

A modest menagerie to a sprawling refuge for wildlife – the story of Vandalur Zoo

In 1855, Edward Balfour, Director of the Government Central Museum in Madras, proposed a collection of live animals for public display on the museum premises. In 1861, the government relocated the animals to the People's Park near Central Station. Limited space and pollution from the nearby industries forced the shift to Vandalur

Geetha Srimathi

The Arignar Anna Zoological Park, popularly known as Vandalur Zoo, is one of the largest and most prominent zoological parks in South and Southeast Asia. Spread across 1,490 acres and home to more than 2,300 animals of 172 species, it plays an important role in wildlife conservation, education, and public engagement. This wildlife refuge on the outskirts of Chennai has a story that dates back to the 19th Century.

The origins of the zoo can be traced back to 1855, when Edward Balfour, Director of the Government Central Museum in Madras, proposed a collection of live animals for public display. Inspired by the educational value of the newly established museum, Balfour envisioned a space that could inform and entertain members of the public.

Nawab's private collection

With the support of the Nawab of the Carnatic, who donated his private collection of animals, the zoo started with more than 300 animals in its first year. Initially, this small menagerie was located on the museum premises in Egmore and functioned as an extension of the museum, according to an article published in *The Hindu* on October 31, 1955. Though modest when compared with the London Zoo, which was established in 1822, it was a significant step for the region.

As the number of animals grew, the museum became impractical. Residents nearby began complaining about the noise, and concerns were raised over hygiene and safety. In 1861, the Madras government decided to relocate the animals to the People's Park near the Chennai Central Railway Station. The zoo came under the management of the Madras Corporation five years later, and it remained there for over a century. By the 1970s, however, the urban zoo was struggling. Limited space and the increasing pollution from nearby industries and infrastructure meant animals needed a more suitable environment.



Refuge for wildlife: Chief Minister M.G. Ramachandran declared open the Vandalur Zoo on July 24, 1985. The government chose the Vandalur Reserve Forest on the recommendation of a committee led by zoo expert Reuben David. The site's natural landscape of hills and scrub forests was considered ideal for an open-range zoo. THE HINDU ARCHIVES

In the early 1970s, the Tamil Nadu government began searching for a new site. It considered several areas, including Guindy, Pallikaranai, and Nanmangalam. Eventually, it chose the Vandalur Reserve Forest, based on the recommendation of a committee headed by Reuben David, a renowned zoo expert from Ahmedabad. The site's natural landscape of hills and scrub forests was considered ideal for an open-range zoo.

An article published in *The Hindu* on September 30, 1973, said a decision was taken by the Tamil Nadu Cabinet to shift the zoo to Vandalur. "The Chief Minister, M. Karunanidhi, said work connected with the setting up of the zoo at the new place, estimated to cost ₹2.5 to ₹3 crores, would be started soon," it said.

In 1979, the AIADMK government approved the new zoo project at a cost of ₹3 crore, with Phase I budgeted at ₹1.05 crore. Plans were made to acquire additional land, bringing the total area to over 814 acres. Water supply, a major concern,

was addressed by sourcing from nearby municipalities and local wells.

Transit enclosures opened

To prepare for the relocation, transit enclosures were constructed along the Vandalur-Kelambakkam Road, and a fodder bank was established. The zoo's design was based on international best practices. In 1981, Director S. Subbarayalu Naidu and Deputy Director N. Ramesan visited the U.K. and Europe to study modern zoo layouts. Architect Raja Singh created the master plan, and construction was done by the Tamil Nadu Construction Corporation.

By 1982, the first enclosures were ready, and animals began arriving from the old Corporation Zoo. In total, 155 animals, including sambars, macaws, hippos, and zebras, were carefully moved to their new home. Roads and pathways were laid, and a thoughtful 'prey-predator' theme was introduced with the natural terrain of the

More recently, efforts were made to restore the Otteri Lake in the park. Executed as part of the Tamil Nadu Wetlands Mission, this project enhanced the lake's water-holding capacity, improved the habitat for both resident and migratory birds, and benefited the surrounding ecosystem

Chinna Kunnumalai hillock, a design in which visitors could view the enclosures while walking along a circular path. Water supply from the Palari through the Alandur municipality finally began flowing into the park in July 1984 to support the zoo's infrastructure.

On July 24, 1985, the new zoo was inaugurated by Chief Minister M.G. Ramachandran and named after his political mentor C.N. Annadurai. The entrance, designed a year later by noted film art director P. Angamuthu, resembled a rocky mountain with a waterfall and cave entrance, complete with ambient jungle sounds, to add an immersive touch for visitors. In 2001, the Arignar Anna Zoological Park expanded its mission by establishing a rescue and rehabilitation centre for abandoned or confiscated wild animals. With an additional 92.45 hectares of land acquired, the zoo grew to over 600 hectares, strengthening its role as a sanctuary for wildlife in need.

Well-equipped veterinary centre

More recently, efforts were made to restore the Otteri Lake within the park. Executed as part of the Tamil Nadu Wetlands Mission, this project enhanced the lake's water-holding capacity, improved the habitat for both resident and migratory birds, and benefited the surrounding ecosystem, with increased biodiversity among the local flora and fauna. Now, the zoo has a dedicated rescue and rehabilitation centre where wild animals that are injured or in distress are brought from across the State for treatment because the veterinary centre is equipped with advanced facilities.

A philatelic tribute to Earth Day

Dr M R Ramesh Kumar

Every year on April 22, Earth Day marks the anniversary of the birth of the modern environmental movement, which began in 1970. India is home to over 91,000 species of animals and 45,000 species of plants that thrive across its diverse landscapes — including mountains, forests, seas, rivers, other water bodies, and even deserts. However, many of these species face serious threats to their survival, and urgent action is needed to protect them. Nearly 1,000 species of primates, birds, mammals, reptiles, amphibians, fish, spiders, corals, trees, and plants from India are currently listed on the International Union for Conservation of Nature's (IUCN) Red List. Many of these species are endemic to the region and, without protection, could disappear forever.



The Theme for Earth Day 2025 is 'Our power, our planet'. The State of Goa has reported extent of recorded forest area (RFA) 1,225 sq km which is 33.09 percent of its geographical area. The reserved and unclassified forests are 20.65 percent and 79.35 percent of the recorded forest area in the State respectively. Goa's state animal is the Gaur, the state bird is the Ruby-throated yellow Bulbul, which is a variation of Black-crested Bulbul, and the state tree is the Matti.

The important forests products are bamboo canes, Maratha barks, chillar barks and the bhirand. Coconut trees are ubiquitous and are present in almost all areas of Goa barring the elevated regions. Much deciduous vegetation, including teak, sal, cashew and mango trees, is present. Fruits include jackfruits, mangos, pineapples and blackberries.

Foxes, wild boars and migratory birds are found in the jungles of Goa. The avifauna includes kingfishers, mynahs and parrots. Numerous types of fish are also caught off the coast of Goa and in its rivers. Crabs, lobsters, shrimps, jellyfish, oysters and catfish form some of the piscine catch. Goa also has a high snake population, which keeps the rodent population in control. Goa has many famous National Parks, including the renowned Salim Ali bird sanctuary.



Moths and Butterflies

Several Picture Postcards on the Moths and Butterflies of have been released. But I am presenting only of that the state butterfly, Malabar Tree Nymph. This has special Augmented Reality cancellation, which was released for the first time.

Birds of Goa

A series Picture Post Cards on the Birds of Goa was released by the Department of Posts, Goa Postal Division. One of the specialities of these Picture Postcards are they are with QR Scan code, which will give more details of the individual birds.

Goa has several wildlife Sanctuaries such as Mollem National Park, Bhagwan Mahavir Wildlife Sanctuary, Cotigao Wildlife Sancturay, Bondla Wildlife Sanctuary, Dr Salim Ali Bird Sanctuary, Madei Wildlife Sanctuary, Netravali Wildlife Sanctuary etc.

Two philatelists, R R Radha Bai and Dr M R Ramesh Kumar, former President of GPNS with Benhail Antao, who photographed all the snakes used in the set of 10 Picture Post cards. The Augmented Reality has been done by Lance Randall de Melo and the Graphics Designing has been done by Siya Nadkarni and Aslesh Kamat, both members of GPNS.

