |
| Tel: | E-mail: |
| Proposed by: | |
| Occupation: | |
| Address: | |
| City: | State: | Pin: |
| Tel: | E-mail: |
| Signature: | Date: |

**Wildlife Service Award**

| Name of candidate: | | |
|-------------------|-------------------|
| Sex: M/F | Age: | Occupation: |
| Place of work: | |
| Address: | |
| City: | State: | Pin: |
| Tel: | E-mail: |
| Proposed by: | |
| Occupation: | |
| Address: | |
| City: | State: | Pin: |
| Tel: | E-mail: |
| Signature: | Date: |

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**Guidelines:**
- Nominations must be kept confidential from the candidate.
- Nominations must be proposed and seconded by individuals/organisations who know the candidate well.
- A brief note (around 500 words) on the achievements that qualify the candidate for the award should be attached along with a biographical note (around 250 words) and photographs of the candidate at work.
- Details of specific instances/examples demonstrating the candidate's commitment together with details of the issue he or she is tackling.
- Press clippings/published material, if any, by or about the candidate or the candidate's work may be included.
- Any other supporting material for the benefit of the judges may be included.
Green Teacher Award

Criteria: An individual currently working to communicate wildlife and conservation values to students in Indian schools or colleges.

Award: Rs. 50,000

We are in search of an individual with a missionary zeal who is setting an example for other teachers to follow. Creativity, leadership qualities and a proven track record of working with young persons in a rural or urban setting is imperative.

Wind Under the Wings Award (Rs. 25,000)

Criteria: An Indian organisation that has supported an individual who has made a difference. We are in search of an institution that encourages naturalists, conservationists, journalists and/or other professionals to defend nature by making resources available and by providing the intellectual space for people to follow their dream. Attach a separate sheet with details of the organisation and its work.

All awards are subject to the following conditions

The contest is open to everyone except Sanctuary, DSP Blackrock and IndusInd Bank employees, or those directly associated with the organisation of the contest. The winners will be chosen by a panel of judges, appointed by Sanctuary magazine, whose decision will be final. In the event that entries do not meet the judges' standards, the organisers reserve the right to refrain from making an award.

SUBMIT YOUR NOMINATIONS ONLINE NOW:
www.sanctuaryasia.com
There is no better word to describe diatoms than 'perfection'. The stunning symmetry that the outer cell walls or frustules of this class of single-celled algae attain is other worldly. Here, you see a pennate diatom, which is bilaterally symmetrical as observed under a Scanning Electron Microscope (SEM) at x4000 magnification. At this level of enhancement, even the seamless arrangement of pores on the exterior is clearly visible. Lying enclosed within these perfect walls is the single-celled body of the alga, well protected and hidden!

*Note: This is a falsely-coloured SEM micrograph.*
ON THE BEAT

A sense of rhythm in the animal world is not a newly-discovered aspect of animal behaviour. Chimpanzees, it has been observed, resort to occasional drumming. But there is another species that uses tools to generate beats. Apart from humans that is! It is the Palm Cockatoo or the Great Black Cockatoo Probosciger aterrimus, a large member of the cockatoo family native to New Guinea (Indonesia and Papua New Guinea) and restricted to the northern Cape York Peninsula in Australia. So far, tools were known to be used by animals for survival tasks such as finding food. But Palm Cockatoo males have been recorded using sticks and seed pods to drum against hollow branches of trees in consistent, steady beats in order to impress mates! The researchers observed this riveting behaviour in 18 individual birds in northern Australia. They found that the sounds each individual produced using these tools remained consistent, thereby exhibiting a rather refined sense of rhythm and an understanding of being heard over a larger area. So this makes Homo sapiens and Probosciger aterrimus two of the only known species to create music using tools!

Apart from humans, the Palm Cockatoo is the only other species known to create music using tools.