Olive Ridley Turtles

A special cover on the Olive Ridley Turtles which hatch their eggs in the various beaches in Goa. A couple of beaches in Goa are natural habitats for Olive Ridley turtles, and are the best spots to witness



including the king cobra, the common Indian krait, the coral snake, the Russell's viper, the saw-scaled viper and the bamboo pit viper.



this phenomenon. The popular beaches are Morjim in North Goa, while Galgibaga (sometimes called Turtle Beach), Agonda and Talpona are located in South Goa. These beaches were notified for protecting and facilitating turtle nesting in the 1990s.

ODOP Products

Under the Ministry of Food Processing Industries has formally notified Jackfruit based products for North Goa and Coconut based products for South Goa under the One District One Product component (ODOP) of Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme (PMFME). A special cover on the ODOP was released by the Department of Posts, Goa in October 2022.

(Dr M R Ramesh Kumar is a senior philatelist, Goa Philately and Numismatics Society)

Snakes of Goa

Twenty-three species of snakes are found in Goa. The non-poisonous variety of snakes include the common blind snake, the Russell sand boa, the Indian python, the Indian wart snake, trinket snake, Indian rat snake, golden tree snake, common wolf snake, chequered keelback, striped keelback, Indian gamma and common green whip snake. Among the few venomous snakes in Goa are the cobras,

Cheetah brothers make 1st kill in new MP home

'Felines feed fully on adult deer'

**RABINDRA NATH
CHOUDHURY**
BHOPAL, APRIL 22

Around 36 hours after they were relocated to the Gandhi Sagar Wildlife Sanctuary in Mandsaur district in Madhya Pradesh from Kuno National Park in the state, the two male cheetahs — Pavak and Prabhas — made the first kill in their new home early Tuesday morning.

The two South African cheetahs, a coalition, chased an adult spotted deer for around one and half km before successfully hunting it, a forest officer said.

The cheetah-duo fed on their prey fully. "Pavak and Prabhas hunted and killed an adult spotted deer early on Tuesday morning. This was their first kill in their new

home", Sanjay Raikher, divisional forest officer (DFO) of Gandhi Sagar Wildlife Sanctuary, told this newspaper.

The cheetah pair was relocated to the Gandhi Sagar Wildlife Sanctuary from the KNP at around 5:30 pm on April 20.

The two big cats were released in a special enclosure spanning around 50 sq km after they were shifted to the Gandhi Sagar Wildlife Sanctuary, chosen as the second home of cheetahs after the Kuno National Park.

"The two cheetahs explored the entire enclosure within 12 hours of their arrival in the sanctuary", Mr Raikher said.

According to him, the two cats were doing well and appeared to be adapting to the new environment.

Forest needs ponds to stop wildlife rush to city

Prashant Nikale

NASHIK

With the onset of summer, there has been an increase in the number of incidents of wild animals, especially leopards, coming to the city to quench their thirst. Environmentalists claim that if the Forest Department increases the number of ponds in the forest, the rush of animals towards the city can be stopped.

A leopard, along with its cubs, has taken shelter on the hills near Harnol-Harsul vil-

lage in Chandwad taluka. As leopards come to the village area at night for hunting and water, the residents are living amid an atmosphere of fear. Last month, on Mar 26, at midnight, two leopards were seen coming from the forest towards the human settlement in the Jayabhavani Road Artillery Centre area. Panic spread in the area after seeing the increasing movement of leopards. A cage was installed as the leopards were coming towards the human settlement.

Forest staff treat sick tusker at Koothamandi

COIMBATORE: Forest department staff with the help of a veterinarian started treating a sick tusker by placing fruits laced with medicines at Koothamandi near Sirumugai on Tuesday. Antibiotics and pain killer medicines laced with watermelon and banana were kept for the animal. The forest staff started treating the animal indirectly after locals informed that it was standing near the forest boundary due to an injury. Locals alleged that the animal was injured when the forest staff chased the animal by bursting crackers. However, the forest officials denied this. "If the animal was injured while bursting crackers, it could have bled. However no any external injuries were observed. Moreover, if the animal was injured by a country bomb (avuttukai), it would not be able to consume fruits or drink water. We suspect that the animal may be sick, which we can confirm only after examining him," the official added.



Leopard in Jawai, Rajasthan

As India gears up for its first night safari and adventure park in Uttar Pradesh next year, here's how travellers can channel their sense of curiosity and adventure in the meantime



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JUNGLE ADVENTURES AFTER HOURS

Ruchika Garg

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Did you know that the Uttar Pradesh government is constructing the Kukrail Night Safari and Adventure Park, about 9 km away from Lucknow? Inspired by the Mandai Night Safari in Singapore, this project worth ₹1,500 crore is expected to begin this month. Set to have 38 types of animal enclosures, an amusement activity area, a 7D theatre, an art gallery, and a

grand entry gateway, this project is only going to add to India's ecotourism landscape — projected to grow at an annual rate of 15.7% from 2019 to 2027, with a market value of \$4.55 billion.

Until then, tourists and wildlife lovers can enjoy noctourism, short for 'nocturnal tourism', in Indian national parks and wildlife sanctuaries.

Night safaris are permitted in "buffer zones" of national parks, located on the periphery of strictly protected "core

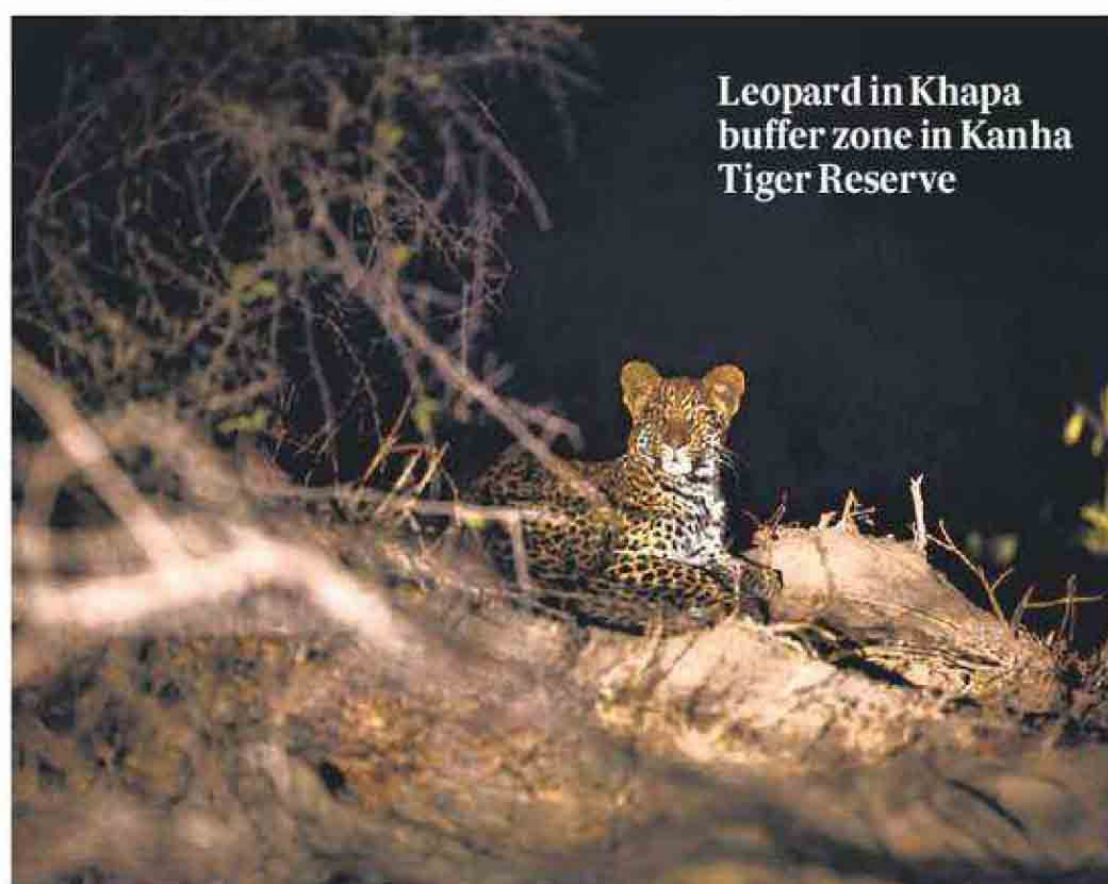
zones." These after-sunset tours are a great opportunity to spot animals like wolves or porcupines, which are rarely seen during the day. The jungle transforms into a different world at night with unique sounds, smells, and a heightened sense of mystery.

"We organise these trips in Pench and Kanha. In Pench, the dense teak forests, seasonal streams, and open patches are ideal for spotting nocturnal animals like palm civets, leopards, and Indian hares. In Kanha, night safaris in the Khapa and Khatia buffer zones have meadows and Sal tree forest trails where jackals, foxes, and jungle cats are commonly seen," says Gajendra Singh Rathore, managing

director, Jungle Camps India.

With fewer vehicles and a focus on wildlife sightings, the sensory experience is only amplified. According to experts, the safaris can cost anywhere between ₹6,000 and ₹11,000.

"Buffer zones have a good tiger population, and the chances to spot a tiger are better in places like Satpura National Park and Pench these days. Demand is increasing, as every night we can take only six Gypsies. Most of the time they are fully booked," says founder Harshal Malvankar, whose tour company Share Your Safaris organises safaris in Madhya Pradesh's Pench, Satpura, Kanha, Bandhavgarh and Panna.



Leopard in Khapa buffer zone in Kanha Tiger Reserve

NIGHT SAFARIS IN INDIA 101

- **Madhya Pradesh:** Night safaris are available in the buffer zones of Satpura National Park (known for sloth bears and leopards), Kanha National Park, Bandhavgarh National Park, Pench National Park (famous for wolves and jackals), and Panna National Park
- **Rajasthan:** Jhalana Leopard Safari Park near Jaipur is well-known for leopard sightings at night. Jawai National Park also offers night safari experience for sighting leopards
- **Uttarakhand:** Jim Corbett National Park allows night exploration in its border or buffer areas like the Sitabani zone
- **Karnataka:** Dandeli Wildlife Sanctuary offers safaris where one might spot black panthers or flying squirrels. Bannerghatta Biological Park near Bangalore also has a night safari in a more controlled environment
- **Kerala:** Chinnar Wildlife Sanctuary offers night safaris focused on spotting creatures like the Indian star tortoise
- **West Bengal:** Sundarbans National Park offers a unique night boat safari experience in the mangroves

Inputs by Harshal Malvankar

DOS AND DON'TS

- Carry a safari permit and government-issued photo ID for entry
- Tourists must be accompanied by a certified park guide
- Always stay inside the vehicle, unless permitted
- Always avoid flash photography and making any loud sounds, as they will disturb wildlife
- Do not feed, tease, or chase wildlife. Remember to maintain a safe distance from animals
- Carry back all waste; plastic use is strictly prohibited within these protected areas
- Do not carry banned items such as tobacco, alcohol, weapons, or inflammables
- Dress right in dark, comfy clothes; avoid bright colours
- Keep your phone in flight mode, and only use it to take photographs and videos
- Always stay on trails and designated safari routes
- Use vehicle headlights for navigation and opt for red-filtered lights to minimise any disruption

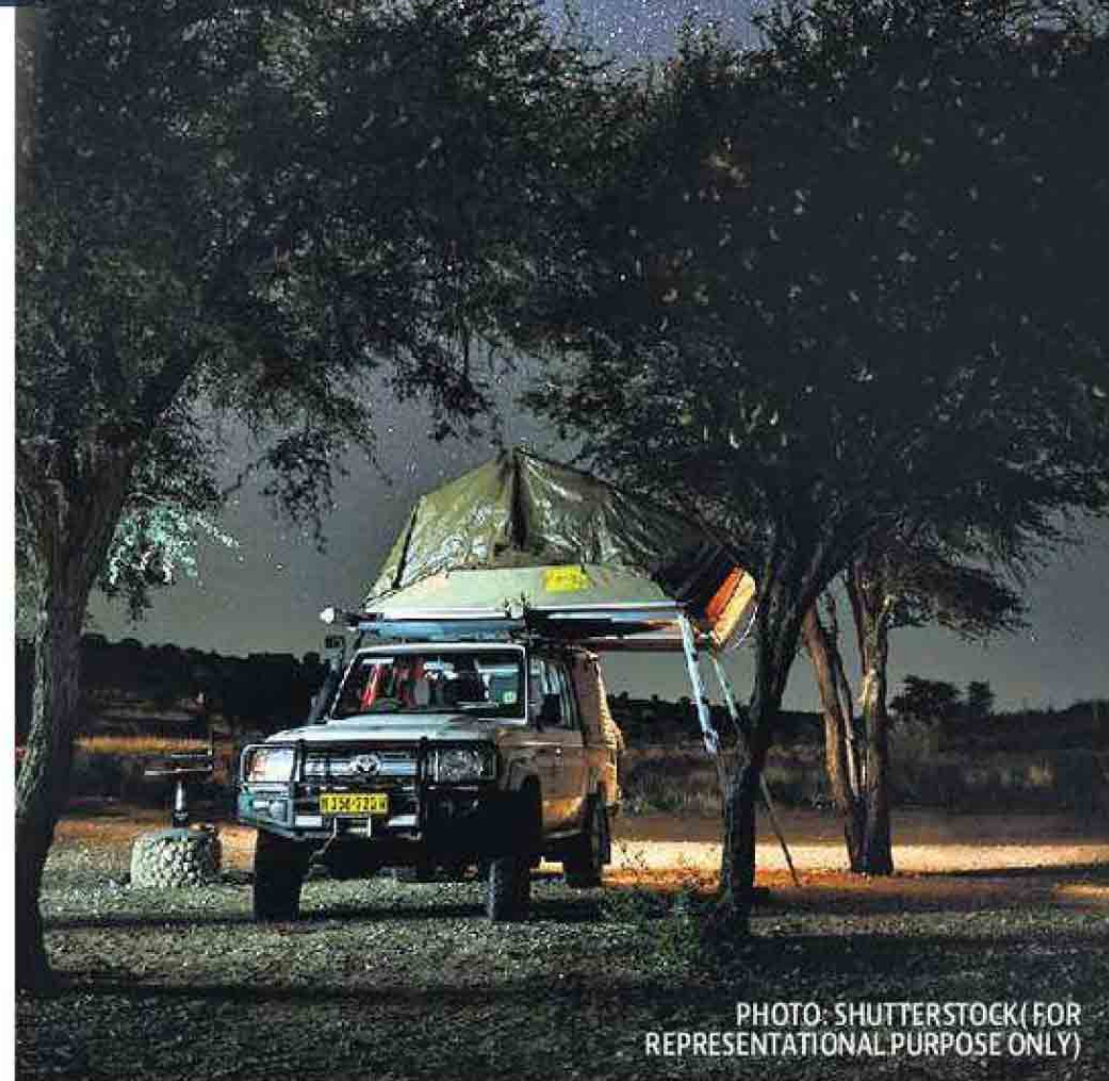


PHOTO: SHUTTERSTOCK (FOR REPRESENTATIONAL PURPOSE ONLY)

NASHIK

Leopard attacks

A leopard attacked Dinkar Namdev Wamne's calf in Dubere. The calf was injured in this, while two days ago, a leopard attacked and killed Raosaheb Warungse's pet dog in the same area, causing locals to panic. The free movement of leopards has increased, and residents are scared of stepping out of their homes. Many devotees have also avoided going to the temple. The citizens of the area have demanded that the Forest Department immediately cage and rescue the leopard.

Maximum 200 couples to tie knot under govt scheme

Cabinet decision comes in the wake of complaints about fake cases

Our Staff Reporter

BHOPAL

The state government has changed the rules for Mukhyamantri Kanya Vivah Yojna and Nikah Yojna after receiving complaints about these schemes.

A minimum of 11 couples and a maximum of 200 will tie the knot at a single mass wedding ceremony. The cabinet took the decision on Tuesday.