GUTTED SURVIVORS

Some things are simply too hard to digest. Literally and figuratively! For instance, coming out alive after being eaten, swallowed and defecated! Yes, there are ‘freaks’ of nature, which survive the arduous journey in and through a predator’s gut. Various species of snakes, snails, newts, worms and a host of marine animals such as seed shrimps and mussels have been known to survive being consumed by their respective predators. Caenorhabditis elegans, a nematode worm, has been found alive within the intestines of slugs. In one bizarre instance in 2012, biologists in East Timor, Southeast Asia, witnessed a brahminy blind snake emerging from a common Asian toad’s anus! How it was able to withstand powerful acidic gastric juices and oxygen deprivation inside the digestive tract of the toad is best explained through plausible, yet unproven theories. We know that small animals and larvae can make it through predators’ bodies alive and in one piece, but we always thought it impossible for larger animals. Yet, large snails consumed by birds such as Mallards have proved otherwise. Mussels often escape being digested by sea anemones on account of their tightly-sealed shells. And would you believe, some of these ‘victims’ such as nematode worms voluntarily get consumed! It even provides some animals such as certain snail species an evolutionary advantage, helping it disperse by riding in the guts of birds, spreading its genes far and wide! Welcome to our bizarre world!

Did You Know?

Despite their morphological likeness to rodents, tree shrews actually belong to a separate taxonomic order Scandentia. They are in fact more closely related to primates, bats and colugos (flying lemurs).
**Muscle Power**

Chimpanzees exude more muscle power and strength than humans. But how and why? Studying the thigh, calf, pelvic and hind muscles of chimps at the State University of New York at Stony Brook, researcher Matthew O’Neill and his colleagues found that at the individual fibre level, the muscle design and function was almost the same as humans. On further study of muscle tissue samples on different chimpanzee cadavers, it was found that human muscle contained about 70 per cent slow-twitch fibres (MHC) I, and 30 per cent fast-twitch fibre (MHC) II. Chimpanzee muscles comprised 33 per cent slow-twitch fibres and 66 per cent fast-twitch fibres. Translated this means, fast-twitch fibres produce more force in a very brief span of time, but tire faster and the other way round. The chimp muscle is about 1.35 times more powerful than human muscle, they found. Another way of putting it is, through the course of evolution, the human branch of primates opted for endurance over strength by having more stamina in terms of covering longer distances in search of food.

**Did You Know?**

It is believed that poison dart frogs, one of the planet’s most toxic organisms, acquire this potent toxicity from the different insects they consume!
The possibilities of life found in the deep bosom of our oceans never fails to astound. Take for example a newly-discovered species of carnivorous sponge that lives in the North Atlantic! Until now, most sponges were known to be passive filter feeders: the surrounding water passes through their porous bodies, which trap nutrients in the process. But, *Cladorhiza kenchingtonae* is different. This sponge prefers meat. Though originally discovered in 2010 by research scientist Ellen Kenchington (whom the species is named after) and a team of researchers from Fisheries and Oceans Canada, it was only recently in the news for being described. Found at a staggering depth of 3,000 m., close to volcanoes and deep-sea vents, this animal grows to lengths of up to two metres, with metre-long branches, equipped with tiny, hook-like glass spicules. It feeds on passing zooplankton. In 2014, scientists exploring the deep, mysterious seas off the coast of California found more carnivorous sponge species. Four to be precise. More probably await discovery.

**AWAKENING OF THE FROZEN DEADLY**

We have no idea what lies frozen in ice sheets and permafrost. What we do know is that several bacteria and viruses, some of them deadly, lay dormant waiting to come back to life from these frozen depths. We got a taste of this lethal dose in August 2016, in Yamal Peninsula in the Siberian tundra, when dormant anthrax from the frozen carcass of an affected reindeer was released when high temperatures melted the permafrost. Over 20 people were affected, including a 12-year-old boy who died. Melting of permafrost is not unusual. On average, about 50 cm., of permafrost melts each summer, but with galloping global warming, older layers underneath are being exposed, thawing and melting with rising temperatures. And it is not just anthrax. Other known dangerous viruses and microbes such as those causing small pox and bubonic plague lie buried in Siberia, dormant. Fragments of RNA of the Spanish flu virus from the 1918 epidemic have also been retrieved from graves in the Alaskan tundra. In 2005, NASA was able to completely revive bacteria encased in a frozen pond in Alaska for 32,000 years. That was when woolly mammoths still roamed the land. Science can now revive even eight million-year-old bacterium lying dormant in the ice of Antarctica! Makes you wonder what else lies in wait in all this ice, ready to awaken.

**SOIL THAT’S THERE**

Ever wondered where trees take root? Where water that feeds our rivers get stored? Where do all things go when they die? Where life on land began? In the soil, of course!