The cabinet has also decided that only those young girls and boys whose parents live below the poverty line (BPL) will get the benefits of these two schemes.

The cabinet has also made BPL portal verification mandatory for getting benefits under the schemes.

The government will issue

MUKHYAMANTRI KANYA VIVAH YOJNA

an annual calendar for mass wedding ceremonies, and the administration will organise the functions according to the dates mentioned in the calendar.

The civic bodies will scrutinise the applications of the young men and women who wish to tie the knot. KYC of the couples must be available on the Samagra Portal. Social welfare organisations will be part of the

wedding ceremonies, the cabinet said.

The government will take the help of those who are well-established and prosperous for organising the wedding ceremonies, the cabinet said.

The government provides Rs 55,000 under Kanya Vivah Yojna. Out of the amount, it gives Rs 49,000 to a girl and spends Rs 6,000 on the wedding function.

Rs 145 cr sanctioned for tiger reserve buffer zone

The cabinet has principally sanctioned Rs 145 crore for the development of the buffer zone around the tiger reserve. The government will use the money for various projects in the buffer zone, which is highly sensitive. As part of the programme, the government will put up chain link and do fencing around the area. The government plans to protect wildlife and deal with the incidents of fire besides developing water sources. The health of wild animals will be regularly examined, and the citizens will be imparted training in skill development.

MP govt's Rs 145-cr plan to mitigate human-tiger conflict

BHOPAL, APRIL 22

TO address the increasing cases of tiger-human conflict, the Madhya Pradesh government has approved a plan of Rs 145 crore to install chain-link fencing in the buffer zones of nine tiger reserves of the state.

The decision, announced on Tuesday by Deputy Chief Minister Rajendra Shukla, aims to regulate human movement in order to minimise encounters with tigers. He highlighted that the initiative responds to the rising tiger population, which has grown from 526 in 2018 to 785 in recent years. The funds will be invested over three financial years: 2025-26, 2026-27, and 2027-28.

The urgency of the project is reinforced by four recently reported tiger-human conflicts between March and April 2025. The most recent incident occurred on Monday when a tiger attacked a tribal man near his field



close to the Bandhavgarh Tiger Reserve. Additionally, a tigress, currently in captivity at the same reserve, killed a 14-year-old boy as he was collecting Mahua flowers in the forest early in the morning. His body was later discovered near a nullah. The following day, the same tigress attacked a woman named Rita, who had entered the Pipariya buffer zone to gather Mahua flowers. Mahua flowers provide tribal communities with an additional source of income,

particularly in March and April when they bloom.

Compensation for victims of wildlife conflicts includes Rs 10 lakh ex gratia for families of deceased individuals, Rs 2 lakh for those injured, and medical treatment up to Rs 25,000 for minor injuries. If property is damaged, such as in cases involving elephant attacks, the state government determines appropriate compensation as per the rules.

Government records indicate 17 tiger attacks on hu-

mans in 2020, up from 10 in 2019, with Kanha Tiger Reserve reporting the highest number of such incidents.

According to official data, 27 human deaths have been reported due to tiger attacks between 2019 and 2023. The number has gone up to 46 by 2024.

Madhya Pradesh's tiger population has fluctuated over the years, with 306 tigers recorded in 2006, 257 in 2010, 308 in 2014, 526 in 2018, and 726 in the 2022 census across the nine tiger reserves. The Forest Rights Act of 2005, passed on December 18, 2006, protects the rights of forest dwellers to land and natural resources.

Current mitigation measures include compensation, patrolling, power fencing, deterrents, and repellents.

Bandhavgarh Tiger Reserve initially covered 105 square kilometres but has since expanded to 425 square kilometres. Its buffer

zone spans 820 square km and includes the Panpatha Wildlife Sanctuary, adding another 264 square km, bringing the total protected area to 1,526 square km.

In the Umaria district, where the tiger reserve is located, the human population was approximately seven lakh in 2011, with a 24.96 per cent growth rate. Around 50 per cent belong to Scheduled Tribes, and 17.14 per cent reside in urban areas. Similarly, Kanha Tiger Reserve has a core area of 917 square km, with a buffer zone extending across 1,134 square km. If the Phen Wildlife Sanctuary is included, the total protected area increases by another 110 square km.

As tiger numbers continue to grow, this fencing project is expected to be a crucial step toward mitigating human-wildlife conflict while ensuring the safety of both local communities and the endangered species. (IANS)

Nepal records landmark success in conservation of mountain cat

KATHMANDU, April 22: The first-ever national estimation of snow leopards in Nepal has determined the population of the elusive mountain cat at 397 based on an assessment spanning seven key habitats across the Himalayan nation.

This marks a major milestone in the conservation of this iconic Himalayan species, experts said.

Based on the data collected from 2015 to 2024 using camera traps and genetic analysis of scat samples, the average density of snow leopards is found to be 1.56 per 100 square kilometres providing critical insights into the

status of snow leopards and their habitats across Nepal, a statement said here.

“This scientific achievement underscores the country’s commitment to safeguarding snow leopards and their fragile mountain ecosystems,” states the press release by WW Nepal.

The coordination, data collation and analysis for this assessment was conducted under the leadership of the Department of National Parks and Wildlife Conservation (DNPWC) and the Department of Forests and Soil Conservation (DoFSC). “This landmark assessment, which compiled data from seven study regions, estimates Nepal’s snow leopard population at 397 individuals with a mean density of 1.56 individuals per 100 sq km. This scientific achievement underscores the country’s commitment to safeguarding snow leopards and their fragile mountain ecosystems,” the statement said.

The snow leopard is listed as ‘Vulnerable’ on the IUCN Red List due to an estimated global population of less than 10,000 adults. The Red List of the IUCN, the International

Union for Conservation of Nature, is an objective assessment containing criteria and categories to classify the status of various species.

Dr Ram Chandra Kandel, director general of DNPWC, termed it an “historic step in Nepal’s conservation journey,” and pointed out, it not only provides a clearer picture of snow leopard populations but also informs future conservation strategies.

Stating that a significant portion of Nepal’s snow leopard habitat falls outside designated protected areas, Badri Raj Dhungana, director general of DoFSC underscored the need for targeted conservation measures in these landscapes.

Snow leopards - found in 12 range countries across Asia - are among the least studied of the big cats. In 2021, a WWF publication showcased that just about 23 per cent of snow leopard’s global range has been systematically studied, and less than 3 per cent have empirical data on abundance, the WWF Nepal statement added on Sunday. (PTI)

Nongkhylllem is Not for Sale —Rescind the “Eco-Tourism” Contract Now

Editor,

Something precious is being quietly traded away behind glossy press releases and appealing labels such as “eco-tourism.” On April 7, Meghalaya’s Forest Department discreetly awarded a Rs 23.60-crore EPC contract to E-Factor Experiences Ltd.—a company specializing in wedding and event management—to construct chalet-style resorts, glass skywalks, and even a water-sports arena inside the 29-square-kilometer Nongkhylllem Wildlife Sanctuary. Such plans threaten to transform a critical refuge for clouded leopards, Hoolock gibbons, and rufous-necked hornbills into nothing more than a boutique amusement park.

While Meghalaya undeniably needs employment and economic opportunities, livelihoods that destroy our last intact forests are merely short-lived gains. They may appear bright momentarily, but leave behind permanent ecological ruin. Alarming,

this project has proceeded without a public hearing, a published Environmental Impact Assessment (EIA), or clearance from the National Board for Wildlife. Governance now appears conducted by stealth, circumventing crucial environmental laws and democratic accountability.

Adding insult to injury, troubling questions have emerged regarding the source of funds. Initially, speculation pointed to the Meghalaya Environment Protection & Restoration Fund—Rs 1,193 crore accumulated from a 10% “polluter-pays” coal cess following the NGT mining ban. These funds were explicitly collected to rehabilitate rivers corroded by acid mine drainage, not to finance luxurious chalets and adventure parks. Misusing these resources would constitute an egregious betrayal of public trust and ecological responsibility.

Now, even darker suspicions have surfaced involving CAMPA funds. Under the Compensatory Afforestation Management and Planning Authority (CAMPA) framework, companies that clear forests elsewhere deposit money specifically to restore degraded forests, reconnect wildlife corridors, and support scientific forest manage-

ment. Meghalaya has accumulated hundreds of crores in CAMPA funds intended solely for ecological restoration. Imagine the betrayal if these same resources finance concrete cottages, steel-and-glass skywalks, and jet-ski facilities inside Nongkhylllem. Just last month, the Supreme Court strongly rebuked Uttarakhand’s misuse of CAMPA funds on luxury items like iPhones and furniture. Meghalaya must avoid repeating such shameful mistakes.

Unfortunately, this issue represents not an isolated lapse but a disturbing pattern under the current MDA administration. We have seen:

Illegal rat-hole mining returning unchecked, poisoning rivers and claiming lives.

Unregulated coke plants proliferating in East Jaintia, blanketing villages with sulphurous smoke.

The 2024 State Investment Promotion Act undermining environmental safeguards and sidelining traditional land custodians.

These initiatives, promoted under the guise of “development,” systematically dismantle the very ecological foundations essential for lasting prosperity. Each time citizens protest, officials chant the same mantra: “de-

velopment” and “employment”. But genuine development strengthens ecosystems and communities together; it does not hollow the hills for quick revenue or hedge sanctuaries with theme-park paraphernalia.

Nongkhylllem does not need a glass skywalk to be valuable; its value lies in being wild. The genuine value of Nongkhylllem Wildlife Sanctuary lies not in ticket sales or hotel bookings but in its wild integrity—in the hornbills soaring freely above untouched rainforest canopies. Local communities in the surrounding villages have responsibly safeguarded this sanctuary for generations. They deserve improved patrol paths, transparent funding for genuine conservation efforts, and opportunities to establish modest, community-run homestays at the sanctuary’s periphery—not intrusive resorts within its heart.

Let us remember: sanctuaries exist to protect wildlife, not to host water-skiing or interpretive centers. If Meghalaya’s government truly values ecological integrity, it will withdraw this contract, audit its environmental funds, and recommit CAMPA money to its rightful purpose: planting trees,

safeguarding habitat, and nurturing the very wilderness that makes our hills worth protecting.

Therefore, we urgently call for: Immediate suspension of the E-Factor contract, pending a thorough independent review with full public disclosure of environmental assessments and funding sources.

A transparent, publicly accessible audit of all environmental funds, including the Meghalaya Environment Protection & Restoration Fund, coal-cess, and CAMPA accounts.

A legally binding moratorium on permanent tourism infrastructure within wildlife sanctuaries until independent scientists certify zero ecological harm, and local communities provide informed consent.

If the MDA government truly values “eco-tourism,” let it first respect and protect our precious ecosystems. Tourism should tread softly, following behind conservation—not bulldozers and concrete pillars. The people of Meghalaya cherish our green heritage deeply, and we will defend it vigorously—through legal recourse, democratic action, and sustained public vigilance.

The MDA government still has a chance to choose

between genuine stewardship and reckless spectacle. If it chooses the latter, history—and perhaps the courts—will remember Nongkhylllem not as an eco-tourism “success story” but as the moment we crossed the moral red line between caring for creation and cashing it in.

Yours etc.,
Khlur Basan
Shillong-5

Python rescued

A CORRESPONDENT

BOKO, April 22: A large python was rescued in Chandra village under the Nagarbera riverine range office of West Kamrup division a few days ago by local residents under the supervision of village headman Rupam Boro.

According to Boro, the python's length was around 10 to 12 feet and it weighed around 20 kilogram. The python was spotted by some local people when it tried to enter the village from a nearby hill.

Boro said that they have rescued more than 10 pythons from their village in the last three years. He, however, alleged that the West Kamrup division's forest officials never responded after they previously rescued pythons to release them in the jungle areas.

It was the same case on Friday as the village headman himself carried the python on his motorcycle and handed it over to the nearby Singra beat office under West Kamrup division.

Boro emphasised, "This is not the first time I have personally handed over a rare python to the forest office. However, it is the responsibility of the forest department to rescue and release these reptiles safely."

END OF THE ROAD?

Required: Stricter laws to pin down rampant poaching

AP Kanungo
BHUBANESWAR

“Driven by rampant greed for money and the growing demand for wildlife parts (limbs) in the west, illegal poaching of wild animals in India is escalating with each passing day. If stricter laws are not enacted, many species will soon vanish,” Odisha Forest Minister Ganesh Ram Singhkhuntia recently informed the State Assembly.

He also said 14 tigers, including two Royal Bengal tigers, had been killed by poachers in Odisha's forests over the past three years. He also revealed that authorities had seized six Royal Bengal tiger skins and 63 leopard skins during this time, under-

scoring the alarming scale of wildlife crime in the state.

Biodiversity at risk

Illegal wildlife trade endangers India's biodiversity, causing ecological disruption, introducing invasive species, and increasing the risk of zoonotic diseases. Organised criminal networks exploit wildlife populations, driving them toward extinction. In India, the trade impacts food security, ecological balance, and the livelihoods of rural communities.

Notable cases include the poaching of tigers and rhinos, prized for their skins, bones, and horns, and the trafficking of star tortoises and other exotic species. Many of these items are



smuggled through cross-border routes via Nepal and increasingly through Myanmar.

Enforcement measures

India has deployed specially trained sniffer dogs, known as “super sniffers,” leading to nearly 500 wildlife seizures across 20 states. The Railway Protection Force (RPF) has recently introduced these dogs in its Northern

and Eastern zones to detect smuggled wildlife on train routes.

Forensic tool

Forensic field kits distributed by TRAFFIC India enhance the capacity of forest departments to collect and analyse evidence at poaching sites. In 2017, 90 such kits were provided to state departments, improving investigation and prosecution rates.

Species spotlight

Rhinos continue to be heavily targeted for their horns. Sophisticated poaching methods now include poison, crossbows, and high-powered firearms. Fewer than 2,500 Indian rhinos remain today, primarily in India and Nepal.

Smaller species in equal peril

Star tortoises, culturally prized, can fetch up to \$500 each on the black market. Sea cucumbers, molluscs, seahorses, and corals are being illegally harvested from Indian waters for export, threatening marine biodiversity.

Recommendations for action

Stricter enforcement of existing laws and the adoption of AI for real-time monitoring and predictive policing in forested areas are the need of the hour. Stronger inter-agency and international cooperation. Increased awareness and community engagement to protect local ecosystems.

(Concluded)

Ranthambore: Tigress restricts temple entry

Jaipur: Due to the movement of a tigress, the restriction on entry for devotees to Trinetra Ganesh Temple in Ranthambore Tiger Reserve (RTR) has been extended till April 24.

The entry was restricted after an attack by female cub of tigress Arrowhead on a seven-year-old girl, Kartik Suman, on April 16. She was killed by the female cub on the Trinetra Ganesh temple road.

After the incident, Ranthambore's CCF Anup K R closed the Trinetra Ganesh road of Ranthambore for the next 5 days as a precaution but as per the officials of the RTR tigress T-107 Sultana has given birth to cubs in a cave near this road and is moving on the route to the temple. Considering this, CCF Anup KR has extended the restriction on entry on this route until April 24.

Smuggled endangered frogs released, timber logs seized



A CORRESPONDENT

BOKO, April 22: On Monday midnight, locals of the Kaithpara area here apprehended six smugglers along with a number of endangered frogs. Locals said that the smugglers came at nightfall, and collected the endangered frogs from the paddy fields and carried them in sacks.

On enquiry by the villagers, the smugglers informed that the frogs were to be sold

in Meghalaya, for a sum of Rs 100-150 per pair.

Locals alleged that they contacted the West Kamrup Forest Division, Singra Range office, and Nagarbera Riverine Range but did not receive desired response from the forest officials there. Later, the villagers released the frogs in the paddy fields, and let the smugglers go with a warning.

The residents of Boko area have expressed concern

and outrage about the forest department's inaction and not taking adequate steps to curb such incidents.

It is to be noted that the frogs are considered beneficial to paddy fields as they act as natural pest control agents, reducing crop damage and disease transmission. They prey on insects like grasshoppers, leafhoppers, and other pests that can harm crops. Additionally, they consume insects that carry diseases, further benefiting the health of the rice crops and the surrounding environment.