If there ever was an underrated, under appreciated constituent of our planet, it has to be soil. One fourth of all known species live within or on soil. But where did soil come from? Scientists suggest that some 4.5 billion years ago, gravity pulled together clouds of dust and gas into a tightly-swirling mass, to lay the foundation of our solar system. The proto-Earth that formed then was covered in the clay-rich terrestrial soil, which evidence suggests came from the meteorites called the carbonaceous chondrites, which date back to when the solar system formed! The constant battering our young planet received at the hands of meteorites for several years before it began to stabilise, around 3.8 billion years ago, would surely have changed the face of the soil. When the lakes and seas formed, the rocks weathered and eroded adding to the soil and minerals, where the first life on Earth was soon to be born millions of years later. Since then, and until now, soil has been sustaining us, protecting us from floods, storing nutrients, decomposing the dead and even regulating climate!

**Did You Know?**

The cheetah, Iriomote cat, flat-headed cat and the fishing cat are the only four species of cats, which cannot retract their claws!
WILD CHHATTISGARH
Edited by Bittu Sahgal and Lakshmy Raman

Published by Sanctuary Asia

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SCIENCE AND CONSERVATION OF WILDLIFE POPULATIONS

By Dr. K. Ullas Karanth
Published Natraj Publishers
Hardcover, 451 pages, Rs. 895/-

Wildlife conservation has become more robust over the years, thanks to visionaries and pioneers who paved the way. Dr. K. Ullas Karanth is definitely among the giants of wildlife conservation, who introduced path-breaking scientific study methodologies to meld with conventional and unconventional techniques of on-ground research, sampling, modelling and animal population estimation.

Though Ullas Karanth’s past publications and a large part of his work have been tiger-ecology centric, Science and Conservation of Wildlife Populations is different. It is a compendium of scientific publications that he has authored along with other leading biologists, ecologists and conservationists in renowned international books and journals encompassing studies on other predator and prey species. This book is an effort to bring to readers current advancements and progress in research and studies enabling conservation management actions of carnivores.

The book, its language, and the undertone are clearly targeted at conservation scientists with at least a fundamental working knowledge of wildlife animal population, ecology, statistics and genetics. It is quite helpful then that the book starts off with the chapter ‘Wildlife Population Monitoring: A Conceptual Framework’ authored by Karanth and James D. Nichols, introducing us to contemporary wildlife population estimation methods and models. My one grievance I would like addressed would be the lack of an index in the book, as at several points in the course of reading the book, I found myself needing to refer to earlier pages. It was cumbersome sifting through hundreds of pages to find the required reference.


Science and Conservation of Wildlife Populations is definitely a welcome reference book, particularly for those engaged and hoping to engage in carnivore population ecology anywhere in the world. Having said that, reading the work and advice of a stalwart such as Dr. Karanth is always thought-provoking and informative. Read it to get an idea of how wildlife population estimates are achieved, the science behind it, what the obtained results tell us and the changing face of conservation. Because it is important.

Reviewed by Purva Varyiar

CHASING CORAL

Directed by Jeff Orlowski
Runtime: 93 minutes, Release date: July 14, 2017,
Documentary winner at Sundance Film Festival

“The corals were fluorescing. They were glowing. The incredibly beautiful phase of death. It feels as if the corals are saying look at me. Please notice.”

Please notice. Richard Vevers words conspire with the staggering visuals of the glowing corals. The exquisite corals of the New Caledonia islands in Australia enthral viewers with their vivid purple, blue, green and yellow colours. As alive as the ocean seems, bursting with life and colour, the reality remains a far cry.

The glimmering corals had been producing a chemical sunscreen to protect themselves from heat waves known to cause mass bleaching and subsequent coral die-off. Their luminescence was in fact an ominous warning. Take notice.

While governments grapple with the very idea of global warming, Jeff Orlowski, the director of Chasing Ice (2016) presents the bold evidence of climate change in his devastatingly-powerful documentary – Chasing Coral. Armed with unprecedented technology, Orlowski along with his crew, chases the phenomenon of coral bleaching in the Bahamas, Bermuda, Hawaii and the Great Barrier Reef. The film follows two human protagonists, Richard Vevers, a former British advertising executive and Zack Rago, a fresh-out-of-college camera technician and a self-acclaimed coral enthusiast. Vevers who had ‘had enough of selling toilet paper’ decided to begin a new career in undersea photography. However, after witnessing the steady disappearance of his favourite marine life – corals, Vevers sought out Orlowski. Together, along with the affable Zack Rago, they set out to document the alarming rate of coral bleaching.

From the intoxicating colours of the corals and their distinctive shapes, the alluring imagery of the film quickly moves to chilling, as the corals are subjected to the phenomenon of bleaching. The sense of urgency is palpable. The reality of climate change is observed when the rise in ocean temperatures result in the subsequent decaying of corals, leaving behind white skeletons in place of the once fertile haven teeming with life. The transition is downright petrifying, as the camera pans out to capture the expanse of the lifeless graveyard.

A striking moment in the film is when viewers confront its own kind’s apathy. The divers are seen diving from the deck of a party boat into the glowing section of the Great Barrier Reef. The revellers seem oblivious to the divers’ distress. “This is one of the rarest events in nature and everyone is oblivious,” states a diver as he makes his way through the party.

As typical as it is of humanity to live in oblivion, Chasing Coral, with its depth of emotion, is a brave effort in getting people to take notice.

Reviewed by Anadya Singh

More at www.sanctuaryasia.com | Reviews
Tribal communities in India have traditionally lived in close association with forests. However, what was once considered sustainable extraction of forest resources can no longer be viewed under the light of peaceful coexistence. Tribal dependence on forests is being increasingly seen as leading to forest degradation and depletion, and thereby continuing a vicious cycle of poverty and suffering. Under such circumstances, these communities too are compelled to find other sources of livelihood.

Empowering tribal communities living in and around the Pench Tiger Reserve in Madhya Pradesh by providing them education and employment skills is the mission that drives the Kohka Foundation. What began as a voluntary activity by former banker Sanjay Nagar at a government school in Kohka village near the Pench Tiger Reserve five years ago, took the shape of a non-governmental organisation in 2014.

While Kohka Foundation’s six-member team builds awareness for women’s welfare, health and community welfare, skill development and environment conservation in 35 villages in Seoni district, their primary focus is on secondary education. Anando, a flagship initiative supported by the Light of Life Trust that imparts quality education and vocational skills to students, has brought about a significant reduction in school dropout rates. "It is wonderful to be part of the positive change that the Foundation is bringing in this region. The change is visible and it is not only children..."
Volunteering is one of the ways that Kohka Foundation engages visitors to the Pench Tiger Reserve in Madhya Pradesh. Those interested in teaching English, Maths or imparting computer skills to tribal students may contact:

Sanjay Nagar,
Founder and Trustee,
Kohka Foundation, B-302,
Venus Vasant Valley, Film City Road,
Malad (E), Mumbai – 400097.
Tel.: +91 9820282307
Email: Snagar2006@gmail.com.

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Weave your *magic*
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- *Sanctuary* promotes conservation photography as an article of faith. We believe that powerful, evocative images have the power to draw out supportive human responses. Photography is an art form that has helped protect wildernesses virtually from the time cameras were invented. Conservation photography is a blend of technical skills, natural history knowledge, field experience, and an innate desire to protect wild nature. At *Sanctuary*, we marry still images and stirring words to activate human hearts and minds.

- Camera-trap, remote-triggered images are eligible. Location, date and time must be mentioned, however, the precise location will not be revealed to the public. Judges will look for originality, technical quality, subject matter, aesthetics, rarity, mood and action.

- *Sanctuary* has zero tolerance for unethical practices that put the subjects at risk. No photographs of zoo/captive animals or nesting birds will be accepted. No Great Indian Bustard (GIB) photographs shot after April 1, 2013, are eligible. Submit your entries at www.sanctuaryasia.com or send them by courier to Sanctuary Asia, 145/146, Pragati Industrial Estate, N. M. Joshi Marg, Lower Parel, Mumbai – 400011. Terms and conditions apply. Before submission of entries please read these carefully at www.sanctuaryasia.com.

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THE URVI ASHOK PIRAMAL FOUNDATION PRESENTS

THE SANCTUARY WILDLIFE PHOTOGRAPHY AWARDS 2017

IMAGE: FEATHERWEIGHT, HEAVYWEIGHT – RED WEAVER ANT
PHOTOGRAPHER: RAMAN KULKARNI
THIRD JOINT PRIZE, THE SANCTUARY WILDLIFE PHOTOGRAPHY AWARDS 2016
Stop the Killer Highway through Corbett

Even as conservationists in Assam try to minimise wild animal roadkills on NH-37, a highway that obstructs the movement of wildlife from the flooded Kaziranga National Park to the safety of the Karbi-Anglong hills across the country, another killer highway has been foisted on us by the state of Uttarakhand.