Meanwhile in a separate incident, the Boko police seized a mini truck laden with timber logs from the Boko bazar, situated around 100 meters away from the Singra Forest Range office.

Police arrested three smugglers along with 14 pieces of *sal* tree logs. Officer-in-charge of Boko PS Munna Pachani said that a police patrolling vehicle intercepted the timber-laden truck and arrested the smugglers.

Tigers poached in MP, sold abroad by global cartel

P.Naveen@timesofindia.com

Bhopal: Forensic experts have confirmed that tigers were trapped in Madhya Pradesh, butchered, skinned, and the parts smuggled out of the country to feed a transnational black market that rivals the narcotics trade in scale and brutality.

Lab tests portrayed the horrific final minutes of two adult tigers. Caught in leg-hold traps, helpless, they were hacked to death, butchered, skinned, dressed and stuffed into six to seven sacks, which were smuggled into Myanmar and then to China via Bhandara railway station in Maharashtra, investigators revealed.

The confirmation has come from scientists at the School of Wildlife Forensic and Health, an independent unit of Nanaji Deshmukh Veterinary Science University, Jabalpur.

Blood and hair samples, retrieved from an abandoned house deep in Maoist-affected Balaghat district, were sent in by the State Special Tiger Strike Force during an ongoing crackdown on illegal wildlife trafficking. Forensic analysis, plus stripe-pattern matching, revealed that the specimens were from two adult tigers in Madhya Pradesh, sources told TOI.

MP forest department has initiated legal proceedings to declare a bounty on four sus-

pects—brothers Ghatiya (26), Ekki Lal (24), and Surya (20). They are sons of Katni-based poacher Ajit Rajgond, a name notorious in wildlife enforcement circles for having poached and smuggled over 100 tigers from across India. Authorities said the family has played a key role in supplying tiger derivatives to international buyers for years.

What's unique about this racket is that it was fuelled by high demand for 'tiger bone glue', which is used for supposed medicinal purposes.

Officials declined to put an exact price on the value of animal trade but told TOI that payouts in the illegal tiger trade exceed those made to narcotics couriers. "If foot

soldiers in the poaching chain are getting paid more than drug mules, just imagine what the top bosses are making," a senior forest officer said. "This isn't local poaching—this is on an industrial scale. It's a globally connected racket. India's forests are being emptied, one tiger at a time, and the profits are enormous," the officer added.

It was in Feb 2024 that a gang arrested by Maharashtra forest department confessed to killing many tigers, including two in MP's red corridor. MP forest department immediately put its Special Tiger Strike Force (STSF) on the hunt. They registered cases and began investigating the racket.

With big cat count rising, M.P. to develop buffer zones around its 9 tiger reserves

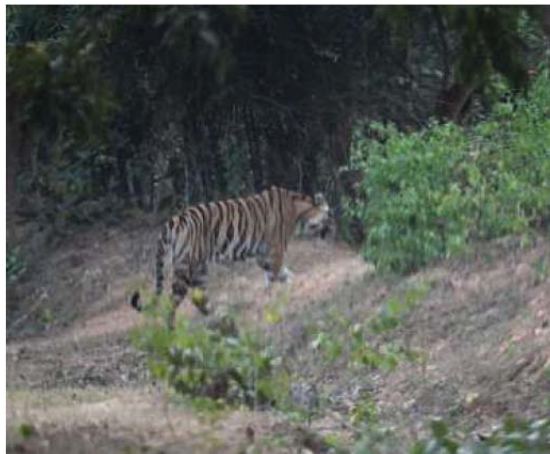
The Hindu Bureau
BHOPAL

The Madhya Pradesh Cabinet on Tuesday approved a scheme for developing buffer zones in the State's nine tiger reserves, the government said.

The approval for the new scheme, 'Development of Buffer Zones in Tiger Reserves', with a total outlay of ₹145 crore for the financial years 2025-26 and 2027-28, was given at a Cabinet meeting chaired by Chief Minister Mohan Yadav.

As part of the scheme, chain-link fencing will be installed in the ecologically sensitive buffer areas, apart from developing grasslands and water resources.

"Key activities under the



Tracing the pug marks: A big cat spotted near the Bandhavgarh Tiger Reserve. The tiger population in Madhya Pradesh has increased from 526 to 785 over the past four years. FILE PHOTO

scheme will include the installation of chain-link fencing in ecologically sensitive buffer areas, implementation of wildlife protection

and fire safety measures, development of grasslands and water sources, health monitoring and treatment of wild ani-

mals, and skill development training programmes for local communities," the State government said in a statement.

Conservation efforts

Inaugurated on March 10, Madhav National Park became the ninth tiger reserve in the State, the highest among all States. Three tigers, including two females, were introduced to the park in 2023 as part of the tiger reintroduction project in the State.

"Notably, the tiger population in buffer zones surrounding Madhya Pradesh's nine tiger reserves has increased from 526 to 785 over the past four years, underlining the importance of continued conservation efforts," the government said.

Woman, 58, attacked by elephant, dies

TIMES NEWS NETWORK

Udhagamandalam: A 58-year-old woman, who was attacked by an elephant in the Mudumalai Tiger Reserve here on Monday, died at the Ooty Medical College and Hospital later the same night.

The deceased was identified as K Sarasu, of Masinagudi. A forest officer said she was attacked when she was on her way home on a two-wheeler on the Bokkapuram Road in Masinagudi forest division. She fell on the road and suffered external injuries.

She was rushed to the primary health centre in Masinagudi for first aid and later shifted to the Ooty Govt Medical College and Hospital. Her body was handed over to her family. Meanwhile, the forest department has handed over an initial relief of ₹50,000 to the family.

Zoostastic summer camp from May first week to June

PNS ■ HYDERABAD

Nehru Zoological Park, Hyderabad, will organise the Zoostastic Summer Camp from the first week of May to June. Each daily batch will include 15 to 20 participants. The Zoo invites wildlife-loving children from Grades 5 to 10 to join this fun and educational camp.

The summer camp aims to teach children about zoo life and wildlife through a variety of activities. These include a zoo overview, guided zoo tours, ani-



mal interaction sessions, reptile awareness programmes, night house visits and many other fun activities, all led by experienced wildlife educators.

The Registration fee is Rs 1,000 per participant, which covers snacks and a vegetarian lunch. Each participant will also receive a kit containing a cap, notepad and a badge with the Nehru Zoo logo.

The Zoo announced that online registration is now open and advised checking updates on its Instagram and Facebook pages, or contacting them at 040-24477355.



Of grasslands, blackbucks, and pastoral nomads

Bengaluru-based natural history filmmaker Sumanth Kuduvalli's *Land of the Blackbuck: A Story of Hope and Resilience*, talks about the species and its link to the grasslands ecosystem

Preeti Zachariah
BENGALURU

My first sighting of a male blackbuck was ethereal. This huge, big male with horns sticking out like swords, body glistening, standing against the sun in the morning,” remembers the Bengaluru-based natural history filmmaker and the co-founder of Trailing Wild Productions, Sumanth Kuduvalli. It was in 2013 at Maidanahalli at the Jayamangali Blackbuck Reserve, in Tumakuru. His film *Land of the Blackbuck: A Story of Hope and Resilience*, which premiered in Bengaluru earlier this month, chronicles his long association with the captivating animal.

He knew he wanted to film them even back then, but unfortunately, the idea fizzled out due to unforeseen circumstances. “Then, in 2020, seven years later, an opportunity to revisit that dream cropped up. He had just returned to Bengaluru from North Karnataka, where he was filming hornbills for

Jungle Lodges and Resorts (JLR), when they asked him if there was a pet project that he wanted to do, one that they could support logistically, he recalls. “So, I told them about this blackbuck project.”

Little literature

It turned out that JLR had a property in Bidar, and they offered to host him there while he filmed the blackbuck. He began researching for the film, soon realising that there was very little literature about the wildlife of Bidar, except for one paper that H.N. Kumara, a faculty member at the Salim Ali Centre for Ornithology and Natural History (SACON), had written. “But that was mostly just a reference to Bidar, so I went there, mostly shooting in the dark,” says Sumanth, whose film is based on his encounters with the grasslands of Bidar.