The decision of the Trivendra Singh Rawat-led government to upgrade the unpaved Kandi road that meanders through the core of Corbett into a highway has invited criticism from across India. The proposed Kandi highway will connect the Kumaon division of the state to the Garhwal division, and reduce travel time between the two by a mere two hours. This decision goes against the 2013 formal recommendation of a committee from the Ministry of Environment, Forest and Climate Change to ban all new roads and the expansion of existing roads within India’s Protected Areas. It is especially galling as Corbett is India’s first national park, the first to be adopted under Project Tiger, is considered amongst the most tiger dense landscapes in the world, and adds richly to the state’s exchequer through wildlife tourism revenues.

The felling of trees for the project, the ensuing noise and pollution from the construction and then the relentless roar of traffic on the highway will devastate the sanctity of the park. Wildlife will be left susceptible to being run over by vehicles plying on the road; the fragmentation of the forest will disrupt connectivity for dispersing tigers; and poachers will have easy access to parts of the park that were thus far difficult to reach.

Though linear alignments through India’s Protected Areas have repeatedly proven to be disastrous for wildlife populations, the state government maintains that the Kandi highway’s impact on the park will be mitigated by measures such as overpasses for wildlife. Experts though are unanimous in their cynicism of this idea given the country’s poor track record for implementing promised mitigation measures whenever Protected Areas are compromised by industries or governments.

To compound matters, another road project, upstream of the Ramganga river in Corbett, is currently underway. The construction of a 40 km. long road connecting Marchula to Bhaiyarain will destroy 13 ha. of forestland, and sweep sediment and debris into the gharial-inhabited and mahseer-rich waters of the Ramganga. It will also open up this part of the river to illegal sand and stone quarrying, which are already unregulated and rampant in the region. The project has neither environmental or wildlife clearances and makes no mention of its proximity to Corbett and the presence of Schedule I species in the area.

“A highway, and the consequent disturbance will destroy the park. No amount of mitigation can restore that wilderness, or ease the devastation on wildlife. This sends a terrible but clear message that we are willing to wreck even the most sacrosanct of our forests, and forsake our national animal. If we fragment and cut Corbett, move in men and machinery, pave it with roads... where will we stop?” asks conservationist Prema Singh Bindra, a former member of the State Board for Wildlife.

Sanctuary readers, please join us in demanding that Uttarakhand protects and preserves its unique natural treasures and stops the construction of roads within and around the Corbett National Park. Write a polite letter to:

**Shri Trivendra Singh Rawat**
Chief Minister, Uttarakhand,
4 Subash Road, Uttarakhand Secretariat,
4th Floor, New Building,
Dehradun – 248001.
or, send an email to:
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When Nilanjan Ray posted the image (see That’s Incredible on page 52) of a very, very rare sighting of an extremely pale, golden-white tiger in the Nilgiri Biosphere Reserve on the Sanctuary Asia Facebook group, many members were eager to dismiss the image as a fake one. Some other prudent members exercised caution in their comments, which we have listed below in the hope that our members won’t jump to conclusions when other members post an extraordinary image.

COMMENTS

It is actually not white, but just very pale in the coat colour. Its face and shoulders show orange for sure and I expect the body too. A pale-coloured tiger! Certainly unusual. I believe a similar one was captured in Corbett.

– Kay Hassall Tiwari, Tala

Congratulations on this insane discovery and for documenting it so well. As far as the comments go, all I can say is I wish to live in a world of hope, where we trust each other as a community to do the right thing. Of course, let’s do the due diligence that is required, but let’s not discredit without any thought about the hard work of an individual and the miracle that is nature. Kudos Nilanjan Ray!

– Vinay Subramanayam, Mumbai

This tiger is just one of those 2,000 odd Bengal tigers in India that we all are fighting to save. Yet, its genetic mutation has always fascinated us! We have every right to doubt the existence of such a phenomenon, but let’s not pin down someone with harsh comments. Let us accept it… science has always surprised us. Did we know until the mid-2000s that an alien-like purple frog existed within our midst? Last month an albino chital was spotted in Kabini. Even though we have not heard of it earlier, the possibilities of finding such tigers do exist. There is a world beyond our understanding, camera traps and safaris! Perhaps Nilanjan Ray was blessed that day!

– Sunil Nair

How fantastic our country is and how amazing no one had sighted this earlier - God protect our forests and hope this wonderful animal will be left in peace and remain in peace.

– Usha Thorat

Fantastic record and incredible that you were able to photograph it!

– Srikanth Sarathy, Mumbai

TWEETS

I remember working on an article in @SanctuaryAsia with Bittu Sahgal on how mahouts ‘break an #elephant’ in #India. Unimaginable cruelty.

Swati @swati_h

Updated my post on Facebook after inputs from @SanctuaryAsia and Belinda Wright. Very pale tiger (and rare) not white/albino. Talked to Forest Department too.

Nilanjan Ray @nilanjanray

Heartening to have political leaders with deep passion for wildlife. Progress made. #GiantRefugees

Aditya Panda @AdityaPanda

Investing in #EarthHeroes. The best investment plan. Thank you @SanctuaryAsia for bringing heroes to us. #MudOnBoots

Dia Mirza @deespeak

Great job/article, very informative, about this magnificent nocturnal primate: Bengal slow loris, and its conservation. Thank you Swapna N.

Ivonne Alejandra @ivonivy

Awesome tweets on mating and wildlife! Go and follow @SanctuaryAsia for some gyaan on biodiversity and conservation.

Nidhi Singh @GirlOfHills

Everyone should follow @SanctuaryAsia as they are posting kick-ass images of various species with detailed info of their mating behaviour.

Rinkita Gurav @rinkitagurav

@SanctuaryAsia is tweeting some incredible photos of wild creatures in the throes of passion. Great response to ‘recent events’.

Vivan Sorab @VivanSorab

True, @SanctuaryAsia is all aces. Be it the campaign to save elephants or their annual picture competition. Ditto for @snowleopards.

Aditya @TheRadiowala

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Readers’ Forum

Sanctuary Asia, August 2017

with tigers. Of the many questions that we asked them, one of the important ones was, ‘Do you think the tiger must be protected?’ Out of the 57 people we surveyed, 53 answered in favour of the tiger. Five of these individuals had been attacked by tigers previously and three were left crippled. When the question was posed to the nearest relatives of the 42 individuals killed by tigers, the poor, illiterate villagers’ opinion was that if the tiger survives, then the Sundarbans will live, which made us understand their sensitivity towards nature.

Dr. Partha Pratim Dube,
Serampore

UNFRIENDLY TOURIST HELP DESK
Keen on visiting the Periyar Tiger Reserve, I booked the Jungle Camp programme scheduled for May 10, 2017, facilitated by the Periyar Foundation through its website on May 8, 2017. The cost of the programme Rs. 5,525 was immediately debited from my bank account and I received my ticket via email. When I called the Periyar

Anand Madabhushi, Mumbai

Thank you for sending me the magazine. It had a very good collection of photographs and articles. I am very excited about the release of your latest coffee-table book on Chhattisgarh.

Vishal Trehan, Durg

Passion Reflected

The June 2017 cover and commentary reflect my passion and love for elephants. I grew up in the temple town of Tirupati in a street leading to the temple. The priests would fetch water from a waterfall for the holy bathing of the deities every morning, riding on these elephants. My grandmother would arrange 16 rides over 16 days for a payment of Rs 1. Sitting on the neck, I enjoyed the typical swaying of this huge animal. I fancy myself having an elephantine memory. I have also enjoyed my visits to Kaziranga, sighting elephants of all genders and sizes.

Anand Madabhushi, Mumbai

Crowdfunding for Conservation

Kudos for setting up the Mud on Boots Project. Congratulations to the project leaders too, who implement this initiative on the ground. I hope that their conservation goals are met, and we all collectively move towards safeguarding what little remains of our precious ecological heritage. At times I feel despondent and wonder whether we will ever be able to protect and conserve our landscapes and fellow species, for future generations. As a parent of two young kids, that worry afflicts me even more these days. But then, I see the sheer grit and will shown by groups like Sanctuary, and hope shines bright again! It is a pleasure and privilege to be a part of such a laudable endeavour.