It was only when he visited and began talking to its inhabitants that he realised “that the land had more to offer than what could be seen on the surface,” he says, recounting

the names of some of the people who helped him on this journey, such as Vinay Malge of Team Yuva, a volunteer-based organisation based out of Bidar, UNESCO researcher, Majid Labbaf Khaneiki and naturalist Vivek Baburao.

In 2021, he applied for and received a fellowship from Jackson Wild, a non-profit based out of Wyoming, USA, which describes itself as “an inclusive global forum, inspiring our community, celebrating excellence in storytelling that illuminates our connection to the natural world and collective responsibility to the wild.” As part of the fellowship, he attended a workshop where the fellows were mentored by a leading professional in the industry, he says. “I was partnered with a BBC producer and director, Simon Baxter, and then the story started to take shape,” relates Sumanth. “We realised that it could be a full-fledged film on grasslands.”

In love with the wild
As a child, growing up in

Bengaluru, one of Sumanth’s favourite hangouts was a patch of swamp on the campus of the Indian Institute of Science. “I studied in the Kendriya Vidyalaya here and would spend a lot of time in this place, watching geckos, frogs, snakes...” he says. “I found refuge in it.”

Not surprisingly, he also thoroughly enjoyed watching nature documentaries, which his school made the students watch. “(I was) fascinated to see that something I enjoyed watching in action was happening on TV. And I remember thinking that it was such a beautiful thing to do.”

But then Sumanth went on to pursue a degree in engineering. He never, however, lost his fascination with the natural world and, while still a student, began volunteering at the Agumbe Rainforest Research Station (ARR). During one such stint at Agumbe, he met someone who would introduce him to photography - the biologist, broadcaster and photographer, Tim Cockerill.



PHOTOS: SUMANTH KUDUVALLI

“He told me that, without an academic background in wildlife, there was very little chance I could get into the scientific aspect of it. But if I wanted to stick to wildlife, film and photography was one way of doing it,” says Sumanth, who went on to do a diploma in documentary filmmaking at the Centre for Research in Art of Film and Television in New Delhi before joining Nikon India Pvt Limited and then branching out as an independent natural history filmmaker in 2015.

Over the last decade or so, Sumanth has been part of various documentary projects, featuring animals like the rhinoceros, mudskippers and

the sangai deer before making his directorial debut with the film, *The Naga Pride*, in 2018, about the community-led conservation of the Amur Falcons of Nagaland. The film, which was part of several international film festivals, was nominated for 12 awards and won the best Indian documentary award at the Nagaon International Film Festival, he says. “In our films, we try to showcase the natural history of a species as well as highlight

the conservation issue of a particular landscape,” says Sumanth, who co-founded Trailing Wild Productions in 2019. “That way, it becomes more engaging and pertinent.”

Open natural ecosystems

The blackbuck, also called the Indian antelope, is a hoofed ruminant found mostly in the open natural ecosystems of India, with a small population in Nepal. While often misidentified as deer, antelopes belong to the same family (Bovidae) as cattle, bison, buffalo, sheep, and goats, with all males and some females sporting simple, unbranched horns, instead of the branched antlers found in the deer family (Cervidae). “As I learnt more about these species and the landscape they live in, I found myself drawn to these animals,” says Sumanth.

Sumanth began visiting Bidar to shoot the film in 2021, finishing the filming by 2023, before taking it to the editing table. The 23-minute-long film, which not just focuses on the behaviours of and challenges faced by blackbucks, but also offers scattered glimpses of other animals found in this region, including spiny-tailed lizards, laggar falcon, feral dogs, and wolves, hopes to create more awareness and concern for these “very critical ecosystems.”

Pointing to a study published by researchers from the University of California, Davis, Sumanth argues that grasslands are better carbon sinks than forests, since they hold the carbon in the earth below, “unlike trees, which, once they die, when cut down or during a wildfire, re-

lease the carbon back into the atmosphere.” He adds that in the face of climate change, “it became evident that grasslands have a very important role to play.”

Biodiverse ecosystems

Not only are they highly biodiverse ecosystems, but these pasture-rich lands are also home to several nomadic and pastoral communities. “They move from place to place, allowing their sheep or goat to graze, enriching the land with their manure,” he says, alluding to the age-old, symbiotic relationship between pastoralists and farmers. “With the reduction of grasslands, these people are finding it hard to move from place to place.”

Grasslands also play a vital role in creating an underground water system, essential in a country that relies so much on underground water. Bidar, for instance, has something called the karez (or qanat) water system created by the Bahamani Kings in the 15th century, which the film showcases. “It was a major factor in fighting the drought that North Karnataka went through in 2016 and 17,” he says. “When this area was heaving under very bad heat waves, it survived thanks to this.”

Sumanth now hopes to travel with the film, with multiple copies in regional languages, to ensure that he can “reach places where it matters.” He says he intends to go beyond the film and create a grassland movement, trying to help set communities and individuals they work with resources that can help them scale their conservation work. For instance, he says that in Bidar, Trailing Wild supported local conservationist Vivek Baburao with financial resources and scientific support in conducting a study on the grassland ecosystem. “For us, it is about arming anyone who can make a difference. We all need to join hands and conserve grasslands.”



Sumanth Kuduvalli

THE IDEA OF BRINGING BACK THE DIRE WOLF CAPTURES THE PRIMAL HUMAN DESIRE TO UNDO LOSS, CHALLENGE DEATH, AND RESHAPE THE WORLD. WHILE IT OFFERS INSIGHTS INTO GENETIC AND ECOLOGICAL SCIENCES, IT RAISES CERTAIN PRACTICAL, ETHICAL QUESTIONS

SECOND CHANCE AT LIFE

HRITHIK KIRAN BAGADE

On October 1, 2024, US-based biotech firm Colossal Biosciences revived a canid species extinct for over 10,000 years, using gene-editing technology. This opened doors for further discussion and debate on bringing more extinct species back from the dead, and perhaps giving them a second chance.

The idea of bringing extinct animals back to life has long fascinated humanity. From ancient myths to modern science fiction such as Jurassic Park, the resurrection of long-lost species sparks both awe and concern. One creature that has captured the imagination of scientists and the public alike is the dire wolf (*Aenocyon dirus*), a massive prehistoric predator that roamed North and South America during the Late Pleistocene epoch. Its extinction over 10 millennia ago marked the end of an era, but recent scientific advances brought the once-impossible idea of de-extinction back into the research lab, paving the possible way of rapid advancement in genetic technologies.

Allure of the dire wolf

Unlike mythical creatures or dinosaurs lost to deep time, dire wolves are relatively recent additions to the list of extinct animals. These powerful canid carnivores were larger and more robust than modern grey wolves, likely preying on megafauna like bison, horses, and even young mammoths. Pop culture, especially through shows like Game of Thrones, has further immortalised them as symbols of strength and mystery. Meanwhile, for scientists, dire wolves represent a tangible candidate for the study of de-extinction.

What makes dire wolves particularly interesting is the wealth of available fossil evidence, particularly from the La Brea Tar Pits in Los Angeles, California. Hundreds of well-preserved skeletons provide a detailed look at their anatomy and possible behaviour. But until recently, it was believed that dire wolves were just a larger subspecies of the modern grey wolf. That notion was overturned by groundbreaking DNA studies published in 2021, which revealed that dire wolves were genetically distinct from any living canid. This revelation adds complexity to any attempt to bring them back.

De-Extinction to Resurrection

Accordingly, scientists at the Dallas, Texas-headquartered Colossal Biosciences used a series of innovations, through advanced DNA analysis, CRISPR gene editing, and cloning techniques, to essentially modify the DNA of a North American grey wolf, the dire wolf's closest living relative, to resemble the extinct species. This involved precise genetic edits at 20 loci across 14 genes, resulting in pups that share physical traits like a larger skull and white fur.