Vijay Ramnath, Cochin

I Wonder

Sitting beside a moving rivulet and gazing at the shimmering water I wonder, if I could still splash in its water years after.

Ankita Das, Dehradun

People for Tigers

Around a year ago, we conducted a survey in the Samsergunj area of north Sundarbans among people prone to conflict with tigers. Of the many questions that we asked them, one of the important ones was, ‘Do you think the tiger must be protected?’ Out of the 57 people we surveyed, 53 answered in favour of the tiger. Five of these individuals had been attacked by tigers previously and three were left crippled. When the question was posed to the nearest relatives of the 42 individuals killed by tigers, the poor, illiterate villagers’ opinion was that if the tiger survives, then the Sundarbans will live, which made us understand their sensitivity towards nature.

Dr. Partha Pratim Dube, Serampore
More at www.sanctuaryasia.com

Banking on Banke
Before its declaration as a National Park, Banke in the dry Churia region of Nepal was considered too degraded and unsuitable for tigers. However, a mammoth effort by state authorities, non-government organisations and local communities saw the resurrection of this wilderness and consequent rise in tiger numbers. A team from WWF-Nepal share the recipe to Banke’s success.

Appa’s Mangroves
Twenty-year-old adventurer and wildlife filmmaker Malaika Vaz travels to the Krishna Wildlife Sanctuary in pursuit of fishing cats... and to meet Appa Rao Allarpathi, the man who led a community movement to restore 10,000 ha. of degraded mangrove forests. She writes an evocative piece on this quiet conservation success story.

Sanctuary Wildlife Photography Awards 2017
Sanctuary promotes conservation photography as an article of faith. We believe that powerful, evocative images have the power to draw out supportive human responses. We present the winners of the Sanctuary Wildlife Photography Awards 2017.

Bustards in the Thar
An opportunity to volunteer on the Wildlife Institute of India and Rajasthan Forest Department’s annual survey of the Great Indian Bustard brings young conservationist Vaishali Rawat face-to-face with the challenges of conserving this critically endangered species and its grassland habitat.

THE MUD ON BOOTS PROJECT
On July 20th, Sanctuary’s Cara Tejpal concluded a successful crowdfunding campaign for the Mud on Boots Project. The 45-day campaign saw the support of 241 individual donors and surpassed its target of ten lakh rupees! The funds raised will be used to start two new projects and build capacity within the existing 12 projects. In other news, Project Leader Anoko Mega from Arunachal Pradesh has been nominated for a CMS VATAVARAN award in the amateur category for his short film on the Mehao Wildlife Sanctuary. Congratulations, Anoko! In Assam, Project Leader Manoj Gogoi has been instrumental in rescuing wildlife trying to escape the flooded Kaziranga National Park and regulating vehicle speed on NH-37 for the safety of wildlife. His work has won him the respect of the Forest Department and the entire community. We salute you, Manoj! Our team would also like to thank the Wildlife Trust of India for making Vivek Menon’s Indian Mammals: A Field Guide available to us at a discount. We were able to purchase copies of this important field guide for nine of our Project Leaders, who are putting them to good use at their respective field sites.

To support the Mud on Boots Project, a Sanctuary Nature Foundation programme designed to enable and empower grassroots conservationists, write to cara@sanctuaryasia.com.

Next Issue

Sanctuary Asia, August 2017
Turning Planet Earth Turtle?

This green turtle *Chelonia mydas* was killed in Sulawesi, Indonesia. A victim of wildlife trafficking, only its carapace was taken, discarding its head and flippers. *Homo sapiens* is doing the same thing to forests, rivers, corals, coasts, wetlands, deserts, grasslands and mountains... turning planet Earth turtle.


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K&L Amr 07/17
FOREVER STRIPES

The survival of the tiger and all the creatures that share its habitat, including leopards, wild dogs, elephants, rhinos and uncounted plants, insects, birds, reptiles and herbivores, depends on whether humans can set aside vast parcels of land for nature.

The wildlife conservation movement needs the support of us all. For more information on how you can help, or to pledge your support for those who work 24x7 to protect our wildlife, write to Dr. Anish Andheria (Director, Wildlife Conservation Trust) at anish.andheria@gmail.com or visit www.wildlifeconservationtrust.org

Issued in the interest of wildlife conservation