In simpler words, the scientists began by analysing DNA from dire wolf fossils to understand the animal's genetic makeup, before using CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) technology to edit the genome of a grey wolf, making precise changes to 14 genes at 20 different locations. The edited grey wolf embryos were then transferred into surrogate domestic dogs, and the

BUSH MOA

Home: New Zealand

Extinct: 1445 CE

Closest living relative: Tinamou

Woolly Mammoth

Home: Arctic region

Extinct: 1650 BCE

Closest living relative: Asian Elephant

result was three healthy pups with dire wolf-like traits. The pups are not genetically identical to the extinct dire wolf, but are essentially hybrid animals, with the grey wolf's DNA serving as the base and the genetic edits bringing in dire wolf characteristics.

The process of de-extinction involves recreating or reviving extinct species using modern technology. As of now, the three main scientific methods that could potentially be used:

1. Cloning: This involves taking preserved cells or DNA from an extinct animal and inserting them into the egg of a related species. This method was used in the case of the Pyrenean ibex in 2003, though the clone only lived for a few minutes.

2. Genome Editing: Using CRISPR and other gene-editing tools, scientists can edit the DNA of a closely related living species to express the traits of an

extinct one. This is the approach being used by firms like Revive & Restore and Colossal Biosciences, which are attempting to resurrect the woolly mammoth using Asian elephants as a base.

3. Back-breeding: This involves selectively breeding animals that have certain ancestral traits, gradually approximating the extinct species over generations. While not a true genetic resurrection, this technique has been used to recreate animals like the aurochs.

With regard to dire wolves, the biggest challenge was the genetic distance between them and any living relatives. Unlike mammoths and elephants, which share a common ancestor just a few million years ago, dire wolves diverged from modern wolves over five million years ago. This made direct cloning far more difficult, as there is no living canid close enough to act as a suitable surrogate or genetic base.

Questions galore

However, even if we could overcome genetic hurdles, reviving extinct species raises a host of ethical, ecological, and practical questions. To begin with, there's the question of the need to bring the dire wolf or any other extinct animal back to life. Is it for ecological restoration, scientific curiosity, or simply the thrill of achieving the impossible, beg to be answered. In some cases, the rationale is ecological. Reintroducing extinct species, like the woolly mammoth, is seen as a way to restore lost ecosystems. Mammots once maintained grasslands in the Arctic, which could help slow permafrost melt and combat climate change. In theory, a resurrected dire wolf could help balance predator-prey dynamics in modern ecosystems, potentially controlling populations of invasive species or overabundant herbivores.

But there are also risks. Introducing a long-extinct predator into today's world could have unpredictable effects. Modern ecosystems have changed drastically since the Pleistocene Epoch; prey species have adapted, competitors have filled niches, and human development has altered the landscape. A resurrected animal might struggle to survive, or worse, become an invasive species itself. There are also ethical concerns. Would a resurrected animal have the same rights and protections as existing species? What kind of life would it live in captivity or controlled environments? And is it right to "reverse" nature's course? Then there is the question of resources. De-extinction is expensive, complex, and time-consuming. Some conservationists argue that money and effort would be better spent protecting endangered species we still have, rather than trying to revive those already lost.

Amid all these deliberations, the realm of de-extinction is advancing rapidly. Companies are actively pursuing bringing back the dodo, the Tasmanian tiger (thylacine), and the mammoth. Each success, or failure, will provide valuable data and refine the tools that could one day make the resurrection of extinct fauna possible.

More broadly, the research being done for de-extinction is already benefiting conservation biology. Techniques like gene editing and cloning are being used to increase genetic diversity in endangered populations, such as the black-footed ferret and northern white rhino. In this way, de-extinction is not just about the past, it is also about the future of life on Earth.

DID YOU KNOW?

The average cumulus cloud can weigh up to 4,53,592 kg, according to the USGS. That's even heavier than a Boeing-747 jet completely full of passengers and cargo

RED STORY

STUDY UNVEILS VOLCANIC HISTORY, CLUES TO ANCIENT LIFE ON MARS

In a groundbreaking study co-authored by a Texas A&M University scientist, researchers have revealed new insights into the geological history of Mars' Jezero Crater, the landing site of NASA's Perseverance rover. Their findings suggest that the crater's floor is composed of a diverse array of iron-rich volcanic rocks, providing a window into the planet's distant past and the closest chance yet to uncover signs of ancient life. Research scientist Dr Michael Tice, who studies geobiology and sedimentary geology in the Texas A&M College of Arts and Sciences, is part of an international team exploring the surface of Mars. He and his co-authors published their findings in Science Advances. "By analysing these diverse volcanic rocks, we've gained valuable insights into the processes that shaped this region of Mars," Tice said. "This enhances our understanding of the planet's geological history and its potential to have supported life." Perseverance, NASA's most advanced robotic explorer, landed in the Jezero Crater on February 18, 2021, as part of the Mars 2020 mission's search for signs of ancient microbial life on the Red Planet. The rover is collecting core samples of

Martian rock and regolith (broken rock and soil) for possible future analysis on Earth. Meanwhile, scientists like Tice are using the rover's high-tech tools to analyse Martian rocks to determine their chemical composition and detect compounds that could be signs of past life. The rover also has a high-resolution camera system that provides detailed images of rock texture and structures. But Tice said the technology is so advanced compared to that of past NASA rovers that they are gathering new information at unprecedented levels. "We're not just looking at pictures — we're getting detailed chemical data, mineral compositions and even microscopic textures," Tice said. "It's like having a mobile lab on another planet." Tice and his co-authors analysed the rock formations within the crater to better understand Mars' volcanic and hydrological history. The team used the Planetary Instrument for X-ray Lithochemistry (PIXL), an advanced spectrometer, to analyse the chemical composition and textures of rocks in the Maaz formation, a key geological area within Jezero Crater. PIXL's high-resolution X-ray capabilities allow for unprecedented detail in studying the elements in the rocks. The team's analysis revealed two distinct types of volcanic rocks. The first type, dark-toned and rich in iron and magnesium, contains intergrown minerals such as pyroxene and plagioclase feldspar, with evidence of altered olivine. The second type, a lighter-toned rock classified as trachy-andesite, includes plagioclase crystals within a potassium-rich groundmass. These findings indicate a complex volcanic history involving multiple lava flows with varying compositions.

(Source: Texas A&M University)

MATILDA MOLDENHAUER BROOKS

DISCOVERY OF METHYLENE BLUE

POOJA K

The contributions of women in science have often been overshadowed or dismissed. Matilda Moldenhauer Brooks is one such unsung hero. Her discovery that methylene blue could counteract carbon monoxide and cyanide poisoning marked a breakthrough in medical science.

Born in 1888 in Pittsburgh, Brooks defied early 20th-century norms by pursuing a scientific career. She earned her undergraduate and master's degrees from the University of Pittsburgh and completed her PhD in zoology at Harvard in 1920, with a thesis on the respiration of *Bacillus subtilis*.

Brooks worked at the U.S. Public Health Service from 1920 to 1927, collaborating with her husband, Sumner Cushing Brooks, on cellular respiration and redox reactions. In 1927, Sumner was offered a faculty position at UC Berkeley. Due to anti-nepotism rules, Matilda was denied a salaried role and relegated to a research associate position. Despite this, she continued publishing and conducting impactful research.

In 1932, while studying how dyes like methylene blue affected cellular redox potential, Brooks made her most significant discovery. Through experimentation, she found that methylene blue could function as an electron carrier, restoring redox balance in cells impaired by toxins like cyanide and carbon monoxide.

By bypassing blocked enzymes and jump-starting respiratory processes, methylene blue enabled poisoned cells to resume energy production. This insight became foundational in the development of antidotal treatments for poisoning, particularly in cases involving compromised oxygen use. Her findings were published and later shaped emergency medical protocols. What makes her work especially remarkable is that she achieved all this despite limited recognition and institutional barriers. Brooks' dedication and brilliance laid the groundwork for one of the earliest targeted therapies in toxicology, saving countless lives.

BEHIND THE SCIENCE



CLOSE ANALOGS

It is possible that within our lifetimes, we may see some extinct animals return — not as perfect replicas, but as hybrids or close analogs. A 'neo-dire wolf' might not be identical to its Pleistocene ancestors, but it could fill similar roles or at least offer scientists a living model to study ancient biology.